Work, industrialisation and politics: a study of the work experience of spinners, coalminers and engineering workers, 1850-1914

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WORK, INDUSTRIALISATION AND POLITICS: A STUDY OF THE WORK EXPERIENCE OF SPINNERS, COALMINERS AND ENGINEERING WORKERS, 1850-1914

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by

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F O R M Y P A R E N T S

PREFACE

This thesis, as with all products of academic discourse, is ultimately a communal effort 'organised and directed' by the writer. I would like to offer my thanks and appreciation to the following: the staff of the innumerable number of libraries I have had occasion to use, but especially Durham University; Gill, Chris, Dennis, Richard, Huw, Chris and Tony.

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Mike Holbrook-Jones
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ABSTRACT

The thesis is designed to demonstrate the importance of work experience in explaining the ideology and organisational structure of the labour movement during 1850-1914. To do this three contrasting occupations - textile, coal and engineering workers - are examined. It is argued that the significance of craft unionism did not lie essentially in the nature of the skill involved, but in the strategy of social action adopted by the union to maintain its interests. To do this the following must be researched:

(1) The consequences of pioneer industrialisation, the narrow base of the technological breakthrough, and the 'late' arrival of competition.

(2) The economic and social structures of the three industries, focusing particularly on markets, unit size, capital/labour ratio, concentration or dispersal geographically, technology and working methods.

(3) The labour aristocracy question. The politics of 'labourism'.

(4) A theoretical statement of the relation between work and industrialisation.

(5) The history of working methods in the three industries, in particular, the extent and nature of control, socio-technical constraints on work groups, the internal hierarchy within the occupation, the degree of resistance to change. The impact on the rest of the workforce of the strategies adopted.

(6) The significance of the incentive principle in the ideological development of the three occupational groups.

From this basis it will be argued that an understanding of work experience has been undervalued in past evaluations of the labour movement, and in particular the explanations of 'reformist' or 'corporate' responses to industrialisation.

CONTENTS

INTRODUCTION

Industrial society, whatever its nomenclature, creates the historically unique problem of control at work. Whether this is resolved democratically or by fiat, it is, nonetheless, specific to a form of social organisation based upon the separation of labour from the home and the worker from legal obligations. Whilst the most obvious and spectacular manifestations catch the attention of the historian, that most fiercest wrench from the past - the creation of labour discipline - receives much less consideration. Despite its importance it is, of course, less tangible than population growth, capital accumulation, inventions, parties, trade organisation and the other usual 'indices' of industrial change. Theoretical pioneers in this area have examined the question in the reflection of another more 'factual' one: Hobsbawm in the effects of wage differentials and incentives (1976: 344-63), Thompson through the learning of the ritual of 'time' (1967: 55-97) and Pollard in the course of study of the rise of management as a conscious 'practice'. (1968) Crucially all these investigations, worthy as they are, consider the historical period of enquiry as 1750 to 1850, or thereabouts. In its wake this assumption tends to focus the debate over the working class response to industrialisation toward ideology (in the form of the printed historical legacy) or organisational structure (the lack, or corporate activity of, associations). From the formation of the first 'modern' trade union, the Amalgamated Society of Engineers in 1851, its pronouncements and internal administration becomes a barometer of the degree of accommodation and acceptance by the labour movement as a whole.

Then comes the revision of the conclusions of this method: perhaps the Webbs' History of Trade Unionism overestimated the degree of passivity

amongst Victorian workers? (Cole, 1962; Allen 1962; Clements, 1961) One of the main implications of this thesis is that labour historiography needs a new set of questions before really significant strides can be taken in our understanding. Primarily this means a re-evaluation of the importance of the activity of work, the discipline it imposed, the gradations of status and position engendered; in short, the role of work as the prime mediator of the impact of capitalism.

With the publication of John Foster's Class Struggle and the Industrial Revolution in 1974 the debate over these 'new' questions has quickened. Foster presents his case as a development of classical Leninism, but in fact his use of the labour aristocracy thesis is poignantly 'revisionist'. Avoiding the crude equasion of Imperialism with bribery and betrayal, he firmly identifies the labour aristocracy with the use of sub-contracting and piecework, following the elimination of craft control, thereby the creation of a new form of capitalist social control, now operating in the place of work itself rather than externally upon the labour community as a whole. However, whilst his analysis of the decline of mass consciousness and activity, and the absorption of the leadership is meticulous, the account of the actual processes in work are cursory and localised. (ibid, 1976: 224-38) Furthermore, his attempt to link 'liberalisation' with capital export requires this shift in the economy to be dated in the 1840s - thirty years before Lenin.

Foster is quite right to insist upon both the connection of reformism with a wider overall change in the nature of English capitalism, and a restabilisation of the labour process on a new basis. But the central weakness of his case lies in the refusal to admit the location of reformism is the internal manufacturing relationships of capital industry. In the quest for the reconstruction of the experience of work

and its role in the formation of consciousness, it is not crucial 'which comes first', i.e. whether external forces of industrial change produced particular types of work organisation or, alternatively, whether these latter facilitated shifts in the economy. What has to be established is the actual progress of work in particular industries, the geneology of types of industrial discipline and the aetiology of the consequent organisational form.

Having said this it must not be assumed this thesis is entirely concerned with 're-defining' the labour aristocracy - it is merely a convenient springboard for raising the wider issues of work, craft unionism and capitalism. In this context we will be considering the following propositions:

(i) That the 'pioneer' nature of English industrialisation had (a) far-reaching effects on the character of work, and (b) politically left a legacy of two parties of the ruling class.

(ii) The social subdivision of the labour movement is as contradictory and uneven as is the development of the system of which it is a part. Therefore to attach the label 'labour aristocracy' to any layer within the working class is an empirical task, and requires in each case historical and analytical justification.

(iii) A 'craft' union is best thought of as an organisation employing a particular brand of social action to defend its interests, rather than embodying any 'certain' degree of skill.

(iv) The permeation of the incentive principle through the working class is a decisive indicator of the degree of penetration of capitalism in 'everyday life'.

PART ONE

CHAPTER I

THE PROBLEM OF 'CLASS'

Marxist theory has traditionally been accused of an over formal dichotomous representation of the class structure. Whilst many sociologists implicitly take Marx's fundamental starting point (the relation between property and non-property, productive and unproductive, wage and interest receivers etc.), just as many have rejected his actual usage of the concept as outdated. A major factor in their rejection of this, the so-called 'rise of the middle class' said to accompany modern industrialisation, and the consequent reduction in class differentials created by the 'social bridge' between the working class and the upper class. More recently, sociologists have emphasised that even if the wide discrepancies of wealth remain and therefore the 'middle class' as such is economically unimportant, the political impetus toward radical developments in the working class has been ended by the institutionalisation or mediation of overt conflict.

These later works have concentrated less on the denial of class and more on the 'statisisation' of the concept. 'Class' becomes a mummified institution within sociological discourse emptied of its dynamic and immanent aspects. A residual platform from which to begin the 'real' analysis of industrial society. It is not therefore surprising that the corpse of Marx's concept finds little resonance in the discussion of conflict - which is compartmentalised into sub-systems of the body politic: the labour market (F. Parkin); authority systems in the firm (A. Tourainne); sexual sub-life (H. Marcuse); consumption patterns (S. Mallet) etc. etc. (Giddens, 1973)

These, and other revisions, of the concept of class are healthy responses to the putrefied version given by academic sociology, insofar

as the latter: (a) concentrated on the distributive rather than the relational aspects of class, and (b) regarded an inherent logic of industrialism was working to bring about an automatic, secular decline in inequalities of opportunity and condition. However, whilst conflict (or 'coercion') has re-emerged as an important notion in sociological explanation, its relation to class (as posited in Marxist thought) is markedly less popular. One side of the explanation of this is of course the ideological 'value-full' nature of the discipline, which has had profuse coverage. For that reason, I intend to concentrate here on the 'theoretically material' factors behind the rejection of the concept as a prime tool of societal explanation: namely, the incomplete and inadequate representation found in Marx's writings.

In Marx's writing there appears fairly clearly two analytically distinct modes of treating the question of classes. By far the most well-known is Marx's abstract historical statement concerning the relationship between ownership of property and class destiny. Here is a well-known example from the Manifesto,

> The history of all hitherto existing society is the history of class struggle. Freeman and slave, patrician and plebian, lord and serf, guildmaster and journeyman, in a word oppresser and oppressed, stood in constant opposition to one another, carried on an uninterrupted, now hidden now open fight, a fight that each time ended in either a revolutionary reconstitution of society at large, or in the common ruin of the contending classes. (Marx, 1970: 54)

This is as popular as it is misleading a view of Marx's concept of class, for although he referred to this 'abstract' conception in later writings, just as important is the 'concrete' analysis he undertook of England and Europe, particularly France.

Most of the problematical elements in Marx's theory of classes stem from; firstly, the application of this abstract model to specific, historical forms of society; and secondly, the notion that an economically

dominant group politically rules society. The latter of these questions cannot concern us here - so let us now concentrate on the relation between Marx's 'abstract' and 'concrete' models of class.

Engels called Marx's writing on France "the first to explain a section of contemporary history by means of his materialist conception". (Fernbach, 1973: 9) In contrast to the bold unequivocal terms of the Manifesto Marx adopts here a much more flexible and cautious analysis. His starting point is the relatively undeveloped character of French capitalism; of consequence the struggle against capital was 'a partial phenomenon', mixed with the continuing importance of peasant and petty bourgeoisie production. He identifies a rich variety of classes and "fractions" of classes, of which great landowners, financial bourgeoisie, industrial bourgeoisie, petty bourgeoisie (of various gradations), industrial proletariat, lumpen-proletariat and small peasant proprietors are only the most prominent. The notion of an all-embracing and discrete ruling class is replaced by the concept of 'ruling bloc' composed of a plurality of classes or fractions of a class, however, within which one element is dominant. There is even conceptual room for an instance of a political party that does not represent a well-defined class or fraction, being propelled into office by the disjunction of class forces, as with the Republicans after the defeat of the 'June insurgents' in 1848. (ibid: 237)

It is with Marx's analysis of 'Bonapartism' that we find the germs of far more complex understanding of class. For it is here that Marx in noting the apparent 'despotism of the individual' embodied in Napoleonic rule evolves the designation of the class struggle as the 'link' cementing the various disparate elements of the social relations to the structure of production and with it the possibility of a

materialist analysis of the forces that constitute this relation. 'Executive power' up to 1848 had been strengthened in the struggle against revolution until it became "a frightful parasitic body, which surrounds the body of French society like a caul and stops up all its pores". (ibid: 9) But this power was not as autonomous as it seemed; on the one hand the peasantry was the passive class base of Bonapartism, but this representation was not similar to that of the bourgeoisie or the proletariat, because "the peasants were capable of asserting their class interest in their own name", so that,

> their representation must appear simultaneously as their master, as an authority over them ... their political influence ... is ultimately expressed in the executive subordinating society to itself. (ibid: 239)

The crucial point Marx is establishing here is that whilst he may refer to a plurality of classes and fractions, all those 'outside' those of the bourgeoisie and the proletariat rely on the development of the class struggle creating 'bridges' upon which these groups rely: their power and influence is conjunctural (in the broad sense), rather than historical. Only the 'two great classes' are able to <u>independently</u> assert their influence in differing historical periods for it is only they, because of their position in production, who are able to forge an ideological and political order. For the working class, writes Marx, conscious unity,

> can only take place in a <u>practical movement</u>, a <u>revolution</u>; this revolution is necessary, therefore, not only because the <u>ruling</u> class cannot be overthrown in any other way, but also because the class <u>overthrowing</u> it can only in a revolution succeed in ridding itself of all the muck of ages and become fitted to found society anew. (Marx, 1970a: 95)

Thus, it is in mass action and involvement that the proletariat comes to political maturity - a specific form of <u>class action</u>. This process is subsumed within the definition of class evolved by Marx.

The 'problem' of dichotomy posed by sociologists and neo-Marxists can now be better seen as a dispute over political power. For the question really becomes what fundamental changes have occurred under impact of the capitalist expansion post-war, and whether these have given an historical autonomy to certain groups and fractions within the class structure. There are of course a whole range of theories which argue precisely this. The favourite group cited as the benefactors of such developments are the "technocrats", "white collar workers", and "cadres"; that layer which it is argued are now able to effectively dominate production through a monopoly of the knowledge on which it is based. Another important point is that in Marx's analysis of classes outside the working class and the bourgeoisie is historically specific. An essential difference is drawn, for example, between Britain where Marx wrote that "the intermediate stations", had been "swept away from the soil", and the continent where, "large classes of peasants and artisans existed almost equally dependent on their own property and their own labour". (Fernbach, 1973: 277-8) The analysis is firmly grounded in the structure of production relations, and thus in the practices and action of the classes and fractions. Hence the rise of a 'new' petty bourgeoisie of 'unproductive workers' in administration and services, (as opposed to small-scale production) raises the question not so much of the Marxist theory of class, but of political power. For the issue remains, as in Marx's writings on France, to what extent their place in the developing structure of production, of which the balance of class forces is a central element, enables this group to play a significant role in the enfolding class struggle, not the extent to which they are purported to indicate a denial of the struggle itself.

Classes and Class Action

So far I have hoped to demonstrate that in Marx's methodological approach to the question of class there exists no insuperable gulf, between the abstract 'dichotomous' model, and his concrete 'plural' analysis: the latter is a dialectical and historical application of the former. Also we have stressed the dynamic aspect of his conceptualisation which returns conflict to the very core of the argument. The theory also intimates the relationship between class formation and ideological unity, focussing on the practical, mass character of working class consciousness. We have seen that the model is well able to adapt to the specific structuration of the class hierarchy found in differing historical periods; and thus conceptualise the varying social weight of the 'intermediate stations', ideological autonomy of the working class, the fractions within the bourgeoisie etc.

The charge of 'dichotomy' as we have seen, cannot be levelled against the Marxist theory of class. It is in the sphere of class action where paradoxically a 'dichotomous' model should be found, (but is not explicated by Marx), nor is he, attacked on this point. It is commonplace to note that Marx did not give a satisfactory account of how a class 'in itself' becomes a class 'for itself'. (Wolpe, 1970) But this is just one part of a wider theoretical lacunae concerning the nature and implications of class action in pursuit of its immediate interests. This dispute has turned, at least in Marxist theory, around the related questions of spontaneity and consciousness, and the role of the mass party.

For our purposes I wish to concentrate on the somewhat surprising contention that Marxist theory 'needs' a 'dicthomous' theory of class action. By this I mean an understanding of the relationship between

the emergence of class interests in the process of the actual struggle for immediate goals. Moreover, this then has to apply to the particular circumstances one is studying. As we have mentioned Marx only intermittently deals with the conditions facilitating the growth of the class consciousness of the proletariat, of which can be identified two major stands of argumentation. On the one hand he mentions factors such as the increasing relative disparity between the wages of the worker and profit accruing to the capitalist; the fact that the worker under the stimulus of economic necessity is more and more reduced to a mere 'appendage of a machine', with the alienative consequences this has for his work; and the growth of an enormous 'reserve-army' of semi-permanently unemployed labour. To the second category belong the increasing 'simplification' of the class structure by the elimination of transitional classes; the massing together of workers in large-scale organisations; the growth of national modes of communications, making possible the formation of centralised unions and workers' political parties; and the general process of secularisation fostered by capitalism which permits a fully rational, 'demystified' understanding of the historical mission of the working class. As always Marx's analysis is in part a theory of the working class, as much as critical exposition of society in general.

Obviously at neither level is this process simple or straightforward i.e. there is no 'objectification' of the class structure or consequently a 'subjectivisation' of consciousness. In one sense this thesis is concerned with both these problems; but by focusing on the question of work experience we hope in fact to direct attention to the really crucial problem of the relationship between the two.

> Class consciousness, as all consciousness is determined by existence; existence, however, is not limited to the existence of one class, but also embraces interaction of classes. (Rothstein, 1929: 267)

We must therefore include in our vision not just the relation between classes, but also within them, for it is this ultimately which determines the former.

This assumption flows from a particular understanding of the type of society emerging in Britain from the 1780s. To simply label it capitalist would be inadequate, we need to look more closely at its 'peculiarities'; primarily for the moment at its inaugural characteristics.

'Pioneer' Industrialisation

What do we mean by this phrase? Firstly and obviously it is designed to draw attention to the fact that England's industrialisation was the first. It is not an overstatement to say this factor ultimately governs everything else. It meant, for example, that this is only the case where industrialisation took place isolated from competing nation states, a factor which is fundamental to the understanding of later rivals such as Germany and America.

> But in Britain industrial change was unique in another way.
>
> Nowhere save in Britain was the peasantry virtually eliminated before the acceleration of economic growth that is associated with the growth of industrial capitalism .... (Saville, 1969: 250)

Thus the conditions were created for a proletariat 'sociologically' before the social structure had been transformed sufficiently to create a class-in-itself. From this comes the obsession with state intervention to control the abundant labour supply from the 1840s onwards. (Novak, 1978) Habakkuk has devined a multitude of implications of this, notably the comparative lack of incentive to invest since it is the shortage of labour, he argues, which causes innovation. (1962: 162-4) Labour abundance in the English context had a dualistic effect:

on the one hand, it is true, it facilitated the rapid recruitment of labour whose opportunities for alternative subsistence were restricted. On the other hand, however, it restrained the emergence of a domestic market for retail goods, which in turn aided the formation of class itself, with its encument organisations and ideology as wage labourers. But since these effects were not chronologically combined as Dobb points out, the early stages of technical change were inevitably labour saving, thus,

> ... in the degree that invention bore this character, capitalism as it expanded was able to economise on the parallel expansion of its proletarian army. Capital accumulation was thereby enabled to proceed at a considerably faster rate than the labour supply was increasing. (1972: 271)

The demise of the agricultural labourer thus became more of a process of attrition than dramatic expropriation; enclosure and its attendant social upheaval created not a working class but a rural proletariat:

> ... we must insist that the wage earning labour force was easily the largest social group in the rural social structure during the second half of the eighteenth century. (Saville, 1969: 262)

The process of 'primitive accumulation' of the conditions suitable for the emergence of capitalism is not simply an expansion of capital, but also a class of freely available labour: unencumbered by both feudal obligations and property of their own. In short, the exclusion of alternatives, rather than the physical separation of the peasantry from 'their' land, which is the usual presentation of this idea. (Landes, 1969: 20-4)

At the 'top' capitalism also in its primogenital state exported its contradictions in part in the form of a massive extension of coerced labour and monopoly in 'foreign parts'. (Williams, 1975: 210) This advantage of pioneer industrialisation allowed a fantastic rate of

capital return; the East India Company averaged a 100 per cent rate of profit in the seventeenth century. This overseas commercial strategy, described neatly by Hobsbawm as 'businesslike and warlike', also allowed the social consequence of consolidating the power of the obligarchy of land-owners who, uniquely in Europe, had secured the political subserviance of the Crown. (1970: 26)

The enormous world potential for the exploitation of world markets demanded one other ingredient, government. Unlike other potential contenders for economic supremacy Britain, because of the political leadership commerce expressed through Parliament, was prepared to subordinate all foreign policy to economic ends. (ibid: 49) The combination of domestic labour abundance, colonial surplus, and the political supremacy of commerce, were the pre-conditions under which technological advances could be exploited to the full. In this context it is easy to see why many economic historians have labelled the industrial revolution one of scale rather than structure. (Foster, 1976: 18; Clapham, 1938: VI)

This had an important effect in the home labour market: the demand for the archetypal factory proletariat was limited almost entirely to textiles - wage labour in a myriad of forms (including large numbers of agricultural workers and domestic servants) was much more typical until the 1870s. A generous estimate of the factory trades in 1851 would be only 12% of the adult male population and twenty years later this figure would probably have only doubled. (Mathias, 1976: 261; Checkland, 1977: 217) This is now receiving increasing attention from labour historians. (Samuel, 1977) For our purposes it is sufficient to note the uneven and uncoordinated emergence of the factory worker as a layer within the industrial structure, as a consequence of the extremely limited

technological base of mechanisation. The breakthrough of the 1780s and 90s was founded on the mechanisation of one branch of one industry, and although the labour saved was huge the other side of the industry remained an outworking hand-based craft for a further forty years. Throughout this period England was completely dependent on a vast army of handloom weavers to convert the yarn into exportable cloth.

If we are proceeding with the definition of capitalism as wage-labour rather than the factory system in Britain, it seems logical also to question whether we can assume the inevitability of technique over organisation. Certainly Marx did not: on the contrary he made the distinction between the objective conditions, and the subjective requirements of production quite clearly. The 'rationality of technique' could be harnessed to alternative forms of organisation other than capitalist. As such it is the central difference between him and other writers such as Weber and Clapham. If this is so, then the structure of work is not an externally governed 'fact', but an essential field of the conflict between the 'two great classes'.

The decline of the 'Polarisation thesis': two consequences

In the writings of Marx and Engels on the probable developments inside the labour movement as capitalism became established, we have identified a gradual retreat from the 'polarisation thesis' of the Communist Manifesto, culminating in Engels's England in 1845 and 1885. The early theoretical optimism, based as it was on a determinist relation between the mode of production and ideology, forecast a rapid politicisation of the workers' movement, where capitalist contradictions were present in the most acute form. In this vein Engels wrote in 1844,

> The English Chartists will rise up first because it is precisely here that the struggle between bourgeoisie and proletariat is at its most fierce ... thus the struggle has been simplified, thus the struggle will be resolved at one decisive blow. (1950: 229)

Hence the concentration in the Manifesto on the role of the bourgeoisie clearing the debris of pre-capitalist social relations and with it the mystification of custom, duties, rights, that constituted the dense ideological order of feudalism. The separation of the mass of the population from the means of production and the creation of wage labourers, concentrated together both in an urban and economic sense, reduced the relation between the two classes to the 'cash nexus'. This simplification of all social relations meant that the proletarian movement could develop in a straight line from economic combination to socialist revolution; hence the passive role of Communists, who simply were the conscious agents of an inevitable process underway amongst the, as yet unaware, mass of the working class. (Fernbach, 1973: 69, 79-80)

Nonetheless, this incorrect view of ideological progress was accompanied, we have argued, by a crucial insight into the nature of the labour-capital relation. The extraction of surplus value from the labour process is separated from the use of physical coercion by the employer. This permits an increasing separation of the organisation of production from the organisation of violence, or to put it in other terms, of economics from politics. Capitalism has an internal motivator (the majority have no other recourse than to the selling of their labour power) at the level of the productive unit, whilst the element of coercion is removed to politics - in the form of the 'public' state the, 'committee of the whole boureoisie'. It was the uneven character of capitalist development, both nationally and internationally that

drew attention to the weaknesses of the earlier 'linear model'. Unlike the predictions in the Manifesto capitalism did not 'compel' the adoption of a similar model of production. The very accumulation and concentration acutely described in the metropolitan countries undermined the emergence of an indigenous bourgeoisie in the dependent areas. While capitalism developed the forces of production on a world scale it did so unevenly, shaping and limiting the economic capacity of the peripheral sectors. Equally, within the nation state the fragmented progress of the new mode of production left some aspects of the class structure untouched. Thus a peasantry with its own internal differentiations continued to exist, even in some of the most advanced countries, and to pose a problem not confronted in the Manifesto: the development of a political programme for a class alliance. For this reason Marx and Engels rejected the anarchist slogan of the abolition of private property on the grounds that it would prevent a worker-peasant bloc. (Fernbach, 1974: 349)

Within the urban working class the emphasis of Marx's consideration begin to move away from equating proletarianisation (the separation from the means of production) with class consciousness (an ideological reflection of their objective circumstance). This occurred at two levels: firstly, the role of the state and political parties as agencies of 'public' coercion and 'private' socialisation and accommodation of the workers. Marx's writings on France and his later polemics with Lasalle and the policies of the German Social Democratic Party, reflected this concern, as did Engels's rather laconic assessments of the English labour movement. (Blackburn, 1976: 23-32) Secondly, Marx began, in theory at least to consider consequences of the uneven and contradictory progress of the capitalist form

of organisation on the labour process. As we shall see in Chapter V, it was from these considerations that in abstract was constructed a much more complex account of the structuration and gradations of the working class. From this would flow a much more cautious prognosis of the development of a 'class-in-itself' to a 'class-for-itself'. But it is to the former of these areas we turn first; what we might crudely call the 'political' consequences of pioneer industrialisation.

CHAPTER II

ECONOMY AND POLITICS 1870-1914

Capitalist hegemony in Britain is perhaps the most powerful and durable of all the bourgeois democracies. Two hundred years of relative social peace, the gradual extension of the franchise, the slow linear grow of labour organisation, the founding of the Communist Party, the collapse of the 1930s and not to forget two world wars - have all failed to qualitatively shift the centre of political gravity. Thus we have an elite trained as no other, in the containment and/or coercion of disorder. However, in so far as such classes are made, as much make their history then attention must turn toward what features of English social development that have maintained, or allowed, such class unity.

The English bourgeois revolution created not a capitalist class as such, but confirmed the rupture of a section of the established feudal hierarchy from its traditional position and launched it forward to the rational realisation of the commercialising of agriculture. In its wake were pulled the 'true' progenitors of capital, the merchant bourgeoisie, and in time via a process of mutual class absorption a capitalist class proper emerged. In Britain this process was neither chronologically even or sociologically pure and this fact left a peculiar disjuncture between the institutions of state power.

> Inside this permanent organic 'compromise' the landlords kept control of the state, and its main organs as a governing elite trusted (on the whole) by the bourgeoisie. (Anderson, 1964: 20)

The political implications of this are drawn out by Poulantzas,

> ... the revolutionary process had to be initiated on the political plane and under a fraction which, politically speaking was still a fraction of the nobility. (Poulantzas, 1972: 169)

Thus the bourgeois revolution whilst creating the foundations, in a juridicial sense, of a capitalist economy did not completely overthrow the social structure and focus of society. Whilst property amicable to capitalist expansion were established, politically it,

> ... left the feudal type dominant over the capitalist state. (ibid)

Thus the 'genuine' new class based on mercantile capital did not have to struggle against the entire aristocracy, but rather attach itself to a dissident element within the established class. Its political power was assured by this commercialised section of the feudal class, and it was not until the 1832 Reform Act that the latter constructed a power block of itself and inherited the organs of social control. Even the feudal characteristics of the state did not disappear but became its modern form: liberalism. (Dobb, 1972: 25) This has given the state from in Britain a cultural, as well as, political autonomy - the combination of which produce an unparalleled form of 'social mystique'. (Nairn, 1968: 21) Herein lies the often noted residual strength of traditionalism, custom and paternity in the most industrialised and urban of societies, a factor not only remarked upon by Marxists. (Guttsman, 1964: Chap. 3) The consequences of this, for the purposes of this section are two-fold. Firstly, the capitalist class emerged primarily with an alliance with the commercialised aristocracy, not the early workers movement as in Germany or with the peasantry as in France. (Schorske, 1970: Chap. 1; Marx, 1973: 35-128) This changes, in a negative sense, by the mid-nineteenth century as the challenge of labour organisation forced a wing of the capitalist class to 'invade' and 'incorporate' workers institutions. (Foster, 1977: Chap. I) Secondly, in the Imperialist phase of the economy finance capital <u>retained</u> its sociological and political distinction from industrial capital, in a parody of the former division between mercantile and agricultural

capital. (Guttsman, 1964: 60)

As a result, export capital had prior access to the direction of the state (the guardian of successful capital export) and the leading institutions controlling the tempo and direction of the economy. As export capital became more and more predominant so it, rather than the industrial sector, expanded (from 1850 to 1874 the assets of the Bank of England trebled). (Ashworth, 1972: 182) Yet this financial sector did not develop the integral links characteristic of Imperialism, with industry. Up to, and including, the early twentieth century, a majority of industrial capital was raised 'informally' through social and family networks, not the banks. (ibid) Hence,

> Unlike Germany or America, there was very little interpenetration between the banks and the comparatively small group of monopolies. (Foster, 1976: 7)

Thus, the drive for overseas investment came 'naturally' from Britain's position as the first capital economy, rather than from the attempt by monopolies to exclude other monopolies from areas of the world market. Nonetheless, the result, according to Lenin, was the formation of a rentier state,

> ... the usurer state, in which the boureoisie lives on proceeds of capital export and by 'clipping coupons' (1970: 711)

Keeping firmly in mind the link between the control of the state and finance capital, and the distinction between this and the governing or political elite, Lenin's description corresponds with the analysis so far.

Economy and Politics in Imperialism

The significance of the above becomes apparent if we examine the changes in the British economy from the 1870s. It was in this period that competition, principally from Japan and America, began to require readjustments in domestic fiscal strategy. In the prior decades of Imperialist hegemony the unity of finance and industrial capital had been assured by the former's creation of overseas demand for manufactures. However, this had been principally occurred in low technology, labour intensive commodities, such as coal and cotton, and as such was extremely vulnerable to intelligent competition, particularly to improvements in the organic composition of the competing capital. When this in fact came there was no comparative response by the domestic economy, investment still continued to be directly mainly toward 'natural' commodities, an alternative made viable by the juridicial monopoly of the Empire. Thus, rather than forcing the British economy to progress and regroup itself, this competition, in the epoch of Imperialism, accelerated the tendencies toward increasing the export of capital into established markets, ensuring a high return in the short term. (Hobsbawm, 1970: 151) This is reflected in that whilst the volume of foreign investment in the last quarter of the nineteenth century rapidly increased, domestic industrial production, in relation to the principal rivals, declined. Thus, it was in this era that London as a financial centre of the trading world compensated for the balance of payments on deficit on visible earnings - hence removing some of the pressure caused by the fall in the price of raw materials, which, in other circumstances, could have stimulated technological improvements. (Kenwood and Loughheed, 1975: 44)

This response by the British economy, that is, the extension of

exploitation of traditional markets, would not in itself have been injurious had these economies themselves not been under-developed and therefore relying primarily for income from Britain's payment for raw materials, to buy in return, manufactures. As a consequence of this, at no time after the 1870s up to the late 1920s, did the terms of trade of the economy as a whole operate favourably (in fact throughout the whole century there was no export surplus). This explains how the absolute value of foreign investment could increase from £770m in 1870 to £4,107m in 1914, whilst simultaneously trade in manufactures and primary products (as a proportion of world trade) declined by about 15%. (ibid: 43, 96-7)

It was in this context that we see a remarkable change in political alignment and political base taking place between finance and industrial capital. The Tory Party, which from the 1850s had been representatives of landowning and agricultural interest, by 1870 had began to acquire support from the industrialists. (Guttsman, 1964: 82, 90) Under the impact of the foreign competition of imported manufactures, the National Fair Trade League was formed in 1881 to propagate tariff reform. This achieved considerable support in the Tory Party, and to a lesser extent the Liberals, both formerly staunchly, free trade. This support for a tariff policy favourable to the industrial sector, in so far as it reflected the new economic situation and political base of the Tories, was sacrificed, however, to the 'higher' interest of preventing Home Rule for Ireland. In order to conclude a pact with the free trade Liberals on this issue, the Tories played down protectionist sentiment. Yet this apparent quashing of tariff reform itself negatively demonstrated the increasing link between industrial capital and the Tories - for the motivation behind the pact with the group of Liberals stemmed from a desire to

maintain Ireland as an off-shoot of the home economy. Hence also, the support of cotton manufacturing interests for this stand. By 1903 with Chamberlain's conversion to tariff reform, this symbiosis was consumated. (Semmel, 1960: 85)

This transition incurred certain losses as well as gains for the Tories. Whilst uniting a section a section domestic capital, they assured the Liberals of support from finance capital and exporting industry. This found reflection in the composition of the Tariff Reform Commission established in 1903, which included,

> Iron and steel, tin, building material, glass and chemical interests, all Midland products and industries hard hit by German and American competition. (ibid: 102)

Notably absent were representatives of the wool and cotton trade (which accounted for around 55% of the total manufacturing exports in 1903) the banks, and the trade unions.

Reformers and Revisionists

The attachment of the leaders of the organised workers movement to free trade was based on the assumption that such a policy ensured cheap food, and thus reduced to a minimum the need to challenge the employer for higher wages. With the adoption of protectionism by the Tories so the Liberals, became the natural ally of the trade unions political strategy, embodied in the Labour Representation Committee. In turn, the attraction of the L.R.C. for the Liberals lay in the possibility of forging a modern electoral base with the newly enfranchised sections of the working class.

Earlier strategies of containment via the separation of the workers in the labour market (favouring craft unions, allowing some legislative safeguards, the promise of the vote, etc.), in short,

the cultivation of a labour aristocracy, were based on the rapid expansion of the economy. Once this had ended in the late 1870s, employer strategy turned again to confrontation of the whole class, particularly the unskilled. However, having failed to thwart the crystallisation of a mass trade union consciousness, we progressively see the use of the state as a mechanism of control, both in the sense of attempting to utilate the union leaderships to 'police' their membership, and in orientating reforming inclination toward the Parliamentary arena, rather than direct action. Balfour's comment in 1895 that,

> Social legislation ... is not merely to be distinguished from socialist legislation, but is its most direct opposite and its most effective antidote. (Miliband, 1973: 37)

demonstrates ruling class awareness, even at this early stage, of this fact. We should also note at this point that a key feature of British socialism has been the identification of this trend as inherently progressive, a tendency most developed by the Fabians, embodied in Sydney Webbs' concept of 'unconscious socialism'.

It is commonly argued by Marxists of otherwise widely differing perspectives, that the Labour Party (L.P.) had no underlying theory, programme or policy but that its activities were dictated by pragmatic accommodations to the 'system'. The implication of this being that had sufficient numbers of the intelligentsia been attracted to Marxism the history of the L.P. would have been very different. At one level, this is, of course, absolutely true. The experience of European social democracy demonstrates that where a party has at least a formal commitment to a socialist programme, internal splits producing Marxist or communist off-shotts is much more likely. But just as the existence of such a programme does not in itself explain these splits, so its absence (in the case of the L.P.) does not indicate lack of theory

in toto, or, concomitantly the lack of internal debate and dissension.

Similarly, to regard the leading figures of the early L.P. as 'empty vessels' into which bourgeois propaganda poured, is not only to deny the relative autonomy of these individuals but, much more seriously, to ignore the positive conscious campaigns against alternative strategies, particularly those of syndicalism and communism. (MacDonald, 1909, 1912; Snowden, 1912) This is reflected in the strange geneology of Marxism's reception in Britain. (Thompson, 1977: 763-816)

To sum up so far: the decline of the Imperialist economy had began to generate structural differences of interest between finance and industrial capital, which on the political plane was reflected by the realignment of the two parties of the bourgeoisie. At another level the arrival of Marxism had coincided with the crisis of Victorian society, but found no sustaining hold on the labour movement. The Tories having adopted a programme objectively in the interests of home industrial capital, had the problem of maintaining some support amongst the enfranchised workers whilst also aspiring to become the majority party of the bourgeoisie. The Liberals had the inbuilt appeal of free trade, but that superiority could only be secured by containing independent working class politics. That in turn required legislative concession which could, if pushed too far, intimidate ruling class support.

Realignment and Reform

We have noted the progressive dwindling of support for the Liberals from core sections of industrial capital. This combined with the enfranchisement of 1885 and the 'Home Rule election' of 1886 (in which they lost a section of anti-labour opinion to the Unionists) set in motion a chain of events which culminated in the Liberals siding with the Labour Representation Committee in opposition to the Taff Vale judgment. This alliance founded on the commitment to free trade and later extended to the use of the state in social reform and conciliation, J.A. Hobson, a leading Liberal theoretician, called 'New Liberalism', which he said in 1909,

> ... certainly involves a new conception of the state in its relation to the individual and private enterprise. That conception is not socialism, in any accredited sense of the term, though implying a considerable amount of increased public ownership and control of industry. (1909: XII)

The problem for the Liberal leader, Lloyd George, was to maintain what Hobson called, a 'popular policy', without antagonising the whole capitalist class and uniting them behind the Conservatives. On the other hand the Liberals had to differentiate their policy from that of the L.P. alliance without destroying the conscious strategy of electoral containment adopted in 1906. (Brewett, 1972: 234)

In fact this delicate balance was broken on both sides of the equation. Why was this? On face value the Liberals seemed impervious in 1906; they had a Parliamentary majority of 130 which rose to 159 with the L.P. votes, achieved on a manifesto of free trade and social reform, thus ensuring the tacit support of the rising influence of labour in political life.

Faced with the declining popularity of the Liberals, and the rapid increase in affiliation to the L.P. from the unions Lloyd George wrote

to his brother arguing,

> It's time we did something that appealed straight to the people - it will, I think, help to stop the electoral rot .... (ibid: 68)

That 'something' was a populist Budget designed to raise £14m, mainly by direct taxation, 75% of which would accrue from the 10% who earned, or received, sufficient to pay tax at all. These proposals received a cautious welcome from the L.P., their paper Labour Leader announcing them to be, 'better than expected', whilst infuriating the old style Glastonian Liberals and the Conservatives. (ibid: 72) By taxing the rich, to finance social reform, whilst making no concession to tariff reform, the programme drove financial, industrial and landed interest into intractable opposition. For them,

> ... the Budget exposed the fatal limitations of free trade finance which could only raise sufficient revenue by attacks on capital and the means of capital accumulation. (Shannon, 1976: 398)

The House of Lords which rejected the Budget and caused a major constitutional crisis, contained entrenched landed sectors - two-thirds of those Peers voting against owned 5,000 acres or more. For the City Lord Rothschild considered the Budget,

> ... establish the principles of socialism and collectivism.

The Tories seized the opportunity, after some initial hesitation, to rally bourgeois opinion, Balfour warned that the Budget was,

> ... destructive of all public morality. (Brewett, 1972: 77, 82)

Hobson, fully aware of the hornets' nest a 'popular policy' would provoke, described graphically the opposition.

> The forces of Conservatism must use every weapon in their armoury, constitutional, legal, electoral, educational; every art of menace, cajolery and misrepresentation and corruption which their control of party machinery, landlordism, 'the trade', finance, the Church, 'Society', 'sport', the 'services', place at their disposal, will be plied with unexampled ardour. (1909: X)

This was to extent to which the Liberals had antagonised established interest and opinion. The L.P. certainly did not want to threaten the original 1903 Lib-Lab pact, but despite themselves the boat, as it were, had already been rocked. The affiliation of the Miners' Federation of Great Britain to the Party brought, at the 1910 election 16 sponsored Miners' M.P.s, and four others from overwhelmingly mining electorates - exactly one-half of the L.P. Parliamentary group. The Times was quick to note the implications: there were, it calculated, 90 seats where miners were a large proportion of the electorate, 59 of which were presently Liberal.

> If the Labour Party lays claim to them, the Liberal Party will be severely weakened in a quarter where it had hitherto considered itself to be unassailable. (Gregory, 1968: 36)

For the Liberals to be forced to rely on labour support whilst uniting in opposition virtually the whole ruling class courted disaster, not just in the short term. For, in response to consolidate their popularity with workers by further social reform, could only compromise their integrity and progammatic clarity vis a vis the L.P. 'Electoral containment' was viable only from a position of benevolent strength, thus sustaining the conviction amongst Labour leaders that their progress was dependent on Liberal magnanimity.

The latter's dilemma was neatly expressed by Lord Elbank in a letter to The Times in 1908.

> If the struggle between capital and labour which seems looming in the distance is to be averted, the Liberal Party might ... encourage men like Mr. Smillie. (L.P. candidate for N.E. Lanark - M.H.J.) Otherwise radical electors will be more than ever driven into the most extreme camp ... (and) ... the restraining force of Liberalism will disappear. We will be grouped into the great camps - capital and labour - a prospect which no true Liberal can look forward to with equanimity. (June 19th)

The Tories and Industrial Capital

We have noted the gradual accretion of industrial interests toward the Tories from the 1870s, which culminated in the formation of the Unionists in 1886 which, although under the banner of free trade, objectively laid the basis for uniting industrial capital behind one party. By the turn of the century the pro-imperialist wing of the Liberals had moved toward Unionist policy on the colonies (epitomised by the support of the President of the City Liberal Club, Lord Roseberry, for the Boer War). Since they had also adopted a limited protectionist strategy, what differentiated them from the Unionists?

Quite simply it lay in a different view of the fundamental strength of the economy, and thus social stability. Speaking in 1900 Roseberry argued,

> ... this country has two supreme assets ... they are our Navy and our Capital. (January 24th)

Liberal-Imperialist theoretician Halford J. Mackinder explicated this view as follows: British industry inevitably faced increasing competition, but, the greater the world industrial output became, the greater the need for a controlling centre i.e. London. He suggested therefore,

> ... that the financial importance of the City of London may continue to increase, while the industry at any rate, of Britain, becomes relatively less. (Semmel, 1960: 42)

This approach was combined with concessions to the labour movement on free trade and social reform, summed up in Asquith's dictum,

> ... to make the Empire worth living in, as well as dying for. (ibid: 62)

For the Chamberlain majority in the Unionists productive capacity far outweighed the importance of capital movements. Not only did exported capital mean less for domestic use, it could also be

stimulating foreign competition. But of course, for sections of industry protection could only be injurious, for example, shipping and coal. To this Chamberlain responded with the notion of 'colonial preference', an English equivalent of the German Zollverein, which would combine protection from major rivals whilst allowing the untrammelled exploitation of other markets. Nonetheless, the protectionist lobby could not ignore the one million workers for whom any loss of trade would be immediately damaging. The Tariff Reform movement foundered on weakness in the economy it sought to remedy. Whilst finance and overseas trading prospered an ailing domestic sector was unlikely to win its case which amounted to weakening the former in hope of some future improvement in the latter. Only in a simultaneous crisis of these sectors would the possibility of a serious re-direction of state policy be considered. Halevy lists the forces which defeated Chamberlain ultimately and ensured the hegemony of finance capital as follows,

> (Within) ... the City a vast society of bankers, bank clerks, stockbrokers and stockjobbers of every description, for whom the German-American peril which alarmed certain manufacturers had no existence. Add to these the two million employed in shipping, one and quarter million in transport ... for whom the question of foreign competition was equally unreal. (1929: 340)

During the 1895-1900 Unionist administration Halevy notes how protectionist sentiment remained subdued, due to,

> ... the undisguised determination of policy by finance interests. (ibid: 342)

The Economist, very much the journal of industry, complained on August 12th 1899 of,

> ... a closer connection between finance and legislation than is desirable of safe.

This referred to domestic issues, but the connection extended to foreign policy. As competition threatened manufacturing industry so,

as we have seen, capital retreated to overseas investment in the under-developed world (principally Africa, Middle East, and Latin America) rather than into improving the technological base of the home economy. (Kenwood and Loughheed, 1975: 43)

British foreign policy in the founding of the Empire was one of systematic aggression - of the five great wars of the period Britain was clearly on the defensive in only one. (Hobsbawm, 1970: 143) Schematically we can identify the ending of the East India Company monopoly in 1813, as signifying the emergence of a financially based fraction of the ruling class, but which, as yet, had only separate, but not conflicting, interests to those of industry. Once established the Empire provided a bastion from which to champion the cause of 'free trade' on the basis of an inbuilt superiority. Once that had gone we have seen the dual response of the rise of protectionism, preceded by the more traditional solution of a return to the offensive in the Imperialist arena. (Semmel, 1960: 143)

The Liberals and Social Reform

From as early as the 1890s sections of the Liberals had been advocating state intervention along the lines of Bismarck in Germany. (Harris, 1972: 217) This advice grew in attraction as the Unionists, for their part, adopted protectionism which had declared its prime aim was to convert the trade unions.

There are three reasons commonly given for this development of the Liberal Party. Firstly, the objective need to intervene in the labour market to ensure the continued reproduction of labour power in a rapidly diversifying and complex industrial order. Secondly, as a political riposte to the attraction of protectionism, and thirdly, as

an attempt to undercut the L.P. (Harris, 1972: 222; Pelling, 1976: 216-29)

This account has identified two contradictory pressures: the need to retain a popular base in an increasingly proletarian electorate, and materially the problem of aligning this with the hegemony of finance capital in the economy. It is significant in this context, to note that Liberal concern and rhetoric over social reform strongly correlated to the ebb and flow of trade in the first decade of the century. Thus we see a spate of pamphlets and speeches in the trade slump of 1902-4, followed by three and a half year gap to the Royal Commission and the worsening business situation from 1907, a debate sharpened by the hostility of the House of Lords to reform measures which ended, as we have outlined, in the rejection of the 1909 Budget. On this period Harris concludes that,

> The emergence of a new unemployment policy in the Liberal Party coincided with the most acute commercial depression since 1879. It was particularly severe amongst skilled artisans in the heavy industrial area of the North East, to whom the Liberals traditionally looked for support. (1972: 273)

On this basis we can see the 'crisis elections' of 1910 as something of a success in forging the 'popular policy' Lloyd George was banking upon to allow his Party to balance between finance capital and the trade unions.

In this light the 'undercutting' of the L.P. was an off-shoot of a wider Liberal strategy, which, nonetheless was largely successful. Incursions by the L.P. into electoral territory not sanctioned by the Liberals in January 1910 was disasterous for the L.P. Only one, out of thirty five, contests against a Liberal ended in victory, G.D.H. Cole concluding that,

> ... any serious clash with the Liberal Government might have endangered every seat, except perhaps a very few that were 'pocket boroughs' of the Miners Federation. (1928: 4)

Typically the L.P. concluded from all this that instead of trying harder they should not be trying at all. At the December election of the same year only 78 out of the original 110 candidates actually contested, with largely the same result. The thinking behind this of MacDonald was to fight only those seats presently held, plus,

> ... those in which local success, financial preparedness, and the state of organisation make a win practically assured. (Brewett, 1972: 261)

Defeats strengthened MacDonald's position of only contesting where success was almost certain, and not otherwise, efforts he dubbed 'wildcat canditures' and 'propaganda campaigns'. (McKibbon, 1974: 23) This period is extremely important in the forming of the conception of the L.P. as electoral receptacle of advancing opinion, a view which, of course, is linked to the understanding of capital society as naturally evolving toward collectivism.

A recent and cogent exponent of this view of the Liberals' policy incoroporation of emergence dissidence amongst working class politics, is P.F. Clarke's Lancashire and the New Liberalism. The core of Clarke's case at one level fits neatly with the previous analysis, in as much as his central contention is that between 1906 and 1910 there occurred a decisive shift in the social character of politics: from community to class politics; from local to national concerns; the creation of a new type of Liberal leadership and the appearance of a new reforming ideology, the synthesis of Liberalism and Socialism. As a result national parties and issues triumphed over the localism of pre-industrial communal interests. An intellectual elite, including such diverse figures as H. MacKinder, the Webbs and Karl Pearson provided this national ideology which became the foundation of the 'new Liberalism', symbolised by Lloyd George. By analysing the movement in this way he is able to portray the development

of 'class politics'. Clarke illustrates this trend by emphasising the decline of those issues capable of uniting economically antagonistic groups around a common cause: free trade, anti-clericalism and temperance. (1971: 6, 16-17)

His explanation of the contradictions the Liberals faced in this period is illuminating descriptively, but theoretically unsound because of its assumption that the role of the infant Labour Party was a priori a mirror reflection of this mysterious arrival of 'class politics'. This follows because of his systematic equasion of 'class politics' with the ideas and activities of the Parliamentary Labour Party. This is all the more confusing at this period since up to 1918 there was no such thing as a Labour Party, but a federation of local groups, Trades Councils and pressure groups. (McKibbon, 1974: Chap. 12)

Increasingly, social research is revealing the fact (ever-present in all working class biographies) that the experience of class is, in the first instance, local. (Howkins, 1977: 148-153; Meacham, 1977: 11-29) This is linked conceptually with the less novel view that class itself is an actuality, realised to the researcher through time.

> If we stop history at a given point, then there are no classes but simply a multitude of individuals with a multitude of experiences. But if we watch these men (sic) over an adequate period of social change, we observe patterns in their relationship, their ideas, and their institutions. (Thompson, 1970: 9)

From this premise the 'intervention' of class into Victorian politics becomes more complex than tracing the arrival of (one) aspect of its organisational form, the Labour Party. What will emerge in the following text is the view that explanations of political realignment, response to and reaction against, capitalism ultimately stem from the 'actuality of class', the experience of every-day living. The reconstruction of this involves encompassing a huge canvas of social

history - but this is not our task here. This thesis, as has been stated, is concerned to relate the significance of work and the authority relations it engenders to the formation of class, and thereby to the evolving politics of capitalist society.

In this section we have examined the changing relationship of the two parties of the ruling class, Tories and Liberals, to the development of the economy and politics of British society. It was suggested that as the Tories hegemonised industrial capital interests from the 1880s onwards, actually exactly as their importance was declining, this 'capture' excluded finance capital by way of the adoption of tariff reform. Therein lay the basis for the continuing existence of two parties of the bourgeoisie, which in turn created the possibility of the Liberal Party either having to re-establish itself as the majority party, or mould together an alliance with the electoral strength of the labour movement. In taking the latter path they ultimately failed both to thwart the rise of the L.P. and to retain their original base in the ruling class. But they did in the posing of a 'progressive alliance' with labour ensure the unions' control over the L.P. from 1900-14. Whilst legislative redress for working conditions and pay could only be achieved via Liberal support, the trade union purse-strings constrained policy options. In this sense Liberalism did not die, but merged with the corporate politics of the L.P. leaders to form one element of Labourism.

PART TWO

CHAPTER III

THE CLASSICAL DEBATE AND ITS CONSEQUENCES

At the level of 'high politics' the manoeuvrings caused by the progress of capitalism in the 1870 to 1914 period are easier to trace than the socio-political realignment of the labour movement. For here we are not dealing with organisations, conferences, pamphlets and personalities; the ideological reflection of Imperialism is not to be found primarily therein.

But first let us confront the Leninist formulation on the relation between Imperialism and the 'labour aristocracy' to which Lenin ascribes the material basis of reformism:

> The bourgeoisie of a 'Great' Imperialist Power is economically in a position to bribe the upper sections of 'its' workers by devoting for this purpose one or two hundred million francs a year since its super-profits amount to perhaps a billion.

Before the imperialist epoch this was only possible within one nation: however, with the ending of British monopoly this became a feature of all rival powers. Whilst the upper strata of the workers enjoy the benefits of imperialism, the masses are more oppressed than formerly, and thus provide the basic foundation of the anti-capitalist movement. (1969: 146-7)

If this were the case we would expect to see working class reformism closely correlated to the strength of British capital, in so far as this would provide the economic room for manoeuvre and 'bribery'. However, applying this approach in the British context we come across a fundamental difficulty. Precisely as a consequence of being the first industrialised nation, as we have seen, the process of capital accumulation did not proceed on the basis of large scale factory production. Outworking, family businesses, and the 'cottage-industry' structure

remained important into the second half of the nineteenth century. Dobb notes that this meant.

> ... that not until the last quarter of the century did the working class begin to assume the homogeneous character of a factory proletariat. (1972: 265)

The notion of a 'labour aristocracy' implies a stratum differentiated by prestige, wages, skill or whatever, but nonetheless a layer within an objectively definable wider entity, that is, 'the working class'. In order, then, to determine the practicality of this framework we must briefly consider the circumstances of the formation of the working class.

Modern labour history has re-emphasised the importance of handicraft production in the early years of trade unionism, and that it was from such sectors that the earliest trade societies emerged, often from the remains of the feudal guild structure. Whilst organisational continuities are to be found between these and the 'modern' union movement of the twentieth century (as the Webbs' History emphasises) these societies are only part of this heritage. Hobsbawm has shown in his analysis of the 'machine-breakers' that sporadic violence, destruction of property and mob activity, was not contradictory to the tradition of unionisation but often prefigured it, a kind of 'collective bargaining by riot'. Whilst Thompson has emphasised revolutionary-political aspects of Luddism, he also later shows it was often the same trades who, having established societies in this aggressive manner, became integrated into skilled, organised sections of the working class. (Hobsbawm, 1976: 5-23; Thompson, 1968: 781-887)

Thus, the manufacturing population, up to the 1840s, was predominantly handicraft workers in traditional trades such as handloom weaving, tailoring, shoemaking, printing, etc., with factory workers in a minority and in the main, unorganised. Moreover, as we have noted,

the development of British capitalist industrial structure in the first half of the nineteenth century did not dramatically change this:

> The distinction between the artisan and the labourer in terms of status, organisation and economic reward remained as great if not greater, in Henry Mayhew's London of the late 1840s and 1850s as it was during the Napoleonic Wars. (ibid: 537-45, 266)

These divisions found expression in the character of Chartism, which found its support in the union movement from the declining, or rapidly modernising industries, rather than the expanding sectors of engineering and mining. Thus, the only genuine expression of independent working class political activity raised an echo in the unions only amongst those sections being destroyed by the modernisation process.

Following the Webbs, labour historians have seen the period from the 1850s and the appearance of the 'new model' unions, as the heyday of the classic labour aristocracy and hence the roots of reformism. This view is eloquently expressed by Tom Nairn.

> The exhausted quiescence of the class struggle coincided with the maximum florescence of British society as a whole. (1976: 5)

Thus, a twin polarity is drawn between the period up to, and then after 1850, in terms of both the extent of trades unionism (the attempt to found Owenite all-embracing unions) and its temper, the latter period being characterised by conservatism and elitism. Recent interpretations have, however, suggested that,

> ... what occurred ... in the fifties and sixties was not the creation of a 'New Model" but the strengthening of the old. (Musson, 1972: 50)

Interestingly enough whilst stressing the essential continuity between the two periods and the relative unimportance of Chartism and Owenite Socialism, this approach can also be substantiated by the work of R.V. Clements who has attacked the Webbs' view that trade unionists in

the period passively adopted middle-class economic philosophy. Whilst certainly not adopting a 'counter-hegemonic' alternative, they did not in practice accept the 'wage-fund' theory, or freedom of contract, or the immitability of the 'laws' of supply and demand, nor did they regard strikes as useless and harmful. (1961: et seq)

It is quite wrong, however, to conclude from that a refutation of the labour aristocracy theory, for it above all was based upon an assessment of the political weight of the workers movement - which cannot be derived simply from the continuance of trade union activity, and its simularity to the societies of the Chartist era. John Foster, for example, claims to have discovered,

> a striking loss of conviction in 1846-7. (1977: 265)

in his study of the labour movement leaders in three industrial towns. This was due in part to positive attempts by the Tory Party to isolate the radical vanguard by taking up some of their more acceptable demands. This somewhat tenuous formulation is in fact far more perceptive than it may appear at first sight, for what we are really debating is not the existence or non-existence of working class industrial and political activity, but its political character. In other words not the quantity, but the quality. Whilst the evidence is a little contradictory in the first category it is overwhelming in the latter. The decline of the political threat of workers' organisation is demonstrated negatively by the increasing receptivity by the ruling class to claims for legal status and the franchise. Lord John Russell declared in the House of Commons in 1854:

> To my mind the sentiments, moderation, and common-sense, manifested by our people since 1848 have shown considerable elements of the population, still deprived of the suffrage, have grown quite ripe for it, and by being given parliamentary representation, would benefit our state and social system. (Rothstein, 1929: 185)

Further, trade union activity moved significantly away from what involvement there was in independent political movements and toward a corporate political axis, aimed at legalisation and the extension of the suffrage, particularly around the early 1860s. Thus we see the emergence of Trades Councils as the main 'campaigning' body within the movement whose brief, in the case of London, was

> ... to watch over the general interests of labour, political and social both in and out of Parliament. (Musson, 1972: 60)

This 'formalisation' of protest is a key component in the process of politically defining a 'labour aristocracy', equally as important as the differential of wages, prestige and skill. In his earlier pre-Imperialism writings Lenin refers to the,

> ... results of the preceding period in the development of the labour movement ... (which) taught the working class to utilise such important means of struggle as parliament-arianism and all legal opportunites, create a mass economic and political organisations, a widespread labour press etc. (1964: 161)

This approach, which anticipates the writing of Gramsci on reformism, is as Hobsbawm points out, far more fruitful than the later, and more well-known thesis, advanced in Imperialism. The outstanding communist writer on this period, Andrew Rothstein, puts it in a nutshell.

> Hitherto it has been customary to explain the opportunist mentality and sentiments of the English proletariat as chiefly due to one fact - British predominance in the industrial world, which has enabled the English capitalist to dole out more or less considerable crumbs to the working class. This explanation is obviously inadequate, since the opportunist psychology of the English worker became particularly noticeable at the very period when English industrial monopoly had come to an end .... (1929: 263)

We have seen that in the classic period of the labour aristocracy (1850-70) this layer were not suppressing a mass movement, there was none. It is precisely in the last quarter of the century as general political militancy once more appears, that is, when the material foundation of reformism was on the ebb, that the role of the labour

aristocracy in slowing down political development was at its height.

In this light Lenin's earlier formulations stressing the importance of the ideological formation of the labour aristocracy assume a new importance. For if, as has been suggested, the period 1870-1900 constitutes the era of the labour aristocracy, that is, in three decades of absolute economic decline, we should expect to find the validity of this concept not simply in the 'bribes' of the capitalist but in the historical structuration of working class activity created by the legacy of economic dominance. In this sense 'Imperialism' has a vital ideological role in the creation of supra-class images and myths which can both confuse and distort nascent proletarian consciousness, and, perhaps more crucially, mould and crystallise petty bourgeois and ruling class solidarity - whose distinguishing uniformity may lie in the denial of the concept of 'class' itself.

Thus, we should not be looking for an absence of strikes or political activity in the labour movement but rather the limitation of this activity to a particular layer, and its character to have changed. It is in this period we see two processes at work on the nature of labour activity. Firstly, there is a significant move toward the extension of 'citizenship', both in the national electoral arena and local government politics. Secondly, there is gradual and uneven process of the creation of class through the 'factorisation' of trades and skills, and from this the development of the social expression of wage-labour, the trade union.

The former to some extent we have discussed, but it is to the latter we now turn. What were the consequences for the working class of the emergence of the large scale organisations of their own making, and what were the decisive factors in creating their form and ideology?

The problem with all explanations at the level of ideology is to give them a 'material' or 'real' basis. Lenin attempted to do this in the distribution of rewards from Imperialism, but the argument becomes circular. Why do the ruling class wish to 'buy off' a section of the workers? Because, it is said, this will frustrate the emergence of a wider class consciousness : but the generator of this consciousness, the class struggle, was by all accounts, including Marx and the Webbs, notably absent in the very period it is supposed to be being 'frustrated'.

One important attempt to solve this problem is Class Struggle and the Industrial Revolution by John Foster. In this book he traces the actual formation of a labour aristocracy in the 1850s and 60s in Oldham, from the ruins of an earlier period of collective labour solidarity. In his account of the two preceding decades Foster shows how the working class movement, led in the main by the cotton spinners, used their techniques of struggle in the workplace to influence and control the political structure of the town from which they were disenfranchised. In particular the tactis of boycotting unfriendly shopkeepers, 'exclusive dealing', to ensure the election of sympathetic local representatives, the control of poor relief and the expenses of the police, all relied on the fostering of mass discipline and allegiance. It was this utilisation of the lessons of the factory and trade union struggle in the affairs of the local state authority which allows Foster to claim that this constituted the 'first' class consciousness. (Foster, 1979: 51-69)

Using Northampton and South Shields as 'control groups', Foster argues that Oldham had both a large radical layer leading as radicals, a labour movement, in contrast to Northampton where radicals existed in some numbers, but without a homogeneous working class, or (as in South

Shields) where the radical group were unable to translate elementary forms of extra-legal struggle into a permanent political transformation. In short, only in Oldham did occupational solidarity develop into a wider political content by (taking Lenin's definition) concerning itself with the 'affairs of the state'. (ibid: 73-107)

> At every stage the social perspectives inherited from everyday industrial experience seem to have played a key role. It was the sectional shipping identity that made things so difficult in Shields. It was the Factory Act experience that at any rate helped them in Oldham. (ibid: 123)

The leadership of the Oldham labour movement was almost entirely in the hands of the skilled workers, and then by the 1830s and 40s joined by an influx of the petty bourgeoisie, many of whom were ex-wage labourers. Foster attributes this to two factors: the relatively small differential of income and status between the petty bourgeoisie and the working class, as opposed to between them and the local bourgeoisie proper; and secondly, the extraordinary sense of purpose and unity derived from two decades of campaigning for a Factory Act to limit hours of working (an issue central to the overwhelming majority of Oldham's population). (ibid: 131-40, 151-60, 163-65)

What destroyed the radicals' hold over the workers was the break up of this alliance in the improving situation of the late 1840s. Given the big boureoisie's cultural, as well as economic isolation (Oldham's churches seem to have been uninfluential as symbolic unifying institutions) it is only logical that Foster turns to examine the re-imposition of industrial authority to measure the decline of radicalism as a mass force. (ibid: 186-94)

To demonstrate this Foster concentrates on two areas: the fragmentation of the radical leaders and the creation of an elite within the workforce of the major industries.

By 1850, he argues, the hold of the radical vanguard had been broken. Not only had the wider workers movement lost its initiative, but the leaders themselves were beginning to be drawn into the existing political system. But another factor was the positive attempts by the bourgeoisie to win back the allegiance of their workforce by the adoption of some of their demands. Whereas Marx had argued the Ten Hours Bill had received support only from the landed aristocracy in order to redress the defeat of the 1831 Reform Act, engineered by the industrialists, Foster cites in Oldham two examples of local manufacturing capitalists taking this stance. Whatever were the wider class implications of this, it certainly had the effect of disrupting traditional alliances throughout the town's class structure. (ibid: 205-212) In a brief analysis of the mass organisations of labour - the Church, Masons, Orangemen, public houses, adult education, temperance, and the Friendly Society - only the latter was not part of two mutually exclusive groupings.

> While the social base of the mass sub-culture was the public house, it was the rejection of the public house - temperance - which was virtually a condition of entry to Sunday school and adult education. (ibid: 223)

Since the working class in Oldham was now by the 1850s divided amongst itself the authority system must lie elsewhere, and for Foster the answer lies in the creation of industrial elite, to mediate the authority of the capitalist class over the whole of society.

It is at this point where the argument turns to the decisive influence on the creation of a labour aristocracy, and its relation to changes in the method and hierarchy of the work situation and thus rejoins the main thread of our analysis. For as stressed earlier, we are not primarily concerned with the theory of the labour aristocracy, but with the questions it raises in the understanding of the impact on

on industrial life in the last quarter of the nineteenth century. Foster's contention is that the new authority 'internal' to the workforce was the product of the elimination of craft autonomy and the creation of a new priviledged layer 'policing' the layer below. (ibid: 224-30) In his fixation with 'defending' Leninist orthodoxy Foster presents a univeralistic answer to a question, which by his own premises, is an essentially disparate problem. For if the new source of capitalist social control now operates at the place of work rather than externally upon the labour community as a whole, it follows from the dictum of the 'combined and uneven development' thesis that this could not result in a corporate ideological result. Our examination of the work experience will demonstrate this point.

The Craft Union and the labour aristocracy

> The unskilled man is already catered for by special unions, but all skilled men and men working machinery should be within the ranks of the A.S.E., ... every mechanical operation and every machine tool should come within that scope. (A.S.E. Journal: February 1903)

The great strength of the labour aristocracy theory is that it forces the labour historian to consider the relationships between objects of study which are otherwise so often categorised and pigeon-holed: trade unionism, the industrial economy, party politics, strikes and conciliation. Of course, it is easy to err the other way and rely on sweeping generalisations, as undoubtedly did Lenin, whose main task was polemic, not scholarly achievement.

Perhaps the main contribution Lenin made was to direct our attention to the fact that because of the diversity of conditions in different industries, regions, etc. of the same economy, a purely 'economist' labour movement must emerge segmented into its own concerns, problems

defined by the circumstances of the trade. This point is made most forcefully (again for polemical reasons) in the famous pamphlet What is to be Done? (1970, Vol. I: 162-171) From this he deduced the need for a particular type of organisation, politics and programme - the details of which need not concern us here. The significant point is that the relationship proposed is not between 'economics' and 'politics' but between class action and class ideology.

In a somewhat more orthodox application of this approach Hobsbawm has, with great skill and accuracy, proposed several ways in which the labour aristocracy might be 'defined' i.e. differentials, sub-contraction, the degree of de-skilling, security of employment and life. Of these, for theoretical and practical reasons, he suggests the first is the 'main criterion'. (1976: 273) In one sense this is obviously correct: in a society now based on the accumulation of money, obviously a central feature of any relatively priveledged layer would be income or wealth (depending on their relation to the means of production). However, the dangers of determinism are obvious. Once established as existing 'objectively' its effects can be assumed (reformism) and its decline implying its antinomy (class consciousness). Hence the search for explanations at the level of ideas, and the totally false debate about the pronounciations of trade union and working class leaders in the Victorian era. (Clements 1961; Harrison 1965; Musson 1976: 49-56) In a realisation of this problem recent writers have introduced the writings of Gramsci into the theory. (Gray 1974: 181-6; Hobsbawm 1976: 302)

The danger inherent in all explanations based on defining a 'membership card' for the labour aristocracy is their tendency to portray the group as passive and manipulated from above - either by

conscious political strategy or 'naturally' through the processes of Imperialism. Even the most lucid of advocates thus produce statements such as:

> For a whole half-century labour's class organisation remained virtually under enemy control. (Foster, 1976: 24)

The problem remains, however, of demonstrating this a posteriori i.e. as a historical construction, not as an assertion. Or as proposed earlier, as a question of formulating the conditions under which a particular type of class action resulted in a particular ideology not because of an ephemeral relation of 'base' to 'super-structure' but through the course of historical analysis.

The use of a concept originally evolved by Weber, and recently modified and expanded by Frank Parkin can begin to answer these problems i.e. 'social closure'. (1974: 1-19) Parkin uses this concept in a manner largely ignored by Weber. Weber defined 'social closure' as a process by which a 'social collectivity maximised rewards by restricting access to a limited circle of eligibles', and achieved by singling out one attribute in order that the group may then create a monopoly of it. In his use of the concept Weber specifically detaches it from the notion of class: 'community closure' may occur at varying levels of the stratification hierarchy and is not the prerogative of dominant groups. However the 'attribute' which becomes monopolised if often concommitent to a rational pursuance of economic and political interests, which Weber calls 'associative relationships'; these are contrasted with 'ethnic communities' which rely on criteria 'outside' the opportunity structure to create symbolic racial or religious communities which in general reflect the existing pattern of reward, and thus are used as pretexts for excluding competition those groups which are so labelled. Weber did not envisage relationships within such

communities as harmonious - but on the contrary considered a condition of their continued unity to be a vigorous internal struggle between sub-groups, and for the forceful subjection of the weaker by the stronger. It is out of this process that ethnic and racial stereotypes arise via the disparity of communicative symbols. He also notes that the response of excluded 'negatively privileged groups' is effectively controlled; resistance cannot normally take the form of retaliation along a similar line of action i.e. exclusion. (Neuwirth 1970: 56)

This point is restated by Parkin, as a distinction between "two general strategies for staking claims to resources: those based upon the power of exclusion and those based upon the power of solidarism", of which the latter is the predominant 'mode of closure' in all stratification systems. Solidarism,

> may be regarded as collective responses to excluded groups which are themselves unable to maximise resources by exclusion practices.

Parkin, unlike Weber, wishes to firmly relate this to the division between the bourgeoisie and the proletariat, but also unlike Marx,

> not specifically in relation to their place in the productive process, but in relation to their prevalent modes of closure: exclusion and solidarism. From this angle it is possible to visualise the fundamental clearage in the stratification order as that point where one set of closure strategies gives way to a radically different set. (Parkin, 1974: 5)

Parkin goes on to contrast bourgeois forms of exclusion with those of solidarism. The former rests, in the modern world on the rhetoric of individualism and 'classes of nomination'; behind which is a de facto collectivist exclusion and 'class of reproduction'. The latter, however is largely dependent upon social mobilisation and organisation rather than the maintenance of the juridical and ideological status quo. Solidarism is always aimed at usurpation of the resources

of existing groups and thus involves convincing members to act contrary to the distributive justices of the 'excluding' or dominant group. Further, it follows that the extent to which the dominant group successfully convinces the excluded group of the merits of individual aspiration would divide the latter, weakening the totalising character of communal status.

The use Parkin puts Weber's notion to clearly fits into his general theoretical understanding of the occupational order as the dominant distributive focus of the reward structure, via the inter-change of skills and expertise in the labour market. (Parkin, 1972: 18) The interpretation he offers has some weaknesses which will become clearer later but first let us examine what it has to offer. Obviously and primarily the exposition links the nature of social action to the 'structure of rewards', and the limitations placed on disadvantaged groups in challenging that structure. This enables us to both examine how dominant groups, by virtue of their privileged position, not only create institutions to defend their interests, but in the process define and direct the strategies of groups attemting to usurp them. In other words, the definitions of what constitutes an elite is in part a definition and explanation of how that elite is maintained. Hence the the possibility of a theoretic bridge between production relations and class domination is created by elucidating the dialectical framework of action 'imposed' upon the contending classes by their mutual interdependence. In this way the familiar dichotomy of 'base v. super-structure' (oft conceived of in 'zero-sum' terms) can be subsumed within a more general problematic of the role of class action in that the former is determinate 'only' insofar as it limits the modes of action possible, not the 'forms' and 'types' of consciousness. In other words, the debate can be removed from 'heaven and earth'; from the speculative

attempts to determine what goes on in people's heads to a practical theoretic conception of man, as Gramsci puts it, a,

> series of active relationships (a process) ... these relations are not mechanical. They are active and conscious ... one's own individuality is the ensemble of these relations .... (1973: 352)

As we stressed earlier, the conditions under which class action occurs are inseparable from our understanding what constitutes the 'product' of class action, the superstructure i.e. forms of consciousness, ideology, etc. As Williams puts it,

> The language of determinism and even more determination was inherited from the idealists and especially theological accounts of man ... Marx's own proposition explicitly denies this and puts the origin of determination in man's own activities .... (1972: 5)

The use of this model requires in the theoretical field a break with the framework within which Parkin operates. We use his ideas only insofar as they remind us forcefully of what is a central thread in this section namely, that the action undertaken by classes to defend and extend their interests is a prime factor in the manner by which they are maintained in a dominant or subordinate role, and thereby in the formation of ideological views which confirm this relation. Insofar as his approach conjures a particular 'picture' of the class structure based on the differing forms of collective defence of opposing interests, then it is an important element of a theory of class <u>action</u>.

For example, Parkin makes much of the new 'disruptive potential' of sections of the labour force produced by the increasing inter-dependence of industry as an example of the fluid balance of forces within the labour market. Yet, of course, the <u>issues</u> around which these sectors organise (defence of skills, 'professional status', differentials etc.) with partial success are very much refracted

aspects of the dominant culture, and represent an interpretation of it from the point of view of subordinate groups. However, it is not the case the adoption of 'exclusionary' tactics are a result of the pressures of the class system as a whole. For example the Engineers' shop stewards movement during the First World War was a product of their position within the working class changing; or again we see the active promotion of an exclusionary role by employers as a strategy of job supervision. (Hinton, 1972; text:148-52) In other words, Parkin's model intimates a conclusion fundamentally at odds with his basic contention that the modes of closure adopted by collectivities is a function of their place in the occupational order. Rather, it is that the types of action adopted is a product of the structural resources open to collectivities in the social order, in which the adoption of a predominant mode of closure indicates the form of action, and the dynamics of, the class struggle, rather than the agency of the conflict itself. Parkin seems to assume that an adoption of a predominant 'mode of closure' is a signal of an automatic access to a particular form of power and ipso facto a defined position in the social structure. In reality the process is exactly the reverse; the 'ability' of collectivities to adopt differing strategies is primarily determined by their relation to the mode of production.

However, inasmuch as the categories of solidarism and exclusion are fundamentally modes of action, this reminds us forcefully that the class structure is a process rather than a state, and as such is inseparable from the evocation of collective action by groups within it: institutionalised, crystallised, reinfied, naturalised or whatever - but not a phenomena of a separate order from the action that constitutes it. In this context it is argued that Parkin's categories of exclusion and solidarism, revised to be included in Marxist theory, could provide

an introductory re-evaluation of the relation between class action and class domination which remains only implicit in Marx's writings. It is a general contention of many sociologists that the involvement of the working class in the institutions and fabric of bourgeois democracy has significantly modifed the structural impetus (acknowledged by most to exist in 'abstract') leading capitalism toward political crises, and thus by implication that the hierarchy of political power has been radically redistributed in favour of non-elite groups, or at least there exists the widespread belief that such a transformation has occurred. Thus many writers are led to contrast the continuing inequalities of wealth and social mobility with the apparent lack of political instability and progressive de-radicalisation of non-elite leaderships. (Parkin, 1972; Goldthorpe, 1972)

If we are correct in proposing, therefore, that the fundamental line of enquiry is an examination of the context of class action, and that this is inseparably from organisational form it takes, it must follow that the study of an elite of the working class has to be based on its role within the process of production. The structure of this elite will therefore also be an expression of the conditions by which it is maintained, and thereby the tactics adopted to achieve this. But since the development of capitalist social and economic organisation takes the 'combined and uneven' form, there will not be one strategy, or one ideology typical of this elite, but a whole series of them corresponding to the special conditions of each sector. To be sure, there are similarities and common points of interest and mutuality which one may wish to label the 'labour aristocracy', but this, as we have stressed,

not our central task here. Our task is to explain the emergence of an occupational elite - the sum total of which produce one element of variegated class system (albeit ultimately dichotomous in structure).

From this we conclude, firstly, that the impact of British capitalism on the labour movement was, because of its pioneer characteristics, primarily the articulation of class interests in the form of the sum total of occupational interests. Secondly, as a consequence of this, the locus of the labour elite lies in an analysis of the internal manufacturing relationships. And third and finally, that the character of this elite will be defined by its own activity in the maintence of its position in the occupational order. In short, the relationship of the labour aristocracy to Imperialism or to the rest of the working class is an empirical question. Since we cannot investigate it, in this way, at the level of whole economy, we will analyse three occupational groups, part of three 'core' industries, in details; engineering, coal and textiles.

CHAPTER IV

CAPITAL FORMATION AND PIONEER INDUSTRIALISATION

In this section we will examine the economic outlines of the three industries under investigation in order to clearly state the context of the work experience of the workers in them. Naturally these sectors were subject to certain overall conditions common to the latter half of the century; primarily the form of the capital market and the consequent characteristics of capital formation in English capitalism.

Two factors stand out clearly from the literature on this process. Firstly, right up to the end of the nineteenth century the bulk of new capital was raised from profits and savings and found informally via familial and business circles, which in turn maintained the relatively small scale of British industrial organisation. (Clapham, 1938: 203) This was due to a number of related causes, but principally because of the simplicity of the productive process in the major expanding sectors, cotton, metallurgy and coalmining. Growth could thus be sustained by a multiplication of units, rather than by the monopolisation of demand. In cotton in 1787 there were 143 mills, and by 1835, 1070; whilst in 1791 there were 73 blast furnaces and 233 in 1806. (Levy, 1927: 102) The late arrival of the joint stock principle in 1855 was not a product of industrial pressure, but a combination of 'middle class philanthropists' and London financial interests (Saville, 1956: 419) and which by 1885 accounted for at most five to ten per cent of the total of important business organisations. (Jeffries, 1938: 105) Naturally, as demand became less buoyant towards the end of the century the inevitable contraction occurred, but the traditional structure of capital financing remained. In particular, the investment in transport,

which amounted to over half the gross capital formation in the 1850s and 1860s, was funded largely in this way. (Deane, 1968: 99-100)

Our second factor, is of course, the consequent underdevelopment of an institutional financing system for domestic investment. London although being the centre of international banking, played little direct role in home financing. Of course, success overseas provided some of the available capital raised informally for British investment, but these figures reveal a much closer relation to profits. When capital outflow was at its greatest, 1812-1913, there occurred a gestation period in home investment which pursued a steady downwards trend (except for a brief period in the late 1890s). (Imlah, 1958: 50-76) Indeed, a popular explanation of the economic stagnation of those years is the low level of domestic profits and the resulting sluggishness of industrial finance hindering a response to the gathering pace of continental and American competition. (Church, 1975: 50-63)

This relates to the important fact of the very limited base of the industrial (in the sense of mechanisation, factories and so on) revolution. The breakthrough of the 1780s and 90s was based on one major industry - cotton - with weaving remaining unmechanised for the next 40 years. This and other sporadic technological refinements over the next 50 years (for example in iron and brickmaking) whilst labour-saving in origin created typically in its wake a series of semi or unskilled tertiary jobs.

> The industrial revolution far from abridging human labour created a whole new world of labour intensive jobs .... Capitalist growth was rooted in a sub-soil of small scale enterprise. (Samuel, 1977: 8; Clapham, 1932: 124)

Thus whilst the larger enterprises developed elements of a corporate structure, the bedrock of British entrepreneurs remained small-scale

'Gradgrinds' of popular fiction, up to the 1870s. The rapid rate of return of capital investment, both domestically and in international trading which applied up to this period, also favoured the continuance of an informal capital market, and in turn hindered the emergence of monopolist or oligarchical industrial enterprises. The absence of tariffs, or a natural monopoly of minerals was also a factor. (Levy, 1927: 298)

Another relevant feature of the economy was that the main consumers of capital were those industries orientated toward export not the home domestic market. In cotton, wool, iron and coal the percentage exported had, by the third quarter of the century, risen to 60, 30, 40 and 55 per cent, respectively. (Deane and Cole, 1969: 187, 196, 225, 216) It was here that the first moves were made to end the traditional complex partnership system of British entrepreneurship, and toward the corporate firm based institutional, financing and controlled by a board of directors. (Jeffries, 1938: 105) The lack of a large-scale domestic consumer sector reflected both the logic of capital accumulation, 'the priority of profits', and the consequent lack of demand from the home market. This in turn facilitated the continuance of large numbers of small concerns (often based on out-working with little fixed capital) to provide for the limited consumer spending, over and above food and housing. The generous labour supply placed no incentive (from that angle) on employers to economise and thereby develop a clear hierarchy of differentials. The inbuilt conservatism of this situation was aided by the active opposition of the major trade societies to machinery, on the assumption they reduced employment and hence craft autonomy. The Webbs detected a change in this attitude in the 1860s and 70s, reflecting the consolidation of the industrial structure so that labour-saving devices tended toward a more

efficient use of labour, rather than the expulsion or ruin of the majority from the industry. (1920: 392-420)

Given the labour elasticity of Britain up to the 1890s this suggests that innovation would tend toward the replacement of skill by semi- or unskilled tasks rather than the drastic reduction of labour itself. First in cotton, then the paper industry, engineering, weaving, iron, and then in the pre-industrial sectors such as carpentry, the boot and shoe industry and printing technology tended toward de-skilling rather than depopulating the industry as a whole. Technological displacement was, as we shall see, the major concern of organised workers throughout the second half of the century (until 'new unionism') the classic example being the 1851 Engineers lock-out. We shall see how this economic pressure reinforced the sectoral outlook of the trade societies as they struggled to accommodate to mechanisation, rather than resist it in toto.

For the moment, however, it is sufficient to note, in the words of their most voluble apologist Andrew Ure that the capitalists when faced with worker resistance to the 'automaton':

> ... sought deliverance from this intolerable bondage in the resources of science, and were speedily reinstated in their legitimate rule, that of the head over the inferior members. (1834: 369)

This combination of labour intensive factory operation with considerable remnants of outworking and domestic production, inevitably meant a high proportion of working to fixed capital within the economy as a whole. Clapham has described how the former came mainly from the London market or the discountable bill procedure, and thus a consequent reliance on internal profits for fixed capital investment. (1932: 355-6) This retarded the structuration of the working class into high, medium and low paid on any significant scale until the last quarter of the

century - or to put it in economic terms - severely limited the emergence of a mass consumer home market. This is not the same as arguing there was little differentials, on the contrary, the wage system reflected strongly the pre-industrial stratification of craftsmen, helper, labourer and apprentice, male and female. What is significant is the degree to which the staple industries of the economy relied on overseas requirements; if mass production of consumer durables and services implies concentration so the absence of this type of production implied both limited demand and limited concentration. There are examples of the delay in the application of innovations due to the limited mass demand: an example being the self-actor mule which was unsuitable for fine spinning of luxury articles. (ibid: 69-79) The other side of this coin is, of course, a low wage economy, strengthening the attraction of labour intensive work organisation and thereby the satisfying of small scale domestic techniques. This process which Habakkuk has called a 'widening rather than a deepening of capital', (1962: 141) explains (in harness with the other factors) the continued survival of the small scale manufacturer and merchant even when the supply of capital was objectively sufficient to enable a technologically more advanced, and organisationally more concentrated, industrial structure.

Engineering: Size, Structure and Ownership

The purpose of this section is, as mentioned before, to explain the basic parameters of the work experience of our three groups via an examination of the structure of their respective industries. With the engineers we are faced with a problem. It is obvious where cotton and mine workers worked: overwhelmingly within one industry. However, the engineers and their union, the Amalgamated Society's (A.S.E.)

membership, was spread widely throughout the whole industrial structure, often in small specialist groups, within a wider generic labour force: a position reinforcing their traditional craft exclusiveness. The engineering firm and indeed the term 'engineer' were comparatively late arrivals, the census returns still referring to 'machine, engine-boiler maker, wheelwright' up to 1861. Consequently the fragmentary statistical returns have to be treated with caution, and the impressions they give as indicative.

Having made these reservations the evidence suggests a consistent tendency, throughout the century up to the last two decades, toward a relatively small unit size. According to the Select Committee of 1824 there existed in London around 500 engineering works, employing a total of only 10,000 workers, although there was one example of a northern firm of 150. (1824 V: 156, 357) The reason for the uneven development of the industry lay simply with the narrow base of technology:

> The relatively small scale of most machine-using industries other than cotton is sufficient to account for the smallness of the young engineering firms. (Clapham, 1926: 155)

Given the character of engineering as an occupation the researcher when interpreting the Census returns has to make educated assumptions in amalgamating several categories to reach a figure for the industry as a whole. Further, the nomenclature is confusing: the category 'engineer and engine worker' probably constituted two distinct occupations, namely, engine and machine maker and engine tender. (Day, 1927: 142) As the Census gives no clue as to the proportion of each we are forced to simply half the composite total in order to exclude this latter group. This done and combined with the following returns for 1851, (1) general machinery and machine working, (2) steam engine, (3) hydraulic machinery, (4) machine tools, gives the total of

32,667 persons. (Table cclxxvii 1851 XIV) It is interesting to note that in those occupations wholly within the industry there is only a small degree of regional concentration (allied of course to textiles). Of the engineers in England, 22% were in Lancashire, and of the millwrights, 20%.

In evidence to the Committee on the Export of Machinery in 1841, a Mr. W. Jenkinson gave a number of estimates of 'mechanical establishments' in Lancashire. Unfortunately, whilst the number of firms and the capital employed is given, the number of workers at each factory is an estimate of the optimum capacity of the firm at its present position. This was to illustrate his point that,

> ... within the next 12 months we could produce double the quantity that we have produced in the last 12 months if it was required. (1841, VII: 100-2)

For this reason the figures of employees per factory have been reduced by 40%, and show the following (to the nearest whole figure:

TABLE I

Town	Employees per Factory	Capital per Factory	Capital/Employer Ratio
Manchester	125	15,385	124
Salford and Patricroft	168	26,667	159
Stockport	38	5,000	132
Ashton	87	10,625	122
Rochdale	33	6,154	186
Burnley	25	6,000	240
Bury and Heywood	63	10,000	159
Bolton	193	31,429	162
Preston	79	14,286	181
Blackburn	72	8,333	116
Oldham	69	10,526	153

(ibid: Appendix No. 2, 230)

So, according to this table the average engine and machine factory in

Lancashire employed 91 workers and £13,174 capital. Bolton, on the other hand, had the largest factories employing 193, on average, and £31,429 capital.

However, it would be unrepresentative not to give an indication of the size of the larger (and more famous) enterprises, who nonetheless, as we have seen, were the exception rather than the rule.

TABLE II

Name and Location of Factory	No. of Employees	Type of Manufacture
Acramans, Morgan & Co. Glous. (1)	1,200	Engineers, Millwrights
Hibberts & Platts, Lancs. (2)	900	Machines
Sharp & Roberts, Manchester (3)	800	Locomotive Engines
W. Fairbairn (4)	550	Textile Machines
Nasmyth, Gaskell & Co. (5)	500	Machine Tools

(1) 1834 XV: 17; (2), (3) and (5) Butterworth, 1847-8: 186-7
(4) 1841 VII: 208

In 1851 the census showed 837 machine makers and 2,057 wheelwright employers: 160 and 670 respectively making no return of their number of employees and can be assumed to be journeymen craftsmen, probably aided by wives, sons and daughters. Of the rest the following table summarises the position:

TABLE III

No. employees	Engine/Machine Maker %	Wheelwright
1 - 2	22	71
3 - 9	43	27
10 - 19	13	1
20 - 49	11	1
50 - 99	7	-
100 +	5	-

(Derived from figures in Clapham, 1932: 35)

This underestimates the position somewhat because the census was taken during a period of rapid engineering growth: Joseph Whitworth had 172 names in his books in 1844, ten years later he had 636; Nasmyth's Bridgewater factory doubled in size during a similar period. (Smiles, 1883: 216) Nonetheless, the general character of the industry (and of the economy as a whole) is best exemplified in the categories of size chosen by Clapham. The census table categories rise up to 350, but only in four or five industries is it required. In engineering the return itself details 34 firms of 100+, fourteen of whom were over 350. In the generic category of 'millwright' there are a further six enterprises of 100+, but 56% of the rest employed 10 or under. (1851 XIV, Census, Ages and Occupations, table cclxxvii)

Unfortunately, the attempt to classify by size was not repeated in future years (the enumerators did not think very highly of the English ability to cope with forms). Furthermore, as the industrial order changed so did the occupational nomenclature, making dicennial comparisons in engineering difficult. However, with these reservations the figures are as follows:

TABLE IV

Occupation	1861	1871	1881	1891
Engine and Machine Maker	60,862	106,680	110,084	134,901*
Wheelwright	30,070	30,394	-	27,950

*including category of 'fitter and turner'

There is in all these censuses, a myriad of other occupations in which 'engineer', of one sort or another, would be included, and on the other hand jobs, such as patternmaker which involved mainly non-metal working, but nevertheless qualified for membership of the A.S.E. According to the 1892 Rules the following occupations qualified.

> Smiths, ship smiths, Angle iron smiths, Fitters, Turners, Pattern makers, Millwrights, Mechanical draughtsmen, Planers, Borers, Slotters, Brass finishers, Coppersmiths, Machine joiners, Die sinkers, Press tool makers, Stampers or drop hammer forgers. (Weekes, 1970: 35 f.n.)

Representative figures on size are therefore impossible without a complete industrial survey, such as the one carried out in 1907. What is clear, however, is the striking increase in the number of firms throughout all the sectors in the last quarter of the century. A meticulous investigation of the Kelly's Directories in three years produced the following table.

TABLE V

In 1877	1721	firms	had	2509	entries,	divided	amongst	35	sectors
" 1892	3755	"	"	5773	"	"	"	45	"
" 1907	3429	"	"	5104	"	"	"	45	"

(Floud, 1976: 9)

This growth was accompanied by a substantial turnover of firms, so that in both 1892 and 1907 the majority of firms had been founded since the preceding year. (ibid: 10) Size was not indicated in this study, but the average number employed by firms before the 1892 Labour Commission was 453, and of those investigated by Booth in 1903 in London, 375. (1892 VII: 178-188; Booth, 1903, Vol. V: 357-63)

The basic boundaries of the engineering industry which ultimately determined its structure in the last half of the nineteenth century can be summarised as follows: The market for engineering products was dominated by capital goods requirements largely for export, with little output directed toward the home consumer demand. (Habakkuk, 1962: 207-8) As a result production runs were short and distinct, orders differed widely and the firms to which they went worked from the necessities of

each requirement rather than universal guidelines (the slow introduction of Whitworth's plane surface and gauges is indicative). With the exception of cycles the industry was very slow in turning toward the items of the 'second industrial revolution' - electrical goods, type-writers, cars, sewing machines, etc. (Clapham, 1938: 123) Thus the lack of standardisation corresponded to the character of production, which itself flowed from the limitations of the market.

This factor is clearly related to early crystallisation of the industry into specialised sectors around the concerns of the 'first industrial revolution'. The basic distribution was established by the 1850s, and by 1877, 72% of engineering firms produced only one product. (Floud, 1976: 10) Textiles, the major innovatory industry of this period, both expanded and contained its ancillary services. Whilst dramatically increasing the demand for machinery and power the high element of raw material in the unit cost, and the inelastic demand, both combined to limit the overspill into the economy as a whole. (Habakkuk, 1962: 181; Saul, 1967: 112-4) A process that was reinforced by the geographical concentration in Lancashire. It was not market opportunities that were lacking, particularly abroad, it was the static nature of this market and its slow rate of growth in relation to other areas. As far as the end of the century textile machinery came to about a quarter of total machinery exports (which, of course, strengthened overseas competition to home textiles). (Clapham, 1938: 65)

As the market stabilised so did the rate of domestic technological advance, in so far as the latter depended on the availability of capital. (ibid: 233-5) Innovation did not cease after the 1850s, but in terms of major changes in labour utilisation no significant advances were made for 40 years (text: 127). The stability of the capital-labour ratio

found reflection in the relatively untroubled advance of trade unionism up to the 1880s, despite the formal defeat of 1851. This is best reflected in the federal structure of the A.S.E., where local bargaining strength in some areas produced regional wage differences of 30 to 40%. (Burgess, 1975: 27)

Another consideration affecting the structure of the industry, flowing from the above, was the ability of the labour force, mainly the skilled section, to resist change and innovation weakening their job control. This factor, discussed in detail later, enabled the A.S.E. to ameliorate piecework, overtime and, according to a Tyneside member speaking to the Royal Commission,

> ... the workmen as a rule know their trade sufficiently well to evade the taskmaster. (1893 XXXII: 172)

This interregnum coincided with a period of 'peace' in the trade war with the U.S.A. and Germany in the production of manufactures: in the last two decades of the century competition in the same sectors began in earnest, with the U.K. losing on most counts as her rivals built efficient industries behind tariff barriers. (Clapham, 1938: 35-7, 309-10) This 'late' arrival of competition again meant there was no external impetus to innovation in the 1850-80 period.

By the turn of the century the industry could be divided into three broad categories:

1. General engineering: machine making, shipbuilding, armaments and munitions, locomotives, engines, tools and implements.
2. Electrical engineering.
3. Vehicle building, motor car construction, cycles, etc.

Each area had its own special characteristics. Higher capitalisation in armaments and munitions, but a stable market; rapid technological change in electrical engineering, weak trade unionism but fierce domestic

competition, and so on. Altogether around two million persons found employment; one-sixth of insured workers and one-eighth of all wage earners. (L.R.D. 1922: 6) The 1907 census of production estimated from one-half to two-thirds of the total product of engineering was exported, but distributed in the following way.

TABLE VI

	For Export	Home Markets
	% of total production	
Steam Engines	66	34
Agricultural Machinery	73	27
Textile "	46	54
Electrical "	23	77

(ibid)

These figures in their own way demonstrate an often made criticism of the industry up to 1914: its commitment to the past. It can be seen that exports were weakest in the fastest-growing areas of Electrical engineering and greatest in the relatively declining market for steam power. We can therefore expect to find differing degrees of pressure upon trade union custom and traditions in these sectors, which the section on work experience will try to show.

The structure of ownership in Engineering is very difficult to assess. Not only is there the wide differences in product, markets, techniques and so on, but also the large number of firms in which engineers were employed, but whose output could not be considered part

of the industry. The Engineering Employers Federation itself was not formed until 1896 from an amalgamation of regional associations in the Clyde, the North East, Barrow, Belfast and, in 1897, London; not until after the war did the Birmingham employers complete the Federation. This history of regionalism is significant and reflects the relative insularity of even this industry from the pressure of national economic considerations. Indeed the timing of Federation suggests unity was fostered primarily by the need to organise a concerted drive against craft restrictions culminating in the 1897 lock-out. The Federation had by 1918, 2,500 members, and the issued capital of 200 of the largest firms amounted to £300 million. Given a total capital estimate of £500 million for industry as a whole this means the average capital of the remaining 2,300 enterprises was under £90,000. (L.R.D. 1922: 10; 1918 XIII: 345)

The survival of these small firms was due to several factors. Firstly, improvements in the delivery of power, through electricity and gas engines which eliminated the need for a large initial outlay, and were suitable for small premises. (Allen, 1929: 229-30) Secondly, as some trades, such as shipbuilding and armaments became dominated by the giant companies, so in others such as bedsteads, knives, textiles machinery and cars, the small concern was able (because of some factor in the market, labour costs, or whatever) to continue. In particular, the lack of penetration of mass production methods and standardisation contributed greatly to this. This operated in two ways: less specialisation within firms and more market 'room' for competing firms in the same product area. This is nowhere better exemplified than in vehicle manufacture. In 1909, according to the Tariff Commission, 160,000 persons were involved in their manufacture, yet production methods were such that,

> At least 90% of the cost of a motor car is labour pure and simple. (Vol. IV: 168)

By 1913 there were approximately 22 firms producing on average 1500 or so cars per year; the U.S.A. with probably a quarter of the firms was turning out 485,000 units, or over 100,000 per firm in the same year. (Saul, 1968: 223-4) A government report in 1918 indicated this state of affairs by no means untypical, the 'bespoke' manner of production in cars reflected a wider lack of specialisation.

> We have been much impressed ... by the very large number of relatively small firms that exist ... each producing a multiplicity of articles. (1918 XIII: 10)

Horizontal combinations and associations of various sorts and purposes were common, the obvious example being the Employers Federation itself. But also, during and after the war, price-fixing rings appeared, e.g. the Agricultural Engineers Association, Cast Iron Pipe Association, and the National Light Castings Association. Alongside them in other areas marketing associations in the edged tool and machine tool industries; finally temporary groupings were formed to secure contracts and prevent under-cutting where big projects (usually overseas) were under tender. (L.R.D. 1922: 12)

On the other hand, vertical associations, the most 'typical' form of capitalist monopolistic practice were less popular until well into the twenties. The structural reasons for this have been discussed elsewhere and lie in the relationship between financial and industrial interests. This view is confirmed by Hugo Hirst a director of the first of these organisations (the General Electric Company formed in 1907) in his evidence to the Tariff Commission. In the U.S.A. and Germany amalgamations were caused, he argued, by businesses being financed directly by the banks who, particularly during slumps and competitive trade wars, encouraged the merging of similar companies to

minimise their financial risk.

> In this country on the other hand, the bulk of the money has been spent by the municipalities under the supervision of their engineers, and of course these gentlemen did not look to a single manufacturer for all their varied requirements. Consequently electrical companies in this country have remained more specialised and divided into smaller sections and less able to compete for big schemes in the markets of the world .... English firms too, work more with their own private resources .... (Vol. IV: 405)

In a secret report of 1919 (made available to a few selected historians) it was said that,

> What is notable among British consolidations and associations is not their rarity or weakness so much as their unobtrusiveness. (Clapham, 1938: 316)

Overseas pressure on engineering markets did not, up to 1914, primarily lead to amalgamations nor in the raising of the capital/labour ratio, but in the drive reduce labour costs and improve productivity. According to The Engineer of January 17th 1902,

> Foreign competition has not been an unmixed evil. High speed steel and two machines to one man bear testimony to its influence.

The small operator was paradoxically aided by this competition the larger firms so feared. The skilled man (often a pattern-maker) could launch a workshop using the second-hand machines, sold off cheaply by the larger shops, and buy in cheap foreign machine tools. The suppliers of these reject machines would then provide the work to enable the instalments to be paid, thus creating a three-tier sub-contracting system (based on non-union labour and long hours of work) able to compete in the myriad of product markets. This system flourished, particularly in the Capital, in the years up to the war. (Watson, 1935: 27) The repair trade was also an expanding area for the small shop, of which it was said London engineering 'was almost exclusively engaged'. (Booth, V, 1903: 294)

At the other end of the scale, it has been noted that even the largest English concerns nowhere near rivalled their American and German counterparts. The formers paramount railway firm employed 19,000 people in 1907, whereas the largest comparable English firm only half that, and only up to 3,400 in one establishment. (Saul, 1967: 115)

However, what is perhaps as important as the actual size of concerns is the extent to which, in engineering, growth meant the accretion of fresh layers of clerical, supervisory and managerial staff as a consequence of the 'upward drift' of knowledge and power from the shop floor. Pollard's study of the origins of management shows clearly how their proliferation was linked to the question of control. It was not the arrival of technology per se, but its application in the capitalist form of organisation that demanded the creation of a group of industrial N.C.O.s. It is significant here that it is in the factory industries, i.e. those in which the techniques of work was most altered, that the position of a non-manual supervisor first appeared. (Pollard, 1968: 185-8) Engineering is an example of the class basis of this process, for the chronology of control within the trade clearly shows the movement away from the discipline of the task and the workgroup was related to the elimination of skill.

Sidney Webb, in a series of lectures delivered to works managers in 1916-17, argued it was really the arrival of piecework and bonus systems which demanded the presence of supervisors, time sheets, and so on. But this was to confuse cause and effect; it was the conditions which allowed the atomisation of tasks that broke down the 'internal' control of the workgroup. Webb was, however, correct to link the two together, his basic message being that the role of the works manager

was to devise and implement a piecework system amicable to collective bargaining by which,

> ... the innate industrial Toryism that is characteristic of the manual worker will be overcome. (1917: 107)

J.A. Hobson was nearer the mark with his perceptive comment that,

> ... the consideration of incentives involves the question of industrial control. (1922: 6)

In the first half of the nineteenth century 'quality control' was undoubtedly in the hands of the skilled workers themselves, and crystallised through the apprentice system. Of the all-round skilled man it was, however, said at the 1892 Labour Commission,

> The old millwright, the most useful class of man almost that existed, has almost absolutely disappeared. (1893, XXXII: 337)

Crucial in this development was the decline of the importance of the pattern shop: to the extent design and technique were separated the less initiative remained with the workshop.

> Nothing in the recent history of engineering is more illustrative of the changes which are taking place than the removal of practically the whole of the design of the product to be manufactured in the shop, that is, from the men who are doing the actual physical work on the material .... (Engineering, February 1907: 173)

The precursor of individual piecework was the piecemaster system, whereby a leading hand contracted with the firm for a job and paid his group according to the improvements that could be made on the original price. This system seems to have been prevalent in the 1860-80 period, particularly in the larger shops, such as railway engines, castings and forges. The A.S.E. checkmated this by introducing a rule stipulating that the 'excess' or premium on each job should be shared in proportion to the established differentials of pay, and enforced by fines at Branch level. (1888 XXI: 530) W. Glennie of the A.S.E. confidently asserted that attempts to restore personal motivation

in work (lost because of specialisation) through the taskmaster 'whose duty is to flog the men up to the highest pitch' were simply evaded for the men knew their work, and their own capabilities to pursue it. (1893 XXXII: 178)

Certainly size and the product does seem to have been the determinant of the degree of specialisation and thus the form of the payment system. W.F. Watson's chequered career through a variety of firms at the turn of the century led him to experience the extremes of scientific efficiency and casual traditionalism. (1935: passim) Where the union did not exist the piecemaster was an effective agent of the employer, operating in a like manner to the 'poundage' system in the weaving sheds. (Schloss, 1907: 167) Such a person could earn £10-12 a week in 1900, and Watson, along with his fellow non-union underhands, received his pay at the local pub, some of whom inevitably fell into debt with this man and received credit (with his permission) at certain shops.

The control of work, once the element of skill is declining, no longer corresponds to the hierarchy of experience within the work force, or simply to 'respect'. The transition to repetitive task work involving as it does the weakening of internal group norms, as a consequence also removes the ladder of selection from within the group itself: in this case from apprentice to leading hand. To be sure, the latter was a servant of the employer and an agent of his instructions, but the modus operandi of control in the application of discipline was different to that of the externally trained and appointed supervisor. (Williams, 1915: 75-8)

To summarise: the conditions of the market and the 'innate industrial Toryism' of the engineering worker combined to allow the small family firm to remain the dominant form of business organisation

up to the 1900s. Standardisation, specialisation and repetition were thus limited to few sectors, principally the new light industries. In this sense the federalism of the Engineers Society was reflected by their employers' parochialism, and both were living off the legacy of the lost industrial supremacy of the 1850s.

The Coal Industry: A Revolution of Scale

The character and structure of the coal industry is an example of a revolution of scale rather than method; capitalism 'above ground' penetrated little into the work experience of miners until the early years of the twentieth century. Given the privatised character of work the central problem of management has been to ensure the continuity and regularity of work. In this sense the system of yearly 'bonding' and complex piecework arrangements are two answers to the same problem, labour discipline, an issue not eradicated by the emergence of a mature capitalist economy.

Industrialisation in mining did not imply a radical change in the capital/labour ratio. Whilst pits became deeper, transport more organised and markets internationalised, the instruments of production remained largely unchanged. Both miner and employer existed in an essentially unstable industrial environment: the former working with the changing quality and accessibility of the coal face, the latter unable to directly intervene in the character of production or (in the nineteenth century) have any long term confidence in the price of coal. A corollary of the low capital ratio was, of course, the disproportional effect on profits caused by price fluctuations. Whilst all capitalists faced this to a degree, in the coal industry the market determined far more directly

and immediately the entry and exit of capital and labour.

At different periods both employers and employees have employed the same tactic: namely, the restriction of output. The latter we will deal with later, here we will concentrate on the capitalists attempts to control market forces. It is this disproportionate influence on both sides of the effect of price changes which accounts for the coal owner's obsession with the selling market, and concommittantly why Miners Unions in accepting this doctrine have not applied their efforts to influencing the labour market.

It has been noted by economic historians that, comparatively speaking, English industrial development was characterised by remarkably little monopolisation and integration. (Dobb, 1972: 25; Foster, 1976:7) A classic analysis of this phenomena gave the reasons for it as follows.

> In England there is no protective tariff, freights from abroad are insignificant, and minerals which can be easily monopolised and which command a monopoly in the home market are very few. (Levy, 1927: 298)

One exception to this, at least up to the mid-nineteenth century, was coal. However, this was not simply a 'natural' monopoly: certainly up to the 1750s the North East was the only significant coal producing region - a trade that went almost exclusively to London. The coal producers, or 'Hostmen' as they were known, were not petty sub-contractors. Their Guild formed in 1600 of forty-four partnerships or concerns, paid 1s. per chaldron (roughly 53 cwt.) to the Monarchy for the sole trading prerogatives of sea-bourne coal from the Tyne to the Thames. (Sweezy, 1938: 9) In 1689 the power of the Crown to grant such advantages were removed and control over mineral deposits passed to landowners, whereupon coal traders switched attention during the 1720s to the securing of land and wayleave leases. This period also saw the entry of large landowners into the trade, which in turn gave

it closer ties to the House of Commons than any other industry, thereby enabling it to avoid punitive legislation. (Rogers, 1866: 360-84; Sweezy, 1938: 52) From the 1700s competition appeared from Sunderland and the Wear which the Hostmen could not suppress. Intense competition leads to one of two alternatives, an agreement between the parties, or the suppression or absorption of one by the other. Since the latter was not possible the monopolists of the Tyne joined with those of the Wear in 1771 to formulate an agreement - the 'Limitation of the Vend' - which with a few minor interruptions continued until 1844. It was remarkably successful; in 1780 of the 866,627 tons of coal imported to London, 98.5% came from the 'Vend'. (Williams, 1924: 29)

The operations of this monopoly were described in 1830 as follows:

> ... a representative is named for each of the collieries ... from amongst them a committee is elected of nine for the Tyne and seven for the Wear; this being the proprietors of the best coals are called upon to name the price at which they intend to sell their coals for the succeeding twelve months ....

This became the 'fixed' price for collieries of the Vend; next each sent a statement showing the quantity they <u>could</u> raise in that year and using these proportions the Committee once a month issued an 'allowance' to each

> ... whatever quantity the markets may demand. (1830 VIII: 10-12)

Thus a monthly balance was achieved, neither causing a glut or a shortage, and thereby maintaining actual prices as close as possible to the 'fixed' price.

The stability of all this rested upon the sea trade; once this transportation prerogative was challenged by the railways the system as a whole was undermined. Sweezy, however, has pointed out, that the

underlying contradiction was the inherent drive to increase productive capacity: once profit could best be achieved by this rather than rigging the market the 'Vend' became obsolete. Unlike Clapham who saw its demise in terms emergent 'pure' competition, Sweezy demonstates how the 'Vend' was essentially at odds with rational capital accumulation. (Clapham, 1926: 202; Sweezy, 1938: 112)

The main significance of this early monopoly was its prime contribution to the uneven development of coal: whilst the North Eastern pits in the 1840s were often steam-aided integrated units, Scotland, Staffordshire and South Wales remained primitive. In the latter district a pit employing over 200 was very unusual, whereas on the Tyne it would be considered small. (Morris and Williams, 1958: 12; Clapham, 1926: 186) In turn, there was a great difference in the amount, and social origins of capital. In South Wales the cost of opening a pit could be as low as £3-4000, a sum that, with good fortune, could be returned in the first year. Small capitalists could therefore play a central role, grocers, farmers, solicitors and clergymen were amongst the subscribers to mining partnerships. (Morris and Williams, 1958: 141) In the Tyne area the typical investment per mine was £30,000, with the main source of capital being the landed aristocracy. (A.J. Taylor, 1960: 221)

The effect of rail transport in the second half of the century was two-fold: on the one hand it created a truly nationally competitive industry, as opposed to the previous regional insularity, whilst linking coal as a prime mover to the foundation of the economy, on the other. But this occurred unevenly and gradually. Up to 1851 rail traffic had no major part in supplying London; the first North Eastern lines were designed to deliver to existing markets more efficiently, and were up

to the late 1820s short in length, and 'curiously localised'. (Clapham, 1928: 87) In short, it was urbanisation and the worker's fireside rather than industry and the steam engine, that initiated the break-up of the monopolistic trading system, and thereby lay the foundations for the expansion of the second half of the century. The type of coal and coal mine needed for industry is different from that supplied to consumers: namely, larger nuts, cut from 'hard', that is, older seams for a market lesss seasonal in its demand, and geometrical rather than arithmetic in its growth. At a later stage the export trade reintroduced significant fluctuations into the industry, particularly in certain coalfields.

The rate of growth in output reflects this. Between 1800-30 average yearly tonnage increased by 3%; 1830-50 by 4.4%; 1850-70 by 3.5% and 1870-90 by 2.5%. (After Deane and Cole, 1969: 216) So, the most rapid expansion took place before 1850, while of course its significance to the economy was greater later on. It is clear that most of this expansion came from the multiplication of units rather than the enlarging of existing ones. The number of collieries, as far as can be estimated, is shown below:

TABLE I

Year	Number
1856 (1)	2397
1869 (2)	3206
1878 (2)	3968
1888 (3)	3624
1897 (3)	3160
1900 (4)	3089
1907 (5)	3000 (estimate)
1924 (6)	2481

(1) R. Hunt, 1856; (2) Factory Insp. Reports; (3) Mining Statistics, 1888 LXXXIV; 1897 CVII; (4) Coal Mining Report, 1944-5; (5) Royal Commission on Mines, 1907, XIV; (6) R.C. on Coal Industry (Samuel Commission) 1925 XIV, App. p.177.

It is interesting to note that it was not until the eighties that increased production did not rest on growing number of collieries. Average yearly increases for 1870-90 were 2.5% whilst the number of workings fell by around 20%. This is of course only a crude guide to efficiency in an extractive industry, and the size of pits had been rising since the mid-century. But it is indicative that the highest percentage growth rates were achieved during the period of expanding units.

This trend is also revealed in the numbers of persons employed in pits. The national average grew very slowly until the 1880s, although of course in certain areas the larger unit was already established.

TABLE II

Year	Area Averages		National Average
1830 (1)	Tyneside	- 300	-
1846 (2)	Tyne, Blyth and Wear	- 164	-
1869 (3)	South Durham	- 188	
	Northumberland & North Durham	- 124	107
	Staffs. and Worcs.	- 72	
1878 (4)	South Durham	- 241	
	Northumberland & North Durham	- 219	119
	Staffs. and Worcs.	- 60	
1888 (5)	-		148
1897 (6)	Durham	- 404	
	Derby	- 229	216
	Northumberland	- 283	
	Staffs.	- 145	
1914 (7)	-		373
1924 (8)	Durham	- 628	
	South Wales & Monmouth	- 415	488
	Derbyshire & Notts.	- 806	

(1) Estimate by Clapham 1926: 186; (2) Report of Commissioner of Mines; (3) and (4) Return of Mines Inspectorate; (5) Summary of Mining Statistics; (6) General Statistics of Mines and Quarries 1897; (7) R.S.S. 1914: 548 (this is a median figure); (8) R.C. on Coal Industry 1925 (Samuel Commission) App. p.177-8 XIV.

These figures show not only the small development of the large unit, but also the slow differentiation and domination of the larger coalfields. In 1869 the average Durham unit was 61% bigger than that in Staffordshire, this rises to 75% in 1878 but falls back again to 64% in 1897. Whilst the area's definition changes somewhat in the last case, it is still indicative of the survival of geographical distribution of the early steam power period. Not until the 1880s does the national average begin to significantly rise. This combined with the aforementioned figures on output date the period of what we might call the industry's transition from 'extensive' to 'intensive' methods of production.

Finally, on this point, we can for the years given in Table I, using the Statistical Abstracts, arrive at an average output per colliery.

TABLE III

Year	Average output in tons	% increase on last figure
1856	27,803	
1869	33,508	17
1878	33,431	- 0.2
1888	46,892	28
1897	63,965	27
1900	70,911	10

Of course, trade fluctuations distort our picture of the average unit output, for example the return for 1878 comes in the middle of a four year depression. Nonetheless, this does not entirely account for the stagnation in unit output, some of this is due to the multiplication of units. Unlike the cotton industry the structure of coal did not assume the 'classical' geographically specialised distribution. This of course was partly due to the fact it is an extractive industry; but

as we shall see, the slow development of capital intensive methods in the larger pits and the continuing importance of regional domestic demand also contributed to this. (Taylor, 1961-2: 50)

Despite a rush of Iron firms opening or amalgamating with collieries in the 1870s the typical mining concern had about two workings, and a very small proportion of fixed capital. Price fluctuations directly affected profits and labour's bargaining position, so that capital was likely to be available at times when the workforce was best able to resist its introduction into the labour process. On the other hand the traditional response of employers to increased demand, hiring more labour or opening new pits, continued to be viable. Between 1883-1913 the number of miners rose 125% whilst the national growth of the labour force was 40%.

Ownership and Control 1880-1925

The disparate structure of this industry and its regional pecularities make the structure of ownership particularly important, as was reflected in the Royal Commissions of 1907, 1919 and 1925. Essentially it was the tremendous differences between the type of operation required to raise the coal in (say) the ten yard seam in Staffordshire compared with the deeper pits of the Tyne that led to the wide range capital and class background amongst the owners. The typical Northern coalowner had, by the 1830s, £30-50,000 involved, 300 to 600 men employed and possibly came from, or was connected with, the landed aristocracy. Working on the ten yard seam however, it was possible to launch a colliery with two or three thousand pounds, employing perhaps 50-75 men. (Taylor, 1960: 221) Or again, in South Wales whilst small

scale operations were possible, the existence of the Iron trade led to a predominance of middling sized collieries whose production and organisation were directed toward the needs of the iron furnaces.

By the 1850s the railways had opened up the era of fierce competition for domestic and external trade. This did not lead, however, to a rapid concentration of ownership; what did follow was the polarisation of the industrial structure in certain areas. The Midlands and the North seem to have developed the highest proportion of larger pits - but in no way was the small man eradicated (see Table I, Appendix). Right into the present century the numbers of mines was responsive to the price of coal. The clearest indication of this can be seen during the price boom of 1865-75. The number of mines peaked in 1867 with 3,258 undertakings falling to 2,810 as the price increases were less dramatic. (1873 X: App. I, 313) The commission enquiring into the situation reported the emergence of concerns employing as few as 30 men in places as different as South Staffs. and Durham. (ibid: 41, 57) The quixotic state of the industry meant labour was more casual and seasonal. William Brown, a North Staffordshire miner, said that he, like many, made their attendance at work dependent on the price of coal, summer being spent almost entirely at the harvest. Accordingly his local union's policy was to press for the,

> ... best wages the state of the market will allow. (ibid: 230)

In Lancashire, 38 concerns had begun in 1872,

> ... every manufacturer who has any chance of opening out a piece of coal upon the outcrop has opened it. (ibid: 147)

The Inspector for South Staffordshire reported that,

> ... collieries spring up like mushrooms, working in some cases a few weeks or months at most. (ibid: 221)

The organisation of the commercial side of the industry was also somewhat unstable. On the one hand, there were the London coal merchants who bought from the factors of the owners and controlled large distributive operations to domestic and industrial consumers. But also there remained a large class of petty coal-dealers who bought from the wharves or railyards (sometimes as little as 141 lbs) and sold it door to door. (ibid: 120) Out in the provinces many small pits sold direct to the consumer, particularly in the inland fields such as Derbyshire and Yorkshire - when coal was cheap the domestic consumer would also buy from the pit bank. (Clapham, 1932: 302)

The next national survey of the industry can be derived from the evidence and appendices of the 1892 Labour Commission. In the expanding South Wales field there continued a rush of,

> ... thousands of immigrants, absolutely unskilled, from agricultural districts. (1893-4 VII: 79)

Whilst in Scotland Keir Hardie attributed the failure of trade unionism in the mines to the fluctuations in agriculture.

> When trade is very bad men flock into the pits. They are always open to all-comers .... (1892 XXXIV: 192)

The squeezing of the crofters and the exodus from Ireland added to the flow of labour at various times and since the system of work was 'share and share alike' wages as a whole fell until either the new arrivals returned to their former occupations or the coal trade demand improved. (ibid: 187-8) The chaotic state of labour in such areas may have been an advantage to the owners in one sense, but the turnover of miners and the consequent general lack of experience led to costly errors in working the coal, and a higher accident rate. The manager of Cwmaman Collieries argued,

> ... their coming to our collieries is most detrimental to both employer and workmen ... the loss of coal is incalcuable and the repairs costly and time consuming. (ibid: 125)

The major owners had combined to form the Mining Association of Great Britain, but its 121 members employing on average 958 men obviously excluded small collieries. However, the questionnaire sent by the Labour Commission seems to have covered a slightly more representative group. In South Lancashire and Cheshire there were 66 firms owning 130 collieries; in Durham 48 firms and 149 collieries; Northumberland 21 firms and 50 collieries; Fife, Clackmannon and Kinross, 22 firms and 40 collieries; and Lanarkshire with 21 firms and 43 collieries. The more systematic enquiry in 1925 demonstrates that the average here of 2 collieries per firm was, (given the intervening period of contraction) still biased toward the larger enterprise. (1892 XXXVI Pt.III: 374-82; see Table II Appendix)

Joint stock enterprises arose from the 1860s, but were not really important until the turn of the century. Generally, the greater the regional concentration the more likely capital concentration. In South Wales by the 1900s, 80% of the steam coal output was produced by twenty firms. In Scotland the Fife Coal Co. was responsible in 1907 for well over half the output of the district. (Williams 1924: 92) Whereas industry generally combined along 'vertical' lines the coal industry in fact moved away from this form toward 'horizontal' associations, particularly after the decline of the symbiosis between iron and coal in South Wales. One famous example was the formation of the Cambrian Combine. In 1907 the Cambrian Trust was formed with a capital of £120,000. Within a year of its formation it had acquired a controlling interest in the Cambrian Colliery Co., the Glamorgan Coal Co., the Britannic Methyr Coal Co., and the Naval Colliery Co. Each of these concerns retained its identity and technical and economic relations generally remained unchanged. Financial control, however, has passed

to the newly-formed trust. In 1908, control was taken of the firm of L. Gueret, itself a 'mini-combine' and with it came four firms engaged on the distributive side of the coal industry. In 1913 the Trust transformed itself into 'Consolidated Cambrian Limited' thereby eliminating the veneer of autonomy held by associated firms; this organisation commenced operations with a capital of £2,000,000, 95% of which was given in exchange for the shares of the amalgamated concerns. (ibid: 95-6)

The real significance of the Cambrian Combine was not its monopolistic character, nor even the extent of its consolidation, but that it represented in the coal industry the transformation that was taking place throughout the economy i.e. from the independent company to the capitalist consolidation. After the failure of so many schemes it was generally thought that the coal industry was immune from monopolistic developments. The Cambrian Combine was a concrete refutation of that: it demonstrated that ultimately capital in the coal industry did not differ from capital in any other sphere of industry. In other words, it respects no organisational or personal boundaries in the inherent progression of accumulation. However, the purpose of this section has also been to show how uneven this process was and how far it had yet to travel by the early 1920s.

APPENDIX

Ownership and Size 1900 and 1924 in the Coal Industry (1925 XIV)

Table I showing the average no. of mines per owner 1900 and 1924

	1900	1924	
U.K.	1.8	1.8	
Durham	2.3	2.0	
South Wales and Monmouth	1.6	1.8	(after Table 6: 176)
Derby. Notts. Leics.	2.5	1.7	

Table II showing % of tonnage raised of Mines employing 2,500+

	% of tonnage	% of Mines at work	
U.K.	16.2	2.2	
Durham	22.3	4.3	
South Wales and Monmouth	8.4	1.1	(after Table 7: 177-8)
Notts. and Derby	24.1	5.8	

Textiles: Size, Location and Capital

The textile industry, particularly the woollen side, was dominated by the privately owned specialist firm involved in one stage of processing, and the individualist ideology of manufacturers (fuelled by the furious competition) was a serious material force in the history of the industrial structure. In the Parliamentary report on Artisans and Machinery in 1824 no longstanding combinations of masters are mentioned, and when the Manchester fine spinners combined in 1830 they chose as chairperson an employer from another trade. Chapman recounts how employers contributed to workers' funds in order to support strikes against competitors. (1904: 207-8) Throughout the century combinations of masters emerged only as a response to an outside threat: firstly, that of the trade unions in the 1820s, 30s and 50s; and secondly, due to the gathering competition from the U.S.A. and Germany.

The structure of the industrial process, a series of discrete operations, naturally encouraged a high dispersal of capital, together with considerable geographical concentration. So the history of Britain's first capitalist industry had a peculiar organisational form: an increasing number of units gradually coalescing around the North West. As Jewkes pointed out, this was partly due to the demands of expansion, particularly the supply of labour. So whilst fundamental progress required a 'combination of processes', and thus a high proportion of fixed capital, immediate interests demanded a quicker return, and a lower entry ticket - facilitated by the 'natural' structure of the process. (1933: 98)

By the 1850s the localisation of textiles was underway, a major factor being the availability of transportation and labour in certain areas. (Taylor, 1948-9: 120-5) In contrast to the U.S.A. where 39.2%

and 56.7% of the North and Southern states respectively combined spinning and weaving the figure for Lancashire was 16%. Moreover, in the period 1884-1911 the number of combined firms fell again from 470 to 300: the particular suitability of the area allowed specialisation not to contradict with economies of scale. After all the district also provided coal, machine-makers, lime-free water etc. as long as the elementary labour used did not price these services beyond the economics of the specialist firm the industrial structure could prosper by proliferation. On a local scale, this in turn produced concentration in service industries such as the giant Platts engineering firm in Oldham. (Chapman, 1904: 157)

Because textiles is thought of as the precursor of the modern industrial system it is easy to overlook the continuing importance of pre-industrial methods at various stages of the production process. Even the mechanised tasks remained relatively labour intensive and needed considerable experience to operate in a standard manner. In this sense, the under-developed, or uneven, character of production also contributed to the multiplication of enterprises.

> ... the outcome of past influences is, throughout the industry mixed up with the most recent results of modern tendencies .... The striking economies associated with the specialisation of processes will tend to appear as soon as organisation in the industry as a whole is capable of holding the disunited processes in satisfactory contact. (ibid: 166)

The rising number of units did not impede, at the other end of the scale, the emergence of a few giant enterprises; nor the combination of factories under one company. In 1795 the Peels had 23 mills, whilst in the early years of the nineteenth century McConnel and Kennedy employed 1,020, David Dale at New Lanark 1600-1700, and A.G. Murry 1,215 under one roof. (Clapham, 1915: 477) Nonetheless in Manchester,

the centre of the industry, for that period the average factory employed around 300, in Mansfield 211, Preston 115, whilst the estimated national average in 1816 was 175 persons per mill. (ibid: 476)

The available statistics over the next forty years of expansion are patchy but do not suggest a rapid exclusion of the small firm, despite the geographical concentration. According to Marx from 1838 to 1850 the number of cotton factories increased by an average of 32 a year, and from 1850 to 1856 by 86. (1976: 541) A chronicler of Oldham noted that from 1821 to 1825 the number of cotton manufacturers rose from 60 to 139. (Butterworth, 1856: 140, 153, 183)

From the reports of Leonard Horner, factory inspector for the North West in 1842 and 1857, comes the following figures for the Lancashire mills.

TABLE I

Year	No. of firms	Average no. employed
1841	856	201
1850	1149	183
1856	1451	178

(1842 XXII: 12; 1857 XIV: 202)

These figures reveal two points: firstly that the rise in demand was answered by more factories, rather than larger ones; and secondly, as a consequence the average size fell. This obscures the important differences between combined spinning and weaving concerns which were significantly larger than the above figures suggest; in 1841 for example the 313 such firms employed on average 349 persons. By the 1850s, as Jewkes suggests, their numbers are falling and the difference between them and spinning and weaving only, increasing, the former now over three times larger. (Jewkes, 1933: 98)

The above figures from Horner are averages - if we look more closely at the return for 1841 a truer picture of the industrial structure is revealed. Below are the median size of concerns in the various sectors.

TABLE II

Sector	Median Size of Factory
Cotton	92
Woollen	15
Worsted	-*
Silk	-*
Flax or hemp	46
	(1842 XXII: 12-14)

*return incomplete

This reveals a remarkable difference with the average or mean size of 201, a reflection of the highly polarised structure of industrial organisation; a few giants alongside many smaller fry. The computation of the median requires much more information than the mean, and Horner's later returns do not allow this to be done unfortunately. Taking these figures once again we can, by defining the 'larger enterprises' as those employing twice the median size of an average factory, obtain the following:

TABLE III

Sector	'Larger enterprises'
Cotton	397
Woollen	62
Worsted	207
Silk	251
Flax or hemp	277
	(ibid)

National figures are not reliable until 1870, but regional

estimates abound in contemporary accounts, Factory Inspectors reports etc. The typical mill in Ashton in 1840 employed 75-200, in Oldham a majority had less than a hundred, whilst in Blackburn the figures were 100-200 in 1847. (1840 X Third Report: 62; E. Butterworth, 1856: 118-9; Farnie, 1953: 193)

Not unnaturally it is the larger stable enterprises who figure in local history, and the Blue Books. From these it appears that Manchester and Glasgow were centres of really large mills. In the early 1830s the average Manchester mill employed about 300 to 400 workers, some thirty employed over 500 and seven with over 1000. The six largest firms in Glasgow employed on average 833, although interestingly the introduction of steam power seems to have led to a reduction in numbers since twenty years earlier several of these firms had employed over a 1000. (Clapham, 1926: 184; 1834 X: 19) Statistics of this kind are subject to the traditions and customs of their time: for example McConnel and Kennedy, the fine cotton spinners, in 1833 had 932 employees 'on their books', however 1553 actually worked there - the other 621 being formally employed by the other workers, not the firm. (Lee, 1972: 128)

We also have from the 1851 Census at least an approximation of the national situation: in cotton, wool and worsted there were 411, 82, and 31 firms respectively, employing over a hundred, constituting 36, 8, and 24 per cent of their trade. Of the 2,931 concerns in the whole of these trades, therefore only 18 per cent employed 100+. (Census Ages and Occupations Vol.I: table cclxxvii).

Another contemporary indicator of the development of mills was the extent and volume of steam power employed. As an independent, regular, adjustable prime mover the steam engine not only encouraged changes

within the factory, but also facilitated the centralisation of the industry and its integration with other sectors of the economy. As such it is an important indicator of the rationalising of the social and economic system which the term industrialisation implies.

In textiles we do not find steam power sweeping through the industry from the introduction of the factory system, the country water-powered mill maintained an important role up to the middle of the century. (Taylor, 1948: 115) In 1850 water provided about half and one quarter of the power in Derbyshire and Yorkshire mills respectively, and for 11% of mills in Lancashire. (ibid) Of course, it would be misleading to minimise the impact of steam, but it would be just as inaccurate to equate its use with a rapid move toward large-scale operations. Of the 2,887 mills mentioned in the Factory Inspector's Report of 1862, 35% used less than 20 h.p. and were,

> .. built during the period of prosperity after 1858, for the most part by speculators, of whom one supplied the yarn, another machinery, a third the buildings, and they were run by men who had been overseers, or by other persons of small means. (Marx, 1976: 584-5)

In the various other branches of textiles, steam power was even less important. In 1857 a third of the power in English and Welsh woollen mills derived from water, and in Scotland, two-thirds. (1857 LVII.338: 22) By 1871 the average cotton factory was using 118 steam h.p. but in Silk, Hosiery and Flax the average was well below 20 h.p. and in Woollens only 29 h.p. (1871 LXII: 302)

For the years 1870-90 we are fortunate in having reasonably precise figures on textile factories subject to the Factory and Workshop Acts and published in the Statistical Abstracts, Volumes 31-33 and 47-8. The first figures, (a) show the England and Wales total and then for the U.K., (b) for all of the eleven types of mill.

TABLE IV

Year	No. of factories	Unit Size
1870a	5968	120
1870b	6807	133
1878a	6189	125
1878b	7105	137
1885a	6359	127
1885b	7465	138
1890a	6180	139
1890b	7190	151

Not until the late eighties do the numbers of enterprises begin to fall, and the unit size rise. Of course this series, by including cotton factories alongside jute, hemp, and silk, is biased, nonetheless the figures for each separate sector follow a similar pattern.

TABLE V

Cotton Factories in the U.K.

Year	No. of factories	Unit size
1870	2483	181
1878	2674	180
1885	2635	191
1890	2538	208

Woollen Factories in the U.K.

Year	No. of factories	Unit size
1870	1829	68
1878	1732	78
1885	1918	72
1890	1793	83

Worsted Factories in the U.K.

Year	No. of factories	Unit size
1870	630	173
1878	693	188
1885	725	191
1890	753	197

With the exception of the Worsted trade the same trend is repeated with, of course, the smaller sized industry subject to greater fluctuations.

In Lancashire in combined firms these averages would be greatly exceeded, perhaps by three times, but they do reveal another side to the archetypal pioneer sector of industrialisation: increased output was until late into the last quarter of the century dependent on the multiplication of units and that as a consequence the work experience of many of the workers would have been of small 'personalised' factories. Averages always distort any series, and it would be incorrect to give the impression that even a large minority of (say) cotton factories in 1885 employed about 190 workers. From what is known of the industry structure this will represent a number in between a mass of small firms and several much larger ones. Thus in cotton not one, but two, typical magnitudes is the case corresponding to the type of product, its market and the technology required. Indeed the evidence suggests that the response to market swings and competition was toward specialisation rather than capital-intensive efficiency. (Farnie, 1953: 147) The comparison with America here is interesting. The American industry was more highly capitalised, often combining spinning and weaving, and aimed at a relatively stable home market protected by tariffs - geographical concentration did not lead to the separation of processes (and capital) characteristic of England. (Chapman and Ashton, 1914: 508-9)

So our figures show really the fulcrum upon which the polarised structure of the industry swung and remind us of the dimutive size of the majority of concerns whose history, unlike the famous giants, died with them.

In terms of the capital requirements and structure of activity in the cotton sector we propose to deal here with two main points: the variability in the amount of capital required in spinning and weaving and the degree of dispersal resulting from the character of the production process as it developed in the last half of the century. In line with the previous restrictions placed upon the scope of this part of the thesis it will be necessary to avoid considering the much wider theoretical and historical problems posed by this pioneer sector of British capitalism (which has been done from differing perspectives by other writers).

Firstly, it seems of prime importance to note that where spinning and weaving were separate concerns (as was increasingly so in Lancashire cotton) entry into the latter was far easier in terms both of competition and capital. This, however, is an impression gained from primary material, business histories and so on, rather than data, since this invariably lumps the two together because of the way chroniclers and government officials constructed their statistics. From these sources it appears that the years 1834-60 were the period of fastest fixed capital investment, and thus of falling labour costs per unit. (Blaug, 1961: 360) This, of course, can be contributed largely to the introduction of the self-acting mule. But it does highlight, by comparison, the relatively low cost of capital needed to establish a business in the first place i.e. buildings, materials, labour etc. After Crompton's original invention the factory could for nearly fifty years be supported by an army of outworkers owning their own means of production, employed or unemployed at will, and who through force of circumstance had little bargaining power to resist the burden of trade slumps or price wars being placed onto their shoulders. In 1834 of the

300,000 looms, two-thirds were still worked by hand; in Bolton a muslin manufacturer explained to the Select Committee of 1834:

> One would suppose that the reward of labour would find its own level; but from the very commencement of it (muslin manufacture - M.R.H.J.) it has been the power of any one manufacturer to set an example of reducing wages, and I know it as a fact, that when they could not obtain a price for the goods ... they immediately fell to reducing the weavers wages. (1834 X: 381)

Once the self-actor was introduced, or weaving mechanised, trade slumps were automatically passed onto the labour force - the extent of fixed capital never being sufficient to require some other strategy by the capitalists. In Bolton four years later, of 80 mills 30 were not working or only partially; during the cotton famine of 1860-4 the Clitheroe weavers worked two or three months of the year or on 2 instead of 3 to 4 looms. (Ashworth, 1842: 75; R. Sharpe France, 1953: 154)

The early factory pioneers did of course often use water power, even if steam was available, because of its lower running costs. Chapman's recent analysis of insurance policies of mills based on Arkwright's jenny and Crompton's mule showed for example, in 1795 in Stockport 50 of the latter type with insurance machinery ranging from £50 to £2,000. (1972: 29) Steam often complemented, rather than replaced, water power in the larger country mills; the Quarry Bank mill at Styal in Cheshire installed a ten horse-power Boulton and Watt engine in 1810 for precisely this purpose. (Rose, 1978:9) In later times at Styal turbines were used to update this equipment, or as at the Strutts' mill at Belper and Milford in 1816 ingenious and complex waterflow systems constructed to regularise output. (Fitton and Wadsworth, 1958: 221-2)

Further savings on initial outlay could be made by the use of

parish apprentices from the local workhouses or families, on a seven year unpaid bond; at Styal such workers made up about one-third of the workers until the 1840s, a practice also extant in the Halifax woollen mills. (Collier, 1933: 120; 1844 XXXV: 20) The truck system, by mortgaging wages from one pay to another, also served to lower working costs, as did the opportune shortage of small coin which caused fortnightly or even monthly pays. Payment in kind, whether it be direct or indirect played an important role in ensuring the liquidity of the Strutts, Oldknow, Greg and Evans family mills, particularly in crises when, for example, along with Owen at New Lanark wage 'tokens' were issued. (Fitton and Wadsworth, 1958: 240-52)

As the cockpit of the partnership system, characteristic of British industrial organisation as a whole, cotton provides a good example of how such an apparently limited system could operate successfully in favourable circumstances. Where profits were high investment required no further extension of company structure, but merely their retention and recirculation in a new form. Pollard's survey of business records show how the small man was able, both from suppliers and wholesalers, to obtain credit or cash in advance, thereby reducing to a minimum actual cash in hand. (1964)

The slow progress of the joint-stock principle outside Oldham has been the subject of much comment. (Jeffreys, 1938: 85-90; Chapman, 1904: 170-7; Clapham, 1932: 141-6) Here it is sufficient to note it is another indicator of what Farnie has termed,

> ... the dominance of small capitals in the industry. (1953: 199)

Regional and family ties, particularly in the Manchester area, seem to have adequately financed the weaving sector up to the 1890s, although the limitation of this system was felt earlier in spinning. Weaving

retained a substantial number of 'first generation' companies, an official of the Burnley Power Loom Workers' Association told the 1892 Royal Commission local employers were known as 'mushroom men' because,

> ... they work with other people's capital. They begin with the maxim that we have all to gain and nothing to lose, because they had nothing to begin with .... (1892 XXXV: 762)

By contrast twenty-three years earlier the Factory Inspectors report commented of the spinning industry,

> The manufacturers of textiles begin life with fortunes which those of the hardware districts are content to retire with. (1870 XV: 152)

A survey of 1912 reported that of 134 weaving firms in the Bolton and Rochdale area 65 had less than 500 looms, and whilst to the disappointment of the authors this did not indicate significant inter-class mobility, it did show they claimed it was,

> ... still possible to make a small beginning in industrial management. (Chapman and Marquis, 1912: 300)

This disparity is also reflected in the progress of joint stock organisation: by 1895 it embraced 68% of spindles, but only 38% of the looms. (Farnie, 1953: 318) Furthermore, this type of organisation was concentrated heavily in the Oldham area, and vertical integration (typical of this business structure elsewhere) was of little importance. (Lee, 1968) The amalgamation movement begun in the 1890s in all branches of the industry tended to be 'horizontal' associations of family businesses partnerships and a few limited companies. (Clapham, 1938: 227) As Macrosty noted this was a result of the continuing competitive warfare.

> The special reason for the formation of an amalgamation is always the existence of destrictive competition, the result of a surplus of productive capacity. (1907: 331)

As early as 1886 a delegate of the Powerlooms' Association had complained

of the 'reckless investment' which accompanied every price increase. (1886 XXI: 71) The amalgamations reflected some form of defence by the 'traditional' side of the trade to the 'Oldham Limiteds' who were consistently blamed for the chronic over-capacity in the years up to 1900. (Jeffries, 1938: 86-8)

Apart from Oldham, spinning firms remained locally financed; partly due to the abundant profits of the earlier years and partly because of the lack of any tremendous technological breakthrough. (ibid: 339-40) Also significant here was the active role of the mule spinners themselves in adapting to, and indeed encouraging, capital saving economies post 1860. (Blaug, 1961: 360) Their action in 'absorbing' and retarding the introduction of ring-spinning is a good example. (Copeland, 1917: 70-4)

To summarise: the spinning industry retained much of its early characteristics of informal marketing, capital and organising techniques, largely as a result of the heritage of the 40 years of untrammelled supremacy in the world market. In the course of that period it created its 'own' domestic mass consumer market in the factory class of Lancashire: an estimate of 1895 compared the German textile worker as spending only £15 per annum on clothing, whilst his English counterpart purchased over £50 worth.(Schulze-Gaevernitz, 1895: 200) This same commentator was quick to note the coincidence of consumerism with conservatism in Lancashire, a relation we will investigate in detail later.

Our investigations of the industrial structure of these three industries reveal the continuing importance of the smaller firm, supplying a specific need. There appears no 'rationalising' force or convergent development until at least the 1900s, and in coal much later. The experience of work in the factory trades of engineering and textiles would therefore have been on a limited scale, often cyclical in its recruitment of labour, or seasonal in intensity. Sheer numerical size is important for both engineers and spinners would have been only a proportion of these total employment figures, and in coal the underground face-worker in an analogous position.

We have seen how, for different reasons, the consequences of pioneer industrialisation were the root cause of the atomistic and hetrogeneous productive system, based as it was on the accumulation of private capital rather than the advancement of capacity for society as a whole. The section also makes the point (if only implicitly) that a material force in industrial history is the ideology and class origins of the capitalists in a particular sector, and just as much of interest therefore to the 'labour' historian. Perhaps the mill owner of Preston in the 1850s would have felt considerably closer (in terms of 'social distance') to his spinners, than to the aristocratic mandarins of the North Eastern coalfield, abstractly his 'class allies'. But these interesting byways must not detract from the clear picture created by the substantive analysis: capitalist expansion was contradictory and uneven, leaving the diminutive enterprise the dominant force in all three sectors until at least the turn of the century. As such the organisational context of the work experience of miners, engineers and spinners is not open to simple linear generalisations, as is also the specific form of occupational action we would expect to find.

Our next task is therefore to examine theoretically the implications of the capital form of work organisation to devine whether, at least abstractly, there are features common to all.

CHAPTER V

CAPITAL IN BRITISH CAPITALISM

This chapter is intended to now consider theoretically some of the implications of the capitalist form of socio-economic organisation. In our detailed look at the coal, cotton and engineering industries it is clear the accumulation of private capital was fundamental, although occurring in different forms. This imperative is not incidental, epi-phenomenal or dependent - it is the driving force of the capitalist system itself. As we will see the progress of 'machino-facture' is not an internal unfolding of technical systems or a series of paradigms. As a recent writer has argued, in Marx's discussion of the factory system,

> ... machinery seems less and less essential to its hegemony .... Mechanisation comes to appear more a result of modern industry than a cause - the capitalist way of escaping from worker resistance. (Samuel, 1977: 12)

Similarly, wages are not a simple reflex of effort, capital composition or trade organisation. All these are factors, but Marx points out that the accumulation of capital, the replacement of living labour by machines, and the increasing productivity of labour all tend to lower nominal wages (the product is created in less 'living' time). On the other hand this very process, accumulation, stimulates new industries, of, in the phraseology of the Grundisse 'historically created' needs - the worker is also (and increasingly the most important) consumer of goods and services of the capitalist class as a whole. (1973: 293-5) In sum for Marx the,

> ... real movement of wages ... depend upon the dialetical interaction of this dual effect of capital accumulation on the value of labour power. (Mandel, 1971: 146)

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preceding discussion of the labour process is, as it were, the social conditions and organisational form of accumulation. The next step is to examine empirically capital formation with a view to relating it to class formation.

We have seen how Marx showed relative surplus value frees accumulation from a 'zero-sum' relation to productivity; but rather become proportional (1976: 534, 647-8). As Samuel intimates, this may initially be a response to worker organisation, particularly in first, and thus economically 'isolated' capitalist economy. As inter-capitalist, and then inter-capitalist state, competition sharpens so this develops a logic of its own - accumulation - reflecting on a world scale the divisions, specialisation, deskilling and under-development experienced by the first proletariat.

It is important to analytically distinguish between genuine technical improvement, and the effect of a general increase in capital employed in a production process. For example, the improvement in productivity of cotton workers in the last quarter of the nineteenth century occurred without any major improvements in mechanisation devised nearly one hundred years earlier. Rather it appears to have resulted from a combination of the generic progress and specialisation within the economic superstructure and the intensification of the labour process. (Chapman, 1904: 152-7; Schulze-Gaevernitz, 1895: 97) This suggests in turn a further distinction: between technical improvement and its effect on effective demand. Mass production of cotton, based on the real subordination of labour, creates and relies upon 'historically expanded' needs, the impact of which is to stimulate further investment in (say) steam power, building, retail outlets, etc. In this view the 'industrial revolution' does not as Landes proposed turn upon the

arrival of various 'technological changes', but rather the consequent upheaval and reorganisation of the social structure:

> ... if one wishes to refer the industrial revolution to a definite historical epoch it can be located more justifiably in the second quarter of the nineteenth century than in the end of the eighteenth century. (Schumpeter, 1938, Vol. I: 254)

So investment is not tied to invention but to application and innovation - ultimately dependent on social factors. Again the cotton industry provides an example. The period of highest investment coincided with the adoption of power driven machinery - an innovation - not with the invention of the machines themselves. (Deane, 1965: 156)

The labour process in Capital

It was noted earlier that the form of compulsion within the worker-capital relation had, under the capitalist mode of production lost its most blatant character of coercion and violence. The apparent form of free individuals negotiating to sell or buy labour power in the joint effort to produce commodities finds its highest expression in the bourgeois democratic political system of free citizens electing of government to regulate and oversee this operation.

Marx in Capital was fully aware that the labour process was notionally independent from the mode of production:

> The labour process ... is purposeful activity aimed at the production of use-values .... It is the universal condition for the metabolic interaction between man and nature, the everlasting nature-imposed condition of human existence, and it is therefore independent of every form of that existence. (ibid, 1976: 290)

As with all transformations of the social structure the innovatory class is limited by the existing character of the organisation of production. Once the capitalist brings a commodity production under his control by

buying the labour power of those of that trade, at first:

> The general character of the labour process is evidently not changed by the fact that the worker works for the capitalist instead of for himself. (ibid: 291)

Whilst the rhythm, pace and intensity of labour may change and along with it the nature of the product, a fundamental division remains between the creation of use-value by the worker and the transition of this by the capitalist into exchange-value and thereby money. Capital as a specific form of class relationship is still only a transitory function of this process, rather than the function of the process itself. However, the rate of profit accrueing to the capitalist is as much a product of the movements of prices as it is the remuneration of the worker. In short, the productivity of labour remains outside his control.

Marx's first examination of the sequence of creation of surplus value (valorisation) and the labour process in Chapter Seven of Capital Volume One, leaves unclear the underlying process of class formation, or at the level of production, the social organisation of labour. At what point does the manipulation by the capitalist of the product of the creation of use-value become surplus value, the origin and foundation of capital as the hegemonic form of class relationship, and the motivating force of the economic process, accumulation?

Marx's initial answer pointed to the factory system and the expropriation of the producer from his instruments of production resulting from a need to extend control over the worker as the only method of valorisation:

> If we now compare the process of creating value with the process of valorisation, we see that the latter is nothing but the continuation of the former beyond a definite point. (ibid: 302)

The intensification and pacing of work via its centralisation under one

roof pre-supposes an elementary extension of the division of labour - a 'primitive' form of increasing the productivity of labour, one that is, however, finite. To put it another way, the capitalist now controls of the objective factors of labour, the quality of materials, consumption of power, attentiveness of labour etc. In addition the monopoly over the instruments of labour ensures all production is for the creation of commodities - the generalisation of which constitutes the capitalist mode of production:

> The production process, considered as the unity of the labour process and process of creating value, is process of creating commodities; considered as the unity of the labour process and the process of valorisation, it is the capitalist process of production, or the capitalist form of the production of commodities. (ibid: 304)

At this stage surplus value appears simply as the excess of labour power over and above the necessary by cooperative effort to produce a given commodity: the money form of that realisation being dependent on the market price. Marx compares the unskilled and skilled labourer and concludes that the result of their efforts is identical in the structure of the valorisation process:

> In both cases the surplus value results only from quantitative excess of labour, from a lengthening of one and the same labour process .... (ibid: 305)

This raises a serious problem. Is the transformation of use-values into capitalist surplus value therefore independent of the labour process; or to put it in another way, from the social organisation of labour? A condition for the hegemony of capital over labour must be the resolving of this contradiction in favour of the former.

But the burden of the argument initially suggests that this is not the case. The intervention by the capitalist into the productive cycle in the form of machinery merely transfers the ratio of immediate to past use-value, not the value embodied in the product itself. And

it is only the action of immediate labour power which can effect this transformation in the first place. A reduction in the labour-power required to produce a commodity is dependent on the value of the machine as a product of another labour process, not as a genuine addition to the value of the commodity under discussion:

> Its value is determined not by the labour process into which it enters as a means of production, but by that out of which it has issued as a product. In the labour process it serves only as a use-value, a thing with useful properties, and cannot therefore transfer any value to the product unless it possessed value before its entry into the process. (ibid: 314)

The activity of labour power upon the element of the means of production which reduces labour power (variable capital) is the foundation of surplus value, in so far as this lessens the use-value of the new factor of production:

> If it is thus strikingly clear that the means of production can never transfer more value to the product than they themselves lose during the labour process by the destruction of their own use-value. (ibid: 312)

Thus it is not fundamentally the character of the labour process but its proclivity that realises surplus value. Hence, the discussion of the rate of surplus value being paid in terms of necessary and unnecessary labour time:

> ... surplus value is determined by the surplus part of the working day .... (ibid: 326)

Herein lies the basis for the long discussion over the length of the working day, and the increase in variable capital as the determinants of surplus value. (ibid: 340-426) Is surplus value, and thus accumulation, a product of the reciprocal reduction in the solidly necessary labour power as a product of the addition of variable capital: in other words, is it a technical or political question? By demonstrating that the survival of capital accumulation is dependent on the objectification of the labour process Marx shows it is the latter that is determinant; for

it is only by establishing valorisation as the specific form of the capitalist labour process that we can also see the necessity of the resulting social organisation of labour. The intervention of technology into the productive cycle is not, therefore, simply a method of raising the productivity of labour but of removing all constraints upon the further dilution of labour power and of the complete domination of the capitalist mode of production and thus of the capitalist class itself.

> It is no longer the worker who employs the means of production, but the means of production which employ the worker ... they consume him as the ferment necessary to their own life processes, and the life process of capital consists solely of its own motion as self-valorising value. (ibid: 514)

It is this way the virtue of the productive system which underlies the process of accumulation, consists in its imperative to increase the productivity of labour by lowering its value embodied in the commodity, expressed in 'living labour'. The most succinct expression of this notion and its implication for the structure of production is the following resume in Chapter 25:

> We showed in Part IV how the development of the social productivity of labour presupposes co-operation on a large-scale; how the division and combination of labour can only be organised on that basis, and the means of production economised by concentration on a vast scale; how instruments of labour which, by their very nature, can only be used in common, such as systems of machinery, can be called into existence. (ibid: 775)

In turn, this process reduced the number of capitalists whilst increasing the rate of accumulation of capital which of consequence, accelerates the potential for specialisation of capital employed and the labour of those in each process. (ibid: 780)

Through this analysis Marx resolves the problem of how the process of valorisation frees itself from the 'natural' supply and productivity

of labour: on the one hand the process of production is increasingly objectified, thus reducing the absolute demand for labour power, whilst simultaneously effecting the real or final separation of the means and instruments of production from the workers on the other. The process of capitalist production is, in this way, an internal 'living' confirmation of the labour theory of value.

Since the progress of the capitalist mode of production is uneven, and the introduction of machinery subject to the ability of living labour to raise its unit cost to the point where it constitutes a threat to the valorisation process, it follows that the process of accumulation is independent of the contraction or expansion of labour supply, but nonetheless an essential product of that process: hence the discussion of the 'reserve army of labour'. (ibid: 781-794)

Marx has now established what it is about the process of valorisation which is essential to the changing character of the labour process: the imperative need to reduce the value of labour power via the process of accumulation and the competition between capitals. The character of this development is revealed in outline as a product of the discussion of the relation between the accumulation process and the social division of labour in the process of production.

In order to do this Marx makes a distinction between 'absolute' and 'relative' surplus value which in turn has implications for the labour process:

> The production of absolute surplus value turns exclusively on the length of the working day, whereas the production of relative surplus value completely revolutionises the technical processes of labour and the groupings into which society is divided. (ibid: 645)

In order for accumulation (valorisation) to proceed unfettered the development of capitalist productive methods has to totally control the labour process and to make it independent of individual labour

power, that is, reduce still further the element of 'living labour'. The process of absolute to relative surplus value is predicated on the assumption of a 'real' rather than 'formal' subordination of labour to capital in the process of production. Only at this stage, argues Marx, can we speak of a capitalist mode of production: this is achieved at first unevenly in differing branches of industry, but by its character,

> ... becomes the universal, socially predominant form of the production process. (ibid: 646)

In an appendix to Capital Volume One only recently made available in English, Marx elucidates more fully on the consequences of the transition to the 'real' subsumption of labour to capital.

Capitalism although a revolutionary system of production requiring the constant progress of accumulation does not overthrow, in a uniform manner, the established modes of labour but rather in a manner corresponding to its contradictory objective socialisation of labour. The progress toward the 'real' subsumption of capital to labour is marked not simply by a developing relation of economic supremacy, but also in a re-definition of the social roles of each and its crystallisation into a class structure. For example, the capitalist is no longer a co-producer (journeyman or artisan) or co-ordinator (merchant) but a supervisor and director of the process. Thus the formation of the classes also reflects in an uneven manner, the changes in the organisation of production, and the 'social distance' between the two groups. Marx suggests this process is causally related to the volume of capital employed i.e. the number of workers engaged by each capitalist. (ibid: 1027) Furthermore, 'formal' subordination establishes the 'cash nexus' as the form of relation between the classes: the worker experiences this as a free exchange involving money, as an abstract social form of

wealth. Within the limitations of the structural differentials of income this puts the worker on an equal footing with any other buyer:

> ... he is responsible to himself for the way he spends his wages. He learns to control himself in contrast to the slave, who needs a master. (ibid: 1033)

This obviously has limited applicability to England, but Marx is suggesting the general notion that the stage of 'formal' subordination is in part, a process of ideological preparation of the proletariat.

What then is the 'real' subsumption of labour to capital? Firstly, and most importantly, it establishes relative surplus value as the dominant form of exploitation via the creation of a capitalist labour process. In terms of our earlier discussion, the capitalist now controls the objective and subjective factors of production which in turn facilitates the necessary increasing magnitude of capital that enters the production process. This stage (sometimes referred to by Marx as the progress from 'manufacture' to 'machinofacture') the labourer serves the machine and not the machine, labour. The natural co-operation of manufacture with its complex traditional modes of labour is replaced by a scientifically organised system which is solely geared toward valorisation involving a reorganisation of the instruments of labour employed and the form of social combination that is imposed upon labour. (ibid: 1034-5)

Secondly, the labour process is objectified, and the workforce collectivised from above, or from without, by the productive process. Organisation of work no longer corresponds to the 'natural' mode of labour necessary for co-operative effort:

> The entire development of productive forces of socialised labour (in contrast to the mor or less isolated labour of individuals) and together with the use of science ... in the immediate processes of production, takes the form of the productive power of capital. It does not appear as the productive power of labour .... (ibid: 1024)

Thus there is a third consequence: the ideological strengthening of capital resulting from the actual separation of labour from the means, instruments and techniques of production, save that fraction in which the worker is involved.

> The mystification implicit in the relations of capital as a whole is greatly intensified here, far beyond the point it had reached, or could have reached in the merely formal subsumption of labour under capital. (ibid)

In other words, the complexity of 'machinofacture' necessitates some agency to assemble the disparate elements of production, 'fetishism' results from the conflation of this to equal capital.

> Capital thus becomes a very mystic being since all of labour's social productive forces appear to be due to capital, rather than labour as such, and seem to issue from the womb of capital itself. (Marx, 1972: 827)

The 'real' subsumption stage would initially suggest a clear dichotomous organisation of production of 'supremacy and subordination' by capital over labour, and hence provide at the level of the factory a confirmation of the wider 'polarisation' thesis. However, whilst suggesting an objectification and separation of tasks in 'real' sense - involving the minute specialisation for the labourer, the monopoly of knowledge of production techniques, and the 'freeing' of the capitalist from direct work - in fact, when considered jointly do not imply a simplistic dichotomous organisational structure.

Firstly, implicit in the idea of a capitalist labour process is the division between 'intellectual' and 'manual' labour, in so far as the former now have a monopoly over technique and the latter over execution. In order for this to be fully exploited a specialised department is created, firstly within the larger factories, and then centrally through universities, institutes etc. Pollard has shown how this process was related to mechanisation, mass production and the division of labour,

and did not become general until the mid-nineteenth century, and even then only in large-scale factories:

> There were well-defined groups of managers in many industries: there was, by 1830, as yet hardly a managerial profession as such. (1968: 188)

The majority attitude toward labour was that:

> ... they were dealing with a recalcitrant, hostile work-force whose morale, whose habits of work and whose culture had to be broken in order to fit them for a form of employment in which they had to become obedient servants of the machine, of its owners and of crude monetary incentives. (ibid: 297)

Or in the words of a contemporary:

> ... to renouce their desultory habits of work and identify themselves with the unvarying regularity of the complex automaton. (Ure, 1834: 15)

Thus, an ideological order for this strata emerged as a consequence of this objective position in the labour process. Furthermore, the 'de-skilling' effect of 'real' subordination facilitated the emergence of a clear differential of payment and status of the manager/supervisor above that of the clerical staff. (Pollard, 1968: 165-172)

Secondly, Marx concludes that the antagonism of capital and labour expressed in the instrumentalist mentality of the proletariat creates another category, the 'labour of supervision and management'. This is expressed most clearly with the development of the credit system where capital 'assumes a social character' operated by a 'functionary' under whom are the supervisors, and then the wage labourers themselves. In prophetic vein Marx writes of this stage when:

> ... the capitalist disappears as superfluous from the production process. (1972: 388)

On this count also, 'real' subsumption implies a necessary contradiction between the hierarchical organisation of work and the meritocratic effect of 'machinofacture' in which the latter is dominant, because of

fundamental antagonism of labour to capital. Only when this is resolved through the establishment of a non-antagonistic mode of production is the potential created for the symbiosis of the structure of work and the production.

The 'objectification' of capital appears not only in the labour process itself, but as a feature of capital accumulation and of the relations of capital. There is a sense in which in this stage of capitalist development not only is worker separated from the means and techniques of production, but also the capitalist who increasingly plays less and less direct role in the process of production. This, 'the abolition of the capitalist mode of production within the capitalist mode of production itself',

> ... establishes a monopoly in certain spheres and thereby requires state interference. It reproduces a new financial aristocracy, a new variety of parasites, in the shape of promoters, speculators, and simply nominal directors .... It is private production without the control of private property. (ibid: 438)

This 'externalisation' of the relations of capital itself creates further strata between capital and capitalists and between workers and the owners of the means of production. Further, as Marx suggests, the intervention of the state into production in the form of credit regulation is necessitated by the material divisions within the capitalist class between 'loan', 'industrial' and 'commercial' interests. (ibid: 502)

Thus the stage of the 'real' subordination of labour to capital, the capitalist labour process, simultaneously creates objective relations of capital which predicates the unification of the means of production and the producers, whilst in reality creating an ideological and organisational hierarchic order, based on their complete and actual separation. The insights of Capital on this development allow us to examine the actual

history of the organisation of work in three industries of British capitalism by identifying those area of history crucial to such an understanding.

PART THREE

CHAPTER VI

ENGINEERS: THE CRAFT EXPERIENCE

Introduction

Trade union history uses as its benchmark the Webbs' famous 'History of Trade Unionism', although in the last two decades its priorities and methods have been questioned. In particular their concern to demonstrate the essential continuity of form between the trade guilds of the eighteenth century and the modern form of trade union, (culminating in the formation of the Amalgamated Society of Engineers) is said to ignore the contribution of the unruly, episodic, and disorganised responses to industrialisation to the formation of collective bargaining. Luddism and other forms of violence were not the antinomy of trade unionism, but in many trades, its precursor. Moreover, these tactics, it is argued, were not a primitive stage through which a 'mature' state was reached, but on the contrary remained an integral part of the relations between labour and capital until well into the nineteenth century. (Allen, 1962; Hobsbawm, 1976: Chap.II; Thompson, 1968)

This debate aside it remains the fact that the A.S.E. has been seen as the archetypal example of those qualities of 'responsibility' and 'accommodation' said to charcterise the privileged sector of the emergent working class; an emphasis shared by labour historians as ideologically distant as E.J. Hobsbawm and A.E. Musson. Those sharing a Marxist standpoint often begin from Engels's article 'England in 1845 and in 1885', where, for the first time, Marxism as a theory is applied to the reality of the apparent stability of capitalism. His analysis of the condition of the labour movement begins with a famous passage in which he says 'a permanent improvement' can be recognised in two sections of the working class: firstly, the 'factory hands': their 'local

concentration' and legally enforced hours endowed them 'with a moral superiority' (1971: 391). Here he undoubtedly meant the textile workers; but since the legislation only covered certain products, and since the organisation of work remained hierarchical, it is fair to assume that this category was in fact the spinners (they certainly were the only section organised constituting around 25,000 workers). (Turner, 1962: 125; text:287-9) The other 'protected' group Engels identified were those least affected by the competition of women, children or machinery, trades of 'adult men',

> The Engineers, the carpenters and joiners, the bricklayers are each of them a power to that extent, that, as in the case of bricklayers and bricklayers labourers, they can even successfully resist the introduction of machinery. That their condition has remarkably improved since 1848 there can be no doubt .... They form an aristocracy among the working class; they have succeeded in enforcing for themselves a relatively comfortable position and they accept it as final. (1971: 391-2; my emphasis)

This last sentence is crucial, and is the key to the whole section; it also differentiates the essence of Engels from the previously annotated approaches. For here it made clear the position of this latter group is in part actively maintained by their own group activity and not simply or primarily a result of price falls, changes in work organisation or whatever. Thus the 'labour aristocracy' is composed of two groups, the 'protected' factory workers, and those trades 'resisting machinery'. But the crucial point is that those in the latter category were in a transitional stage of their occupational history. They were neither elevated by factorisation and mechanisation, as with the spinners (text:301-2) nor as yet degraded to the level of the semi or unskilled. Their position is in part a function of the structure of industrial order, but this is subordinate to their role in the active maintenance of craft controls, occupational identity and trade cohesion.

What Engels only implicitly argues, but which has been stressed by later historians and sociologists, is that of course this activity had a dualistic effect upon the relations between labour and capital: on the one hand, craft control 'obstructed' the employer in the rational exploitation of his resources, yet in doing so these same workers actively excluded the rest of workforce and in part (sometimes directly) were involved in their exploitation on the other. (Hobsbawm, 1976, Chap.15; Parkin, 1974.) There is no need in particular instances to construct a political version of the 'labour aristocracy' theory (Foster, 1977; Gray, 1975). These craft workers either partly or wholly paid their assistants, controlled an apprenticeship or occupational hierarchy systems, which did not guarantee (in the case of the spinners) ever achieving the superordinate position, hired and fired, speeded up or slowed down production as their interests demanded, and ultimately influenced local and parliamentary politics to their own ends. The argument is to what extent this dualistic role was a factor in the frustration of a wider class consciousness. Did they provide a model of reformism for unskilled masses to follow? (Bauman, 1972; Pelling, 1968). Were they 'bought off' by the profits of imperialism? (Lenin, 1970, 667-763.) These and other questions posed at the level of society as a whole often hinge upon the experience of the engineers and their union, and for this reason the following analysis of their work experience must assume wider implications in labour historiography.

Era of the Millwright

> Modern industry never views or treats the existing form of a production process as the definitive one ... it is continually transforming not only the technical basis of production but also the functions of the worker and the social combinations of the labour process. (Marx, 1976, Vol.I: 617)

'Engineering' as an occupation was the product of the sub-division

and atomisation of the role of the all-round craftsman and small producer of the industrial revolution. Steel and high grade tools available from 1750 onwards, gradually transformed his craft from a timber to a metallurgical one, though as late as 1818 the 'Book of English Trades' lists the 'turner' as primarily a woodworker. (Thompson, 1968: 270-1.) This initial convulsion was expressed through the formation of a variety of Friendly Societies in the first two decades of the nineteenth century; the Iron-moulders, Vicemen and Turners, Mechanics, and the largest, the Steam Engine Makers Society in 1824 with around 5,250 members by 1836 (Jeffries, 1945:19).

These small organisations were omnipotent within their own corner of a trade. The young William Fairbairn arriving in London in 1810, after a five year apprenticeship, applied to join the Shipwrights Society whose rules specified a seven year minimum. On discovering this Fairbairn attempted to falsify his indentures, a ruse discovered by the Society, and his application was duly turned down. His only alternative (the metropolis closed to him) was to tramp out to rural Hertfordshire where the Society did not influence the trade, and there he got work. (Smiles, 1908: 310-12). By 1814 an established millwright, he was to write of his own craft years later,

> In those days a good millwright was a man of large resources; he was generally well-educated, and could draw out his own designs and work at the lathe; he had a knowledge of mill machinery, pumps and cranes, and could turn his hand to the bench or the forge with equal adroitness and facility. If hard pressed, as was frequently the case in country places far from towns he could devise for himself expedients which enabled him to meet special requirements, and to complete his work without assistance. This was the class of men with whom I was associated in early life - proud of their calling, fertile in resources, and aware of their value in a country where industrial arts were rapidly developing.

Fairbairn apparently saw no contradiction between this account of the skilled worker and his comment in his autobiography at the time

of his rejection by the Shipwrights that

> ... the junta of workmen had no right to impose restrictions upon my free labour. (1908: 303; 313)

But of course the generic skills of the craft worker were dependent on precisely these restrictive practices; skills of which it took 900 pages to describe in The Operative Mechanic and British Machinist (1828).

It was the growth of the cotton industry that really created the conditions for the emergence of the 'engineer' as a metal-working wage labourer; the basic division being between those concerned with powering, and those with building, the Jenny and the water-frame. (Clapham, 1926: 152.) The evidence suggests that by the 1820s the craft had retained the body of trade defences despite the repealing of statutory apprenticeship regulations. Interestingly enough the employers argued this measure had ended combinations not the apprentice system itself, yet of course one predicates the other. Nonetheless, Alexander Galloway a London employer, took this attitude in his evidence to the Select Committee of 1824 (V:27). Yet at the works of T.C. Herves in Manchester (probably one of the largest firms in the country, employing 150) expansion of output was limited by the enforcement of the 'five year rule', only 'legal men' could be taken on otherwise a 'turn out would result' (ibid: 357). Galloway reported his men imposing fines upon themselves for swearing or bad behaviour, a certain indication of some form of association, although he himself deducted contributions to a factory sick fund (ibid: 25-6). The engineers still remained well paid by contemporary standards, although by no means at the top of the artisan wage-tree. (Hobsbawm, 1976: 277.)

Labour costs were still the main ingredient in the production process. Galloway estimated an average of three-fifths,

> ... but in finer works we consider the wages to be seven-tenths of the price of every article. (1824, V: 13)

Another estimate in the production of cotton machines, a major sector of the industry, put labour as nine-tenths of the cost (ibid:30). Of course these figures may have been political exaggerations or products of random book-keeping which did not recognise capital as a unit cost (Pollard, 1968: 271-284) but nonetheless are indicative of the extent to which skill remained a premium. That is, the degree to which the worker was able to dictate the time spent on each process and the rhythm of production. The importance of this is demonstrated when we consider the case of engineering in Scotland, where wages were significantly less than in Manchester or London. Despite this, profits were in fact generally lower than south of the border, and the reason for this illustrates the reality of the quote by Marx above. Because Scotland as yet lacked a sizeable cotton industry, machine tools were relatively less developed, leading to proportionately less sub-division of labour and therefore to a higher percentage of labour cost in each article. Such regional differences show the route by which the exploitation of labour must follow and its relationship to the organisation of work and then finally, as we shall see, to the payment of wages, and the rate of accumulation of capital (text: Chap. V).

The uneven rate of technological change displaced, but did not dispose of, the skilled worker. His ability was compartmentalised and moulded by external forces, but not as yet dispensed with. For example, machines in cotton industry required constant attention; the first bobbin-net machine required as much as two to three months of 'tuning' after delivery before functioning satisfactorily (1824, V: 19-21). Accuracy and precision, in the absence of the slide rest (text: 125) required at different stages even more bespoke work than pre-factory

machinery. The mainstay of the machine maker, the Jenny, was subject to exactly this limitation in its production.

> The parts of the machine are made to fit the rollers and spindles and not the rollers and spindles to fit the parts; for it is chiefly in the roller and spindles that nicety and accuracy are required. (ibid: 397)

As long as this was the case, improvement in the design and concept stage remained fettered; plans and wooden models became commonplace but it still needed a 'very scientific man' to produce them, and a 'very skilful man' to implement the idea into practice (ibid: 396).

However, whilst the 1820s and 30s did not see the destruction of the generic craftsmen, the transition from the wood to the metal worker was not achieved, it would seem, through the same personnel. T.C. Herves recruited his 'leading men' from clock and cabinet makers, opticians and other fine-working, though not 'factorised' trades. Herves compensated such men by wages: the expansion of his business relied upon them passing on their skills to the younger men below them - and hence his rage at their successful limitation of the numbers (1825, V: 15-20). Other employers noted how, despite tempting wages, craftsmen in handicraft 'outdoor' trades could not be entreated from their independence (ibid: 21). The relatively larger size of the Manchester firms is partly explained by the availability of labour: it had, of course, the longest tradition of 'factorisation' and thus the longer period of the break up of the skilled outdoor trades from which the 'cadres' of the first engineering factories came.

Another indication of the transitional stage of the occupation was the rapid turnover of labour. Skill, of a new sort, was at a premium. 'Collective bargaining' took the form of a constant flow of individual negotiations; Galloway claimed that during the previous

twelve years labour turnover had averaged 100% per annum. Lump payments were commonplace, inducements to leading men to leave their present jobs - up to £50 it was said for foreign assignments (1824, V: 337). Of course, whilst this was going on, standardisation and accuracy suffered, and so did consequently the employers control over the labour process.

> Watt endeavoured to remedy the defect by keeping certain sets of workmen to special classes of work, allowing them to do nothing else. Fathers were induced to bring their sons at the same bench with themselves, and initiate them in the dexterity which they had acquired by experience; and at Soho it was not unusual for the same precise line of work to be followed by members of the same family for three generations. (Smiles, 1908: 180-1)

Perhaps this in part explains the famous paternalism amongst the early engineering firms, particularly those regionally concentrated such as shipbuilding (R. Allen, M.S.S.).

It was the change in personnel and the high demand for these types of workers that ultimately laid the foundation for introduction of piecework. The aetiology of piecework takes this form, rather than via technology because engineering was an occupation emerging rapidly, but unevenly, from a wages structure based on custom and statute. This can retrospectively be demonstrated by examining the labour market for, say, ironfounders and engineers up to 1840. These workers undoubtedly had an excellent bargaining position, but 'traded off' some of this against non-economic benefits of day-rates, less supervision, mobility and higher status above the rest of factory work force (Chadwick, 1859: 410).

Contemporary employers did not motivate their introduction of piece-rates primarily in terms of standardisation, but rather as a method of stifling the emergence of unions. William Brunton, a civil engineer of Lancashire, in the 1820s when faced with an all-round demand for a 2/-

advance responded by choosing certain individuals (his fastest and most reliable workers) for the rise and denying it to the rest. According to him, uniform wages caused unions.

> I have noted that whenever men are paid indiscriminately the same wages without reference to their qualifications as workmen, there combination more or less exists. (1824,V: 323)

Similarly, at T.C. Herves' firm piecework only applied to the lesser crafts 'below the millwrights' who refused categorically to accept the system. Amongst their subordinates wages varied from 30s. to 40s. whilst the millwrights in a 'closed society' received a uniform day wage (ibid: 361).

As will be realised most of these early schemes were not piecework in the sense of relating output to wages, or automatically regressive i.e. that paid for each increment in production is at a lower rate relative to the preceding increment. Their significance lies in the extent to which they indicate a need to supervise autonomously the pace of work and thus which section of the labour force were at any stage abandoning custom in favour of conforming to, in Hobsbawm's phrase the 'rules of the game'. In other words, the progress of the Weberian work ethic in which effort was proportionate to reward not need (Hobsbawm, 1976: 361; Weber, 1929). Over the next twenty years various forms of piece-rate systems were introduced into engineering shops, but their form for the present is less important than to whom they were now directed at, and the purposes for which they were introduced.

By the 1840s the evidence begins to suggest a less favourable bargaining position for the skilled worker, as a generation of young workers trained in the 20s and 30s began, in turn, to apprentice the next layer of engineers. This coupled with the advancing use of the planing machine, invented in 1812 (but little used up to the 1840s) and

a general improvement in tools, increased the available labour. Once again cotton was the initiator. T. Ashton of Hyde mill, probably the largest in the country, reported to the 1841 Select Committee on the Export of Machinery,

> ... a very great increase took place in consequence of the demand (for machinery - M.R.H.J.) and now there is an abundance of artisans and preparation for making machines to any reasonable extent. (1841, VII: 22)

In Manchester the centre of technological improvement, Chadwick noted a distinct worsening of the conditions of 'machine' artisans from the mid-1840s. No longer protected 'by the market' he was, it was said, turning toward the use of combinations aimed at reducing the supply of labour into the trade (1859: 412-15). Tools, which twenty years earlier were no more than 'hammers, files, chisels'

> ... are now in fact machines .... I consider that the tools have brought a great revolution in machine making in many points ... machinery is made by almost labourers.

stated W. Jenkinson, a Lancashire employer, to the 1841 Committee (1841, VII: 96). Yet from other witnesses it becomes apparent that progress was not quite so sweeping. Numerous preparatory and concluding tasks remained handicraft, and the production of spindles, a mainstay of many machine-makers, was a 'wholely manual operation' (ibid: 99).

The progress of piecework was uneven. From some areas it still remained the prerogative of the 'lesser trades' below the millwrights. However, in some of the larger establishments we find an interesting reversal of the situation at T.C. Herves in the 1820s. Now piece-rates are accepted by the highest grades and the lesser workers reverting to day wages. At Fairbairns of Leeds, employing 550 men,

> piece-hands are generally first class men and some of them will earn as much as £3 to £4 a week. (1841, VII: 104)

This amounted to a differential of up to 150% over the other skilled tradesmen and 200% over the labourers. In other words, whereas once the craftsmen accepted a small differential in favour of higher status (primarily in terms of a uniform day-wage) now the leading men, in this firm at least, took piece-rates as a symbolic and material confirmation of their high status (ibid: 104; 120-5). This separation between the piece-men and the rest was to become the foundation of the hated piece-master system which evolved in the 1850s, and reflected the first example, in this industry of the 'pace setter-supervisor' role so disliked by the ASE (1856, XIII: 139-40).

However, the large enterprises, whose employers came to the notice of the various Parliamentary Committees, were by no means typical. In most shops such practices would still be unheard of, and the advances in tools and machinery negligible. Thomas Wood newly recruited in 1845 to the huge Platts firm described himself as a man,

> ... who had never worked in a shop with eight or ten men, and with country-made tools, the very best of which, Platts would have thrown away as utterly useless. (Burnett, 1977: 310)

Another account of a shop in the mid-1840s described it thus:

> There was no steam hammer; all the forging was done by hand, and it was a fine sight to see seven or eight strikers, at the forging of a crank-axle plant use their hammers in rapid succession upon the spot indicated by the smith .... All the light turning was done by hand without a slide rest.

Not that this meant inaccuracy,

> I have seen two pieces filed so perfectly when placed one upon the other the lower piece would hang to the upper by the force of molecular attraction, as if glued to it. (Stonewell-Brown, 1887: 49-50)

Old customs still prevailed: on reaching twenty-one Wood was called upon to provide a supper for the whole shop, his poverty precluding it being held in the usual venue, a public house. Young apprentices would traditionally be asked to stand a gallon of ale on their first day, and

on occasion have to present the leading hand with a gift of some sort, often an expensive tool or book (Burnett, 1977: 308; Stonewell-Brown, 1887: 48-9). Other accounts describe similar practices in the 1860s and 70s, particularly those relating to apprenticeship (Taylor, 1903; Wright, 1867).

Tramping was still usual; an important part of the initiation into the various societies was the obligation of hospitality toward these men. Wood, after just over a year at Platts was 'stopped' because of lack of orders and set out on a fruitless search for work. He eventually found a position in a small shop 'with no proper order or economical order of working' (Burnett, 1977:311). In such situations there was much less pressure and supervision; Hugh Stonewell-Brown described his shop in the early 1840s thus:

> I cannot say we worked very hard .... In the fitting shop we took our turn to watch for the foreman as he came up to the sheds .... Another man who made cross-heads rarely did an hour's work a day. (1887: 51)

Whilst apprenticed Brown managed to teach himself Greek during his working hours (ibid: 57).

So by the middle of the century there co-existed firms which reflected the future and the past in engineering. As I have shown earlier the survival of these firms was an incidental freak of industrial progress, but a necessary consequence of the structure of engineering, its capital market and the limited nature of consumer demand (text: Chap. V)

Technological Change 1850-1900

The development of textile machinery, particular the power-loom, and railway locomotives underlay the transformation of the engineering industry between 1830 and 1850. The major change occurred in the

utilisation of machine tools which brought some element of automisation and standardisation into the work process. However, the heritage of written history tends to obscure the difference between potential, and actual, use. This bias comes from two principal sources: the accounts of employers and inventors, and technical histories. An example of the former is Nasmyth's account of the progress of machinery in his factory (although it is interesting to note most changes are motivated by worker recalcitrance or strikes).

> The machine never got drunk, their hand never shook from excess, they were never absent from work, they did not strike for wages, they were unfailing in their accuracy and regularity. (Smiles, 1883: 193)

The existence of a tool, new method or system of working tells us nothing of the extent to which it was in use. The standard text on the history of machine tools dates the introduction of the turret lathe between 1860 and 1890, regarding its use as a crucial indicator of the degree of mass production (Steeds, 1969: 55-70). Yet contemporary accounts in the 1890s and later mention it, only occasionally, as a new invention. At a bicycle works W.F. Watson recalled,

> In those days in 1897 all components were made by hand on centre lathes, each unit being separately handled, and the tools constantly changed for each operation. (1935: 12)

When finally introduced the turret lathe did revolutionise the work, but its use was restricted by the refusal of the A.S.E. journeymen to do the skilled task of setting it up for a run of work (ibid: 13). A survey in 1928 dated the 'widespread use' of this machine as post-1900 and even then,

> It is impossible to give any exact idea of the extent to which semi-automatic and automatic lathes have replaced the ordinary types. (Rowe, 1928: 265)

The principals of Whitworth's standardisation scheme were finalised by

the early 1830s, yet twenty years later on in a series of prestigous lectures to commemorate the 1851 Exhibition we hear his system being advocated, rather than praised.

> ... (this) process which would have the effect of making the construction, application and repair of all work into which screws enter vastly more easy and expeditious than it now is. (Clapham, 1926, vol.I: 44)

As late as 1886 the President of the Institute of Mechanical Engineers was still impressing upon his colleagues, Whitworth's other contribution, the importance of'working to gauges throughout' (ibid, 1932, vol.II: 75).

Having made these reservations, the implications of which appear throughout the section on working methods, let us briefly recount the main developments.

The hardening of steel was greatly improved by F. Taylor's tungsten alloy which allowed the cutting speed of tools to be increased by 300% to 90 feet per minute. These were commercially introduced in Britain from the 1900s, but were not established until after the War (Rolt, 1965: 200-220).

Traditional driving methods were based upon the steam engine, power being transmitted to each machine through overhead belting, examples of which were still common in the 1930s. From the 1890s, electric and gas engines working a geared headstock allowed greater flexibility - though their use led both to facilitate mass production and an extension of the small shop, since they required less capital outlay (Steeds, 1969: 118-119; Allen, 1929: 209).

The lathe by 1850 had become 'an industrial machine tool of precision and high capacity', with all the essential developments of its modern form (Woodbury, 1961: 117). The self-acting slide rest established by the 1840s,

> ... really marked a far greater step forward then has any subsequent improvement. (Rowe, 1928: 264)

The extension of the slide-rest principle in the form of the turret or capstan lathe we have already discussed but also worth noting is the emergence of 'speed and feed' rates, fixed by the office, for the most advanced lathes. These systems appeared in the 1880s and depended on a high degree of specialisation amongst the workforce - otherwise these rates were bargained individually between the worker and the foreman against the backdrop of the existing piece-rates. The two systems - 'fixed' and 'analytical' piece-work - co-existed up to 1914, but it was the adoption of the latter in the 1890s that was a causal factor in the strike of 1897 (Burton, 1899: 174-5).

Up to the 1890s boring was done on a modified lathe, then with the invention of the radial drill boring became a specialised operation. This allowed the work to remain stationary whilst the drill moved to obtain the correct position. Up until 1861 the drill itself was simply a pointed piece of metal, with no cutting edge - the twist drill greatly increasing the capacity of boring machines (Rowe, 1928: 266; Floud, 1976: 28).

Slotting and planing machines remained basically unchanged from their invention in the 1830s to 1914. The Planer could travel faster across the work by using the improved cutting steels, but the principle remained the same, as did the status of operator i.e. semi-skilled (Rowe, 1928: 267).

The milling machine on the other hand was largely developed during the 1850-1914 period. It differed from the planer in so far as the tool revolved and the work remained stationary. The Plain and Vertical machine were introduced in Britain from the 1890s, and the Universal model

some ten years later, the latter allowing the work to be tilted to any angle desired (Floud, 1976: 29).

The reasons for the slow permeation of new ideas and methods throughout the engineering industry seem to fall into three areas. Firstly, there is the opposition by a strong craft union to new techniques which weaken their position - this is dealt with in detail later. Secondly, there is the fact that many workshops made their own tools, particularly in the key 'motor' sections such as textiles and railways. This insulated developments from one another and lessened the likelihood of complete re-tooling. (Saul, 1970: 162) Thirdly, there is the state of the market. Long runs are essential to cover the cost of special machine tools, the elaborate jigs and templates, and the time taken to set them up - and this applied as much to the makers as to the users of machine tools.

However, for our purposes it is sufficient to note these possible factors in the retardation of engineering technology. What is significant is the lact of fundamental change in methods and machines from 1850 to 1890 - major inventions occurred before or after these dates. This supports Jeffries at first rather startling assertion that,

> The spread of the processes and inventions in the first half of the century rather than the developments of new methods, was the main characteristic of the years between 1850 and 1890. The fitter and turner in an up-to-date shop of the 1850s would have been quite at home in a shop of the 1890s. (1945: 55)

Thus the context of the work experience of the engineers is not a revolution in methods, but a long process of attrition; an inter-regnum within which engineering expanded by eroding, but not eliminating, craft control.

The 1852 Lock-out

The progress of unionism in the 1840s reflected the uneven state of the industry. The 'second generation' of factory engineers were now emerging as the majority of the adult skilled labour force, whose apprenticeship had been based on the two prime tasks of fitting and turning. It was 1842 when the Friendly Society of Mechanics changed its name to the Journeymen, Steam Engine and Machine Makers and Millwrights Society (J.S.E.M.) the nomenclature being indicative of its new industrial composition. This union became the first to assume national proportions, dominating the Northern centres and with branches in Greenock and London. (McIaine, 1939: 137, 156) Unlike its various predecessors the J.S.E.M. did not require customary seven-year apprenticeship, but allowed any man to join who had worked five years at the trade. (Burgess, 1975: 16)

This body, however, remained distanced from the London millwrights whose industrial heritage and attitudes were founded on the tradition of high quality specialist manufacture in the making of scientific instruments and clocks. (ibid, 1970: Chap. I) However, the two were brought together by the prosecutions of engineers involved in a strike in Newton-le-Willows in 1846, led by the J.S.E.M. Nine convictions for 'intimidation' and 'conspiracy' provoked a national outcry and committees were established amongst the trade to finance an appeal, the London body being led by one William Newton. The successful outcome of this agitation (all nine were acquitted on appeal) did much to promote the idea of amalgamation as well as create the first opportunities for personal meetings between the various societies. (ibid) This was the context in which the Amalgamated Society of Engineers (A.S.E.) was to emerge, but given its disparate composition its construction was not

to be easy.

The negotiations began in 1850 against a backdrop of a series of important local disputes concerning the principles of the engineers trade policy. These events described in detail by Burgess, demonstrate how strong factory level organisation was in certain areas, and the survival of craft instincts. For example, one such incident involved a man working on self-acting lathe fined for 'skulking' at his work. As in other disputes, this initiated a successful strike against the whole system of fines - designed as they were to complement capital-intensive methods of working. (Burgess, 1972: 646-9) By contrast, another important inaugural dispute concerned a Bingley firm employing only 41 men and boys, and related to the number of apprentices and the raising of adult wages to journeyman status. (ibid: 646)

These two conflicts reflected precisely the combination of the 'old' and 'new' problems facing the engineers. It was also the uneven state of the industry which nearly frustrated the appearance of the A.S.E. itself. After months of negotiations riven by sectional interests the grand 'new model union' was launched with a meagre five thousand members, some two thousand less than its parent body the J.S.E.M. (Jeffreys, 1945: 29) However, perhaps partly through these successful local strikes within eight months of its inception the Webbs' assessment was that,

> ... by October (1851) Newton and Allan were at the head of a united society of 11,000 members paying 1s. per week each, the largest and most powerful Union that had ever existed in the engineering trades .... (1920: 213)

Burgess (1969) has made a strong case for the argument that the 1852 lock-out was essentially the product of the methods and practices of the 1830-48 boom period being applied in the subsequent 3 years of

trade decline, and with it, very importantly, a slowing in the rate of technical change. This interregnum was initially caused by the sharp drop in railway building requirements from the late 1840s, which during its peak was worth 5-10 million pounds per annum. (Mitchell, 1964: 328) However, the expansion of machine tools during the boom had begun, and in some cases, completed, the transition from a labour to a capital intensive industry. This compelled the employer to persist with a high labour utilisation, e.g. piecework and systematic overtime even during 1848-51, when trade was slack. The Parliamentary Committee on Masters and Operatives of 1856 (XIII) reported an A.S.E. official to the effect that both shift and Sunday working was common in London in 1851 (ibid: 144). Burgess concludes that:

> ... the issues in dispute during the 1852 lock-out arose from the hostility of skilled workers to capital-intensive labour utilisation in a period of depressed trade (1969: 231)

The introduction of unskilled labour, piecework and overtime had been cushioned by the runaway demand of the 1830s and 40s; now the depressed state of trade meant the skilled engineer found himself with little bargaining power. In another article Burgess shows how the final confrontation came as the A.S.E. rank and file began to take independent action to restore their former position in the context of a slowly improving trade cycle toward the close of 1851. (1972:646-654) A survey of the membership in August revealed overwhelming opposition to piecework and systematic overtime, both of which were considered to cause unemployment and bad work. And it is clear the leadership, at least, considered that many employers would see conceding these points as an easy method of curtailing competition. (Hughes, 1860: 173) As for the rest, an A.S.E. circular declared,

> The amalgamated trades are strong enough to meet any storm of opposition which may arise, and to support those who are faithful to their order ... (ibid)

The events of the lock-out have received considerable attention in recent years, and in general terms are well established. Whilst exact interpretation in terms of the impact on the A.S.E. and industrial relations in general are contested, most observers seem to agree that, in Burgess's words,

> Technological change had undermined in a fundamental way the privileged position of engineering workers who found themselves isolated and divided. (1972: 660)

As a consequence,

> ... independent craft autonomy in the engineering industry more or less came to an end. (Foster, 1977: 227)

But this question cannot be judged on the facts of the 1851-2 lock-out alone, but only in terms of examining the preceding years up to the 1897 strike. In purely formal terms the contest was an outright victory for the employers. The A.S.E. members returned on humiliating terms, were forced to rescind Rule XXIII of their constitution which forbade piecework, membership fell by some 2,000 and the funds from £21,705 to £1,721. (Hughes, 1860: 186) Yet almost immediately when work resumed after the four month lock-out the A.S.E. began to recover; eight new branches were established in that same year, and by 1858 the fund had risen to £30,000 and membership was over 17,000. (ibid: 187)

But invention and application of new techniques are entirely separate questions, and to compare the two would result in a mistakenly determinist view of the evolution of technology.

Custom and Tradition

The work experience of the engineers in the years 1850 to 1914 were not simply paradigmatic changes in technology, methods of payment or trade union structure. What was involved was the transition of the

'inner life of the workshops': that subterranean complex of beliefs and attitudes which together with skill and collective action make a craft union. As a revolutionary form of social organisation capitalism overthrows, at all levels, traditional modes of activity and behaviour - but especially in the sphere of work this revolution can be dramatic. It is not therefore surprising to find opposition to capitalist methods of work resting upon custom and tradition: resistance through rituals.

At various points this activity surfaces in the orthodox histories of unions or industrial disputes, but its role is subordinate to convention i.e. if a custom is formalised, either in a legal or civil agreement it becomes 'history'. But history is much more subtle. Take the issue of piecework and the 1852 lock-out as an example. Here we have a custom formalised into a convention embodied in Rule XXIII of the A.S.E. - which was rescinded at the end of the dispute. As I have shown elsewhere this was by no means the end of the matter, resistance, successful resistance, continued in the day to day life of the workshop, occasionally into open conflict as 'history'.

The maintenance of the idea that conventions depend upon custom is crucial for labour historians, without it the history of work experience, for example, would be a one-dimensional descriptive discourse. For the same reason it is important, it is also largely hidden from the usual historical sources and any account of it, somewhat episodic.

The significance of custom and tradition is that they represent a collective implicit attempt to 'keep alive' the other side of the worker not required by capitalism - the capacity to discuss, enjoyment and improvement, pride in the work. For example, the practice of shop discussion around the symbolic grindstone in the dinner hour of Blackwood and Gordon works in the 1850s - subjects including philosophy,

literary and cultural topics, as well as trade concerns. (Taylor, 1903: 60) Then there was the 'ringing in' ceremony - the banging of tools against the machines reaching a thunderous climax - to celebrate marriages or the end of apprenticeships. The whole workforce would congregate in the main shed, usually on pay day, whilst the celebrity made his ceremonial exit or entry. (Wright, 1867: 100) These events were also the occasion for an all-round collection for beer to 'wet' the newly-married or newly-apprenticed. This practice, often called 'footings' originated as an obligation paid each week, but by the 1860s seems to have been restricted to special occasions. (ibid: 96)

Apprenticeship, for the greater part of the century was maintained via custom, in particular the ratio of learners to skilled men was a point of contention and only settled through local activity. Whilst the ratio worsened from the workers point of view traditions associated with it seem to have survived, indicating at least the men themselves viewed a new young lad as not simply an addition to the workforce, but as part of an initiation to a trade. Significantly it was his qualifications as a look-out for the foreman or as a smuggler of drink rather than mechanical aptitude, that impressed his superordinates in 1867,

> .. if he does well in keeping 'nix' for the forman whilst the workers read, smoke or do 'corporation work' he will be regarded as a treasure, a youth of promise. If he fails at these initial tasks he will be regarded as one concerning whose capacity to learn his trade there are grave doubts. (ibid: 85)

Hugh Stonewell Brown apprenticed at 14 in 1854 found his 'engineering' consisted solely of making tea and standing at shed doors as look-out for the first three months. On his first day he was expected to spend 10s. on drink for the journeymen and forced to suffer a ritual of pranks and jokes, including the, still popular, errand to fetch the 'left-handed

spanner'. (1887: 48) The ritual of jokes and pranks symbolised the superior position of the journeyman by emphasising the mystery of the craft. An apprentice of the 1900s even with a quick wit could be fooled:

> One hesitated only to be damned for indolence. How to decide in a milieu where a rubber hammer was a foolish joke and a leather hammer a legitimate tool? (Roberts, 1976: 166)

This superiority was also confirmed in another way by the meniality of the initial tasks detailed to new arrivals.

> In three minutes the chargehand had taught me all I needed to know 'Now gerron with it' he ordered .... (ibid: 159)

Peter Taylor apprenticed in 1855 found himself operating a hand-bellows for the furnace as well as teaboy (1903: 46-7). The emphasis on character in the 'inner life of the workshop' is indicative of the attitude of the workers to apprentices: they wanted particular types of <u>people</u>, not just a mechanically able youth. Of course the system benefited them, particularly up to the 1880s (before apprentices began to be used on semi-automatic machines) and their limitation was seen as a vital part of trade policy, and thus linked up with the A.S.E.'s recruitment criteria which stressed moral and social virtues as well as the obligatory training.

The observance of 'Saint Monday' is often solely associated with the outdoor trades and non-factory occupations, such as coalmining. There is, however, evidence to suggest it was common amongst the engineers, at least up to the 1890s, as part of a wider non-industrial attitude toward time. (Wright, 1867: 107) E.P. Thompson has distinguished between time as 'currency' and time as demarcated by <u>tasks</u>. In the former

> ... the employer must <u>use</u> the time of his labour, and see it is not wasted: not the task but the value of time when reduced to money is dominant. (1967:61)

Where time is governed by time, 'task orientation', activity is determined by necessity, 'work' and 'life' are intermingled. Obviously as Thompson points out, conditions of industrialisation generally, and factory life in particular, demand new attitudes and behaviour. The pre-industrial legacy, despite the assiduous socialisation propaganda campaigns of employers and moral reformers, persisted. Employers in engineering often found it difficult to 'cash in' on trade booms, for the higher wages they paid to their workers resulted in greater absenteeism. James Nasmyth, overloaded with orders for the Liverpool to Manchester railway, bemoaned that,

> The workmen attended less regularly, and sometimes when they ought to have been at work on Monday mornings they did not appear until Wednesday. Their higher wages had been no good to them, but the reverse. Their time had been spent in two days extra drinking. (1883: 192)

W.F. Watson relates his experience in an A.S.E. shop in Manchester at the turn of the century - when a Monday morning was worked the men would, in the pub at their dinner hour, toss a coin to see if they should return for the afternoon.

> If the coin stayed up they went to work, if it fell to the ground they stayed out. (1935: 34)

There was also a conflict over time in general between the employer and the engineer - the most obvious manifestation being the piecework issue. The rational regulation work requires the organisation of time and effort - the more so the greater the capital intensity. But craft workers brought to their work situation a residue of the 'task orientation' attitude to time. In 1856 according to The Engineer the shipwrights of the north were striking against a reduction in hours with the same pay, a move instituted by the employer,

> ... in order to prevent the frequent interruption during work hours, by allowances of time for refreshment.

The workers however, preferred longer hours with frequent breaks

(apparently every two hours or so) thus allowing them to organise their time and effort. (June 13th 1856) In a well known dispute in 1907 the Engineers Executive signed an agreement ending the breakfast break by starting work at 7 a.m. rather than 6 a.m., but was turned down 2:1 in a national ballot. Clearly this issue coinciding as it did with a series of disputes over 'clocking in' and piece rates remained linked in the engineer's mind with the general issue of autonomy. (Croucher, 1971: 40) W.F. Watson in one of his many jobs experienced the transition to 'American' conditions of labour in 1904. Formerly tea had been brewed on a gas burner as and when it seemed propitious - the new work schemes of course could not allow this and the management (just to make sure) threw away the tea brewer.

> ... but age old customs are not so easily abolished. We soon made new bunsens ... made tea surreptitiously and hid it under the bench. (1935: 28)

In a later job at Thorneycrofts where trips to the toilet were limited to two seven minute sojourns 'passive resistance and sabotage' were widespread. (ibid: 92) Over time, of course, such attitudes toward time and effort were tamed as the incentive principle became accepted. In 1912 Alfred Williams described the scramble to be offered extra work in a rail shed.

> The putting on a few new hands and the addition of a night shift would obviate much overtime and give the unemployed a chance, but the daymen are offended should that proposition be made. I have actually heard men volunteer to work double-handed at the fires and promise to turn out considerably increased quantities of work on their turn rather than for the foreman to run a night shift and so prevent them from working overtime. (1915: 294)

Also indicative of the engineers' attitude to time was the widespread practice of 'corporation work' i.e. their own work, often making tools or home gadgets. An important role of the apprentice was to warn of the approach of authority when such work was underway, and occasionally

aid in secreting it out of the factory. (Murphy, 1941: 25; Wright, 1867: 85) This activity was in some shops 'overlooked' by employers, in others efforts were made to stop it. Amongst the London engineers in the 1900s these 'jobs for the King' as they were called required considerable unofficial organisation - circulating at the time was the rather apocryphal story that a man at the Woolwich Arsenal had made himself a complete lathe in this way. (Watson, 1935: 23)

It would be wrong to interpret these shop customs as incipient demands for control in a political sense; they are much more akin to symbolic acts of a labour community. As such they strengthen the sense of separate identity and autonomy and thus indirectly solidarity, and must therefore have a material impact on the relations of labour and capital. Whilst in essence conservative and corporate responses to the restrictions and petty tyranny of factory life, once threatened alongside other 'orthodox' matters, such as wages, they undoubtedly contributed to the character of the ensuing disputes - 1897 is perhaps the best example. Carter Goodrich sums this up so:

> There is a certain distinction between the resentment against being controlled in a certain way and the resentment against being controlled at all. But even more significant than the distinction is the fact that the one passes so readily over into the other. (1920: 30)

This was no where better shown that in the regional pay disputes of the 1897-1914 period. In particular the 1908 strike in the North East represented a good example of these struggles to maintain the district rate for the craftsman, irrespective of the vicissitudes of trade. 36/- was the wage at which Newcastle District committee established as the minimum at which a journeyman should labour - all appeals for by the A.S.E. leadership, or the five month strike that ensued failed to change their view. The final ballot showed 40%

still against a return on the basis of a 1/- reduction. (Jeffries, 1945: 153; Croucher, 40-64) The backdrop to this was the strongly held belief that a craftsman was defined by the fact his wage was not subject to seasonal or market fluctuations - the amount to be set by the District Committee. It was not as Jeffries simply suggests 'the first fight for a fixed minimum wage' but a reflection of the principle of a craft wage. The speeches and propaganda of the engineers relied heavily on this idea. At a meeting held in Bishop Auckland market place in May 1908 The Socialist reported an A.S.E. branch official to the effect that,

> Without doubt the employers wish us to be reduced to the level of labourers ... the 36/- is our defence of our trade. (June, 1908)

A local A.S.E. member made the same point in a different way in a letter to the Northern Mail,

> We have been put on long enough .... We have been compelled to work alongside non-unionists - that is one of the terms of employment - and many a man who has been known to belong to the A.S.E. has hardly been able to call his soul his own. (Feb. 21st 1908)

Further support for the view that this was a struggle over principle comes from the fact that the bedrock of the strike was the highly skilled day-wage marine engineers of the Tyne basin. Interestingly Croucher also shows how there was almost exact correlation between the prevalence of piecework or premium bonus and the first weakening of resolve in the dispute. (1971: 78-80)

The view the engineers had of themselves was probably strengthened by the wave of social investigation and reforms characteristic of the era. An important assumption of the time was that the unskilled and semi-skilled were a product of the disorganised state of the labour market. Casual and seasonal employment were said to be the definition of the labouring poor whose condition of life turned upon the irregularity (rather than the overall paucity) of their income. A Charity Organisation

Society report stated:

> First, casual labour causing thriftless forms of life, and causing by this irregularity considerable deterioration within its ranks, with the consequent of inefficients and unemployables; second, casual employment regarded as itself produced by the existence of those whose work value is so low that there only chance of employment is to fill up the gaps caused by the fluctuations of industry and to do the odd jobs for which neither brains, physical strength, nor character are required. (C.O.S. 1908: 9)

This 'theoretical' stance undoubtedly permeated through to the emergent trade union leaders and into union policy, via the Fabians and Lib-Lab politicians, underpinned by an implicit form of Social Darwinism. (Semmel, 1960: 128-141) Up to the 1900s the A.S.E. had been able to contain average unemployment at around 5%, and pay, according to a union official speaking to the Labour Commission,

> ... has remained stable for the last twenty years. (1893 XXXII: 153)

The encroachment of piecework of course opened up the craft to the pressures of trade and subsequent fluctuations of wages, though without it bringing them to destitution. In a London shop in 1902 'slack time' made up 3-4 months each year, leading to a 25% reduction for the piece-workers.

> In a busy week 72% of these men earn 40s. and 86% not less than 30s. the proportions are nearly reversed in slack time - 85% earning less than 30s. and only 13% reaching 40s. (Booth, 1903, Vol.IV: 363)

To the skilled day-wage men of the North the rising tide of self-help propaganda combined with the worsening status of their craft must have identified the employers not just as the perpetrators of low wages, but also as agents of those forces reducing them to the level of the 'residiuum'. A participant, Robert Allen of Prennoldsons Shipbuilders, wrote in his notes on the District Committee of May 1908,

> There is an overwhelming sense of shame of even discussing acceptance. Bro. Walker has left the room twice this evening on the advice of the Chairman to cool his temper - are we engineers or navvies? is his response to all efforts at conciliation .... (R. Allen, M.S.S.)

The heritage of fifty years of the A.S.E., its stubborn refusal to accept change - its very conservatism in industrial life - gave custom and tradition a great importance in the work experience of the engineers. The sense of continuity, of a collective memory of the craftsman role and status in society and work, contributed considerably to the fierce resistance to employer offensives from an otherwise so politically and industrially corporate union.

Apprenticeship: the hidden struggle

From the earliest forms of trade union the policy of the craft worker was based upon the regulation of entrants to the trade. The Webbs argued at length that it was the repeal of the Apprentice Statutes in 1814 that galvanised the moribund journeymen combinations of the towns into action - forcing them unwillingly into the first examples of modern trade union action. The 'Old Mechanics' had no formal policy or ratio, though 1 to 4 combined with a five year minimum training seems to have been their custom. (Jeffries, 1945: 21) At Manchester's largest machine makers in 1824 this policy was in effect - much to the chagrin of the employer who wished to expand his business (and therefore the labour force) but stated a strike would result if the status quo were disturbed. (1824, V: 357)

Wages were not the main interest of the pioneer societies amongst engineers, following the guild tradition they concentrated upon regulating the labour market.

> The rate of wages paid was seen as the equation of the amount of labour available to the amount of work to be done; if labour was scarce, wages would rise; if plentiful, wages would fall. (Jeffries, 1945: 23)

There is no need to label this attitude as 'inculcation of capitalist

economics'. No doubt some of the first leaders were aware of 'supply and demand theory', but far more telling was the practical effects of labour abundance in certain trades in the 1815-50 period - the degradation of the weavers was probably far more influential than the writings of Adam Smith.

The apprentice issue was an important part of the 1852 lock out - one of the successful local actions in 1851 was the restoration of the 1 to 4 ratio at a Manchester firm resulting in the sacking of 25 boys. (Burgess, 1972: 647) Another aspect of the question - the employment of 'illegal' (unapprenticed) men - was the reason for several disputes, particularly in the large northern firms. Whereas the rank and file called for their dismissal the A.S.E. executive equivocated on the matter. They, being based in the smaller London firms, saw them as less of a threat and furthermore did not wish the strike to be seen as interfering with the employer's right to manage their factories. (ibid: 654-6)

Another result of the defeat of 1852 was the expunging of the rule limiting apprentices, and true to form the leadership, with a view to alternative strategies of controlling the labour supply, turned to co-operative workshops and emigration schemes. They were neither popular with the membership, nor effective. As with piecework the initiative was very much with the District Committees, the evidence upon which suggests a considerable degree of success. As Allan stated to the 1867 Commission, apprenticeship was now governed by 'custom' not rule; for example in London it was 1 to 3, more restrictive than the formal pre-1852 A.S.E. rule which specified 1 to 4. The purpose of this he candidly stated as,

> ... to keep wages up; no question about it. (1867, XXXII: 46)

The significance of apprenticeship goes beyond the labour market; its observance by entrants to the trade served as an ideological preparation for the Society as a whole, ensuring its stability. Whilst hand work remained at a premium the apprentice was very much the servant of the men, not the employer - the latter could not teach him his trade. Thomas Wright observed in 1867,

> ... though it nominally is the master to whom he is bound, who has to teach him his trade it is on the goodwill of the skilled workmen of the establishment that he really had to depend for being initiated into those little 'wrinkles' and specialities the knowledge of which makes the difference between the good, and the bad or only ordinary workman. (1867: 86)

The implications of this were spelt out in the 1864 Rules and went far beyond a statement of trade policy.

> If constrained to make restrictions against admission into our trade of those who have not earned a right by probationary servitude (apprenticeship), we do so knowing that such encroachments are productive of evil and when preserved in unchecked, result in reducing the condition of the artisan to that of the unskilled labourer, and confer no permanent advantage to those admitted. It is our duty, then, to exercise that same care and watchfulness over that in which we have a vested interest, as the physician does who holds a diploma, or the author who is protected by a copywright. (Webb, 1920: 469-70)

The skilled engineer did not simply have a pecuniary advantage over the labourer, there was a moral superiority - an ideological distance. For each improvement they secured was to an extent at the expense of those below them, as much as the employer.

The artisan and labourer were both employees; but their the similarity ended. The mid-Victorian engineer saw himself as the custodian of a trade, on a par with the organiser of that trade, the employer. The A.S.E. supplied the skilled labour, the employer capital - each were masters of their territory. Other unions concerned solely with wages were viewed as crude parodies of a craft society - this was the essential division in the union movement. Allan boasted

that over the last 12 years there had been only 3 or 4 strikes over wages, most disputes 'in defence of the trade' concerned apprentices and piecework. (1867 XXXII: 42-3) Clearly the regulation of labour supply was fundamental, as Hobsbawm has said 'the whole point of a classical craft union' and the Society took recruitment very seriously. Character, as well as ability, were assessed,

> ... men who were forced to wear glasses were not allowed to join, and the Bridgewater Branch felt it necessary to consult the Executive Council before admitting a 'worker who is a little round-shouldered'. (Jeffries 1945: 59)

How successful then was the A.S.E.? An easy test is to see how much unemployment there actually was in the union: between 1852 and 1889 it averaged 4.2%, an extremely low figure. (after Table C. Howell 1890:498) This is supported by an official report which examined the 'Vacant Book' of several A.S.E. locals (all unemployed members had to sign daily). During 1888 to 1890 (years of bad trade) 78% of the Society's membership were in full employment; 3% lost 3 months or more; 1½% 6 months, and the rest under 3 months. (1895-6 IX: 57) Of course, this could be due to simple external demand for labour, so it is necessary to discover the actual ratios of apprentices to artisans.

Of the 24 replies to the questionnaire sent out by the 1886 Royal Commission to 'working class organisations' in Engineering apprenticeships are maintained at 5 to 7 years, but a number are qualified with comments such as, 'Not taught so well, payment gone up by 50%'; 'deterioration in standards, piecework allowed'; 'apprentices put at one class of work only'. Interestingly those districts who complain most of piecework and systematic overtime are also generally those where apprentice regulations have been allowed to lapse e.g. 'because of the importation of young men at the age of 18 who have served 3 years, the proportion

is about 7 apprentices to one journeyman'. (1886 XXI, App.II: 7-16) This generally favourable state of affairs was not maintained without difficulties. Three years earlier the Sunderland Branch launched an offensive against the 'overcrowding' of the trade (in seven main shops there were nearly 500 apprentices to 700 men). Wage demands put forward at the same time were conceded but the men declared they were,

> ... ready to sacrifice part of the advance of wages rather than give up their position on the point of apprentices.

After nearly two years, in the midst of a shipping trade decline, and £100,000 of A.S.E. money later, the strike was abandoned and the issue lost, and with it most of the Sunderland branches. (Jeffries, 1945: 103; 1893 XXXII: 353)

At the thirty firms who completed the schedule of the 1892 Labour Commission 2,788 persons were categorised as 'apprentices or young learners' giving an average ratio of 4.6:1, around the Society standard. However, as the Chatham and Rochester A.S.E. branch stated, real apprenticeships were 'constantly evaded' through 'patronage and verbal agreements'. (1892 VII: 178-188; 60-61) From the unions the schedule information is patchy; only seven gave the actual ratio in their area. It averages at 3.3:1, but in one area, Stanningley, it is actually reversed with one journeyman to two 'apprentices'. (ibid: 16-18)

In shipbuilding particularly the fluctuating demand increased the utility of a high proportion of apprentices for they could be retained more cheaply, whilst the journeymen were laid off - another inducement to the Society to limit their number. (1893 XXXII: 399)

The 1880s also saw the decline of the 'premium apprentice' i.e. one for whom a considerable sum was paid to the employer to ensure he was fully trained in all departments, including technical instruction. Of

them it was said:

> They come from a different class altogether from our general apprentices. (ibid: 323)

The Engineer reported in 1908 that William Armstrong's was one of,

> ... the steadily diminishing number of firms which lay themselves out to premium apprentices ... who do all the departments for a premium paid yearly in advance.

Then there was a second and third grade of young learners, the former attending classes but confining themselves to one department but subject to the same rules as workmen; the latter class was for 'artisans' and accepted on the basis of a literacy test. (February 28th 1908) At John Fowler and Co. in 1892 there were no indentures, but,

> ... two classes of apprentices; those who are the sons of farmers, or people of that class, with which we largely deal. We bring them in and teach them the trade as best we can. Then there are the ordinary workmen's sons, what we call boys.

Only the former 'as a favour to them because their fathers are customers' pass through several shops, the others were trained in one task only. (ibid: 358-9) The practice of 'buying' a trade was not entirely dead, in 1896 W.F. Watson unable to afford the £40 necessary for his indentures was initially employed as a 'shop boy'. (1935: 9)

The general trend was to de-skill the apprentice procedure and perhaps most dangerous for the Society lead to faster turnover of labour in the industry, in Scotland during depressions,

> ... you would find three to one journeyman. The result is they come to the trade, and afterwards begin to perceive that it is futile as far as they are concerned .... And the result is that we turn off every year hundreds and hundreds of men ... in a time of prosperity there is a great number of people come into it, and they do odd jobs at it and there, instead of getting up the wages you will find the result is that the employer has them all at command, and so does not require to raise the wages. (1893 XXXII: 183)

A writer to the union's Journal reported his own experiences in trying to recruit these young workers.

> The main objection given by apprentices when asked to join ... (is) ... the possibility of being out of employment as soon as they finish their time, and being non-free members, in receipt of no benefit. (June 1904)

Those who made it to apprentice status could rapidly find themselves victims of mass production; W.F. Watson was put on to piecework making clockparts earning 14s. a week at only sixteen. J.T. Murphy recorded his fight at Vickers' Sheffield in the early 1900s for a proper apprenticeship.

> After a spell on a drilling machine and then a shaping machine I moved to a miller. In all cases the process was simple and there was considerable repetition to it. I began agitating to be transferred to a universal miller where the work was more varied and skilled. So began the fight for variety of work and training. (1942: 23)

In response partly to these changes the Society, in 1892, allowed apprentices to be recruited at 18 years, though as been seen it was not wholly successful. In 1901 a further concession was made allowing 'machinists' to join who had served in the trade two years at $^{3}/_{4}$ of the craftsman's rate, it was left, however, up to branches to decide to recruit such persons. Despite the obviously huge potential reservoir of members only 4,000 were enrolled in this section by 1904, and in 1917 it was abolished entirely. (Jeffries, 1945: 166; Webb, 1950: 486)

An apprentice was still the majority avenue into the A.S.E., the average age at recruitment between 1900 and 1914 was just under 25 years, a sure sign that some training period had taken place. Characteristically the Webbs Industrial Democracy regarded the whole system to have collapsed because the formal agreements declined, however shop by shop initiative did not. The non-apprenticed W.F. Watson was faced with outright obstruction.

> I tried to learn something by overlooking the turner next to me, but he checkmated me by standing between myself and the job. (1935: 20; Webb, 1920: 470)

Amongst the London engineers in the early 1900s the seven years was a minimum plus another 2 or 3 years as an 'improver' before full rates would be expected. Significantly, most apprentices remained the sons or relatives of journeymen. (Booth V, 1903: 312-13) Further evidence of rank and file vigilance is the constant stream of letters on the subject to the union's Journal (e.g. August 1911; June 1912; October 1913). An A.S.E. official explained the 'Apprentice Union' was began by the Society in order that,

> ... when they become strong enough, and their funds become large enough, will bring pressure to bear upon their fellow apprentices ...
> To prevent them coming into the trade? - Yes.

The excess he suggested should emigrate.

> I am not concerned with training outlets for the lads. What I am concerned about is to prevent them having inlets into our trade. The other trades protect themselves. (1893 XXXII: 181)

This in many respects summarises exactly the insular self-sufficiency of the Society's response in many areas: their answer to the apprentices was the traditional solution of controlling the labour market. When pressed further this same official could only propose a limitation of the population as a whole, if the problem persisted. (ibid) As we have seen these views were based on fifty years of trade experience, in an industry whose rate of change was sluggish and whose workforce clung tenaciously to a non-instrumental, but highly exclusive, attitude to work and work organisation. These two following quotations are separated by thirty years but united in their assumptions.

> ... they (the A.S.E.) believed too that the best thing the foreigners could do would be to organise themselves into trade societies similar to ours, and endeavour to get their wages up to the same rate as ours, then we could begin to discuss questions with them. (W. Allan, 1867 XXXII: 49)

> In the international movement for better conditions all men think alike, although they speak differently .... The Amalgamated Engineers through its international organisation should be its chief transmitter to the universe of labour. (J. Burns Monthly Journal and Record February 1897)

The symbolic importance of apprenticeship accordingly lasted well beyond the period when its 'material', 'technological' or 'contractual' basis had disappeared. As such it continued to influence the shop and society policy of the engineers and thus to shape their struggle for occupational interests.

The Piece-master system: authority deferred

It has been suggested that one of the consequences of the 1852 lock-out for the A.S.E. was the growth of the piecemaster system, whereby a leading hand contracted for a particular job at a rate dependent upon the amount produced and whose bonus depended upon his ability to get the work completed faster. The men below him were paid a day wage - sometimes by the piecemaster, sometimes by the office, it being up to him if, or how he shared the surplus. This form of piecework was particularly insidious: management could choose a few selected men to offer the piece rate, thereby indirectly affecting the total workforce, without actually introducing payment by results and incurring the opposition of the men as a whole. (1888 XXI: 525-30) The piecemasters became, as it were, 'N.C.O.s' of piecework and the incentive principle which statistical surveys would not reveal, since individually the workers would still be on a day wage, and only as collectives earn a proportion of a bonus, if any. Their actual number and influence is obviously very important, therefore, in establishing the degree of acceptance, de juro or de facto of piecework.

Foster has argued that the piecemaster system was,

> ... the central institution of the new type of labour force.... It meant that the skilled engineer was now actively involved - as pacemaker and technical supervisor - in the work of management. (1976: 227)

Clearly, if a large minority were involved in the disciplining,

supervision, pacing and in some cases, payment of the majority on behalf of the employer one would expect this to form an important mediator of authority. But Foster has here generalised too easily from Lancashire. In 1861 an A.S.E. survey showed that of the 533 piecemasters, 75% were in Lancashire and another 10% in Yorkshire. (Jeffries, 1947: 40-1) Certainly the system was correlated to size; in 1852 the average number of men employed in Lancashire firms involved in the lock-out was 290. But equally, considerable numbers of larger enterprises in London (the average firm here employed 263) could not therefore have used the piecemaster system at all. (Burgess, 1969: 233) Jeffries reports that:

> Fourteen of the eighteen questions on piecework concerned piecemasters and the piecemaster system. Only 22 districts replied to these questions as in the remaining 151 districts, in the words of the Belfast branch secretary, there were 'None, God be thanked'. (1947: 40)

Furthermore, although the piecemaster was formally part of the skilled workforce the evidence suggests hostility, rather than craft solidarity, was the general attitude of the ordinary A.S.E. member. Two Oldham members of the Journeymen Steam Engine Makers were expelled in 1842 for acting as piecemasters. (McIaine, 1939: 192) The 1861 survey revealed strong opposition to the system on three main counts. Piecemasters were inclined to employ youths instead of journeymen, they tended to 'drive on the men' and, lastly, when the job was finished the 'settling' (bonus) from the employers was rarely equitably distributed. In response to this the Executive Council passed a resolution making it compulsory for the 'settling' to be evenly shared. (ibid: 41-2) It was this latter issue which caused most trouble, and had initially prompted the Manchester District Committee to send a motion to the Executive from which the whole survey sprung. (ibid: 28) It is perhaps significant that the brunt of the main

objection in Manchester stemmed from a failure to share out the bonus, not, as was suggested in other areas, to the system as a whole. The Executive's response seemed to reflect this equivocal attitude. John Burnett described the union counter-measures as follows:

> Any member taking work by piece and not sharing equally in proportion to his wages any surplus over and above his weekly wages paid to members and other persons ... shall be summoned before his branch or committee ... if he does not comply with this regulation he shall be fined, in the first instance 10s, in the second 20s and in the third be excluded, subject to the approval of the local council .... Any member working for or under any piecemaster, and not receiving an equal share of any surplus in proportion to his wages ... shall be summoned before his branch ... on refusing to leave such employment he shall be fined for the first offence 20s and for the second offence excluded. (1888 XXI: 530)

There are several points of interest here. Firstly, the A.S.E.'s strategy was to obviate the iniquities of the system through the internal discipline and vigilance of the rank and file, rather than by a general conflict with the employers by demanding its abolition. There were two reasons for this. A small minority of engineers were actively benefiting through both piecework and the piecemaster system, mainly in the machine and locomotive works of northern England, also as the piecemasters were after all engineers themselves, the A.S.E. regarded it as 'their' problem. As Burnett expressed it, a well organised trade can make both sub-contract and piecework 'unobjectionable'. (ibid) Also of interest is the clause in the rule which specifies 'equitable' as meaning the bonus being distributed in proportion to the existing differential. This is another reflection of the union's ambivalence: they were as resolutely hostile to piecemaster 'profiteering' as they were to interfering in the local hierarchy of wages and did not want these measures seen as a first step toward equalising wages. The rules passed in 1864 seem to have given official backing to rank and file activity; where the A.S.E. was strong the piecemaster would be held in line, though still

receiving 5-10% extra. The main success lay in forcing payment through the office, rather than abolishing the system altogether; in the words of William Allan it then became not a form of sub-contract, but a 'clumsy method of discipline'. (1867 XXXII: 40)

The view that its roots lay in control rather than productivity is supported by the sectors in which the system proliferated. It seems to have been confined to erecting fitting or assembling jobs in the production of steam engines, or locomotives. In other words, tasks in which both the character and pace of work was undetermined - it could not as yet be standardised. (Jeffries, 1947: 41) In such conditions individual piecework was impossible, and working in team conditions made the worker less vulnerable to 'outside' pressures. The 'internal' supervisor in sole possession of the knowledge of the amount of bonus, and the decision on how it would be distributed, was virtually the only method of exporting the incentive principle given its absence in the labour process itself, and to retain some element of quality control: Schloss gives an example from an engineering works of an improvement of 21% in productivity. (1907: 149) However, by the 1880s the system seems to have become less popular; an enquiry by Iron Trades Employers in 1876 of 157 firms in the Manchester area 26 employed piecemasters, only 15 permanently. (1876: 12-14) In the context of a well organised workforce the use of piecemasters could result in a loss of control and lack of supervision, argued The Engineer, Dec. 3rd 1880; an analysis reflected in the views of William Glennie, a Tyneside A.S.E. member to the 1892 Labour Commission.

> ... a man works best where he is personally interested. At the present time the division of labour has reached such a stage, that a man automatically does his work without any personal interest in it whatever .... The employers attempt to remedy that by the introduction of a taskmaster whose duty is to flog the men up to highest pitch. But the men simply adopt other methods to evade his whip. The result is simply

> irritation and bad feeling between the employers and the men, and there is no more work turned out than before because the workman as a rule knows his trade sufficiently well to be able to evade the taskmaster. (1893 XXXII: 178)

At Armstrongs on the Tyne the piecemaster system was to the 1890s 'universal' in the works, according to the managing director, for

> ... the erection of certain work, to let it to a man and this man employed a number of men ... and a certain number of labourers. I am not sure as to if the labourers were paid piece by piece. We did not interfere in the distribution of it, and we paid the headman. (ibid: 329)

This delegation of responsibility relied exclusively on the foreman and the piecemasters to enforce cooperation.

> ... a good deal of opposition was taken to it by the men, and the foreman found it difficult to carry out. It was a very satisfactory way of doing the work, and no doubt some of the men made very large profits by it. (ibid)

The terminology used here is indicative of the authority relations inherent in the system. 'Men' employed by the piecemaster are the skilled workers, <u>their</u> subordinates, are 'labourers'; the headman received 'large profits'; the vagueness of the employers understanding of the methods of payment - all these point to the maintenance of a layered system of autonomous, but subordinate groups each held together by the uncertainty of the rate offered, and the actual wage earned. At the Thames Shipbuilding Company at Blackwall a collective bonus scheme was tried with the aim of allowing the workers to become 'capitalists for themselves', by tying in the extra increment to the efficiency of the entire firm for each contract; in the words of Gerald Balfour 'piecework on a gigantic scale'. It was adopted because individual piecework 'worked so badly' for

> ... in times of brisk trade it is difficult to get the men to do the work. (ibid: 316)

The piecemasters here simply collected production figures and submitted contract prices for the work available, pay went through the office.

At a non-union shop in the early 1900s the piecemaster paid the men in the local tavern, and according to our informant W.F. Watson cleared £10 to £12 a week - four to five times the average skilled wage. (1935: 53-4) Complaints over the attitude of piecemasters persist in the A.S.E. records into the present century - workers at Vickers reported the piecemaster paying them directly instead of through the office in 1902 - but overall the system seems to have declined in almost direct correlation to the rise in individual piecework. (Weekes, 1970, App.IV: XXXI)

It is difficult not to conclude that the rise and fall of the piecemaster reflected the acceptance of the incentive principle amongst significant sections of the A.S.E. membership; individual piecework was greater amongst those same sectors where once the piecemaster system was prevalent. (text:161-3) However, it is not possible to argue this role reflected some new decisive change in the structure of industrial authority, what it really demonstrated was the breakdown of the internal discipline of work and the labour force through the sub-division of tasks. The uncertainty of the task and the hostility of the skilled men blocked individual piecework - the piecemaster became a transitional figure until the hostility of the latter was undermined by the uniformity of the former. As Schloss was to find in his survey of the extent of this form of wage contract in the 1890s, it was more usual in trades where union organisation was weak and the work semi- or unskilled, i.e. where the workers had no craft pride in their work. The A.S.E. remained a craft union; opposition to the system was often motivated in terms of the pressure to 'scamp' work: in the words of an A.S.E. official in 1911

> If a man's not worth 36/- a week the union has rules to deal with incompetence. (Monthly Record June 1911: Schloss, 1907: 166-179)

PIECEWORK AND THE CRAFT UNION

The purpose of this section is to marshall the scanty statistical evidence on piece working in engineering and combine this with the frequent references to its effects, from both managers and men, on the character of work. As indicated earlier it is contended the extent of the defeat of 1851-2 can only be estimated by analysing the degree to which the formalities of the employer's terms were translated into the 'inner life of the workshops'. Furthermore, the progress of the incentive principle although not synonymous with payment by results, is at least indicative of the workers learning the 'rules of the game'. (Hobsbawm, 1973: 361) As the engineer was typically a high status group within a larger subordinate workforce his attitude and responses would be an important agent of diffusion to them. It should be stressed at this point that the A.S.E. saw its role as a union very much as a custodian of custom; it did not recruit, the fully qualified worker achieved membership; trade policy was occupationally defined and, as with the industry itself, regionally directed through the District Committees: overwhelmingly activity was directed to restoring the status quo of the craft. This heritage it took from the founder unions whose formation reached back to the 1820s and before - the Journeymen Steam Engine and Machine Makers (the 'Old Mechanics') the Steam Engine Makers Society and the General Smiths. (Jeffries, 1945: 28) But within ten or so years the union had expanded well beyond the boundaries of the old craft societies incorporating for want of a better term the 'skilled machinist' i.e. those whose apprenticeships were based upon the slide rest and the machine tool. (text: 120)

At its inception William Newton stated the first object of a trade society was,

... to destroy redundancy in the labour market.

As a result the leaders set up a fund to establish co-operative workshops, the great strength of amalgamation being,

> ... to supercede the necessity of the strikes and turnouts. (ibid: 32-34)

As I have referred to earlier amongst the larger more capital intensive shops, the rank and file saw the amalgamation (coinciding as it did with a period of good trade) as a chance to re-establish craft rules in the works; an end to systematic overtime and piecework, restoration of the ratio of one apprentice to four journeymen and the repudiating of 'illegal' (unapprenticed) men working in the shops. The schism between the leadership and the rank and file was not over policy but how to effect this policy. After the experience of 1852 both co-operative shops and emigration were pushed by Allan and Newton but with little enthusiasm amongst the membership whose prime concern remained their own position and status.

The progress of piecework in the 1850s and '60s reflected the uneven development of the industry and the contrasting working methods employed in different sectors. Thus in both London and the N.E. Coast payment by results was almost unknown but for different reasons. In London workshops were small with a mixed general output, often repair work being a central function; on the Tyne the highly skilled marine engineers were involved in largely bespoke work on ships, boilers or other large 'one-off' orders. In neither case was piecework a practicable or useful incentive for the employer, and in both areas workers were better placed to resist its imposition. (The Engineer, Jan. 12th 1862) In the words of an itinerant engineer of the 1850s,

> Some of the shops want quality, others speed. (Taylor, 1903: 75)

Clearly implying of course that the two are incompatible.

The following table summarises the statistical evidence.

TABLE I

% of Engineering Workforce paid by piecework

	1861(1)	1886(2)	1891(3)	1906(4)
All grades	10.5	7.5	16.8	27.5
Fitters and Turners	-	6.0	-	33.0
Machine men	-	11.0	-	47.0

((1) and (3) Jeffries, 1947: 43; (2) and (4) 1911 LXXVIII Pt. VI)

N.B. The two A.S.E. investigations of 1861 and 1891 are not directly comparable with the Wage Censuses.

As would be expected these figures hide big regional differences. In 1861 in Wales, Ireland and Scotland, piecework was almost unknown, whilst in Yorkshire 11%, Lancashire and Cheshire 16% of the membership were employed in this way. There was a close connection between the type of production in different towns and the percentage. The large-scale textile machinery and stationary engine centres of Manchester and Oldham, Rochdale, Bolton and Leeds returned an average of 25% of the skilled men. In railway towns this rose even higher, 66% in Rotherham and 57% in Swindon, for example. But interestingly enough other locomotive building centres, such as Crewe, Wolverton and Doncaster averaged only 11%, again demonstrating the hetrogeneity of technique. Agricultural machinery towns of the eastern counties averaged 40% amongst journeymen. Finally in the armaments industry piece rates were just beginning - an area in which they were to progress the fastest in the next twenty years. (Jeffries, 1947: 39)

Individual piecework was far more common than the piecemaster system. In 38 of the 60 districts reporting some form of piecework this former was the only system, and it existed sometimes predominantly in the other 22: 27.5% of the total A.S.E. districts therefore reported some

variant in the system. The increment varied considerably and seems to have been governed by prevalence i.e. where piece rates were most widespread the percentage extra earned was lowest. Thus in Lancashire and Cheshire it ranged from 20-25%, but in the northern counties up to 40%. (ibid: 40)

As a result of the survey the A.S.E. took action against the piece-master system, but it was not until 1874 that the society took formal action against individual piecework - banning its extension into new areas. There is some circumstantial evidence to suggest a slight dimunition between 1850 and 1886. Apart from the percentage reduction shown in the table, William Allan reported to the 1867 Commission,

> ... we have a decided objection to piecework and endeavour to do away with it where we have the opportunity ....

In Manchester, a stronghold of the system, he said 'there was not so much as formerly' (1867 XXXII: 36-8). From the other side a shipyard employer claimed unions now fix piece prices to their advantage.

> ... they are in fact the masters of the situation not ourselves ... the bonus payments bring average pay up 31s, whereas in 1832-5 it averaged 23s per week. (ibid XXXIX: 385)

In the final report the Commissioners reported piecework as common in iron works, collieries, printing, tailoring, cotton and lace but generally 'not the practice' in engineering, building and the iron-founders. (ibid XXXI: 272) But such evidence is susceptible to polemical excesses.

Piecework was also opposed by the A.S.E. because it created opportunity for the craftsman wage to be affected by trade fluctuations. J. Whittaker, an official of the Society from Manchester, reported to the Labour Commission a form of task-working, suitable where hand-work was still predominant. The system was applied,

> ... upon work which the men themselves have absolutely to do by their own labour, and the same applies to many other shops in the machine trade. When there comes a depression in trade the employer reduces the piecework prices, but when an improvement takes place he rarely advances them, and the men can only obtain the same rate of wages by additional physical exertion. It has got to its limit now. (1893 XXXII: 160)

By ignoring pieceworking and refusing to negotiate about them the Society set its craft standards against pecuniary gain. To the same witness it was said:

> Then I was right in my conjecture that if the Union were to make piece-prices a matter of negotiation the probability is that you would get a rise? - Yes, we could deal with them. We would rather have it abolished. (ibid)

The form of stoic resistance seems to have been remarkably successful up to the 1890s, and it of course allowed the Society not to have a national debate of such a potentially divisive issue.

According to a leading Tyneside shipbuilder in 1885 the previous twenty years had seen a steady rise in wages.

> No matter what we do to reduce the wages, there is a steady and persistent advance. (1886 XXXIV: 144)

From 1871 to 1886 his time wages advanced 17.4% and piece rates by 21.8%. The records of the Palmer Shipbuilding and Iron Company show pieceworking restricted entirely to the Boilermakers and their subsidiary grades, the Engine Works Department wage figures are given as a weekly wage. The table summarises the most important statistics.

TABLE II

Grade	Increase 1871-1886 in %
Fitters	$32\frac{1}{4}$
Machinemen	22
Patternmakers	$39\frac{1}{2}$
Labourers	26

(ibid App. A: 299)

Perhaps even more importantly the proportion of the grades remained stable over the same period, reflecting the lack of fundamental change in ratio of skilled to unskilled labour despite the above.

> ... we have with the steady increase in the cost of labour, ... a constant conflict going on, a perfectly peaceful one, between employers and skilled labour; and it is shown in endeavours to substitute skilled labour by machinery. (ibid: 144)

TABLE III

Proportion of the major grades in Palmer's Yards Engine Works Department, 1865-1882 %

Grade	1865	1873	1882
Fitters	18	21	18
Machinemen	13	10	13
Patternmakers	3	2	2
Labourers	14	14	16

(after ibid App.A: 298)

Of course, the Tyne was an A.S.E. stronghold from which the Nine-hour movement had originated, and where, in 1892, the District Committee claimed none of its 4,042 members were paid by piece. (1893 XXXII App. XLVI: 467) A more representative picture comes from analysing the schedule of replies to the Royal Commission on the Depression of Trade sent to all 'working class organisations' which covered 23 A.S.E. areas. The results show again how patchy was the progress of pieceworking. The system does not seem to be related to any specific sector, except perhaps to locomotive building. Fifteen areas claimed to be paid entirely by the hour or day, though most of these complained of systematic overtime (text: 160). In the rest comments such as 'piecework being introduced which goes against the interests of the employers, but they cannot see it', and 'piece rates recently introduced for skilled grades', are typical. In the majority, however, successful resistance is the theme: 'piecework not recognised', 'all skilled work

by the day', 'machine-making and millwright's work by time only'. In two examples, bicycles and textile machinery, piecework had been introduced for the unskilled grades - but in the main where it did not operate for the craftsmen it did not apply to the labourer. (1886 XXI App.II, Pt.II: 7-16)

In strong union areas overtime was curbed by a de facto limit which fluctuated with the 'state of trade' i.e. employment of Society members. The general manager of Palmer Shipbuilding at Jarrow speaking of this 'trade regulation' (itself an indicative term) said,

> We have never seen it as an advantage. It destroys that relation between us and our men which we strive to cherish ... they give us an intimation when it is exceedingly inconvenient and damaging to us, that for the present and for so long in the future they will not work overtime, and that is generally as I have already said, when we need it very much. (1886 XXXII: 154)

Whatever the paucity of evidence for the 1870s and '80s, we are fortunate to have a wealth of detail, albeit, unsystematically catalogued, in the reports and evidence of the 1892 Labour Commission. This can be supplemented with academic research and an increasing number of personal biographies of engineers from the 1890s onwards. The early years of this decade also represent something of a social and technological watershed for the industry; working methods began to be rationalised, employers became more organised, new mass-production sectors, such as cycles and sewing machines, were getting underway. The evidence, therefore, of 1892 represents a summation of the interregnum and a useful counterpoint to the information of the 1850s and '60s.

We might best begin with an A.S.E. survey, similar to that of 1861, undertaken during 1891 for presentation to the Commission. This showed the overall percentage of pieceworkers had risen to 16.8% but this

conceals again regional disparities. Over one half of these workers were in Lancashire and Yorkshire - but the intervening increases were not evenly spread among all the Districts. In Lancashire the proportion increased from 16 to 26%, in Yorkshire from 11 to 17%; the south west from 16 to 22%; and in the east midlands from 14 to 25%. But in the west midlands the proportion of pieceworkers rose from 14 to 44% and in the eastern counties from 19 to 57%. In Coventry, for example, where pieceworking was unknown in 1861, 83% of Society members were now employed in this way - largely as a result of the growth of the cycle industry. (1893 XXXII App. XLVI: 466)

The Commission itself issued a questionnaire to districts from which the industry's representatives came (ten in all) concerning wages, conditions and hours. The replies, from the A.S.E. other unions and employers cannot be said to conform to the statistical requirements of a sample, but the variety of areas and type of work covered a wide range. From the A.S.E. comes the following: in the ten areas only four admitted to Society members working by the piece, and in only one instance, Stanningley, they were in a majority (the branch secretary adding the remark that the system was nonetheless 'the ruination of both trade and men'). Other areas reported payment by the hour with some piecework, particularly in non-union shops where also, according to the Gloucester branch, 'fines and other petty tyrannies are commonplace'. This evidence has to be seen in context - it was the public face of the Society - and in one case at least, Oldham, is contradicted by the employers replies. However, in the main this second group of answers, although not of the exactly the same areas, confirms the general picture.

Thirty firms sent in returns, employing on average 453 persons, nine of which mentioned piecework of one sort or another, and two others

the occasional use of subcontract. The overall summary states,

> In the engineering shops there is sometimes piecework but not always and in some shops it is not allowed by the union. (1892 VII: XVII)

In only one firm, an Ironworks in Lincolnshire, was pieceworking a majority '40% day; 60% by the piece', and in a Locomotive works 'very extensively'. But in the main the comments say 'by the hour' or such as 'very little piecework, chiefly drilling is by hand'. Perhaps most significant is the return from Thomas Platts of Oldham employing at that time 1,100 men and the best known of Britain's textile machine makers. This shows the firm had minimum and maximum wages for each grade of work, but this was not primarily decided by piecework for only 27% of the workforce were paid in this way. (ibid: 185)

Although only small percentage figures were involved in piecework 71.7% of Society members were subject to systematic overtime. This suggests a number of points. Firstly, it confirms the view that the essential extensions of labour power were achieved through increasing hours, rather than the intensity of work - given the earlier analysis of the lack of progress in the 1850-90 period. Upon this rested the A.S.E. maintenance of other craft shibboleths; piecework and apprenticeship had 'held the line' but at the expense of allowing overtime to become widely used. As the Webbs argued, overtime induces pieceworking because it destroys the concept of 'normal time' upon which collective bargaining (the regulation effort to wages in a <u>specified</u> period) rested. (1920: 346) Not surprising where the two already combined <u>standard</u> wages rates were the lowest, <u>earnings</u>, however were high. (1893 XXXII App. XLVI: 468) Secondly, such differentials weakened the tradition of craft custom and attitude. In Swindon and Oldham, centres of piecework, were equivocal in their attitude toward it.

> Swindon, representing 772 members or 1.3 per cent, the majority of whom piecework, do not consider it an evil, or that it leads

> to scamping of work, and they are of the opinion that if abolished it would be detrimental to the interests of the Society.
>
> Oldham representing 1,858 or 3.3 per cent, while not agreeing that it leads to a scamping of work, are of the opinion the working of piecework is detrimental; but are afraid in Oldham the work done in that district would revert to other districts where piecework is the practice

reported J. Whittaker to the Commission. (1893 XXXII: 149) Crucially Swindon, also did not consider overtime detrimental 'since they do not work it systematically' (ibid). In other words, where methods based on the incentive principle were well established less overtime was necessary because the workforce had 'learnt' to increase effort beyond the 'craftsman's rate' to that required by the firm: the rationality of capitalist social organisation absorbing the ethos of the craft. Conversely, the A.S.E.'s influence was strongest (as reflected through the monitoring activities of the local District Committee) where the skilled day wage worker in a non-repetitive task situation was sovereign. The minutes of the District Committees of London and Barrow-in-Furness for 1889-1897 show how they were able to enforce standards without strikes - the former an important repair centre, and both centres of skilled marine engineering. (1893 XXXII, App.XLVI: 468; Weekes, 1970: 9-10)

But does this relationship between low overtime and high piecework hold on a wider scale? Out of the 76 A.S.E. districts reporting piecework only 41 gave an exact percentage. On average 33.5% of members were at any one time paid in this way, but those top six areas do 18% and the lowest six 26% are on systematic overtime (see Appendix A). This suggests that as yet payment by results not generally associated with rational work organisations and capital intensive firms which should, ideally, dispense with systematic overtime. (text: 176-80) As one Leeds employer put it, working this way,

> ... is simply ruinous .... It was caused by a sort of unbalanced condition of the shops, one set of tools being in advance of another, and so on. We have gradually brought in a little more capital, and balanced as well as we can, so as to do away with the necessity. (1893 XXXII: 355)

The survey also offers the opportunity to test the converse hypothesis, namely: is the strength of A.S.E. locally related to the prevalence of piecework? If we divide the 1891 Census figures (for 'engine and machine maker', 'fitter and turner' and 'spinning and weaving machine maker') into the Society branch membership we can arrive at an estimate and trade union density - a ratio of non-union to union labour (see Appendix B). This only works for eleven districts, i.e. where the Census area, (an 'Urban Sanitary District') matches an A.S.E. branch which made a full return. For example the ratio in Leeds is 4.3:1, whilst in Newport it is most favourable to the A.S.E., being 1.1:1. Overall, however, the five pieceworking areas average at 2.3:1 and the non-pieceworking areas at 1.7:1, in other words the latter had a 26% better 'density' of union membership. Given the aforesaid qualifications and limitations, this does seem to indicate a relationship between effective resistance to payment by results and local A.S.E. membership, demonstrating the issue was still in the early 1890s a political rather than a technical one.

The uneven development of engineering in this way benefited the craft worker in his defence of the trade. In no way had the industry fully rationalised its form of the wage contract along individual piecework/capital intensive lines. The intermingling of our explanatory factors - the market, craft restrictions, regional insularity and the 'insulating' qualities of the industrial structure - are subordinate, for our purposes, to the role demonstrated above of the active workshop by workshop vigilance of the engineer. The fact that union density is

clearly associated with the form of the wage contract demonstrates graphically that the crystallisation of the capitalist form of work organisation is not a 'rational' process implemented from above. On the contrary, the work experience of the engineers, the leading actors of the modern age, illustrates a continuous conflict, not resolved by contracts or agreements, and even less charted by their enumeration. As such it is the responsibility of the researcher to examine more closely the 'material' origins of this process, and thereby to highlight the covert struggle of ideals it represented.

The form of the piecewage

The real basis of piece-wages is the separation of time from remuneration, i.e. output alone decides the wage earned. In certain outworking industries or highly mechanised sectors (boot and shoe to spinning would be examples) this was indeed the case. The defence of the craft trade was to insist (usually informally) on the output attainable with reasonable exertion being based on the hourly day-rate. 'Time and a third' or 'time and a half' piece-wage level would result in the worker earning a third or half more than the time wage per hour, assuming a higher intensity of work. In Royal gun factories, this was formulated so:

> A piece-work price is placed on each article, or on each operation through which the article passes in the process of manufacture. These prices are so calculated (though there is no inflexible rate on the subject) that an average workman may be able to earn about one-third more than his daily rating. (1887 XIV: IX)

This is confirmed by the A.S.E., whose official stated it ranged from 10 to 50% per hour extra, but in many cases prices were automatically reduced if a worker exceeded time and a quarter. (1893 XXXII: 167) The Society was not concerned with the prices themselves, they were

decided shop to shop.

> We fix the minimum rate of wages ... the man must have his wages guaranteed where he is employed, even if it is a piece-work shop; so that if he is earning 34s a week it is immaterial to us whether he makes that in piecework or not but he must have 34s a week. (ibid: 160)

The defence of the concept of time thus formed the foundation of the unofficial local policy on piece rates: the Union set the basic wage, the Districts and branches debated the prices, or at least when the prices fell below the union minimum. This fitted with the structure of the A.S.E. which up to 1897 left the Districts to regulate the craft standards via representatives of the District Committee in the shops who reported infringements. (Weekes, 1970: 11) Thus the Society's response to piecework was in a sense as uncoordinated as the employers use of the system.

An early example of an all-embracing scheme, in which piecework was one part, was instituted at the Thames Shipbuilding Company in 1891, with the idea of

> ... getting everybody to pull in the same direction.

The material basis of this was to divide up each department, and give each a fixed sum for labour in every tender for work. This, it was claimed, solved the problem that,

> ... where 3,000 or 4,000 people are involved it is difficult to bring home to any individual workman the sense that his work is affecting the profits of the concern.

The men were then paid a daily wage at the Union rate for the district, but if they produced the work for less than the ascertained cost the difference was shared proportionally to their wage. The system involved a fundamental reorganisation of the accounting system and the organisation of the work, and was not simply an addendum like individual piecework.

> ... the men realise now if they choose to work and produce more, the money will not go into our pockets, but theirs.

> One very interesting result is this, that as they are working in fellowship they are not paid piecework, but they are all paid together ... the result is that these fellowships will not have bad men working with them ... 300 or 400 men have been discharged out of the various trades at the request of the fellowships themselves, and the supervision exercised by the men is more valuable than we could exercise, because they know the men better than we do. (1893 XXXII: 302-3)

This refined the notion of uncertainty considerably: the individual worker never knew what the relation between effort and reward was; only that if he exceeded the norm all the extra earnings would accrue to his group. Thus added to the indeterminacy of the increment were the pressures of the team to keep up with the expected rhythm of work from within the workforce itself; an integral discipline. In the words of its initiator,

> ... fellowship is a sort of cross-breed between day-work and piecework; it has the motive of piece-work, but it also has the responsibilities of day-work. (ibid: 313)

The same principle of collective responsibility was used to control quality: products rejected by foremen were taken out of the fellowship scheme and done again, thereby making the group pay for mistakes twice, but equally increasing their investment in ensuring it didn't happen again. The principle of group self-selection under the pressure of an undetermined reward, apart from its disciplinary character, was also a form of 'industrial social-Darwinism' in which the trade <u>itself</u> rejected those 'unfit' for the system. (ibid: 303)

Shipbuilding was particularly suited to this type of wage contract: each tender was a separate one-off job for the vast majority of the workers and, provided careful planning went into the costing, the employer was usually sure of actual premiums he would be paying in advance. Furthermore the 'fellowship' or group working was only a refinement of the gang system common in shipyards where the group leader bargained for a job and distributed any bonus himself.

However, in the engineering industry as a whole the majority of employers were pragmatic in their attitude toward payment by results; the relationship between it and the 'new economic order' were not perceived. Comprehensive piece rate schemes were regarded favourably, but still as experiments. At Hull the shipyard working only was by the piece.

> ... it is the only class of work of which we know the cost beforehand .... We generally let the plating of a ship to a squad of men; that is to say, there are six to eight possibly, they form an association or company, and will take the plating of the whole of the ship at a price that has been arranged by their Association beforehand or in accordance with a schedule. (ibid: 340)

The engineers however worked on day wage,

> ... where the men are working under supervision, and where there are no disturbing elements .... (ibid)

Hobsbawm has suggested that justifying payment by results by supervision rather than efficiency, was characteristic of the early stages of industrialisation. (1976: 353) However, in the attitudes of employers in engineering in 1892 we find the latter has by no means overtaken the former. From the managing director of William Armstrongs of Newcastle,

> In some particular cases it is necessary; it also is very necessary in some particular classes of work. In others it is not so necessary; for example, if you have a large piece of work put into a large machine, the foreman knows the rate at which the machine should go, and if he exercises proper supervision he can ascertain without much trouble whether the proper amount of work is done or not; but in other cases it is very much more difficult, and piecework is the only available means of knowing that you are getting the proper amount of work out of the men employed .... (and) it emphasises the difference between good and indifferent workmen. (1893 XXXII: 321)

Or, in the words of an 'engineering and toolmaker' employer of Manchester,

> ... we find we get more work and we get good work. Less supervision is required in the works as to the details of the carrying on the work. That is to some extent compensated by a considerable amount of supervision being

> required to see that the quality of the work is there.... (ibid: 351)

Five years earlier to the Committee on the Manufacturing Departments of the Army the superintendent of the Royal Gun Factory put the issue explicitly.

> ... if you have day work, you at once want a tremendous lot of supervision to keep the men at work. For instance, in a night shift day-work would be almost impossible - you would find all your men asleep - therefore, we put everyman who is on night shift, with one or two trifling exceptions, on piece-work. (1887 XIV: 104)

These quotations sum up many of the contradictions of payment by results: the necessity of the prior knowledge of costs and standardisation; the transfer of authority (at one level) from the supervisor to the labour process/wage contract; but equally the emergence of the problem of quality whilst handwork is still important. Whilst gaining increased productivity the employer is nonetheless forced to employ extra staff concerned with the 'labour of superintendence'. The piecemeal approach to payment by results up to the 1890s suggests very strongly that it was control, rather than efficiency, that prompted their introduction.

> The business of a foreman who is over a piecework shop consists in seeing that he gets the quality of work done; he has no trouble in getting the quantity. In a day-work shop, as far as my experience goes, the difficulty is getting the quantity

argued a Leeds employer. (1893 XXXII: 358) The regulation of effort is seen as the prime advantage where it is possible to calculate in advance the increment to the worker, and impossible to entirely eliminate the skill element. Schloss already noted in the 1890s a few areas where the domination of the machine was so complete, (thereby reducing the cost of labour) that

> ... the manufacturer has so great a margin of profit that he does not think it worth his while to put the people on piece-wage. (1907: 54)

Overwhelmingly piecework up to the 1890s in engineering was an ad hoc method of maximising effort in a period where hand work still remained important. Although an ever present threat to the regulation of craft, whilst it remained unrrelated to revolutions in the method of work its meritocratic effects could be cushioned.

The results of our investigations into the extent and the form of piecework suggest strongly its adoption and implementation had more to do with control and discipline, than with efficiency and effort, at least up to the 1890s. But now we are approaching the era of the 'scientific manager' and Taylorism: the stage is set for the final conflict, but will the actors know their lines?

THE ENGINEERS 1897-1914

> ... the most valuable workman is the man who identifies himself with the machine. (Engineering employer, Tariff Commission 1909 IV: para. 714)

The period of the twenty years up to the War has received much greater attention from historians; the effect of technology, the internal structure of the union and the relationship of the industry to the economy has been investigated in detail. Primary source material is more easily available, business records, official statistics, union records and personal memoires are all far more informative from the 1890s onwards. Our task here is therefore to reinterpret these analyses in the light of the examination of the 1850-90 period.

In most branches of engineering change was obvious, if less dramatic in comparison to the main overseas competitors. Orthodox explanations rely heavily on the restraining influence of the market structure in explaining the slow rate of progress (Saul, 1970; Harley, 1973-4). Very little specialisation, production on 'short runs' leads to a reliance on skilled labour which perpetuates out-of-date methods, which leads to little specialisation ... and so on. There is considerable prima facie evidence for this. For example, the major steps were taken in the one sector of the industry which did have a stable mass market - bicycles. Both sub-division within the factory and between factories progressed much faster than in other sectors - with sewing machines running a close second. Here is a description of a factory producing bicycle chains from The Engineer.

> ... there may be from twenty to thirty operations on every length, and each one of those operations is performed on a highly specialised machine by one operator ... frequently no more than a child ... (who sits) hour after hour, day after day, pushing with deft fingers a small atom of steel into the insatiable mouth of the machine. (December 1909)

Many established firms jumped into the cycle 'boom' in the 1890s causing more diffusion of new methods amongst the industry as a whole. The rationalisation and fierce competition led to the 'modern' process of rapid concentration (in Birmingham and Coventry). The Ironmonger foresaw the end of:

> ... the small man who will be deprived of the fruits of his labour in assembling. (26 Nov. 1904)

Again the mass market facilitated the elimination of the small manufacturer who, in other engineering sectors, survived so successfully. (Allen, 1929: 159-64)

The motor car industry provides an example of a reverse trend. In 1900 there were no less than 53 firms, two-fifths of whom remained in business up to 1914. Output was generally very low and the production runs short. In 1907 only 5 firms made more than 500 vehicles a year. Whereas the cycle industry had utilised some regional skills (for example tubular frames of bedstead making) the car industry began very much from scratch. F.W. Lanchester recalled in 1899 that,

> .... No ancillary trades had then developed and we had to do everything ourselves, chassis, magnets, wheels, bodywork, etc. (Kingsford, 1960: 47)

The undivided structure of output and the skilled labour needed to produce it, reinforced the 'bespoke' character of the industry. A manufacturer told the Tariff Commission:

> At least 90% of the cost of a motor car is labour pure and simple. (1909 Vol. IV: 108)

In recruiting the engineers the employers found themselves inheriting a tradition totally hostile to mass production and standardisation, were it to be attempted. F.W. Lanchester recalled:

> In those days when a body builder was asked to work to drawings, gauges or templates he gave a sullen look as one might expect from a Royal Academician if asked to colour an Engineering drawing. (Kingsford, 1960: 49)

These two examples illustrate the two ends of the engineering spectrum in the two decades up to the War. However, whilst progress was not linear it certainly quickened in pace, especially in the last decade before 1914. The essential change lay in the consolidation of advanced machine tools such as the capstan and turret lathe, the vertical, horizontal and universal milling machine, grinders and radial drills - combined with marked rationalisation of factory and workshop organisation.

To what extent were engineers affected by this? The first point to make is that the consequences were not felt uniformly by the different grades of workers. Patternmakers for example, remained relatively unscathed; their rate of output was quickened but the element handskill remained. A report of the relation wages and skill in engineering 1928 stated,

> these machines (planing, grinding and drilling - M.R.H.J.) have relieved the patternmaker of much heavy manual work, it is difficult to believe that their use has lowered his high standard of skill and craftsmanship. (Rowe: 93)

In 1892 around 6,000 such men existed, two-thirds of whom were organised (half in the A.S.E., half in the United Pattern Makers Association), piecework was 'almost unknown' and wages fluctuated only in marine engineering, but averaged about 36s per week. (1892 VII: 29) Their role was to make,

> ... a pattern for the purposes of moulding a casting in iron steel or brass. A joiner on the other hand produces the finished article. (1893 XXXII: 42)

They described their work employing:

> Planing machines, circular and band saws and lathes, are the only machines used. Most work done by hand. Improbable that any further introduction of labour saving machinery will be made. (1892 VII: 70)

In London at the turn of the century the patternmaker was said to usually own a large set of tools 'of considerable value'.

> His duty is to cut in wood ... the patterns, drawings of which have been supplied to him from the draughtsman's

office .... (Booth, V, 1903: 306)

The fitter was more directly affected, particularly by the spread of semi-automatic lathes in the turning shop. Interchangeability rather than dead accuracy was the demand of standardised production. 'Erecting' rather than 'fitting' parts became more important, and whilst large employers manufactured sufficient spares to allow for a certain percentage to be scrapped, in many shops, as has been stressed, the necessary machinery was not used. Over time there emerged two types of fitter: the bench worker doing the more traditional task of aligning work from the turner, and the 'erector' who assembled a specific machine or type of machine. In some respects the former's responsibilities were increased in the light engineering where the complexity of the product outran the ability of the lathes to work at fine tolerances. (Levine, 1954: 490-3)

The turning shop and its personnel suffered a similar form of polarisation. The new lathes once 'set up' could be run by a semi-skilled youth after a few hours instruction. It was this type of issue which dominated A.S.E. activity particularly after the 1897 lock-out. In 1895 a Manchester firm introduced a number of automatic milling machines, which according to The Engineer,

> ... once the correct cutter was put in position, and the tool set for the work to be done it only required the article to be dropped onto a spindle and a nut screwed up, the rest being automatic until the work was finished. A labourer was put in charge of four of these machines. The Amalgamated Society of Engineers demanded this work on the grounds it was displacing their labour. (November 26th 1897)

This attempt to stop the substution of Society men, was very much a second line of defence of craft prerogatives - shop by shop vigilance and the steady retention of status and privileges remained paramount. But the turner's job was divided by the new tools. 'Setting up' of

work remained a highly skilled and influential role in the production process; the actual job of 'turning' (manual dexterity applicable to all general engineering tasks) less so. In particular, the task of 'marking off' work was done by a specialist and not each turner. As early as 1880 at the North East Marine Engineering Company it was said,

> ... a man's whole shop life is spent in marking off and setting out work and in doing nothing else .... (August 27th 1880)

But equally twenty years later in the London turning shops, lathes were worked single-handed:

> Here are finished off the parts which require to be accurately rounded off or which have to be screwed. (Booth, V, 1903: 307)

Or again, it was said that tables replaced the ad hoc calculation of the individual turner as to how the work should be organised: 'speed and feed' specifications would be issued with each job from the office. But according to W.F. Watson writing of about 1905:

> A journeyman must be familiar with the formula for working out a set of wheels to cut any thread course or fine, odd or even, on any type of lathe. (1935: 39)

Each sector leaves a different impression. Textile machinery makers using standardised equipment, but conservative methods; locomotive builders more advanced in an engineering and work organisation sense, but having to conform to customer preferences. Alfred Herbert recalls the shop at Jessops, a textile machine maker in about 1910.

> They turned out really good work by the standards of their time, but by comparison with a modern shop their equipment and their methods were primitive. There were no milling machines, no capstan or turret lathes, no grinding machinery, no gear cutting machines for all gearing was cast, no twist drills, no jigs or fixtures, and not even a blueprint. (Saul, 1970: 166-7)

At T.S. Prennoldson's, shipbuilders and engineers of the Tyne,

Robert Allen recorded in the 1900s that all the really large jobs remained based on hand work,

> ... even cutting key ways, in crank shafts, tail end shafts and propellers ... we made our own templates and even made all the iron water pipes .... The overhead crane was handgear .... Even the jib crane on the Quay ... was operated by hand .... (Allen: MSS)

Another indication of the success of the skilled man in resisting the meritocratic effect of technology was the stability of differentials from 1886 to 1906. Despite the huge increase in the number of 'machine minders', piecework, and in self-acting machinery the ratio between the main grades, according to Rowe 'remained virtually unaltered'. Whereas,

> If wages had moved in accordance to skill, there should have been little appreciable change in the differentials between patternmakers, moulders, smiths, machine men labourers, and the boiler shop grades ... on the other hand the turners should have lost ground considerably, and the once more or less homogeneous grade of fitters should have disintegrated into a series of groups, at rates varying from a little above the labourers rate up to, and beyond, the smith's rate. (1928: 109)

The policy of resisting substitution rather than the machine had paid dividends at one level - exclusion. In the words of one of Booth's investigators:

> ... the mechanical engineer has adapted himself to, and to a large extent appropriated, the new industries. (1903, V: 296)

The new forms of Piece Wage and Workshop Organisation

> The modern factory system demands a different method to the old-fashioned watchfulness of the one man, and requires an incentive which appeals to men's natural cupidity, and converts each workman into his own taskmaster. (F.G. Burton, 'The Commercial Management of Engineering works' Manchester 1899)

We have seen that a pre-condition for the introduction of simple incentive schemes, largely unrelated to the method of work, was prior knowledge by the management of the precise increment to the worker.

Without this piece-wage based on 'time and a third' could, with careful organisation by the workforce, rebound on the employer. The fulcrum of such systems was the prices negotiated for each job, the details of which the workers were more likely to grasp than the management - hence the need for increased supervision. (text: 168) On the other hand, by its variable nature the craftsman was open to wage fluctuations via the cutting of rates if trade were bad or production low. Furthermore, overtime was generally not paid at an increased rate and in most cases there was no formal minimum. (Jeffries, 1945: 154)

The Society's ability to contain the degree of pieceworking suffered a set back with the terms of the settlement of the 1898 dispute, but again the employers did not capitalise on their formal victory. In particular the fear that a form of 'scientific management' would become the normal practice did not materialise. (A.S.E. Journal November 1898) On the other side, engineering was temporarily on the upswing, disruption and guerilla warfare in the shops was the last thing management wanted. The A.S.E. officials still wished to arrive at some compromise over payment by results, especially the constant tendency for the traditional system to lead to price-cutting, and (from their point of view) a wasteful 'eyeball to eyeball' struggle with each employer. (Weekes, 1970: 174-6) Amongst the officials of the newly created Board of Trade Labour Department and employers generally, interest had been growing in American wage systems associated with the ideas of Frederick Taylor. However, whilst 'Taylorism' was insignificant, the rationalisation of the wage contract took most of its inspiration from American theorists and industrial experiments.

This combination of circumstances led to the signing of the Carlisle Agreement in 1902 between the Union and the Employers Federation - the

first nationally negotiated recognition by the Society of the principle that wages should be related to output. The nub of the bargain was this: in return for an end to all restrictions the employers agreed to introduce a 'standard' scheme of payment by results (mainly the Rowan premium bonus) and a guarantee that once fixed, prices would only change if a method or means of manufacture changed. (ibid: 180)

The Rowan system was hailed by Sidney Webb as a breakthrough in industrial democracy since it included a clause to the effect that prices would be 'mutually agreed'. In fact its choice was far more to do with the fact that it compensated for the old problem of the lack of expert rate-fixers and the tendency to err in establishing prices and times for complicated jobs, i.e. it had to be attractive enough to act as an inducement without actually increasing earnings beyond the extra time 'saved'. The Rowan system bypassed this problem and had the added advantage of offering initially high rewards for increased effort, but which afterwards did not increase proportionately as individual output increased. It worked in this way: a standard time was given for each piece of work and if the work was completed in less time than this the worker received a percentage bonus equal to the percentage of the time saved. It should be noted that the wage is calculated in terms of the time rate, the bonus being calculated as so many hours to be paid for, in addition to the hours actually spent on the job. In the words of David Schloss in a report to the Labour Department

> ... this is the foundation stone on which rests all the merits of the system, since by it, if an hour is saved on a given product the cost of the work is less and the earnings of the worker are greater than if the hour were not saved, the worker being paid in effect for saving time. (1895 LXXX: 30)

To take an example, if the standard time is ten hours and the work completed in eight, the worker receives his hourly rate for the eight

plus a 20% bonus which amounts to payment for an additional 1.6 hours. If he completes by seven hours the bonus would be 2.1 hours and at six hours, 2.4. In other words, no matter what error is made in fixing the time or the effort expended by the worker there is no way he could earn double his time-work wage. This is achieved automatically - not by a rate-cutter or a 'chiselling' foreman and the first increments are quite high - but of course the rate of premium still remained to be established in the first instance. It is that point the Rowan system is similar to all other forms of the piece-wages - this figure or percentage is intangible and uncertain for every given case. But unlike its primitive forebears there is no way an error could lead to a really decisive change in the relationship of wages to effort in favour of the employee. As Schloss put it, each premium is unique.

> Nothing but good sense and judgment can decide in any case. (ibid: 31)

Contrary to orthodox piecework the system offers a minimum, that is the day wage of 'standard time', and formally a provision that overtime should be paid at a higher rate.

> There is nothing compulsory about it and nothing tangible to oppose. It is simply an offer to gratify one of the greatest passions of human nature .... (ibid: 32)

Although nationally agreed because of the vagaries of engineering work actual premiums could only be decided locally; and the lack of uniformity returned the initiative back to the shop stewards, who over this period were transformed from District agents to shop representatives. Parity could only be maintained by constant monitoring of past prices and comparison with neighbouring works through the local Committee, which naturally became the focus for opposition to the Executive. Of the many letters on the subject to the Society's Journal the following best summarises their general tone.

> As a body of men we are suddenly plunged into the above system (premium bonus - M.R.H.J.) of sweating without having the least warning ... by our Executive Council. From a theoretical point of view they quoted Sidney Webb and from a practical point of view 'nobody'. Now, having worked on this particular system for over 18 months, I think, I may say that I have learnt a few of the practical points of it. The greatest germ of this disease is the feeling of jealousy it creates amongst our members, which is undoubtedly desired by the employers. A time is fixed called an agreed time, but it is not agreed to between the workmen and the master ... but between the rate-fixers and the foremen who try to outshine each other in giving as low a time as possible .... There is no published list whereby a workman can check over his card .... (June, 1904)

An official booklet on the system issued to all Federated shops made this clear,

> The time allowed for any job will be fixed by the managers and heads of departments. (Barr and Stroud, 1902: 4)

The bonus was supposed to be set to allow 'the average man' to earn 'time and a third' but conversely 'debts' on one job were carried on to the next and in one example a man ended up 'owing' his firm £20. (Watson, 1935: 97-8)

By 1917 even Sidney Webb had recognised this 'loophole' in industrial democracy and advocated the checkweighman system in the pits. (1917: 66) Interestingly this proposal is echoed in the famous pamphlet '<u>The Workers' Committee</u>' published in the same year, though here it is a call for their <u>extension</u> throughout industry, implying that unofficially this was already underway. (Murphy, 1917: 19) In at least one engineering works in Bristol the firm employed a rate-fixer elected by the employees. Much more usual was the concession of a Joint Committee to which disputes were taken, for example, at the Bradford Dynamo Company and throughout the Barrow-in-Furness area. (Goodrich, 1920: 169-171)

Despite the A.S.E. agreement to such a potentially disadvantageous scheme, inertia, once again, seems to have played a part in its

implementation. A few of the larger firms introduced it and the Royal Dockyards in 1904, but by 1906 the Wage Census showed only 4.6% of engineering workers were paid in this way. An A.S.E. inquiry in 1909 revealed 9.2% of members working the system which, given the larger population of the latter over the former, suggests very little progress indeed. Opposition amongst the membership reached a climax in 1909 when the Executive tried to stop District Committees campaigning against the Carlisle Agreement. Since the issue had never been voted upon a Final Appeal Court judgment ruled the ban as illegal and anti-premium bonus circulars regularly appeared from the Committees in Barrow and Newcastle. The Delegate meeting of 1912 instructed the Executive to hold a ballot on the issue which resulted in a five-to-one majority in favour of its abolition. (Weekes, 1970: 202; Jeffries, 1945: 155)

Less spectacular but perhaps just as important was the gradual 'tightening up' of piecework systems and their attendant restrictions, such as time-clocks, 'feed and speed systems' and increased supervision. Hardest to quantify and reconstruct historically was the impact of all this on the 'inner life of workshop'. Fragmentary evidence is convincing however: gone was the almost casual but consistent integral control of the workgroup. An old engineer reminisced in 1915:

> A decade and a half ago one could come into a shed with perfect complacence; work was a pleasure compared with what it is now .... The supervisory staffs have been doubled or trebled ... before the workman can recover from one shock he is visited with another. (Williams, 1915: 205)

Robert Roberts a newcomer to a Manchester firm of engineers, employing about 150 just before the War, writes of the turners' shop where men driven to escape the intractable boredom assumed schizophrenic

characters toward the apprentices.

> It was our duty to visit it frequently to borrow micrometers and other small instruments. Men down the aisle, 'repetition workers', had done pretty much the same task day in, day out, since coming 'out of their time'. In an effort to escape boredom, and with their chargehand's conivance, several denizens had taken to acting out fantasy roles for the wonderment and perplexity of every new boy. (1976: 166)

In this context is is interesting to note the tone of contemporary agitation against the effects of mechanisation. From a pamphlet entitled 'The Machine Monster: A warning to all skilled workers' we read,

> ... the machine has mechanised humanity and induced habits of thought and body which destroy alike the opportunity and the taste for good reading. (Rose, 1909: 7)

The awareness that the conditions of factory life were destroying the independent capacity of thought is also reflected in Alfred Williams' graphic account of a railway factory.

> A regrettable dullness is discovered by very many of the men which may be bred of the labour itself and the extremely monotonous conditions of the factory ... he is never free from the effects of the hurry and speed of the machinery. (1915: 306-7)

Significantly however this recurring theme of the book is qualified in relation to the fitters and turners who, he says, 'take the greatest pains to protect themselves and their interests', and from the ranks of which were appointed nearly all the foremen. (ibid: 102-3)

The Society typically expressed similar concern but from an exclusive point of view. An official wrote in 1895,

> ... the artisan is reduced to a mere machine minder, engaged in constant repetition of a process little more often than mechanical .... (Galton, 1895: 101)

The meritocratic impact of payment by results led to the 'scamping' of work - like any other worker - at odds with the non-instrumentalism of craft.

It is in piecework shops that 'those hateful words - that will

> have to do' (as a working engineer once called them) are heard on frequent occasions. (Schloss, 1907: 70)

Increased supervision and the imposition of rules incensed Society men more than the resultant pressure upon wages, and industrial action over such issues was as resolute as if their whole trade were at stake. A classic example was the strike in South Shields in 1906 over the introduction of a Bundy Time Recorder; the issue being whether the men should have to clock in and off in their own time. The fervour with which the dispute was fought (and won) can only be understood in the context of the drive to 'Americanise' working conditions culmatively producing militant responses from an otherwise industrially compliant work group.(Croucher, 1971: 18)

Much of the informal strength of local shop organisation had originated from the fact that in many cases foremen were life-long A.S.E. members. Such men were responsible for hiring labour and one of the first 'tips of the trade' a journeyman learnt was the knack of catching this man on his way to or from work. (Watson, 1935: 29-30) We have fleeting glimpses of how such men could temporarily thwart the progress of new methods.

> When the managers recently attempted to bring about sweeping reductions in the prices throughout the smithy he (the chargehand - M.R.H.J.) opposed them at every point, swore that he was master in his own shed and that no one but he should be allowed to fix prices. (Williams, 1915: 98)

This situation, a practical example of the dictum that piecework was an alternative to management, resulted from the tendency for local knowledge to become disproportionately powerful in an otherwise centralised factory system. 'Empire building' at the periphery which crude piecework systems encouraged had therefore to be broken. At the Swindon railworks new foremen were appointed not from the most skilled or long-serving employees, but from the 'young and comparatively

unknown' because,

> ... they will have a smaller circle of personal mates in the shed, and consequently less amount of human sympathy for them. That is to say they will be able to cut and slash the piecework prices with less compunction.... (ibid: 75)

Not all foremen were traditionalists, they could be 'sweaters' and still remain union men; at a Manchester firm in 1904 the foreman was a,

> ... quick production enthusiast, he was forever telling us to increase our speed. (Watson, 1935: 32)

Nonetheless, the employers considered that the problem was sufficient to warrant the Federation proposing a scheme to 'buy out' the foremen's contribution to the A.S.E. and aid in the formation of their own Clubs. (Jeffries, 1945: 128)

These then were the main pressures upon the craft basis of the engineering trade in the twenty years up to the war: an uneven sporadic application of rational piece-wage systems; a general speeding up of workshop conditions; the first signs of the breaking of the hierarchy of skill and promotion, and the emergence of mass production industries in which the semi-skilled machine minder was to be the dominant figure rather than the fitter and turner. A young newcomer to the trade of this time struck by the profane materialism of the workshop is nonetheless awestruck by the weight of tradition and history as he waits to be called to join the Society.

> In a chapel-like calm about fifty men sat in rows, fronting office-holders on a dias. Many of our own journeymen were present, giving us nods of recognition and welcome; no ribaldry now! .... One felt proud to be a member. And men, we heard there, called each other 'Brother' and meant it .... Sitting after induction, on a back row, I saw my father rise and speak on a minor issue of the time. He gave his views cogently and with a force and wit that delighted the audience. Once some injustice was 'damned' - a word he withdrew immediately, with apologies to the chair. (Roberts, 1976: 187)

Within the workshop many shibboleths of the trade were violated by the development of the capitalist form factory organisation - but in their private 'trade life' the sense of ceremony and continuity persisted. A final symbol of their solidarity and their separate identity within the working class - roots which were to launch the paradox of the militant wartime movement.

APPENDIX A

Table showing the Percentage of Piecework and Overtime amongst certain A.S.E. Branches 1891

Branch	Membership	% of Membership on Piecework	% of Membership doing systematic overtime
Ashford	65	92	0
Barrow-in-Furness	513	3.8	50
Birmingham	1754	39	25
Bristol	488	4	0
Burton	112	13	*
Carlisle	95	16	15
Colchester	101	79	25
Crewe	997	25	*
Coventry	422	83	20
Derby	462	54	20
Enfield	221	9	0
Gainsborough	144	23	20
Grantham	96	64	11
Ipswich	174	86	18
Keighley	497	48	20
Leeds	2206	9	18
Leigh	110	42	*
Lincoln	241	83	*
London	8136	6	10
Loughborough	75	27	20
M/C	5134	40	18
Newark	44	52	-
Newton	176	40	*
Notts.	812	9	*
Oldham	1858	31	18
Peterborough	107	19	-
Rochester	59	68	*
St. George's	86	68	20
Sheffield	940	32	30
Southampton	450	4	25
Stafford	80	31	0
Swindon	772	65	0
Todmorden	101	13	6
Wolverhampton	299	21	0
York	175	57	0
Aberdeen	269	4	*
Edinburgh	442	4	-
Glasgow	2520	4	30
Dublin	352	8	-

Key: - No answer
0 No overtime
* Overtime but % not known

(1893 XXXII App. XLVI: 466-8)

APPENDIX B

Table showing A.S.E. density and the ratio of non-unionist to unionists in eleven areas, 1891

Pieceworking Areas	A.S.E. Membership	Census	Ratio
Oldham	1858	4429	2.3 : 1
Manchester	5134	7200	1.4 : 1
Barrow-in-Furness	513	1277	2.5 : 1
Leeds	2206	9485	4.3 : 1
Sheffield	940	3196	3.4 : 1
		Average Ratio	2.3 : 1

Non-Pieceworking Areas	A.S.E. Membership	Census	Ratio
Blackburn	502	1039	2 : 1
Preston	354	760	2.1 : 1
Hull	1137	1705	1.5 : 1
Newcastle	4042	5879	1.4 : 1
Newport	365	423	1.1 : 1
Halifax	597	1426	2.3 : 1
		Average Ratio	1.7 : 1

(derived 1893 XXXII App. XLVI: 466-9;
1893-4 Census Occupations and Age CVI)

CHAPTER VII

CUSTOM AND COMMUNITY IN MINING

It is paradoxical that orthodox economic historians have so often defined emergent capitalism in terms of the spread of 'free' wage-labour; the individual money contract between employee and employer implying only effort-reward obligations. For it is in the foundation industry of coal that we find, until the late nineteenth century, the persistence of pre-capitalist methods of social and industrial organisation; the yearly bond, truck, coerced labour (from the workhouse) and a 'feudal' type of fusion between employers, the legal system and the state. It is impossible therefore to account for the emergence of traditional forms of wage-bargaining in the 1870s without briefly considering the recent origins of the pre-industrial mining communities.

There is of course an element in which, as writers from Marx, Sombart, Weber to Kerr, Inkeles and Barrington Moore have observed, there exists a powerful rationalising and centralising influence in the progress of capitalism. As a result, it is argued, economic restrictions, monopoly and state interference are overthrown, as are the social aspects of custom, reciprocity and tradition. Some historians have pointed to the manner in which this process was biased against the 'restrictive' practices of skilled workers and 'monopolies' of labour in unionism. Other accounts, even the most worthwhile factually, contain this contradiction uncomfortably.

> Notwithstanding this evidence of the existence of privileged positions it seems probable that the changes in the structure of distribution extended competition .... A striking feature of economic life in the eighteenth century is the prevalence of combinations. (Ashton, 1977: 66, 122)

We might also point to other potential theoretical antinomies in the orthodox view of capitalism (which contains, it is only fair to say,

is present in parts of Marx's work, particularly the Manifesto, Introduction to a Critique of Political Economy and Volume I of Capital). These can be expressed as follows: free trade and slavery, technology and hand power, textiles and outwork, development and under-development between nation states and regions. Here it is not possible to investigate them all. Suffice it to say that we begin with the assumption that this lack of linear development is normal, and not the product of a specific combination of factors in each case. This approach (latterly called the 'centre-periphery' model) finds its heritage in the field of economics with Lenin's Imperialism, in the field of political economy with Trotsky's Permanent Revolution, and in the field of working class consciousness with Gramsci's critique of Bukharin in the Prison Notebooks.

In this context the survival of 'feudal relics' in the mining communities, particularly in rural areas presents no theoretical problem: it only requires description and analysis as an integral antecedent of the 'modern' form of socio-economic organisation characteristic of the last forty years of the nineteenth century. In particular the close relationship between work and community, surviving the Industrial Revolution, had an important influence on the structure of unionism. The real and legendary independence of the Lodge, and the symbiosis between leaders in this field and the village (and later local politics) cannot be explained at the point of production. The 'independence' of Lodges was also of course a form of insularity; and whilst the Durham Miners' Association (D.M.A.) was noted for its 'vertical' solidarity, in the national miners' movement its role has been ambivalent: at once both an example but not an exemplar. At another level this insularity contributed to the weakness of rank and file opposition to the leadership, even at its most unpopular. (Welbourne,

1923: 300; Douglass, 1977: 247-82)

Equally the heritage of the D.M.A. formed to replace the yearly bond with 'normal' wage labour cannot be overlooked. The rapid transformation from a non-unionised bound workforce to a modern system of industrial relations within 6 years obscures the extent to which the change was one of content rather than form. To be sure, the pressures of a trade boom and the strife caused by the bond were influential, but they don't explain the recognition of the D.M.A., the Joint Committee, or at a more symbolic level, the building of a hall for the Local Lodge meetings by a Newcastle coal master. (Welbourne, 1923: 134) The absorption of the union officialdom at a county level, whether conscious or not, exacerbated the tendencies of the D.M.A. to operate, particularly in its first years, as a direct limitation on the volume of industrial unrest. The defeats of past unions in lost strikes was also a powerful inducement. Furthermore the union emerged in a struggle against the bond: as an alternative to it. As a result the union cadres were trained in an annual formal contest over the signing of the bond, rather than the cut and thrust of local disputes. In this context the Joint Committee could be seen as an extension of the paternal despotism of the bond; of course a double-edged sword but at least the officials, if not the men, remained 'bound' to the masters via the 'Cabinet' system prevailing on the Committee. (text: 211-18)

Mining as an occupation cannot be viewed historically through the prism of technological change. Unlike the cotton and engineering workers the work experience of the miner did not, up to 1914 at least, depend upon the paradigms of scientific improvement. His occupation was neither created nor destroyed by industrialisation, but the social world in which

he lived, of course, was. The 'industrial villages' of the mining industry are the usual location given to the 'pre-industrial' practices of truck, coerced labour, penal discipline etc. It is argued that the combination of a declining agricultural sector with the expansion of coalfields in sparsely populated areas produced these features, eventually erased by the arrival of modern capitalism in the 1850s. This domain assumption of social history is not untrue, but incomplete. But first let us review through the eyes of the Mines Inspectorate of the 1840s, the mining communities of Scotland.

The major fact which comes through these reports is that our so-called 'pre-industrial' practices were actually the reverse: open and conscious attempts to enforce and sustain a total industrial discipline. Truck, for example, in most instances, was not to do with profits, but with obtaining, and holding onto, labour,

> Without a store we could not get many of our men to attend the work, before we had one they got advances in cash daily from the office, got drunk and kept their families starving.

claimed a 'Tommy shop' manager in Airdrie. (1844 XVI: 25) Elsewhere it was justified in terms of controlling drinking habits either by restricting its availability or at least cutting down the time lost by providing it 'on the spot' and in set amounts per week. (ibid: 24, 26) So not only was the Scottish miner bound legally for a year to his employer, through the truck shops up to 20% of his monthly wages were mortgaged in advance. (ibid: 20) Not surprisingly paydays were celebrated with symbolic acts of freedom: an exodus of the villages for the nearest town, attacks on police houses, a two-day drinking bout and the singing of 'bawdy and irreligious' songs. (ibid: 31)

The 1842 Act ending underground female labour (who were incidentally largely paid by the colliers) opened up new opportunities of socialisation

via the family and home life. At one mine the owner paid a woman to teach his ex-female miners how to cook, sew, wash properly, etc.; the Inspector also noted the spread of competitions for the tidiest cottage or best domestic baking - the prizes donated by the Owners. (ibid: 5, 11)

Truck meshed in with the system of fines at source which was widespread in the Iron and Coal trade. Employers claimed this was the only method to enforce discipline and quality. This combined with the less well-known system in Scotland of the employer's right to 'arrest wages', i.e. if a local trader had a debt with an employee he could ask his employer to deduct a weekly sum to be paid directly to him. At the Govan Ironworks between June 1843 and February 1844 there were 212 such cases. (ibid: 28)

Interestingly enough, the Inspectorate also couched their opposition to truck in terms of social order, but demonstrating a much wider perspective than the concerns of the Owners. According to them truck-shops were an,

> ... obstruction to the growth of the middle class precisely in those localities where their influence and instrumentality are most wanting as the connecting link of society between those who gain their living by the work of their hands and those who accumulate vast fortunes by the skilful direction of that labour. (1852 XXI: 436)

They also noted how it inhibited market forces in labour: in good times men didn't move to the most efficient pits, and conversely in bad times, inefficient pits survived because their labour was tied to them. (ibid: 439) Fourteen years later it was reported truck had established 'a network over the entire works of Scotland', involving the widespread printing of token money; the drink trade was almost entirely in the hands of employers, and was not to be found in urban areas. (1866 XIV: 215-18) Further inquiries in 1871 and 1887 showed it to be by no means

dead and prosecutions remained a civil affair and thus on the initiative and expense of the individual workperson.

The fact that the employer was often landlord, magistrate and the patron of local churches, schools and libraries cannot be overlooked. Mass evictions were the most spectacular example of this source of power, but its effect was more insidious and far reaching. For example, the type of housing provided reflected the status at work, and reinforced these divisions in the community. Heworth Colliery in 1880 recorded in its books,

> 30 large cottages
> 97 small cottages
> 1 house for underviewer
> 1 " " Engineman
> 1 " " Overman (D.R.O. : N.C.B. 1X 65)

The provision of housing also helped to maintain labour. Most companies provided accommodation to married men only, and in some areas this was restricted to face workers. In the Northern counties housing was rent free, as 'an invariable custom', elsewhere the ownership was nominally separate from the colliery and a rent charged. (1907 XIV Pt.II: 6, 76) Marriage, 'settling down', not only secured a house but in many districts of the North East a rise in pay; alongside the free housing a considerable inducement. This was also a recognition of the lack of female employment in the area, in contrast to the wives of South Staffordshire miners, of whom it was said,

> ... the women work in the factories, and a lot of them work at home, nail making and chain making. (ibid)

In the areas where organisation was weakest housing provision, the evidence suggests, was used as a deliberate antidote to union progress. The combination of traditional selective victimisation at work and the over-arching potential threat of eviction seems to have particularly been important in Scotland. Certainly, the miners witnesses to the

1892 Labour Commission reflected this view. The contrast with the North East with its higher productivity, lower accident rate and politically corporate workforce was not lost on the Commissioners. Their Final Report drew attention to the relationship between the political radicalism of the delegates from 'unruly' areas, and the unsubtle tactics of the coalowners. (1894 Fifth Report XXXV: 24) In Lanarkshire, for example, about one-third of the workforce lived in colliery houses for which rent was deducted at source. According to the leader of the small Larkhall union,

> The workmen's houses are used as a lever in bringing down wages and carrying out other injustices. The employers do not scruple as to the means used to get the workmen into the houses, and if any dispute arises they at once threaten to turn them out. (1892 XXXVI: 44)

Of the 34,000 underground workers, no more than 2,000 were unionised, but as progress was made, the witness claimed, so the proportion of miners in tied accommodation increased.

> Knowing the power which it gives them, employers are rapidly increasing the number of colliery houses. (ibid: 50)

Favouritism in the provision of tubs and working places also put pressure on the miner.

> ... the men who were in the employers' houses were to get as many tubs as they wished while the other men, who were not in an employers' house were going to the pit day after day, and earning almost nothing. (ibid)

At a more direct level Keir Hardie claimed that it was an unwritten law of contract in many collieries that the newly engaged worker and his family would reside in an employers' house. Since many homes had more than one member working in the pit, the proportion of the workforce in a tied house would be higher than those actually in tenure, and in certain villages rose to three-quarters. (ibid: 196)

The coal owners were enthusiastic patrons of religion, particularly Methodism, even when normally it was not their own. At Lambton pit in

the 1850s, George Parkinson recalled that,

> ... the colliery viewer, Tom Smith, had the good sense to see the converted men were punctually at the pit on Monday morning instead of lounging in a public house. He offered to alter Jacob Speed's cottage, at the end of the row, so that it could be used as a chapel. (1912: 16)

In a standard work on colliery management of 1896 (but still in print up to 1951) this advice os offered to managers.

> An unfortunate task of the viewer is to carry through unpopular decisions. It is well, therefore, that he should cultivate relationships with them (the miners - M.R.H.J.). This he may do by taking a personal interest in their reading rooms and institutes, their athletic clubs, their musical bands, or in some of the various institutions which usually exist in colliery villages .... (Bulman and Redmayne, 1951: 65)

Perhaps more than any other industry mining was subject to legal authority. Under the Master and Servant Act the mine owner was empowered to prosecute individual colliers for transgressing the innumerable provisions of the Mines' Acts, as well as his contract of employment. In a South Wales colliery to avoid the 'inconvenience and publicity' of the magistrates courts the worker was given the option of paying his fine to the local Library. Community pressure was further underlined when the offence was,

> ... posted up in some conspicuous place in the colliery so that his fellow workmen can see what the man has done ... (this) has a far more deterrent effect upon him than any punishment he may receive at the hands of the magistrates, while it prevents a great deal of friction between the management and men. (1892 XXXVI: 156)

Less subtle tacts were probably more common, and certainly are the predominant historical image: the Owners were quite willing to use the law on a massive scale if necessary. Three hundred and ninety five Boldon miners were taken to court - and a further five hundred and sixty at Marsden summonsed - in one week for, 'breach of contract'. (Newcastle Daily Chronicle February 15th 1896) As the local press and Union officials observed the use of the law invariably escalated the dispute:

after six men at Felling pit was prosecuted for refusing to operate the 'token system' of time keeping, eighteen hundred of their colleagues struck successfully for their release - despite the opposition of the D.M.A.

Authority was also maintained by the universal use of the character note (either formally or informally) though this broke down when demand for labour was high. In South Wales the 'discharge note' was only given if the worker had 'satisfactorily completed his contract', without it employment was difficult. (Morris and Williams, 1958: 286) In Derbyshire the leaving certificate would be clipped at one corner to signify to a potential employer the miner's undesirability. (Williams, 1962: 166)

The development of the 'industrial villages' in the cradle of industrialisation throws further light on the uneven, even dichotomous, impact upon the social structure. Coal was the first industry to undergo the transformation of scale (if not method) typical of the capitalist form: the appropriation of all physical means of production, unleashing of market forces, the separation of workers and employers, and the creation of trading and financial structures. Yet its impact on the lives of the coal workers was far less dramatic or linear in development. In nearly all respects coal created a social organisation of its workforce far from the ideal textbook 'proletariat'. They were not urbanised, nor in especially large numbers, their wages were subject to all sorts of deductions, and housing and situation contributed to the element of coerciaon in the nominally 'freely made contract'. Their labour was not eased or mechanised and discipline remained largely punitive, rather than in the form of incentives. All these pressures

contributed to the famous parochialism of mining communities.

> ... one lived in one's own village and it was sufficient. One was hardly aware of the villages next door. There was a tremendous sense of insularity .... And each village was, in fact, a sort of self-constructed do-it-yourself counter environment ... There was everything there .... The Lodge was there to look after the interests of the men at the pit .... But in addition to this you had a sort of complete welfare system. (Chaplin, 1978: 62, 81)

> Pit life, was life. Our journies away from it, fairs, the Gala, 'days out', were rituals - we all knew we had to come back ... and what time. (Fairbridge M.S.: D.R.O. D/MRP21/2)

> Croxdale was a prison, we made the best of it. The rest of the world didn't exist, we didn't need it - but it needed us. (Pallister M.S.: D.R.O. D/MRP25/1)

> The pitman's interest in politics is inverse to the distance from his door. (Colliery Guardian January 15th 1909)

But of course, parochialism in the context of the organisation of pitwork leads to, as we will see, a fierce determination to control 'their' working and 'our pit'. (text:198-9) The sources of these traditions, pre-capitalist in origin, sprang not from a desire to overcome the authority of the capitalist, but merely to limit it to certain areas. It was this ambivalence of the miner that the syndicalist inspired authors of The Miners Next Step had to contend with as they sought to outline a programme, basing itself on these traditions, yet whose final outcome would qualitatively transform them. Thus they traded on hostility to trade union centralisation whilst seeking to overcome 'sectionalism' amongst the rank and file. The Unofficial Reform Committee in a sense became a parody of the organisation it advocated; a loose amalgam of militant lodges able to mount significant local campaigns, but structurally inadequate to raise the national political questions of workers' control and nationalisation upon which it was based. (Woodhouse, 1970: 160-180) Often presented as a failure of syndicalist theory, in fact the experience of the U.R.C. tells us much more about the didactic combat of theory and custom, none more so

than the authors define the centres of 'rank and file' activity as the lodge.

> A sense of responsibility and recognition that the lodge meetings are the place where things are really done ... will make the lodges centres of keen and pulsating life, sensitive and responsive agents of a great organisation. (1911: 10)

Thus the kernel of syndicalist practice, the uniting of worker at the base across union boundaries, was not only abrogated, but its antinomy (the geographical branch structure) euologised.

In Durham we are faced with the paradox that the U.R.C. was at its least effective, yet where local autonomy was probably greatest precisely because of the tradition of the Lodges. The stronger the latter the less need for rank and file bodies, given the insular structure of the industry and thus the ability to raise and solve local issues. So it is that both the august Welbourne and the radical Douglass discuss rank and file opposition entirely in terms of militant lodges. (Welbourne, 206-24; Douglass, 1977: 272-82) United action between lodges was common particularly on questions outside the frame of reference of the Joint Committee (J.C.). However, it was in the main episodic and pragmatic: its history, for example, is not to be found in the D.M.A. archives (except by reading between the lines of Executive circulars). It would take a separate study to evaluate its extent and exact character, but the overwhelming impression from both published and private sources is of a readiness to combine over specific points, without this ever coalescing into a 'movement'. This assessment would be modified in the decade up to the war as the Independent Labour Party and the Socialist Labour Party began to recruit, but even their strength was based on traditionally militant large pits, such as Boldon, Usworth and Washington. (Marshall, 1976: 330-3)

Firstly, by example the issues: these were local, immediate and not subject to the J.C. The strike at Hebburn over a 'fiery seam' which involved 184 men but where 2,000 attended the subsequent court case; united action of Murton and South Hetton collieries over 'damp money'; the strike over non-unionists at the Seaham pits involving 1,500 men; the Deputy issue at Auckland Park colliery, (Shields Daily News Sept. 6th 1887; Durham Chronicle August 24th 1888; ibid: January 7th 1887; D.R.O.: N.C.B. I/CO/141) In each case the D.M.A. was either not involved, or actively opposing the activity, but nonetheless it is clear the Lodge, or Lodge delegates, came together to coordinate the events. The last example is worth looking at in detail because our source is unusual: a colliery manager's report to the Owners' Association. In May 1882 the men complained that eight deputies were not 'going through' i.e. conforming to, Union custom, and wished to work more than 12 days per fortnight. Patterson of the D.M.A. was called in, but agreed with the management's refusal to dismiss the men from deputy work. The miners responded by threatening to halt allied pits of the same company, which they did from May 3rd to the 8th. The report concluded,

> It is clear that the men have by local organisation of their own and by sheltering themselves under rules made by their 'Joint Committee' or the Union, without any previous arrangement with the Owners Association gained their point ... we have returned the Deputies to the status of hewers. (ibid)

Wage labour and custom

Perhaps more than any other, mining is an industry in which custom and tradition remained significant in the formation of the wage contract. The essential continuity of the method of work, the rural setting of

many collieries and the absence (until the last decades of the century) of formal bargaining procedures all contributed toward this. In the Midlands particularly, there survived the heritage of petty production methods and multi-dimensional sub-contract. Where unionism was established the defence of normative agreements was often the foundation of union policy and reaction to innovation much firmer than offensive action to improve conditions.

> Our best policy is to do what we can do to conserve our trade ... to work so far as to secure an advantage ... rather than to make demands for which no substantial reason can be assigned,

argued Thomas Burt, a conservatism which had its roots in the character of work.

> Custom is one of those things that in the South Wales coalfields unfortunately seems to govern everything.

claimed a witness to the Miners Eight Hour Day Committee. New methods, and increased division of labour would be resisted automatically as an 'invasion of privacy'; established practice was a 'tremendous nut to crack'. (Newcastle Weekly Chronicle April 10th 1892; 1907 XIV: 255)

On the other hand the employers were not noted for their innovatory attitude toward industrial organisation or methods. The sluggishness of technical progress indicates a reluctance or inability in making investment decisions. The atomistic structure of mining enterprise, operating under conditions of extreme competition, led to stagnation and the universally held belief that costs could only be reduced by reducing wages, rather than by improving other factors of production. The success of coal-cutting machines in the U.S.A. for example, did not change the view of the British owners in 1925 that,

> Generally speaking, the saving of labour charges at the face is absorbed by the capital charges on, and the running cost of, the machine. (Taylor, 1968: 59)

One heritage of the past was like many other skilled workers in this era, the miner provided his own picks, at least two (one to be used the other to be sharpened) but on average 4 to 6. (Proceedings, Durham, 1912: 176) The responsibility for sharpening and repair was the mens, 'pickpence' being deducted by the management to pay a smith - only the stonemen receiving the service free. (D.M.A. 1893: 12) Shovels and small hammers were also widely owned, whilst heavier hand tools such as sledge-hammers and shotpunchers were provided by the management. The ownership of face tools could act as an important feature of job control; in a colliery in Derbyshire in 1871 the owners compelled the use of forks (instead of the miners' own shovels) to cut down the amount of slack loaded into tubs. (1873 X: 39) Or again management may ban the use of implements altogether to achieve the desired effect. In South Wales,

> The workman and 'butty' or boy, as the case may be, having cut the coal put it into an iron box with their hands. No shovel or other means is used in filling the box. (Gasgoyne-Dalziel, 1895: 109)

The provision and use of gunpowder was in the main organised by the workers, and even after the Mines Act of 1872 considerable autonomy remained although supervision was made compulsory. For example, at Boldon a committee of the Lodge was in charge of enforcing the safety rules and arranging to buy in bulk at the cheapest price - the men then purchasing it at a discount. (Minutes M.S.: D.R.O. DH/Ph71/12)

Up to the introduction of the Davy lamp the miner also bought his own candles; these he preferred since they gave off more light and warned of a rise in the gas content of the air. In many districts a payment called 'lamp money' was negotiated as a compensation for the loss of lighting power. To the management's frustration this became a permanent 'custom of the colliery' and remained for decades and its

removal was fiercely contested. (D.R.O.: NCB 1/CO/141)

Perhaps custom and tradition were most important to the worker in bargaining for contract prices as the state of the seam enlarged. The essential uncertainty of the task worked both ways: the workers were unable to establish formal, exact rules when their bargaining position was strong, but equally the management could not entirely remove front-line control and initiative. Thus the fact that the central pivot of struggle between miners and employers has been the regulation of effort to wages: the former attempting to maximise uncertainty at the face and minimise it at the pit bank, the latter vice versa. Carter Goodrich recounts how an overman could not testify under oath whether a certain worker did his job properly, despite, as the Magistrate pointed out, his duty was to visit each working place twice a day.

> They always stop work when they see an overman coming, and sit down till he's gone - even take out their pipes if it's a mine free of gas. They won't let anyone watch them. (1920: 137)

This problem for the employer was compounded by fierce inter-regional competition characteristic of the industry until well into the twentieth century. The great difference in the costs of production between regions and even between collieries prevented any tendency to resort to output limitation and price maintenance. The Inspector for Derbyshire commented on this,

> Yes they have meetings, and they fix the price; but they go home and do directly opposite. (1873 X: 37)

The coalowner is always aiming at the maximum output per shift, in good times that he may make more profit, in bad times that the cost of production per ton may be kept down to a minimum. But the miners' position is quite different. When trade was good and prices and wages rising his effort declined to a level sufficient to maintain his usual

standard of living, and he might also have in mind a concern not to 'spoil the market'. In bad times wages following the 'ratchet effect' (whether a scale was in force or not) would not fall as rapidly as prices, and the miners may anyway find it preferable to work 3 shifts a week at this rate, than six days at an imminent lower wage. The owner would therefore be faced with increased costs of production as well as falling prices. For these reasons productivity has been inversely related to wages independent of trade conditions as such. (Taylor, 1961-2: 51-3)

Thus both sides had a vested interest in the maximisation of uncertainty albeit at different levels of the organisation. Paradoxically, this is more apparent in the unionised regions, such as Durham. Here the local strength at work and the community enabled the miner to constantly improve county standards, or conversely better defend established practices. The schism of the miners into 'two camps' from 1893 to 1907 over the minimum wages, sliding scales and the legal Eight Hour day in reality revolved around the extent to which contracts should replace agreements. The D.M.A. born in part in the struggle to oust the law from industrial relations saw in the Federated policy a weakening of their conditions and advantages, particularly at the face. (text: 211-18)

In the geneology of industrial relations custom is often assumed to be the antinomy of contract: the natural progression is toward a rational contract in which the conditions of the parts is subordinate to the whole - which itself is conducted on a larger and larger scale until complete national bargaining establishes industry-wide agreements and standards. But in what should be a 'classic' example of this, Durham mining, we find the emergence of 'mature' county bargaining between Union and Owners characterised by the expansion of customary

and local agreements. From the 1870s the Joint Committee produced at regular intervals a bandbook of 'Wage and Trade Customs' running to over 300 pages: each class of labour both over and underground and then by pit and seam specified, and for each a wage rate given. For example at Wheatley Hill Pit, Five Quarter Seam (in the 1876 edition) we find,

> 10 putters paid 1.10d for 80 yds. + 1d extra for each 20 yds by HAND
> 38 " " 1.3½d " " " " " " " " PONY
> (D.R.O.: NCB 1/CO/92)

To repeat, this scale of detail is evident throughout the 300+ pages, each representing an on-the-spot negotiation - in Durham custom was symbiotic to the formation of the Joint Committee not an alternative to it.

Of course, some of this is to do with the unstable character of production, but it also reflected the struggle over uncertainty. The miner needed a reference point from which to argue the case for each alteration in work which affected his earning capacity (variations which could be daily) but he did not want a formula. Equally the management wished the smooth changeover to new working conditions but at rates not disadvantageous to them (a need reinforced by the fierce competitive warfare). The 'county average wage system' ensured these adjustments did not get out of hand, but also gave the miner a kind of minimum (text: 213-4)

This equilibrium relied on a certain balance of forces - where either side could resolve the issue to their own advantage they did so. In South Wales the Owners found great advantage in leaving allowances unspecified and unregulated, since this in practice meant they were set by the pit management. Our informant, a coal owner, recounts how during a recent price rise in the 1890s, the extra wages were made

up by the multiplication of these allowances not an increase in the basic rate. Not unnaturally a strike ensued over the formalisation of these temporary gains and their publication. (1892 XXXVI: 153-4) Similarly the manipulation of custom relied on a close equality of wages throughout the field - in other words, wages were not primarily dependent on the viability of each pit. This was essentially the case in Derbyshire in the 1890s reducing the 'stakes' in each dispute to a contest between miners and management in each pit. (1892 XXXIV: 702) In Durham the sliding scale, the Joint Committee and the whole panoply of arbitration weighed down upon local contestants restraining their options and curtailing the issues. In this context it is interesting to note several coal owners attributed the failure of sliding scales to the weakness of unionism in their area; a Mr. J.P. White of Derbyshire stated it would be tried again because the union was 'sorting itself out'. (ibid: 701) In differing contexts the necessity of organisation can be seen as a prerequisite of the conflict over exactitude.

From this equasion of uncertainty comes the employers hostility toward the appointment of checkweighman and the various strategies used to vitiate their effectiveness. From 1860 the miners had the legal right to ask for one of their number to check the tubs were being correctly weighed, upon which the face worker's wage depended. However, as Alexander Macdonald pointed out at the 1867 Royal Commission,

> ... the employer has the power of turning him off ... and they keep turning the man off. (1867 XXXIX: 313)

Keir Hardie considered that by 1892 one-third of Ayrshire pits had exercised their statutory right, because of the 'system of terrorism exercised by the employers' over the whole trade union organisation. (1892 XXXVI: 198, 195) Even in the union areas the change introduced

by the 1887 Mines Act (which made the election rather than appointment of the checkweighman obligatory) caused a fresh series of disputes. According to the Shields Daily Gazette the action of the Hebburn owners in evicting their checkweighmen was justified since the Act 'had changed the position of these employees in regard to the owners....' The significance of the eviction being, of course, that the management no longer considered them as employees (thus forfeiting the right to a colliery house). A spate of similar disputes followed throughout the year, careful investigation of which should provide a useful clue to the degree of paternalism. (March 3rd 1887; D.M.A. Circular September 1887)

Elsewhere miners found themselves able to elect who they wished to represent them, but they couldn't rely on the law when the employer simply dismissed his entire workforce if he didn't agree with their choice, and re-engaged them only on condition it was changed. The voting procedure itself allowed more selective victimisation, twenty seven participants of the Lanemark Colliery in Ayrshire were dismissed on these grounds. (1892 XXXIV: 49, 196-7) It has been suggested that the checkweighmen were the foundation of conciliatory attitudes in so far as they were the first examples of a group of full time workers' officials. (Challinor, 1967/8: 28-30; Webb, 1950: 300-1) This may be so; but their greater significance lay in their role as a transitional non-manual layer, an organisational 'buffer' between the union leadership and the rank and file, irrespective of the ideological consequences. Very few miners were elected straight from the pit to full time officialdom - however, in different contexts this had different political effects. For example, checkweighmen seem to have played an important role in the South Wales Unofficial Reform Committee in the 1910-20 period, but in both Derbyshire and Durham they were identified

by militants as 'employer's men'. (Woodhouse, 1970: 30-65; Williams, 1962: 409; Douglass, 1977: 282-3)

The owners countered the miners' fight to impose certainty at their level of the organisation by a number of strategies. During the price boom of 1872-5 the riddling device, known as 'Billy Fairplay' by the miners, spread from South Wales to other areas. This was designed to allow the management to decide what constituted 'slack' or small coal in each tub, and therefore if it was underweight by an 'impartial' machine - rather than be seen to be deliberately tightening regulations as coal prices rose. (1873 X: 208) Similarly in a depression at a Derbyshire pit in 1895 the men were told to use forks instead of shovels to load coal, and a man employed to travel the pit to listen for the sound of the offending tool. (Williams, 1962: 371) Checkweighmen were often not allowed to get close enough to the weighing machine to check its readings, which themselves only indicated each $\frac{1}{4}$ hundredweight - these and other petty harassments giving a disproportionate advantage to the management. (1892 XXXVI: 60) The weaker the union the more blatant these attempts to undercut the miners certainly were. The Blantyre Miners' Association of Lanarkshire (numbering 800 members out of a workforce of 34,945) stated that,

> Nothing is more frequent than partial reductions when men are plentiful, or in anticipation of an advance, made on the excuse that a place may be softer, the coal easier got .... (ibid: 67)

Finally there was the restriction of output, a trade custom that originated in pre-industrial times, but which became the cornerstone of Martin Jude's Northern Miners Union in the 1840s. By the 1870s the respectable established unions had abandoned it in favour of the sliding scale, but in both Derbyshire and South Wales the policy lived on in various guises. It is interesting that in the weakest union area,

Scotland, it became almost an alternative, i.e. trying to regulate the prices market if failing with the labour market.

> ... whilst it (Lanark) is the worst organised county in Great Britain, I will claim for it that it is the most progressively means of united action and spontaneous action in obtaining advances of wages .... By limiting their output and limiting their days. If they anticipate a reduction, I have frequently known them to reduce their output by two tons a day; and they thereby take command of the market .... (ibid: 66)

This old tactic was absorbed into syndicalist theory, and presented as a new alternative to the 'outmoded' stoppage of work: the 'Irritation Strike'. Whatever the nomenclature its popularity stemmed simply from its ease: only the external pressures of the price of coal could compel the miner to higher productivity and whilst this was so the full rationalisation of the wage contract remained impossible.

Our examination of custom and community leads us to several conclusions concerning the task of reconstructing the experience of mining in the nineteenth century. Firstly, it suggests an intense regional separatism, not entirely due to geological differences, but in fact a product of the industrial structure and markets. Secondly, the system of cultural and social attitudes toward work was part of a wider non-capitalist consciousness, which was strengthened by the 'industrial village' setting of much of the industry. Thirdly, regional peculiarities express themselves in an important way through differences in the wages 'floor' set by alternative, or female employment (agriculture in South Wales, textiles in Yorkshire, are examples). Accordingly we begin with the assumption that, in one sense, there is no such thing as the miners. Their occupational identity, social cohesion, internal hierarchy and work organisation are all empirical questions determined by the local conditions of the general system.

As such similar patterns of behaviour between (say) Durham and South Wales miners are of as much interest as are their differences.

One important consequence of this approach is that it becomes impossible to historically reconstruct the experience of work, and its implications, through the institutional histories of their unions. Taken to its logical conclusion we would have to assume the miners had no history at all before the 1870s (even later in many cases). This is the impression gained through otherwise excellent miners' histories by Page Arnot (1949, 1955, 1967); Edwards (1961); Griffin (1955); the notable exception being J.E. Williams's study (1962). These assumptions are reflected in the following pages where little emphasis is given to the organisational history of unionism. Instead an attempt is made to analyse fundamental sources of the development toward combination - the continuous interaction of work with community and capitalism.

The Miners: Work and the Wages Contract

The previous section showed some of the unique problems involved in investigating the work experience of miners. Work, community and custom are inter-related, and at the level of the industrial field this is more so rather than less. Since with these premises it is impossible to deal with the miners as a homogeneous group, so practically it is not feasible to give an entire description of the twelve coalfields at this necessary level of detail. Three examples will have, therefore, to suffice - indeed only two in real detail. Perhaps the best justification of this is the belief that each coalfield (and in some cases just sections of them) provide enough material for a separate thesis.

The Durham and South Wales miners are used as theoretical 'benchmarks' and form the basis of the substantive analytical material. Here we find certain comparative features: a sliding scale system, charismatic leaders, long histories of coal extraction, social isolation of the mining areas, the dependence on one market for the output and the early associations of both master and men (although under very different circumstances). However, in the course of our examination we will find in reality these two areas and the miners within them could really be separate occupations for all they had in practice in common. Our method here is to compare not to seek a 'model' or 'common basis' between them, but rather to illustrate the reverse - that no such approach is possible.

The inclusion of the Midland field in our examination of miners' experience is purely for comparative, rather than factual reasons. It is not possible here to identify one group of geographically or trade defined miners and link to it the growth of a union, owners' associations, method of wage regulation and socio-economic constraints as it is with Durham and South Wales. For our purposes it is included to demonstrate the spectrum of forms of working, particularly the types of charter or butty systems, and to show their continued vitality in the midst of the industrial revolution: to demonstrate the indirect or intermediate form of wage contract was not a relic of pre-capitalist times. On the contrary, the history of the Midlands fields shows how this is subordinate to the social relations of production, or rather to the antinomies of these relations.

The Durham Coalfield and the Wage Contract

Historically this field has been bound up with export. Firstly, via the Tyne to the London consumer and then increasingly in the nineteenth century to feed the boilers of the world's steam ships and engines. Whilst in South Northumberland a certain amount of 'soft' or domestic coal is found, the main output was from the 'hard' seams - providing a clean ash burning required by the steam engine. (Rowe, 1923: 16; Clapham, 1926: 435) By the 1850s this area produced nearly one-quarter of the nation's coal, but from then the differential with other fields closed, though it was not until 1914 that South Wales and Yorkshire exceeded the tonnage of Durham alone. (Rowe, 1923: 17) Geologically the typical seam is thin, irregular and in the northern areas likely to be wet. As a result the traditional 'bord and pillar' system of working lasted well into the 1920s, especially in Durham; the structure of the seam simply did not permit longwall working which required at least a three foot seam.(Fairbridge M.S., D.R.O.: D/MRP21/2) Prior to the adoption of the sliding scale in 1877 the Durham miners had, after ending the bond system in 1871, been involved in a fortnightly Joint Committee (J.C.) with the Owners. Through this both the advances of 1871-2 and the reductions of 1875 were negotiated, with the D.M.A. Executive vainly attempting to 'police' its own agreements. According to Welbourne the system ended because it,

> ... excited too keen interest amongst the men, and provoked serious discontent. (1923: 177)

Its successor, the sliding scale, had for our purposes two important consequences: firstly, it removed the union from direct responsibility for wages, and secondly, established the principle that prices govern wages rather than any custom or an agreed minimum. Given the high proportion of wages per unit cost in the industry the decision to

revolve remuneration around the fulcrum of price assumes a particular importance. It is important to note that unlike other scale systems it is independent of the effort involved by the individual worker, and in contrast to other wage schemes emerging during this period was not primarily concerned with incentives. In other words, it is in no way connected with the basis of on which work is paid (by piece, day or whatever) but with changes in the rate concomitant on the market price. It thus operates as a 'stick' rather than a 'carrot'. When market prices are rising the miners wage increases with the same output, only when the rate falls is he penalised into working harder to maintain his income. Equally, price rises did not equal wage increments, so that for example in the scale fixed in 1879 by the D.M.A. a 38% price rise meant a 15% addition to the tonnage rates for the miner. (Wilson, 1907: 163)

In contrast to South Wales where the adoption of a scale greatly weakened unionism, in Durham it must be stressed, in formal terms the reverse was the case. The recognition of the D.M.A. was embodied in the operations of the Joint Committee which dealt solely with union officials. Yet the union was also strong enough at local level not to become swamped by the machinations of the scale. Perhaps the crucial difference between the two, is that in Durham the body overseeing the wages question also dealt with all the other issues of dispute sent to them by Lodges or managers. In South Wales the men elected their representatives to the 'sliding scale committee' whether unionised or not and it dealt with that question only. The union was thus totally embroiled in a system over which it did not control, and could not counter at a local level. (Evans, 1961: 122-9) Furthermore, the scale worked to the disadvantage of the miners particularly in the first ten

years after 1875, whereas in Durham the system operated more favourably. Durham regional unity, longer traditions and the single market also aided trade union cohesiveness, as did the agreement to alter wage rates by only 2½% at any one time; in South Wales the statutory change was 7½% for every 1s. per ton rise or fall in coal prices. (Welbourne, 1923: 181; Evans, 1961: 119)

The adoption of the scale in Durham on the instigation of the D.M.A. occurred at the apex of a wage explosion from 1871 and a period of sustained growth of unionism. The owners reaping the benefits of a trade boom conceded advance after advance through the Joint Committee, upon which of course the D.M.A. was the recognised miners representative. In the years 1872-6 according to Lord Londonderry's superintendent of mines (a man called V. Corbett) wages had risen 58¾%. On May 5th 1879 he wrote to his employer urging him not to withdraw from the coalowners association.

> It is my opinion that had there been no Association the advances would have been far greater for no coal owner would close his pit during the continuance of good trade. (D.R.O.: D/LO/C60454-87)

He did however agree with his Lordship's view that,

> The sliding scale agreed in 1877 has been a great mistake, it has in fact (been) most advantageous to the Workmen, and the reverse to the Coal Owner. (ibid)

The minutes of the Durham Coal Owners Association (formed in 1872) for this period reveal the considerable authority this body exercised. Individual collieries were sacrificed to the cause of employer unity. At the height of the trade boom in the 1870s the Owner of Shipcote Colliery was 'instructed' to accept a 12½% rise of hewing prices despite his claim it would be 'ruinous'. (D.R.O.: NCB1/SC/625(i))

Also important in this respect is the 'county average wage' system

in Durham. This was a notional figure arrived at by dividing the numbers of hewers into their total county wages bill each quarter. If the wages of a group of hewers consistently stayed 5% above or below this amount the men or the owners could ask the Joint Committee to alter the rates. In 1912 this figure was 6s.1¼d per shift. In practice however, where working places were bad it was the custom to bargain 'consideration money' with the deputy of the district to bring earnings up to the county average. A D.M.A. survey in 1912 reported 147 out of 190 Lodges used this system. (Joint District Board for the District of Durham: Proceedings, 1912: 14, 58-9)

This (along with the cavilling system) would have done much to ameliorate the inequities and uncertainty of piecework (text: 225-30) and would have been a further boost to local rank and file organisation - beyond the influence of, 'the Durham lot' as Boldon Lodge minutes once called the D.M.A. leadership. (Sept. 19th 1879: D.R.O. DH/Ph/1/12) With less fluctuation built into the system, and local extras won, the scale, at least in reasonable trade periods, neither removed the need for collective bargaining nor led to rapid and demoralising wage cuts.

Both Union and employers expressed similar sentiments toward the Scale (in public at least).

> I have always believed long before it was introduced, that it was the safest and most beneficial system to all parties concerned.

W.H. Patterson, secretary of the D.M.A. told the Labour Commission. J.B. Simpson, for Coal Owners, before the Commission on the Depression of Trade was involved in the following exchange:

> It (the sliding scale - M.R.H.J.) entirely abrogates the wholesome natural effect of the scarcity of labour, or of the super-abundance of labour upon the price of labour? - Certainly that is the effect, but the Sliding Scale has been adopted as a sort of easy method of adjusting differences and preventing strikes. (1892 XXXIV: 323; 1886 XXIII: 211-2)

In the event it was the 'invisible hand' of Adam Smith that had much to do with the end of the scale. As can be seen from Appendix C the first ten years of the scale are marked by a congruence between wages and prices. It is when prices took off in 1889-90 that discontent finally surfaced, i.e. not when the scale actually was at its most oppressive 'objectively' (in terms of actual income) but when it appeared to the miners 'subjectively' as most inequitable - which of course coincided with the apex of their bargaining position in the labour market. After a clumsy attempt to deflect the rising antipathy toward the system (by rigging the questionnaire to Lodges when the Scale came up for renewal in Spring 1889) the Executive issued a ballot paper which included an option for outright abolition, which was adopted by a huge majority. There then followed a series of bitter local disputes: the managers wished to introduce a greater sub-division of labour, in particular the creation of a 'putter-hewer' class, whilst the miners countered by demanding more uniformity of hours, and the accurate definition of working customs. (Welbourne, 1923: 257) In October of 1890, in the wake of the end of the scale, the J.C. also ceased to meet. Following precisely the fall in prices the employers switched from nibbling away at local 'restrictive' customs to a demand for an overall wage cut in January 1892. There followed a ten-week strike during which the Durham leadership recently deprived of Crawford's guiding force was hopelessly outmanoeuvred by the Owners. Not that they had much confidence in the first place; three days after the humiliatingly large majority for the strike they issued the following exemplar of economic orthodoxy.

> No trade however strong, however powerful, can resist a reduction in a falling market when a fall is clearly proved. (D.M.A. Circular: March 21st 1892)

A compromise was reached of a ten per cent cut and agreement to a Wages

Board, after a doggedly solid but tactically inept struggle. Out of this experience came the new leader, John Wilson M.P., who wrote some years later,

> ... the gain would be greater by the avoidance of the struggle. (Wilson, 1907: 182)

This somewhat cryptic logic was to become the basis of the next fifteen years of his dynasty. The main vehicle for this philosophy was the reconstructed J.C., 'under new rules which departed little from those of the past', and whose significance and importance was greater than that of the more historically dramatic sliding scale, vide the Webbs. (Welbourne, 1923: 289)

According to the 1892 Rules the 'powers of the Committee' were as follows:

> The Joint Committee shall have full power to refer to arbitration or otherwise settle all questions (except such as may be termed county questions, or may affect the general trade) relating to wages, compensation for alteration in practices of working, and all questions or disputes of any other description which may arise from time to time at any particular colliery between the owner of such a colliery and his workmen, and which shall be referred for the consideration of the Committee by either party concerned, and the decision of the Committee shall be final and binding upon all parties. (D.R.O.: NCB1/CO/4)

This referred specifically to the Miners' J.C. (there were separate bodies for the Mechanics, Enginemen and Cokemen, of a similar nature) and is the nearest to a 'framework of reference'. The proceedings were published annually often running to over a hundred pages, with up to twelve agreements per page - in 1890 the J.C. had twenty five meetings and dealt with 1,016 cases. (1892 XXXIV: 411)

It has been argued that the Joint Committee,

> ... counted for very little at the level of the colliery itself .... In effect what happened was that wherever the lodge did not ignore the Joint Committee right from the outset, they would ignore it if the results were not to their liking. (Douglass, 1977: 264)

In one respect this is correct: the customs of each colliery often varied from one another and were defended tenaciously. But as we have stressed the last quarter of the century was the period where traditional methods were, in some areas, under attack. For those issues for which there were no agreed methods its decisions were important at a local level. For example, the compensation set for the introduction of Davy Lamps at Leasingthorne Colliery in December 1881 and Brancepeth in August 1877 (at 6/- per score of tubs). Or again the rates for a 'new method' of longwall working in July 1876 at Nettlesworth, and in the use of a 'wedging machine' at Tursdale in October 1886. In other instances, the Committee resolves disputes with the phrase, 'subject to the custom of colliery' particularly those over working arrangements and prices. (D.M.A. 1893) Of course, these may be ratifications of an already locally agreed decision, but as such, especially in the 'new areas', would have a 'knock on' effect into other pits.

These decisions alongside the detailed lists of 'Wage and Trade' customs were the backbone of industrial conciliation. The width of subject matter created a constant formal fortnightly forum (between usually the same six representatives for years) with a bedrock of specific and thus soluble problems. An 'oasis of calm in a stormy sea' as John Wilson called it in 1893. (D.M.A. Circular June 1893) With a county court judge as chairman with a casting vote its role was described as,

> ... simply taking up local questions not general ones. When a general question as to the alteration of hours or wages affecting the whole county arises, it is taken up ... by the Federation Board composed of Miners, Cokemen, Mechanics, Enginemen and the Owners Association. (1892 XXXIV: 313)

It was the fact of the J.C. dealing with these minutiae that gave it its strength. Issues which would otherwise be spread 'horizontally'

between lodges went 'vertically' to J.C. For example, in Northumberland the total average wage of a colliery would have to be under the county rate before an application to Committee could be made. In Durham if any 'flat' (part of a district within a pit) with perhaps as few as six men involved was below the county average they could apply separately. (1892 XXXIV: 416) Apart from the tendency to prolong issues it was also said to weaken the authority of management. If summoned to the J.C. the miner was paid the usual rate for a shift, not surprisingly as one owner observed, 'they like it'. (ibid: 432)

Secondly the establishment of the D.M.A. as the sole representative of employees in the mines through the Joint Committee was conducive to the formation of sectional unions. In December 1872 the Mechanics and the Deputies applied to the Owners for wage increases but were told to go through the Joint Commiee i.e. in practice the D.M.A. As a result the latter along with the Colliery Mechanics formed their own organisations, in 1876 and 1874 respectively, thereby ensuring a place on the Committee. (NCB 1/SC/625(i); Hall, 1929: 11) These were important developments in the structure of trade unionism in the county, and tell us a lot about the nature of the D.M.A. itself. They also provide the backdrop to the argument of the next section, that is, that the D.M.A. was a union essentially representing the interests of the hewers.

The Durham Miners Association: the Hewers Union

As a result of the character of the J.C. the D.M.A. became more exclusively a union representing the interests of hewers. At a M.F.G.B. conference in 1913 the D.M.A. delegate prefaced his comments on the Minimum Wage Act thus:

> Unlike my colleagues from other areas I can only speak for the practical miner of Durham, other classes of labour have their own organisations and their own policy .... (M.F.G.B. 1913: 566)

On the other hand the 'density' of union affiliation was probably highest in Durham. Of the 80,595 recorded as miners in the 1891 Census of the county 48,000 were in the D.M.A. and no less than 30,000 of these were hewers. (1893-4 CVI: 330; 1892 XXXIV: 334) In other words, 6 out of ten miners were in the D.M.A. and six out of these ten were hewers.

The status of the hewer was in part a product of the traditional method of working coal in the North East, i.e. the bord and pillar system. There are many technical descriptions of this but the clearest comes from the memories of a miner at Leasingthorne Colliery. John Kell, born in 1877, began work at the turn of the century in the Brockwell Seam, which was four foot thick. The coal was won thus: first a 'winnin' was cut three or four yards wide up to two miles long, then cuts made into the coal on each side five yards wide, at which point the miner cut left and right to leave a pillar thirty foot square.

> When you are working bord the coal is facing you, when you are working pillar, the coal is end on.

The best comparison, said Kell, was the difference between sawing across wood and down its length. (Kell M.S., D.R.O.: D/MRP23/2) By the time he became a hewer three-shift working was introduced, so the usual group of 'marras' became six, two to each shift - his was typical in that it was linked by family ties (Kell had a brother and

two cousins and two others in his group). The total pay for the six would be collected by one man, usually the eldest, and he would distribute it amongst the rest. In stable groups the division would be equal; differentials for skill or inexperience were low, the essential divide being a member or non-member of the group itself. (Burt, 1924: 110-12)

From the 1880s the newer pits, particularly on the east coast, began to work on the long wall system. It has been suggested that the adoption of this method reflected a new 'technical' or 'scientific' approach to coal extraction, in contrast to the 'traditional' bord and pillar methods. (Trist et al: 1933) In fact it originated naturally in Shropshire in the seventeenth century because of the wider more accessible structure of the coal veins, and until the 1820s when it spread to other areas, was known as the 'Shropshire method'. (Galloway, Vol.I, 1898: 203) Working this way the face is cut 'face on' in walls of 10 to 60 yards long, the waste being used to pack up the roof as it advances, or, when not available, by pit-props. It is more efficient in so far as none of the coal is left behind as support, but in the northern fields where the seams were deeper, thinner and uneven, required more mining technique. Coal cut in this way was, all other things being equal, was open to more rational exploitation. Mechanical cutters could be used, supervision and ventilation was facilitated, the autonomy of the hewing group was lessened and its overall status, and thus job control, declined. (text:233-8) By the 1900s many Durham pits were working both long wall and bord and pillar, the introduction of the former causing hewing prices to fall since extraction was easier from the face. (D.R.O.: NCB/4/6-1912)

However the majority of faces in Durham remained only 3-4 foot high

and the method determined by geology and custom. Despite this and the shorter hours at the face spent by the hewer his productivity was generally, up to the 1900s, very good. (Appendix B) Why was this? Firstly the hewer in Durham was a specialist; tertiary jobs at the face such as stoneworking and timbering were generally done by other specialist groups, in the latter case by the 'deputy back-bye'. (Colliery Guardian January 22nd 1909; Proceedings Durham 1912: 19) For the period of the cavil 4 to 6 hewers would work solely upon a small face, each shift preparing the work for the next. As Wilson put it, by retaining their inter-dependence 'each works to the others hands' and thus the work is done overall in the best way - rather the individual maximising his output to the detriment of the next shift. If preparatory work is necessary or timbering required before the face can be continued, this loss of time is borne by the 'marra' group as a whole for it will in the long run increase their output. (ibid: 152) Autonomy was exchanged for efficiency: on the hewer's side high status, job control and safety; on the employer's side, good productivity and self-regulation of the work.

The employers were well aware of this. After the 1912 Minimum Wage Act had been in operation for a year the D.M.A. requested, through Wilson, the adoption of 'separate tokens' for payment of 'marra' members - in effect individual piecework. This the owners refused on the grounds it would, 'disrupt continuous working'. The request stemmed from the employers avoiding paying the minimum on the grounds that certain miners were not producing the average output (and thus the whole group lost its right to the basic pay). To what extent the rank and file wished the dispute to be solved in the way suggested by Wilson is not clear, but the management's understanding that workface

co-operation benefitef them is. (Proceedings, 1913: 77-8)

The high status of the Durham hewer had consequences throughout occupational hierarchy. For example, deputies in the North East had much lower status and function because of the autonomous nature of facework. Their job described as 'partly manual, partly unofficial supervisor' in 1912 consisted of timbering, checking ventilation, lighting and the state of each working in his district, which was to be visited daily. (ibid: 32; Bulman and Redmayne, 1951: 73-5) The organisation of work, particularly under bord and pillar working was left entirely to the hewers. Thomas Burt describes one such man attempting to distribute men for the back-shift.

> He would puzzle and perspire for a few moments. When he had made his final statement, he always had a few men left that he did not know what to do with. All the time ... we had mentally arranged matters ourselves, and, after we had worried poor Tom sufficiently, and gained a few extra minutes bait-time, we cheerfully resumed the work of the day. (1924: 166-7)

Partly for statutory, partly for disciplinary reasons, bord and illar methods required a larger ratio of deputies to men than longwall: a textbook on mining states the difference as 1:11 compared to 1:19, respectively. (Bulman and Redmayne, 1951: 228)

Whereas in other areas longwall divided the hewers task into three roles (holers, getters and fillers) in Durham this seems to have been resisted. Specifically, there emerged no class of semi-skilled men filling the tubs with coal, this task being rotated amongst the hewers. Even the introduction of coal-cutters initially failed to break the 'marra' system groups simply increased to 16 or up to 26, located around one or two machines. (Proceedings, Durham 1912: 151)

Another factor giving hewers greater influence in union affairs was the fact that traditionally the other major underground task,

haulage, was seen as an apprenticeship for face work. The young lad taken at the pit first as a 'trapper' (opening and closing ventilation doors) would graduate (if horses were used) to 'putters hand' perhaps with the job of anchoring the tubs down an incline or advancing to warn the trappers of their arrival. With hand putting 2 or 3 youths would co-operate until they were strong enough to push a tub each. A visitor to Monkwearmouth pit near Sunderland in 1853 described a distinct hierarchy.

> The term putter includes the specific distinctions of the 'headsman' 'half marrow' and the 'foal'. Where the full tubs or baskets are to be pushed along the rails from the hewers to the crane the headsmen take the chief part; a half-marrow at the end of the train alternately with another half-marrow, while a foal always precedes the train. Where the inclination is steep there are 'helpers-up' to assist at the worst. (Leifchild, 1853: 158)

Pay was by the score of tubs moved (sometimes a 'score' would be 22 or 23) related to the distance from the face - Albert Pallister was paid 1/- at 17 years in 1915 pony-putting. In 1921 he moved to Croxdale as a hand-putter which he described 40 years later as 'slavery'. (M.S., D.R.O.: D/MRP/11/1) After a few years, normally in his early twenties, the final promotion to hewer would be achieved - a rite de passage of community significance. (Proceedings, 1912: 24) Thomas Burt, later to become leader of the Northumberland Miners recalled this transition as follows.

> So far as my work was concerned, I now ceased to be a boy and hence forth was a man. (1924: 109)

After beginning as a trapper Jack Lawson became a putter at 18, and five years later in 1904, a hewer,

> ... with my own marras and picks

and in the same year joined the Boldon Independent Labour Party.(1933:102) As time progressed it seems this type of advancement became less assured, for in 1912 there were, 'considerable numbers' of putters over 21.

Nevertheless, interestingly enough, according to Wilson of the D.M.A., '... we still look upon them as youths'. (Proceedings, Durham, 1912: 24) In the words of 'The Putter' a local song of 1897 by Alexander Barass a pitman-poet,

> Aw'm just a smally laddy, hardly owld enough to hew
> But aw've held me awn at puttin wi the best aw ivvor knew.

Putting was also 'training' for piecework since most were paid by the number of tubs they shifted from the face to the shaft. When working on the same face it was customary to co-operate (signified by the putters hanging their tokens together) otherwise a mad rush for the available tubs would follow. A putter of persistently 'independent' spirit would soon find mysterious 'accidents' occurring to his tub or the sudden loss of his tokens for the day. (Lawson, 1933: 59-60) In this way the 'marrowing' system of the hewers was passed on in another form to their putters who, on reaching face-work, were accustomed to cooperative methods.

In short, the specialised role of the hewer and the de facto apprenticeship combined with the reality that their work was the fulcrum of the pit's operations, gave them a high status in the community and the life of the local Lodge. There are numerous examples of the County and Lodge officials rising from the position of hewer or checkweighman - undoubtedly ex-hewers. (Marshall, 1976: Appendix F)

Because of the 2-shift system the hewers formed a higher proportion of the colliery work force, than in other areas. However, their more specialised role means this does not show up clearly in national comparisons, the definition of the hewer used in Durham, would be quite different to that in South Wales, where he would carry out a number of tasks. (Appendix table a) This type of information is available in a limited form in the surviving 'cavilling sheets' which

list the occupations of all those involved. For example, Emma Pit in 1893 employed about 120 men underground. Adding 20% to this for the total workforce, the hewers (70) made up 58%, at Hamsterley Pit in 1912, 54% and at Lumley in 1900, 50%. (D.R.O.: NCB 1/SC/566-8; D/MRP 21/2; NCB 2/31) In table b in the Appendix the county average is 42%, but this is of course affected by the specialised definition given to the hewer in Durham, as reflected in the high percentage of 'other underground labour'.

As pieceworkers the hewers and putters set the pace for the rhythm work of the pit and as such their disputes reverberated throughout the workforce. The dense web of conciliation, the fulcrum of which was the Miners Joint Committee, rested on the co-operation of the faceworkers and in this respect confirmed their leading status. In particular in the North East the practice of cavilling and its effect upon job control and wage determination of face-workers has to be considered in detail.

'Cavilling' and Job Control

The fact that during the years in question the instruments of production in the mining industry were not revolutionised does not mean the miner was immune to other aspects of 'factory' industrialisation: speed up, closer supervision, punitive discipline and so on. One response to this by owners of the north was the institution of cavilling, though it originated as Galloway suggests in the eighteenth century. He describes it as a mining custom,

> ... peculiar to the north of England ... regulating the distribution of ... working-places among the miners by lot, thus effectively preventing any partiality on the part of the colliery officials. (1904 Vol. II: 358)

Why then did it not spread to other mining areas? One possible explanation may be in fact that the North East coalfield had no recent history of small petty production. As early as the 1600s the 'Hostmen' coal producers of the Tyne were considerable entrepreneurs and for over two centuries were able, through close ties with the House of Commons, avoid both serious taxation and any legal challenge to their monopolist trade with London. This combined with a policy of organised suppression of competition via the purchase of land and way-leave leases, frustrated the emergence of a class of small colliery owners. When the restrictions were ended in the 1830s the geographical development of the field had passed beyond the simple drift, or bell mine: exploitation required considerable investment. (Sweezy, 1938: 9-60)

As a result the tradition of wage-labour (albeit with a yearly bond) established very early amongst the miners the principle that differences in earnings would have to be solved 'internally', since there was no prospect of future promotion to be a small master or a 'butty'. Cavilling can be seen as a response consolidated before the transformation of the industrial market for coal which the miners maintained throughout the industrial revolution and after. In virtually every other region large scale production emerged only in the 1820-40 period, before which the drift mine was the typical unit. (Galloway, 1898 Vol. I: 471-7)

Whatever its origins cavilling was a very important link in the miners struggle to retain, collectively, the rhythm of work. Of course ultimately for the hewers with their piece rates for considerable periods tied to the selling price of coal, and always subject to revision by the coal owners, was just as subject to the market, as was the Spinner

or the Engineer. However, unlike these latter the northern miner does not seem to have been imbued with the ethic of work maximisation, perhaps because the nature of the job ultimately denied a necessary relation between increased effort and extra reward (apart from any intervention by the market or the management).

The system of rotating work places by a random allocation whilst benefiting the hewers as a whole led to sharp changes in income, possibly up 100% every 13 weeks. (Fairbridge M.S., D.R.O.: D/MR21/2) Also, the partnership of the hewer and his 'marra' instilled a natural co-operation often over long periods of time - again at odds with the individual maximisation of wages.

> ... it was not unusual for some men to be as much as 30% more productive than their partners and remain marras throughout their coal hewing life. (ibid)

Cavilling agreements are widespread in the record of North East pits. Often written in impenetrable colloquial language, they specified how often, which seams and flats were involved, the procedure for integrating 'strangers' into the labour force. Although very similar colliery cavilling rules were not standardised and their negotiation and maintenance gave considerable scope for local leadership. The D.M.A. Executive usually ratified Lodge decisions, Boldon branch refusing to let the 'Durham lot' interfere with a cavilling dispute on the grounds it was based on 'local knowledge'. (Minutes M.S., D.R.O.: DH/Ph71/12)

At each redistribution of working places output inevitably fell, as the new team accustomed itself to the new conditions, struck local bargains over the conditions and investigated the problems that lay ahead. John Simpson manager of Heworth Colliery wrote to a client on the 3rd April 1879.

> I cannot promise more than 650 tons per day ... as this is cavilling day and Monday is certain to be a poor day. (D.R.O.: NCB 1X65)

Moreover, on the day lots were drawn (usually a Monday) little work was done, the Joint Committee minutes giving many examples of complaints by owners that the day was treated as a holiday. (D.M.A. 1893: 80, 296) Simpson appealed to the D.M.A. to reconsider his request to have each seam cavilled separately (rather than throughout the pit or colliery)

> ... the working of the Beacham seam is so totally different from the working of the Hutton and Beaumont seams ... the new men cavilled into the Beacham seam do not get into the way of working until some weeks after the commencement of each quarter .... (D.R.O.: NCB 1X65)

The refusal of the Lodge to allow the cavils to be drawn was used as a weapon in collective bargaining. Once a new working, or 'flat' was opened the management would wish to start work in it as soon as possible, a situation which could be used to the men's advantage. In April 1878 Boldon Committee refused to 'cavil through' until a wages dispute was settled, a tactic also used at South Medomsley in March 1884. (Minutes M.S.: op.cit; Shields Daily News March 6th 1884)

Cavilling was also a means of 'democratically sharing' redundancy. Instead of management simply discharging the men in worked out districts, the miners pressed for the choice to be made by drawing lots - at least ensuring the sackings were not a disguised form of victimisation. (D.M.A. Council Meeting, 23rd July 1881)

To summarise: the 'classic' form of cavilling occurred quarterly, involved all the hewers and their putters throughout a pit or colliery (occasionally including two or three if they were closely situated) and the flats in each pit. (An example is those for Emma Pit, as agreed on June 28th 1893. D.R.O.: NCB1/SC/566-8.)

However, as we might expect, this procedure was under constant attack by the Owners, perhaps before but definitely from, the 1870s when most record begin. To begin with the owners wished to cavil pits

separately, i.e. not throughout the colliery - thus minimising the disruption of work. From the Joint Committee minutes are the following examples:

> Burnhope - this agreed for 2 cavils and then discussed again. Feb. 1877
>
> Seaham - agreed cavil pits separately. Oct. 1878
>
> Boldon - separate cavillings. Agreed Feb. 1882
>
> Deaf Hill and Trimdon - Owners ask these pits to be cavilled separately, as the lessors of Trimdon object to men living in their houses and working at Deaf Hill. Agreed March 1885. (D.M.A. 1893)

This last example shows how cavilling could involve pits of formally different owners, which by tradition had been placed together - possibly because the extremes of working conditions found in them and their proximity. Clearly it would be of little advantage to the men if the pits offered similar advantages and disadvantages. This did not go unchallenged; the minutes note numerous 'deferments' and 'objections' by the local Lodge, and several collieries are discussed repeatedly over a number of years. (ibid) The issue was 'finally' decided by the Cavilling Agreement of July 23rd 1908 which stated:

> ... whether seams should be cavilled separately or together will be decided on the merits of each case and <u>apart from the customs of each colliery</u> .... (My emphasis. D.M.A. 1930)

Another tactic was to press for the cavil to take place less frequently, perhaps only twice or even just once a year.

> Burnhope - Agreed cavil every 6 months. June 1877
>
> Washington - Agreed that cavil every 6 months. Dec. 1882
>
> Victoria Garesfield - cavilling to be every 12 months. Oct. 1886. (ibid)

The more management restricted the swapping of workplaces the more open would be the labour force to manipulation, in the form of incentives and bonuses, and a subsequent loss of job control, as the two following

minutes reveal:

> Hebburn, 'That the manager be at liberty to let or cavil for places as he thinks proper ....' Dec. 1877.
>
> Brandon C Pit, 'The men request if the Secretary be allowed to sit and take a copy of the cavilling sheet ....' Nov. 1888. (ibid)

The loss of the timing of the cavil was not just a formal question; the management could open a new flat and ask for tenders, once filled the vacant cavil would be filled by the Overseer's choice of 'spare' men. Over a year or six months the integral control over work distribution would gradually be lost, and with it the material interest the colliers had as a group in rotating the vicissitudes of the pit. This was common enough to spur the D.M.A. to issue a circular in 1881 asking whether lodges had managed to get such practices embodied in cavilling rules. (Douglass, 1977: 236)

Another weakening of this system occurred with development of the 'fillers' or 'rippers' (the workers shovelling the 'out' coal into the tubs) not being cavilled along with the hewers. Naturally as a piece worker as many were, particularly in the bord and pillar system, their earnings were linked to the prosperity of the 'flat' and thus via the cavil to the miners as a whole. Instances of this occur in the records of Langley Park pit in 1915, and at Auckland seven years earlier. (D.R.O.: NCB 4/6; NCB I/CO/141)

Thus by the early twentieth century we find cavilling rules severely curtailed and modified in favour of labour control and discipline. From the 28th August 1912 at Langley Park, the Harvey Seam (and all bord and pillar workings) will be,

> ... cavilled separately from all other seams .... The hewers will be required to marrow themselves in such sets as the Management may desire, and will be required to hand in the names comprised in the set to the Overman three clear days before the cavils are drawn. Should not any man do so they will be marrowed by the Overman at his discretion .... (D.R.O.: NCB 4/6)

Or, again from the Cavilling Rules of Heworth Colliery in 1916:

> (1) All seams to be cavilled as one pit. Each district to be cavilled separately ....
>
> (3) The longwall method - Each place to be cavilled for as a permanent cavil and to claim it as far as that range of coal goes belonging to that flat ....
>
> (NCB 1X/62)

The whittling away of the reality of cavilling procedure over the last quarter of the century is difficult to trace accurately, but these fragments are suggestive. They also give us some grounds for an assessment of this custom.

An influential view is best summarised by Douglass,

> The cavilling system was the fundamental way in which the Durham miner managed to maintain an equitable system of work and managed to stave off the competitiveness, bullying and injustice of the hated butty system. In essence it was an embryo, of workers control, as can be seen from its ability to handle disputes between sets of workers without recourse to outsiders. It was a little Soviet which had grown up within the capitalist system. (1977: 239)

However, this view is contradicted to some extent by the above examination. Firstly, we have argued it was not an alternative to the 'butty' system, since this was ruled out by the pioneer character of the North East coalfield. But more importantly to what extent is Douglass's 'heroic' view of cavilling and job control justified? On the credit side there is local organisation required to establish and monitor the cavil - not least the election of the cavil leaders (two signatures usually appear on agreements from the men, and are not those of the local Lodge officials). This is one area the Joint Committee did not colonise. The occasional references to cavil customs being used in wage bargaining are significant in this respect, e.g. Boldon Colliery, April 3rd 1878. (D.R.O.: DH/Ph 71/12) However, it was essentially a <u>defensive</u> mechanism. Cavilling, for example, <u>coped</u> with sackings rather than being a basis for opposing them: a democratic

sharing out of the fluctuations of the market. Its pre-capitalist origins adapted to the 'casualisation' of the labour market which were mainly contested through the emergence of the County unions, not cavilling.

The apportioning of unproductive 'flats' was, as Douglas points out, handling the problem 'without recourse to outsiders', by which he means the managers. But it was also 'without recourse' to the rest of the miners as a national body. When in 1911 the Miners Federation took up the question of 'abnormal places' (particularly in South Wales) they took the position that a miner,

> ... working at the coal-face at the fixed tonnage rates to receive full wages, if employed in an abnormal place, the rate to be the average rate of wages previously earned by the workman under normal conditions, which shall not be less than the recognised minimum, or county average paid in each district. (Emphasis in original. Page-Arnot, 1967: 59)

In other words, dealing with the problem by establishing a minimum to which additions be made. The North Eastern section of the union had historically been the least enthusiastic advocates of the minimum wage, preferring instead the sliding scale. When at last converted they found to their embarrassment the Owners opposition echoing their own arguments against the minimum in the Federation. (ibid: 82) We may fairly summise that cavilling and the sliding scale were in this way linked: they both accepted the logic of market forces, and their combination in the North East coalfields was not coincidental. Further acquiescence to market forces is evident in the practice of leaving a pit if a bad cavil was drawn when employment was good, as recalled by Joe Parks, a Durham miner in the first decade of the century. (Parks, 1975: 34) A feature of mining life also experienced by the young Thomas Burt in the 1860s and 70s. (Burt, 1924: 20-36)

Finally, it is important to note the reasons for the declining

role of the cavil in the present century. As we have seen the national union has taken responsibility for this, although that by no means signalled the end of North Eastern customs. Nonetheless it did mean a decline in its function as a fulcrum for rank and file activity which was expressed through movements over wages and discipline. (Douglas, 1977: 265-281) In comparison to (say) the Engineers shop steward the cavil-leader declined rather than expanded with the growth of 'mature' industrial relations. In so far as the introduction of coal-cutters cut the extremes in output between 'flats' and shortened the time the new arrival was unfamiliar with the vagaries of the working, the cavil was diminished in significance as a regulator of work.

The Hewers: status and stability

After the interlude to consider the role of the cavil it is finally useful to look briefly at the changes in status and work in the decade up to the War. As we noted elsewhere the supremacy of the North Eastern field was under threat from the 1880s, both domestically and in the export market. Being the oldest field, despite the exploitation of the eastern 'sea' pits in the 1900s, overall it experienced the greatest pressure of diminishing resources and returns. Appendix B shows clearly how despite this the productivity of the underground worker (which was essentially determined by the hewer, whose hours were comparatively short) remained highest until the 1905-9 period. This occurring in a field in which the degree of job control was most refined, the pressures aforementioned notwithstanding, demonstrates how autonomy was here in fact correlated with high output.

Throughout the negotiations over the Minimum Wage Act in Durham the owners comments reflect an appreciation of this fact. As a first example from the pre-Act discussions we might look at the introduction of coal-cutting machines. Their use increased the cooperative face groups from 6 or 8 to 16-26, nevertheless they had persisted with the custom of a collective wage distributed amongst them. On this question for the D.M.A. Wilson asserted the effect of the Act would be to transform this division into a simple average and thereby weaken the bargaining for 'consideration' money. Inter-dependence was not only useful for the hewers but for the management - overall over a longer period the work is completed in the best possible manner, and the individual was not left to scramble to maximise his output on one shift or face to the detriment of the next shift and the rational working of the face as a whole. To this submission the owners fully agreed; they too wished to impress upon the Chairman the importance of 'collective responsibility', as they termed it. A 'trade-off' is apparent here. The hewers retain their right to bargain for the vicissitudes of the workplace, whilst the owners gain, via the maintenance of the 'internal' control over the method of work. (Proceedings, Durham 1912: 150-3) In fact the 1912 Agreement was to founder on this very question of averages amongst co-operative groups - to which we will return as a second example of the owners appreciation of autonomy.

But what of the results of the negotiations over the Act itself? Firstly, it must be remembered the backdrop to this Act was the effect of the Eight Hours Act in Durham - from 1909 the vast majority of pits began introducing a three-shift system of working combined with two of transit hands. This was to the detriment of the hewers in terms of

their family life, if not affecting their hours of work since they already were well below the maximum. (Webb, 1921: 70-2) The putters on the other hand gained a clear reduction of two hours per shift. As a 'sop' to the hewer basic rates for pieceworkers were raised from 3/8d to 4/2d, from which he proportionately gained more. (Rowe, 1923: 169) The three-shift system was, nonetheless, in union councils very unpopular, 'the greatest mistake the agents had ever made' according to the Auckland Lodge secretary. (Colliery Guardian September 23rd 1910) The Executive had its decision not to support strikes against its introduction overturned on at least two occasions. (D.M.A. Circular, February 1910, June 1910)

Some reflection of this conflict can be seen in the following table which will be repeated for the other areas, and shows the union claim, the award and the percentage the latter is of the former.

TABLE I

Grade	Trade Union Claimed	Awarded	(2) as a % of (1)
Hewers	6/1.25d	5/6	89
Timber-drawers	6/6.39d	5/8	86
Fillers	6/5.25d	5/10	91
Hand Putters	5/1.05d	5/7	110
Pony Putters	4/9.43d	5/7	114
Labourers	5/-	4/7	92

(Proceedings, Durham 1912: 2, 6)

Unlike any other area here we see an award of a minimum actually above the union demand, i.e. in the case of the putters. This is further convincing evidence of the D.M.A.'s domination by the interest of the hewers, a bias sharpened by the experience of the Eight Hour Act. Expressed in terms of differentials the picture is as follows:

TABLE II

Grades Compared	Trade Union Demanded %	Award
As between Hewers and Putters (Pony)	23	0
" " " " " (Hand)	23	0
" " " " Labourers	24	19

Clearly the putter's status was viewed more highly by the Joint Board than by the D.M.A., a position no doubt influenced by the increasingly militant stance taken by this grade of worker in the four years since the Hours Act. (Colliery Guardian September 16th 1910)

As we have previously said, the 1912 Agreement was to founder on the question of averages. The D.M.A. called for a renegotiation in 1913 because it claimed the co-operative workgroup method of working created a loophole for the employers to avoid the Minimum Wage Act. Wilson argued that in a group if one member fell below what was considered the 'customary' output for one shift ('a weakling' as he put it) all forfeited the right to the minimum. As we noted earlier Wilson suggested as a solution the 'separation of tokens' of hewers, in effect individual piecework. It is not clear how far this had been discussed in the Union, certainly the Circulars of the time do not mention this specific proposal. Nonetheless, the owners rejected outright what would have been a revolutionary change in the field because they said it would 'disrupt continuous working'. (Proceedings, Durham 1913: 71-8, 78) Once again the employers recognised the independent work group might be obstructive at the level of the individual pit, but overall its ability to autonomously cope with the ever-changing character of work and rationally exploit coal reserves outweighed this. This view was strengthened by the fact that the Act empowered Deputies to decide when the minimum was forfeited if he judged the face was not being worked 'right' - so in a sense leaving

responsibility with the group but 'rescuing' quality control for the management. This the D.M.A. vociferously opposed (since of course it affected hewers mainly) and the matter went to arbitration. (ibid: 80-5)

As a final example the debate in 1913 is yet another illustration of the weight of the hewer within the D.M.A., albeit now challenged. We have tried to show how this flowed implicitly from the organisation of work, not in a technical sense, for as fast as this became 'normal', a system of rewards and privileges quite separate from work arose around it. This too had a 'material' influence - the control of the lodge, checkweighman and agent - in so far as it became the route to electoral positions in local government.

Cavilling, that unique expression of the hewers occupational solidarity, has to be seen in this context of the struggle to maintain status. Therefore equasions, sociologically or political, with 'workers control' are misplaced: whilst conferring advantages for the whole underground workforce, its prime concern was the defence of one grade. In doing so, of course, the hewers were forced to confront the problems of the pit as a whole; in particular the maintenance of the internal hierarchy demanded the organisation of haulage and ancillary labour. The debate over the Minimum Wage nevertheless illustrates how limited this 'spill over' was, as does the general role of the D.M.A. in the Federation at this time.

To emphasise the point once again: the hewers sectional interests could to an extent be served only by 'universalistic' policies and strategies - this comes over perhaps best at the level of community, a feature strengthened by their social isolation. In playing <u>this</u> role their sectional outlook was probably altered more than by the changing status at the face. The more the Union became embroiled in national

politics the more this would become a factor - certainly this experience seems to have been important in the development of the socialist left element in the D.M.A. (Douglass, 1977: 283-290; Lawson, 1933: 102-8)

The South and North Midland fields

These two inland fields are united in their origins with the internal and local demand for coal in the sixteenth century, and also in their relatively late expansion into areas of national economic importance. (Nef, 1932, Vol. I: 56-60, 65-67) In the south (Staffordshire, Cannock Chase and Leicestershire) the principal output is the 'soft' domestic coal, also used in manufacturing and gas. In the North (Derbyshire, Nottinghamshire, and South Yorkshire) the field is divided geologically between the 'soft' seam in the East and the 'hard' or 'Barnsley bed' in the West and South. (Rowe, 1923: 26-7; Williams, 1962: 22)

In contrast to the Northern pits the labour force in the Midlands area was, up to the 1870s very fluid; seasonal work in agriculture was a common alternative for the miner during depressions. (Nef, 1932, Vol. II: 184) As a result work was less specialised, the scale of operations smaller and the surrounding network of distribution, capitalisation and trade less developed. It is therefore interesting to note that this was one of the last areas for piece-rate payments to become normal, and, perhaps as a consequence, coerced labour and truck

to be eradicated. (ibid: 182-3; Williams, 1962: 28-31) The 'cash nexus' was thus less well defined, as a result of the underdevelopment of the industrial order; so we see in the Midland fields a plethora of wage contract forms and working methods. Indeed until the early years of the nineteenth century wages often took the form of a weekly or fortnightly 'subsistence' which did not bear any strict relation to the earnings of the period. At intervals the account of each miner was reckoned and the balance handed over. From this system both employer and employee gained certain advantages: the latter had a type of minimum wage and the former a method of deferring part of the wages bill until ready cash was available. (Ashton, 1928: 322)

The main market for both fields has been domestic, and the output diverse. Trade was subject to cyclical and seasonal fluctuations, but generally more stable than fields based upon export. For example, Derbyshire in the 1880s was producing mainly house and gas coal, as was Nottinghamshire. In about 1896 a 'top hard' seam traversing both counties was developed and as a result by 1913 around 25% of the Derbyshire, and 50% of the Nottinghamshire production, was steam coal. (Rowe, 1923: 24-5) Another example of the relative flexibility of these fields is the rapid rise of the Yorkshire output to feed the steam engines of the woollen and worsted mills. Between 1870 and 1910 output increased $3\frac{1}{2}$ times rising to constitute 16.7% of total production by 1913. (Jevons, 1915: 69; Rowe, 1923: 14) As a result of its later development and even seams such coal cutting machines as were available were concentrated in this field, 601 being reported in 1912, about one-fourth of the total for the U.K. (Jevons, 1915: 69)

In terms of growth both fields, whilst expanding fastest from 1876-1914, did not greatly increase their share of the total output.

Staffordshire and Worcestershire's output went up by an average annual rate of 4.52% 1854-1865; but thereafter up to 1886 only by 0.24%. Derbyshire for the same years produced an increase of 6.06% and 3.14%. From this period the latter county had the fastest growth, by 1913 output was up 50%. (Williams, 1962: 213) By 1913 the southern field produced 8.6% and the north about 19% of the total national output. (Rowe, 1923: 14)

According to Jevons the wages in Yorkshire,

> ... are distinctly lower than in the North Eastern, Scottish or South Wales coalfields. (ibid: 70)

This he attributes to the opportunity for female employment in the mills.

> In determining the supply of labour the wages of family are really the effective factor; and where the necessary family maintenance is found partly by women, the men's labour comes to be paid at a lower rate. (ibid)

This is the case for the South field but not for the North where coal-getting wages were above average. (1919 XIII: 92) The evidence if anything suggests a stronger causal relationship between low wages and agriculture: Somerset, Forest of Dean, Shropshire and Leicestershire having the lowest, with Lancashire (the centre of textiles) about average. (ibid) Jevons general point concerning the role of female labour is of course not vitiated. In Derbyshire by the 1860s mining had become sufficiently stabilised for depressions to cause distress, rather than an exit to alternative employment. Equally the boom of the 1870s further stripped the 'stagnant trades' as mines,

> ... spring up like mushrooms, working some cases a few weeks or months at most. (1873 X: 22)

The character of labour was said to be 'irregular'; high wages brought universal increases in leisure pursuits, the Derby miner prefering the same income and two days with his pigeons, rabbits or drink,

> ... indeed in some cases the workmen have preferred improving the conditions under which they work to increasing the amount of their wages in money. (ibid: 24)

The larger colliery companies began in the late 1860s and 70s to build the pit villages reminiscent of the North, with the panoply of benefit clubs, schools, churches and other paternalist symbols. But in no sense did the region become as regionally homogeneous, nor as in South Wales were particular areas dominated by huge combines. (Williams, 1962: 74-9)

The Butty System and the variety of the Wage Contract

Virtually the only analysis of this system in print is A.J.P. Taylor's article of 1960. In it he asserts it was a product of the early stages of capitalism, where it persisted (largely in Staffordshire) were essentially industrial backwaters. Labour was scarce but was 'undisciplined' i.e. not trained to the incentive principle. As a result management was passed down from the owner of the means of production to a type 'face foreman' who bargained a price for the coal, then set about the organising of the work to make it pay. The decline of the system was due to its inefficiency, rather than rank and file opposition, in other words, to its irrationality in the face of the all-embracing notion Taylor has of capitalist industrialisation. (1960: 215-34)

In 1844 according to the Mines Inspector for the area the unruly state of the miners was largely due to the 'butties'

> ... who furnish part of the capital, and who being only a little raised above the condition of the labouring men are led ... to exercise their authority harshly ....

Truck was not principally due to these men but to the 'large employers' of the Wolverhampton area - a point confirmed by the experience of mining in Derbyshire. (1844 XVI: 56, 59; Williams, 1962: 61-6) It was these

areas in which the notorious trade in pauper children flourished. In May 1842 a circular was sent from the Poor Law Commissioners to the Guardians of the various parishes to enquire how common the practice was. South Staffordshire replied,

> ... such is the demand for this class of children by the butties that there are scarcely any boys in the union workhouses of Walsall, Wolverhampton, Dudley and Stourbridge.

Fifty-nine children were dispensed in this way from ten workhouses in the area in between 1840 and 1842, and bound for up to twelve years with only food and lodging guaranteed. (1842 XXXV: 21-35) The Children's Employment Commission provides further details of the inter-relation between butties, truck and child and female labour - but as the researches of the Hammonds has shown these practices were not the preserve of petty producers, but primarily in the enterprises of the large landowners. (1928: 172-6)

This then is the traditional Dickensian view of the butty and his world - a sad, but thankfully short interlude in the progress toward industrialism 'proper'. But in 1873 the system was still flourishing - 'Chartermasters' subcontracted seams at a fixed price, and put in charge 'pikemen' at each stall (8 to 10 yards) along the face. These men supervised the extraction process and were on a piece-rate, the stall workers were paid by the day. (1873 X: 27-8) By introducing a <u>further</u> level of sub-contraction the system had adapted to the rising size of pits.

This also allowed the 'butty' method to be integrated with a form of sliding scale of wages. In Staffordshire a scale was introduced in 1874 which took account of the two basic different types of seam in the area, the 'thick' and 'thin' beds. Wages were to rise and fall in line with the price of the former - a basic daily allowance paid called a

'stint': actual earnings constituting one and a quarter to one and three quarters per nominal day. This went through several revisions and in 1884 a Wages Board was added to ascertain a more fair price of the coal throughout the area. Up to the 1890s the system still operated smoothly according to the Chairman of the Owners' Association,

> We have had differences requiring modifications, but the wages board somehow have agreed together upon the modifications, and satisfactorily. (1892 XXXVI: 102)

The crucial point is that these 28 years of the scale had not dislodged sub-contracting. The Chartermaster delivered the coal at 'certain prices' and made his own arrangements and engagements of the men, which could number from 40 to 200 miners. The Scale did not regulate the price between the owner and the Chartermaster,

> ... the chartermaster has a definite price for the work done; and the wages scale is for individual colliers; he has to pay his men on the sliding scale rates. (ibid)

This man would supply the tubs, picks and other tools whilst the owner the rails and timber. In such pits customary payments in kind of coal and beer were allowed to the hewers. The hewers also benefited slightly by shorter hours; fillers, loaders, labourers, etc. would work the full nine hours, but the face worker could finish in seven or eight depending whether, 'his place was favourable or unfavourable'. (ibid: 102-3) 'Abnormal places' were dealt with by the collier applying for a reduction in the 'stint' or nominal output he was expected to achieve. Apart from the manager and under-manager everyone else was employed by the Chartermaster.

With the formation of the Midlands Federation in September 1888 a small section of Staffordshire miners under their guidance had been agitating against the Scale. Partly as a result of this pressure, partly due to increasing technical problems, some of the newer collieries

began operating a modified form of sub-contraction in which ultimate authority was vested with a colliery owner's employee - an overman. He engaged small groups of four to five miners to win and load the coal ready for its haulage to the pit shaft. Unlike the Chartermaster system they were 'on the books' of the colliery, although still paid as a gang. (ibid: 104)

It was this variation which persisted into the twentieth century, whilst the Chartermaster system divided into two types. Firstly, the man who bought all his own materials and paid the owner a 'royalty'; secondly, where he was provided with all the gear and was paid so much per ton. Of the survivors 80% continued in the first system and so were largely found in the smaller concerns. (1908 XX: 890-4)

The large pits of Staffordshire still used the gang system. Three such groups would be allocated a section of the face of approximately twelve yards, a 'stall',

> What we call a stall will contain three of these superior men called stallmen .... There is always a leading man to whom we let the stall. That is to say in the colliery books we recognise one man as being in sole charge of the stall, but he has with him two men who are equally as good colliers as himself. (1907 XIV: 87)

The leading men paid their loaders and fillers a daywage, 'they are really little contractors' in two or threes, employing from four to twelve others. (ibid: 101)

The genealogy of the system can be seen as the slow permeation of the incentive principle to lower and lower grades of the colliery workforce, and thus with it the increase in direct employment. But the privileges and status of the small contractor was also a bulwark against the spread of unionism, since that became synonymous with univeral piece-work. The leading hands amongst the stallmen constituted in one pit

16% of the workforce, but generally seem to have been opinion leaders for the rest. (ibid: 87) They were universally opposed to the Eight Hour Day whereas:

> The numerical majority of the men would, no doubt, be very pleased to have an eight hour day, so long as they got enough money from it. They are not the responsible men. (ibid:99)

These face gangs were fairly generic in the distribution of tasks depending on the seam, if, for example, it required 'holing' this would be the preserve of the 'leading men' under the Chartermaster, but in the 'ten yard seam', or thick coal, it was timbering which required the greatest skill, and thus the occupational hierarchy organised around this. (Rowe, 1923: 64-5)

A slight variation on Staffordshire existed in Cannock Chase. Here again a sliding scale was introduced in 1872 and lasted up to 1883. The basis of wages,

> ... are regulated by what we call the 'holers day' or 'stint', and in all agreements it has been based upon a sum of 3d to 1s.

This customary payment was adjusted in relation to the ease with which the individual miners could work his 'stint' in his allocated working place, but no set figures were agreed - it was a bargain with the management. It was this uncertainty that caused the disputes and led to the conclusion of the scale system. (1892 XXXIV: 346-7) Two stallmen engaged five to six others per stall, of these men the holers would be expected to undercut nine feet of coal per 'stint', but in fact it was a customary day to do 50% more than this, they could then leave the pit. The timbering and 'cogging' of the face and the under-cut was the responsibility of the stallmen who, along with the loaders and fillers, would work the full 12 hour day. This gang was paid per ton: the holers' pay determined by the depth of the under-cut and the 'stint'

pay for that place; the stallmen on the price current for coal to the owner; and the rest on a day wage. (1907 XIV: 75-7)

Finally, a brief account of the method used in the Forest of Dean. Both the form of longwall and the contracting system were unique. In the house-coal pits the face was cut in wavy lines in accordance to some pre-industrial custom separated by 'trolley' roads. These ways were very low, and required an extra layer of workers known as 'hod boys' to drag baskets of coal to trams in the higher central roads. The trams held up to 20 to 30 hundredweight, this size necessitated by the fact that the shafts were only equipped for single-winding. This in itself encouraged gang work at the face which up to the 1920s was universal. (Rowe, 1923: 151) The coal-getters were paid by the ton and employed their own assistants, up to ten were necessary in some stalls, on a day wage. His contract was to get the coal to the main road where haulage was also often organised through a contractor. (1907 XIV: 39-40)

So we can see that there was no universal development toward one form of wage contract or work organisation. It should be stressed that all these descriptions are taken from accounts in the ten years before and after the turn of the century. Furthermore, these wide divergences co-existed within close proximity and in the same seams, their survival yet more evidence of the inertia of custom. But <u>also</u> of the ability of all sorts of 'irrational' non-capitalist wage forms to continue simply because they 'worked'.

Derbyshire: subcontracting and unionisation

Here we will be concentrating on the activities, working methods and union of the miners of this county, although again the field in which they worked crossed the boundary to Yorkshire which had to a degree its own separate organisations and customs. What all these areas have in common is that, unlike Durham, there developed no comparative system of a 'county average wage'. Each colliery in Derbyshire had such lists of prices but no machinery existed at a county level for assuring some uniformity. (Webb, 1920: 194) A further common factor was the absence of a predominating market or type of coal - domestic, steam, anthracite and some exporting was undertaken from the area. In terms of worker organisation this removed the impetus of an external centralising market or trade feature. Thus at various times collieries for steam coal were flourishing, whilst those for domestic coal declined, as for example, during the early 1860s when the former escaped the crushing depression of the 'Cotton Famine' years. (Williams, 1962: 49) The union, the Derbyshire Miners' Association, established in 1880 was the first of our three compared areas to break with the sliding scale principle and to join the M.F.G.B. in 1890. This was a pragmatic rather than principled decision since none of the Midland fields had Scales extant by the 1880s, although at various times they had been attempted. (Arnot, 1949: 80-87)

The lack of a standard price list throughout the county had a number of consequences. Firstly, the change in cutting price per ton caused by alterations in the face had to be dealt with pit by pit i.e. the regulation of effect to earnings is individualised and not spread as a collective problem. Clearly here the uncertainty of effort is resolved at the expense of the face gang via the form of

subcontracting.

Longwall was worked through a system of 'little contractors', each stall being 'let out' to two butties who employed 6 to 8 others along a length of 22 to 28 yards; this group was responsible for getting, filling and loading of the coal as well as the maintenance of timber and roads in their area. The two stallmen would average 7-10s per day and the fillers and loaders 4/6 to 7/-, the differential being 'a bargain between them and is not set by the Company'. (1892 XXXIV: 386-92) At the Butterley Colliery Company the butty had larger responsibility but could not engage or dismiss those under him: here the two contractors supervised 45-60 yards of the face, that is, three to four stalls. The hewers had to be paid a 'minimum' rate per ton for cutting or loading, but of course it was up to the contractor to ensure the rate of effort made his price profitable. (ibid: 716) One such contractor was William Kerry of Alfreton in Derbyshire; after ten years as a hewer he had 'through patronage' been offered the opportunity to tender for a price from 'face to pit bank'. He thus recruited face and haulage workers sufficient for the task, mainly between the ages of 14 and 21 years,

> ... all I have to do is to superintend them whilst at work. (ibid: 445)

This has some similarities to the 'marra' group of Durham, in so far, as the face gang autonomously decides how each lie of coal should be tackled, its rates of pay, membership etc. Yet in Derbyshire the 'minor' difference of the <u>formal</u> leadership of a sub-contractor led to major differences in the organisation of work and the strength and structure of unionism. The crucial point seems to have been the <u>causalisation</u> of the face gang; in Durham although one hewer would collect and distribute the pay, his colleagues would normally be of

longstanding and often kin. As we have seen, it was also entirely composed of equals with little permanent specialisation, and therefore low differentials. In Derbyshire from the fact of sub-contracting the reverse was the case - high turnover of membership, a variety of grades included, high differentials and only the leader paid by results. Unionisation, in contrast, to Durham emerged despite of these men.

Indeed the Derbyshire union refused to send representatives to the Labour Commission on the grounds that it had initially invited witnesses, who they termed 'buttymen against the Union'. (Williams, 1962: 311) The stallmen were apparently well organised enough to separately resist management attempts to abolish the system, and in at least one case struck successfully on this issue. (1892 XXXIV: 702) Their role as 'opinion leaders' in thepits undoubtedly hindered the spread of trade union ideas and principles. One exception to this, stallman and unionist John Burnett, told the Commission that ballot papers on various issues passed via the checkweighman to the stallman and then to the rank and file. The replies were not sealed and he was convinced this process led to intimidation.

> ... they (the loaders and fillers - M.R.H.J.) take the same course as the stallmen suggest to them ... as a rule I find that. (ibid: 446)

The general effect of sub-contracting in Derbyshire was to resolve the uncertainty of the relation of earnings to effort at the expense of the day-wage face-ganger. The struggle for the standardisation of conditions and allowances thus became the basis of trade union policy, and its main recruiting appeal. The stallmen, whose percentage relied very much on his own negotiations with the Company, could see no advantage in this at all, and in fact had a vested interest in the lack

of formal terms and prices.

Informality for example was the way in which the question of 'slack' in the coal was dealt with. Each 'ton' was in fact several hundredweight over its imperial measure to allow for this. The coal boom of 1869-73 allowed many miners to press for the election of checkweighmen to replace this system; at the Butterley Colliery this was secured and a 'ton' reduced from 3000 to 2800 lbs, then in 1872 to 2240 lbs. (Griffen, 1969: 22-25)

It is not surprising that the Derbyshire Miners' Union made its priority in the late 1880s the standardisation of printed price lists at collieries - too often trade improvements leading to higher wages had been 'clawed back' through management reducing allowances or increasing the fictional 'ton'. (Williams, 1962: 302) As collieries prospered or foundered so wages fluctuated up or down, one Owner claimed for every pit there was a different selling price and thus a rate of pay. (1892 XXXIV: 702) The disparate nature of collieries resulted in each having its own Contract Rules - these specified duties but not prices. For example from the Blackwell Colliery for 1877:

> Every stallman or Labourer may from time to time without notice be removed by the Owners from his pit or stall, or other work, to any other pit or stall ... he shall not object to any such removal ... and shall be paid for such work after the current rate of payments established at these mines for such new work at the time of every such removal. (Griffin, 1967: 14)

By 1892 the Union claimed the principle of a price list was accepted at every colliery, but this was not at all the same as arriving at uniformity. A M.F.G.B. investigation in 1890 of 69 Derbyshire collieries showed hours at the face varied from 7 to 10 hours, the decisive factor undoubtedly being the effectiveness of local activity. (Williams, 1962:

305) On average those employed around the face worked 9.28 hours, 7.88 of which at actual coal getting - almost exactly the same as South Wales but 35% longer than in Durham. (Munro, 1891: 250)

Not surprisingly the Derbyshire Union strongly supported the legal enforcement of the Eight Hour Day since with a membership of around 12,000 in 1890 out of 53,396 miners they stood little chance of achieving this aim through bargaining. (Williams, 1962: 246; 1892 XXXIV: 392) However, the councils of the Union and its strength on the ground were, as we have seen, limited by the organisation of work.

However, over the last ten years of the century we see a gradual change in attitude and status amongst the stallmen - resulting it will be argued in their 'colonisation' of the Union. In 1892 they had resolutely opposed a Miners' Federation ballot on the Eight Hour Day, and through their influence over the men had it rejected - they alone stood to lose by its adoption. (1892 XXXIV: 446) When this same question was discussed again in 1907 there had occurred a general shift in attitude of the stallmen - alongside their rapid absorption into the Union itself. (Williams, 1962: 385) By the 1900s most of the larger Companies in the region had effected a change to a system of 'letting' stalls to gangs all of whom were employees. The stallman's responsibilities, differential status and influence, thus gradually declined. (Griffen, 1967: 16) Although still the leader he could no longer 'hire and fire' or arrange his own level of payments to the holers and fillers; also increasingly haulage became a specialised and separate task. It is not surprising we see a change of tactics: the manipulation, rather than the frustration, of the Union for their own interests. We have, thanks to J.W.F. Rowe's calculations clear

statistical evidence to back up these impressions. Firstly, in Table I, his comparison of wages per shift in 1888 and 1914 (the available records compelled him to consider Derbyshire and Nottingham as one field).

TABLE I

Year	Piece Work Coal-Getters	Haulage	Timberers, Rippers	Underground Labourers
1888	5/4	4/-	4/8	3/5
1914	9/10	6/8	7/-	5/8

(Rowe, 1923: 72)

As with the other areas we can construct from this a guide to the maintenance of differentials. Expressed as percentages the results are as follows:

TABLE II

Year	Hewers cf. Hauliers	Hewers cf. Labourers
1888	35	58
1914	48	75

Thus despite the rapid rise in unionisation, the shortening of hours and the minimum wage, piece-working hewers and other skilled workers had increased their differentials vis a vis other unskilled workers. This, as we shall see, contrasts with the experience of South Wales where the rupture of the face-workers' control over union policy in 1893 was reflected both in the demands and the actual results of trade unionism. In Derbyshire our brief investigation of the relationship of the sub-contracting system to union policy coincides with the view expressed by their biographer that up to 1914,

> ... the miners unions of Derbyshire and Nottinghamshire were dominated by the skilled workers during this period. (Williams, 1962: 440)

Finally, an examination of the figures in the Minimum Wage Board for Derbyshire in 1912. Because of the differing work methods, the comparison uses its own nomenclature. For the most relevant grades the picture is as follows: the first column the union demand, the second the award, and the third the latter as a percentage of the former.

TABLE III

Grade	Trade Union Demand(1)	Award (2)	(2) as % of (1)
Contractors	7/6	6/8	88
Daymen	7/-	6/-	85
Holers	7/-	5/8	80
Loaders	6/-	5/2	86
Fillers	6/-	5/-	83

(Proceedings, Derbyshire M.F.G.B. 1912: 56)

As with Durham the Union's claim is fairly close to the final award, and again unlike South Wales no one grade does particularly well - though we are not as fortunate as to have here the figures of the various grades earnings under the minimum. Assuming 'fillers' to be roughly equivalent of the class of hauliers or putters the relationship is as follows:

TABLE IV

Grades Compared	Trade Union Demanded	%	Award
As between Contractors and fillers	33		25
As between Contractors and loaders	33		21

Neither grades were able to press their case in relation to the contractors, and as expected the award reduced the differential by about a third. As with other comparisons this tells us nothing about earnings, but reveals the forces of vested interest within the Union

and the resultant influence on policy. The earnings 'drift' in terms of differential we can see almost doubles this figure i.e. from 25 to 48% by 1914.

Table (e) in Appendix A shows that as late as 1919 nearly a third of hewers in this area still remained on day-wage, and in 1912 this figure was 42%. (M.F.G.B. 1912: 54) The slow permeation of the incentive principle is related to the degree of subcontraction, as we stressed elsewhere this is related to nationalisation of the wage contract and the industrial structure. This brief examination of the Midlands, and Derbyshire in particular, illustrates yet again the lack of linear development, the ability of sub-contracting to adapt to large-scale enterprises and the ideological manoeuvrings this causes amongst emerging trade unions.

South Wales

The origins of the exploitation of this field lie in the history of the Iron trade which stimulated much ancillary working in the central area around Tredegar and Merthyr. Being initially allied to the fortunes of another trade led to random and fluctuating working, up to 60% of available coal was typically lost, and that produced was often too small for steam use. (Morris and Williams, 1958: 57-9) It was not until the slump in iron prices in the sixties that as Jevons points out, the ironmasters turned their attention to the,

> ... sale of coal as a source of profit, a policy which they have ever since continued. (1915: 204)

By 1877 output had reached seventeen millions, 35 million in 1897, 56 million in 1913, greater than any other British field. (Gibson, 1922:59) Nonetheless, there remained many small enterprises which emerged as trade quickened,

> ... much of the extra production was obtained by the multiplication of new units rather than by growth of the older undertakings. (Morris and Williams 1958: 134)

The rise of steam coal mining in the 1860s was meteoric, causing a huge migration of labour from the southern agricultural counties of England to the artifically created pit villages. Only a few years earlier in 1856 a chronicler of the coal fields gave South Wales hardly a mention. (Leifchild, 1860)

The decline of the Iron trade from the 1870s left a good deal of capital and know-how available for investment in the new, more lucrative, 'hard' large coal to drive the expanding Navy and Merchant Navy fleet. The emergence of the steam coal trade on the foundation of the iron trade led to a greater degree of concentration of ownership than was typical of other fields. Whereas in the forties and fifties, grocers, famers, clergymen and victuallers could be found frequently amongst the owners of pits, by 1874 four concerns accounted for 35.5% of the fields output and the next fourteen for 30.2%. (Morris and Williams, 1958: 136)

From the 1870s the majority of output went into the export trade, primarily powering the steam engines of the world's ships. The very abundance of the South Wales field did not make diminishing returns and declining productivity serious problems. Only 1% of output was cut mechanically in 1913, less than any other area (the same year as output was at its greatest).

As A.J. Taylor has noted, productivity in the coal industry rose

steadily until the 1880s and thereafter declined. (1961-2: passim) South Wales followed this pattern: annual output per man rose from 224 tons in 1874 to 368 in 1883 - its highest point (Appendix B). The ensuing decline has been attributed to an increase in the numbers of ancillary workers (the proportion of hewers to others fell by 5.3% between 1889-1914). (R. Walters, 1975: 281) However, even at its highest point productivity in South Wales was 92 tons below the national average, an average heavily influenced by 'easily' won coal in the smaller pits of the Midlands and Scotland. (Clapham, 1938: 63) Furthermore such comparisons are partially vitiated by the amalgamation of statistics relating to domestic, steam and anthracite coal, the latter two having greater pithead value per ton. Having made this qualification we can note that, along with the rest of the coal industry, increased production was largely achieved by labour recruitment, where lies the significance of the fall in productivity, not vice versa.

It is important at this point to note a divergence of interest between the ironmasters and the colliery proprietors pure and simple in the 1870s, as both moved in to exploit the steam coal trade, which was to colour the whole structure and efficacy of the union movement. The iron collieries had already established pools of labour, supply routes, with lower mineral royalties and wages. This advantage was demonstrated in a strike in the Rhondda and Aberdare Valleys in 1871: the iron collieries conceded 5%, but the sale-coal owners hoping to close the wages differential refused. In the event an arbitration award gave the latter $2\frac{1}{2}\%$ and stipulated that in future sale-coal wage rates should rise or fall pari passu with rates at the Ironmasters pits. The inevitable conflict occurred a year later when the iron and coal trade fortunes diverged. The sale-coal masters recognised the Miners

Union and were prepared to match the rise in selling price of coal. Meanwhile under the terms of the arbitration award the recession in the iron trade was supposed to lead to a general reduction. In these pits a strike began in 1973 involving some 70,000 iron workers of whom 11,000 were colliers. A compromise solution ended the dispute after 12 weeks, and from then until mid-1874 unionism grew rapidly. (Evans, 1961: 106)

This probably contributed to the founding of the first united association of coal producers in 1873, bringing together the existing Sale-Coal organisation with the Ironmasters. This alliance of 85 companies, partnerships and individuals, producing around 80% of the field's total output, was sufficiently organised to win a two month lock-out in 1885, forcing a 12½% wage cut. This event was decisive in obtaining agreement for the first sliding scale. (ibid: 104 - 110)

The Sliding Scale and Unionism

The historian of the South Wales miners has argued that due to the Scale

> ... effective trade unionism ... virtually disappeared, nor did it re-emerge in full vigour for nearly a quarter of a century. (Page-Arnot, 1967: 25)

The workers' cause was also not aided by the decision, taken by a conference, said to represent 43,000 men, in 1875 to establish an effectively decentralised union structure with the burden of funds and decision-making in the hands of each district. This, in the context of the emergence of the Joint Sliding Scale Committee (J.S.S.C.) and the divergence of interests between sale-coal and ironwork colliers, was to prove very damaging.

The first Scale agreed in 1875 was to last (with only three revisions) until 1902, far longer than any other comparative system. It was administered by a J.S.S.C. of six miners and six owners - over its 27 years, 51 of the former and 28 of the latter served upon it. The first discussions centred upon the legitimacy of profit by employers and the right of a minimum for the miners - which they achieved. (Duggett, 1977: 150-6) Unlike Durham's J.C. it had no umpire or arbitration process and appears to have interfered more directly in local pit disputes outside the rubric of the Scale itself. (1892 XXXIV: 573) A past Chairman of the Owners' Association stated 90% of the cases discussed arose from claims made by the workmen for alterations to their allowances,

> ... they can scarcely be called coal disputes; they are small claims ... they are small and trivial and should be settled at home between managers and men .... (1892 XXXVI: 142)

This undoubtedly reflected the lack of local union organisation of which more will be said later - but for the present the reasons for this essentially lay in two areas: firstly, miners represented the J.S.S.C. in their pit or area not, as in Durham, vice versa. Secondly, the Committee itself arose out of a defeat of independent unionism after the five month lock-out in trade conditions not favourable to the miners.

The first scale, agreed in December 1875, coincided with a general price decline and its conditions definitely favoured the owners. Whilst a de facto minimum was agreed, the increase in wages accruing from rising prices of $7\frac{1}{2}\%$ for every 1/- ensured the major part of the proceeds went to employers. Furthermore, alteration occurred only every six months, and if, for example, the price had risen by only 11d wages were not affected and vice versa. (Evans, 1961: 117-20) This inflexibility reflected the owners' concern for stable production costs and output,

and the rationalisation of competition both between, and in, fields. In a statement of 1890 their Association recalled that before the scale wages fluctuated by up to 15 or 20 per cent and,

> ... because of frequent strikes it was impossible to get consumers to enter into contracts to take regular supplies. (Gascoyne-Dalziel, 1895: 100)

Over the following 3 years wages fell by $7\frac{1}{2}$, 5 and 10% and the regional structure of the union disappeared by 1879. The main reason was probably complicity in the wage cuts, but the Union was also unable to defend the customs and traditions of working which were increasingly threatened as the owners competed with one another to reduce costs. These practices were not governed by the scale, and unlike Durham, local bargaining strength could not maintain them. (Evans, 1961: 123)

The structure of the J.S.S.C. is significant. The miners side was elected by delegate meetings of only 30 to 35 persons, whose expenses were met in the main by a 2d per month deduction from each collier's wage by the office and handed over to their agent. Under these conditions he became,

> ... very largely the servant of two masters. (Jevons, 1915: 306)

He had neither a strong local district, nor the back-up of a well organised regional leadership, independent of the Sliding Scale Committee. As a result the only centralising body of the workers was through their representation on the J.S.S.C., with no parallel union structure. Furthermore, the miners had in 1871, 73 and 75, fought long and costly strikes which ended in the financial collapse of the independent Amalgamated Association of Miners in South Wales.

It is worthwhile to pause for a moment to examine more closely the

state of organisation amongst the miners by the 1890s. In their notes for their book Industrial Democracy the Webbs collected a large selection of papers, press cuttings and minutes, from which they constructed the following division of the South Wales miners into three groups. Firstly, the trade unionists proper under the auspices of the Swansea, Neath and Llannelli Miners Association, plus a small number of Miners Federation members in Monmouthshire. They had proper lodges, and voluntary contributions, regular meetings and elections and so forth - they numbered some 13,800 in 1894. Secondly, the 'quasi-unions' of the House Coal Miners Association of the Rhondda Valley, they had no lodges, but their 5,000 members paid voluntary contributions to finance delegate meetings who elected men for the J.S.S.C. Finally, there were what would be called today 'company unions' - the Cambrian Association, the Anthracite Miners, and the Aberdare and Merthyr Miners' Associations. They had no lodges, and contributions to the J.S.S.C. were deducted at source by the management and then paid to their agents - they encompassed some 25,000 miners. (L.S.E. Webb Collection: Section A Vol. 26: 156-204) Given there were at this time some 124,655 miners employed in South Wales and Monmouthshire, then only 35% were in any type of organisation at all, and only 11% in a bona fide union.

Perhaps as a result of this weakness these groups tended to be dominated by one figure, and above them all stood 'Mabon', William Abraham, M.P. for Rhondda for over 30 years from 1885. True to Weber's antimony between bureaucratic and charismatic power Mabon's appeal and direct influence was inversely related to the growth of orthodox unionism. A contemporary recounted,

> If any friction arose and pandemonium - so easy to rouse so difficult to quell - Mabon never tried to restore order in any usual way. He promptly struck up a Welsh hymn, or that magical melody, 'Land of my Fathers'. Hardly had he reached the second line, when, with uplifted arms ... he had the whole audience dropping into their various 'parts'.... (Smellie, 1924: 160)

The J.S.S.C. itself had a kind of parody of this magical authority in its reverence for the price of coal. Each quarter the Chairman would open a sealed envelope containing the ascertained prices over the last three months, and the wages of tens of thousands of men were thus determined. Its simplicity and its inhumanity were its strengths - no one 'was to blame' as it were, the market governed all and its 'holy order' could not be questioned. (Duggett, 1977: 189)

So to summarise the main differences with Durham are threefold: in Durham a J.C. preceded the adoption of a scale whereas in South Wales the two coincided. As a result in the former case trade unionism was recognised, established and independent of, the scale, particularly locally - this was not so in South Wales. The regional and trade unity of Durham contributed towards the maintenance of common interests, in South Wales considerable diversity existed in the industry and the conditions under which the men laboured.

It is not surprising, therefore, to find the surviving miners' agents in the main wholehearted supporters of the scale - the alternative must have appeared as no union at all and unrestricted wage reductions. (Evans, 1961: 128) Official opinion, such as Alfred Onions, secretary of the reformed Miners' Federation, was that,

> The sliding scale is the best way of dividing profits between employed and employer. (1892 XXXIV: 598)

It also protected the individual leaders 'empires' in each region or trade by insulating disputes, in particular the steam coal miners gradually did better out of the scale than the house, or anthracite miners. The revised 1880 scale was clearly beneficial toward them, fuelling the intercine strife. In the face of this various 'speed-up' changes were made to working methods such as the introduction of an extra man into the usual 2-man stall, and the enforcing of Contract Rules

regarding prosecution for hewers who left the face without permission. (Duggett, 1977: 186-7; Evans, 1961: 129)

With no grass roots organisation or central leadership it is not surprising to find the J.S.S.C. dealing with issues of a local nature, rather than simply ratifying or solving disputes already discussed by the colliery owner and his men. Isaac Evans, a supporter of the scale, noted that,

> ... many of the officials use the Sliding Scale Committee as a sort of cloak, and consequently send the questions to the Sliding Scale Committee to be dealt with rather than deal with them themselves. (1892 XXXIV: 573)

Of course without a lodge structure the local agent had to bypass the individual employer, which in turn hindered the growth of a local leadership. For example, Evans recounted an instance of an owner refusing to discuss a pay dispute with his own men, saying this was the job of the J.S.S.C. A nine-week strike was the result until two arbitors from each side were appointed; other examples show how the relationship of the J.S.S.C. to the miners produced this combination of sporadic militancy and quietism. (ibid: 574-5)

It is important to note the J.S.S.C. did not mean, as in Durham, the recognition of trade unionism. On the contrary the owners attitude was deliberately vague, both unionists and non-unionists were delegates to the J.S.S.C. The following exchange took place on this point at the 1892 Labour Commission, Edward Jones an Owner in the Rhondda Valley is the respondent.

> But you have official relations with the Union? - We have official relations with the representatives of the men as a body or not. (1892 XXXIV: 140)

Since neither the non-unionised or unionised men seemed able to successfully resist the imposition of the scale, it is not surprising

those unions which did survive were local and apparently dependent on charismatic leaders, such as William Abraham ('Mabon'), Isaac Evans, David Morgan ('Dai o'r Nant') and William Brace. The union was even denied the focus of organising a relief fund. This was astutely set up by the Owners in the 1880s; contributions to it were 'virtually obligatory' and deducted at source. As such the men were obliged to contract out of the Employers Liability Act. (ibid: 622) A prominent employer said of it:

> I consider this is one of the best institutions that has ever been formed among the workmen of our collieries ....

As an inducement the owners added 25% to the miners weekly contribution of 3d per week:

> ... with a view of contracting themselves out of the Act and of countenancing and patroning a fund that they (the employers - M.R.H.J.) considered to be of great benefit to the working classes. (1892 XXXVI: 143, 153)

Finally, concomitant on the lack of widespread lodge organisation there seems to have been no growth of a parallel informal structure of local agreements, thereby allowing the regional committee to discuss the wider issues. At every point the J.S.S.C. was brought into disputes a priori, rather than as in Durham, a posteriori, which in turn inhibited the emergence of local regulatory norms. The implications of this for development of oppositional currents have been discussed briefly elsewhere - for the present it is sufficient to note that the contradiction still underlay the successor of the J.S.S.C. the Conciliation Board established in April 1903.

This body has one singular advantage for the miners - its Chairman for the first 3 years generally accepted their view that wage cuts could not be introduced as a result of cut-throat competition between the Owners. (Page-Arnot, 1967: 98) The breakdown of 'industrial

relations' and the street-warfare of the 1910-14 period cannot be simply related to the traditional quietism and disorganisation of the Welsh miners between 1875 and 1898. I have already indicated the importance of the lack of a centralising fulcrum of workers' organisation of these years, and the effect that the J.S.S.C. had in substituting for this role, effects which were to colour the character and structure of militancy in the years leading up to 1914.

The organisation of work unionism, and the status of the hewer

In the first half of the nineteenth century mining in South Wales was subordinate to the production of iron, much was extracted ad-hoc in 'patches' or by drift mines. Ventilation and pumping techniques were primitive since the target, house coal, was generally easily available. Even those attached to the larger ironworkings typically employed less than 200 persons and miners alternated between this, ironworking and agriculture as demand fluctuated. (1892 XVII: 60-72) Haulage was undertaken primarily by boys, employed by the faceworkers working in twos in the post and stall (or bord and pillar) system. Badly organised this could leave as much as 60% of the coal behind as roof supports, and it also encouraged the production of small coal useless for steam engines. (Galloway, Vol. II, 1904: 238)

Once the capital and technique was available exploitation of the steam coal could move ahead. Geologically the hard coal of South Wales lies midway between the thin seams of Durham and the wide seams of Derbyshire and the South Midlands. Seams tended to be between 4' and 9' wide and lie, especially at deeper depths, in natural layers or 'slips' i.e. fairly loosely. (1907 XIV: 3) There was, therefore, no

great technical problems in introducing longwall working. At the Dowlais Collieries it was said to have reduced waste from 40% to 15%, but according to the manager speaking in 1868:

> The main obstacle to overcome was clearly the hostility of the men (because of) the complications of maintaining a continuous working face when the men were so irregular in their attendance. (Morris and Williams 1958: 61)

This same crusader of modernisation compared their haulage methods to those used to build the Pyramids (ibid: 69). Whilst improvements were made in the larger steam coal collieries a more typical view comes from a miner reporting to the Mines Committee in 1866. He stated there were 20 boys under 14 to every 100 adults in the stalls whose job was to 'draw coal back in boxes' to the tramway. They were usually family groups working in and about the stall and the boys worked the same hours, 10 to 11. In sea coal pits work was casual, if a ship was delayed in arriving only 4 hours would be worked, but if the harbour was busy, 15 or 16 - no stocks at all were held at the pit bank. (1866 XIV: 195-6) Twenty-nine years later an employer's statistician description of work in the region in remarkably similar terms:

> The workman and his 'butty' or a boy, as the case may be, having cut the coal, put it into an iron box with their hands. No shovel or other means is used in filling the box. The box when full is pushed, along the ground to a truck, or as it is known a 'tram' and emptied into it. When the tram is filled the workman puts his number on it in chalk figures and it is pushed by him to the siding, whence it is hauled by an engine rope to the bottom of the pit. (Gascoyne-Dalziel, 1895: 109)

It was the geology of the deeper pits and need for a steam coal that determined the <u>form</u> longwall took, and from it the status and occupational hierarchy of face and ancillary workers. In wording of a mining engineer:

> The work of a collier in our steam-coal pits has been greatly changed of late years, since the sinking of our deep pits and

> the introduction of the longwall system of working. There is more creep, squeeze or crush now in the deep pits than there was formerly in the shallow ones, and this squeeze loosens the coal making it easier to get, but at the same time it makes the roof more troublesome and dangerous, and though it gives the collier less trouble to get the coal, it no doubt gives him more trouble to keep his roof up .... (1892 XXXVI: 155)

So as a result timbering could not be a job apart from face work, each attack on the coal given the wide character of the face, required immediate support.

> The slips are so frequent ... that a man must always be ready with his post to defend himself and it would not do to wait till somebody else came there and did it for him. (ibid: 161)

The role of the hewer was thus far less specialised. Each wall was divided into stalls 12 to 15 yards long divided by a gate to a tramway for the hewn coal. The collier was responsible for all the work within the stall and up to the road or, as it is termed, 'back to the parting' - hence the need for highly complex price lists to determine his pay. (Proceedings: Joint District Board for the district of South Wales, 1912: 21 - henceforth Proceedings: South Wales) A mining inspector described how different this was to the Durham pitman who continuously hew the coal,

> ... but with us a man uses a pick for a short time only. By the use of the pick the coal is detached and then he has a lot of other things to do. He has more watching of his roof than a North country pitman has. There is the labour first of all of cutting a little coal and then conveying it to his tram and setting a post, and he has to change the kind of work frequently .... (1907 XIV: 3)

One estimate put this non-hewing time at 30 to 40% of the shift of nine hours, during which $7\frac{1}{4}$ were actually spent working at face (the rest taken up by travel and refreshment) meaning a collier could spend as little as $4\frac{1}{2}$ hours actually hewing - a partial explanation of the low productivity. To aid in the principle ancillary face task the 'drawing' and filling of coal into the trams the colliers typically

employed a boy helper, around two-thirds would be under 21 years. In tighter more difficult seams two skilled miners would alternate face and loading work, but this was rare by the 1900s. (Proceedings South Wales: 24) The helper's status and wage was considerably lower than the hewer, although paradoxically as has been implied the hewer himself had not the same prestige and influence as did the specialised colliers: this was reflected in the differentials between them.

The obsessive concern of the collier in steam working was the winning of large coal. In most seams coal interspaced by stone when brought down after being holed was not separated at the face, except by the 'primitive' means of being filled by hand only. This induced up to 25% of otherwise usuable coal to be wasted as it was thrown to the side of the face to form side support along with the obvious stone. (1903 XVI: 182, 159) Even the commissioners could not hide their amazement that a quarter of the nation's steam coal reserves were being deliberately wasted as policy of the coalowners.

> 25 per cent of the small coal is wasted? - No, 25% of the whole. Do you really mean of the whole? - Yes. (ibid: 161)

As the market for house coal improved some pits introduced different wagons to take small lumps - up to the 1900s wagons had sides of bars instead of being closed so only lumps could be carried; elsewhere the tram,

> ... is a low, flat vehicle, and the coal is piled up. It is not suitable for small coal. (ibid: 161, 185)

The pressure on the face worker for this type of coal increased the danger, since a quick but unstable method of loosening large coal was to allow the 'squeeze and creep' to progress i.e. timbering in a way designed to pressure the face itself. Particularly, in Monmouthshire this technique was widespread since it removed the time consuming job

of holing under the face. Longwall working in these geological conditions increased the likelihood of roof falls, but the wage structure, which in the main allowed no pay for small coal, encouraged these practices. (Proceedings South Wales: 62) Managers claimed they had no power to curtail this:

> I beg to differ from you when you say the management would have full control of the face in all cases, because I think the men control to considerable extent. We have tried a number of times to get men to pull out timber, and notwithstanding that, they will not pull it out. There is nothing that spoils the face more than leaving of the back timber, which throws the weight upon the face and crushes the coal. (1903 XVI: 244)

Throughout South Wales the collier generally used three times more timber per ton of coal than any other field. (1892 XXXVI: 172) The implication of this was that the owners had little incentive to reduce the use of coal for packing since only the former was a direct charge on unit costs and thus profits. The labour of setting the timber as supports was circa 130% the price of the material, which was not paid as well as coal output: thus, both management and miners, through the pressure of the market, had an investment in an irrational method of extraction. (1903 XVI: 203)

The 'skill' of the collier in this situation therefore lay in the recognition of the 'slips and cleavages' in the coal face and the judicious use of the pick to 'hole' under them, thereby loosening (in large size lumps) coal to be dragged to the transport. In this there had to be a fine balance between the loosening and the timbering of the face, in other words, productivity was directly related to safety, which combined with the large influx of inexperienced agricultural labour in the 1880s and 90s produced the highest death and accident rate in the country. In 1897 South Wales contained 18.6% of the total mining population but incurred 24.6% of the accidents. (1892 XXXIV:

172-3; 1899 CVII: 136)

The system of working and the lay of the coal required a considerable back up of ancillary labour. The hewer was not as dominant numerically, nor was his role as 'aristocratic' or an occupational apogee. An employer gave a ratio of 500 face workers to 500 officials, hauliers, labourers, repairers, etc. in a hypothetical colliery of 1000, adding that the majority of recruits to a mine went to the face, nominally under supervision (although Union agents claimed this was frequently disregarded). (1892 XXXIV: 169)

The pits being deeper and the size of coal crucial, haulage was a definite occupational group apart from the hewers. There was next to no hand work, ponies or engines being used, and the job had marked esprit de corps and was not as in Durham a preparatory role for facework. (Proceedings South Wales: 31)

The repair work on the roads was done by timberers mostly paid by piecework, each of whom had an assistant to whom he paid a day wage. These men will often be colliers' helpers who on the age of 19 or 20 become too expensive for the face worker to pay and if they do not graduate to the face would be taken on here. Hereditary influences were important in South Wales as was nationality - nearly all hewers were Welsh and graduation to the skilled jobs was dependent on family connections. (ibid: 22,43)

By the 1890s direct wage contracts were the norm, although as we have seen this was symbiotic to a series of individual sub-contracts in all grades. Chartermasters were by no means extinct however. The agent for the Miners Federation reported in 1892,

> ... contractors at some of the collieries who are not only contractors in the mine but they keep grocers shops and drapers shops and public houses ....

As elsewhere they compensated irregular work and low pay by liberal quantities of free beer during the shifts. (1892 XXXIV: 619)

The faceworker was overwhelmingly paid by the piece but his wage, because of the generic role he was called upon to do, was not solely made up of the tonnage produced at the pit top. (Appendix A: Table c) An estimate in 1919 suggested up to 26% of the South Wales collier's wage accrued from work other than coal getting and filling. (1919 XIII: 206) His less specialist position is also highlighted by relatively low ratio between this layer and the haulage class. (Appendix A: Table d) Unlike virtually every other region the hauliers were paid a day wage which fluctuated with the price of coal they were moving in accordance to the principles of the sliding scale. In other words, they could not compensate for a fall in this price (and their wage) by working faster, unlike the colliers. Whereas in Durham the structure of the incentive principle tied these two groups together, here it served to divide their interests and in the process created tensions within the development of unionism.

As with Derbyshire it is not as easy to link the organisation of work to the structure of unionism as it is in the more homogeneous Durham. But there are several obvious points arising from the period of the Scale andJ.S.S.C. Firstly, the division of the field geographically and by product (house, steam, iron collieries and anthracite) found almost exact reflection in the divisive union or quasi-union organisation. The miners representatives were elected on these market boundaries, and much of the struggle on the Committee seem to have been more directed to obtaining the best deal for their respective constituencies, rather than the miners as a whole. Speaking of the hauliers strike this comment by the Webbs illustrates a more general point.

> The position of the South Wales coalminers is even more striking. Not a third of the 120,000 men are even professionally members of any Trade Union, or in any way represented in the negotiations, and of the organised workmen a considerable proportion, forming three separate unions, and each covering a distinct district, expressly refused to agree to the 1893 Sliding Scale, and withdrew their representatives from the joint committee. Nevertheless, the whole of the 120,000 men, with infinitesimal special exceptions, find their wages each payday automatically determined by the accountant's award. In this the associated employers, in alliance with a minority of the workmen, enforce, upon an apathetic or dissentient majority ... a method of remuneration and rates of payment which are fiercely resented by many of them. (1920: 209-10)

Over the 1870-90 period the J.S.S.C. gradually became dominated by the steam-coal interest and the Scale revised accordingly. (Duggett, 1977: 186-7) But with the hauliers strike of 1893 the stage was set for the first steps toward a full regional independent union.

In January 1893 a committee was formed, based in the Rhondda Valley, to press the case for a 20% rise in wages for the hauliers. The background to this was a series of eight quarterly reductions under the provisions of the 1890 Scale - as day workers whose wages were tied to this they were at both the most numerous and autonomous class of workers, yet the least able to counteract the Scale's influence as were piece workers. (Gascoyne-Dalziel, 1895: 181) The hauliers' protestations were not merely rejected, but simply ignored by the J.S.S.C. in August 1893 - the miners representatives issuing a statement to the press that their action was in violation of agreed procedure. The colliers support was also patchy,

> ... whereas in Glamorganshire the strike was entirely due to the action of the hauliers, in Monmouthshire the hauliers were distinctly supported by the colliers. (ibid: 182)

From this dispute arose the figure of Isaac Evans, a J.S.S.C. member, but opponent of its workings and bitter personal and political foe of William Abraham. His influence was to link the militancy with the newly

formed Miners Federation of Great Britain who had, according to the Webbs' notes, had probably no more than 3-4,000 adherents in 1890. At the height of the hauliers action involving up to 40,000 men, a resolution was passed calling upon all to join the South Wales section of the Federation. This was a portent rather than an initiative but it did signal the first significant challenge to the Scale principle; concretely it did lead later to the formation of the 'Hauliers and Wagemen of South Wales Association'. The organisation's members joined the Sliding Scale Associations in order to propagandise for the Miners Federation and against the Scale, after failing to maintain the momentum of lodges affiliating to it en bloc. (Page-Arnot, 1967: 32-4) The central significance of the whole affair was the independent spirit shown by the hauliers in the face of opposition by employers, the J.S.S.C. agents and only partial support from the faceworkers. Although this class of labour was involved in separate disputes in Derbyshire and Durham in neither case was it to the extent shown in South Wales. The position as a separate layer and the form of the wage contract formed the material basis of this ability to take autonomous action.

The reverberations of this went further. In response to the surge of support for the M.F.G.B. the sliding scale unions drew up a scheme in April 1893 designed to bring their organisational structure closer to that of a bona fide union. Lodges were to be established, a 2d contribution standardised, a central fund inaugurated and a joint committee of the regional unions formed to coordinate policy. (Edwards, 1938: 6) Much of this was cosmetic however, the majority of pit-lodge branches were not formed until after they had joined the M.F.G.B. in 1898, and were part of the promises Abraham made to the Federation during the 1898 'Six month strike'. (M.F.G.B. 1898: 206) The extent

gauged by its initiation of a scheme to unite owners and miners in a policy of output restriction in 1896. (Duggett, 1977: 329) However, it would be wrong to dismiss or ignore the rising propaganda influence of M.F.G.B. ideas through the personage of William Brace, leader of the Monmouth miners, the first adherents of the Federation in South Wales. This is reflected in the form which the demand for a revised scale took in September 1897 which de facto called for a minimum wage, by stipulating, 'The minimum price of coal to determine wages to be ten shillings per ton'. (Edwards, 1938: 9)

The reorganisation of the miners organisation following the failure of the 1898 strike to abolish the Sliding Scale was uneven. 'Mabon' arriving at the M.F.G.B. conference 'as a penitent Welshman' with his affiliation fee of £60 (£10 per 10,000 members) was still ideologically committed to the Scale - throughout the strike he had been constantly in print to this effect. His view to Parliament was:

> Though we gave notice to terminate the sliding scale, it was not we who gave notice to terminate the contract. We should not have left work but for the fact that the employers gave notice to terminate the contract .... (Hansard, 24.6.1898)

Of the first four officers of the South Wales Miners Federation, three (William Abraham, Alfred Onions and Thomas Richards) remained committed to the Scale principle; however, those elected to the new J.S.S.C. were all adherents of the M.F.G.B., thus giving in effect full recognition of this one body to negotiate for the miners as a whole. (Page-Arnot, 1967: 60)

Up to the formation of S.W.M.F., as has been noted, the majority of miners had organised through branch groups based on villages, irrespective of their pit. The activity of these bodies was largely determined by the rhythm of the J.S.S.C. and with a few exceptions their officers firmly in the pockets of the local colliery owner. (Edwards, 1938: 164) In

contradiction the new union demanded a pit-lodge structure i.e. one lodge for one pit. The unit of production became the unit of trade union organisation. From this flowed a number of organisational possibilities. A lodge could directly challenge a specific owner's decision and muster the indigenous support to press its claim. The lodge meeting now became the ground for a discussion of the conditions which applied to all the men attending the meeting; each was aware of the issues and had a personal interest in their improvement - but also a collective instrument for their realisation. A statement of theory does not indicate to what extent in the localities such a transformation occurred. Page-Arnot points out that, irrespective of the developments at a pit the level, the twenty districts which formed the S.W.M.F. retained an exceptional degree of autonomy - real power lay with the miners' agent. Each district corresponded almost precisely to a geographically isolated valley with its own traditions and 'tribal' loyalties. Whilst District presidents, secretaries and treasurers were subject to elections - the agent once successful was not - in 1932 Noah Ablett was to speak of these men as 'little chieftains'. (Page-Arnot, 1967: 74-5)

But the fact remains that in the early years of the Federation tremendous gains were made in membership. In 1898 only 46% of miners were unionised, in 1900 it was 77% and in 1903, 79%. In numerical terms this represented a more than doubling union strength in five years. (Edwards, 1938: 20; Gibson, 1922: 59) But the numbers of those employed raced ahead and by 1908 the percentage had fallen seven points from 1903. Nonetheless, it remained in formal terms a huge advance.

It is hard to believe that such a movement could have progressed simply from 'above', in particular the Executive, although less powerful

than elsewhere, was for the first time made up of men elected from the pit-lodge-district system. This had dual, even contradictory effects: on the one hand it allowed the leadership to be influenced by the rising temper and militancy of the lodge organisation, yet the system of election and structure of organisation strengthened the parochialism of the valley 'tribes'. Firstly let us look at the process of the establishment of the S.W.M.F. infra-structure. The first step was often the election of a regular checkweighman; before the Federation the Sliding Scale representative had often done this job. (1892 XXXIV: 574) Employers universally refused to deduct Federation dues at the office (unlike the J.S.S.C. monies) and this spurred on the election of lodge officers. Alongside the usual President, Secretary and Treasurer, the pit committee consisted of delegates from each grade of worker in the pit. Unlike their North-Eastern colleagues the South Wales miner had no system of the randomisation of working places but had to rely on bargaining an allowance for a bad place. This advantage the owners used to the full; lodge officials would find themselves allocated to the least profitable working places. Ness Edwards recounts the story of a strike led by a haulier over the payment of overtime, the manager first tries to buy him off:

> 'Drat thee eyes mun; why doesn't thy leave this thing alone? I've got a good heading for thee... I've summat good for thee ....'
>
> 'I took no notice and walked away. We met him as a deputation, and made him sign his hand to an agreement over this overtime.' (1938: 19)

We have seen that the method of work made the hewers' task less specialised and skillful, and thus a category of labour was less proportionally important. (Appendix A: tables (a) and (d)) There is some evidence to suggest they concomitantly played a less crucial role in the councils of the S.W.M.F., and certainly in policy debates there

seems to have been much less division between the faceworker and the rest, than in the North. In practical terms there was much less divergence between the colliers working time and the ancillary workers - at around ten hours 'bank to bank', i.e. approximately eight hours getting the coal. In fact there seems to be a general relationship here: the more specialised the hewer's role, the less time is spent at the face. (Munro, 1891: 250) The checkweighman's position (normally the preserve of hewers) was counter-balanced in union terms by the role of the Agent who advised the Executive, for example, on the payment of strike pay (rather than a lodge deputation). (1902 Rules: para. 30) Furthermore, certain lodge customary procedures were the preserve of hauliers - generally it was the oldest of the group who would be in charge of the beer at annual general meetings of the lodge, as was another important task of stewarding the proceedings. (Edwards, 1938: 18)

The Hauliers and Hewers: The Eight Hour Act and the Minimum Wage

Indirectly, the initial struggle of the hauliers in 1893 which led to the first movement toward the S.W.M.F. also had repercussions for the whole character of industrial conflict up to the War. For it was the joining of the miners into one national body that transformed a twenty year rhetorical clarion call - the Eight Hour Day - into a practical possibility. This occurred not only at an industrial level but coincided with the Liberal Party's drive to incorporate sections of the trade unions under their wing before the Labour Party could transform its tenuous organisational links into a political voting lobby. (text: 28-32) South Wales was the key for two reasons: firstly, the issue of 'abnormal places' had assumed national importance through a legal decision of January

1909 which held that a collier at the Ocean Coal Company in the Rhondda could not claim allowances for an 'abnormal place' unless it was specified in the colliery price list. Since overwhelmingly such provisions were customary rather than contractual, the precendent opened up an avenue for the cutting of costs by management. Secondly, partly as a consequence, the Coalowners of South Wales had claimed that the Eight Hour Act would ruin them since it would result in a greater reduction in hours relative to other fields. A typical view was:

> I say distinctly that in Monmouthshire it is going to affect us and reduce the output to the extent of 20 per cent. Elsewhere I would estimate 15 per cent as a minimum. (1907 XIV: 39)

They based this view on the assumption that output was at its optimum point already - even if it increased in a shorter working day existing colliery equipment could not deal with it. In a frank, if somewhat naive admission of their responsibility for the excessive hours of toil of the colliers, an owner stated,

> ... if the men could fill more coal we should not be able to deal with it, ...
>
> The narrow neck of the bottle is the mechanical equipment of the collieries? - Yes. (ibid: 35)

In South Wales the reduced hours post July 1909 under the Eight Hours Act reinforced the drive by the owners to recoup their losses by cutting allowances for 'abnormal places', as they were now legally entitled to do. It was this issue that sparked off the bitterest and most violent regional strike in mining since the 1840s - the Cambrian Combine dispute. As Page-Arnot stated this,

> ... came to be inextricably mingled in the outlook of the strikers with the question of abnormal places and the minimum wage. (1967: 241)

This feeling expressed through the S.W.M.F. eventually prodded the whole Federation into action; at the Annual Conference in 1911 a resolution

was passed for an 'individual district minimum wage' - a principle which was conceded after a national stoppage from March to mid-April. (Page-Arnot, 1953: 101-10) The Act established Joint Boards to decide the district minimums for each grade; in South Wales we are fortunate in that figures were presented to the Sankey Commission showing how many of each grade of worker was below the minimum wage once established in April 1912 (they cover around half the workforce). Expressed as a percentage the results are:

TABLE I

Grade	% below the Minimum Wage Agreed	
Coal-getters on piece-work	34	
Hauliers	75	
Timberers	32	
Rippers	20	
Timberers and Rippers Assistants	39	
Labourers	91	(1919 XIII: 306)

This table is revealing in a number of ways. Firstly, as a rough guide to bargaining power it shows the timberers and rippers better able to defend their position than the coal getter. Secondly, it highlights the degree to which the hauliers were suffering most under the offensive against allowances. If this is compared with the results of the Proceedings themselves we will be able to see those grades which benefited most under the Award. The next table shows the union's minimum demand, the award and the percentage this is of the former.

TABLE II

Grade	T.U. Demand (1)	Award (2)	(2) as a % of (1)
Colliers	8/-	4/7	57
Timberers & Rippers	8/-	4/7	57
Assistants of above	6/6	3/4	48
Hauliers	7/-	3/11	57
Labourers	5/-	3/4	68

(Proceedings, South Wales: 3, 9)

Obviously, the labourers do best in terms of monetary award, followed by hauliers viewed vis a vis the percentage below the minimum prior to the award. But examined in terms of differentials the picture changes.

TABLE III

Grades compared	T.U. Demanded	%	Award
As between Collier and Haulier	14		21
As between Collier and Labourer	60		35

This shows clearly the hauliers were able to press their case very strongly in relation to colliers, the differential awarded actually increases the gap. In contrast, the labourers, as would be expected, do best in closing the differential not through the union but via the Joint Board. In terms of real income the advance was about the same for the colliers and hauliers, and greatest for the labourers, i.e. the minimum would increase the average wage of each grade by 14%, 14% and 21% respectively. (Proceedings, South Wales: 78)

These figures convincingly underline the case made for the way in which the hauliers were able to break the rigidities of the wage hierarchy post-1893 because of the generic role of the hewers, the increasing importance of haulage as pits became larger, and the consequent ability to act independently. This in minutiae illustrates a general point of the thesis, that the relations established by the organisation of work are not socio-technical. On the contrary, although perhaps originating as a reflection of the organisational problem of work they have to be sustained by the groups themselves. In this case the hewers could not maintain their differential with the hauliers in line with the former's decline in status. Elsewhere we will show a reverse pattern of behaviour, i.e. where a leading layer's technical or skill basis disappears, but who nonetheless maintain their position. (text: 336)

Comparisons and Conclusions

Coal is an industry not subject to the usual methods of social investigation open to the labour historians; union histories, output statistics, technological change, politics and so on. Certainly in our period there was no such thing as the miners. The overview of work experience shows how little the hewer in his isolated community of Durham would have in common with the stallmen of metropolitan Derbyshire or the endogenous South Wales collier. History 'from above' either in the form of organisational genology or economic formalism is particularly irrelevant, precisely because of this chronic regionalism. But equally the pressures of gradual concentration of ownership, followed sluggishly employers associations and even more hesitantly by miners' unions, impose upon the investigator the need to go one step, but only one step, beyond the localism and parochialism of the historical actors.

For the same reason that most valuable of historical material, the participant account, has to be balanced by the available 'objective' evidence. In the event our example, the Minimum Wage Act figures, intermingle rather well. The submissions by the Union side and the discussions about them combine to produce the best 'quantative' view of such a 'qualitative' subject as the occupational hierarchy.

Whereas the specialist hewer of Durham maintained his differential he, unlike the also privileged stallmen of the Midlands, was forced to organise the workforce as a whole. In South Wales the faceworker's task was neither so unique nor his social role as dominant, other grades, particularly the hauliers, were for this reason able to significantly change the balance of interest within their organisation. This ability or otherwise to defend their status had reverberations throughout the

grades. One final statistical illustration: the following shows the percentage increase in wages from 1886 to 1914 between piece-working coal-getters and labourers in our three 'sample' areas.

TABLE I

Area	% increase 1886-1914 skilled	unskilled
Durham	80	54
Notts. and Derby	84	66
South Wales	93	103

(Rowe, 1923: 85)

The ascendency of the Durham hewer in this 'league table' of differentials is all the more apparent given that this does not show the non-monetary 'perks' he had negotiated, such as free housing, coal etc. Alongside this, and partly its product, was the control he also had of the D.M.A. : a 'universalitic' union dominated by a sectional group.

In the Midlands the stallmen over the 1890-1914 period 'colonised' their union and turned its policies to their advantage. It is significant that this process was accompanied by a reorganising of subcontraction to a system more closely approximating direct labour, and thus the invasion (and acceptance) of the incentive principle throughout the face gang. But our figures show also how the stallmen were able by 1914 to earn around half as much again as their hauliers and three quarters more than their labourers. To an extent we can surmise from this the form of 'full' subcontraction extant in the 1880s to a degree limited differentials, in so far as it restricted those who could be paid on piece-rates, i.e. incentive replaced authority as the 'prime mover' of the rhythm of work, just as differentials replaced the group bargain as the focus of the wage contract. This 'individualisation'

of the wages form seems closely connected with collective bargaining and action.

In this context it is not surprising that the erstwhile worst organised area became such champions of universalistic policies such as the Eight Hour Day and the Minimum Wage. As we have seen the form of longwall reduced both the status and the autonomy of the face worker, his labour was proportionately less of the unit cost of production, and the hauliers greater vis a vis the other areas. (Appendix A: table b)

In sum our investigation of the three areas in terms of their work organisation, occupational hierarchy, union structure and policy, demonstrates the fluidity of the form of wage contract: in particular in mining the issue of certainty is common to all. In general the strategy of a privileged layer within a wider workforce is likely to be characterised by the maximisation of uncertainty at the 'front-line' of the organisation and its minimisation at the centre. Local conditions will determine whether this involves the adoption of universalistic tactics. Where this leading layer are able to resolve this uncertainty to those subordinate to them (sub-contraction) there will be no incentive, whilst their high status and differential remain, to confront the management on this issue. Equally they will have little motivation to adopt universal tactics, whatever local conditions prevail. If the organisation of work creates no clear leading layer, the initial organisation will be hindered by the lack of specificity in the appeal of unionism, and its development will be characterised by an antinomy between charismatic forms and egalitarian universalism.

APPENDIX A

The following tables (a), (b), (c) and (d) are derived from figures in the Sankey Commission on the Coal Industry, Vol. III, 1919 XIII.

Table (a). The Ratio of classes of labour in three areas

Area	Ratio of Underground workers to hewers	Ratio of hewers to other face workers
Durham	2:1	2:8
Mon. and S. Wales	2:2	4:1
S. and N. Midlands*	2:2	3:5

(derived from table 8a, p.119)

*defined here as Notts., Derbyshire, and South Yorks.

N.B. second table shows greater specialisation of Durham cf. S. Wales and then Midlands i.e. more ancillary workers to hewers.

Table (b). The Proportion of workers in various occupations in three areas 1918 (Adult males only)

Occupation	% of occupation as total		
	Durham 207 pits of 53 collieries	Notts. Derby, S. Yorks 191 pits of 85 collieries	Mon. & S. Wales 363 pits of 114 collieries
Coal getters	42	45	38
Putters, Fillers, Hauliers	10	12	14
Timbermen, Stonemen, Brushers	10	8	11
Other Underground labour	19	12	18
Surface labour	15.5	17.8	16

(derived from tables 5-1 to 5-13, pp. 93-6)

Table (c). The Proportion of coal getters on day and piece wage in three areas 1919

	Day %	Piece
Durham	0.01	99.9
Notts., Derby, S. Yorks.	22.9	77.1
Mon. & S. Wales	7.6	92.4

(derived from tables 5-1 and 5-2, pp. 92-3, ibid.)

Table (d). The Ratio of hewers to putters/hauliers/trammers in three areas 1914

Durham	4.1 to 1
Derby & Notts.	3.9 to 1
S. Wales & Mon.	2.7 to 1

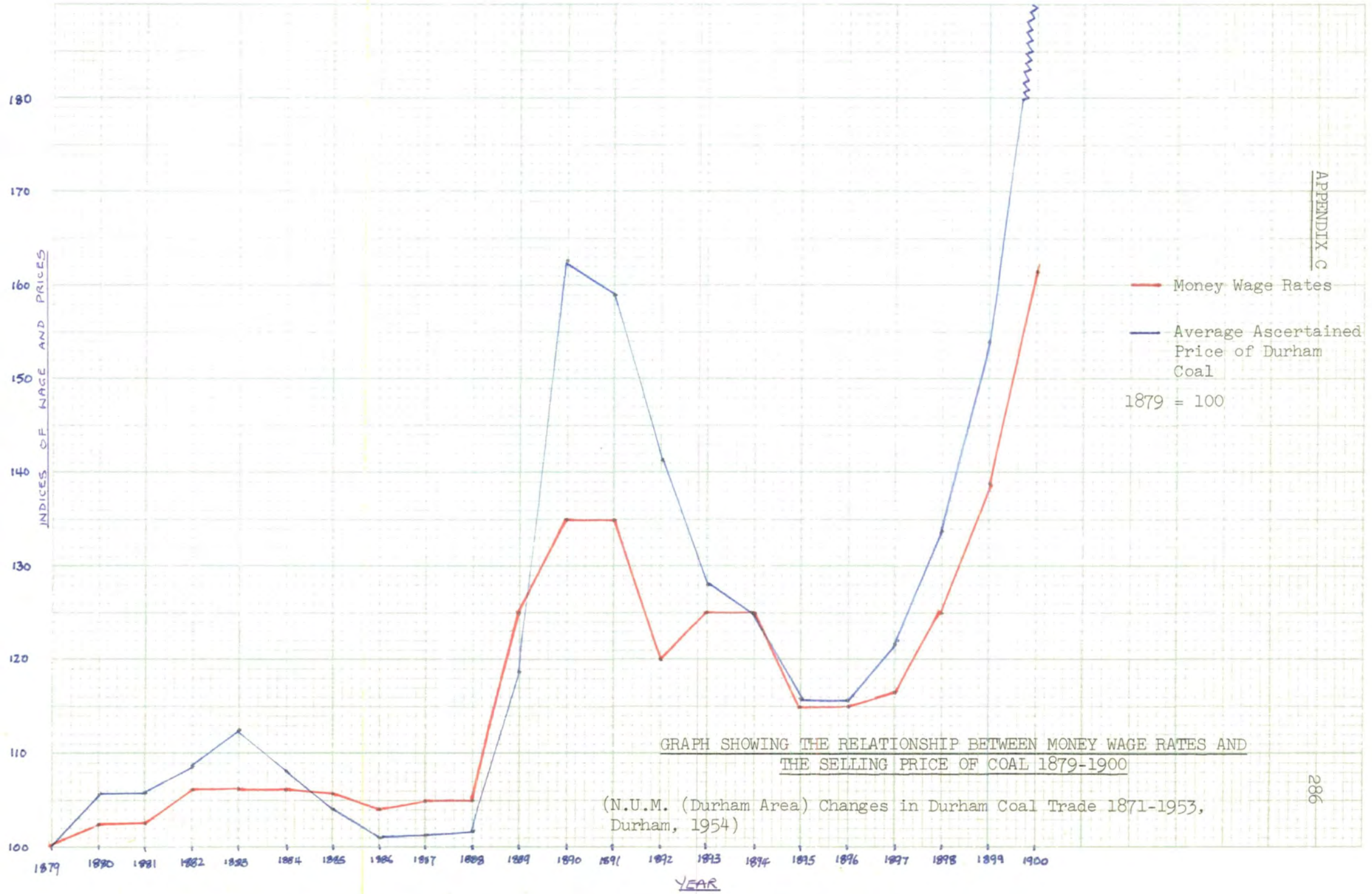
(derived from tables 4-6, p.100)

(I) Durham lock-out 1892
M.F.G.B. lock-out 1893

(II) South Wales 6 month strike 1898

OUTPUT PER MAN IN TOTAL AND UNDERGROUND ONLY IN FOUR YEARLY INTERVALS 1874-1913 (TONS) IN THREE COALFIELDS

(Sankey Commission Vol. III 1919 Cmd. 361 XIII: 119)



GRAPH SHOWING THE RELATIONSHIP BETWEEN MONEY WAGE RATES AND THE SELLING PRICE OF COAL 1879-1900

(N.U.M. (Durham Area) Changes in Durham Coal Trade 1871-1953, Durham, 1954)

CHAPTER VIII

THE SPINNERS

Mechanisation and Politics before the Self-Actor

Throughout labour historiography the history of the textile workers, and the spinners especially, is regarded as the first example of the creation of occupational class of wage earners, living in urban areas, a 'factorised' industry, in short the progenital proletariat. On the other side cotton manufacture has been pivotal to accounts by economic historians of the industrial revolution - its demand for markets, innovatory form of socio-economic organisation, technical progress and capitalisation all reverberated throughout English society. Whilst this latter has received continuing and thorough attention, the textile workers and their unions remain only partly researched. Yet themselves and their organisations are unique prodigies of industrialism - machine minders and servers, whose craft tradition was not so much destroyed, since in a sense it cannot be said to have existed. A 'Journeyman Cotton Spinner' described the exploitative process as it appeared to him in 1818 as follows:

> When the spinning of cotton was in its infancy, and before those terrible machines for superceding the necessity of human labour, called steam engines came into use, there was a great number of what were called little masters; men who with a small capital, could procure a few machines and employ a few hands, men and boys (say twenty to thirty), the produce of whose labour was all taken to Manchester ....

Raw cotton was prepared by the spinners' wives in their homes so they could 'cook and attend to their families', but now this was mechanised, and the little master ruined,

> ... and the overgrown capitalists triumphed in their fall; for they were the only obstacle that stood between them and the complete control of the workmen. (Black Dwarf, 30th September 1818; Thompson, 1968: 221)

This it must be remembered pre-dated the self-acting mule: our informant

identifies the factory and its effect on family life. The use of a prime mover is identified as the agent of exploitation not the jenny itself, which although hand-driven required little skill, in the craft sense. It is the tyranny of large scale organisation, impersonal in its authority, distant in its rhythm of production.

This concern for the primacy of authority relations stemming as it does from a heritage of petty mechanical production finds an echo in the character of the spinners activity and politics throughout the period of the Combination Laws. Clubs and benefit societies existed amongst them from at least 1792 whose purpose 'was to keep up the price of labour to its statute'. They were wholly regional and parochial in outlook, often with separate associations for jenny and water frame spinners. (1824 V: 408-10) Although illegal they maintained a shadowy existence, perhaps not continuous, but certainly strong enough to flower into proto-unions during disputes, paying benefits, sending delegates to solicit support and so on. (Aspinall, 1949: 251-80)

This period and the years up to the 1840s are usually considered to be the 'revolutionary' stage of the textile workers development to be contrasted with their accommodation in the second half of the century. (Webbs, 1950: 114-118) But let us look a little closer at some of these events. Firstly, the spinners were only a very small percentage of the workforce, an estimate of 1841 put this at $9\frac{1}{4}\%$ for spinning only firms, and in those which combined this with weaving 4%. (1841 XXII: 27) Even in the days before the self-actor the figure was not much higher, most examples average around 13%. (1824 V: 558, 576) Numerically their position was analogous to the engineer: at the top of the vocational ladder, a small group within a factory population. Yet in terms of skill and tradition the comparison does not hold, as

we shall see, and in fact they are closer to the North Eastern hewers in this respect.

Under the Combination Laws the textile workers were often at the centre of industrial action, yet despite their best endeavours Home Office spies were able to detect little political content in their strikes, a fact confirmed by later historians. (Aspinall, 1949: 251-80; Thompson, 1968: 211-12; Hobsbawm, 1976: Chapter II) What these contemporary reports do show, in contrast to the Luddite and Radical influenced tendencies, is a scale of organisation and stability which greatly surprised our informants so used to labelling all proletarian dissent as 'mob rule'. A Home Office letter of July 1818 noted how in Manchester,

> ... the spinners have adopted the practice of assembling in large bodies of two or three thousand each and parading through some of the streets of the town almost daily, certainly still without committing any breach of the peace .... The system of support from one trade to another is carried on to an amazing extent, and they regularly sent delegates out to the different towns who are in work to receive their subscriptions. (Aspinall, 1949: 254)

In Bolton seven years later a prosecution under the Acts revealed 'irrefragable proof of the existence of a combination ... of Journeymen cotton spinners' since at least 1811, able to pay strike pay, organise subscriptions, membership cards and so forth. (ibid: 368)

It will be noted that these accounts speak only of the associations of spinners. The corporate nature of their outlook comes out in a fragmentary but clear way; unlike the Radical politics of the still extant craftsmen whose organisational structures tended to be built across trades, the spinners situation both within the factory and the labour movement pushed them inwards. Their position as 'internal aristocrats' of a factory was not maintained by skill but experience and insularity; the factory working class, on the other hand was, up to

the 1840s, still a minority of the proletariat and neither politically or sociologically homogeneous enough to encourage national movements. This dualistic of 'plebian' position is evidenced in several ways.

Firstly, there is much to suggest co-operation between spinners and weavers in the urban centres was very limited. In the previously mentioned 1818 generalised action of textile workers in the North West the Spinners in Stockport strike ended two days before 'a general turn out' of Manchester weavers for a wages advance. (ibid: 280-1) A year later in Leeds we have a graphic description of a similar dislocation of effort from Joseph Oates's evidence to the Select Committee of 1824. Here, where no power-looms were as yet used, the weavers 'as a body' stopped work in response to a price cut by the Masters - the spinners although eventually laid off did not act in concert. The reverse had occurred in Dewsbury a year earlier, and Oates recounts how in response to these and other debacles 'a general union of weavers and spinners' was formed in December 1822 of upwards 5,000 members, but despite of its name remained largely a union of the hand-loom weavers. (1824 V: 534-40)

In individual struggles with employers the spinners were not lacking in militancy, particularly against blacklegs, a paranoia perhaps sharpened by a realisation that their vocational superiority relied almost exclusively upon corporate unity. In Glasgow in 1818 imported spinners received threatening letters signed by the 'Captain of the Blood-red Knights'. Further, their general policy was to,

> ... not allow women or boys to work as spinners; nor will they allow a man from a neighbouring county to enter a Glasgow mill .... (ibid: 479)

At this time the weavers were still largely outworkers, in urban areas grouped in sheds and subject to some forms of elementary factory

discipline, but still entirely hand workers. They survived because this form of economic organisation facilitated capital accumulation best in this period in three ways: firstly, the handloom itself was improved through Kay's 'flying shuttle' and brought together in shops of 40-60 weavers who worked casually as required. Secondly, 'genuine' outworking labour was super-abundant, the numbers taking to the loom increasing from 1820 to 1830 - the very years of the emergence of a powered alternative. Thirdly, although the output of cotton rose dramatically from 1790 to 1820, the irregular and uneven pace of its growth was hardly likely to be conducive to the investment required in fixed capital by manufacturers, especially when its worth on anything but the simplest weaves was suspect up to the 1840s. In short, both the capitalist spinner and the 'little masters' of the weaving trade were able to displace the vicissitudes of the market upon to the casual labourer thereby reducing fixed costs in trade declines and profits in upward cycles. The obvious drawback to this was that in the latter situation the outworker could not be coerced into producing more, unless he and his family decided it was also in their interest. Yet this autonomy also hindered the unification of the weavers to act forcibly when their bargaining position was best. (Chapman, 1904: 23-30) This combination of circumstances was captured exactly in this exchange before the 1824 Committee.

> Do you not understand that combination to a much greater degree, and has been carried with much greater violence among the spinners, whose wages are high, than among the weavers, whose wages are comparatively low? - Certainly.
>
> Are not the spinners collected together in one manufactory, whilst the weavers are out in different houses? - Yes.
>
> May not that influence a good deal the facility of combination? - It does. (1824 V: 561)

As wage-labourers <u>en bloc</u> the spinners earning up to twice that of the weavers, were able to more precisely identify when to act for better

terms or conditions, 'when they have got most, then they turn out, not otherwise'. (ibid) In such a position they were able to initiate 'modern' tactics of industrial action such as the 'rolling strike', first used in 1810 to obtain parity with Manchester by the spinners of Staley Bridge, Preston and Oldham. Selective stoppages in key mills gradually impressed upon the employers the force of organisation opposed to them - but as in 1818,

> ... the spinners were the only persons relieved by their combination.
>
> ... only those connected with the spinners received the 14s per week relief ... (ibid: 573, 558)

The Self-Actor and trade union action 1830-50

We have described the spinners' trade policy as characterised by essentially three features. A desire to maintain their status by occupational hierarchy; opportunistic and self-reliant in so far as strikes were calculated attempts to exploit favourable turns of trade or local circumstances; insular in organisational form and modern in tactics: aggressive or offensive, but in a corporate sense, to establish standards in the developing process of 'factorisation'. Our brief comparative look at the weavers shows a reverse geneology: essentially a defensive and unco-ordinated policy determined by forces external to the occupation.

The original Jenny invented by Hargreaves had substituted the human hand by rollers revolving at unequal speeds reproducing the effect as the stretch of the individual spinner's arm - the carriage still had to be pushed to and fro by the left hand whilst the right turned a wheel causing the spindles to revolve, and thus the roving became yarn. (Baines,

1835: 157) Arkwright's water frame replaced human effort by water power but was for technical reasons confined to the production of warps. By the time we have picked up the story these methods had been combined by Samuel Crompton in 1775 to form the Mule.

> The distinguishing feature of the mule is, that the spindles, instead of being stationary as in both other machines are placed on a moveable carriage which is wheeled out to the distance of fifty-four to fifty-six inches from the roller-beam, in order to stretch and twist the thread, and wheeled in again to wind it onto spindles. (ibid: 198)

The movement of the carriage was entirely by hand, as was the regulation of winding until the mid-1820s with the introduction of the self-actor. Up to this time the number of spindles on the carriage was limited by the power of the spinner's arm to propel it back and forth, i.e. at about forty to fifty. Power had been applied to this process and enlarged it somewhat, but it still required the sole attention of an experienced hand. (Chapman, 1904: 68)

The self-actor removed the need for human labour in either thrust of the carriage, also automated was the winding and the speed of the revolving spindles. Apparently with one technological step the need for an adult male experienced machine controller had disappeared. In the next section we will detail the slow introduction of this machine, but for the present we can simply say that the hand mule still remained important for three decades after the invention of the automated version in 1825.

The automated mule was just <u>one</u> aspect of the general speed-up of work, power meant the spinner could attend to more than one machine. Leonard Horner reported in 1841:

> ... where manual labour is still necessary it is done by children and young persons instead of adults....

The intensity of work had however increased for all, since the spinner

was subject to the,

> ... lengthening of the mules of carriages, so as to make them carry a greater number of spindles; by making one man work four instead of two of these carriages, by a process technically called 'double-decking'; and by the introduction of self-acting mules. (1841 XXII: 26)

The significance of the self-actor above and beyond its ability to increase output was to crystallise an already emerging hierarchical workgroup - the spinner, big piecer and little piecer. These latter two did the manual work, principally as the name suggests the 'piecing' of broken threads whilst the carriage was in motion. They were employed and paid by the spinner on a day-wage, only he earned a piece-rate: a wage contract that remained basically unchanged until 1933. (Jewkes and Grey, 1935: 7, 185) The self-actor by gradually removing the last element of skill from the spinner's task created a situation where this relationship was entirely one of economic subserviance, quite unlike the apprenticeship system in other occupations. It is important to stress the self-actor confirmed, not created, this relationship of dependency - it is not the outcome of a paradigmatic revolution of the 'socio-technical' system of work. The following examples from the wages book of a 'large Manchester mill' firstly before the self-actor, then after its introduction, demonstrate this point.

TABLE I

	£	s	d
In 1837 wages paid to the Spinner for 2 mules, average of 10 weeks	3	5	-
Deduct his payment to piecers, etc.	1	6	-
Leaving to the Spinner net earnings of	1	19	-

	£	s	d
In 1841 wages paid to the Spinner for 4 mules, average of 10 weeks	4	14	-
Deduct his payment to piecers	2	8	-
Leaving to the Spinner net earnings of	2	6	-

(1841 XXII: 27)

We can see that doubling his workload (though with less mechanical requirements from the mules) the spinner's wage had risen only by 29%, the overall wages to the piecers by 45% (but representing a closing of the differential between them of only 10%). Thus the essential structural system of subordination has not changed in financial terms. From G.H. Wood's meticulous collection of wage statistics we can construct the following table of average spinners and piecers' wages at various years (where his figures can be combined) from 1814 to 1906, and from this devise a picture of the differential between them.

TABLE II

Year	Average Spinner's Wage (1)	Average Piecer's Wage (2)	(2) expressed as % of (1)
1814	26/-	6/6	25
1833	25/10	6/-	24
1849	21/10	7/-	30
1874	33/1	11/3	37
1886	31/1	11/9	40
1906	41/5	15/-	36

(Wood, 1910: Tables 6 and 7)

The stability of the differential is remarkable, this after the formation of Piecers' unions in the 1890s - but of course whilst the spinner only was paid by the piece he would benefit from faster speed of work and union organisation. One result is wide variations in the earnings of piecers, in 1906 the big piecer in Oldham earned 46.3% of his spinner's wage but his counterpart in Leigh only 31.7%. (Jewkes and Gray, 1935: 32) Generally the finer the count being spun, the greater the differential, which was constantly greater on hand mules. (Wood, 1910: 63) This then was the structure of work which the spinners maintained throughout the nineteenth century, a system which was only tenuously based upon skill with the hand mule, and not at all with the self-actor.

To return to the spinners' trade policy: according to the Webbs

local setbacks in the late 1820s convinced them of the need for a centrally led organisation. The involvement of John Doherty has perhaps led historians to identify this as a 'universalistic' strategy, certainly the spinners did intend to organise piecers. (Webbs, 1950: 117-18) But the adopted Rules of the 'Grand Central Union of all the Operative Spinners of the United Kingdom' specified that,

> 14. That no spinner shall allow a piecer to spin of any account whatever after the 5th of April 1830 except such as may hereafter be provided for ....
>
> 18. That no person or persons be learned or allowed to spin after the 5th of April 1830 except the son, brother or orphan nephew of spinners, and the poor relations of the proprietors of the mills, and those only when they have attained the full age 15 years ....
>
> 24. That female spinners be urged to become members of an association formed exclusively for themselves ....
>
> (Cole and Filson, 1967: 249, 50)

Clearly then the structure of unionism was designed to reinforce the spinner's hegemony over the work process. The employers at this time were not prepared to allow this move to be consolidated, seeing it as a first step toward the unification of price lists operating within the mills. (Hammonds, 1919: 132) Accordingly they moved to force a full-scale confrontation to circumvent the Union's policy described by an employer as,

> ... ordering the Hands in only limited numbers of mills to turn out at a time in order that, until these shall have gained their point, they may be supported by the Funds of the Union. When they have got their wages increased to the extent of their demands, another set of Mills are turned out, and so on, so that a constant state of irritation is kept up. (ibid)

On the penalty of £500, 52 firms bound themselves to reduce wages, whereupon 23,000 textile workers were locked out in Manchester and the North West in December 1830. The weakness of the 'Grand Central Union' was immediately exposed: Scottish and Irish workers refused to respond to a general strike call and even those in Preston, Stockport and Bolton

gave only half-hearted support. By March the men returned on the Masters' terms - throughout neither piecers or labourers had received any strike pay. (ibid: 134-5)

From this point until the 1870s spinners' unions remained local associations, nonetheless retaining a continuity and strength matched only by the engineers, at least in the large centres. Several examples of disputes during this period illustrate the developing ideology of localism in the spinners. In Preston in 1836 a local union of 250 to 300 members (about half the town's spinners) had survived the 1830 debacle. These men began to agitate for parity with Bolton whose prices rose and fell with the state of trade; interest in the union grew and by the time the men made their claim a virtual closed shop had been achieved. The employers offered a 10% rise on condition their association was disbanded, a move reflecting their anxiety over the spinners' potential 'internal' power in the mill. (Ashworth, 1837: 3-6) 8,500 persons were affected by the ensuing strike (or lock-out depending on which account you accept) only 8% of whom were spinners, and 15% piecers, the other 77% being weavers, labourers, engineers, overlookers and card-room hands for whom the dispute could have no possible pecuniary benefit, and who received no strike pay. (ibid: 7-8) After three months the spinners' strike pay dried up and the strike collapsed, in a few mills the self-actor was introduced (though it was to take another dispute in 1853 to really speed this up). In the next five years six reductions in prices were introduced and the union reduced to a shell. (Banks, 1888: 2)

But the regionalism of industrial relations meant both victories and defeats were not passed on from one area to another; in Manchester in 1838, 75% of spinners were said to be organised, whilst in Glasgow

a well organised system of monitoring of wage differences existed. (1838 LX: 280, 31) Here 90% of spinners were unionised, admission being £1, a weekly subscription of 2/- a week, with funeral and emigration benefits available. (ibid: 44) This was not unusual, both entrance fees and contributions were generally double that of the Engineers' Society for example.

The spinners history up to the 1850s consistently shows an opportunistic and exclusive trade policy, essentially insular in outlook and politically conservative by the 'radical' standards of other contemporary working class movements. However, the hand-mule was disappearing, albeit slowly, and with it the spinners last claim to be a skilled trade. The progress of machinery in textiles was not linear, and many instances of power creating 'hand' tasks can be shown. Let us now briefly review this confused technological context of the spinners up to the 1900s.

TECHNICAL CHANGE

The Textile Industry other than Spinning

In both spinning and weaving mechanisation of one process or branch of the industry often produced greater reliance on hand methods in some other area. Firstly, there is of course, the enormous expansion of hand-loom weaving caused by the increased output of the Jenny and the Water Frame. Although the 'Golden Age' of the handworker had ended by 1814 their numbers did not decline until much later, despite falling wages. Up to 1835 the overall hand weaving population was still on the increase, and in some local areas, for example, Rossendale in Lancashire, until the 1840s. (1840 XXIV: 611) In 1841 only 7% of weavers in the southern part of Scotland did their work in factories. (Chapman, 1904: 24) Many important large mills used the outworkers as a flexible reservoir of labour, particularly in fancy goods; up to 1866 hand-looms provided about a quarter of the output of the Huddersfield waistcoat trade. (Clapham, 1932: 83) Whilst cotton-weavers went to the wall, in wool and worsted the slow adaption of machinery to fine work combined with the abundance of cheap 'outdoor' labour, enabled traditional methods to survive. In the worsted sector it was the revolution in woolcombing from the mid-1850s that opened up the process toward mechanisation, whilst in wool with its dispersed setting, technical progress was slower and less complete. 'Condensing' the vital breakthrough was limited to Yorkshire in the early 1870s, elsewhere the laborious process of 'slubbing' (which came in between machine carding and mule spinning) broke up the rhythem of the 'machinofacture' of woollens.

In linen weaving hand-loom production remained predominant until a trade explosion in the 1850s; whilst in lace early machines were so

complicated, contemporary standards of accuracy were insufficient to enable the theoretically sound concept to actually work. The first successful prototype introduced in the 1870s still had eight handles and two treadles for the operator to contend with. (Singer et al. 1958: 580, 603) Similarly, the mechanisation of framework knitting rather than dispensing with labour, on the contrary ousted the skilled older hand-worker who could not cope with the strength and stamina needed to operate the rotary frame. (Fay, 1920: 212)

In hosiery mechanisation was even slower, aimed as it was at a very select consumer market. In 1862 of the 100,000 and above workers only 4,487 were covered by the Factory Law, i.e. working in groups of fifty or above. (1862 LV: 629) A.J. Mundella in evidence to the Royal Commission five years later commented:

> The best class of hosiery worn by the upper ten thousand is made by the hand-loom weaver, and he is the worst paid for it. (1867 XXXIX: 526)

The industry's historian stated at this time that transition to factory production had hardly begun, although a satisfactory method had been developed in the 1840s. (Felkin, 1867: 464) Finally, silk was the last to sustain a substantial body of hand workers. Despite the crisis years of the 1860s when the Americans introduced a crippling tariff, the old methods survived to enjoy a last spell of prosperity in the late 1880s. A leading firm in Macclesfield made the entire order for silk handkerchiefs for the Navy on hand-looms in 1883. (Clapham, 1932: 87)

The last outposts were not unaffected by the revolution around them. Domestic industry in many instances was converted into outworking, whereby the workers rented their looms or frames from the local distributor, as for example in hosiery, in the 1850-70 period. Alternatively, the work was brought 'indoor' without mechanisation merely a degree of specialisation.

A contemporary described this system in stocking-weaving in 1850:

> The knitter had to pay not only the frame-rent but so much per week for the 'standing' of the frame in the shop of the master .... The man had also to pay 3d per dozen to the master for the 'giving out' of the work.

Other deductions included payment of a female 'seamer' of the hose, oil, and lighting in winter. (Cooper, 1873: 140-1)

Spinning

In contrast to the demise of the handloom weavers the demise of the independent spinners was a much less spectacular and complete matter. Mechanisation of spinning proceeded over decades, stage by stage; equally with its transfer to a factory setting. The spinning jenny merely quantatively increased the capability of the individual spinner by reproducing his or her hand motions on a greater scale, the 'subjective' division of labour. The productivity of the jenny depended on the skill and effort of the drawing arm of the spinner, albeit this action produced many, rather than one, thread. (Chapman, 1904: 53) The real qualitative innovation, the water frame, was not used widely on cotton, particularly since they required a prime mover and thus a greater outlay of capital. The prevalence of jenny-spinning contributed to the small size of mills, since skill being at a premium, supervision of the workforce was of fundamental importance. (ibid: 57)

Similarly, the Crompton mule, established 1810-20, still required to be pushed by hand and winding of the yarn was a separate operation. The control the operative therefore had over the process of production, seems to have been a major incentive to the introduction of the self-actor. By this the pace of the carriage was determined by a central motive power, its traverse was lengthened, spindleage per frame raised

and the operative put in charge of four machines by 'double-decking'. (1842 XXII: 26-8) The adoption of these machines was however patchy. The 'marvels of ingenuity' described by chroniclers such as Ure, Baines, Smiles and so on, were up to the 1860s a minority. To begin with the self-actor was labour, rather than capital, saving - thus the incentive outside the well-organised trade union centres such as Oldham and Bolton was missing. Furthermore, outside the Lancashire textile machinery area it would be hard to obtain and well nigh impossible to service. Although recent research suggests cotton machinery prices as a whole were steady or even falling slightly 1840-1886, contemporary observers cited the high cost of self-actors as explanation for their unpopularity. Speaking of the 1850s the secretary of the Oldham Master Spinners considered self-actors to be 'the exception'. (Chapman, 1904: 68) Most mills as those at New Lanark in 1851, would have had a mixture, since at that time only the hand-mules could cope with fine counts. (Clapham, 1932: 30) This machine which according to Ure was designed to 'restore order' amongst the workers, nonetheless required much tuning and adjusting and became very much the preserve of the individual spinner. (Catling, 1970: 149) Whilst dispensing with the effort of drawing the carriage, the self-actors required continual cleaning (undertaken by children while still in motion) a task previously done by the spinner. (1866 CV: 63)

Whilst in 1833 it was estimated the self-actor was installed in only 100 mills by 1873 it was said to be 'universal except for fine spinning' (1873 LV: 812) The progress of the next paradigmatical step in spinning technique, the 'ring-frame' was however, less complete. This invention allowed the same grade of yarn (spun at the same speed) to be produced in one-third less time than the mule. Crucially it also required much

less attention since it put much less strain on the yarn whilst being spun thereby causing fewer breakages. Its simplicity also reducing the 'tuning' required for different counts of yarn. In short, it only needed unskilled light labour, undifferentiated by experience. (Copeland, 1917: 69-71) Yet by 1907 only 16% of the total spindleage in England were of this type. There has been much debate on the reasons for this, but what concerns us here is the extent to which the policy of the spinners avoided the potential technological displacement. In other words, the degree to which the occupation hierarchy established in the first mills of the 1800s remained essentially undisturbed through over a hundred years of industrialisation and development in the textile sector.

Trade Union tactics and the emergence of Wages Lists

We have noted that unlike the miners or the engineers the spinners were subject to the constant improvement of techniques and methods throughout the last half of the century. As a piece-worker leading a datally paid workgroup he had basically little choice in the adoption of strategy. The usefulness, and indeed the potential to limit output, was severely curtailed by the process of production; being basically a non-craft occupation controlling the labour market was impossible. The only alternative was to embrace the piece-rate system and attempt to manipulate it to their advantage. What 'lever' or bargaining strength would they marshall against the management? Clearly the strike was a particularly dangerous weapon: not only were they subject to substitution by alternative human labour but also by improvements to, or the adoption of, more and more automated machines. Hence the tremendous violence against 'blackleg' labour in the early disputes of the 1820s and 30s.

By the 1850s it was clear such a blunt instrument was ineffective.

The 'other side' of these spectacular and well reported conflicts, was an emergent factory-by-factory approach to trade union policy. The bedrock of local spinners' unions was the maintenance of similar prices for equal work throughout 'their' town. (Chapman, 1899: 594-5) In Glasgow in the 1830s the 'main purpose' of the union was the sending of deputations to employers paying below the 'standard of the trade': the final sanction was a strike but this was preceded by at least three approaches by the spinners' committee, no doubt well aware of the state of trade and the order book of that particular mill. Similarly the use of fines was gradually eradicated by demanding the 'offender' be dismissed,

> ... and the consequence was, that up to this period we have heard very little of fines. (1838 VIII: 31, 33)

In both cases the strategy was to 'up the stakes' of a dispute by locating a factory issue in a regional context. We have already seen the embryonic form of this action in Bolton and Preston strikes, but general lists were not universal and in some cases firms refused to issue even their own lists, prefering to negotiate day-by-day. It is significant that it was the larger establishments that favoured the system: it was, for example, the claim that they benefited unduly vis a vis the smaller concerns that caused the demise of the Manchester Standard List in 1831. (ibid: 270)

Throughout the 1850s and 60s lists appeared sporadically: Bolton in 1844, Blackburn in 1852, Preston in 1859. Burnley, Bury and Stockport had lists in 1867, while Oldham and Hyde waited until 1872. At Oldham it remained customary for each master to make a separate bargain with his labour force, i.e. the same as Preston until the 1859 strike. So as late as 1875 many places were still without lists, and many firms

disregarded them and used their own. (Chapman, 1904: 266; 1886 XXI: 170) It must be remembered that all the lists, of this and the later period, referred solely to the operatives on jennies or mules - though in turn it indirectly affected the wages of their 'employees'. Lists are in fact a peculiar form of individual piecework, in so far as they are concerned to establish a relationship between effort and earnings which, as it were, 'by accident' also determines the rhythm of work for the piecers and by implication the whole factory. As with all such systems it is not method so much as the industrial context which determines the effect. The effort/earning coefficient is meaningless unless the basic rate of pay at which the worker is being paid is known. The work of the spinner varies in intensity (and his product in quantity) according to the number of the spindles which he has to attend and the speed at which the machinery runs; conditions over which the operative had no control. Accordingly, Spinners Officials regarded piecework remuneration as the only defence his trade had against 'sweating', since once in effect it automatically penalised the 'speeding up' of work beyond the employers optimum by thereby raising his direct costs. (1886 XXI: 170-6)

Through a disparate and uncoordinated struggle in the 50s and 60s two basic lists appeared in the 1870s as a consequence, as it were of a 'survival of the fittest' amongst them. These two principal types, based in Oldham and Bolton differ in one crucial respect: the former determines prices by reference to the speed of the machinery, whereas the latter adjust its prices according to the character of the product (which of course in part determines the speed of the mule). (Jewkes and Gray, 1935: 56-7) The recognition of these two standards in 1869 and 1887 represented a considerable step forward for the Spinners' Unions

within their own frame of reference, selling their job as they did to centralise piecework systems in order that rate changes would be trade or regional, but not factory issues. (Mawdsley, 1885: 136)

Between 1850 and 1870 the spinners were subject to a constant influx of new working methods, both in terms of the adoption of the self-actor and the various improvements to it and the preparatory stages of work. In 1873 a report produced the following comparison of workload in fine spinning.

TABLE III

In 1833, 148 spinners and 595 piecers worked with 112 spindles per hand.
After improvements, 73 spinners and 545 piecers worked with 152 spindles per hand.
In 1873, 26 spinners and 50 piecers worked with 517 spindles per hand.

(1873 LV: 813)

Such dramatic transformations were not typical of the middle and coarser counts where the self-actor's progress did not alter so considerably the structure of work since the labour cost was lower. The proliferation of techniques was the prime reason for the multiplication of lists; whilst employers had an advantage in this area certainty in prices was not to their advantage. On the other hand, the industry was still expanding, albeit in fits and starts, and the demand for labour was generally high. Nonetheless, the lion's share of this period of prosperity accrued to the employers. Labour's share of net output fell to a nadir of 50% in 1867, compared with 95% in 1834. (Blaug, 1960-1: 360, 379) In as much as this suggests post-1870 developments tended to capital saving, it does not tell us why and what implications this had for the organisation of work.

We have already intimated the significance of the spinners'

experience being very much a creation of the factory system. Of course by the second half of the century his was by no means the only occupation subject to this process. But what was special about the mill, and the textile industry in general, was its productive system being geared to continuity, unlike the other principal 'factorised' trades such as shipbuilding, engineering, rail and steam engine makers. Long runs of standardised production, which themselves were repeated at routine intervals, gave rise as we have seen to a very early detailed division of labour, with a highly differentiated, and historically stable, occupational structure. It was this which impressed the contemporary apologists of capitalism: the incessant discipline of the working system, and we have several accounts of the extent to which employers would go to achieve this. (Pollard, 1968: 213-226)

> A rope hung up in every wheelhouse, for what purpose we will leave you to judge.

recalled a spinner of the 1820s. (Banks, 1888: 1) An employer used the following analogy.

> A mill is as much organised as a regiment; their is a hierarchy of Overlookers, and each particular branch is under one Overlooker who has inferior Overlookers under him, who manage some of them a room and some of them, a small part of a room. (1856 XIII: 113)

The character of output where long runs were typical and competition fierce centred the attention of both employers and operatives on market prices, or more precisely on the 'margin', i.e. the difference between the raw material cost and the selling price of the product. Lower raw materials costs simply increased intercine rivalry and placed pressure on internal factory prices; consequently traditionally spinners strikes were defensive actions. (Smith, 1954: 400-3) In the minds the early spinners' union leadership the fact of a strike was a defeat for their power and strength lay in the factory.

(Mawdsley, 1885: 134)

This being so we can begin to examine some of the questions posed earlier: what enabled the spinners to maintain their privileged work role, achieve a very powerful union, and retain control over the piecers. This in a period when from 1873 to 1896 raw cotton and yarn prices fell by almost 50%. (Smith, 1954: 83)

Our first hint of an answer comes from the contemporary accounts of the English textile workers in the 1880s and 90s. In contrast to punitive 'external' controls used by employers in early times we find one investigator contrasting the different degree of supervision required between English and German spinners. Whereas in the latter mills 'tyranny and unbridled force' remained supreme, Lancashire overlookers were less numerous, less well paid and largely ex-spinners of near retirement age. In short, symbols, rather than agents of, control. (Schulze-Gaevernitz, 1895: 99-101) Elsewhere this same writer characterised the relation of labour to capital 'as organised discipline'. (ibid, 1893: 146) It was this ability to sustain continuous intensive labour that in some accounts 'saved' English textiles from its self-imposed technological isolation. (Copeland, 1917: 300) As we suggested earlier the structural position of the spinner made the embracing of the piecework system essential, and there is much evidence to suggested that they did exactly this, if with a degree of ambivalence. This is reflected in two quotations from the trade's paper, the Cotton Factory Times. The first contrasts working conditions in 1887 with those of 20 years earlier.

> The operative at that time often used to be able to leave the mill in the morning and afternoon, such was the ease of working methods. There was no standard prices then and wages varied enormously. Now there is no break ... the number of spindles attended to by a minder and two piecers has increased by 30% ... the speed of mules has increased by 15 to 20%. The

> tendency is to reduce list prices as the length and speed of the mules is increased. (4.12.1887)
>
> ... if a firm realises that it cannot manufacture with a profit to itself, and it is paying no more than others for labour it is better the firm, harsh though the doctrine may seem, should cease to exist, rather than the operatives should accept a reduction in wages and drag the whole trade down with them. (17.5.1896)

It was only logical that when organised the Spinners' Unions attempted to penalise employers who failed to introduce new machinery. (Webbs, 1920: 413) The more the employer became competitive the less he was able to resist threats to disrupt continuous working, and thus the more reliant on the spinner as the 'linkman' in the productive process. James Mawdsley told the 1886 Royal Commission,

> The new and improved machinery brought in is an advantage to those who work upon it in respect to their earnings as compared with what they would have gained working on old machinery.

When such innovations were introduced the management would, until the machine was 'tuned', pay a day rate for, say, three months,

> ... at the end of the third month the men are put on piecework, and we find a great leap in production, showing that the men have done a great deal more than they did when on time. (1886 XXI: 176, 174)

Interestingly enough the Master Spinners questioned were unanimous that wage rates were not the cause of the Depression, for example, a manufacturer of Preston,

> Do you consider the Depression is attributable at all to the current rate of wages ...? - No.
>
> ... may I ask you further, supposing rates were lowered do you think business would revive? - Not by that means only. (ibid: 198)

This, in the context of orthodox economic thinking is quite extraordinary, 'modern' in fact on both sides. The worker accepting and encouraging technological improvement and realising the more capital intensive the less crucial the <u>quantity</u> of wages became in comparison to the <u>effort</u> they engendered amongst the workers. Concomitantly the

employers understanding of this leading them to propose solutions to the 'crisis' at the level of trade; in the words of one textile manufacturer 'either entire free trade or tariffs'. (ibid: 286)

In the context of international competition in an industry which exported over 70% of its output the 'plebian' position of the spinner would appear to have been highly functional in maintaining labour discipline. Given a wages system based on an ever-changing relation between the yarn quality, mule speed and the type of product the spinner aristocrat ensured the smooth transition from job to job, and rate to rate, and what is more was responsible for these decisions from within the workforce itself. In the words of one veteran union activist from Preston,

> The good spinner's machine never stopped running during his shift ... from this both he and his piecer ultimately benefited and thereby the trade as a whole. (Banks, 1886: 15)

Productivity, Conciliation and Spinners Unions

There is overwhelming evidence that the spinner was subject to a continuing increase in the rhythm of work in the last quarter of the century, reflecting the exhaustion of labour-saving innovations. This took an 'intensive' form, hours of work fell during the period (at least formally). The following figures summarise the position:

TABLE IV

Years	Hours of Work	Yarn Prodn. per Spindle	Labour cost per Yarn
1829-31	69	21.6 lbs.	4/2
1856-60	60	30 lbs.	2/1
1891-93	$56\frac{1}{2}$	32.4 lbs.	1/6

(Smith, 1954: 381)

As would be expected the absolute rise in productivity (in terms of the

third column) is not as dramatic as the relative position indicated by the falling labour cost. Consequently, there was constant pressure on the hours of labour; 56½ was the law but 'recourse to crib time' pushed average two hours above this if the union could not prevent it in a trade decline. (1886 XXI: 72) The spinner was particularly susceptible to 'speed up'; mule speeds increased from 5,000 revolutions per minute in 1839 to 11,000 by 1890, and number of spindles per operative from 109 in 1850 to 234 by 1890. (Farnie, 1953: 478, 41) As can be seen these were less a result of adding more capital to each worker, and more a consequence of using existing techniques more intensively. There was thus less financial commitment involved by the employer relative to the expected return. Of course the spinners themselves brought this upon themselves by their enthusiasm for payment by results, for it is piece-rates, not time rates, which provide the motivation for labour saving innovations. But in the context of the last quarter of the century when the price of yarn and of piece goods fell faster than the price of imported cotton, labour costs as a proportion of all costs probably fell. Thus the pressure on unit costs for the individual proprietor expressed itself as a relation between his capital investment and profits, rather than in former times as a relation between the market prices and wages. (Blaug 1960-1: 368; Smith, 1954: 202; Farnie, 1953: 401) The most recent study of the effect of this puts the response of the workforce as a whole at approximately a 40% increase in output per unit of labour between 1885-1914 - a complete reversal of economic orthodoxy which had held for forty years. (Sandberg, 1974: 108-9)

This analysis, alongside an understanding of the significance of the spinner's 'plebian' role, allows us to understand the relation between the emergence of unionism, conciliation and the list system of

wage contracts. In effect what the above tell us is that the employers had to reach a detente with the operatives in an effort to win their co-operation in overcoming overseas competition, since the technological stagnation post-1870s in labout utilising methods implied that the major contribution to greater efficiency had to be provided by the efforts of the workers themselves.

The two most important spinners unions were formed in Oldham in 1870 and Bolton in 1871. In the latter case the central executive was composed of mill delegates elected by proportional representation. Each mill had the right to nominate candidates to this body from which one seat became vacant every two months. In contrast, the Oldham leadership came from districts, whose representatives were appointed from above with the President and Secretary, formed a sub-committee which investigated all minor cases and ran any strikes (which could only be called by ballot). (Chapman, 1904: 246-8) The two areas were dominated by coarse and fine spinning respectively, which in turn governed the content of the list adopted. Bolton fine spinning was totally a piece price list i.e. it lays down a price for each count of yarn and each length of mule, from which the wage is computed by the weekly output by the prescribed price. It can be seen therefore that differences in machinery affect the employer not the operative, since the labour cost is a rate per pound of yarn remained the same whatever the time taken. As a result,

> The Bolton List ... makes for a measure of equality in labour costs between mills of varying efficiency, but inequality in operatives' weekly earnings. (Jewkes and Gray, 1935: 58)

By contrast, the Oldham List introduces an element of the home-wage system by stipulating that all operatives working on mules of a given length shall earn roughly a standard wage. The weekly output of such

mules is calculated, by reference to their known speed, and a piece price determined. The effect was to encourage the employer to lower his labour costs to the minimum, since for each length of mule a standard wage is payable. This list equalises wages whilst varying labour costs between mills. The element of time-wage is related to the higher degree of automation amongst the larger Oldham mills producing coarse yarn - a factor we have noted elsewhere in discussing payment by results. Ring spinning, an innovation that removed much of the labour of piecing became largely an occupation for female operatives. It is here where automation was at its zenith and organisation lowest that the time-wage reasserted itself in textiles, the operative now being totally subservient to the pace of the 'automaton'. (1909 LXXX: XXVII)

These differences are important for our purposes since, as will be seen, they produced differing union characteristics and policy, particularly in relation to the piecers. This is especially clear when considering that in the first quasi-universal union, the Amalgamated Association of Operative Cotton Spinners formed in 1870, Oldham was the most important constituent part. Both in terms of the lists and unionisation this is a considerably simplified historiography: in 1887, nine lists governed the wages of 18,500 spinners, and in 1909 there remained 148 unions in the cotton industry. (Porter 1967-8: 50; Copeland, 1917: 291)

In 1884 the Amalgamation reorganised along centralised lines, embodied by the appointment of full-time officials (decided by competitive examination) to deal with the complexities of the lists. As the Webbs noted, the modernisation of trade union forms and the wage contract were related.

> ... the Bolton Spinning List, for instance, comprising eighty-five pages closely filled with figures - the intricacy of the calculations is such as to be beyond the comprehension of the ordinary operative or manufacturer, but even of the investigating mathematician without a very minute knowledge of the technical detail. (1950: 308)

At first only six local districts were wealthy enough to appoint such officials but this permanent cabinet came to dominate the Amalgamation. (Turner, 1962: 137) Yet Oldham and Bolton remained separate worlds as far as industrial relations and union activity were concerned. Whilst the compactness of piecers encouraged collective bargaining and density of trade union membership in both areas, they differed greatly in the degree of conflict. By 1891 the Amalgamation had 18,926 members, equivalent to 93.3% of all spinners employed, the degree of unionisation ranging from 99% in Bolton to 77% in Oldham. (Smith, 1954: 332, 328, 330)

Oldham was much more affected by overseas competition, its industrial organisation was more modern and the resultant list less favourable to the operatives. For example, actual wages of the average mule spinner increased about 18% more than can be explained by the wage lists - this increase must therefore be due to improvements in output per man. Under the Oldham List such a rise in wages reflects a probable increase in productivity of 30% per worker. (Jewkes and Gray, 1935: 18-20, 197-8) The Oldham spinners agreed to the first list in 1876, after a six weeks stoppage in 1875, which provided for grievances to be, in the first instance, dealt with in the mill. Only if this failed was the union secretary involved, if no agreement at that stage materialised, the employers and union secretaries would investigate the complaint, 99% of cases were dealt with in this way claimed James Mawdsley. (1892 XXXV: 27)

This cosy picture does not fit the facts of the first ten to fifteen

years of the lists. Its whole structure was designed to remove responsibility for disputes further and further from the 'front-line' operative, and 'vertically' up the parallel lines of organisation between the employers and union. The structure of the list allowed less individual compensation by workgroups for changes in speeds or counts and within three years four wage cuts were imposed via the list which undoubtedly the employers would have insurmountable difficulty in achieving on a plant-by-plant hasis. In each case the spinners' leadership played an indispensable role in diffusing opposition. (Smith, 1954: 523, 411-13, 414-15) A trade recovery in 1880-1 enabled the spinners to retrieve one-half of the reductions sustained in 1876-9. But again the Oldham masters proposed a 10% reduction in list prices to come into effect in April 1885. In a fascinating example of corporate trade union action the spinners proposed short-time working to combat over-production, caused they argued by the 'reckless investment' of capital in the industry. (ibid: 415-16; 1886 XXI: 178) Sixty four companies actually implemented the alternative plan for two months, but under pressure of the limited liability firms a general lock-out was instituted in July, though some private companies stayed open on the same terms, or on the basis of only a 5% reduction. After fourteen weeks an overall compromise was reached and the 5% cut instituted. (Smith, 1954: 438) It must be stressed that whilst only 4,000 spinners were actually 'in dispute' the lock-out affected 24,000, with roughly one-third of these as piecers under the tutelage of their work leaders.

So between 1876 and 1891 we see under the Oldham list a series of five reductions of 5%, 1877 to 1881, followed by four advances of the same amount during 1880-1891. The essential significance of the lists for industrial relations was that provided a method for dealing with

'quick speed' or 'bad work' disputes - from which Mawdsley was to claim:

> ... there is now not the slightest friction between employed and employers. (1892 XXXV: 27)

Yet in the answer provided by his own union to the Commission's survey of strikes and lock-outs during the past ten years was:

> Hundreds of them, too numerous to hunt up. (1892 XXXVI: 253)

What Mawdsley referred to was general confrontations, of the 1885 type - continuing uninterrupted was a series of 'front-line' disputes concerning the quality, or the speed, of output. The List system's success was not in conciliation but in concealment; an assertion perhaps best supported by the answer of the Oldham branch of the Master Cotton Spinners' Association to the same question:

> Settle in an equitable way any small disputes that may arise at individual firms, and so prevent growing discontent; but even this does not altogether prevent strikes as we have found by experience. We are now trying to preserve peace by preparing for war, viz., building up a strong fund to support individual firms attacked unjustly by trade union officials. (ibid: 818)

In fact during 1883-93 some 3,000 disputes were recorded by the Oldham Spinners' Union, most of them relatively short. (Smith, 1954: 325)

Thus despite the 1885 defeat there is much evidence that the rank and file spinners were able to maintain their position by accepting higher workloads; one estimate put real earnings as rising 20% 1880-87 for the piece-workers. (Porter, 1970: 398) This put considerable strain on the Oldham companies who, with their heavy fixed charges and capital investment, were most susceptible to unofficial disputes. Even as margins declined their structure encouraged them to maximise output and improve productivity to remain competitive - the source of Union complaints of 'over-production'. Whilst the spinners real income

improved the financial position of their mills worsened dramatically during the 1880s. (Smith, 1954: 219) This encouraged the employers to buy inferior grades of raw material which caused disputes on the shop-floor (since it reduced the spinner's income) which in turn hit at the margins of profit, which encouraged further 'economies' such as enforced overtime, to which the spinner objected ... and so on.

By way of contrast Bolton, the centre of fine spinning, was a different world; both in the sense of industrial character and trade union organisation. Cotton firms were predominantly family concerns, often employer's relations were used, as an extension of central authority, when establishing a new mill. (Thorpe, 1969: 174-90) From the 1820s Bolton spinners had regarded themselves as somewhat apart from their coarse and medium count colleagues, strikes during 1821-3 were specifically motivated in terms of retaining their differential with other districts. (Turner, 1962: 76) By 1886 only 0.7% of mule-spinners in Bolton were not unionised and they had approximately 20% better wages than Oldham. (Thorpe, 1969: 117; Wood, 1910: 28, 63)

This coincidence of family firm and such high trade union density is not accidental. Bolton was the originator of a unique form of trade union structure - the 'shop club'. Spinners' unions were organised geographically, so formally employees in many different mills could be in the same branch. But where, as in Bolton, price lists were historically unique to each mill (and even when integrated into an area list subject to numerous mill customs and practices) there existed a material base for a sub-layer of the branch based upon the mill only. Upon these foundations arose the shop club to which the spinners paid a

separate levy beyond their union subscription, which had its own rules, and procedure (including progressive fines for non-attendance and for speaking 'out of turn'). This became generalised throughout the Spinners Amalgamation - under the Oldham Rules the shop club officers dealt in the first instance with mill disputes, and had direct access to the area executive. (Thorpe, 1969: 250-2; Turner, 1962: 283-4)

This combination of family ownership and highly organised but localist trade unions produced a notably more stable history of industrial relations. On the one hand the employers remained outside the militant Federation of Master Cotton Spinners' Association until 1905, whilst the Bolton Spinners produced a series of three leaders, between 1884 and 1907, whose influence, for example in the years 1897 to 1906, produced only four strikes, despite the average of 136 disputes per year being notified to the local executive. (Thorpe, 1969: 32) Bolton was not, therefore, without its usual crop of day-to-day issues, endemic to an industry in which there is a constant flow of potential disruptions to pay. What is clear is that here the family firm and shop club were symbiotic in their effect in localising these disruptions. The issue, given the complexity and peculiarities of the list, was often solvable at mill level and the shop club provided the organising force for deputations and 'memorials' on them to the Master. The two combined to insulate conflict and thereby hinder general confrontations. Apart from the atomised shop clubs the Bolton Federation was divided again into ten branches, each with their own full-time official, who collected its own subscriptions, and whose area leadership met infrequently. (ibid: 249)

Not surprisingly Bolton had a reputation amongst Lancashire mill towns as a 'haven of the industrious and provident', qualities shared

by 'all sections of the manufacturing community'. (Cotton Factory Times, 15.7.1887) The spinners in 1894 launched an ambitious superannuation scheme designed to provide up to ten years pension for the fully contributed, of which their secretary A.H. Gill wrote in the 1905 Annual Report,

> The public ought to be thankful that trade unionists take this action as their contribution to the rates are thus materially reduced.

The spinners were fully aware that their relative privileges depended to an extent on the retention of family control in mills, and they issued frequent statements against the 'Oldham Limiteds' and the joint-stock principle as a whole - in this they were often co-signatories with the Bolton and Preston employers. (Cotton Factory Times, 12.10.1886; 1892 XXXV: 85)

The 'Formalisation' of Conciliation

We have seen that in different forms there existed considerable 'informal' avenues of negotiation, an unwritten code of procedure which employers generally conformed to. In the case of Oldham perhaps reluctantly, in Bolton with more enthusiasm: in both cases (as with the rest of the trade) it was localised to a mill, or group of mills, and not structured through an organisation, such as a 'Joint Committee'.

The differences between fine and coarse areas became accentuated as the latter came under severe overseas competition in the 1890s. The Oldham employers were particularly concerned at the growth of unionism in the late 1880s, upon which they blamed the loss of foreign markets. (Smith, 1954: 277) This concern was reflected in the reformation of an employers combination in 1888 called euphemistically the 'United

Cotton Spinners' Association' governed by a General Committee elected in proportion to the number of spindles they controlled. (ibid: 280-1) This inevitably gave the Oldham Limiteds control, and thus potentially involved fine yarn centres in conflicts in which they had no interest and little representation upon the employers' negotiating body. At the first attempt to implement a common policy - an agreement to work short time by 450 firms in July/August 1889 - these divergent interests parted and the Association collapsed.

Its successor, the Federation of Master Cotton Spinners, formed during 1891-2 included only the coarse-yarn centres principally the Oldham and Ashton employers. It was notably more militant. (text: 316) The division of employers into trade or regional enclaves had, whilst the industry was generally expanding, probably operated to the spinner's advantage. However, the Federation was now able to act in a united fashion, if limited to only one section. This determination was founded on a dramatic fall in profits - the leading 90 Oldham companies had made £376,041 in 1890, in 1891 this was reduced to a mere £10,764. (Smith, 1954: 179) Rather than seek a head-on collision the Federation responded by buying in cheaper cotton, which was much harder to spin correctly, thereby causing a fall in the spinner's income. There followed a series of running disputes culminating in a strike at the Stalybridge Mill Company, after the firm had refused a request by the Union for a 5% addition to the wages as compensation for the low quality raw material. The Federation responded by a lock-out involving some 60% of the Spinners' Amalgamation - the Oldham branch believing that the 'final test' had come. (Porter, 1967-8: 52) In fact, some manufacturers were agitating for,

> ... a general stoppage all over the country, of manufacturers as well as spinners, so that the organisation of the men in

> both departments of the trade can be broken down.
> (1894 CVII: 10-11)

In the event the union leaders forestalled a generalised confrontation at this stage by abandoning their Stalybridge branch, by admitting the quality of the raw cotton should be investigated after the mills were back at work. Moreover, clause 5 of the settlement allowed the strike-breakers to continue at work - about 50% of the card-room operatives failed to get their jobs back. (Smith, 1954: 476-8)

This comprehensive victory set the scene for a full-scale confrontation in September 1892. On the refusal of the spinners to accept a 5% wage-cut some 40-50,000 operatives were locked-out; 20,000 of whom were card-room workers, 16,000 were piecers, and 7,000 spinners, the rest being ancillary workers. (ibid: 487-8) Thus again only 14% of the strikers were in direct dispute, only their funds lasted the entire 20 weeks, and it was their officials who negotiated the famous 'Brooklands Agreement' which brought the affair to a close.

From March 1893 to 1913 this Agreement became the basis of all relations between employers and employed in the spinning industry. It provided that all new wages would stand for six months, and alterations could only be plus or minus 5% of the current rate. However history remembers the Agreement primarily for the elaborate grievance procedure it established - regarded by the Webbs as 'approaching the ideal'. (1920: 203) The exact details are less well publicised, but are intrinsically interesting for they 'formalised' the already extant process of mill-by-mill 'vertical' lines of conciliation. In essence four stages were created through which each dispute had to pass: (1) the issue was submitted in writing to the local secretaries of the trade union and the employers; (2) it was then investigated (within seven days) by these two, or by a committee of three representatives

nominated by each side; (3) failing a local settlement the matter was considered by a Joint Committee in Manchester of our members of the Spinners' Amalgamation and the Employers' Federation, the decision again to be made within seven days; (4) this Committee could, in specified circumstances, extend this deadline indefinitely. (1894 CVII 288-90) J.H. Porter has shown in practice it was the first two stages that played the decisive role: between 1904 and 1912 on average only 7% of cases overall reached the Joint Committee, and only 3% of those particular to the spinner. (1967-8: after Table 11) In other words, in the absence of a decisive change in organisation of work, the 'Brooklands Agreement' did not represent some paradigm shift in the organisation of industrial relations but the formalisation of existing procedures with the addition of a central, but largely symbolic body. The running conflict within the mills continued unabated, some 4,000 voluntary agreements were made in the 1904 to 1912 period - largely over 'bad spinning' i.e. poor raw cotton (from the spinners' viewpoint). This was cushioned by the rising earnings occasioned by the acceptance of 'speed up' in the first nine years of the Agreement. (ibid: 57; Wood, 1901: 155n)

Why did the Agreement alter only marginally the character of industrial relations? The answer to this will also explain the extraordinary stability of the structure of work, and the hegemony of the spinners over the entire cotton textile labour force. In effect what occurred was a 'trade-off' between the militant employers and the 'militant' i.e. exclusive workers: each area of authority was defined, as were their mutual interests and enemies. Important here is the fact that the slow closing of differentials between spinners and piecers stopped in the 1890s and actually increased slightly up to 1906 (text: 295

Table II) Their 'plebian' position was strengthened by the absence of provisions for the piecers, in the 'definitive' statement of negotiation procedure - the 'formalisation' in stages (1) and (2) of the Agreement consolidated the leading role of spinners and further distanced the piecers from the collective bargaining process. In this sense the spinner's position, recognised informally as the intermediary between employer and workforce, was brought into the formal conciliation machinery.

> We are witnessing the recognition of the spinners duties as well as his rights .... Responsible leaders in the Amalgamation can only welcome this, as will responsible employers. The public can now hopefully look forward to an era of prosperity in the industry, and social improvement amongst the operatives. (Cotton Factory Times, 12.5.1893)

Thus although the Agreement in no way disturbed the internal hierarchy of work, it did represent a new climate of economic and industrial circumstances. Speaking to the Manchester Statistical Society in 1905, A.H. Gill, the Bolton Providence secretary bemoaned the passing of an age.

> The old system of master and servant, where the private employer knew his individual workmen and often treated them generously is rapidly giving way. In its place the limited company, with its shareholders is largely in evidence .... Sentiment has largely gone out of business. (1905: 84)

To balance this it must be remembered the complexity and number of lists remained. In the wake of Brooklands the Cotton Factory Times advocated as a next logical step the adoption of a universal list, but also recognised that,

> ... labour segregates according to its delicacy, skill and versatility ... to force a universal list might require complete reversal of trade union policy. (1.2.1898)

In short, conciliation 'from above' characterised the twenty years up to the war; the 'real' history of the spinners shows this in many respects to be a continuation, rather than a watershed, in their work experience. The

key relationship which ensured this stability was the hierarchy of work and the role of the spinner as the 'industrial fulcrum' of the process of production.

Spinners: the modern 'Plebians'

The spinners, like their industry, were creations of technology which transformed the occupation from a minor part-time task of agricultural workers to a major factory system within three decades. Their position as wage labourers was not 'encumbered' with the pre-industrial heritage - the potential was open for a rapid elimination of what Marx called the 'subjective' division of labour. (1976: 501)

For the cotton entrepreneur the disjunction between mechanisation of spinning and weaving allowed the capital investment in spinning to occur under particularly favourable circumstances. He could shift the main burden of adjustment to technical change to the domestically based weavers, for whilst this system would ultimately become a hindrance to textile expansion, during the 'take-off' period the declining wages of the weavers ensured rapid capital accumulation (and in turn lowered the initial outlay needed to enter the spinning industry). Within the factory rational organising of production around the machine, nonetheless, depended on the 'socialising' of the workforce.

The labour brought into the cotton factories was, in one sense, the 'first' working class within the orthodox factory structure, on a mass scale, the majority of whom were unskilled or semi-skilled. G.H. Wood gives the following percentage distribution of the age and sex of cotton operatives:

TABLE V

	Children (-14)	Women & Girls	Young men (14-18)	Adult males
1835	13.1	48.1	12.4	26.4
1850	4.5	55.6	11.2	28.8
1862	8.8	55.7	9.1	26.4
1868	10.3	55.1	8.5	26.1
1874	13.9	53.7	8.3	24.1
1885	9.9	56.0	8.0	26.1
			(1910: 607)	

Thus, the picture is of a divided inexperienced labour force with neither the tradition of craft, or the experience of organisation. The employer had to simultaneously discipline and pace this hetrogeneous group and thus evolved a factory hierarchy in contradiction to the meritocratic structure of production as a technical system. This is demonstrated by the evidence of James Mawdsley to the Royal Commission on Labour of 1892. He revealed that of every three piecers who having served their six years 'time' and become qualified as spinners only one was selected by the employer,

> ... the others drift into miscellaneous occupations ... and then a certain proportion remain piecers all their lives. (1892 XXXV:801)

Since the spinner realised no specific extra surplus value the excess was of no use to the employer since the position of supervisor required additions only in proportion to the increases of other 'unmotivated' labour.

Another important factor to consider in order to understand the position of the spinner was the dramatic reduction in the unit cost of labour throughout the nineteenth century. From 1829-31 to 1859-61 cost per lb. of the final product fell 50%, and by another 33% up to 1891-93. (Ellison, 1886: 280; Merttens, 1894: 128) This was in part due to refinements in the 1860s which finally mechanised fine spinning,

a development due more to the cotton famine caused by the American Civil War than to entrepreneurial initiative. (Chapman, 1910: 468) However, given the fundamental inertia of capital investment throughout the period the major factor behind the lowering of unit costs must have been the increasing productivity of labour. An increase, moreover, induced by improvements in the internal efficiency of labour to the work process, rather than the organic composition of the capital equipment involved. Indeed, there is evidence to suggest that in Lancashire at least, the capital cost per unit actually fell in the last half of the century. (M. Blaug, 1961: 366-7) Whilst output grew by 40% from 1820 to 1845 in current value terms, the wage bill only increased 5%. (Deane and Cole, 1969: 295)

All this points to a remarkable growth of labour efficiency relative to the capital employed. A contemporary observer noted how the speeding up of machinery under the piecework system the differential between the piecer and spinners had actually increased during the years 1842-59. (Chadwick, 1860: 6) The extent of the saving on labour costs between 1876 and 1886 has been estimated at 23% - this being achieved, it must be remembered, solely as a result of labour productivity. (Jewkes and Gray, 1935: 60-2) This supports the earlier proposition that the spinners role was a creation of the industrial system - functional to the creation of a suitable wage/effort relation. Given the complexity of the piece system created by the contradiction between the advanced state of mechanisation and the 'unsocialised' labour force, the continued existence of the spinner's role testifies to the essential simplicity of the supervisory tasks involved in the work process. Yet it was precisely the increasing complexity of the production cycle in other industries that led to the replacement of the piecemaster by a

professional non-manual management. (A.J. Taylor, 1960: 234)

Thus, we can see that the function of the spinner was to resolve the contradiction of capitalist production within the workforce itself, by the policing of a wage bargain that exactly mirrored the changing relation of labour to capital in the cotton industry. Of course it would be too simple to present this as entirely advantageous to the employer - the spinners, for example, limited the number of mules under their supervision. However, the effect of enforcing a job hierarchy advantageous to themselves was to lower the wages bill overall, without this:

> ... the conditions of work might have resulted in virtual apprenticeship, ending in a moderate wage, perhaps again to increase moderately; but the policy of the spinners necessitated a system of long apprenticeship with a higher wage ultimately. (Chapman, 1910: 469)

Spinners' unionism corresponded to this - piecers' unions were held in a subordinate role. Mawdsley put it this way.

> Do you control the piecers at all by Society? - Yes, our local districts have largely organised in that direction, and if we come out on strike the piecers are brought out as well, and paid.

However this strike pay depended on the issue.

> If they wanted to better their position at the expense of the spinners, we might object, but if they wanted to better their position at the expense of the employers we are quite willing they should do so. (1892 XXXV: 29)

A contemporary observer summed up the piecers' dilemma.

> The piecers all hope to become spinners soon, and find it hard to fight against their own future bread and butter. (Chapman, 1910: 470)

Whilst the organisation of work remained hierarchical, despite its meritocratic technical form, those at the top had no need to artificially limit entry to the occupation. This puzzled the Webbs who identified apprenticeship with strong unionism - yet the cotton spinners undoubtedly

had the latter without the former.

> Yet no part of the strength and success of this Trade Union can be attributed to a limitation of apprentices, or to any monopoly features whatsoever ... the cotton spinners positively encourage as many as two (piecers - M.R.H-J) to each spinner, a ratio which is approximately ten times as great as is required to recruit to the trade. (1920: 474)

Of course, as we have seen, the 'monopoly' was an already established form of work, rather than a manipulation of the labour market.

In a working life of approximately 30 years a spinner would employ about 4 to 5 big piecers and 5 to 6 little piecers, but in an industry of constant size, only one of these would graduate to the top position. (Jewkes and Gray, 1935: 173) Up to 1914 the industry was still growing sufficiently to lower this failure rate to about 1 in 3. Nonetheless, in the aftermath of the Brooklands Agreement the spinners were able to successfully pass on the loss to the group over 'bad spinning' to the piecers, whose workload increased as more breakages occurred whilst output as a whole fell. Many unofficial strikes of the 1890s were piecers' strikes, as much against the spinners' deductions as against the employer's use of inferior raw material. (Burgess, 1975: 289)

Local control in the mill became more, rather than less, important. From little piecer it might take up to twenty years to become a spinner, the gradations of seniority being strictly limited to each mill. If a place became vacant it was obligatory for it to be filled from the 'inside' on the decision of the shop-club, not the management. The piecer had to be 'shopped' i.e. accepted by this body before being recognised as a spinner, thus effectively excluding 'strangers'. Elaborate local procedures existed for the 'minding' of carriages if a spinner was ill or his place not yet permanently filled. (Thorpe, 1969:

253) Examples of disputes from both 'sides' of the work equasion appeared regularly in the trade press.

> Work was temporarily stopped at the Eclipse Mill of Messrs. Jackson and Co. at Bolton over the minders (spinners - M.R.H-J.) insistence that their nominee take on a vacant pair of mules .... (Cotton Factory Times, 3.4.1896)

> Considerable efforts must be made to bring more equity to the position of the piecer otherwise the rash of strikes and stoppages by them over promotion will continue .... The experienced minder is due his worth, but this must not be at the expense of those below him .... (Cotton Factory Times, 1.2.1901)

In fact in Oldham the spinners were obliged to pay a minimum to their helpers, despite protests over 'management interference'. However, by being in a position to control the division of labour they,

> ... managed to retain all the extras for themselves, and so leave the piecers in much the same position as before. (Chapman, 1899: 597-8)

This organisation of work, born in the water-driven factories of the 1790s, survived over 140 years virtually undisturbed. The self-actor, mechanisation of preparatory and ancillary processes, the emergence of the alternative to the mule (the ring-frame), and finally the independent organisation of the subordinate workers themselves, all failed to effect any major change. Let us look at the failure of the American ring-frame to take over from the mule a little closer. It had undoubtedly technical superiority, yet,

> Instead of warmly receiving the ring-frame the English manufacturers bent their energies to the perfection of the mule. (Copeland, 1917: 71)

The explanatory factors are numerous, but overwhelmingly important seems to have been the policy of the Spinners' Unions, a policy facilitated by the organisation of work. In the 1890s the Webbs noted how, if an employer wished to introduce this innovation,

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> ... he was offered ... a revision of the piecework lists so arranged to stimulate him to augment the rapidity and complexity of the mule, in order that the mule-spinners, increasing in dexterity, might simultaneously enlarge the output per machine and raise their own earnings. (1920: 425)

A recent extensive econometric investigation, comparing the English and American cotton industry, came to exactly the same conclusion. (Sandsberg, 1974: 63-5)

Both express this opinion in terms of the flexible, non-militant union policy - but of course everything we have analysed so far points to the fact that this in fact relied on the organisation of work. The 'flexibility' of the spinners was based on their ability to pass on the necessary speed-up to the piecers, and the way in which they were in turn hamstrung in their response to this. So in this way also the role and authority of the spinners was to their employer's advantage in the short term; a mutuality of interest not simply in ideological terms, but reflecting the actual relations of production inside the mill.

The piecers on several occasions attempted to form their own independent union. In 1890 in Bolton such a union was founded, but the spinners' reaction was immediate. They enforced a closed-shop against any rebel members supporting the movement by making it obligatory for them to collect the subscriptions to the Spinners own 'Piecers' Union'. A similar fate awaited other ventures in 1908 and 1919, although on each occasion the piecers gained more say within the Spinners' Amalgamation, albeit still as second-class members. (Turner, 1962: 142; Jewkes and Gray, 1935: 168-9) The essence of the piecers' status was defined by the spinners original motivation to organise them at all - in the words of the annual report of the Oldham Province for 1878:

> For several years the Amalgamation has been labouring under a disadvantage both in general and individual strikes in having to pay piecers, creelers and scavengers, strike pay although they never paid anything to the funds of the District .... This system was felt to be a great drain on the resources of the Amalgamation and it was resolved to form, in connection with the Amalgamation, a Piecers' Association. (ibid: 167)

Further proof of their subordination is demonstrated by the fact that the degree of organisation was strongly correlated to the strength of the local Spinners Province; Bolton, for example, had traditionally 100% membership of their auxillary Piecers' Association.

We have seen that the essential function of the work group was machine tending, minding and servicing. The spinners were increasingly referred to as 'senior minders' in the latter half of the century; the nomenclature of the piecer (mending broken threads) and scavenger (cleaning and preparatory work) also reflecting the machine-based character of their tasks. To the extent the spinners were coordinators and organisers of the spinning process, an essential feature of his role (embodied in the fact he was the only pieceworker) was to ensure the machine is stopped for the least possible time. There are, however, at least four possible factors which are continually present in the labour process which could lead to interruptions. Firstly, the quality of the yarn. With coarse yarn the work rhythm is faster, the cops need to be replenished more often for the carriage moves faster and the cops hold less yarn. Cleaning is also heavier because coarse yarns throw off more impurity than the fine. Secondly, the speed of the machine decides how fast the operatives have to travel - on average an Oldham minder covered thirteen miles daily in his supervision of the carriage. Thirdly, the length of the mule and thus the number of spindles determined the extent of the duties described above. Finally, there is the quality of the raw material. Inferior cotton or faulty preparation may increase

the frequency of thread breakages, and stoppages may culmatively become unavoidable. This is the source of the aforementioned so-called 'bad spinning' disputes.

It will be noticed without exception the work group had no immediate control over these disruptive elements in their work situation. If they were equals, say on collective piece-work, there would be constant pressure toward conflict, and a natural tendency to combine to raise the prices to allow for these. Groups would evolve norms and 'horizontal' affiliations with similar groups on the other mules; in short, the essential division would be membership or non-membership of the group (as with the 'marra' system in the North Eastern pits). In fact as we have seen, the actual divide was created within the work group. Numerous isolated conflicts, where the subordinates are involved in an atomised dispute with 'their' minder instead of the system as a whole. As a form of sub-contraction it remains unique, for although very common in the nineteenth century, it is the only one contained within a factory trade. (Schloss, 1907: 180-204)

The essence of sub-contraction and its rationale in the industrial order is the mediation of control from the centre to the periphery of a production process. Nominally it would appear to be therefore unnecessary, in spinning - the employer has clearly 'formal and 'real' control by virtue of the complete subsumption of labour to capital. But of course the greater the fixed capital costs the greater the cost to the capitalist, when this is not producing - a pressure intensified by the continually competitive nature of the industry.

The payment system and hierarchical workgroup are one answer to this: building into the organisation of work the 'labour of superintendence and management'. As such it is interesting to note the

unanimity of contemporary observers of the 'self-discipline' of the English spinners.

> ... it is to be mentioned here that the English spinner does not require overlooking the same as the German.

Whereas the latter apparently needed one supervisor to 10-20,000 spindles, in England this rose to 60 to 80,000. (Schulze-Gaervernitz, 1895: 99) Similar favourable comparisons were made with American textile workers of whom it was said were 'unruly and disorganised' in comparison to their English colleagues. (Copeland, 1917: 290) A paper given to the British Association for the Advancement of Science declared:

> In the cotton trade I believe that we have at the present time the most effecious labour in the world. It is not only bred and trained, but it is fitted and disciplined to its work and under the present lists with the present improved machinery you may always rely on its performing its duty with the exactitude of a clock. (1887: 51)

Furthermore, in contrast to the transient, or largely immigrant labour of Continental or American mills respectively, in Lancashire the intense geographical concentration produced,

> ... a new type of man ... the industrial worker, born and educated for the machine. (Schulze-Gaevernitz, 1895: 53)

As a result of this 'psychological adaption',

> ... the highest class of cotton operatives - the mule spinners - are really the aristocracy of England's labour, as well as, in general, that of Europe. (ibid: 150)

A Craft Union?

The spinners constituted an 'aristocracy of labour' through their collective exclusion of other workers to a grade <u>of</u> an occupation, not the trade as a whole. They therefore had no need for apprenticeship 'monopolies' or cumbersome trade policies based on the 'right to a trade'. In fact, on the contrary, their benefit rules seem frequently

designed to get displaced members out of the occupational labour market. The Oldham rules, for instance, withdrew unemployment pay from a member incapable of work by illness, 'friendly' benefits were usually modest lump sums (in Bolton linked to emigration and alternative work). A spinner out of work for a year automatically lost his union card, or if he exhausted his unemployment entitlement on restarting work was transferred to a Piecers' Association, and had to await the availability of a minder's position. Or again, superannuation was remarkably generous and, in one case in Bolton, payable at so early an age as fifty-two. (Cotton Factory Times, 1.12.1901; Gill, 1905: 71)

'Mutual insurance' was only necessary to the Spinners' unions as a mitigation of the ultimate consequences of their own customary labour controls; whereas with the 'traditional' craft unions it constituted an a priori assumption of their social position in society. It reflected the ultimate expression of insular instrumentalism, in fact the outlook of the 'modern' twentieth century worker found in recent sociological theory. (Goldthorpe, 1968-9) But the organisational expressions of the 'cash nexus' were combined with 'pre-capitalist' sub-contraction, and did not result in a class consciousness - quite the reverse in fact.

The structure of trade unionism in textiles was, by the turn of the century, extraordinarily polarised. One hundred and forty eight unions organised 271,124 members, but no less than 19% of these were in the Amalgamated Association of Operative Cotton Spinners, which at that time included 96% of the mule spinners in Lancashire. (1909 LXXX: 24) With a membership of 50,349 (including piecers) it was nearly three times larger than the next largest, the Burnley and District Weavers, Winders and Beamers. By the standards of the time its branch sizes were huge,

on average 839, clearly including at least three mills - thus demonstrating the combination of centralism and localism - since it is clear that the real basis of activity would have been the 'shop-club'. Yet at the 'top' as the Webbs noted, the Amalgamation was run as a 'fully-equipped democratic state of the modern form' with a leadership elected for their technical ability by a delegate meeting of only one hundred, a 'permanent civil service'. (1920: 40-1) But as we have seen this was not at odds with localist de facto 'primitive' organisation, but completely symbiotic in the context of an exclusive, occupationally aristocratic, trade activity.

The bedrock of the Amalgamation was not its well publicised leaders with their examinations, offices and political influence, but the increasing number of local full-timers employed by the Provinces, whose power lay with their unique knowledge of the labyrinth of customs, rates and practices particular to their area. J.T. Feilding, secretary of the Bolton Spinners in the 1880s, was fond of announcing that he alone understood the complexities of the Bolton list with all its constantly changing mill circumstances. (Thorpe, 1969: 259) We thus see at this level also the combination of localist and centralised features in industrial relations: a constitutional form based on the province with considerable power and autonomy, yet a structure of collective bargaining governed from the 'centre' - a system formalised by the Brooklands Agreement but in existence since the 1870s. (Webbs, 1920: 195-7) This contrasts strikingly with the engineers who had a centralised constitution, but local bargaining governed by no central plan or executive. (Jeffries, 1945: 159)

Of course, the geographical concentration of both employers and the employed facilitated large-scale collective bargaining, but similar

conditions in the typographical and shoe-making industries did not lead to this outcome. (Musson, 1954: 201-24; Fox, 1958: 130-40) Crucial was the position of the spinners being 'exclusive' but not unsubstantial in the industry's labour costs. So that any systematic attempt to raise their wages inevitably provoked a similarly systematic resistance from the employers. On the other hand the latter had high fixed costs which constrained their industrial tactics, unlike, for example, the coal-owners. The federalist structure of the Amalgamation made it particularly organisationally unsuitable for general confrontations - apart from the technocratic characters of its leaders and their political conservatism. Yet the fundamental basis of the wage contract remained the complex regional lists - not a 'standard minimum'. In short, different pressures upon employed and employees produced the same desire for collective bargaining over the procedure for dealing with breakdown in the local determination of the wage/effort relation, and not the character of this relation itself.

Their occupational history mirrored the development of piecework in the industrial system. But, as we have seen, in embracing this form of payment they could not construct the traditional craft defences against the 'chiselling' of prices. The stability of their position depended solely on their role as organisers and supervisors of the labour process - if they earned less they had less incentive to ensure the continuity of production. The entry and exit of labour to their grade was their concern, not the trade as a whole; an insular conservatism which also led them to seek industrial peace agreed 'at the top' so allowing them to maintain their distance from both the employer and the subordinate workers below.

PART FOUR

CHAPTER IX

THE SIGNIFICANCE OF THE INCENTIVE PRINCIPLE

We have seen from our three examples that there was no simple linear development of the wage contract commensurate to the expansion of capitalist industry. Rather, the essential relation has been the proportion of wages to fixed capital invested - which in turn relies on the driving impetus of domestic, and then foreign competition. Marx however also draws our attention to the introduction of machine methods as a result of the limitation of the working day. In particular, in labour intensive industries where technological compensation for the reduction in working hours was impossible, the necessary increases in productivity were achieved simply by the enhanced ability of the worker to work more regularly and uniformly over a shorter period. A development coinciding with the rising importance of continuity of production in an increasingly inter-dependent economy. (Marx, 1976: 534-5)

In industries susceptible to improvements in productivity resulting from increases in the organic composition of capital - engineering and cotton spinning are out two examples - such changes necessarily depend upon the structuring of the workforce to the machine and the elimination of restrictive practices, both in the shop and at the level of labour recruitment. Marx has shown clearly how the contradictory and halting emergence of what he called 'machine production' from the social and industrial structure of the first 50 years of the industrial revolution, retained many of the elements of manufacturing authority relations. Here,

> The worker has been appropriated by the process; but the process has been previously adapted to the worker. (ibid: 501)

However, in the technologically evolving sectors this is soon superceded. The 'subjective' division of labour is overthrown by the objective structuring of the work process to the needs of machine. In turn this can only occur when the revolutionary technological basis is itself freed from the limitations of reliance upon skill. Only when the initiative for the further de-skilling of labour within a branch of industry became monopolised by the capitalist and his control of knowledge, can the complete elimination of craft control be achieved.

> Large scale industry therefore had to take over the machine itself, its own characteristic instrument of production, and to produce machines by means of machines. It was not until it did this that it could create for itself an adequate technical foundation, and stand on its own feet. (ibid: 506)

In industries where wages formed a historically declining share of the unit cost of production methods of payment by results became the transitory system of structuring the workforce where vestiges of craft control existed side by side with the genesis of machine production. Thus the employer was able to tie the most capital intensive sectors of production to that form of wage relation most easily susceptible to the intensification of labour. This gradation of labour into those whose effort is assumed to increase with incentive, and those whose wage remains fixed provides an important ideological reflection, within the wage structure, of those who have learnt, and those who are only learning, the 'rules of the game'. In this respect we can view the differential of, particularly, the cotton spinner as a reward for becoming an agent of the incentive principle within the workforce, rather than representing any realisation of extra surplus value.

Piecework would seem to be direct contradiction to trade unionism

since it removes the final decision over the wage received by the worker to each individual, rather than upon a collectivity. However, as we have seen it was the specific conditions of a British industrial development which did not allow this to generally occur. The lack of overseas competition allowed both the cotton and engineering industries to meander through the last half of the century without systematically making the transition to machine production.

In neither case did technological improvements penetrate sufficiently to allow standardisation of the work process. It was upon this complexity that the foundation of the piecemaster system lay. Whilst the structuring of wages to effort remained negotiable, and therefore each production process in part unique, the division of labour remained to a degree subjective. How this operated within each industry was in turn largely related to labour traditions and the degree of task dilution.

In engineering it can be argued that the comparative lack of a supervisory caste, and the hostility (rather than reverence) felt toward them, was a product of the widespread acceptance of piecework ideology in the larger shops on the one hand, and the lack of a material basis for such a system in the smaller specialised sectors, on the other. Marx pointed out that the reduction of the capital-labour relation to the wage contract was the foundation of the illusion of capitalist society as a system of freely negotiating individuals. The piece-wage therefore, whether within or outside, the factory system represents an extension of this 'illusion' to the individual worker or group. (1976: 683-6; 692-4) Therein lies the essential contradication between piece-work and craft traditions. For the latter in engineering did not simply obstruct the rationalisation of the wage relation within each factory,

but also interfered with flexible recruitment and structuring of labour into that branch of industry. That this conflict took the form of a war of attrition resulted from the dearth of capital re-equipment and the end of the railway building mania in the 1860s - increasingly the engineering industry became concerned with maintenance and repair. (Jeffries, 1945: 199)

It is also important in this respect to recall the doggedness of local non-recognition of piecework in the shops and how this was associated with the 'density' of trade union affiliation. As a craft union, which was also exclusive, (as opposed to simly an exclusive one) such shibboleths were materially important to the survival of a certain form of association. The ideological legacy of the millwright had not been erased by the formal subsumption of labour to capital in engineering; that process went on into the twentieth century. The struggle against it had to be localised (given the formal defeat of 1851-2) but that merely served to reinforce the actual organisational strengths of the A.S.E.; the 'informal' side of a union's bargaining power which never surfaces into written history.

We have seen in the development of the mining industry a close relation between the increase in capital and the decline of sub-contracting in its original sense. In this we can agree with Pollard that,

> ... it survived into the factory age, to become, if not a method of management, at least a method of avoiding management. (1968: 52)

However, whilst the sub-contractor declined as a minor partner within the enterprise, the natural system of the workgroup in the industry ensured a similar hierarchial structure remained in many cases albeit with the uniform status of wage labourer. One consequence of low

mechanisation of the coal getting process was the retention by hewers of control over the pace and intensity of labour. Thus precisely at periods when the motivation of the capitalist to mechanise was high (that is when demand was buoyant) so also was the ability of the work-force to resist the necessary reorganisation. As we have seen the North East hewer whose status remained high was best able to resist the progress of 'change' or adapt it to his own advantage. As Marx indicated the inability of the capitalist to 'capture' the whole of the production cycle for the machine hindered the free development of production.

This was of course not entirely a result of technical difficulties inherent to the process. By 1913 whereas only 8% of British coal was mechanically conveyed from the face, the figure for the U.S.A. was 72%. An undoubted factor was the multiplicity of concerns with a tradition of fierce local competition. This combined with the geological and historical structure of the industry all militated against long-term investment.

This goes a long way to explaining the favourable attitude of the miners toward piecework. Whilst the hewer maintained control over the pace of work, his major concern was inevitably to ensure the price of the product (the checkweighman system). In turn, this was the only way the employer could attempt to regulate effort, rather than by increasing the intensity of labour at the face. Herein, of course, lay the basis for the system of sliding scales whose sole concern was to link effort to the market price.

With their demise the incentive principle was no longer regulated by an 'external' factor (the market), but by the management whose essential task became to ensure output consistent with market fluctuations.

A Derbyshire colliery owner complained to the 1892 Commission,

> The percentage of absenteeism rises whenever the wages improve. (1892 XXXIV: 39)

The 1919 Commission also drew attention to this, particularly prevalent, it said, in Durham. (1919 XIII: 42) A miners' paper in 1907 came to the conclusion.

> Experience tells us that increased wages do not as a rule impel the miners in the direction of more strenuous production. (Taylor, 1961: 54)

The impossibility of managerial supervision and the non-existence of any 'internal' workgroup hierarchy suitable to the construction of a role of 'pacemaker' was as the Webbs understood in 1897, the fundamental basis to the mineworkers' insistence on piecerates. (1920: 290) The discipline and pacing of the work process remained a function of the individual effort, and as long as this was the case the 'control' of input stayed with the workers themselves.

In such circumstances the 'socialising' of the workforce to increase effort solely to improvement in wages was bound to be slower than when the pace of work was governed by machine production.

The introduction of the longwall system, to capitalise on better methods of transportation from the face to the shaft, didn't basically change the position.

> ... the average standard of job control remained very high, but now it was exercised by a team of hewers, advancing shoulder to shoulder against the face, rather than by lonely pairs of marras. (Douglas, 1977: 250)

A further indication of the miners' realisation of the importance of effort autonomy was the cavilling system. The randomisation and rotation of working places ensured that some of the uncertainty of piecework rebounded back on management: every 3 or 6 months, whether trade was good or bad, seam prices would have to be negotiated. In

other areas, particularly those under a sliding scale the relationship between prices and union power would act as a further disincentive to capital investment and rational exploitation of resources.

> ... because the cost working to the colliery was the same per ton whether the men got much or little coal. It was therefore a question of the supply of labour. (Jevons, 1915: 290)

The vast increase in the supply of labour in the last two decades of the century in South Wales undoubtedly aided the rapid rise of 'minimum wage' movement in that area. (ibid: 286; Arnot, 1967: et seq.) With the ending of sliding scale agreements, and the consequent determination of wages solely by bargaining between employer and employed without the vicissitudes of market forces, it is interesting to note the emergence of complex and lengthy piece-rate tables similar to those of the spinners.

> The wages of each individual hewer are often composed of many items and subject to many deductions that clerical work in calculating the wages for payment must occupy several days. (Jevons, 1915: 344)

For the employer to retain some control over the relation of wages to effort required the development of cost accounting and the consequent expansion of supervisory and technical staff. In particular, the allowance made for 'dead work' (removing stone, securing the face etc.) was under constant pressure:

> The custom was adopted by one after another of the bigger companies of keeping detailed cost accounts of each district of a mine, and thus putting different overmen and under-managers in competition for the lowest costs on dead work. Success meant a substantial cash prize .... (ibid: 528)

In this way trade depressions whilst not automatically reducing wages still remained periods of intensive conflict over rates and tonnages: a situation that was to remain so whilst wages consisted 60% of production costs. The expansion of supervisory staff within the industry was aided and inter-related to, the process of amalgamations from the late 1890s. (ibid: 314-330)

The Wage Contract and Collective Bargaining

Strictly speaking one of the implications of the interpretation given of Marx's theory of the labour process in Chapter Five, is that a separate theory of wages is impossible. This is because the structure of the wage contract is actually a refraction of the form of accumulation of capital, and therefore would have to be dealt with at the same level of abstraction. However, there are some obvious points which can be derived of particular relevance to the understanding of the wage contract.

One of Marx's greatest achievements was to show there was no 'iron law of wages' determining the level of wages with the force of natural necessity. Although ultimately the value of labour power (being a commodity) is determined by objective laws, there is, nonetheless, something special about this particular commodity - it involves the 'human' conflict of capital and labour - in other words, the class struggle.

> Besides the mere physical element, the value of labour is in every country determined by a traditional standard of life. It is not mere physical life, but it is the satisfaction of certain wants springing from the social conditions in which people are placed and reared up ... the value of labour itself is not a fixed but a variable magnitude .... The matter resolves itself into a question of the respective powers of the combatants. (Marx 1968: 225-6: Final emphasis mine. M.R.H.-J.)

Furthermore, Marx makes the interesting observation that this struggle is far from 'dysfunctional' to capitalism. On the contrary, he observes that without the forging of workers' combinations to maintain labour power at its value, the working class would be 'degraded to one level mass of broken wretches past salvation'. By implication, therefore, trade union activity contributed to the maintenance of a workforce able to 'reproduce itself' and its skills, abilities and so on, from one

generation to another i.e. to the reproduction of labour power itself. (ibid: 75) We have recorded evidence of awareness of this from government inspectors, 'enlightened' employers, official reports, etc.

The 'ultimate' force governing wages is for Marx the size of the 'industrial reserve army' i.e. the extent to which employers have a buyer's market for labour. The entry and exit of labour into employment, governed by the vicissitudes of capitalist expansion and decline, was created from four categories. Firstly, the expulsion of young workers on reaching maturity (particularly prevalent in the large-scale industries); secondly, the declining rural agricultural labour force; thirdly, those workers left redundant by the decline of 'domestic industry' where 'handicraft is giving way to manufacture, and manufacture to machinery'. Finally, there is the 'lowest sediment' of the surplus population, popularly termed the residuum. (1976: 794-6)

We have seen how in many instances the practical trade policy of cotton spinners and engineers has been governed by the need to cope with these fluctuations. In different ways their organisations formed defences against the 'flows' of the 'reserve army', and to maintain the advantages of the 'ebb-tide' as their bargaining power changed. In so far as they were successful, they interrupt the 'abstract model' of Marx's wages theory, and draw our attention to the fact that the real progress of wage changes are based on the crystallisation of forms of conflict, and the institutionalisation of wage contracts. In this way, for different reasons and with differing ideological results, workers were able to control the external influences of the labour market by the internal disciplining of their occupation.

As such it is fertile ground for the emergence of a symbolic mutual ideology: concern for the 'margin' (spinners) the 'state of trade'

(engineers) and 'price' (coalminers) are our examples. The creation of a common trade jargon also serves to underline the separation of delegates from workers' organisations from representatives (as they increasingly became in coal and cotton unions from the 1870s). This development came first, it will be noted, from occupations which required little skill, and whose privileges came from the exclusion of other workers by corporate action. The A.S.E. resisted fiercely the pressures toward a centralised representative 'civil service' until the turn of the century, and even then its leaders were under considerably more rank and file control because of the growth of the countervailing power of the shop stewards.

As pacemakers in the labour process the spinner and hewer had, for different reasons, a common commitment to payment by results. The former saw it as an 'automatic' defence against over-work - as long as the prices remained stable faster machinery would accrue to them some financial benefit without a trade struggle. The hewer, on the other hand, saw himself as a producer of a certain amount of coal, piecework was an extension of his autonomy. The M.F.G.B. in 1917 passed a conference resolution in favour of abolishing this system; but a vigorous minority led by the Durham Miners insisted that it would mean much more irksome supervision.

> ... you would probably see a 'doggy' or a deputy in every stall to see that the men are working their hardest.

claimed a Northumberland delegate (M.F.G.B. 1917: 208). In short, the spinner (whose total subserviance to capital was obvious) saw both the opportunity to collectively deal with, and respond to, his objective position in piecework; the hewer as a confirmation of his individual freedom.

Although widely separated in situation their pacemaker role demanded

a common strategy toward payment by results and collective bargaining; namely, the consolidation of prices at a national or county trade level in a formal agreement (either as a 'list' or a 'scale'). This in turn required a particular organisational structure: representatives to establish and monitor its running. Industrial relations, in both industries, thus tended toward long periods of calm interrupted by centrally led stage-managed disputes.

They are also contrasted in their attitude toward subordinate workers. The spinners organisationally isolated their piecers into separate surrogate 'unions'; the hewers, however, recruited the 'underclass' of haulage and surface workers. But where this latter group had a particular corporate unity (such as in Durham) a de facto isolation took place through the monopoly of trade union positions, and thereby policy. This apparent 'universalistic' approach could thus be seen as covert exclusionism, since only by recruitment could the non-face workers be stewarded.

The engineer, however, was a pacesetter: his rhythm of work was not governed by the need to set the pace for the rest of the factory (spinners) or as an extension of his fundamental autonomy (miners). As a craft worker the material roots of his exclusive activity came from 'inside' the trade, and not as a response to the 'external' pressures of capitalist socio-economic organisation on his position. From this flowed the response to the incentive principle and thereby the organisational structure of his union. Opposition to piecework formed the bedrock of local branch activity, as part of the struggle to control the labour market and thus the 'craftsman's due'. The cornerstone of this policy was local shop vigilantes, who reported infringements to the branch, who then approached the employer. This activity structured

the Society into an actual federation (with widely differing estimates of the craft rate, but each tenaciously defending it) this despite, of course, its famous centralised 'New Model' constitutional form. As a consequence the delegate remained the central organising principle of the Society's activity, until the piecework system became generalised, the formal transition occurring rather neatly in the post-1897 lock-out reorganisation. This established in real terms the dominance of the central Executive whose numbers were increased, whilst removing some of the customary powers of the District Committees. This process was symbolised by the signing of the 'Carlisle Agreement' in 1902; a formal statute between the A.S.E. national leaders and the majority of employers. The residual strength of localism, as we described earlier, was by no means overcome by this pact - thus underlying the survival of the 'pacemaker ideology/localist organisational structure' relation.

These strategies are in essence different types of social closure, empirically, of course, they rest on very differing foundations. But viewed as a mode of occupational action their common goal is clear - the exclusion of both management and subordinate workers from an area of organisational territory. This was a collective exclusion involving the maintenance of group and union solidarity, a type of 'cultural capital' successfully passed on to the next generation of privileged workers.

CHAPTER X

SUMMARY AND CONCLUSIONS

We began by interpreting Marx's understanding of class as a form of activity, albeit limited by the social structure which it has in the past created. As such all forms of enquiry into the meaning of class for the historical actors is necessarily oblique and one-dimensional. In order to have 'history' at all, human beings have to be able to live, 'the first historical act is thus the production of the means to satisfy these needs' but in doing so, a new 'need' is created, and in this way individuals 'daily remake their own life.' (Marx, 1970a: 48-9)

History is thus a stream of activity of which the historian can only encounter the banks, divergences and direction. However, s/he can outline the fundamental or 'abstract' conditions of the emergence of class society - the 'dichotomous model' of the Communist Manifesto. This is an indispensable first step, but only such; it leads, correctly to the framework of considering the working class as a productive force, discovered in the process of production, and all other classes as refractions of this. But if 'class' is only formed in action it is obvious this is not limited to 'action' at the productive level; there is the level of property and juridical relations, of political superstructure (the state) and of ideological forms. (Lefebvre, 1972: 104-122) Finally, there is the specific application of these forms to a particular historical event, their combination and inter-relation being determined by the object of study, not the enquirer.

In our case, the 'object of study' is work experience and the 'peculiarity' of English development for this purpose is the fact that, for reasons developed in the text, the emergence of occupational interests

pre-figured the creation of the working class itself. Therefore, flowing out of Marx's own method, is the need to modify this method, that is, to construct a theory of class formation in the process of the actual struggle for immediate goals by sectional interests. In other words, a 'dichotomous' theory of class action.

If we are to remain true to our premises 'peculiarities' at levels other than those affecting the working class also had to be considered, since class consciousness is forged in the struggle between classes, not 'by' the struggle of one class. In this context we argued that for the ruling class the crucial consequences of pioneer industrialisation were two-fold: the merger of landowning and merchant capital to form the 'industrial bourgeoisie', and the extremely early subordination of the Crown to this class, expressed through the ascendency of Parliament.

Theoretically in Marx this realisation matures slowly through his writings, labelled here as the decline of the 'polarisation thesis'. The consequences of this for our analysis were, rather crudely, divided into 'political' and 'industrial' categories; the fundamental idea, however, was to provide a way of understanding the progress of class action to class consciousness in the highly asymmetrical historical context described above.

At the level of 'high politics' the major legacy of pioneer industrialisation was two parties of the ruling class, the Tories and the Liberals, the latter with a shrinking electoral base. The sectional strength of the Miners and Cotton unions geographically concentrated linked with the need of both parties to re-define their appeal. Thus the potential was created for a symbiosis of electoral and industrial

reformism in Lancashire and Durham (for example) and a realignment, rather than revolution, of political alliances. Herein lay the significance of the 'Free Trade/Fair Trade' debate. The emergence of the Labour Party represented a continuum, a further extension of this symbiotic relationship; thus organisationally it conformed to the needs of pressure group intrigues, and not a political movement as such. This change in nomenclature began to assume real significance as the economic supremacy of England's industries began to be challenged, and thus the privileges of the leading workers within them. But this was well after the basic foundations of the labour movement were forged, and thus in no way can the arrival of the Labour Party be equated with 'class politics'. Class politics had been with us for half a century but 'dressed up' (for reasons already elucidated) in different clothes.

Our reconsideration of the labour aristocracy theory begins from this point. The explanation assumes both the fact of a working class movement, and that there was 'something' to contain i.e. an alternative. There is, however, little evidence of this. Furthermore, this layer were supposed to be operating as an ideological barrier, because of the super-profits of Imperialism, precisely when it was relatively declining in the 1870s.

Nonetheless, the questions this theory put to history were the right ones: What was the relationship between the structure of the working class, and political reformism? How did the experience of the ruling class affect their strategy toward internal social control? From such enquiries a materialist explanation of reformism can be built; one attempt by John Foster directs our attention exactly at these issues.

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Unfortunately, his analysis of the restabilisation of social control at the point of production relies on a cursory examination of the work processes and organisation. In addition, a consequence of our approach is that the industrial elite will, because of pioneer industrialisation, be an uneven layer, and of variegated character, and thus will have an equally non-uniform ideological impact upon the working class. We need, therefore, a theory to understand this 'uneveness' of social action by privileged workers, and here it is suggested that, with modifications, Max Weber's concept of 'social closure' is useful.

The essence of this approach is to suggest that the definition of an elite is part of the explanation of how that elite is maintained. We examine class action within a structured system of rewards in which the allocation, whilst ultimately dependent on the capitalist social order, is in practice formed in the context of a particular brand of social action in the production process. This, as we have said, was dominated by the struggle for occupational interests and that therefore the social location of our enquiry has to be the internal manufacturing relationships of English capitalism in a specified period of history.

We next moved on to consider the substantive historical consequences of pioneer industrialism in the field of capital formation in the 1850-70 period. Briefly, it was argued that in the second half of the century the predominant tendency was toward the de-skilling, rather than the de-populating, of the core occupational groupings. However, the slow creation of a proletariat sociologically retarded the domestic market, which in turn produced relatively little economic concentration and thus allowed the survival of the small family enterprise

even in central industries such as textiles. This domain assumption of much modern historical research has had little empirical foundation, so Chapter IV sets out in greater detail than before the extent to which the industrial structure of our three 'core' examples remained on such a small scale. This is important to establish not simply for the sake of pedantic scholasticism, but because it is both the actual empirical industrial context of work experience and a guide to the consciousness of the owners of capital, their social origins and business structures. In short, because of our dictum that class consciousness is the product of the struggle between classes, and that, therefore, the vision of the labour historian must encompass this.

Having described the organisational form of capitalism in our three examples, we next moved to analyse theoretically the relationships of control posed by this way of structuring the work situation. Here Marx reveals the crucial difference between 'formal' and 'real' subsumption of labour to capital, the relationship this has to accumulation, and thus to the conditions of work experience. Although adding nothing in theory to Marx we hope to have clarified the importance and the context in which these insights may be used. In particular it is stressed here that the struggle for control at work is a dynamic process, in which the collective action of workers becomes a material force in the development of apparently 'objective' economic forces, external to the workplace. In sum, the way work is organised and controlled is part of the way society is similarly maintained in its economic and political status quo.

The Hierarchy of Work

Finally let us summarise the position of three occupational groups, in the context of the contention that what constituted a 'craft' union was the strategy of social action it adopted to defend its interests. This, we have argued, allows a much more flexible application of the 'labour aristocracy' theory. Here it is defined by its action rather than sociologically by the fact it is a 'leading' layer of an organisational situation.

The Engineers' opposition to piece-work was formally broken in the 1851-2 lock-out, but the lack of basic technological change and the men's own rearguard struggle delayed the standardisation process upon which payment by results depends. Hence, the division of labour remained subjective, and the subsumption of labour only 'formal' until well into the 1890s. In other words, to the degree that the engineer was able to resolve the contradictions of the capitalist work process, in this period, at the expense of the employers and the unskilled. Their tactics - restriction, apprenticeship, district rates, retention of a daywage - consolidated a superior status which had a material basis in the realisation of surplus value. The A.S.E. was not simply an agent of discipline and authority of the capitalist, but had a separate pre-capitalist tradition of craft customs and identity. This is 'universalised' throughout all the working situations of its members, principles which were applied under local guidance, but which would be a common language to all the Society.

By way of contrast, we have seen there was no such thing as 'the miners'. Their working situation had similarities - wages as two-thirds of costs, uncertainty of the effort/remuneration relationship, punitive discipline - but the response to this varied widely. The

North Eastern hewer by his own activity constructed a complex of procedures and committees designed both to reinforce his position and entangle the employer in a web of formality. Elsewhere where no one layer emerged as clearly, trade unionism was at once potentially more militant (in the long term) whilst numerically weaker. This cannot be entirely accounted for by geological differences. Much more important was the social origins of capital and labour, the structure of the market for the product; and the way in which these combined in uniquely different ways. The control over the instruments of production opened the possibility of the considerable autonomy and job control as a response to the fundamentally random character of the work process, but the extent to which this was exploited was a matter decided by the conflict of the contending parties.

The spinners form a contrast with both the engineers and the miners. They were a factory occupation, but whose claim to any skill was gone by the 1840s. Yet they were a leading layer of about 25% of the spinning workforce. Apart from a considerable differential their superiority was embodied in (1) the right to hire and fire assistants, (2) the payment of these a time-wage, (3) their role as supervisors and 'pacesetters'. They undoubtedly were under the 'real' subsumption of labour to capital, yet for reasons of <u>control</u> and <u>discipline</u> this was transformed into an internal organisational bargaining strength for them. Thus their position was not based on the realisation of extra surplus value by way of a contribution to the work process, but as agents of 'machino-facture'; a plebian layer in the hierarchy of industrial authority.

This study of work experience reveals in microcosm the working out

of the processes described in Parts One and Two. It demonstrates the importance of the study of the structure of work in understanding corporate responses to capitalist industrialisation - the real 'material basis' of reformism in the working class. As such it indicates ideology is formed in struggle between social groups or classes, it is always a two-way process. In this sense, also, the subservient class or group is actively involved in its own submissive role. Finally, it suggests that a crucial link in the chain of social control is the form of the work process, and thus investigation of it the location of fundamental social change.

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