



Worktime and the Rationalisation of the Capitalist
Production Process

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ABSTRACT

Industrialised capitalist societies are characterised by a tendency to reduce the length of time employees spend at work. The thesis examines why this is the case.

Chapter 1 outlines the history of the debate on working time. The mercantilist, classical, marxist and marginalist theories of why work times tend to change are looked at in turn. Emphasis is placed on the source of these theories, their strengths, weaknesses and their fates.

Chapter 2 examines the empirical evidence underpinning the marxist and marginalist theories. This evidence is then used together with the arguments from Chapter 1 to evaluate their overall quality and capacity to explain those worktime changes that have occurred.

Chapter 3 looks at the relationship between the intensive and extensive aspects of worktime and how these influence and are influenced by the struggle between capitalists and workers over the length of time the latter will normally labour. Particular emphasis is placed on the role of X-inefficiencies in this process.

Chapter 4 examines the rise of scientific management within the United States and the role this science played in the elimination of inefficiencies resulting from sub-optimal time schedules. The value of taylorism as a tool available to both worker and capitalist is also discussed with particular stress being placed on its ability to assist the workers in their struggle for reductions in standard times.

As part of this discussion an argument will be put forward to explain the apparent failure of Marx's laws of motion during the 1920-1970 period.

Chapter 5 outlines the international dissemination of the movement for rationalised work times in the first three decades of the 20th century. It is suggested that this movement established the basis for a regeneration of capitalism which flowered after 1945 and which may now well be at an end.

Chapters 6 and 7 detail the changing nature of standard working times in Australia during the period 1900-1930. The role of the state, class conflict and the rationalisation movement played in this process is given particularly close attention.

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university. To the best of my knowledge and belief it contains no material previously published or written by another person, except where due reference is made in the text of the thesis.

I consent to the thesis being made available for photocopying and loan if applicable if accepted for the award of the degree.

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Introduction

Industrialised capitalist societies are characterised by a tendency to reduce the length of time employees normally spend at work. Between 1870 and 1980 total annual working time within such nations fell by approximately 40 per cent. A similar development can be observed within the socialist nations. The need to contain the scope of the thesis, however, has made it necessary to limit the examination to the industrialised capitalist societies. A discussion of this question is opportune because worktime has traditionally become a major political and economic issue at times of high unemployment. During periods of economic crisis the labour movement invariably puts forward the argument that standard times should be reduced to spread the available work amongst as many individuals as possible. The ongoing crisis that has emerged following the end of the 'long boom' has proved no exception to this general rule as witnessed by the strike of 300,000 Norwegian workers in March, 1985. If the decay of the capitalist economies continues through the 1980s the insistence with which organised labour promotes the demand for reduced time standards can be expected to intensify. An understanding of how and why work times change is therefore of immediate and significant importance.

The approach of this work is both historical and analytical involving an examination of both theory and actual movements in standard times in a number of nations. The first chapter provides a history of the theoretical

debate on the changing nature of working time within Britain and includes a critical discussion of the contributions of the mercantilist, classical, marxist and marginalist traditions. Emphasis is placed on examining the origins, strengths, weaknesses and fates of these theories.

As critical discussion alone can never establish sufficient reason to enable one to claim that a theory is correct the empirical evidence underpinning the marxist and marginalist arguments will be looked at in some detail in Chapter 2. This discussion will make clear my reason for concluding that Marx's explanation for why working times tend to change is the best theory presently available and the one nearest to reality.

A central point that will be made in Chapter 2 is that worktime and output are not proportionally related, that the intensive and temporal aspects of worktime have an inverse relationship. It is not necessarily the case, therefore, that a reduction in standard working times will result in a fall of either the mass of goods produced or the quantity of work undertaken by the employee. This proposition has played a major role in virtually all changes to standard times. When it was put forward by Robert Owen at the beginning of the 19th century, employers found it impossible to believe that workers could produce more in 60 hours per week than they could in 72.

In Chapter 3 it will be argued that the continued refusal of the vast majority of employers to accept the hypothesis that long work times can be a source of inefficiency has

meant that demands for shorter times have invariably been a source of conflict. It will be suggested, moreover, employer resistance is normally so intense that capitalists need to be subjected to some strong external force before they will be willing to consider the viability of a reduction in standard times. This has been the cause of much waste and inefficiency. The example of the 1979 strike in the British engineering industry which resulted in the introduction of the 39-hour week will be utilised to clarify a number of the observations made about the nature of the class and industrial relations aspects of worktime.

Chapter 4 extends the discussion of the waste and inefficiency caused by the working of sub-optimal time schedules. It is argued that the major factor explaining the accelerated rate of contraction of standard times during the 20th century has been the application of the scientific method to the management of working time. The rise of scientific management in the U.S.A., it will be suggested, played a crucial role in bringing about this development. The contribution made by the pioneers of this science to the rationalisation of working times has largely gone unrecognised during the postwar years as has the significance of the work of these scholars in many other areas.

The international dissemination of rationalised work times in the first three decades of the century is the focus of Chapter 5. It is argued that as in America the labour movements of the industrialised capitalist nations embraced

and helped expand and carry forward the scientific management movement during the 1920s largely because of the support given to the workers' demand for the 8-hour day.

To provide greater substance to the analytical discussion provided in the first part of the work the last two chapters detail the changing nature of standard working times in Australia during the first three decades of the century. It is argued that as in Europe and the United States the nature and course of the worktime change that occurred in this period can only be understood if seen as part of the global rationalisation movement then beginning to sweep the world. This movement revitalised and regenerated the capitalist system, gave birth to the long boom and all but eliminated the revolutionary movement in the industrialised nations. The relative weakening of this process as it played itself out, it is suggested, helps explain why the boom eventually ended and why capitalism as a global system has again become highly unstable.

The thesis then is concerned with the issues of working time, the rationalisation of production and the long term viability of capitalism. The argument makes the following substantive points;

1. Worktime is not merely a function of income as is claimed by both marginalists and many radicals. The theoretical underpinnings of the income argument are criticised and shown to be little more than unsubstantiated assertion.

2. It is suggested that Marx's understanding of capitalist competition, human capacities and the inverse relationship between working time and intensity led him to conclude that capitalist societies would be characterised by a tendency to reduce the length of time workers normally spent at work.
3. The science of management pioneered by Frederick Taylor was not merely a tool available to employers for increasing the exploitation of the workers. It was a double-edged sword that could and was utilised by the labour movement to advance its interests. In doing so, the workers played a positive role in bringing about the rationalisation and further development of the forces of production.
4. An explanation is provided for what has long appeared the greatest weakness in Marx's economics, i.e. the apparent invalidation by history of his prophecies concerning the rate of profit, cyclical crises and the immiseration of the working class. It is suggested that this seeming failure is explained largely by the rise of scientific management which gave birth to a new capitalist epoch. Further, that the present period of decay into which capitalism appears to have fallen, may well signal the end to this stage of development and that a society based on the production of profit rather than use may no longer be viable.



Chapter 1

The History of Worktime Thought

On the basis of communal production, the determination of time remains, of course, essential. The less time the society requires to produce wheat, cattle etc., the more time it wins for other production, material or mental. Just as in the case of an individual, the multiplicity of its development, its enjoyment and its activity depends on economization of time. Economy of time, to this all economy ultimately reduces itself. Society likewise has to distribute its time in a purposeful way, in order to achieve a production adequate to its overall needs ... Thus, economy of time, along with the planned distribution of labour time among the various branches of production, remains the first economic law on the basis of communal production.

Karl Marx, Grundrisse, Penguin Books, 1973, pp 172-173.

The development of capitalism has been accompanied by major changes to the length of time the direct producers normally spend at work. In Britain, for example, during the two centuries after 1500, working times tended to increase. Since then these times have contracted with sporadic but generalised reductions in standard times characterising the labour market.(1) As Table 1.1 indicates, this downward movement is characteristic of all industrialised capitalist societies. The question of what causes this ongoing change has been a subject of debate for as long as capitalism has existed. Scholars from all schools of economic thought have attempted to grapple with this problem. This examination of the literature discusses the major schools that have contributed to this debate. Because of the leading role formerly maintained by British economic theorists the survey primarily utilises the experiences of that country.

Annual Hours Worked per Person, 1870-1979

	1870	1880	1890	1900	1913	1929	1938	1950	1960	1970	1973	1978	1979
Australia	2,945	2,852	2,770	2,688	2,588	2,139	2,110	1,838	1,767	1,755	1,708	1,579	1,619
Austria	2,935	2,842	2,760	2,679	2,580	2,281	2,312	1,976	1,951	1,848	1,778	1,650	1,660
Belgium	2,964	2,871	2,789	2,707	2,605	2,272	2,267	2,283	2,174	1,986	1,872	1,726	1,747
Canada	2,964	2,871	2,789	2,707	2,605	2,399	2,240	1,967	1,877	1,805	1,788	1,734	1,730
Denmark	2,945	2,852	2,770	2,688	2,588	2,279	2,267	2,283	2,127	1,882	1,742	1,695	1,721
Finland	2,945	2,852	2,770	2,688	2,588	2,123	2,183	2,035	2,041	1,704	1,707	1,684	1,790
France	2,945	2,852	2,770	2,688	2,588	2,297	1,848	1,989	1,983	1,888	1,830	1,727	1,727
Germany	2,941	2,848	2,765	2,684	2,584	2,284	2,316	2,316	2,083	1,907	1,827	1,733	1,719
Italy	2,886	2,795	2,714	2,634	2,536	2,228	1,927	1,997	2,059	1,768	1,612	1,566	
Japan	2,945	2,852	2,770	2,688	2,588	2,364	2,391	2,272	2,432	2,252	2,197	2,116	2,129
Netherlands	2,964	2,871	2,789	2,707	2,605	2,260	2,244	2,208	2,177	1,910	1,825	1,671	1,679
Norway	2,945	2,852	2,770	2,688	2,588	2,283	2,128	2,101	1,997	1,789	1,721	1,577	1,559
Sweden	2,945	2,852	2,770	2,688	2,588	2,283	2,204	1,951	1,823	1,660	1,571	1,461	1,451
Switzerland	2,984	2,890	2,807	2,725	2,624	2,340	2,257	2,144	2,065	1,962	1,930	1,889	1,877
UK	2,984	2,890	2,807	2,725	2,624	2,286	2,267	1,958	1,913	1,735	1,709	1,623	1,617
USA	2,964	2,871	2,789	2,707	2,605	2,342	2,062	1,867	1,795	1,707	1,696	1,620	1,607

Table 1.1
Source; Angus Maddison, *Phases of Capitalist Development*, p.211.

Mercantilism and Worktime

The first political economists to analyse seriously the relationship between work and time, in a market economy, were the mercantilists. The writers who may be loosely grouped under this heading dominated economic thinking from approximately 1500 to 1700. Those who contributed to mercantilist thought cannot, strictly speaking, be considered a school. The period has been aptly described as the time when every man was his own economist.(2) Agreement amongst these theorists, on one or more points of theory, by no means meant they necessarily agreed on others. Despite this diversity there was, as Furniss has shown, considerable agreement on at least two sets of doctrine. First, the balance of trade theory and second a concept of the national importance of the labourer. These two factors played a major role in mercantilist theorising on worktime.(3)

The mercantilists argued that a positive balance of trade was imperative if the nation was to prosper. To achieve this it was essential that the price of exports was kept to a minimum. In the pre-industrial societies that characterised Europe, at this time, the most important production cost was labour-power.(4) Consequently, it was concluded, that if the cost of production was to be minimised, it was necessary to minimise the price of this commodity. The nation could compete in the international market place, it was believed, only if the income of the direct producers was kept to the lowest possible level.

The low wage policy was also considered necessary because

of the 'normal' worker's response to an increase in income. The mercantilists observed that the direct producers of their societies tended to limit the length of time they were willing to spend at work if their incomes rose. The conclusions they drew from this observation, and the means they suggested for overcoming the workers' leisure preference, has been eloquently expressed by the manufacturer, William Temple.

The best spur to industry is necessity. The mass of the labourers work only to relieve their present wants and are such votaries to indolence, ease and voluptuousness, that they sacrifice all in consideration of the pleasures of the present moment, regardless of sickness and old age . . . If a labourer can produce by his wages or plenty, all the necessaries of life, and afterwards have a residuum, he would expend the same, either on gin, rum, brandy, or strong beer; luxurise on great heaps of fat beef or bacon, and eat perhaps till he spewed; and having gorged and gotten dead drunk, lie down like a pig, and snore till he was fresh . . . The common conduct of the labouring populace in times of plenty proves, that the easier the means of acquiring necessaries, the less work is generally done, and the dearer the necessaries are, the more they labour.(5)

The workers' leisure preference was considered a major problem by the mercantilists. This was because they came to believe labour was the primary source of the nation's wealth.(6) Trade might improve total wealth, but it was the efforts of the direct producers that underpinned the nation's economic strength. Consequently, it was argued that it was in the nation's interest to ensure that no labourer, who was capable of working, failed to do so irrespective of personal preference. The nation had the right to demand and compel the direct producers to maximise their work effort.

Idleness and vagrancy, accordingly, were repeatedly condemned by these scholars. As Rubin has observed, these writers never cease to bemoan the indolence of the workers or their lack of discipline and slow adaption to the needs of capitalism.(7) In the national interest they urged the state to intervene by the use of force, moral persuasion and intervention in the labour market to manipulate the price of labour-power so as to ensure that the workers laboured on a constant and extended basis.(8)

The mercantilists prescriptions for overcoming the workers' preference for leisure included the lowering and fixation of wages by the state, the easing of naturalisation laws to increase inward migration and, most importantly, manipulation of the supply of food in order to drive up its price.(9) In essence all these proposals were aimed at lowering the standard of living of the working population in order to compel them to work both harder and longer. If high incomes lowered the willingness of the labourers to work, it was reasoned, low incomes should have the opposite effect. The state, therefore, had a duty to intervene to ensure not just that wages were kept low, but that the poor were kept poor.

The mercantilist belief that the workers' leisure preference was a major obstacle to economic growth, it needs to be added, was perfectly valid. Such attitudes are incompatible with capitalist expansion. If a strong leisure preference was characteristic of the working class then

periods of economic growth would be of very short duration. An economic boom would tend to choke itself by driving up the price of labour-power, thus restricting supply precisely when increased quantities of this commodity were most needed.

Landes has argued that the earliest form of capitalist production, the putting-out system, was severely limited in its ability to expand precisely because the direct producers had a strong leisure preference and the ability to decide when and for how long they would work. The capitalist, he reports;

. . . had no way of compelling his workers to do a given number of hours of labour; the domestic weaver or craftsman was master of his time, starting and stopping when he desired. And while the employer could raise the piece rates with a view to encouraging diligence, he usually found that this actually reduced output. The worker . . . preferred leisure to income after a certain point.(10)

In order for this bottleneck to be overcome, it was imperative that control of the work process be taken from those who worked. The shape of the labour supply curve, in other words, could not be allowed to be determined by the workers. The capitalist answer to this problem was the factory.(11)

Classical Economics and Worktime

The argument that it was necessary to maintain the income of the working population at subsistence level, in order to increase the length of time they would spend at work, went largely unchallenged for over two centuries after

1500. In the first half of the 18th century, however, a few scholars voiced some doubt as to the validity of this claim. It began to be conceded, by a growing number of observers, that not all workers were idle and dissolute and that while it was true that many still were, this was often largely for reasons beyond their control. These questioners of mercantilist orthodoxy also argued that the policy of depressing the living standards of the workers could be counter-productive. High wages, it was even suggested, could act as an inducement that would encourage workers to undertake a greater expenditure of effort.(12)

This questioning of the mercantilist consensus on worktime was a significant aspect of the transition to the classical dominance of political economy. What in essence was being challenged was the mercantilists' conception of human nature, or to be more specific, the nature of those who worked. It had been accepted that the direct producers were innately slothful, working only if forced to. The challengers to this orthodoxy, on the other hand, argued that human beings, including workers, were not naturally lazy and that if they behaved as if they were it was because of insufficient motivation to do otherwise. David Hume, for example, emphasised the need to provide incentives in all areas of economic activity. He rejected the argument that the best way to encourage a work ethic suitable to a capitalist economy was the enforcement of endless toil. He argued rather that human beings would respond more

positively if adequately stimulated.

It is a violent method and in most cases impractical, to oblige the labourer to toil, in order to raise from the land more than what subsists himself and family. Furnish him with the manufactures and commodities and he will do it of himself.(13)

Prior to 1750 those writers who argued that indolence and an aversion to work were not inherent in human nature were few in number. In the third quarter of the century, however, this position gained much more support. the watershed, of what was to prove a major transition, occurring in 1776 with Adam Smith's Wealth of Nations.

All theories of worktime are based upon a theory of human nature as indeed is any system of economics. For Smith this was more obvious than for many others. He considered humans to be rational creatures who had the capacity to develop and implement long term strategies which could influence the nature of their societies. He placed, however, severe limitations on this ability arguing that human rationality was not sufficiently developed to enable humans to mould a society to a specific form.(14) He suggested that economic laws, 'eternal and immutable', would determine the development of society irrespective of the political and legal actions of the society's members.(15)

Despite their limited capacities humans are capable of functioning as social beings, Smith suggested, because nature has endowed them with certain drives and needs.

In the political body . . . the wisdom of nature has fortunately made ample provision for remedying many of the bad effects of the folly and injustice of man, in the same manner as it has done in the

natural body for remedying those of his sloth and intemperance.(16)

These innate motivating characteristics, Smith argued, propel society forward and at the same time hold it together. The essence of this endowment is the human propensity to barter and exchange together with an egoism that manifests itself as a relentless drive to pursue self interest.(17) The belief that humans would constantly strive to improve their lot led Smith to reject the mercantilists' approach to worktime. He argued that if workers had the chance to obtain greater income they would work harder and longer. Greater wealth, he insisted, would have both a positive physical and psychological effect. It would improve the workers' health and thus enable them to do more work and it would motivate them by providing them with the hope that if they worked harder they would not only be able to improve their immediate condition but possibly even end their days in comfort.(18)

Smith conceded that some individuals did have a greater preference for leisure rather than income. He suggested, however, that this was by no means the case with the great majority.(19) On the contrary, he argued, income preference was so strong in most workers where they were paid piece rates they prolonged and intensified their worktime to such an extent they often ruined their health in a few years.(20)

The quarter century, prior to 1776, saw the first great wave of worktime reductions filter through the British economy. In this period the 10-hour day, for craftsmen, was

established as a general standard.(21) This development would have provided difficulties, for Smith's argument, had he limited his analysis merely to the realm of exchange and to consideration of the nature of worker preferences for income and leisure. Why, he would have had to explain, were these income-preferrers demanding, en masse, that they be allowed to spend less time at work? The reason this was not a problem for Smith was because he accepted that factors within the production process compelled workers to limit their worktime no matter how much they might desire greater income. Again, basing his argument on the nature and limited capacities of human beings he suggested that frequently the reason workers chose to limit the length of their worktime was because of the high pace they were forced to maintain during the time they did work.

Excessive application during four days of the week is frequently the real cause of the idleness of the other three, so much and so loudly complained of. Great labour, either of mind or body, continued for several days together, is in most men naturally followed by a great desire of relaxation, which, if not restrained by force or by some strong necessity, is almost irresistible. It is the call of nature, which requires to be relieved by some indulgence, sometimes of ease only, but sometimes, too, of dissipation and diversion.(22)

If this aspect of human nature was ignored by employers, and Smith suggested it frequently was, it would invariably be dangerous for the workers. Smith argued it could inflict on them the "peculiar infirmity of the trade" and perhaps even cause their death.(23) Smith's recognition of these material limitations within human beings led him to point out that there was an inverse relationship between the

temporal and intensive aspects of worktime. He suggested that consequently an optimum worktime must exist within any given situation. He advised employers to heed the existence of these optima and refrain from driving their employees at too great a pace.

A New Found Appreciation

The belief that an acquisitive and hedonistic spirit was innate in humans and that high wages would act as an inducement motivating workers to labour both harder and longer was to become part of the orthodoxy of classical economics.(24) Coats has argued that the explanation for this radical deviation from mercantilist doctrine is essentially twofold. He suggests, first off, that there was a growing awareness amongst contemporary observers that high wages did not necessarily mean high prices. It came to be recognised that what also needed to be considered was the quality of the labour-power. The distinction between productivity and money-wage costs, he suggests, was generally overlooked prior to 1750. After this time the superior quality of British labour-power tended to be taken into consideration by those discussing the effects of wages on unit costs.(25) Coats suggests that it was principally this new found appreciation that brought about the change in economic theory. What he fails to explain adequately, however, is what brought about this new found appreciation. He does recognise that an explanation for this change in consciousness is necessary if his argument is to have substance. He tentatively puts forward the thesis that the

growing importance of labour-displacing mechanical devices may have caused this change. The writers of the day, he suggests, became aware that machinery provided an alternative means for raising productivity that did not have to involve workers labouring harder or longer. This factor, together with the increasing percentage of capital being invested in equipment may have tended to reduce the traditional emphasis on keeping wage costs low.(26)

Because of the prevalence within contemporary literature of the underlying concepts inherent in Coats' explanation it is necessary to take some time to examine his argument. His claim that post-1750 observers became aware of the high quality of British labour-power appears to presume that earlier scholars' assumptions about the indolence of British workers were not valid. This is not justified. Because workers in the post-1750 period were responsive to financial inducement this does not necessarily mean their forebears behaved similarly.

During the four centuries prior to 1750, the direct producers of Britain were subject to an unprecedented remoulding as the working-class was being 'made'.(27) The magnitude of the change involved in this transformation should not be underestimated. It involved changing the very nature of the working population.

. . . the new economic order needed . . . part humans: soulless, depersonalised, disembodied, who could become members, or little wheels rather, of a complex mechanism . . . men who were non-accumulative, non-acquisitive, accustomed to work for subsistence, not for maximisation of income, had to be made obedient to the cash stimulus and

obedient in such a way as to react precisely to the stimuli provided.(28)

By the second half of the 18th century, Thompson has suggested, 'normal' capitalist wage incentives were becoming widely effective.(29) This is not to argue that the transition was complete by this period. Simply getting the workers to show up regularly for work remained a problem for the bourgeoisie well into the 19th century. This was particularly the case with those skilled workers who managed to retain a high degree of bargaining power through the industrial revolution.(30) Consequently it was necessary for the employers to break the traditional work habits of the workers and, most importantly, instil in them a concept of time thrift. To achieve this objective bad time keeping was severely punished with workers receiving heavy fines, dismissals and even beatings for being only a minute or two late.(31)

Because Coats concentrates only on the changed attitudes of the observers and their appreciation of reality he implicitly assumes that those being observed had remained unchanged. He consequently fails to give due consideration to the possibility that the habits of the workers that the mercantilists had found so offensive were changing in a manner acceptable to the bourgeoisie and to their ideologues. That what had changed was not simply the observers' appreciation of reality but reality itself. In short Kellner's observation on the changing character of Smith's concept of human nature may be equally applicable to

the classical economists as a whole.

. . . there is a changed emphasis from social-moral sympathy to self-love as the motor of human behaviour in Smith's writings. It seems reasonable to interpret this shift as a response to the developing capitalist economy that was conceivably changing human behaviour before Smith's very eyes, as industry grew, wealth accumulated, cutthroat competition intensified, and economics played a dramatically increasing role in all areas of public and private life, becoming, in Marx's words, the religion of everyday life.(32)

Coats' second hypothesis that the increased use of mechanical devices may have decreased the traditional emphasis placed on wages is also somewhat dubious. In the mid-eighteenth century the use of machines had not developed to anywhere near the extent necessary to substantiate this claim. The productivity gained through the use of machines, however, has become for many observers the underlying factor explaining the downward movement in worktime that has characterised the 19th and 20th centuries. It is necessary therefore to judge to what degree this claim is correct irrespective of whether Coats' argument has any validity.

Machines can greatly expand the productive capacities of human beings, while at the same time reducing the length and intensity of working time. They need not be utilised in this manner. Rather their use may be a major factor increasing the amount of labour the workers must undertake. It is this latter role that machines have predominantly played within capitalism. By tying up a large portion of capital in a form that is fixed and cannot be productive except when operated machines increase the capitalists' need to extend the length

of time worked. The greater the percentage of capital that is fixed in this manner the more important is the need to ensure that it is operated to its maximum. As one manufacturer explained to Senior;

When a labourer ...lays down his spade, he renders useless, for that period, a capital worth eighteen pence. When one of our people leaves the mill, he renders useless a capital that has cost 100,000L.(33)

The capitalists' greater need to intensify or extend worktime, when fixed costs begin to rise, makes it difficult to accept Coats' hypothesis that labour-saving technology may have led the political economists of the mid-eighteenth century to cease emphasising the importance of low wages. A more valid proposition is that those who worked had changed.

The Vulgar Counter-Revolution

The classical economists believed that if the market was to be understood it was necessary for the analyst to begin by looking beyond surface phenomena. One must seek out, in other words, the underlying relations between human beings as producers which ultimately determine their market relationship.(34) Ricardo, for example, saw the essential problem of economics as the determination of ". . . the laws which regulate the distribution of the produce of the earth between the classes of the community."(35) The search for these laws led him to conclude that there was a primary and irreconcilable conflict of interest between capitalists and workers as to how this produce was to be distributed. As the struggle between these two classes came to dominate the political and economic environment of Britain the

traditional hostility, between the bourgeoisie and the aristocracy, became relatively less intense. The struggle between these two classes had provided a major stimulus to the development of political economy during the period of the bourgeoisie's ascendancy. The creation of the proletariat, however, brought into existence a class that was a danger to both rentiers and capitalists. By the 1830s the work of many economic thinkers was beginning to reflect the changed balance of class power within their society. Their work also reflected an awareness of the dangerous use to which a number of the concepts of the classical economists could be put by radical writers sympathetic to the working class. For many scholars this awareness was to manifest itself in the abandonment of any critical analysis of capitalism and the adoption of a methodology that became increasingly apologetic, its effect being less to explain the nature of bourgeois society than to laud and justify it. This in time was to lead to the emergence and cementing of two quite distinct and rival traditions of economic thought - marginalism and marxism.(36)

The Factory Movement

The scholars who were to found the marginalist tradition opened their attack on classical economics in the 1820s. This assault was of such vehemence and impact that the Political Economy Club, in 1831, held a discussion as to whether any of Ricardo's principles were generally acknowledged to have any validity.(37) A leading light in this attack was Nassau Senior. This scholar was to make

a number of contributions to the development of marginalist economics. It is, however, his comments on worktime, published in 1837, for which he is best known.

The mechanisation of industry, during the industrial revolution, created mass unemployment in many areas. Despite this, the period saw the final consolidation of the 10-hour day in most areas of manufacturing.(38) In a number of industries, though, the bourgeoisie used their greater market-power to brutally extend the length of time workers were forced to labour.(39) In response to these developments the 'factory movement', with its demand for a legal maximum to the working day, grew through the 1820-1850 period.

This movement was to draw the bulk of its support from the textile workers. These workers were, however, not alone in their struggle for they were able to attract support from liberal reformers within the intelligentsia and even gained some support from sections of the ruling class. The support of the latter came from both Tory landowners who had little to fear from a legal limit to the work-day and, more importantly given the Whig dominance of the reform parliament, from those manufacturers who were able to curtail working times at little cost to themselves.(40)

The fight for a legal restriction to the length of the working day created problems for the vulgar economists who had no explanation for why a generalised reduction in standard times should occur. When the struggle began in the 1820s these theoreticians showed little interest. As the movement grew and became more radical through the 1830s

they abandoned this attitude and worktime became a highly contentious theoretical issue. The debate this caused was not over why hedonistic beings should, en masse, choose to reduce the length of time they wished to work but rather over whether legal limits to the working day should be supported. At first discussion concentrated on the market rights of Smith's free individual. As free agents, it was generally agreed, adults had the right to sell their labour-power as they wished. If they chose to enter the market and sell this commodity in excessively large units this was their right. State regulation of worktime would clearly infringe this freedom and was thus morally wrong and consequently had to be opposed. There was little disagreement over these propositions. What was disputed was the definition of what constituted a free agent. Children, it was generally acknowledged, were not capable of exercising sufficient independent judgement to enter freely into a contract. Was it right, therefore, for the state to regulate the sale of their labour-power? Blaug reports that during the 1830s there was a wide variety of opinion on this question. During the 1840s, however, this diversity abated and a uniform position generally emerged.(41) It was agreed that protection of children was morally just and those laws already enacted were acceptable. They should, though, go no further for their extension would necessarily involve limiting the length of time adults could work. Such a "gross infringement" of individual rights could not be accepted. The children, therefore, would have to survive as

best they could.

The difficulty of justifying opposition to laws that protected children, on the grounds of morality, possibly explains the economists' reticence to publicly promote this argument once consensus had been reached.(42) It may also explain the eagerness with which they took up the lifeline thrown to them by Senior, which shifted the debate away from individual freedom and morality towards the production process. Senior argued that the Factory Acts had to be opposed because they would eliminate profit and thus destroy industry. The fallacious and openly biased nature of his last-hour thesis made it unacceptable to the vast majority of economists. His central point though that the "... great proportion of fixed to circulating capital ... makes long hours of work desirable,"(43) was widely considered to have some validity. His assumption that a reduction in the length of time worked would result in a proportionate fall in output was also accepted with little challenge, as was his conclusion that a 10-hour law would raise prices and would thus be disastrous for the British economy. It was these production based arguments that the economists brought to the fore when opposing the factory acts during the 1840s. Regulation of worktime had to be opposed because it would have a deleterious effect on trade and this, of course, made opposition to the workers' demand morally just because the workers clearly stood to lose if the economy declined. While it was true this had not happened with earlier laws of

this nature, it was conceded, these precedents had no applicability to the present situation.

In his analysis of the economists' response to the factory acts Blaug has argued that these theoreticians added little to the popular debate by way of theoretical analysis.(44) What they did do was provide justifications and arguments for those opposing further legal restrictions on the rights of employers to exploit those who were forced to sell their labour-power in a buyer's market. Senior's thesis, for example, proved highly popular with capitalists and their supporters in the press and parliament.

That the economists played the role of 'prize-fighter' for the bourgeoisie is not to be denied. Blaug's assessment of their theoretical work, however, does not do them justice for, in the debate over the factory acts, these scholars did make a number of theoretical and methodological contributions that have since become central aspects of the marginalist position. First, they originated and maintained for a number of years, the methodological step of concentrating solely on the individual's rights and desires, as manifested within the market place, while ignoring what was happening within the production process that was generating the mass demand for a legal work-day. Second, they pioneered what has become the tradition's normal response to working class demands for further worktime laws, i.e., support and even laud all such laws that have already been enacted, if they have not proven harmful to capital, while arguing that the extension of such laws would be

dangerous to the health of the economy. Third, they originated the practice of ignoring theoretical and empirical evidence which suggested that Smith was correct when he argued that it was possible to reduce the length or intensity of worktime without necessarily reducing output.

The last of these original contributions has shown an amazing capacity to revive, despite numerous setbacks. In the middle years of the 19th century it was accepted until well after the introduction of the factory acts had proven its falsity. Those few individuals, such as Thornton, who took up Adam Smith's suggestion that this might not be the case, were all but totally ignored. Thornton had pointed out, in 1846, that it was;

. . . not quite certain that a diminution of produce would result from shortening the duration of labour. Persons who are not obliged to work so long may work harder than before, and may get through the same quantity of work in a short time as formerly occupied them for a longer period. The business of the eleventh and twelfth hours is most likely very languidly done, and might perhaps, without great difficulty, be despatched in the preceding ten.(45)

While this argument cut little ice with the economists it proved popular with the workers and some of their supporters. It appears, moreover, to have had made a great impression on Marx who was to make the workers' capacity to work harder in a reduced time period a central plank of his theory of worktime.

Marx's Theory of Worktime

Marx apportioned a large section of Volume 1 of Capital to a discussion of the length of the working day and why

this changed over time. He argued that struggles, such as that over the demand for a legal 10-hour day, were an inevitable consequence of the class relations upon which capitalism was based. He further argued that the very nature of capitalism would ensure that its development would be characterised by progressive reductions in the length of time the worker would be compelled to labour.

Marx began his argument by pointing out that the number of hours in a working day was a variable quantity. This was a cause of much conflict in a society in which labour-power was bought and sold in the market. The capitalist, when buying a day's labour-power, wishes to extract the maximum use-value from the purchase. The workers, on the other hand, need to be able to work on the morrow and wish to continue doing so for a normal lifetime. They need, therefore, to ensure that the quantity of their commodity sold each day is compatible with this need. This essential conflict of interest produces a constant struggle between worker and capitalist over the length of time the former must work.(46)

The capitalist's desire to extract maximum use-value from a day's labour-power was not, for Marx, merely a manifestation of greed. This had to be done if the individual capitalist was to continue operating in a market economy. Competition, he suggested, acts as a 'coercive force' ensuring that each capitalist will eventually be forced to strive to achieve this objective.(47)

Marx also argued that the capitalist industrialisation process adds new incentives to the capitalists' desire to

extend worktime. He agreed with Senior that a shift in the ratio of capital spent on machinery and raw materials relative to that spent on purchasing labour-power, i.e., an increase in the organic composition of capital, tended to heighten this need. This was so first, because constant capital is not capable of being productive except when in contact with living labour; second, because obsolescence becomes a more important factor the more capital is tied up in equipment and materials and the faster these goods are superseded; and third, and for Marx this was the most important factor, an increase in the organic composition of capital creates a tendency for the rate of profit to fall. A growth of constant capital relative to variable capital, he argued, raises the productivity of labour. Surplus-value, however, only arises from the variable portion of the capital invested with its mass determined by the rate of surplus-value multiplied by the number of workers employed. Where the value of the capital utilised to buy labour-power is reduced relative to that invested in machines and materials it follows, if the rate of surplus-value remains constant, that the portion of living labour unpaid and congealed in surplus-value must also fall relative to the total capital advanced. Since, for Marx, the ratio of the mass of surplus-value to the total capital advanced constitutes the rate of profit, this will also tend to fall. That capitalism was characterised by a tendency for the rate of profit to fall engendered by a rising organic composition of capital, Marx insisted, was one of capitalism's 'laws of motion'. The

others were the law of increasing severity of cyclical crises, the law of concentration and centralisation of capital and the law of the increasing immiseration of the working class. In Marx's theory of capitalist development the law of the tendency for the rate of profit to fall played a central role. Indeed he considered this concept to be the most fundamental law of political economy. It acted as a conditioning factor explaining why there would be a tendency for cyclical crises to intensify and for the working class to be immiserated. It justified the importance he placed on this class because this was a section of society that could utilise the means of production to produce for use when the goad of profit ceased to be effective. Finally, it was an integral element explaining why capitalism would prove only a transitory stage in human development. If it were not for this law there would be little in Marx's work to explain why capitalism should not last forever.(48)

Marx's laws were meant to express long term tendencies. At any given time or place their influence could be offset by counteracting tendencies. It is possible to offset or even reverse the tendency for the rate of profit to fall, for example, if it is counter-balanced by factors which raise the rate of exploitation or lower the organic composition of capital. One means by which the rate of exploitation can be raised is by increasing the amount of labour the worker must undertake to receive a given wage. This can be done either by extending or intensifying the work period. If this is done then the ratio of necessary labour-time to surplus labour-time can be shifted in the

capitalist's favour without a corresponding proportional increase in the organic composition of capital. It is the existence of this possibility that drives capitalists to forever seek out new ways to attain this objective.

If the working class is not capable of resisting capital's demands, Marx insisted, competition will compel employers to extend the work period beyond its social and physical limits. This overconsumption will tend to lower the quality and quantity of labour-power available on the market as workers are maimed and worked to a premature death. This excessive rate of consumption will tend to drive up the price of this commodity once any surplus is consumed. He suggested that in such a situation it was in the capitalists' collective interest to introduce a 'normal' working day.(49) The existence of this collective need, however, did not ensure individual capitalists would not overwork their employees. If the opportunity existed competition would ensure that this is precisely what they would do. Marx suggested that capitalists left to themselves are not capable of maintaining a standard worktime schedule that all will respect. It requires, therefore, a force standing above individual capitalists, to institute and enforce this standard. In most cases this means the state.(50) Marx's argument has been well summarised by Harvey;

In the absence of class organisation on the part of labour, unbridled competition among the capitalists has the potential to destroy the work force, the very source of surplus value itself. From time to time, the capitalists must in their

own interest constitute themselves as a class and put limits on the extent of their own competition.(51)

The Intensification of Worktime.

For Marx the introduction of worktime laws did not end capitalism's tendency to overconsume labour-power. The enactment of such laws established legal temporal barriers to how long workers could be compelled to labour. Few limits, however, were placed on what could be done within these barriers. Most importantly, the state did not and could not control how hard workers were compelled to labour within a given length of time. There were, in other words, few limits placed on the intensive aspect of working time. This was to ensure that the problem of over-consumption was far from resolved.

The shortening of the work day, Marx argued, provided employers with an immense stimulus to raise productivity by ensuring that all inputs into the production process were used as efficiently as possible. This included the use of labour-power. In the case of this commodity, he suggested, the reduction in standard times not only increased the capitalists' need to raise the efficiency of labour-time it also established the subjective conditions that made this possible. Following Smith, he argued that a reduction in the length of time workers had to labour made it possible for them to sustain a more condensed degree of effort.

The first effect of shortening the working day results from the self-evident law that the efficiency of labour-power is in inverse ratio to the duration of its expenditure. Hence, within certain limits, what is lost by shortening the

duration of labour is gained by increasing the degree of power exerted.(52)

Employers faced with a compulsory worktime reduction, Marx insisted, will be compelled by competition to attempt to ensure that the workers' capacity to work more intensively, during the shorter period, is realised. Competition, in other words, will compel the employer to impose upon the worker a heightened average level of intensity.

It imposes on the worker an increased expenditure of labour within a time which remains constant, a heightened tension of labour-power, and a closer filling-up of the pores of the working day, i.e. a condensation of labour, to a degree which can only be attained within the limits of the shortened working day. This compression of a greater mass of labour into a given period now counts for what it really is, namely an increase in the quantity of labour. In addition to the measure of its 'extensive magnitude', labour-time now acquires a measure of its intensity, or degree of density. The denser hour of the 10-hour working day contains more labour, i.e. expended labour-power, than the more porous hour of the 12-hour working day.(53)

The fact that it was possible to raise the intensity of a given quantity of labour-time ensured that the struggle between capital and labour, over the quantity of labour-power normally exchanged for a given wage, continued after the introduction of the factory acts. Employers merely shifted their primary concentration on to the intensive aspect of worktime. Marx argued that the means by which employers attempted to heighten the average level of work intensity were diverse. To begin with there was the method of payment. Piece wages he considered to be especially important in this regard. This form of remuneration, he

claimed, created a situation where it was in the workers' interest to strain their labour-power as intensively as possible.(54) Employers, often imposed this form of payment following the introduction of the 10-hours Bill.(55)

In those industries where mechanisation played little part in the production process the mere shortening of the work day, Marx suggested, significantly increased ". . . the regularity, uniformity, order, continuity and energy of labour."(56) Here, piece-work, closer supervision and re-organisation of the work process were often enough to ensure that employers gained an increase in hourly output sufficient to offset the reduction in the length of time worked. It was the capitalists' systematic utilisation of machinery, however, that Marx considered the primary objective means for ensuring that the workers' ability to work more intensively during the shorter day was realised. This, he suggested, occurred in two ways. First, the speed of the machines was increased and second, the workers were given a greater quantity of machinery to operate or supervise.(57) Marx further argued that the capitalists' need to achieve greater efficiency as a result of the shorter day, led them to speed up the rate of mechanisation and to improve the quality of the technology utilised.(58) In response to the factory acts, he reported, the capitalists' need to raise their level of hourly output manifested itself in rapid improvements in the productivity of machinery, improvements which may well not have been realised without this added incentive. In support of this

claim he was able to quote the British factory inspectors;

The great improvements made in machines of every kind have raised their productive power very much. Without any doubt, the shortening of the hours of labour. . . gave the impulse to these improvements. The latter, combined with the more intense strain on the workman, have had the effect that at least as much is produced in the shortened working day . . . as was previously produced during the longer one.(59)

Marx argued, then that the introduction of capitalist worktime laws led to higher levels of work intensity. This in turn, tended to lead to further reductions in the length of time workers normally laboured. For employers in their greed for surplus labour invariably repeated the same mistakes that had made it necessary to pass the factory acts in the first place. Their freedom to intensify worktime he insisted, would tend to result in the level of intensity rising to a point where it would come into conflict with the length of time worked.

. . . the reader will clearly see that we are dealing here, not with temporary paroxysms of labour but with labour repeated day after day with unvarying uniformity. Hence a point must inevitably be reached where extension of the working day and intensification of labour become mutually exclusive so that the lengthening of the working day becomes compatible only with a lower degree of intensity, and inversely, a higher degree of intensity only with a shortening of the working day.(60)

Thus, while reduced worktime leads to increasing concentration of effort this, in turn, makes further reductions in standard times necessary. In short;

Capital's tendency, as soon as a prolongation of the hours of labour is once for all forbidden, is to compensate for this by systematically raising the intensity of labour, and converting every improvement in machinery into a more perfect means

for soaking up labour-power. There cannot be the slightest doubt that this process must soon lead once again to a critical point at which a further reduction in the hours of labour will be inevitable.(61)

The Fate of Marx's Argument.

Despite the prophetic and embracing nature of Marx's theory it has not attracted a great deal of attention. Mainstream economists have generally ignored it and most marxists appear to have misunderstood the nature of the argument. With few exceptions the latter have tended to concentrate their efforts on only limited aspects of the theory. By doing this they have, in many cases, put forward explanations for specific examples of changed work times that have been inadequate and which have been relatively easy for non-marxists to refute.

A classic example of such an analysis is that provided by Cleaver. This scholar has argued that worktime reductions are a consequence of the political struggle between capital and labour. As the working class grew and became more powerful, he argues, it was able to challenge capital and compel the introduction of both the modern working day and the weekend.(62) Cleaver goes on to assert that the share of the social wealth going to the working class also rose during this period so that not only were the workers able to sell less of their labour-power, they received more for what they did sell.(63)

The argument that worktime is greatly affected by the balance of class power is not one with which Marx would have

disagreed. He stressed that the establishment of a normal working day was the product of a protracted and more or less concealed "civil war" between the bourgeoisie and the working class. The British factory workers, he insisted, were the champions of the workers of the world because of their great victory in compelling the state to legislate a compulsory limitation to the working day. However, while he agreed that the capitalists' ability to extend working times was limited by the "strong wills" of the workers, as Cleaver correctly suggests, he also argued that it was limited by their "weak bodies".(64) If working times are continually extended or intensified with one or the other element being held constant their inverse relationship must, he insisted, reach a point where the limitations of ". . . man, that obstinate yet elastic barrier" will be reached. It is this relationship between human capacities and human will that is the core of Marx's theory of worktime. Many marxists who have attempted to explain the downward movement in standard times have, however, tended to de-emphasise or ignore the human limits aspect of the theory. This failure has removed much of the materialist basis from Marx's argument. What is left is clearly inadequate. As Hyman has noted;

Marx's theoretical stature derives essentially from the creative tension between his dual emphasis on the structural determinancy of capitalist production and the historical agency of the working class in struggle.(65)

An explanation for the decrease in standard working time, such as Cleaver's, that emphasises only political power is

essentially idealist for it locates the primary causal determinant of change in human will or consciousness. This is in essence a version of the marginalists' preference theory. The crucial determinant is the workers' decision to struggle. The recognition that the balance of class power is a crucial factor in determining whether this decision will be implemented appears to ground the argument in the material world. This is not the case. This argument explains practice from the idea, from the workers' collective decision rather than the formation of ideas from material practice. In short, singular concentration on the workers' willingness to struggle makes human will, the mind, the maker of history. It recognises that humans make circumstances what they are but it ignores the fact that circumstances also limit what humans are capable of achieving.

Why it is that this non-materialist approach to worktime change has managed to go largely unchallenged by modern marxists is difficult to explain. Marx, after all, was hardly obscure about what he considered to be the relationship between human capacities, working time and work intensity. The explanation almost certainly lies in the general failure of marxists to follow Marx when he leaves the sphere of circulation and enters the workplace to study the processes of production. The study of the labour process dominated the first volume of Capital. Yet, as Braverman has pointed out, despite this;

. . . the extraordinary fact is that Marxists have

added little to his body of work in this respect .
. . there simply is no continuing body of work in
the Marxist tradition dealing with the capitalist
mode of production in the manner in which Marx
treated it in the first volume of Capital.(66)

Instead the critique of the capitalist production process,
developed by Marx, gave way to a critique of the capitalist
system as a mode of distribution. In the area of worktime
this led many marxists to all but ignore, or at best to give
a formal nod to, the intensive aspect of labour time. Units
of labour time, hours, days etc., came to be treated as
homogeneous concepts. Developments within the workplace that
were changing the qualitative content of these units were
generally ignored, and all reductions in the length of time
workers had to labour came to be seen as unadulterated
improvements.(67)

The Jevonian Revolution

In his analysis of worktime change, Marx followed and
extended the path pioneered by Adam Smith. In doing
so, however, he chose to concentrate only on that part
of Smith's analysis which was centred within the production
process. He gave little attention to the question of income
and how this influenced the length of time workers were
willing to labour.(68) The marginalist tradition, on the
other hand, came in time to make this aspect of Smith's
thought the centre of its worktime argument. The demands of
the working class for a legal limitation to the working day
made it difficult for supporters of this tradition to
maintain a concept of the worker as an individual forever
choosing to maximise the length of time spent at work in

order to gain more income. What was needed was a theory that would explain why hedonistic beings might choose to reduce the length of time they were willing to labour. Jevons' utilisation of the concept of utility satisfied this need. For the marginalists utility was to become the key to a hedonistic theory that conceived of humans as individuals whose primary objective was the maximisation of pleasure. Utility was equated with desire or wants. It was argued that while these subjective factors could not be measured directly they could be quantified indirectly by the outward phenomena to which they gave rise. Thus while the degree of desire an individual held for an object was not directly measurable it was possible to assess its intensity by observing the price the person was willing to pay to satisfy the desire. Human wants, it was further argued, are insatiable in terms of variety but are limited for any single object.

Jevons argued that labour was a "painful exertion" undergone either to ward off pains of greater measure or to produce pleasures which on balance outweighed the pain of obtaining them.(69) By deleting from his analysis all effort undertaken solely for the sake of its intrinsic enjoyment he concluded that labour should be defined as ". . . any painful exertion of mind or body undergone partly or wholly with a view to future good."(70) Where the rewards for doing so offset the cost, he argued, humans are compelled by their wants to exert themselves beyond the point where they cease obtaining pleasure from their work. There must come a

point, however, where the increased pain associated with increased labour comes to outweigh all other considerations. When this point is reached, Jevons argued, the worker will wish to cease working.

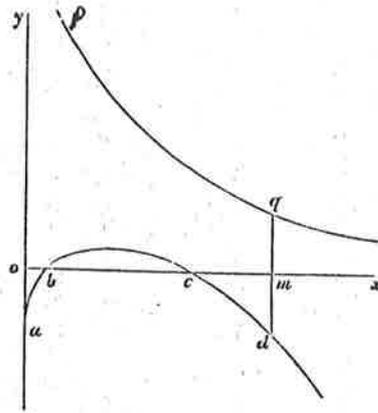


Fig. 1.1

Utilising figure 1.1, Jevons represented the pain induced by labour by the curve $abcd$, the height above the line denotes pleasure, the depth below pain or disutility. The commencement of work, Jevons argued, is generally more irksome than is labour undertaken at a steady rhythm. Thus at first disutility is experienced to the extent oa . At b there is neither pain nor pleasure, between b and c an excess of pleasure gained from the work itself and after c disutility begins to outweigh any intrinsic pleasure. The curve pq , on the other hand, represents the degree of utility of income its quantity being measured by the line ox . The law of diminishing marginal utility ensures that this curve is downward sloping so that as q is approached marginal utility decreases. Thus, argued Jevons, the larger the worker's wage the less is the pleasure derived from a

further increment. The logic of this situation is that there must be a point m where the benefits gained from an extra unit of work will exactly equal the pain endured. The worker will cease work at this point for to do otherwise, Jevons insisted, would be inconsistent with human nature.(71)

Complicating this neat relationship was one factor Jevons considered of extreme importance. How will workers respond to a change in wage rates? There are two effects of a wage change, he argued. When hourly wages increase there is more reward and therefore more inducement to work. Workers consequently will be motivated to work longer. They will, in other words, substitute income for leisure as this will increase their total utility. On the other hand the fact that the worker now receives a greater reward for every hour laboured means that the marginal utility of extra income is decreased. By working an unchanged worktime it becomes possible with the higher wage to satisfy the worker's desires more easily and if the pain associated with labour has reached a high point utility may be maximised by a reduction in the mass of labour-power sold. These two influences have become known as the substitution and income effects. How a worker will react when faced with a change in income can not be decided, Jevons argued, without knowing the specific situation. He believed, however, that evidence indicated that in the majority of cases workers chose to reduce their worktime if their wages rose. He based this conclusion on the general tendency for working times to fall in Britain during the previous quarter century.(72)

The Great Humiliation.

Jevons thesis contains all the essential elements of the contemporary marginalist theory of worktime.(73) It is individuals maximising their utility, measured as income, that determines the length of time workers normally labour. This hypothesis has gained all but total acceptance from the economists of the marginalist tradition. This consensus, however, was not easily attained. The argument that worktime change was merely a function of income gained quick acceptance from some of the leading continental marginalists.(74) It was not readily taken up in Britain. British economists, in the 1870s, had great difficulty accepting an argument that attempted to centre the explanation for the changing nature of worktime solely in the consciousness of individuals. Many of the leading lights of the profession had been active in opposition to the factory acts. These men had argued that because of the nature of the production process the workers had no choice but to accept that their children had to work 12 to 15 hours per day. They had insisted that the workers' claims that output would not necessarily be harmed by the introduction of the shorter day were nonsense. Consequently they had been publicly humiliated when the enactment of the 10-hours Bill proved that it was, in fact, their 'scientific' arguments that were invalid. As a result the workers' charge that the economists had acted as the servants of the employers, rather than as scientists, had gained great credence and this at a time when the whole question of the scientific

validity of economics was being challenged.(75) During the 1860s a number of economists publicly conceded that their arguments had been proven wrong by the new laws. It would not have been very easy, therefore, for them to forget and simply lay aside the importance of the non-proportionality of worktime and output in favour of an argument that wished to ignore such factors and limit analysis to the desires of the individual.

Any tendency to forget their public humiliation, moreover, would soon have been halted by contemporary developments in Britain. Jevons published The Theory of Political Economy in 1871 at the same time as the second great wave of worktime reductions swept across Britain. In 1872 strikes for higher pay and the nine-hour day spread across the whole of industry. This upheaval was continued, though at a reduced rate, over the next two years. The result, among the organised working class, was the establishment of a normal work week of 54 to 56.5 hours. In those industries where regular work was the norm the 9-hour day became the standard in the majority of cases.(76)

The movement spread throughout the economy and brought substantial reductions to virtually all of the organized trades. Even the unorganized and the unorganizable were swept up by the events, so that in June 1872 there were 'strikes for more pay and fewer hours of work ... spreading through all industrial occupations'.

This upheaval reactivated and re-politicised the worktime debate and mass interest and involvement was continued after 1874 by the onslaught of the 'Great Depression'.

Economic Crisis and Theory

The depression was to last for over two decades. It severely squeezed profit margins and significantly increased the degree of competitive pressure faced by British capitalists.(78) This internal problem was compounded by the growing economic power of Britain's international competitors, particularly Germany and the United States who to an increasing degree, after 1870, began to challenge Britain's trading supremacy.

The employers' initial response to these problems was to cut wages and extend working times. They met, however, unaccustomed resistance particularly from those sections of the working class which had become highly unionised.(79) This resistance and the limited advantages that were found to be had by extending worktime led employers to place greater emphasis on the more intensive use of the workers' labour-time. Littler reports that during the depression capitalists used their enhanced bargaining power to radically force up the pace of work.(80) So significant did the intensification issue become during the crisis it managed to displace wages as the major issue in industrial disputes.(81)

While the depression both enabled and compelled the employers to demand more work from their employees it also strengthened the resolve of the labour movement to resist. The unions insisted that the high unemployment made necessary a general reduction in the length of time each worker was compelled to labour. Utilising the employers'

traditional argument that reductions in worktime would reduce individual output, they argued that a compulsory general 8-hour day would automatically create a massive number of new jobs.(82) At the same time, however, they also argued that an 8-hour law was necessary to improve the productivity of British industry which was being undermined by excessively long time schedules. Employers, it was insisted, would actually gain if the 8-hour day was introduced because the consequent productivity increase would raise output and cut unit costs. Those opposed to the workers' demand soon countered these claims by pointing out the unions were trying to have it both ways. They wished to claim that the shorter day would reduce individual output and thus create jobs, while at the same time arguing that output would not be undermined because of the greater productivity that would be generated. This inconsistency, once pointed out, caused some disarray amongst the unions' supporters. The need to overcome this contradiction was made more urgent by the conversion of a large number of Liberal Party politicians to the idea of a legal 8-hour day. In order to retain the Liberals as allies, it soon became clear, it was necessary to abandon the unemployment argument. Consequently this issue was quietly dropped.(83)

National Efficiency

The Liberals had become convinced of the need for a legal 8-hour day both as a result of the working class agitation and of the growing mass of scientific evidence that suggested that the workers' productivity argument had a

good deal of validity. A further influential factor making possible this conversion was the clear failure of the free market to protect Britain's economic interests. The rise of Germany and the United States, during the last years of the century, resulted in widespread criticism of the laissez-faire principle in Britain. It became common for British intellectuals to attack not only the morality of this principle but also its utility. The success of Germany with its bureaucracy, tariffs, centralisation and state aided science and the concomitant decline of Britain convinced many observers that traditional liberalism had to be radically revised. One offshoot of this reappraisal was the 'national efficiency movement'.(84) Searle has described this movement as;

. . . an attempt to discredit the habits, beliefs and institutions that put the British at a hardship in their competition with foreigners and to commend instead a social organisation that more closely followed the German model.(85)

This ideology appealed to intellectuals with a wide range of political opinions. For some the concern with organisation, the use of experts and the elimination of waste, particularly the waste of human life, was particularly attractive. The dramatic disclosures of the poor state of the health of the British working class and the consequent poor quality of its labour-power, brought to light during the Boer War, made this question an issue of national importance.(86) Indeed, even some employers came to concede that the state had a duty to intervene within the labour market to prevent the overconsumption of the workers'

commodity. It was evident that a major source of this degeneracy was the nature of the production process within British industry. Consequently, it was argued, production needed to be made more efficient by the application of a 'scientific' approach to development and, it was insisted by many, a restriction needed to be placed on the length of time workers were compelled to suffer the indignities and deprivations of the workplace.(87)

Technological Determinism

In the face of this massive debate the British marginalists found it impossible to argue that worktime was merely a function of income. They did incorporate the income hypothesis into their explanation of why working times tended to fall but it was relegated to a secondary position behind an explanation that remained centred within the production process. Thus Chapman, in what was the classic statement on worktime in the period prior to 1930, argued that the growth of real wages had both improved the quality of the workers' leisure and lowered the marginal utility of wages and that this had motivated workers to reduce the time they spent at work. Chapman insisted, however, that this factor only reinforced the major influence causing workers to demand a reduction in the length of time they worked. The more important factor was the industrialisation process.

Compared to rural labour, Chapman suggested, industrial work is necessarily more regular and continuous throughout the year and tends to become more severe as industry develops. The utilisation of machinery often removes

much physical strain from the labour process, but **this** does not necessarily mean the work requires less effort.(88) Mechanisation, because it demands specialisation, tends to create tasks that are both monotonous and require close supervision. Moreover, specialisation implies elimination of waste and this includes waste worktime. This results in a partial or even total elimination of the leisure with which the work process had been traditionally interspersed. The working day, as a result of this increased monotony and tightening up, becomes concentrated and certainly proves more exhausting. Many reports, Chapman suggested, indicated that over the years workers were experiencing an increasing degree of nervous strain with work becoming an ever more severe tax on the individual's energy. It was this factor above all that accounted for the workers' recurring demand that they be allowed to spend less time at work.(89)

Now You See It, Now You Don't

Chapman's explanation for why working times tended to fall has remained unchallenged by those within his own tradition to the present day. Until the 1930s it appears to have been generally accepted by British economists, who often tended merely to refer those interested in the subject to Chapman's contribution, his argument being taken as given. This was done, for example, by Robbins in 1929 when, with the oncoming depression reviving interest in the employment generating capacity of a worktime variation, he attempted to examine how market forces would affect wages and employment if working times were reduced. The connection

between worktime and output was not one of direct variation, Robbins acknowledged. This fact complicated his analysis without adding to what he wished to clarify. To overcome this problem he took a methodological step that was to be of major importance. He assumed a situation in which any variation in the length of time worked was away from a point of 'maximum productiveness'.(90) In such a hypothetical world any worktime reduction would necessarily involve a fall in output. It should be stressed that he did not argue that actual working times were in fact at this point. This was merely an abstraction undertaken to highlight his area of interest and to make his discussion less complicated.

Three years later Hicks utilised a similar strategy to simplify his analysis of the labour-supply of the individual. Like Robbins, Hicks argued that Chapman had already written all that needed to be said on the causal determinants of changes to worktime. In order to derive an homogeneous unit of labour-power, however, that would facilitate his application of the marginal productivity theory he assumed "for the present" the existence of an optimum working day that would yield a greater supply of labour than any other.(91)

By the use of this simplifying abstraction Robbins and Hicks were able to delete consideration of the worktime-output relationship from their analysis. In their hypothetical world any reduction in the length of time worked necessarily produced a fall in the individual's output. This form of abstraction was perfectly valid as a

means of highlighting and clarifying those aspects of theory these scholars wished to examine. The danger with abstraction is that it is possible to forget that one is abstracting from the real world. Hicks warned that when simplifying assumptions are made, great care needs to be taken.

It is decidedly convenient to do this when treating some special problems; but it is a method with very considerable dangers, which can only be avoided if we think back our arguments into a more cumbersome but more realistic form as frequently as possible.(92)

If this is not done there exists a serious danger that one may come to believe that the postulated relations existing within the abstraction actually depict the real world. This danger has proven particularly acute within the marginalist tradition. Writing in 1937 Dobb attempted to draw attention to the extent to which this problem was causing the tradition to move ever further away from reality.

One might think it harmless enough to make an abstraction of certain aspects of exchange-relations in order to analyse them in isolation from social relations of production. But what actually occurs is that once this abstraction has been made it is given an independent existence as though it represented the essence of reality, instead of one contingent facet of reality. Concepts become hypostatized; the abstraction acquires a fetishistic character, to use Marx's phrase. Here seems to lie the crucial danger of this method and the secret of the confusions which have enmeshed modern economic thought. Today, not merely do we have the laws of exchange-relations treated in abstraction from more fundamental social relations of production, and the former depicted as dominating the latter, but we even have the relations of exchange treated purely in their subjective aspect - in terms of their mental reflection in the realm of individual desires and choices - and the laws which govern actual economic society invertedly depicted as consisting in the

abstract relations which hold in this ghostly sphere.(93)

In the period since Dobb made these observations this problem has become much more acute due to the marginalists' accelerated tendency to delete consideration of institutional and historical factors from their method of analysis in favour of singular concentration on mathematics, the individual and the play of market forces. This tendency has not been least in the area of worktime. In the post 1945 period the application of science to the worktime question combined with the economic stability of the long boom greatly de-politicised working time as an issue generating inter-class conflict. In this environment the tendencies outlined by Dobb have been able to flourish.

Within contemporary marginalist theory the hypothetical world postulated by Robbins and Hicks is implicitly and explicitly put forward as reality. It is presumed that a reduction in the length of time worked necessarily involves a fall in output and wages. Most marginalists have even gone further and joined those marxists who assume that worktime has only a single dimension and that the fall in output will be proportionally related to the reduction in the length of time worked. Indeed, the singular concentration on market forces and the desires of the individual has managed all but completely to delete human limits and the production process from the tradition's whole method of analysis.

Units of labor inputs are designated either as "workers" or as "manhours", and variations in labor inputs affect output without reference to working hours. Just as the production function is external

to economics and lies in the realm of engineering, so too the determination of the appropriate length of the working day is relegated to the physiology and psychology of labor.(94)

By purging the production process from their analysis the marginalists have been able to accept a bastardised version of Jevons' explanation for why working times have tended to fall. His complete argument has, however, not been accepted. Rather, indifference analysis has been used to modify it to a form that is even more abstracted and divorced from reality. With the use of the indifference technique all that is considered is whether the income or the substitution effect is dominant. Jevons' recognition that the worker experiences pain and a need to determine and quantify the nature of this pain has thus also been deleted from consideration. Indeed, even the proposition that work is the alternative the worker faces to poverty tends to become blurred within contemporary marginalist literature. Indifference analysis instead confronts the worker not with two painful alternatives, hunger and work, but rather with two goods, income and leisure. Thus it is implied that the worker is not compelled to work any particular time schedule or even to work at all. The length of time the worker will work is merely a matter of preference.(95) As it has been so succinctly and simply put by Reynolds;

Over the long run . . . changes in hours reflect worker preferences. The main reason why weekly hours have fallen from about sixty at the turn of the century to around forty at present is that most workers find the increase in leisure preferable to the higher incomes they could earn on the old schedule. If and when most workers conclude that a four-day or a thirty-hour week yields a better

balance between income and leisure, management and union policies will shift in that direction.(96)

Marginalism and Marxism

During the post-war years, then, both marginalist and marxist theorising on the worktime issue have moved away from the point of production and into the realm of distribution and exchange. The role that conflict between human capacities and the demands of the production process may play in bringing about change in this area has been largely neglected. Those few scholars who have thought to mention this issue have, with very few exceptions, generally asserted that while it may have been of some relevance in an earlier period it is of inconsequential significance as a factor explaining worktime change below forty-eight hours per week. Rather, rising incomes or political class power are put forward by the supporters of the respective traditions as the primary causal determinants propelling the ongoing downward movement in the length of time workers normally labour. Given that the dismissal of the human limits aspect of worktime theory has never been theoretically or empirically justified these arguments need to be treated with some caution. Before accepting the validity of either it would be wise to examine more closely the evidence underpinning both the argument that worktime is a function of income and the claim that human limits may be safely ignored. It is to these questions I will now turn.

Notes

1. M.A. Bienefeld, Working Hours in British Industry: An economic history, Weidenfeld and Nicolson, London, 1972 p.9.
2. E.A.J. Johnson, Predecessors of Adam Smith, P.S. King and Son, London, 1937, p.3.
3. E.S. Furniss, The Position of the Laborer in a System of Nationalism, Houghton Mifflin Co., Massachusetts, 1920, p.3.
4. D.C. Coleman, 'Labour in the English Economy of the Seventeenth Century', The Economic History Review, Vol. 8, 1956, p.287.
5. William Temple, 'A Vindication of Commerce and the Arts', 1758. Cited by P.D. Groenewegan, 'Labour and the Classical Economists', Labour History, No. 16, p.24. This is essentially a wage theory of worktime. In contemporary theoretical language the slope of the labour-supply curve of those described is decidedly backward leaning.
6. Ronald L. Meek, Studies in the Labour Theory of Value, Lawrence & Wishart, London, 1956, p.14-24. This was particularly so after the mid-sixteenth century. See also Joyce Oldham Appleby, Economic Thought and Ideology in Seventeenth - Century England, Princeton University Press, Princeton, 1978, pp 129-157.
7. Isaac I. Rubin, A History of Economic Thought, Ink Links. London, 1979, p.39. See also J. Oser and W.C. Blanchfield, The Evolution of Economic Thought, (3rd ed), Harcourt Brace Jovanovich, New York, 1975, p.11. John Rule, The Experience of Labour in Eighteenth Century Industry, Croom Helm, London, 1981, pp 53-55.
8. This is not to deny that there were some exceptions to the general condemnation of the worker. For a discussion of the nature and extent of this disagreement see Richard C. Wiles, 'The Theory of Wages in Later English Mercantilism', The Economic History Review, Vol. 21, 1968, pp 113-136.
9. This last policy was advocated and implemented even though it often conflicted with the need to keep wages low. That the state accepted this role is attested to by Hecksher who reports that throughout Western Europe, during the mercantilist period, the state actively intervened in the labour market to drive down the price of labour-power by whatever means it could. Eli F. Heckscher, Mercantilism, Vol. 2, George Allen and Unwin Ltd., 1935, p. 153-172.
10. David S. Landes, The Unbound Prometheus. Technological Change and Industrial Development in Western Europe from 1750 to the Present, Cambridge University Press, Cambridge, 1969, p. 59. See also Max Weber, The Protestant Ethic and the Spirit of Capitalism, Unwin Paperback, London, 1965, pp 58-59. John Rule, op cit, pp 52-53.
11. Graeme Salaman, Class and the Corporation, Fontana Paperbacks, Glasgow, 1981, p.27. For a discussion of

- the ways and extent to which mercantilist arguments served the interests of the rising bourgeoisie, see Peter Mathias, The Transformation of England, Methuen, London, 1979, pp 157-160.
12. A.W. Coats, 'Changing Attitudes to Labour in the Mid Eighteenth Century', The Economic History Review, Vol. 11, 1958-1959, pp 35-51. See also, Lujo Brentano, Hours and Wages in Relation to Production, Swan Sonnenschien and Co., London, 1894, p.3.
 13. David Hume, cited by A.W. Coats, op cit, p. 40.
 14. Douglas Kellner, 'Human Nature and Capitalism in Adam Smith and Karl Marx', in Jesse Schwartz (ed.), The Subtle Anatomy of Capitalism, Goodyear Publishing Co., Santa Monica, 1977, pp 71-77.
 15. I.I. Rubin, op cit, p. 168.
 16. Adam Smith, The Wealth of Nations, Vol. 2, Everyman's Library, London, 1966, p. 168.
 17. Douglas Kellner, op cit, p. 71.
 18. Adam Smith, op cit, Vol. 1, p. 73.
 19. For a discussion of this aspect of Smith's work see James O'Connor, 'Smith and Marshall on the Individual's Supply of Labor: A Note', Industrial and Labor Relations Journal, Vol. 14, No. 2, 1961, pp 273-276.
 20. Adam Smith, op cit, Vol. 1, p. 73.
 21. M.A. Bienefeld, op cit, pp 20-25.
 22. Adam Smith, op cit, Vol. 1, p. 73.
 23. Ibid, p. 74.
 24. There were, as always, exceptions to this orthodox position. Malthus, for example, continued to argue that a negative relationship existed between income and effort. T.R. Malthus, An Essay on the Principle of Population, London, 1826, pp 368, 379, 424-425.
 25. A.W. Coats, op cit, p. 47.
 26. Ibid, p. 48.
 27. E.P. Thompson, The Making of the English Working Class, Penguin Books, 1968. As Coleman has argued, worktime in pre-capitalist society was very different from what it was to become following the bourgeoisie's consolidation of power. "The regularity, consistency and intensity of work which the latter demands were quite alien to the worker of the seventeenth century and indeed of Tudor England." D.C. Coleman, op cit, p. 291.
 28. Sidney Pollard, The Genesis of Modern Management, Arnold Ltd., London, 1965, pp 160-161.
 29. E.P. Thompson, 'Time, Work-discipline, and Industrial Capitalism', Past and Present, No. 38, 1967, p. 81.
 30. Douglas A. Reid, 'The Decline of Saint Monday 1766-1876', Past and Present, No. 71, 1976, pp76-101.
 31. S. Pollard, op cit, p. 183.
 32. Douglas Kellner, op cit, p. 77. See also Karl Polanyi, The Great Transformation, Farrar and Rinehart, New York, 1944, pp 163-191.
 33. Nassau Senior, Letters on the Factory Act, B. Fellows, London, 1837, p. 14.
 34. Ronald L. Meek, Smith, Marx, and After, Chapman and Hall,

- London, 1977, p. 166.
35. Joan Robinson, Economic Philosophy, Penguin Books, 1964, p. 36.
36. R.L. Meek, Economics and Ideology, Chapman and Hall Ltd., London, 1967, pp 51-74. See also C. Napoleoni, Smith Ricardo Marx, Basil Blackwell, Oxford, 1975, pp 1-8. Both of these traditions were to construct theories of value and distribution which derived much from Adam Smith. That this was possible was because of the dualism that exists in Smith's work.

On the one hand he traces the intrinsic connection existing between economic categories or the obscure structure of the bourgeois economic system. On the other, he simultaneously sets forth the connection as it appears in the phenomena of competition and thus as it presents itself to the unscientific observer just as to him who is actually involved and interested in the process of bourgeois production. One of these conceptions fathoms the inner connection, the physiology, so to speak, of the bourgeois system, whereas the other takes the external phenomena of life, as they seem and appear and merely describes, catalogues, recounts and arranges them under formal definitions.

Karl Marx, Theories of Surplus Value, Part 2, Progress Publishers, Moscow, 1978, p. 165.

Marxism followed that trend of Smith's work that centred its analysis at the point and circumstances of production. Marginalism, on the other hand, was to concentrate its emphasis on demand and final consumption. For the latter, as Dobb has suggested, its chosen emphasis allowed increasing stress to be placed on the desires and wants of consumers. It also allowed the development of an individualistic or atomistic bias with micro-analysis of individual market behaviour coming to preoccupy the tradition and with economic generalisation being increasingly based on such micro phenomena. See M. Dobb, Theories of Value and Distribution Since Adam Smith, Cambridge University Press, Cambridge, 1973, pp 167-168.

37. R.L. Meek, Economics and Ideology, op cit, p. 67.
38. M.A. Bienefeld, op cit, p.43.
39. Loc cit

40. These divisions within the ruling class played an important role in Marx's explanation of how and why the workers were able to win support for their demands for a 10-hour day from sections of both the bourgeoisie and the aristocracy. Karl Marx, Capital, Vol. 1, Penguin Books, 1976, pp 382, 395-405, 409. For a discussion of the varying costs of the factory acts, on individual manufacturers, see Clark Nardinelli, 'Child Labor and the Factory Acts', The Journal of Economic History, Vol. 40, No. 4, 1980, pp 739-755; Howard P. Marvel,

'Factory Regulation: A Reinterpretation of Early English Experience', The Journal of Law and Economics, Vol. 20, No. 2, 1977, pp 379-402. Marvel has argued that so crucial were the divisions amongst the bourgeoisie in enabling the 1833 act to be passed that the bill's passage must be explained, not as the result of working class struggle or liberal humanitarianism, but as the successful implementation of a strategy by an important, technically advanced group of textile manufactures ". . . designed to place a differential burden on a subset of textile manufacturers". While Marx may have disagreed with Marvel's emphasis he certainly would have agreed that technical factors played a crucial role in both enabling the factory acts to be introduced and in determining the consequences of these bills, not the least of which was the elimination of many capitalists and the expansion of those that survived.

But though the Factory Acts thus artificially ripen the material elements necessary for the conversion of the manufacturing system into the factory system, yet at the same time, because they make it necessary to lay out a greater amount of capital, they hasten the decline of the small masters, and the concentration of capital.

- Karl Marx, Capital, Vol. 1, p. 607.
41. Mark Blaug, 'The Classical Economists and the Factory Acts-A Re-examination', Quarterly Journal of Economics, Vol. 72, 1958, p. 212. See also K.O. Walker, 'The Classical Economists and the Factory Acts', The Journal of Economic History, Vol. 1, No. 1, 1941, pp 168-177; Lloyd R. Sorenson, 'Some Classical Economists, Laissez Faire and the Factory Acts', The Journal of Economic History, Vol. 12, No. 3, 1952, pp 247-262; Joseph Ricciardi, 'Class Struggle, the Classical Economists, and the Factory Acts: Towards a 'Reformulation'' in Paul Zarembka (ed), Research in Political Economy, Vol. 4, 1981, pp 81-100.
 42. Joseph Ricciardi, op cit, pp 91-92.
 43. Nassau Senior, op cit, p. 11.
 44. Mark Blaug, op cit, p. 224.
 45. William Thornton, Over-Population and its Remedy, re-issued by Irish University Press, Shannon, 1971, p.399.
 46. Karl Marx, Capital, Vol. 1, p. 344.
 47. Ibid, p. 381. The growth of 'monopoly capitalism' does not negate this coercive factor though in particular times and places it may lessen its immediate significance. For Marx the concentration and centralisation of capital both destroys and constantly recreates competition. The fact that there are areas of the economy in which individual capitals exercise a degree of control over particular markets is not a contravention of this argument. For two interesting

- discussions of this aspect of Marx's analysis see, John Eatwell, 'Competition' in Ian Bradley and Michael Howard (eds.), Classical and Marxian Political Economy The Macmillan Press, London, 1982, pp203-228. Willi Semmler, 'Theories of Competition and Monopoly', Capital and Class, No. 18, 1982, pp 91-116.
48. For an excellent discussion of Marx's theory of crisis see Michael A. Lebowitz, 'The General and the Specific in Marx's Theory of Crisis', Studies in Political Economy, No.7, Winter 1982, pp 5-25.
 49. Karl Marx, Capital. Vol. 1, pp 348, 376-377. Though Marx concentrated his argument on the conflict between the physical and psychological limits of human beings and the demands of capital he was also aware that within any given society there were also social limits which could play an important role in the struggle over work times.
 50. This is not necessarily the case at all times. An effective workers' organisation could, in certain circumstances, fulfil this role.
 51. David Harvey, The Limits of Capital, Basil Blackwell, Oxford, 1982, p. 30. See also Wolfgang Muller and Christel Neususs, 'The Illusion of State Socialism and the Contradiction between Wage Labour and Capital', Telos, No.25, Fall 1975, pp 60-72.
 52. Karl Marx, Capital, Vol. 1, p. 535.
 53. Ibid, p. 534.
 54. Ibid, p. 695.
 55. Ibid, p. 699.
 56. Ibid, p. 535. In support of this claim Marx reported a number of experiments undertaken by employers which showed that it was possible to reduce worktime without reducing output.
 57. Ibid, p. 536.
 58. Loc cit.
 59. Reports of the Inspectors of Factories . . . 31st October, 1856, cited by Marx, Capital, Vol. 1, p. 540.
 60. Karl Marx, Capital, Vol. 1, p. 533.
 61. Ibid, p. 542.
 62. Harry Cleaver, Reading Capital Politically, The Harvester Press, Great Britain, 1979, p. 78.
 63. Ibid, p. 79.
 64. Karl Marx, Capital, Vol. 1, p. 526.
 65. Richard Hyman, 'Theory in Industrial Relations: Towards a Materialist Analysis, in Paul Boreham and Geoff Dow (eds), Work and Inequality. Ideology and Control in the Capitalist Labour Process, Macmillan Co. of Australia, Melbourne, 1980, p. 53.
 66. There have been some exceptions to this poor showing. Of these the most impressive is that of Eric Hobsbawm, 'Custom, Wages and Workload in Nineteenth-century Industry' in Labouring Men, Weidenfeld and Nicolson, London, 1968, pp 356-363.
 67. Harry Braverman, Labor and Monopoly Capital, Monthly Review Press, New York, 1974, p. 9.
 68. Marx did believe that if wages were below the level

capable of securing the workers "a miserable average wage" this would stimulate them to extend the length of time they would be willing to work. Karl Marx, Capital, Vol. 1, p. 688. He was also clearly aware that need or greed would drive many workers to extend the length of time they would work and that this would force all others to have to do likewise. Because of this it was necessary for the workers to combine as a class and compel the introduction of a law that would end this form of competition.

69. W. Stanley Jevons, The Theory of Political Economy, Augustus M. Kelly, New York, 1965, pp 167-168.
70. Ibid, p. 168.
71. Ibid, pp 172-174.
72. Ibid, pp 195-196.
73. Mark Blaug has described Jevons's theory of labour-supply as his most important contribution to modern marginalism. Its relevance to contemporary theory has also been attested to by Robert Kerton who suggests that the major propositions on which the theory rests are as valid today as they were in 1871. See Mark Blaug, Economic Theory in Retrospect, (third edition), Cambridge University Press, Cambridge, 1978, p. 329. Robert R. Kerton, 'Hours at Work: Jevons' Labour Theory After 100 Years', Industrial Relations, Vol. 10, No. 2, 1971, p. 230.
74. Mark Blaug, 'Economic Theory in Retrospect', op cit, p.330.
75. S.G. Checkland, 'Economic Opinion in England as Jevons Found It', The Manchester School of Economic and Social Studies, Vol. 19, 1951, p. 147.
76. M.A. Bienefeld, op cit, p. 106.
77. Loc cit.
78. Craig R. Littler, The Development of the Labour Process in Capitalist Societies, Heinemann Educational Books, London, 1982, p. 73.
79. Ibid, p. 75.
80. Ibid, p. 76. See also E.J. Hobsbawm, op cit, p. 362.
81. Craig R. Littler, op cit, p. 77.
82. Tom Mann, What a Compulsory Eight Hour Working Day Means to the Workers, London, 1886. Mann suggested that of the 900,000 unemployed then in Britain 750,000 would have to be hired if there was a compulsory 8-hour day. In formulating their theoretical arguments the unions had the support of a number of intellectuals sympathetic to the working class. See, for example, Sydney Webb and Harold Cox, The Eight Hour Day, Walter Scott, London, 1891 and John Rae, Eight Hours for Work, Macmillan, London, 1894.
83. Jose Harris, Unemployment and Politics. A Study in English Social Policy 1886-1914, Clarendon Press, Oxford, 1972, pp 67-73.
84. G.R. Searle, The Quest for National Efficiency, Basil Blackwell, Oxford, 1971, pp 54-107.
85. Ibid, p. 54.

86. Ibid, pp 60-67.
87. See below, chapter 2.
88. S.J. Chapman, 'Hours of Labour', The Economic Journal, Vol. 19, 1909, p. 355.
89. Ibid, p. 356.
90. Lionel Robbins, 'The Economic Effects of Variations of Hours of Labour', The Economic Journal, Vol. 39, 1929, p. 25.
91. J.R. Hicks, The Theory of Wages, Macmillan, London, 1963, p. 104.
92. Ibid, p. 93.
93. Maurice Dobb, 'The Trend of Modern Economics', in E.K. Hunt and Jesse G. Schwartz (eds.), A Critique of Economic Theory, Penguin, 1972, p. 41.
94. Philip Grossman, Hours and Output: The Reduction in the Soviet Workweek, 1956-1960, unpublished PhD thesis, The American University, Washington, 1970, p. 11.
95. For classic examples of this argument see Milton Friedman, Price Theory: A Provisional Text, Aldine Publishing Company, Chicago, 1962, pp 199-225 and H.C. Lewis, 'Hours of Work and Hours of Leisure', in L. Reed Trip (ed.), Proceedings of Ninth Annual Meeting of Industrial Relations Research Association, 1956, pp 196-206.
96. Lloyd G. Reynolds, Labor Economics and Labor Relations, (6th ed.), Prentice-Hall, New Jersey, 1974, p. 34.

Chapter 2

The Empirical Evidence Underpinning the Marginalist and Marxist Theories of Worktime

The review of the literature presented in chapter 1 has shown that there presently exists two major theories that purport to explain the changing nature of worktime in industrialised capitalist societies. Marginalism argues that the downward drift in standard times has occurred because the living standards of the workers and the pattern of their preferences for income and leisure have changed. Marxism, on the other hand, argues that while individual worker's desires are not necessarily irrelevant in bringing about such change it is within the production process rather than within the consciousness of individuals that one should seek the answer to why standard times have tended to fall. In this chapter the empirical evidence underpinning both modern marginalism and Marx's argument, and hence the arguments of those marxists who limit their analysis to the political realm, will be looked at in order to determine the validity and contemporary relevance of each.

Marginalism

For modern marginalists the primary prop upon which their theory of worktime stands is the claimed existence of a negative slope in the relevant portion of the labour-supply curve. To be able to prove empirically that the majority of workers choose to reduce their worktime as their incomes rise is crucial to the theory because even within its own parameters there is no logical reason to assume that this

should be the case.

In 1930 Robbins published his classic paper, 'On the Elasticity of Demand for Income in Terms of Effort'.(1) In this work Robbins criticised those economists who claimed that it was possible by a priori reasoning to determine how a change in income will influence the labour-supply of the individual. A number of marginalists had argued that if one accepted the concept of rationality in economic decision-making then the worktime consequences of a change in income could be determined deductively. Pigou, for example, suggested that the imposition of a tax on workers would necessarily result in the length of time they were willing to work being extended. He reasoned that since income is being taken away from the taxpayer the marginal utility of income is raised while the marginal disutility of labour remains unchanged. Consequently, he concluded, unless they are somehow impeded, higher taxes will induce workers to increase the amount of work done and so of income obtained up to the point where the marginal utility of income and the marginal disutility of work are again equal.(2)

Pigou based his conclusions on the assumption of diminishing marginal utility for income and the concept of the individual as a utility maximiser. Knight similarly argued that rational individuals will, if their wage rates increase, divide their time between work and leisure in such a way as to both increase income and decrease time worked.(3)

In his critique Robbins insisted that the arguments of

these scholars were flawed because they failed to see that the price of income as measured by effort tended to fall as wages rose, i.e. less effort needs to be undertaken to earn a given amount of income if wage rates rise. Diminishing utility could not, therefore be assumed. How the worker responded to a reduction in worktime in such a situation depended on which factor was dominant, the income or the substitution effect. How much effort individuals were willing to undertake to earn extra income depended, therefore, solely on the elasticity of their demand for this good. If this elasticity is greater than unity a decrease in the wage rate or a tax increase will result in a reduction of worktime. If it is less than unity then the opposite will occur. After making this observation, Robbins proceeded to show that nothing in the arguments of Pigou and Knight indicated that the elasticity of demand in terms of effort is necessarily greater than unity.(4) It was not valid, therefore, he concluded, for these authors to claim that they could deductively determine the slope of the labour-supply curve. Having successfully shown this to be the case Robbins was able to re-establish Jevons' hypothesis that the determination of how a change in income will influence individual labour-supply can only be resolved on empirical grounds.

If these considerations are valid we are left with the conclusion, . . . that any attempt to predict the effect of a change in the terms on which income is earned must proceed by inductive investigation of elasticities. The attempt to narrow the limit of possible elasticities by a priori reasoning must be held to have broken down.(5)

Since Robbins published his critique a number of marginalists have attempted to provide a logical base for the assumption of a negatively inclined labour-supply curve. These have not proven fruitful and the theory remains indeterminate.(6)

Attempts at strengthening the theory by adding more variables have also been undertaken. These, however, have only tended to further cloud the income-worktime relationship by adding more indeterminate factors to an indeterminate theory and have not provided the marginalists' basic argument with any further deductive support.(7)

That their theory is indeterminate is now acknowledged by orthodox marginalists. Whether the income or the substitution effect is the stronger influence at the industry or economy level, or even at the level of the individual, is not a question that can be decided upon on the basis of logical deduction. As King argued, it is "... an empirical question, and not one which can be settled by a priori argument."(8) This lack of a logical base means that the hypothesis that worktime has contracted over the long term as a consequence of rising incomes can only be assumed to be correct if it can be empirically substantiated. It is not sufficient to argue, as did Jevons, that as wages have risen and working times fallen, the former must have caused the latter. This argument is clearly open to the charge of being guilty of the post hoc fallacy. If it cannot be empirically substantiated, in other words, it becomes mere assertion.

Marginalism's Empirical Evidence

Until the late 1960s empirical research did appear to provide support for the claim that the relevant portion of the labour-supply curve was negatively inclined. A number of marginalists calculated estimated supply curves of aggregate working times by using time series data or comparisons across industries, occupations or regions.(9) This research produced results that seemed to show that the supply curve of the majority of workers was, indeed, backward leaning. Douglas, for example, estimated that an increase in income of 1 per cent would induce a fall of 0.1 to 0.2 per cent in the length of time normally worked.(10)

In 1962 Finegan undertook a cross-sectional examination of work times within the United States utilising 1940 and 1950 census data. He was able to establish a significant inverse correlation between income and working times though it was necessary to include a number of new variables in order to make this possible. Despite this need to move beyond simple correlations between income and the length of time worked, Finegan concluded that the results of his research strongly supported the marginalists' position.(11)

These results were widely accepted within the economics profession. This acceptance was undermined in the late 1960s, however, when critics began exposing theoretical and statistical weaknesses within the research. One of the most significant of these critics was Feldstein who argued that though there was impressive evidence of a negative

correlation between income and worktime it was incorrect to interpret the regression lines in the earlier research as supply curves. The results of these studies, he insisted, were ambiguous because of the problem of identification resulting from the fact that more than one endogenous variable was involved. Each observation undertaken in these analyses represented the intersection of one particular supply curve and the corresponding demand curve, for example, the supply and demand in a particular location or time.

Because all of the observations in a sample do not relate to a single labour market, the least squares line which describes the association between hours and hourly earnings is not an estimated supply function.(12)

To overcome this problem Feldstein undertook a number of observations drawn as best he could from single labour markets. Analysis of the results showed no clear pattern emerged. In some cases the supply curve did slope backwards, in others no significant relationship could be discerned, while in some, the supply curve was positively inclined. The ambiguity of these results led Feldstein to state that the identification problem may still have been too significant and that therefore no conclusions could be drawn from his work. He warned, however, that it would be unwise to continue basing economic policy on the assumption that the labour market is characterised by a negatively inclined supply curve.(13)

Through the 1970s numerous studies were undertaken that attempted to overcome the weaknesses of the early research.

A review of this work, undertaken by the marginalist Keeley, found wide disparity in the results.(14) Similar findings have been reported by Killingsworth.(15) Keeley argued that it is difficult to compare directly the findings of these studies because of the varying estimates and parameters utilised by the researchers. Labour supply estimates, he pointed out, are very sensitive to the researchers' choice of assumptions. Even allowing for difficulty of comparability however, it is clear, Keeley conceded, that technique alone cannot explain the wide variation in the results.(16) Some researchers have produced results that clearly accord with marginalist theory. Others, however, have found precisely the opposite, while some have not been able to come up with any statistically significant evidence whatsoever.(17) This assessment holds whether one considers 'first' or 'second' generation research. As Killingsworth has conceded despite repeated attempts to refine their work a 'cynic' would be justified in concluding that the marginalists have not produced much in the way of evidence to support their theoretical base.(17) In short, collectively they have reproduced Feldstein's results which showed that there is no clear relationship between income and worktime. That there is, therefore, no substantive proof for the claim that the labour-supply curve is negatively inclined.

Taxation Evidence

The undermining of the marginalists' argument caused by their failure to provide empirical support for their primary assumption has been compounded by the research findings

of those who have sought to determine the shape of the supply curve by examining the effects of taxation on the supply of labour-power. As a change in the tax rate amounts to a change in the amount of income the individual receives how workers respond to marginal changes in taxation should provide evidence of the relationship between income and worktime. Again theory does not predict how individuals will respond to any given change in the tax level because of the dual influences of the substitution and income effects. Belief in a negatively inclined supply curve, however, induced until the 1970s, a widespread assumption, amongst marginalists, that high marginal rates of taxation would tend to reduce the supply of labour-power. Consequently, it was assumed that individuals moving into high tax brackets would display a marked tendency to substitute leisure for income.(18) Three principal methods were utilised to determine whether this was the case; observed behaviour, experimental evidence and surveys of attitudes.(19) None of these techniques produced the results expected.

Studies of market behaviour have not been able to provide support for the claim that high marginal rates of taxation reduce incentives to work.(20) Indeed, recent research suggests that high taxes may well act as an inducement to many workers, causing them to work harder and/or longer, in order to maintain living standards.(21) The only safe conclusion one can draw, given the present state of research, is that the influence of the income and

substitution effects on male family heads is small, with the corresponding effects on working wives being somewhat greater.(22) A 1975 O.E.C.D. survey of the empirical work undertaken in this field concluded that; ". . . the net effect of taxation on labour supply is not large enough to be of great economic or sociological importance."(23)

The experimental research has produced similar results. Most of the evidence for this conclusion was obtained from the negative income tax studies undertaken in the United States in the late 1960s and the early 1970s. In these studies families were randomly selected and were assigned to one of several experimental groups or to a control group. Experimental families were given economic assistance from cash transfer programmes on the condition that any income obtained beyond this minimum would be taxed at a rate varying from fifty per cent upwards. The control families received no extra income but continued to receive whatever benefits they were legally entitled to under existing welfare programmes.(24)

At the outset the researchers expected to find that the payment of substantial amounts of unearned income would reduce the amount of labour-power workers would be willing to sell on the market.(25) The experiments were conducted over a number of years and cost approximately \$100,000,000.(26) It was found that the effect of taxes on the supply of labour-power was very small. A negative income tax did appear to reduce the workers' willingness to place as much of their commodity on the market but the reduction

was only substantial for supplementary earners, i.e., wives and children.(27) Even the little support these results give to the marginalists' theory has since been questioned for there is a problem in determining to what degree the results reflected under-reporting of worktime by experimental families. Such under-reporting was possible because the data as to actual time worked was obtained from household interviews. Very little was done to determine the validity of this information while the experiments were continuing. This was despite the fact that experimental families had a vested interest in under-reporting both the length of time they spent at work and their income, for the size of the transfer payment they received was inversely related to their income which was, in most cases, directly related to the length of time spent at work.

A number of studies have since attempted to determine the degree to which under-reporting may have invalidated the significance of the results obtained. Most of these have found significant degrees of under-reporting by experimental families. Consequently, estimates of the degree to which people chose to spend less time at work would appear to have been severely overstated.

Indeed, if the responses are reestimated with data that have been corrected for underreporting, adverse effects for wives and female family heads tend to disappear and those for husbands become less severe.(28)

Finally, findings of a similar nature have been obtained from studies utilising interview and survey techniques. The vast majority of those interviewed reported that taxation

had no effect on their willingness to work. The majority of respondents stated that taxation levels had no effect on the length of time they were willing to work and among the rest the replies tended to cancel each other out.(29) Summing up the collective contribution of the taxation research in 1983 Brown concluded;

There are no studies of labour supply that are not open to serious objection on at least one important ground. Therefore the most intellectually-defensible position is that after a decade and a half of effort we can say very little about labour supply elasticities.(30)

The Validity of the Marginalists' Argument

The failure of the marginalists to substantiate their assumptions empirically can either be used to justify a rejection of their theory or it can be simply taken as an indication of continuing econometric problems. Most marginalists have chosen the latter alternative. They can do this because of the empirical nature of their theory. The fact that a negatively inclined labour-supply curve cannot be shown to characterise the labour market does not prove that it does not. It is not possible to confirm or falsify the theory purely on the basis of empirical research. It is always possible that further work will produce supporting empirical evidence for the hypothesis. The lack of an empirical foundation for the marginalists' theory does not invalidate it, but rather, given its lack of any logical deductive basis, it turns its claims into unsubstantiated assertion. Belief in the theory becomes a matter of faith.

The Empirical Evidence for Marx's Argument

Marx argued that within certain limits it was possible for capitalists to offset totally reductions in the length of time workers laboured by raising hourly output levels. He also suggested that capitalism would be characterised by a tendency to raise the average level of work intensity and that this higher intensity, because it would come into conflict with human limitations, would make necessary periodic reductions in the length of time workers were compelled to labour. These two claims are the primary, empirically testable hypotheses underpinning Marx's explanation of how and why the struggle between the capitalist class and the working class over standard working times has taken the form it has. The validity of these claims will now be looked at and an attempt will be made to assess their contemporary relevance.

Worktime and Output

In the period since Marx wrote Capital a vast amount of research has been undertaken into the relationship between worktime and output. Evidence of both an experimental and a statistical nature, accumulated through this period, has confirmed his claim that a reduction in the length of time workers' labour does not necessarily result in a reduction in output. Reviewing this evidence in the mid-1960s Denison concluded;

The quantity and quality of work done in an hour is affected by the length of the workweek or work year. As hours are shortened ...the product turned out in an hour typically increases as a direct consequence of the change in hours, so that

the loss of output is less than proportional to the reduction in hours.(31)

The factors that induce this non-proportional response are diverse. The more significant of these have been briefly outlined by Evans.

1. The majority of people are capable of working more intensely during a relatively short period than they are over a relatively prolonged period.

2. Where working times are particularly long their reduction often has a favourable impact on absenteeism and sick leave.

3. The 'shock effect' of an enforced worktime change often stimulates management to re-examine methods of production thus generating increased productivity.

4. Higher hourly labour costs stimulates increased capital intensive production methods.

5. The reduction may eliminate a relatively unproductive time period and thus reduce fixed costs per unit of production.

6. It may be possible, as a result of the time cut, to introduce shiftwork thus facilitating greater use of capital equipment.

7. The reduction may elicit a more congenial climate of industrial relations. This may in turn facilitate the introduction of productivity increasing modifications to the production process.(32)

Denison estimated that, in general, working persistently more than a six-day forty-eight hour week did not increase

total output. He further argued that reductions in standard working times was the third most significant source of increase in national income per worker-hour in the U.S.A. during the period 1929-1957.(33) Post-war studies have tended to confirm this relationship. Indeed it has proven possible to reduce working times below forty-eight hours per week without inducing any reduction in output. A study undertaken by the Norwegian Government in 1959, for example, found that hourly output rose sufficiently to offset most of a reduction from forty-eight to forty-five hours per week.(34) Similar results were obtained from a study commissioned by the West German Ministry for Economic Affairs in 1962. This study is one of the most thorough empirical examinations yet undertaken of the relationship between worktime and productivity.(35) The researchers concluded that a reduction in worktime below forty-five hours per week would have ". . . no significant adverse effect upon output per man - that is, that the productivity offset would be complete."(36) It was further concluded in this study that the effect on unemployment was minimal and that reductions in worktime boosted productivity and gave impetus to structural adjustments within the economy.(37) Finally, Tsujimura has reported that reductions in worktime in Japan, during the 1960s, produced no adverse effects upon output. Rather, he reports, even after allowing for changes in the nature and use of capital equipment for every one per cent reduction in time worked there was a corresponding two percent increase in labour productivity.(38) The governments

of numerous other countries have undertaken similar studies. All have produced results showing that worktime and output are not proportionally related even where weekly hours are below forty-eight. These studies, it should be noted, are of a macro nature. They consequently blur the degree of offset that has been achieved at the level of the firm. With individual enterprises experience has varied widely. Some firms have enjoyed significant increases in total output as a consequence of a reduction in worktime while experiencing no increase in costs. Others, however, have found that decreased standard times have increased production costs and in some cases these increases have been quite significant. A French study in 1968-1969, for example, found that offset was lowest in small firms. While total loss of production resulting from a worktime change at this time was 0.35 per cent for every one per cent reduction in the length of time worked for all enterprises, in those firms with over 500 employees it was only 0.14 per cent.(39)

The Forty-Hour Week

The evidence that falls in output do not necessarily accompany worktime reductions is overwhelming. As working times contract, however, marginal reductions in the length of time worked increase in proportional significance. If all else remained constant this would make it increasingly difficult to obtain a high degree of offset. Through the 1950-1970 period it was widely accepted that the offset phenomenon was largely exhausted when standard times

approached forty hours per week.(40) This belief broke down in the 1970s, however, as it became increasingly clear that there was no theoretical or empirical evidence that could substantiate this claim.

Attempts were consequently made to rectify this situation with numerous macro-econometric model based studies being undertaken, the purpose of which was to determine the degree of offset that can be expected from a curtailment of standard times below forty hours per week. As a result of this research it was generally acknowledged that some offset would occur but there was no agreement as to its extent. The results of these studies varied widely. This is to be expected given the wide variety in the basic assumptions and underlying hypotheses of the various models. The difference in these factors is so great that comparability is all but impossible.(41) Consequently, if one were forced to rely solely on these studies it would not be possible to predict with any certainty what will happen to output if working times are further reduced. Fortunately there is a growing quantity of empirical research that has produced more definite indications of what may be expected.

The most sophisticated and wide-ranging of these studies have been undertaken in the United Kingdom by the Policy Studies Institute for the Department of Employment. The first of their investigations, undertaken in 1979-80, aimed to ". . . examine the likely effects on employment, wages, costs and output of reductions in working time."(42) It consisted of a sample survey of four hundred and one

manufacturing establishments which were representative of approximately six thousand establishments and of about two and a half million workers.(43) The survey was designed to investigate what changes took place or could be expected to take place if worktime was reduced by five per cent.(44)

White, the author of the subsequent report, has stated that it was found that in the period immediately prior to 1978-1979 there had been extensive negotiations within individual enterprises as to how and when worktime reductions might be implemented. Almost fifty per cent of the firms interviewed reported that they had recently considered claims for a shorter week and nearly one third had been considering increases in holidays. Ten per cent, indeed, had already reduced weekly hours below forty per week and fifteen per cent had granted holiday entitlements of more than twenty days per annum.(45) It was also found that after allowing for fluctuations in demand no discernible influence on employment appeared to result from reduced work times. Increases in the work force during 1978-1979 were of a similar magnitude in both those firms with shorter working times and those with more normal times. The amount of overtime worked in the two groups was, however, clearly different. Establishments with shorter working weeks reported overtime norms ten per cent below the average while overtime was thirteen percent lower in those firms with longer holidays.(46)

The survey failed to find any difference in the levels of investment in plant and equipment between the two groups.

It did, however, find significant differences in management practice. Short-time firms, for example, made greater use of temporary workers and incentive schemes.

No direct investigation was made as to whether changes in output per unit of time had occurred as a result of these practices. It was not, therefore, possible for the researchers to demonstrate directly that increased productivity had resulted specifically from a worktime reduction. They argued, however, that collectively the information gathered constituted sufficient 'circumstantial evidence' to suggest this was the case.(47) In order to substantiate this conclusion, White reports, a number of the enterprises found to have introduced or experimented with reduced working times were selected for detailed examination. The results of these in depth studies were subsequently published in a second report. When examining these short-time enterprises the researchers sought to determine whether any attempt had been made by management to find offsetting improvements in productivity as a result of the curtailed working times, and if so, how successful they had been in achieving this objective.(48)

It was found that a large degree of offset had invariably been obtained as a consequence of the temporal change. Many of the firms studied, indeed, had been able to reduce the time worked while maintaining output levels and employee numbers and without increasing overtime. In other words, for some firms offsets of 100 per cent and greater had had been attained.(49)

As a result of these studies the British Ministry of Labour advised employers that it was possible to reduce working times below forty hours per week without necessarily reducing output or raising unit costs. They suggested, however, that this did not mean all firms would be able to achieve this objective.

What the results do show is that it is possible to reduce working time at little or no cost provided the management and workers are willing to cooperate in devising and implementing measures which improve productivity and avoid the other costs stemming from reduced working time. But whether firms in general will develop such cost offsets is an open question.(50)

The empirical evidence amassed by these various studies is not capable of supporting any solid prediction as to the degree of offset that may be obtained at a national level, when working times are reduced below forty hours per week. The evidence, though, is sufficient to show that those who asserted that the offset phenomenon was exhausted at forty hours per week were incorrect. Marx's claim that, in many cases, working times can be reduced without necessarily reducing output would appear to be as correct at the present time as it was in 1867.

Worktime and Intensity

To show that a great deal of offset was achieved as standard times were reduced is not, by itself, sufficient to prove Marx's claim that increasing intensity levels would be a central factor enabling this offset to occur. It is possible that technical and organisational factors alone may have been responsible for this phenomenon. There

is, however, a great deal of evidence supporting the proposition that these reductions have been accompanied by increased intensification. Over the last century many empirical, experimental and statistical studies of a 'before and after' nature have been undertaken in the United States and Europe.(51) Their purpose has been to examine human capacities in order to determine the optimum balance in the length and intensity of working time. By optimum worktime is meant, not the length of time that maximises output, but rather ". . . that which maximises the ratio of total output to total cost, and therefore minimises total cost per unit of output."(52) In most of these studies the researchers have attempted, with varying degrees of success, to examine situations where production methods and conditions could be held constant with the only variable being the length of time worked. A fixed group of workers would then be studied for an extended period and their physical output recorded, both prior to, and after, the worktime change.

The first systematic research into the relationship between worktime and output began in England in the late 19th century. In 1873 T. Brassy gave wide publicity to the fact that many employers had found output did not necessarily fall when working times were reduced.(53) In 1893 William Mather reduced the weekly hours in his Salford engineering works from fifty-three to forty-eight and had records maintained of output both before and after the change. The result was a slight increase in total output. In the following year the British Government reduced working

times at Woolwich Arsenal by five and three-quarter hours per week and by two and a half hours at the Admiralty Dockyards and similar results were obtained.(54) Knowledge of these experiments spread through Europe and the United States. In 1900 the workday at the Zeiss Optical Works at Jena were reduced from 9 hours to 8 and accurate records maintained of the consequent change in output. All other factors remained unchanged, yet hourly output rose by 16.2 per cent and power consumption by 12 percent.(55) By 1912 Goldmark was able to publish her volume, Fatigue and Efficiency, which detailed research in Britain, France, Belgium and the United States, all of which had produced similar results.(56) The British Association for the Advancement of Science reacted to these findings in 1913 by appointing P. Sargant Florence, organising secretary and investigator of a committee charged with the task of investigating ". . . the question of Fatigue from the Economic Standpoint".(57)

A massive impetus was given to worktime research by the First World War. In Britain the government established the Health of Munitions Workers Committee in 1915. This body was asked;

. . . to consider and advise on questions of industrial fatigue, hours of labour, and other matters affecting the personal health and physical efficiency of workers in munitions factories and workshops.(58)

During the war the Committee published a vast mass of research material. In 1921 a summation of this research was published by one of the Committee's senior investigators,

H.M. Vernon. From 1915 to 1918 Vernon had attempted to determine the 'maximum achievement' of which the worker is capable in times of prolonged stress as may occur during a period of war or in times of industrial pressure.(59) He was particularly interested in optimum working times. The war provided Vernon with an unrivalled opportunity for obtaining the type of information he needed for his analysis. Under normal industrial conditions it is difficult to undertake extended observations of a wide range of work situations where nothing else changes but the length of time spent at work. In the first 18 months of the war, however, the British War Office compulsorily imposed extremely long time schedules on the workers in the munitions industry. The Government refused to heed warnings that intensity levels within industry had risen to such an extent that working times considered normal during the 19th century were no longer efficient. The evidence that an extension of working time did not necessarily produce higher levels of output, accumulated over the previous 40 years, was in effect ignored. The dramatic increase in work times, however, established excellent conditions for testing this hypothesis. The workers in the munitions industry were highly motivated by patriotism. Despite this high level of motivation when working times were extended to 12 hours a day, 6 days a week, total output fell from what it had been in the shorter time period. The Government, as a result, was forced to reduce work times in an attempt to increase the level of output. To discover the schedule that would

maximise output, progressive reductions in the length of time worked were introduced over the period of the war. These staggered reductions made it possible for Vernon to study the output of groups of workers under varying work time schedules. As it was found that workers often took several months before they fully responded to a reduction in the length of time they worked, each new schedule had to be maintained for an extensive period. At the close of the war these studies were continued with researchers in the United States and Europe using work curves to overcome the cessation of regular worktime alterations. These curves were obtained by plotting the output and spoilt work at stated intervals during the work period. The combined results of all this research was confirmation of the claim that long work periods result in low work intensity.

TABLE 2. COMPARATIVE OUTPUT FROM LONGER AND SHORTER HOURS OF WORK, 1915-17

	Average Weekly Hours		Relative Output	
	Nominal ¹	Actual	Hourly	Weekly
80-95 Women turning Fuse Bodies on Capstan Lathes²:				
First Period—				
Aug. 15-Jan 16	74.5	66.0	100	100
Second Period—				
Jan. 16-July 30	63.5	54.4	121	100
Third Period—				
July 30-May 5	55.3	47.5	156	113
56 Men Sizing Fuse Bodies:³				
First Period—				
Nov. 14-Dec. 19	66.7	58.2	100	100
Second Period—				
Feb. 27-Apr. 16	62.8	50.5	122	106
Third Period—				
Nov. 11-Dec. 23	56.5	51.2	139	122

Source, P.S. Florence, Labour, p. 53.

On each of the tasks observed by Vernon reductions in daily hours of work produced a considerable increase in hourly output. This increase was of such magnitude that total weekly output rose or remained constant. A representative example of Vernon's results is provided in Table 2.1.

The research into optimum work times continued through the inter-war period though it was to lapse during the 1930s depression. It was only when the impetus of war once again made the production of maximum output an issue of major concern that significant research was again undertaken in this area.

During the crisis that followed the fall of France in 1940 the workweek in most British munitions factories was extended from 56 to 69.5 hours. An initial outburst of energy and patriotic enthusiasm enabled the workers to maintain these times for a period without a corresponding decrease in the level of intensity. Output was consequently increased by 10 per cent. Within 6 weeks, however, there was a sharp increase in injuries and lost time as a result of absenteeism and bad timekeeping. Average work times actually laboured fell to 51 hours per week where they had been 53 when the nominal workweek had been 56 hours. The corresponding fall in output was 12 per cent below the 56 hour level.(60) Workers throughout the country, the Industrial Health Research Board reported, were showing signs of fatigue and strain as a result of the excessive length of the time they were compelled to work.(61) The

Government was consequently forced to recognise its mistake and shorten the workweek. A month later this decision was followed by the introduction of a system of authorised holidays. To justify these reductions the experiments conducted during the First World War were repeated in 1941. The I.H.R.B. concluded from this study that even in wartime the workweek should not exceed 60-65 hours for men and 55-60 hours for women.(62) Thus, a 10-hour day which, during the 19th century had been the norm within British industry was, by 1941, considered an absolute maximum even in time of war where economic cost was of greatly reduced significance.

The war also stimulated the United States Government to undertake a large scale work time study. This was conducted between 1944 and 1947 by the Department of Labor. The purpose of this research was ". . . to measure objectively the effects of working hours on the performance of workers and to determine how the schedules compared in obtaining the goal of increased output".(63) In this examination 78 case studies were undertaken covering 2,445 men and 1,060 women workers in 34 plants across a wide range of industries. The conclusion drawn by the researchers was that there was no such thing as a single optimum workweek. Workers performed differently when working the same time schedule because of a variety of factors; incentive to work, demands of the task, control over pace, nature of shift, working conditions and relations with management.(64) With few exceptions a marginal extension of the time worked increased total output. As a rule, however, the increase in output fell

considerably short of the increase in time worked. For hours above 8 per day and 48 per week it usually took 3 hours to produce 2 additional hours of output if the work was light. When work was heavy it took 2 hours to produce 1 hour of additional output.(65) Working 7 days of the week, the researchers also concluded, produced no greater output than working 6 days.

The objective of extended time schedules during the war was maximisation of output. The criteria of effectiveness, accordingly, was the highest level of work time and intensity that could be maintained consistently. Cost minimisation was not considered a major criteria. If the cost factor is taken into consideration, as is necessary under normal peace time conditions, the researchers concluded, then all other things being equal ". . . the eight hour day and the forty hour week are best in terms of efficiency and absenteeism and the higher levels of hours are less satisfactory."(66)

The Pattern of Worktime - The Working Day

In the late 1960s Poper undertook an examination of the results of 1,677 work time studies conducted over the previous 80 years, his purpose was to assess the validity of the claim of the fatigue researchers that;

. . . fewer hours imply better rested and more energetic workers who, as a consequence, will increase the intensity and speed of their work. Reduced hours will thus lead to increased labor productivity and part or all of the decline in hours will be offset.(67)

The combined results of his study, he concluded, supported

the claim. Workers can and have offset reductions in the length of time they work by raising the average level of intensity.

Numerous factors contribute to the workers' ability to maintain or increase the mass of labour undertaken when standard working times are curtailed. Researchers conducting empirical studies in this field have often found it difficult to isolate the various factors contributing to this capacity. In general, however, it has been found that a reduction in the length of time worked invariably increases the concentration of labour in the reduced period and there is a decrease in lost time due to absenteeism, poor time keeping, ill health and accidents.(68) Human limits also tend to shape the pattern of worktime change. It was found, for example, that as the hours of the workday were reduced the rate of offset tended to decline. The time-output pattern for the work day has been summarised by Friedman.

- (1) A reduction in the length of the working day from 12 hours to 10 increases both hourly and daily output.
- (2) A reduction from 10 to 8 hours has a similar effect except for certain tasks that are machine-paced.
- (3) Below 8 hours hourly output continues to rise but not sufficiently to outweigh the decrease in time worked.(69)

The Workweek

The diminishing ability of the workers to increase their hourly intensity as the working day is reduced limits the degree to which this particular work period can be shortened if output is to be maintained. This explains why, in every industrialised country, once an 8-hour day has been established the downward movement in the length of the working day invariably stabilises. When it becomes necessary to further reduce standard times, after this daily standard has been reached, it is generally more efficient to maintain 8 hours as the daily norm and make alternative temporal adjustments. At this stage short breaks during the day and reductions in the length of the working week have generally proved more effective methods for achieving a high degree of offset. The advantage to be gained from the shorter week lies in the tendency for worker efficiency to fall as the workweek progresses.

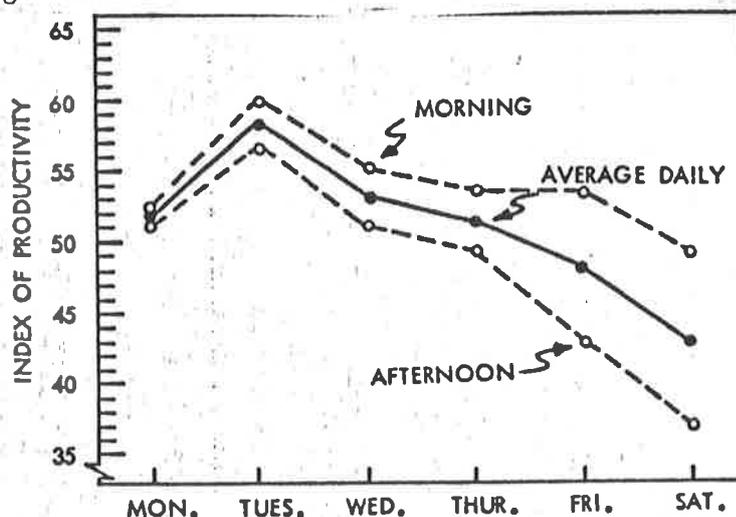


Table 2.2. Source, Alluisi and Morgan, p.171.

Florence has argued that the 5-day week may be particularly economical when the Saturday is a half day.

This is because of the lower output per hour and the high levels of absenteeism generally experienced during half-days.(70) Alluisi and Morgan have added that one of the conclusions that must be drawn from the research into work times is that the 5-day 40-hour week is optimum relative to longer weekly hours of work. (71)

The Workyear

A similar relationship would appear to exist between the number of days in the workweek and the weeks in the year. Once the 5-day week is established greater degrees of offset can usually be obtained by increasing holiday entitlements rather than by introducing a 4-day week. Fatigue research undertaken during the First and Second World Wars found that annual output records were characterised by features similar to daily and weekly records. Over a period of several months an accumulation of residual fatigue manifests itself in the need for prolonged periods of rest, in other words, vacations. Vernon found that when the worker returned from holiday there tends at first to be diminution of weekly output. This is soon overcome, however, as the individual settles to the work. Average weekly output then tends to rise above the pre-holiday period so that total output rises overall.(72)

The need for human beings to take periodic vacations has been discussed by Grinstein. During holidays, he suggests, even if arduous physical effort is undergone, energy normally consumed by the ego in meeting the daily demands of

reality is freed and can be utilised in what is a healing or recuperative process for the mind and body.(73)

In those countries where a 5-day week 8-hour day is now the standard, employers tend to regard the extension of annual holidays as one of the least objectionable forms of reducing worktime. At a 1982 O.E.C.D. meeting of management experts on the adjustment of working time, the participants emphasised that long vacations had the least disruptive effects on production.(74)

Indeed, the interesting point was made that where shorter time work reductions were effected, such as reductions in the length of the work week by an hour or so, then it was preferable to aggregate the extra leisure hours and grant them as extensions to holidays rather than as minimal, though potentially disruptive, changes to the working day.(75)

The Lessons of the Past

It has been argued by Clegg and Narasimhan that though increased production, resulting from decreased absenteeism, might have been an important element in the first agreements on paid vacations, this factor had little relevance beyond the second week.(76) This is, however, a mere assertion and there would appear to be strong evidence to suggest that it is wrong.

TABLE 2-3 COMPARISON OF THE ANNUAL WORKING TIME IN GERMANY, FRANCE, U.K. AND THE NETHERLANDS IN 1978

Country	Hours per year excl. weekend	annual leave/ public holi-days time	nominal annual working	absence through illness	effective annual working time
Germany	2088	(26+10) 288	1800	100	1700
France	2088	(24+10) 272	1816	108,8	1707,2
U.K.	2088	(20+ 8) 224	1864	149,6	1714,4
Netherlands	2088	(21+ 7) 224	1864	200	1664

Source: 'Working Time' Discussion Paper published by the Netherland's Council of Employers' Federations, December 1980.

Table 2.3 presents estimates of annual effective working time for four European countries. It can be seen that Germany and, to a lesser extent, France have significantly longer vacations than the United Kingdom or the Netherlands. Despite this disparity the annual time actually worked in the two former nations is not any less because they have significantly less absence due to illness. Commenting on this table Hart has observed;

The thesis that the U.K. and the Netherlands are significantly less healthy places than Germany and France might be hard to sustain, which may mean that the absenteeism occurred (sic) for other reasons and that changes in these effects may have significant implications for working time.(77)

The stance adopted by Clegg and Narasimhan of conceding that output may not have been adversely effected by the earlier growth of holidays while at the same time asserting that similar results would not occur in the future is characteristic of contemporary marginalism. In this regard these scholars continue the tradition of their 19th century counterparts who supported the factory acts, once they had become law and proven no danger to capital, but strongly argued against any further legislation of a similar nature on the grounds that it would be ruinous to the economy.

A similar resistance to the idea that historical experience may provide some suggestion of what may occur in the future has been shown by those scholars who have attempted to estimate when reductions in working time would cease being offset by increased levels of work intensity. There have been various answers put forward by those who

have taken up this quest. Verdorn, for example, estimated that maximum output was obtained when workers laboured 60 hours per week. Below this point, he suggested, a falling level of offset would be experienced with the point of zero offset being reached at approximately 40 hours per week.(78) Denison, on the other hand, suggested that zero offset would not be reached until the workyear fell to 1,762 hours.(79) Finally, Reynolds put his point of maximum output somewhere between 40 and 50 hours per week and assumed a 20 per cent offset in moving from 40 to 30 hours per week.(80) All of these predictions have been invalidated by actual developments. This recurring error is primarily explained by the fact that these attempts at establishing absolute limits to the offset process are seriously flawed by their implicit assumption that levels of intensity remain constant while length of worktime remains unchanged. This assumption is not valid, for intensity levels can clearly vary during a fixed working time. This means it is possible for over-intensification to occur at almost any level and where this is the case an offset will invariably be achieved if the time worked is reduced. Consequently, it is pointless to attempt to determine abstract minima for the offset phenomenon. For even if work times are lowered to 30 or even 20 hours per week it is still possible a degree of offset will be obtained even of levels of 100 per cent.

That the condensation and intensification of work is still a major factor offsetting reductions in working time when the standard falls below 40 hours per week has been

shown by White's research. He found that while some employers attempted to offset the introduction of shorter times by improving the technology and management methods utilised the means used by most were, on the whole, relatively straightforward and simple with reductions in the length of tea-breaks and speeding up the pace of work being most common.(81) The methods used by some of the firms he examined are summarised in Table 2.4.

Offsets to Shorter Working Time

Case study	Methods of offsetting reduced working time
Tobacco—dayworkers	(a) Increased pace of work among incentive-paid workers. (b) Analysis of work organisation and identification of improvements.
Tobacco—shift workers	Continuous operation of machines during meal-breaks.
Mechanical engineering—holidays	(a) Increased pace of work before holidays. (b) Earlier anticipation of holidays to smooth effects on output.
Clothing	(a) Reduction or abolition of meal-breaks. (b) Increased pace of work by piece workers ^(a)
Pharmaceutical	(a) Abolition of tea-break. (b) Faster pace of work on production lines. (c) Change in stockholding policy and in production planning.
Electronic engineering	(a) Use of flexible hours system. (b) Increased pace of work before holidays (possible). ^(a)
Publishing	Use of flexible hours system.
Chemicals	Abolition of tea-breaks.

^(a)These increases in pace of production were put forward as explanations by management, but without factual corroboration.

Source: Michael White, Case Studies of Shorter Working Time, p.72.

Human Limits and the Production Process

The reasons why contemporary marginalists are prone to underestimate the significance of work intensification in relation to working time are many. One of the most important of these would appear to be their general assumption that human capacities no longer conflict with the needs of the production process. Twentieth century reductions in working time have occurred concomitantly with improvements in the workers' food intake, housing and general living standards. There has also been a decrease in the relative importance of muscular effort within the workplace even if the extent of this does tend to be overstated. Given these changes many scholars have assumed that the capitalist production process, rather than being characterised by a tendency to constantly come into conflict with human limits, tends increasingly to impinge less on the workers' capacities while concomitantly raising these capacities by improving the workers' health and general well being.

If this assumption was valid then that aspect of Marx's argument which suggests that the "weak bodies" of human beings are a major factor tending to lower standard times would no longer have much relevance. Its validity, however, is open to serious challenge. As Doyal has noted;

While the development of capitalism may have facilitated an improvement in the general health of the population (as measured for example, in life-expectancy rates), the health needs of the mass of the population continue to come into frequent conflict with the requirements of continued capital accumulation. This produces contradictions which are ultimately reflected in historical changes in patterns of morbidity and mortality.(82)

An examination of the data relating health and work would certainly appear to endorse Doyal's proposition. In the United States, for example, official figures indicate that about 14,000 workers are killed each year and 2.2 million suffer disabling injuries as a result of their employment.(83) American research, moreover, indicates that there is an 'iceberg' character to work-related afflictions in terms of their incidence. The ratio of official to real figures has been estimated at 1:10 in the case of non-fatal on the job accidents and as high as 1:100 for occupational diseases. Other studies have indicated that as many as 40 per cent of medically diagnosed health problems are work-related.(84)

In considering the conflict between the demands of the capitalist production process and human limitations it also needs to be remembered that the adverse effects of work are not necessarily directly physical. Effort involves energy but it also involves many other things and the two terms should not be equated or confused. Many tasks may require a low energy output and yet necessitate a high level of effort.(85) If the energy content of a task is diminished so that it is well within an individual's muscular capacities while at the same time the wearying or boring aspects of the job are increased it is not valid to claim that the level of effort undergone has necessarily fallen. Different human capacities are now being placed under strain. Marx made a similar observation when discussing factory workers.

Factory work exhausts the nervous system to the

uttermost; at the same time, it does away with the many-sided play of the muscles, and confiscates every atom of freedom, both in bodily and intellectual activity. Even the lightening of the labour becomes an instrument of torture, since the machine does not free the worker from the work, but rather deprives the work itself of all content.(86)

Margolis and Kroes have argued that there are basically three sets of needs that are common to human beings even though their specific manifestations may vary between cultures.

"Maintenance needs". The need for food, shelter, and activity is derived from man's physiology. Work provides the means to obtain physical objects which permit satisfaction of these needs . . . "Social needs". The need for companionship, recognition, and a feeling of belonging is derived from society. Work can often be a major source of satisfaction of these needs . . . "Growth needs". The need for self-actualization and the development of competence and mastery over one's environment is derived from man's psychology. Satisfaction of this need is often characterized as attainment of positive mental health.(87)

Most marginalists, on the other hand, appear to conceive of human capacities as a relevant factor in their theories of labour supply solely in terms of maintenance needs.(88) They consequently fail to recognise that conflict between human limits and the demands of the production process can still occur even where workers are well fed and do not have to undertake hard physical labour.

There is a great deal of evidence to suggest that as the application of physiological effort has declined in significance within the workplace, forms of effort more closely associated with the social and psychological capacities of workers have increased. While such society-wide change across

time is not easily measured the consequences are becoming increasingly clear. Through the 20th century there has been a significant decrease in infectious diseases within the industrialised nations. The benefits of this change, in terms of longevity, however, have been increasingly offset by the growth of coronary and rheumatic disorders and by the incidence of carcinomas. Such stress-related illnesses have been on a steady upward trend throughout the postwar years. In England and Wales, for example, the death-rate in men between 35 and 44 nearly doubled between 1950 and 1973 and has increased much more rapidly than that of other ranges. Of these young deaths 41 per cent were due to cardiovascular disease formerly considered an affliction of the aged.(89) The rate of growth of such chronic and degenerative diseases is such, Washold argues, that it can no longer be believed that they are primarily symptoms of the aging process.(90) He suggests that it is the nature of work within contemporary capitalist society that is a major factor bringing about this change. His conclusion that work is so central to this problem is supported by a 15-year study of aging. This research found that the strongest predictor of longevity was work satisfaction, the second best predictor being overall "happiness".

These two socio-psychological measures predicted longevity better than a rating by an examining physician of physical functioning, or a measure of the use of tobacco, or genetic inheritance. Controlling these other variables statistically did not alter the dominant role of work satisfaction.(91)

The Forty Hour Week as an Optimum

For two decades after the late 1940s the fatigue and health aspects of work failed to attract the attention of industrial psychologists in the way that it had in the first half of the century. Baldamus has argued that the abandonment of fatigue research, of which the worktime studies were a significant part, occurred because it was eventually realised that fatigue was such a complex phenomenon it could not be adequately quantified and thus controlled.(92) What this meant for worktime research was that it was realised that the determination of abstract working times and patterns that would ensure the extraction of labour from the worker was maximised, was unattainable.(93) It was only when stress-related afflictions clearly connected with work began to reach epidemic proportions during the late 1960s that interest in studying the effects of work on the worker was re-stimulated.(94) This new found interest has, thus far, produced little new data on the temporal aspects of work and human deprivation. McGrath reports that the temporal factors in stress research have largely been ignored. This is, he suggests, despite the fact that time may be one of the most important parameters of the stress problem.(95) What research has been undertaken in this area has been of a peripheral nature and has concentrated on "abnormal" work patterns with particular emphasis on shift-work, overtime and, more recently, on flexi-time.(96)

A rare exception to this dearth of data is a report on

worktime induced stress and strain prepared by Naschold for the International Institute for Comparative Social Research. Naschold and his colleagues have attempted to determine whether the time element, in all its dimensions, is so important in overall strain and stress that a strategy to curtail the length of time worked constitutes a meaningful attack on the real source of the problem. Their conclusions, based on research primarily undertaken in West Germany, are that changes in the production process have led to changed requirements as regards skill and work capacity. That these in turn reflect changes in the form of physical and mental strain and stress emanating from work and that these changes are increasingly undermining the health of the working population.(97) These researchers have castigated those scholars who presumed, without any evidence, that working times and human capacities are no longer in conflict.

The abstract and moralistic argument often heard during the fifties and again today, that a forty-hour week (five times eight hours) is an optimal duration overlooks and underestimates a historical change in the risk structure.(98)

By this is meant the danger to the worker, brought about by an increased level of work intensity in a time period that has remained unchanged. Those who argue that the 5-day 40-hour week is an abstract optimum, Naschold suggests, neglect this point just as they fail to consider the non-work related strain and stress problems of many groups within society.(99) The point that the 40-hour week is not necessarily an optimum within present industrialised societies, even if it may have been at some time in the

past, because of changes in the life, work and play of individuals has also been made by Alluisi and Morgan.(100) Likewise Schultz, in attempting to answer the question, "what, then, is the optimal period of time for work?", has also endorsed this proposition. He argues that the answer keeps changing. What is most productive at one time may be exceedingly long and unproductive at a later date. He concedes that research in the past has indicated that the 40-hour week was the most efficient. He suggests, however, that this research was primarily undertaken at a time when the workweek ranged from 48 to 60 hours per week.

The same studies conducted today would be in a totally different context. The 40-hour week is now expected - not 50 or 60 hours - and it seems likely that current research would show a workweek shorter than 40 (nominal) hours to be the most effective.(101)

A drastic, quantitative reduction in working times is needed, Naschold has argued, if workers' health is to be protected from the heightened level of work intensity. He suggests any quantitative reduction can, per se, be considered synonymous with a reduction in strain and stress. He warns, however, that this is not enough. The traditional trade union policy of countering increased intensification by curtailing the length of time the workers labour fails to consider the consequences in terms of intensity that will follow a contraction of this nature. The very fact that workers achieve a reduced worktime, he suggests, makes it possible to raise the average level of intensity. This must be prevented. For this reason, he concludes, it is



imperative that the unions develop policies that both limit the time spent at work and control the level of intensity maintained within the work period.(102)

Human Limits and the Pattern of Change

There is then strong empirical support for Marx's argument that there would be a recurring conflict between human capacities and the demands of the capitalist production process. His claim that changes in intensity levels would be both a cause and a consequence of the downward movement can also be substantiated. The significance of human capacities in this changing situation, what is more, is further evidenced by the pattern the downward movement has followed. Such change has not been totally random. Although there is great variation between nations as to the schedule that is actually worked at any one time there is a distinct pattern to the way in which change tends to occur. In virtually every capitalist society when working times first begin to contract it is the hours of the day that are initially curtailed. This daily movement invariably flattens out as it approaches 8 hours. The few countries that have shortened the working day below 8 hours, such as the Soviet Union, have invariably reverted to the longer daily schedule, choosing instead to reduce the number of days in the week.(103) Within the capitalist nations as the 5-day week has become established this flattening-out and stabilisation can also be seen. As this schedule is established the length of the workweek ceases to contract and the growth of

holidays becomes the main means of introducing further cuts in time schedules. The similarity between this all but universal pattern and the nature of human capacities in relation to worktime and the maximisation of output is not difficult to observe. What appears to have happened is that as work times have shortened the least efficient marginal times were invariably disposed of first. Because human capacities are such an important factor in the determination of efficient work times there is a close correlation between the pattern of the downward movement and human capacities. As humans have basically the same psycho-physiological limits the pattern of worktime change tends to be similar across international boundaries even though cultural, ideological and social differences vary widely.

Theory Choice

This chapter has examined the empirical support underpinning the primary postulates of the marginalist and marxist theories of worktime. Marginalism, it has been shown, is particularly dependent on the empirical evidence because its adherents have proven incapable of providing a logical explanation for why work times should fall when incomes rise. Their failure to supply this empirical support constitutes a major problem for the theory. Without empirical substantiation the argument degenerates into assertion. This does not mean it is disproved nor that the vast majority of marginalists need soon abandon it. The theory has no substantive proof but this does not mean it is wrong. There is always the possibility that further, more

refined empirical research will provide the necessary evidence. Given this possibility the majority of marginalists will probably continue endorsing the theory for the foreseeable future; belief, after all, does not always require scientific evidence, faith is often enough.

The primary empirically verifiable elements in Marx's theory, on the other hand, have been shown to have a solid foundation. The fall in standard working times has been greatly offset by a heightening of the average level of intensity. The argument that human limitations would be a central factor in the worktime movement has also proven correct. Marx's argument, then, has much stronger empirical support than that enjoyed by marginalist theory and, it may be added, by arguments which are limited merely to the political realm. It has a stronger deductive character than both of these theories, moreover, and is able to explain all that they can and much more besides. Not only can it explain the downward movement of work times, without the need for a negative slope in the relevant portion of the labour supply curve or the existence of strong unions, it can also explain why this change does not result in falls in output, why the change tends to be unidirectional and why the change has followed the pattern it has.

Critical discussion, Popper has suggested, can never establish sufficient reason to enable one to claim that a theory is true. But, he suggests, it is possible for rational analysis to provide sufficient reason to enable the following to be claimed;

This theory seems at present, in the light of a thorough critical discussion and of severe and ingenious testing, by far the best (the strongest, the best tested); and so it seems the one nearest to truth among the competing theories.(104)

In other words it is possible, in the light of the evidence available at any one time, to justify the claim that one theory better approximates the truth than any other thus far produced. If this hypothesis is accepted as valid, then it is suggested the greater deductive strength, empirical support and explanatory power of Marx's argument should leave one with little doubt that this theory is a better approximation of the truth than that put forward by any other. In the rest of this thesis this is the position that will be accepted.

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94. David Maklan has argued that the new found interest in the effect of work on workers reflected the concern of management and labour with the economic dislocation resulting from absenteeism, falling productivity, work stoppages, high turnover, sabotage and a general dissatisfaction by workers with their work. He reports that capitalists in the U.S.A. and Canada responded to this dilemma in two ways. First, by attempting to ease some of the causal factors within the workplace that give rise to dissatisfaction. Job enrichment, job enlargement and worker-democracy are examples of this strategy. Second, by instituting new time schedules that gave the worker longer breaks from work. Flexi-time and the 4 day/40 hour week were the two adjustments to schedules that attracted most attention within these countries. It should be noted that most of these policies soon waned in popularity with management and the state with the ending of the long boom. See David M. Maklan, The Four-Day Workweek. Blue Collar Adjustment to a Nonconventional Arrangement of Work and Leisure Time, Praeger Publishers, New York, 1977, pp 3-19.
95. Joseph E. McGrath, 'Major Substantive Issues: Time, Setting, and the Coping Process', in Joseph E. McGrath

- (ed.), Social and Psychological Factors in Stress, Holt, Rinehart and Winston, New York, 1970, p. 23.
96. See, for example, Trade Union Research Unit, The Control of Working Hours and Health and Safety Legislation: The Failings of the EOC and Options Facing the HSE, discussion paper No. 23, Ruskin College, Oxford, 1980, and Carina Nilsson, The Medical, Psychological and Social Consequences of the Scheduling of Working Hours?, ICEF Conference on Psychological Aspects of Work Environment, Geneva, 1978.
97. Claudia Wallis has reported that American capitalists have become alarmed by the growing absenteeism, company medical expenses and lost productivity resulting from stress-related illnesses. These costs to employers, she reports, have been estimated (in 1983) at more than \$US750 per annum for every American worker. Claudia Wallis, 'Stress: Can We Cope?', Time, June 6, 1983, p. 64.
98. F. Naschold, op cit, p. 36.
99. Ibid, p. 17.
100. Earl A. Alluisi and B. Morgan, op cit, p. 180
101. Duane P. Schultz, op cit, p. 340.
102. F. Naschold, op cit, p. 31.
103. D.W. Bronson, 'Soviet Experience with Shortening the Workweek', Industrial and Labor Relations Review, Vol. 21, No. 3, 1968, p. 393.
104. Karl R. Popper, Objective Knowledge. An Evolutionary Approach, Oxford University Press, London, 1972, p. 82.

Chapter 3

Worktime, X-Efficiency and Class Relations

The thesis thus far has validated Marx's claim that the temporal and intensive aspects of worktime are inversely related. It has also been shown that human needs and limitations have been a major factor restricting the length of time workers labour, that changes in the level of work intensity are both a cause and a consequence of the downward movement of working times and that time schedules considered normal during the 19th century are now too long. What will now be briefly examined is the way the intensive and extensive worktime dimensions together influence and shape the struggle between the classes over the mass of the labour the workers must undertake to earn their wages.

A Fair Day's Work

Central to the worktime issue is the concept of a 'fair day's work'. Significant differences generally exist between capitalists and workers as to what this consists of. This reflects the fact that the capitalist is a buyer and the worker a seller of labour-power. The difference of opinion is not resolved by the forging of an employment contract. Such a contract normally consists of two elements. First, an agreement on the wage per unit of time or piece. Second, an agreement on the amount of work to be undertaken, i.e. an effort bargain.(1) It is normal for the wage rate to be precisely defined within the employment contract. The effort bargain, on the other hand, is generally implicit and

indistinct. Little is said about efficiency or about "... how much effort is expected for a given wage... The details of the arrangement are left to be worked out through the direct inter-action between the partners of the contract".(2) At most there are vague references to an implied level of effort considered acceptable which rests on intuitive norms of what constitutes a 'fair day's work'.(3) The wage-effort contract then is incomplete in a very fundamental sense. What the employer pays is pre-determined while what is received for this payment is open-ended. The precise mass of work the worker will undertake is determined in the work-place, not at the point of purchase. Maximising the size of this mass is, for the capitalist, a central objective of industrial organisation.

Control of Production

Within the work-place how much labour the workers will do for what they are paid is greatly affected by the degree of control over the production process enjoyed by employer and worker. If either participant to the wage-effort bargain can enhance their control over this process they can shift the ratio of effort to pay in their favour. Both workers and capitalists utilise various techniques and strategies to attempt to gain at the expense of the other. Workers use both individual and collective methods of struggle to maintain or lower established effort norms. In this endeavour they have enjoyed a degree of success in developing institutional controls that have enabled them to retain a degree of influence over the production process.

These controls are wide ranging.

They apply not only to standards of effort and output restriction, but also to the practices that govern job demarcations, work routines and the whole web of social relations that surrounds the individual workman.(4)

The means by which workers attempt to adjust effort norms takes many forms. This activity may be undertaken on either a collective or individual basis. Collective action can involve highly organised and institutionalised forms of action or may be 'spontaneous'.(5) Besides the application of peer pressure on potential 'rate busters' or 'gold brickers' collective action may take the form of peaceful negotiations with management, output limitations, political action and strikes. Unorganised, individualistic pressure includes absenteeism, poor time-keeping and effort **restriction**. Unorganised methods of struggle are at least as important in the determination of effort norms as are those that are organised. Hyman has argued that though unorganised forms of opposition to employer demands are not normally considered industrial resistance they can represent a conscious or unconscious response to adverse working conditions.(6) Research reports, he suggests, have found that organised and unorganised forms of opposition are to some extent interchangeable. Both constitute a "withdrawal from work" the primary difference being that organised pressure involves a deliberate attempt to change a given situation. Individual action, by contrast, is not normally part of a deliberate strategy and may not even be

recognised by the participants as an attempt to remedy an uncongenial situation.(7)

Employers also utilise a wide range of strategies and methods in attempting to shift effort norms in their favour. These tactics have changed and expanded over the last two centuries. The changes reflect developments in the size, operation and environment of the firm. They also reflect the fact that workers have been successful in countering many of the employers' tactics.(8) The specific means by which effort norms are heightened are diverse. This is necessarily so because of the varying degrees of bargaining power enjoyed by different sectors of the working class, because of the differing technical, legal and organisational structure of the various parts of the economy, and because of the nature of the historical evolution of many jobs.

The employers' greatest asset in the struggle over effort norms is the control they enjoy over the technology utilised within industry. The capacity of humans to indirectly control the design of technology and the ability to change its form has been seized upon, by employers, as the ". . . prime means whereby production may be controlled not by the direct producer but by the owners and representatives of capital".(9) The control over the work process enjoyed by the employers because they own the means of production has been greatly enhanced during the 20th century by the knowledge as to the nature of the work process provided to them by the industrial engineer and the psychologist. The important role these scientists have played in the worktime

struggle will be looked at in some detail in chapters 4-5.

Factors External to the Workplace

The precise amount of work employees will undertake during a normal work period is also influenced by factors outside the place of work. Changes in the workers' social needs and general pace of life can influence the time schedule that maximises efficiency and the amount of labour the workers are able to undertake. In non-industrialised societies the direct producers, whether by choice or not, experience a 'time surplus'.(10) The whole pace of life within these societies is of a slower nature than it is within the industrialised states. In these latter nations, Linder has argued, all slack in the use of time has been eliminated so far as is humanly possible. Punctuality, he suggests, has become a virtue that we demand of those around us, we have a 'time famine'.

People are dominated by their awareness of the clock. They are haunted by their knowledge that the shining moments are passing without things having been done. The clock in Times Square shows what second it is to those hurrying by . . . we live under the tyranny of the clock. This tyranny has developed, step by step, with our successful revolution against the dictatorship of material poverty.(11)

Linder further argues that the increased tempo both within and outside the workplace often entails an actual decline in the efficient use of time. Time, he suggests, is a dimension into which only so much activity can be compressed. To ignore this fact is to invite inefficiency and personal cost.

At the personal level, this means a risk of stress.

A fully packed schedule can lead to our jumping from one task to another and actually performing less than would otherwise be possible. In the worst case - and this is no uncommon thing in a time famine - people die an early death from overstrain and insufficient time instead of, as previously, from a shortage of goods. Deaths are now caused by high productivity, not low productivity.(12)

The greater tempo of life outside the workplace invariably influences the performance of workers when at the point of production. Likewise the great mass of non-paid work that workers must undertake outside the workplace, because it acts as a tax on human capacities, lessens the potential reserves of mental and physical resources that workers can sell on the market. For this reason a number of theorists on leisure time have argued that to ensure the continuance of rising standards of living it is necessary to control the workers' leisure activities as well as those undertaken at work. These theorists have argued that leisure should be conceived of as 'wholesome recreation' and should be properly directed and integrated with productive activities so as to reinforce efficient performance while at the point of production. (13)

The State

The connection between paid and unpaid work has attracted the attention of the governments of all industrialised capitalist nations. A primary reason for this interest has been a desire to aid the accumulation process by raising the quality of the workers' labour-power. State intervention in this area can radically modify the working class's willingness and ability to sustain a given time schedule or

a given level of work intensity. Policies designed to achieve this objective include the following;

1) The inculcation of an appropriate ideology; in particular the maintenance of the work ethic and the teaching, via institutions such as the education system, of socially accepted effort norms.

2) Expansion of working capacities; the health services, welfare payments and the provision of social goods to the extent that they enhance workers' productive capacities are among examples of these activities.

3) Socialisation of the cost of work; the cost of maintaining and repairing those workers psychologically and physiologically damaged by the production process may be considered examples of this activity. The payment of state pensions in order to facilitate the intensification of the labour process, by enabling those workers unable to maintain the heightened effort norms to retire, for example, has become a common phenomenon in many industrialised nations.(14)

4) The provision of legal and infrastructural facilities; examples here include legislative regulation of shopping and working times and the provision of facilities that diminish household labour and commuting time.

To the extent that the state expands and absorbs the costs of damage to the workers, intensity levels can rise without undermining capitalist efficiency. That the state plays a major role in the reproduction and modification of

labour-power has long been recognised.(15) As was shown in Chapter 1 it has also played an important role in the establishment of standard work times from capitalism's earliest days. During its embryonic stage, when the force of economic relations alone were not sufficient to compel an adequate supply of labour-power, it was towards the state that the purchasers of this commodity turned. As the relative power of the bourgeoisie grew its need for the state to ensure that the workers were willing to work lessened. Though they were to continue periodically requiring its direct assistance capitalists were increasingly able to rely on the market to take the place of law. Within the market place, however, the interests of individual capitalists are not necessarily compatible with the interests of the accumulation process taken as a whole. The existence of this anarchic situation necessitates the existence of a force standing apart from and over individual capitalists that can restrict the rate at which the societies supply of labour-power is consumed. Where institutional and market pressures permit, this external force may take the form of collective agreements between trade union and employer bodies. Such agreements, however, normally require some form of assistance from the state to make them enforceable. This support will necessarily be of greater significance where the participants to the collective bargain do not have the capacity to ensure that the agreement is respected by all capitalists and workers.

Then it may be necessary for the state to compel adherence to a limit on the length of time workers may labour by the force of law.

Marx argued that the interventionist policy followed by the English state in the determination of working times had historically displayed two distinct tendencies.

Compare, for example, the English factory legislation of our time with the English Labour Statutes from the fourteenth century to well into the middle of the eighteenth. While the modern Factory Acts compulsorily shorten the working day, the earlier statutes tried forcibly to lengthen it.(16)

These apparently contradictory policies had, in fact, the same objective. This was the regulation of the rate at which surplus labour was extracted from the direct producers. With its enactment of the Labour Statutes the English state intervened in the labour market because the high mortality caused by the Black Death had driven up the bargaining power of the direct producers. This enabled them to demand higher wages and reduced work times without any corresponding increase in the degree of intensity they put into their work. The desire of the rulers to make the workers labour harder and longer had, however, to be tempered by the need to ensure that their actions did not prove a danger to the system as such. There were strict limits to how far labourers who retained a significant degree of bargaining power could be compelled to labour more than they wished. It was to take several centuries before the direct producers could be driven to a level of subjugation where the length of time they were forced to labour became, in itself, a

danger to the accumulation process both by threatening to destroy the supply of labour-power, by crippling the workers, and by engendering in them an overt and increasingly active hostility to capitalism.

It should be noted that the state is not free to resolve worktime crises by intervening whenever and wherever those who control its institutions wish. Its power to do this is limited because it is subject to structural constraints and to the pressures generated by numerous class forces. This is not to deny that the state does have a degree of power that is independent of other power centres within society. This independence, indeed, is crucial given that the majority of capitalists appear to have so much difficulty accepting that work times can be reduced without necessarily reducing output. The state is often able, precisely because it is somewhat distant, to take a more objective view of the needs of the class as a whole. It was only when the working times forced upon the workers reached a point where they clearly endangered the long term viability of the accumulation process that the state, under pressure from the workers and some sections of the ruling class, was both willing and able to intervene by introducing regulatory legislation.

The balancing act that those who administer the state must undertake, in their attempt to aid the formation and consolidation of efficient work times, is compounded by the existence of serious divisions amongst the employers as to what constitutes the most appropriate industry-wide schedule. Likewise, the state needs to ensure that the time

schedules maintained by industry do not develop in a manner which endangers its legitimacy or the class dominance of capital. The difficulties involved in achieving this last objective are great under any type of regime but are probably most difficult within liberal democracies where not only the demands of the various fractions of capital must be considered but also those of organised labour. To maintain the balancing act involved in formulating worktime policies, in the face of what are often conflicting demands, some form of compromise must invariably be forged between the demands of the workers, the needs of the various sectors of industry and the interests of the bourgeoisie as a class. The nature of this compromise can not be stated a priori. It is an empirical problem. It will depend on the balance of forces involved in the struggle, on the historical background, the specific form of the state and the specific nature of the government within any given society.

The Market

It can be seen, then, that many factors may influence the efficiency of worktime schedules. This means that the possibility always exists that if the length of time normally worked is held constant, while many other factors remain free to change, the efficiency of a schedule may be undermined and unit costs raised above that which they need be. To suggest the existence of this possibility raises the question of how effective is the capitalist market at ensuring that this does not occur.

The 1931 I.L.O. study, The Social Aspects of

Rationalisation, attempted to determine the effect of changes in standard work times on the methods of production utilised within the workplace. A central problem this study attempted to resolve was whether a reduction in standard times motivated employers to adopt productivity-inducing measures which they might not otherwise have undertaken. The report noted that many observers had argued that reductions in working time did have this effect. Goldmark had observed, for example;

An interesting point brought out by the commission is the incentive to invention and greater economy on the part of the employees under the short-hour system. When working hours are diminished, the loss in time tends to be at least in part compensated, almost automatically, by time and labour-saving methods of production, as well as by increased energy on the part of the workers . . . While a particular machine will not go faster in eight hours than in ten hours, the substitute for that machine, which the eight-hour day presses upon the employer to adopt, will go faster. Less hours in this way have an indirect as well as a direct compensating effect. Not only do they make it possible for the workman to keep up his intensity of personal exertion during each hour of the day and to work more days at a high rate of speed, but they cause the employer to economise his labour at every point and to improve its quality by better selection. (I7)

What such observations suggest is that a 'normal' level of competition is often not a sufficiently effective mechanism for ensuring that capitalists utilise the resources available to them in the most efficient manner. Within a given situation for a time schedule of any length there must be a level of intensity that will maximise the mass of labour that can be undertaken within the period. If employers continue to force the level of work intensity

upwards, once this point is reached, and at the same time refuse to allow a curtailment in the length of time over which this intensity level must be maintained the actual mass of labour attainable will fall. Such over-intensification constitutes an inefficiency. The fact that in many cases reductions in work times have actually increased total output, even where no other significant changes to the work process have been introduced suggests that such inefficiencies are created within industry and that the market is not capable of ensuring that inefficiencies of this nature do not occur.(18)

If normal market pressures were fully effective we would expect to see a significant number of voluntary worktime reductions introduced by capitalists as intensity levels came into conflict with the time schedule maintained by industry. Such voluntary action, however, is rare, though it is true it is not totally unknown.(19) Rae has provided an accurate description of what normally occurs.

The first experience of a reduction of hours has always been very various. Some enterprising manufacturers have generally made the experiment before the restrictive law came into force and found it advantageous; then, after the introduction of the law, while some reported favourably from the very beginning, the majority reported a decrease of product for the first few months, or the first year or two; but eventually the favourable experience became general, either because the shorter hours had time to tell on the vital and mental energies of the workmen, or because employers had one after another discovered the secret, which some of them discovered at the outset, of making up for the diminution of work-hours by improved arrangements of the work.(20)

White's evidence has shown that this situation still exists.

The national survey he undertook in 1978-1979 found a significant number of non-unionised workplaces where employers had voluntarily chosen to introduce reductions in standard times below the national standard. These voluntary curtailments represented a disproportionate percentage of the enterprises operating on lower schedules. While non-unionised establishments constituted less than 10 per cent of the 401 firms examined, 30 per cent of those working below 40 hours per week had no union.(21) Such voluntary reductions are, however, the exception. The vast majority of employers normally only reduce standard schedules as a result of national or industry-wide collective bargains, which they have to obey or as a result of the enactment of a new legal standard by the state. Rather than voluntarily reducing worktime the hunger of most employers for ever greater quantities of surplus labour-time, combined with their general lack of knowledge of the intensive-temporal relationship involved in worktime, makes them fervent opponents of such change and in some cases even induces them to make adjustments to time schedules that have the opposite effect to that desired. Thus North and Buckingham report that some productivity agreements signed in Britain in the 1960s ". . . took the form of the "buying out" of tea breaks - though it should be noted that, apart from machine- or process- controlled operations, all the research evidence suggests that tea breaks improved productivity".(22)

X-efficiency and Worktime

Inefficient use of labour-power caused by the working of

time schedules of an excessively long duration was specifically included in the examples of inefficiency discussed by Leibenstein in his paper on the role played by incentives in improving industrial productivity.

Economists frequently assume that for a given capital stock and quality of work force, output will be proportional to number of hours worked. Experiments during World War I and later showed that not only was the proportionality law untrue, but that frequently absolute output actually increased with reductions in hours - say from a ten-hour day to an eight-hour day. It was also found that with longer hours a disproportionate amount of time was lost from increased absenteeism, industrial accidents, and so on. In many cases it would obviously have been to a firm's interest to reduce hours below that of the rest of the industry. Firms could have investigated these relations and taken advantage of the findings. For the most part, governments sponsored the necessary research on the economics of fatigue and unrest under the stimulus of the war effort, when productivity in some sectors of the economy was believed to be crucial. The actual reduction of hours that took place was a consequence of the pressure of labor unions and national legislation.(23)

In his paper Leibenstein distinguished allocative efficiency from other forms of efficiency. The latter he designated 'X-efficiency'.(24) Basing his arguments on a large number of empirical studies he concluded that industrial inefficiencies caused by sub-optimal allocation of resources is trivial, under normal conditions, but that the amount that is lost because of X-inefficiency is frequently highly significant.(25) The crux of Leibenstein's claim is that ". . . firms and economies do not operate on an outer-bound production possibility surface consistent with their resources".(26) Rather they normally work on a surface well within that outer bound. In other words, for a

variety of reasons individuals and organisations under normal conditions neither work as hard nor as efficiently as they can. Where external pressure is slight, Leibenstein suggests, many people will trade the disutility of greater effort for the utility of less pressure and of better interpersonal relations. Where the external incentive is heightened, however, so that the costs of such trade-offs are high then individuals will be motivated to exchange less of the disutility of effort for the utility of freedom from this pressure. What this means, in effect, is that capitalists may maintain a sub-optimal production pattern if external pressures permit them to do so but they will be less inclined to do this if these incentives are increased.

The situation described by Leibenstein is a common problem in the area of worktime. Given the continuing bias displayed by the overwhelming majority of employers against reductions in standard times it normally needs some external force or incentive to compel capitalists to make the effort to strive to eliminate or discover inefficiencies caused by overwork. The possible sources of this external pressure are many. There would appear, though, to be three that are most significant; changes in the level of competition, changes in the degree and nature of state intervention, and changes in the package of working conditions acceptable to the workers. In point of fact, actual worktime change invariably involves all three factors. In the following discussion they will, however, be handled somewhat separately because in some instances, not all three are involved to any significant

degree.

Competition

The shock effect of changes in the level of competition within the economy has already to some extent been dealt with when discussing the depression in Britain at the end of the 19th century. To reiterate on this matter, economic crises increase the need for capitalists to introduce cost-cutting innovations into the production process. At such times employers must intensify their attempts to raise productivity and to increase the mass of surplus labour obtained from the workers. Unfortunately for the latter the possibility of capitalists being able to drive up intensity levels in an attempt to achieve these objectives is also enhanced by the existence of crisis because high levels of unemployment shift the power relationship between capital and labour in the former's favour.(27)

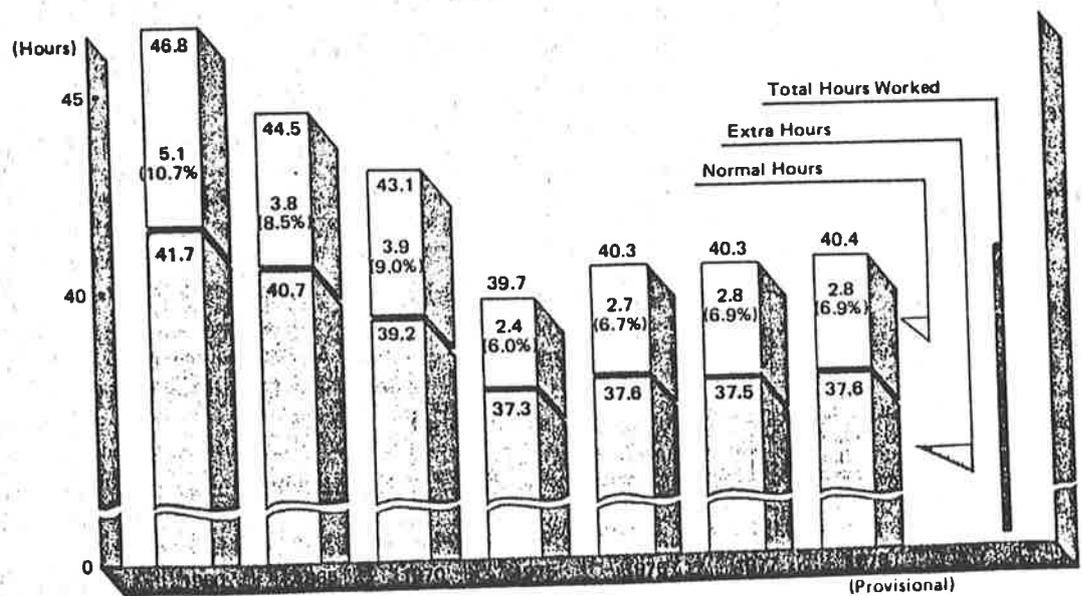
A heightening of competition sufficient to strongly influence time schedules, however, need not develop in quite so dramatic a fashion as it did in the Great Depression. A general, rapid and prolonged rise in business activity which absorbs virtually all surplus labour-power available on the market may have a similar effect. In such a situation, even if workers do not use their enhanced bargaining power to enforce worktime changes, employers may find they need to shorten standard times in order to be able to buy sufficient of this commodity. Competition between employers may thus cause standard working times to fall even if the workers take no active collective action to compel such a change.

Competition between employers for available labour-power lies at the centre of the contemporary marginalist theory of worktime. It is argued, by those within this tradition, that those employers who perceive a change in the preferred distribution of income and leisure amongst the workers and adjust the package of wages, conditions and working times to accord with this shift will attract employees from their competitors. This process will, in turn, compel other firms to make similar changes and thus a general downward movement in standard times may occur.(28) (The reason why these times do not move back up when the market for labour-power eases is generally not considered by these theorists). There are many problems with the marginalist tradition as has already been argued. To reject the theory as a whole, however, it is not necessary to deny that some aspects of the argument may have some validity. It certainly is the case that capitalists adjust the package of rewards and demands they offer the workers to accord with shifts in the availability of labour-power. These changes in the nature of the package offered may or may not reflect changes in the preferences of the workers. The crucial point where the marginalists fall down badly, however, is their failure to consider what steps employers will take to adjust the intensity of work to accord with the new schedule competition has forced them to introduce.

A clear, economy-wide example of how competition between employers can contribute to major adjustments to time schedules has been provided by postwar Japanese industry.

Working times in Japan, as in Europe, began to fall in the postwar years as soon as the surplus of labour-power engendered by the wartime destruction of industry had been absorbed and a shortage of this commodity began to emerge on the market. Tsujimura Kotaro reports that the ratio of demand to supply for middle school graduates rose from 1.2:1 in 1959 to 2.7:1 in 1963. The ratio of high school graduates rose from 1.1:1 in 1959 to 2.7:1 in 1962. Japanese firms for the first time, he reports, began to experience a serious shortage of labour-power during the 1960s. As this shortage intensified, competition amongst firms to secure the workers' commodity also intensified.(29)

Change to Total Hours Worked Per Week
(all industries)



Source: Ministry of Labor, *Monthly Labor Survey* (Firms employing 30 workers or more surveyed)

Note: (1) The service industry is not included in the figures for years 1960 and 1965 and is included in those for 1970 and thereafter.

(2) Figures in parentheses are ratios of extra hours to total hours worked.

(3) It should be noted that 'extra' hours and 'normal' hours should be reversed in the figure.

Figure 3.I, Source, The Japan Institute of Labour, Japanese Industrial Relations Series. Wages and Hours of Work. Tokyo, 197 p.22.

Despite the consequent dramatic increase in their bargaining power and the relatively long standard work times in Japan, the Japanese trade unions ". . . continued to take a rather ambivalent stance on shorter hours of work".(30) Tsujimura reports that the unions failed to launch any significant campaign for shorter work times during the 1960s. A consensus existed, he suggests, between employers and labour leaders that curtailment of time schedules would hinder Japanese international competitiveness and should therefore be avoided. Despite this aversion to shorter times by both employers and union leaders a dramatic fall in both standard and actual work times took place during the 15 years after 1960. (See Figure 3.1) What happened during this period, Tsujimura suggests, was that employers were forced by the tight labour market to compete for labour-power by offering both higher wages and more favourable working times.

		Reasons for Introducing the Two-day Weekend							
Size of the firm (number of employees)	Total number of firms with some form of two-day weekend (actual numbers in parentheses)	Reason for introducing the two-day weekend							
		To bolster attendance	To improve productivity	One way to compensate workers for improved productivity	To attract new employees	For the health of employees	Because of problems in commuting	Other reasons	Not clear
Total	100.0 (1,449)	19.6	44.2	13.7	28.8	67.9	2.3	7.9	6.7
1000+	100.0 (535)	17.2	49.2	15.3	29.2	77.2	3.6	7.9	5.2
300-999	100.0 (418)	18.2	43.5	14.8	31.3	70.6	3.1	6.9	5.0
-299	100.0 (496)	23.4	39.5	10.9	26.2	55.6	0.4	8.7	9.7

Note: In some cases several answers were supplied. Therefore the totals do not equal the number of firms surveyed.

Table 3.I Source, Tsujimura Kotaro, p.80.

The Effects of Introducing the Two-day Weekend

Firm size (number of employees)	Total number of firms with some form of two-day weekend (actual numbers in parentheses)	Effects										
		Positive Effects					More competitive in the recruitment of new employees	A decrease in attrition due to retirement or changing jobs	Other beneficial effects	No change	Ill effects	Not clear or no answer
		Subtotal	Improvement in attendance	Improvement in productivity	Decrease in industrial accidents							
Total	100.0 (1,449)	72.7	35.2	36.1	8.6	44.6	12.5	7.2	20.2	0.5	6.6	
1000+	100.0 (535)	73.6	32.7	40.2	8.2	47.5	12.0	12.0	17.6	0.7	8.0	
300-999	100.0 (418)	72.3	32.5	37.1	10.5	46.4	14.1	5.0	20.6	0.2	6.9	
-299	100.0 (496)	72.0	40.1	30.8	7.3	42.9	11.7	4.8	22.8	0.4	4.8	

Note: In some cases several answers were supplied. Therefore the totals do not equal the number of firms surveyed.

Table 3.2 Source, Tsujimura Kotaro, p.80.

The data presented in Table 3.1 and 3.2 suggests that Tsujimura's argument has a good deal of validity. Competition for scarce labour-power was a major factor inducing employers to offer shorter standard times during this period. In granting the argument has some validity, however, it should be noted that factors associated with the quality of labour-power and productivity were at least as important.

As Figure 3.1 indicated, working times in Japan ceased falling with the onset of the 1970's depression. The reduction in demand for labour-power that the crisis induced raised the quantity of this commodity available on the market. With Japanese unions still unwilling to campaign seriously for shorter work times capitalists were consequently subjected to significantly less external pressure to introduce worktime changes. This lack of

external compulsion appears to have worried the Japanese Government and it is almost certainly the reason the Japanese state has intervened to encourage both capitalists and workers to strive for further cuts in standard times. The Ministry of Labor, which undertakes periodic econometric studies of the degree of offset that is likely to be gained from further curtailing work times, has since 1978 practised what it terms 'administrative guidance' of working times. The Government, Koichiro Yamaguchi reports, was by 1979 eager to see shorter workdays and the 5-day week more widely practised in Japan. Workers and employers have also been urged by the government to abandon the working of excessive amounts of overtime and the tradition of not taking annual holidays even where they are allowed for in collective agreements. State bodies such as the Ministry of Labor have been actively promoting this policy within industry. It has been suggested, moreover, that the administration may even be willing to introduce legislation into the Diet, after 1985, that will compel employers to introduce a 5-day week.(31)

The State

The attempts of the Japanese Government to stimulate innovation and efficient resource utilisation by promoting reductions in standard working times has been a technique adopted by many governments. In many instances such intervention has gone as far as legislative control of standard times. In other cases the state's activities have been limited to stimulating competitive pressures within the

economy. The specific nature of this activity varies widely reflecting the different combination of political, economic and institutional forces operating at different times and places. In some nations, for example, the state intervenes merely by providing conciliation and arbitration facilities which assist the formation of collective agreements. Such agreements, even though they may result in a strengthening of the monopoly sectors of the economy, can increase the competitive pressure on the less efficient firms in industry especially if the new standard is one better suited to the more efficient enterprise. In other situations the state may stimulate worktime changes simply by attempting to enlighten employers and unions as to the degree of offset that could be theoretically achieved with a given curtailment of standard times or by agreeing to absorb some of the costs experienced by less efficient firms in their attempts to improve productivity.

In West Germany, for example, the state did not implement any new legislation to control standard times between 1938 and 1981.(32) Post-war governments instead retained the fascist legislation on worktime maxima. Both conservative and social democratic West German governments, however, have continued playing a significant role in the determination of standard times during the period since 1945. Rather than legislating for shorter times, they have chosen to aid the establishment of collective agreements which have given the workers the shorter schedules they demanded and which stimulated economic growth. This policy has been based

on the extensive research that has been carried out within the Republic on the economics and politics of worktime. West German state officials, with varying degrees of enthusiasm, have promoted the idea that work time curtailments do not necessarily mean reduced wages or profits. Thus the Government funded and gave wide publicity to the investigations into worktime and efficiency under-taken when the workweek was reduced from 48 to 45 hours in 1955-1956. The 'static' loss in working time, the report of this research stressed, contrasted poorly with the 'dynamic' gain resulting from the changed attitude of employers to technical development.

There is no doubt that in the future also, thanks to the dynamism released thereby, a growth policy can be followed with the help of a reduction in hours of work and many of the tasks of an economic and social nature which lie ahead of us can be solved more easily with a reduction of hours of work than without it The authorities responsible for the economic policy of the Federal Republic should regard the reduction of hours of work not so much - as hitherto - as a necessary evil, but rather as a new tool in the set of instruments available to them for the conduct of economic policy.(33)

More recently the Government's Council of Economic Advisers has recommended shorter working times as a means of combatting unemployment. If the unions would agree to wage-cuts the Council has stated even the 35 hour week might be acceptable.(34)

Besides aiding the accumulation process by encouraging worktime curtailments that will increase the efficiency of industry, the state may also intervene to oppose a reduction in working times that it sees as being harmful to

accumulation. The most common example of this phenomenon is state intervention to aid employers who are resisting a demand from the labour movement for cuts to standard times. In opposing trade union or popular demands for cuts to working times politicians and state functionaries, however, must remain aware of the need to promote legitimation as well as accumulation. Where these two needs conflict some pathway that concedes a little to each may need to be found. The dramatic increase in unemployment that has taken place since 1974 has created such a situation. As with earlier economic crises this recession has motivated the trade union movement to agitate for cuts to work times as a means of creating jobs. The political and economic power of the labour movement and the electoral repercussions and costs of high unemployment makes demands of this nature difficult to ignore totally no matter what the complexion of the government. On the other hand, the accumulation process must be protected. The existence of these dual and to some extent contradictory needs has been reflected in the policies advocated by a number of governments in the post 1974 decade. In this period most administrations within the O.E.C.D., for example, experimented with or at least discussed policies designed to create jobs by manipulating working times. These policies have included the promotion of part-time work, the introduction of shorter work times in return for higher productivity and/or lower wages and the subsidisation of employers who agreed to cut standard times and hire extra workers.

Despite this apparent concern for the unemployed it would seem thus far that accumulation rather than legitimation remains the primary factor influencing the worktime policies of most of these governments. At a 1982 ministerial meeting of the Manpower and Social Affairs Committee of the O.E.C.D., for example, great emphasis was placed on the need to investigate a wide range of possible worktime changes that might reduce unemployment.

However, as with all major political initiatives, it was realised that such desirable goals could only be approached subject to somewhat severe constraints. Thus, the ministers went on to emphasise that working time reductions should not be such as to damage industrial production costs or affect general inflationary conditions.(35)

What About The Workers?

As important as is pressure from competitors and the state in compelling employers to institute worktime changes the most important stimulant is usually the labour movement. Within the liberal democracies in particular the unions are probably the major primary source of pressure that is commonly placed on employers to remove worktime based X-inefficiencies from the production process. Within the mainstream literature trade unions have traditionally been treated as a force tending to increase rather than reduce inefficiency. Unions, those who support this perspective argue, are monopolistic organisations that create inefficiency in resource allocation.(36) These bodies, it is argued, raise costs first, by compelling firms to hire more workers, use more capital per worker and utilise higher quality workers than is economically necessary. Second, by

expanding the social factor in effort norms unions reduce the output that could potentially be created with a given quantity of labour-power and capital. Third, by utilising their collective pressure unions reduce management flexibility and when this pressure takes the form of strikes or bans output is significantly reduced.(37)

During the 1970s this traditional approach was subjected to serious criticism even by marginalist economists. It has been argued that, on the contrary;

. . . unions produce X-efficiencies through the expression of a "collective voice" and that these efficiencies more than offset any union induced inefficiencies. In short, unions produce net X-efficiencies.(38)

Supporters of this new perspective suggest that unions aid the removal of inefficiencies from the production process first by inducing employers to abandon inefficient methods of production and adopt more efficient methods. Second, by providing a collective voice for the workers that enables employers to determine their preferences and thus choose a better package of wage and non-wage rewards. Third, by improving morale amongst the workers and thus reducing labour turnover. Fourth, by improving communications between capitalist and worker. Slichter et al., for example, have argued that unionisation, viewed broadly, has in general created "superior and better balanced management, that employers under the pressure of unions extract more output from a given quantity of inputs than do those employers whose firms are not unionised.(39) Duncan and Stafford, moreover, ". . . report that while union workers spend more

time on formal breaks they spend a comparable amount less time on informal ones and report working harder than non-union workers."(40)

What the net effect of trade unionism is on efficiency is very much an unresolved problem around which an extremely important debate is being conducted. Whatever the outcome of this debate it has already established two major points. While unionism does create some inefficiencies it also assists in the removal of many others and the market, under normal conditions, needs the assistance of these bodies if efficiency is to be maximised. As Robinson suggested;

The limit to the rate of growth of wealth, over the long run, is set not by technical boundaries but by the lethargy which develops when the goad of competition and rising wage rates is blunted.(41)

The removal of worktime based X-inefficiencies is not the least of the ways by which the labour movement assists this process.

Collective Bargaining and Worktime

Reductions in standard working times characteristically occur at irregular intervals. They are, moreover, normally of a significant magnitude with their introduction usually being followed by a prolonged stable period.(42) It is not, in other words, common for work times to fall 5 minutes per week this year and 10 minutes next. The reductions also tend to be industry wide. Exceptions to these sweeping statements do exist. White's 1979 study of the British engineering industry, for example, found that 10

per cent of firms surveyed had instituted a standard workweek of less than the industry norm of 40 hours.(43) Those employers who were willing to utilise a standard below the norm were then very much in the minority. Yet, by 1982 a workweek of less than 40 hours was standard throughout the whole of this industry.(44) What had happened in the interim was the contracting of a national agreement between the trade union movement and the employers that made the 39 hour week the new industry norm. The vast majority of employers, in other words, despite the fact that this worktime reduction was to cost them little, if anything at all, had not been willing to reduce working times voluntarily. Because of the 'herd instinct' that employers normally adopt when bargaining over worktime, this aspect of the employment contract is generally conducted, within virtually all nations, at the industry or national level.

A demand for a downward change to time schedules in one form or another is normally included in a list of claims trade unions periodically submit to employers. This is often, however, little more than a formality. The 1957 Australian Council of Trade Unions (A.C.T.U.), for example, resolved that the introduction of the 35 hour week was a matter of major priority.

Congress now places in the forefront of its fighting platform the demand for the reduction of the working week from 40 hours to 35 hours per week without loss of pay and initiates a nation wide campaign to compel employers and governments to bring about the necessary reform.(45)

Despite the apparent assertiveness of this declaration the

resolution was not promoted with any great vigour until the late 1970s. While the shorter week was to become a major industrial issue in some isolated industries during the intervening 20 years, in general, it was treated more as an objective to be desired rather than one to be fought for.

The reasons why trade unions fail to promote demands for reduced worktime with the constant vigour they apply to wage demands has been discussed by a number of scholars. Marginalists argue it is to be explained by the fact that leisure preferrers will not oppose an increase in income gained at the cost of greater leisure to the same extent that income preferrers will oppose a decrease in worktime that involves a loss in earnings. This results, it is suggested, in the preferences of income-preferrers generally being dominant. As a consequence employers can usually buy off most demands for reduced schedules by offering higher wages. (46)

Income preference probably is a factor influencing the extent to which unions promote reductions in worktime.(47) One would expect, however, that within labour organisations where unity, solidarity and the need to maintain internal cohesion are extremely important that conflict between income and leisure preferrers would normally manifest itself in compromise rather than in an outright decision one way or the other. The normal outcome to be expected from the preference argument surely is regular, small reductions in

worktime with moderated wage rises.

A more substantial explanation for the labour movement's normal lack of vigour on the worktime issue may lie in the degree to which the unions believe that shorter standards can be won. In collective bargaining the unions generally submit a list of claims that are open to negotiation.(48) These claims will have varying degrees of priority. The exact nature of this priority will be determined by numerous factors. Of these one of the most influential will be the extent to which the unions believe a claim can be won. Unions normally only struggle seriously for those gains which they believe they can hope to win.(49) This belief will be largely determined by the response of employers to the total claim. Capitalists will wish to grant that package of wages and conditions they believe will minimise unit costs. The unions' individual claims, as a result, will meet varying degrees of resistance depending on how much it is believed each will affect the cost of production.(50)

If the temporal-intensive relationship widely adopted within industry reaches a point where a decrease in standard times will be largely offset by the removal of X-inefficiencies and greater intensity on the part of the workers the possibility for the contracting of a collective agreement to reduce worktime will be enhanced. This is because little is being conceded and the smaller the prize the easier the victory. Because neither employer nor union may be aware that this situation exists it may require a heightening of union pressure for a worktime curtailment to

make both aware of the existence of this situation. As employers do become aware that they can reduce work times with little cost this will influence the extent to which they will resist a demand of this nature. The perception, by the unions, of this relative weakening will influence the degree of priority with which they will view the issue. This is because the claim comes to be seen as being of greater viability. A shift in emphasis will, in turn, manifest itself in an increase in the degree of pressure unions will place on employers to grant this particular concession. There is thus a dynamic interaction between capitalists and workers that strongly influences the extent to which unions promote worktime change. The insistence, by the vast majority of employers, that curtailments to standard times must be undertaken on an industry or nation wide basis explains why, when such change is introduced, it tends to be wide-sweeping. The spasmodic nature of these changes, moreover, is explained by the prolonged period it normally requires for the growth of sufficient X-inefficiencies to develop once again across a wide sector of industry following their partial removal by a temporal reduction.

Intra-Class Conflict

The existence of inter-class conflict between capitalists and workers, it has been argued within this thesis, is a crucial factor explaining how and why working times within capitalist societies tend to fall. Intra-class divisions, within the bourgeoisie, are also of major

importance in bringing about such change. Such divisions were, for Marx, a crucial factor in explaining the British workers' victory in gaining the 10 hour day and this aspect of Marx's argument remains valid for modern capitalism. The vast majority of employers normally display a rare degree of unity when confronted by a demand for a reduction in work times. This unity, however, will begin to break down if individual capitalists become aware that to concede a demand for a cut to standard times would cost little. Those firms in which it is recognised that a worktime change would not raise unit costs to any significant degree may be expected to put up least resistance to a downward adjustment of schedules. The owners of such firms may even voluntarily introduce changes of this nature.

Those capitalists who introduce a reduced schedule ahead of the rest of their industry, whether by choice or as a result of worker militancy, have an interest in ensuring that their competitors do likewise. Where the firm has been compelled to introduce a schedule below the industry's norm as a result of successful pressure from the workers, then its competitive position will be undermined unless it can lower wages or find some means of offsetting the reduced schedule. If the workers have the capacity to enforce a worktime reduction, against the employer's wishes, the latter may not be in a position to demand wage cuts or make the workers labour harder. Capitalists in this position stand to gain if other employers in their industry are compelled to adopt the same schedule. If this is done the

firm's relative position will be regained. Employers who voluntarily reduce work times because the existing standard schedule conflicts with the level of intensity within the enterprise may also stand to gain if a compulsory, universal reduction in standard times is introduced. If the competitors of these capitalists are compelled to work the same schedule and they consequently experience significant increases in costs then the relative competitive position of the former employers will be enhanced. The tenor of the demands of those employers with a lower than average time schedule for universal standards may even take on a moral element. Koichiro Yamaguchi, for example, reports that U.S. automobile manufacturers have denounced their Japanese competitors who are taking their markets for not abiding by 'fair labour standards' because the latter maintain longer standard schedules than those worked within the U.S.A.(51) This moral indignation is not mere facade, it needs to be stressed, for as Marx suggested within capitalist morality exploitation of this nature is immoral for ". . . the most fundamental right under the law of capital is the equal exploitation of labour-power by all capitalists".(52)

The 1979 Engineering Strike In Britain

Where there are serious divisions amongst employers over the most efficient standard schedule for an industry a demand for a universal worktime reduction can seriously undermine employer solidarity. The recognition and exploiting of such divisions, by the unions, can significantly enhance their capacity to win such claims. As

it was the British experience that Marx used to formulate his worktime argument it is appropriate that the most recent major worktime change in Britain be used as a contemporary example, of how divisions amongst employers, and union militancy can assist the elimination of X-inefficiencies and the introduction of a new standard schedule.

In 1979 the British engineering industry experienced the longest running strike in its history. Indeed, until 1984, in terms of days lost on strike, this dispute was the longest to occur within the United Kingdom since the General Strike of 1926.(53) The agreement that ended this dispute included the introduction of a 39 hour standard week. The worktime aspect of the conflict's outcome is particularly interesting as the initial priority given to the shorter workweek by the unions does not appear to have been very great. In their initial ambit claim, submitted formally in February 1979, the unions asked for a planned reduction in the working week from 40 hours to 35 over an agreed period, without any loss of wages, and a minimum 5 weeks holiday. These items were effectively rejected by the employers at an early stage in the negotiations. It was suggested, by the latter, that the discussion of the worktime issues should be separated from the claim and referred to a 'harmonisation meeting' which would examine the whole question of basic conditions within the industry. The unions, evidencing the low priority with which the items were considered, initially suggested that they had no objections to this suggestion providing the employers were willing to increase the

national minimum wage for tradesmen to somewhere near 80 pounds per week with pro rata increases for other grades.(54) The employers, in turn, replied in early June that they were willing to pay 68 pounds per week for skilled workers and 49 pounds for unskilled with 9 per cent extra on this basic rate for the semi-skilled. They insisted, however, that these rates must be implemented on domestic anniversary dates rather than on a common date for the whole industry. It was this issue that was to prove the initial major obstacle to an early settlement. Abolishing a common implementation date was an important objective for the employers as it would considerably decrease the cost of introducing national increases in the minimum earnings level. At the June meeting the spokesmen for the trade unions intimated that if the employers were willing to add an extra 2 pounds to their offer then the only issue separating the two sides would be the question of implementation dates.(55)

By mid-June, then, the negotiations over what was to prove an historic change to standard work times within this industry was all but resolved, the apparent outcome appearing to differ little from most other years. At this stage, however, a shift within the union leadership temporarily gave the left on the national committee of the Confederation of Shipbuilding and Engineering Unions (C.S.E.U.) majority control. Using this majority the left was able to successfully move an amendment which rejected the agreement

which was close to being finalised. It was moved by the left that the Executive Council immediately seek a meeting with the Engineering Employers Federation (E.E.F.) to-

- (a) Achieve in full the claim in respect of M.T.R.'s.
- (b) Secure a reduction in the working week of one hour this year, with further staged reductions towards achievement of the 35 hour week in 1982.
- (c) Secure two days extra holidays this year.
- (d) Secure the common operative date of April 1979 for the implementation of the agreement.(56)

The subsequent rejection of these demands by the employers elicited a response from the workers that completely changed the whole tenor of the negotiations. In the months that followed the employers were to be overwhelmed and were forced to make significant concessions. The defeat of the E.E.F. was brought about by two central factors. First the degree of militancy displayed by the workers, the positive response of those on the factory floor to their leadership's call for industrial action in the form of overtime bans and weekly short-term strikes appears to have surprised not only employers but union officials as well. Second, major divisions emerged amongst the employers over the degree to which they would sustain a major campaign to prevent a cut in the length of the working week.

The left within the C.S.E.U. had been encouraged to promote their amendment by the fact that a number of employers had contracted agreements with their own employees that reduced working time. Other employers, moreover, had informed the unions that they were willing to contract an agreement with their own workers that would grant the

minimum conditions insisted upon. Despite the fact that these capitalists were not affiliated with the E.E.F. the union leadership exploited these intra-class divisions by offering all firms, federated or not, exemption from the industrial action if they were willing to individually sign contracts that granted the unions' demands. This strategy proved very effective.

Whilst there were very few of these firms, it did allow the C.S.E.U. an early propaganda advantage, for they were able to point to settlements fulfilling their claim before the action commenced. Other non-federated employers whose domestic agreements were near to the Unions' claim were also under pressure to ensure conformity with the Unions criteria and seek speedy dispensation.(57)

The granting of exemptions had the added advantage of bringing pressure to bear on individual employers. The possibility of gaining a dispensation meant that each had a means of withdrawing from the dispute. It was not possible, therefore, for them to claim that they could not prevent the conflict escalating within their enterprises. By this tactic, Rice reports, the unions were able to turn a national dispute into a vast number of domestic disputes. The individual employer, rather than the E.E.F, thus became the immediate protagonist.(58)

To exploit fully the divisions amongst the employers and to boost the morale of their members, the C.E.S.U. published regular bulletins reporting the number of employers who had broken with their peers and agreed to the unions' demands. The longer the dispute progressed the greater the number of these deserters became with their ranks eventually including

many federation members. The philosophy of those capitalists who abandoned their peers was well summed-up by a company spokesman for British Timken when announcing an independent settlement for this firm's 2,500 employees. "We can admire employer solidarity but our business and customers must come first".(59)

By early October the combined effect of the workers' continuing offensive and the rapidly growing disunity within the ranks of the employers compelled the latter to capitulate on the issue of working time. It is interesting, when examining this dispute, to compare what was won and what the unions conceded in the settlement that was finally agreed to.

Claim	Settlement
Hours. 39 hours immediately 35 hours by 1982.	39 hours by 1981
Holidays. 2 extra days immediately.	2 extra days immediately plus 1 for each succeeding year up to 1983.
Rates. £80 skilled and pro rata.	£73 for skilled with wider pro rata relationship.
Implementation Date.	Common date of April 1979.
	November 1st 1979 for premia purposes. Domestic anniversary dates for other provisions plus commitment to domestic anniversary dates in all future settlements.(60)

The unions also committed their members to giving maximum cooperation to ensure that sufficient productivity was

generated to offset completely any increase in unit costs that might arise from the reduction in work times. The employers, moreover, were given a virtual free hand in determining how this offset would be achieved.

The method of reducing the hours from 40 to 39 will be determined at domestic level but if, after the fullest consultation, including a reference to the external stage of procedure, no agreement has been reached concerning the arrangement of working hours, it shall remain the responsibility of management to determine how the working hours shall be arranged . . . The parties and their members are committed to giving maximum co-operation at all levels, domestic, local and national, to ensure that productivity is increased so that there are no increases in manufacturing costs as a result of the reduction in working hours. . . . The method(s) to give effect to this principle shall be determined by the employer after consultation with his employees. The improvements in productivity may be achieved by the more efficient use of working time, the more efficient use of labour and the more efficient use of machinery.(61)

As the employers had let it be known, before the series of strikes and bans had begun, that they were willing to pay skilled workers 70 pounds per week the campaign would appear to have won an extra 3 pounds per week. The workers had also gained a significant reduction in working time. Offsetting these advances, however, was the fact that the employers had been victorious on the issue of implementation dates and the widening of differentials. Given the priority with which the former issue was viewed by both employers and unions this concession was a significant defeat for the workers. At the time, however, there was little doubt by all concerned that the campaign had been successful in improving the package of wages and conditions paid to the workers.

While this conclusion has a good deal of validity,

developments since 1979 must seriously bring into question just how great this victory was. A number of studies during the intervening period have examined both how employers responded to the worktime curtailment and what was the effect of the shorter schedules. Two regional studies, undertaken prior to the common implementation date for the new times, found that employers were taking very seriously the issue of productivity offsets. The vast majority of employers were found to be convinced that an offset of a magnitude that would prevent any increase in costs occurring would be achieved. Indeed, most employers suggested that it was essential for their firm's survival that an offset of at least 100 per cent be gained.(62)

A survey conducted by White, during November-December 1981, concurred with these findings. White suggested that the 'great majority' of engineering employers had or were intending to introduce changes to the production process that they hoped would offset the shorter times. This survey also confirmed White's earlier conclusion that the methods utilised by employers to achieve this objective were relatively straightforward techniques for heightening the intensity of worktime or the removal of what was considered inefficient time, '... notably reductions in tea breaks, meal breaks or other time allowances, and agreements to speed up the pace of work'.(63) As reported earlier in this thesis the Ministry of Labour was able to report, a year later, that the employers had been successful in achieving their objective. The shorter times cost them little, if anything

at all.(64)

Despite the fact that the apparent improvement in the effort bargain, gained by the workers in their 1979 campaign was largely, if not totally, eroded by increased intensification, British trade union officials remained generally pleased with the outcome. At a time when they were losing members and were probably in the weakest state they had been in since the 1930s depression they managed to wage a successful campaign to reduce the length of the basic workweek and to increase holidays to an extent not even originally asked for. Because of their refusal to consider employer responses to enforced worktime curtailments and indeed to the whole question of the relationship between working time and work intensity they were able to delude themselves that the winning of the shorter week was an unadulterated victory. Ron Edwards, a research worker with the Trade Union Congress who is a rare exception to this general rule, reports that the T.U.C. literature gives the impression that employers play a totally passive role in this area. In an excellent study that sought to explain why employers would remain obstinate on wage increases yet grant significant improvements in working times during a period of mass unemployment he concluded that a victory of this nature was possible because the unions were willing to make concessions on existing levels of control within the production process which, in the long term, were certain to rebound against the workers' interests.

The trade union campaign was based on the creation

of employment and in this it has so far failed. What is evident from a brief survey of productivity and work practices is that the reduction in hours achieved so far have probably not resulted from purely trade union pressure, but have often come about as a result of management strategy and decision making. It would appear that management have tightened their control over the production process generally and over the activities of workers in particular. Sometimes of course this may have been the result of the necessity to keep costs down once shorter hours had been conceded, but it seems that on as many occasions the shorter working week was on offer as part of a management package to increase productivity.(65)

Edward's argument that the 1979 reductions in work times did not result purely from trade union pressure, while insightful to a rare degree, has a conspiratorial tone that is not justified. There can be little doubt that the vast majority of British engineering employers were opposed to any reduction in standard work times prior to the 1979 campaign. There is no evidence to suggest that changes of this nature would have been voluntarily put forward by employers, on a wide basis, if the unions had not included such a demand in their ambit claim. It was the dispute itself which forced these manufacturers to consider seriously the likely costs involved in the curtailing of schedules. Left to themselves, in other words, the vast majority of employers would have refused to make any such modifications to the conditions of work because they believed changes of this nature would necessarily involve serious increases in costs. When faced by the need to settle what was proving a very effective campaign, however, such a belief would be examined in some detail as employers attempted to quantify the likely costs involved in conceding

the various items in the claim.

The post-settlement evidence that the temporal reductions in fact cost the employers little and that they may have even gained, given the concessions they were able to wrest from the workers, does not justify any suggestion of conspiracy on their part or even awareness that the costs of conceding these particular claims would be negligible. When the representatives of the E.E.F. decided to grant the shorter times they were undoubtedly in possession of estimates of the likely effect on unit costs of granting each of the claims. One can presume, therefore, that they believed the temporal changes would cost them less than would the granting of some of the other demands. This, though, does not justify any suggestion that the E.E.F. was aware of how little the changes would cost. Given their members' hostility to reductions in standard times and their persistent over-estimation of the cost of introducing changes of this nature their estimates would almost certainly have been overly pessimistic. When granting these claims, therefore, it is more likely that they were simply making those concessions they had estimated would cost them least. This is not conspiracy, rather it is part of the normal collective bargaining process. As suggested earlier, in this type of bargaining both participants invariably first concede those claims they believe will cost them least. In the case of the 1979 dispute the cost proved simply to be less than both the unions and the employers had believed it would.

In conclusion, it needs to be added that proof of the negligible cost of the temporal changes would not necessarily convince employers that their introduction was a favourable development. The majority of capitalists, with their firm belief in the profitability of long work times, would invariably respond with the assertion that if the workers could intensify their efforts under the shorter schedule they could also have done so under the longer one, and thus even more output could be produced. Given this approach to the question of worktime, British Engineering employers might well be pleased to see the standard returned to 40 hours or, if possible, even longer.

NOTES

1. Hilde Behrend, 'The Effort Bargain', Industrial and Labor Relations Review, Vol. 10, No. 4, 1957, p. 505.
2. W. Baldamus, op cit, p.35. W. Baldamus, 'The Relationship Between Wage and Effort', Journal of Industrial Economics, Vol. 5, No.3, 1957, pp192-201.
3. Richard Hyman and Ian Brough, Social Values and Industrial Relations, Basil Blackwell, Oxford, 1975, pp 12-13.
4. Allan Flanders, The Fawley Productivity Agreements, Faber and Faber, London, 1964, p. 234. See also D. Roy, 'Quota Restriction and Goldbricking in a Machine Shop', The American Journal of Sociology, Vol.57, No. 5, 1952, pp 427-442.
5. Andrew L. Friedman, Industry and Labour. Class Struggle at Work and Monopoly Capitalism, The Macmillan Press Ltd., London, 1977, p. 51.
6. Richard Hyman, Industrial Relations. A Marxist Introduction, The Macmillan Press, London, 1975, p. 187.
7. Ibid, p. 189.
8. A. L. Friedman, 'Responsible Autonomy Versus Direct Control Over the Labour Process', Capital and Class, No. 1, 1977, p. 45.
9. Harry Braverman, Labor and Monopoly Capital. The Degradation of Work in the Twentieth Century, Monthly Review Press, New York, 1974, p. 193.
10. Staffan Burenstam Linder, The Harried Leisure Class, Columbia University Press, New York, 1970, pp 17-19.
11. Ibid, p. 23.
12. Ibid, p.25.
13. Ed Andrew, Closing the Iron Cage. The Scientific Management of Work and Leisure, Black Rose Books, Montreal, 1981, pp 150-152. Non-paid work takes many forms. Time and effort consumed in travelling to and from the place of employment and household production are the most significant. De Grazia has estimated that on average U.S. workers spend 10 to 20 per cent of their working lives travelling to and from work. (S. De Grazia, Of Time, Work, and Leisure, Twentieth Century Fund, New York, 1962, p. 73). Similar observations may be made about many other countries. Manning, for example, reports that comparable travelling times are common in Australia. He has estimated that the average commuting time for Sydney workers is one hour per day. Travelling time in other capital cities is slightly less but the duration of time involved is still substantial. (Ian Manning, The Journey to Work, George Allen and Unwin, Sydney, 1978, p. 13). Household production, on the other hand, includes housework, child-minding, shopping, house-maintenance and innumerable other activities. For material on this topic see Cora V. Baldock, 'Public Policy and Women's Work: The Issue of

Reduced Working Hours', Australian Political Science Association, 23rd Annual Conference, Murdoch University, 1981. M. Gunderson and H. C. Jain, 'Low Pay and Female Employment in Canada with Selected References to the U.S.A.', in Peter J. Sloane, Women and Low Pay, The Macmillan Press, London, 1980, p. 177. Judith Grunfeld, 'Rationalisation and the Employment and Wages of Women in Germany', International Labour Review, Vol. 29, No. 5, 1934, pp 605-632.

14. Ian Gough, The Political Economy of the Welfare State, The Macmillan Press, London, 1975, p. 53.

15. See Finn Hansson, 'Welfare State and the Reproduction of Labour Power: Notes on the Effect of State Policy on the Structure of Reproduction', Acta Sociologica, Vol. 22, No. 2, 1979, pp 175-185. Aboo T. Aumeeruddy, Bruno Lautier and Ramon G. Tortajada, 'Labour Power and the State', Capital and Class, No. 6, 1978, pp 42-66. The desire to foster higher quality labour-power by manipulating the amount of labour done outside the workplace is not unique to capitalist states. Within the Soviet Union, for example, numerous time-budget studies have been undertaken to determine the way workers utilise their time. The purpose of these studies has been clearly spelt out by Strumlin;

What has to be reduced is not the highly efficient work at the factories, but the much less productive work in the household The barbaric waste of human work in household obligations will stop only after an increase in industrial efficiency and a simultaneous increase in pay for industrial work has taught everybody - at home and at work - to value and count not only each lost hour, but every lost minute of time.

S. G. Strumlin, cited by Jiri Zuzanek, Work and Leisure in the Soviet Union. A Time Budget Analysis, Praeger Publications, New York, 1980, pp 10-11.

16. K. Marx, 'Capital', Vol. 1, op cit, p. 382.

17. J. Goldmark, cited in International Labour Office, The Social Aspects of Rationalisation, Studies and Reports Series B (Economic Conditions) No. 18, Geneva, 1931, p.94

18. P. S. Florence, 'Labour', op cit, pp 58-59.

19. White found that the vast majority of employers appear to have tremendous difficulty accepting that worktime and output are not proportionally related. This is no 20th century phenomenon to be explained by the relatively low levels of present-day time schedules. Marx reports that even when the factory workers' demand was for a 60-hour week the British manufacturers insisted;

... 'that their overlookers in the different rooms took good care that the hands lost no time,' that 'the extent of vigilance and

- attention on the part of the workmen was hardly capable of being increased' and therefore, assuming the speed of the machinery and other conditions remained constant, 'to expect in a well-managed factory any important result from increased attention of the workmen was an absurdity.' Marx, Capital, Vol. 1, p. 535.
- p. 535. This is not to suggest that managers are not able to learn from their past mistakes. White reports that there was considerable difference in the estimates of the degree of offset that could be achieved with future worktime reductions between those employers who had personally experienced worktime curtailments and those who had not. The estimates of the former were considerably more optimistic than those of the latter. Indeed, even where employers had merely been involved in negotiations over possible reductions, and presumably had undertaken some research, but not actually implemented any changes, their estimates of the degree of offset were invariably higher than the average for his survey as a whole. M. White, 'Shorter Working Time', op cit, pp 71-72. See also F. J. Poper, 'A Critical Evaluation of the Empirical Evidence Underlying the Relationship Between Hours of Work and Labor Productivity', op cit, pp 123-125.
20. John Rae, Eight Hours for Work, op cit, pp 13-14.
21. M. White, 'Shorter Working Time', op cit, p. 16.
22. D. T. B. North and G. L. Buckingham, Productivity Agreements and Wage Systems, Gower Press, London, 1969, p. 2.
23. Harvey Leibenstein, 'Allocative Efficiency vs "X-Efficiency"', The American Economic Review, Vol. 56, No. 3, 1966, pp 402-403.
24. Ibid, p. 392.
25. Ibid, p. 413.
26. Loc cit.
27. Hyman and Elger have reported, for example, that the crisis of the 1970s and 1980s has encouraged and enabled British employers to turn from attacking specific worker practices aimed at regulating intensity levels to an assertion of the employers' general control over the production process. Richard Hyman and Tony Elger, 'Job Controls, The Employers' Offensive and Alternative Strategies', Capital and Class, No. 15, Autumn 1981, p. 115-149. Similarly, the crisis is driving capitalists within the United States to unleash a massive offensive against effort norms and work practices that were formed and stabilised during the years of the 'long boom'. BusinessWeek Team, 'A Work Revolution in U.S. Industry. More Flexible Rules on the Job are boosting Productivity', International BusinessWeek, May 16, 1983, pp 58-64.
28. See, for example, John Owen, 'Working Hours', op cit, pp 17-19.

29. Tsujimura Kotaro, 'The Effect of Reductions in Working Hours on Productivity' in Shunsaku Nishikawa (ed.), The Labor Market in Japan, Selected Readings, The Japan Foundation, Tokyo, 1980, p. 78.
30. Ibid, p. 71.
31. Koichiro Yamaguchi, 'Prospects for Shorter Hours and a Five-day Workweek', Japan Labor Bulletin, Vol. 19, No. 8, 1980, pp 7-8.
32. M. Bolle et al, Working Time in West Germany. The Effects of Changes in Pattern and Duration, Anglo-German Foundation for the Study of Industrial Society, London, 1981, p. 5.
33. Rolf Krenzel, 'Volkswirtschaftliche Untersuchungen', cited by A. A. Evans, 'Hours of Work in Industrialised Countries', op cit, p. 74.
34. Wolfgang Mauersberg, 'Shorten the Working Week, Bonn Advisors Say', The German Tribune, No. 1111, December 1983, p. 7. West German worktime theoreticians have, in general, argued that reductions in standard schedules should be introduced in times of recession as an anti-cyclical mechanism both to reduce unemployment and to stimulate productivity growth. Such theorizing has, however, generally been ignored with the exact opposite, in fact, occurring. Major reductions to standard times were introduced during the boom years of the 1950s and 1960s and this downward trend slackened as soon as the 1970s economic crisis put an end to high growth rates. See Dieter Mertens, 'Working Time Policies', in Jean-Pierre Jallade (ed.), Employment and Unemployment in Europe. Proceedings of the Hague Conference Sponsored by the European Cultural Foundation, Trentham Books, Staffordshire, England, 1981, p. 141.
35. Bob Hart, 'Working Time: A Review of Problems and Policies within a Collective Bargaining Framework', op cit, pp 55-56.
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38. J. T. Addison and A. H. Barnett, 'The Impact of Unions on Productivity', British Journal of Industrial Relations, Vol. 20, No. 2, 1982, p. 146. For other significant contributions to this debate see; G. E. Johnson, 'Economic Analysis of Trade Unionism', American Economic Review Papers and Proceedings, Vol. 65, No. 2, 1975, pp 23-28; H. G. Johnson and P. Mieszkowski, 'The Effects of Unionization on the Distribution of Income: A General Equilibrium Approach', Quarterly Journal of Economics, Vol. 84, No. 4, 1970, pp 539-561. Charles Brown and James, 'Trade Unions in the Production Process', Journal of Political

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42. W. H. Robbins, 'European Experience in Reducing Working Time', in G. R. Cyriax (ed), 'Negotiating a Shorter Working Week', op cit, p. 45.
43. M. White, 'Shorter Working Time', op cit, p. 14.
44. M. White, 'Shorter Working Time Through National Agreements', op cit, p. 6.
45. Australian Council of Trade Unions Congress, September 23-27, 1957, in Colin Hardie, Struggles for Shorter Hours, B.A. thesis (unpublished), Sydney University, 1978, p. 97.
46. Leon N. Moses, 'Income, Leisure, and Wage Pressure', The Economic Journal, Vol. 72, 1962, pp 320-334.
47. Peter Feuille, Wallace E. Hendricks and Lawrence M. Kahn, 'Wage and Nonwage Outcomes in Collective Bargaining: Determinants and Tradeoffs', Journal of Labour Research, Vol. 2, No. 1, 1981, pp 51-52.
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- reducing the working week to 35 hours;
 - extending annual holidays to 6 weeks;
 - giving workers the right to a full pension at 60 years of age;
 - raising the school leaving age to 16 years and extending the right to time off for vocational training and further education.
- European Trade Union Institute, Reduction of Working Hours in Western Europe. Part one: The Present Situation, Brussels, 1979, p. 1.
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Chapter 4

The Rationalisation of Worktime

To show that the accelerated rate at which working times have fallen during the 20th century has been accompanied by higher levels of work intensity and that much of the temporal reduction has been offset by the workers having to labour more intensively raises the question of how this change was brought about. This issue will now be looked at and it will be argued that the crucial factor propelling this movement has been the rationalisation of the production process that has occurred this century. It will also be argued that the contribution made by the pioneers of scientific management to the rationalisation of worktime has largely gone unrecognised during the post-war years and that the nature of their work in this area and indeed in many areas has been both underrated and misunderstood.

The Need for System

The term 'rationalisation' originated in Germany and it was defined by the Committee on Industry of the World Economic Conference held in Geneva in 1927 as,

. . . the methods of technique and of organisation designed to secure the minimum waste of either effort or material. It includes the scientific organisation of labour, standardisation both of material and of products, simplification of processes and improvements in the system of transport and marketing.(1)

The prolonged period of economic depression that occurred towards the end of the 19th century in Britain was replicated in number of other countries. In some of these

states the competitive pressures generated by the crisis stimulated both the development of the monopolistic sector within the economy and the growth of a strong trade union movement. The crisis also gave birth to what has been termed the 'second industrial revolution'. The radical changes associated with this revolution significantly affected the shape of British politics and economic development in the years prior to the First World War. Its impact within the U.K., however, was decidedly muted compared to the way it influenced some of the newer industrial economies and in particular the economy of the United States.(2)

Within the U.S.A. the crisis accelerated the growth of both the mechanisation process and the corporations which aimed to restrict the high levels of competition generated by the depression. The size of these corporations enabled them to exercise a significant degree of control over the market. This size, however, in itself created major problems for its development necessitated a dramatic expansion in the volume of fixed overheads necessary for the firm to maintain in the form of plant and equipment. In short there was a significant increase in the organic composition of capital and a corresponding fall in the rate of profit.(3) Growth of these fixed costs meant it was necessary for the corporations to operate their enterprises at a high level of capacity if the rate of profit was to be maintained. The growth in the size of the firm also created problems of control. The employers needed to find ". . . a substitute for the effective supervision characteristic of

the small shop".(4)

The problems generated by these technical changes were further compounded by the growth of the labour movement which not only expanded in size and strength but also, as Hobsbawm has put it, came to understand the 'rules of the game'.(5) In particular, the workers became aware that given the existing wage system there was little to be gained by working harder. This was because capitalists believed that the buying and selling of labour-power was a 'zero-sum game' in which a gain to the employee was necessarily a loss to the employer. A fair day's wage was normally taken by the latter as being given by the customary time-wages paid in the locality. The fixing of piece rates was also based on the area norm as was the amount of labour required to earn this wage. Piece rates, moreover, were frequently cut if wages rose much above those paid on time-rates. Employers considered that rate-cutting was essential if their firms were to remain competitive. Workers, however, responded with hostility to this policy, vehemently resisted the introduction of incentive based wage systems and invariably concealed the degree of effort they were capable of sustaining. The employers responded, in turn, by demanding that piece-work be accepted and used repression to 'drive' the workers. This approach to the wage-effort bargain meant that the workers had no interest in raising productivity, indeed, given higher individual output probably meant a wage cut per piece, harder work and possibly lay-offs, they had every interest in restricting its growth. Thus were the

capitalists' output and profits curtailed, class conflict and hostility kept at a high level and the workers' low wages and poverty maintained.(6)

The unionisation of the skilled workers provided them with a greatly expanded capacity to maintain and enforce effort restrictions. The employers' traditional methods of inducing workers to exert themselves were consequently severely undermined with repression becoming increasingly ineffective. As Thompson put it; "We used to drive workers, but - especially if they are skilled - . . . they do not have to stand it".(7) In this circumstance some other means of organising the extraction of labour from the workers had to be found.

Within the United States it was these problems that gave rise to the systematic management movement during the 1880s. The 'systemisers' were a diverse group of engineers, accountants and works managers who argued that U.S. firms had grown to a size where the internal functioning of the enterprise was becoming increasingly chaotic and wasteful. Traditional management methods with their crude approach to the problems of organising, controlling, developing and administering the firm's resources, it was insisted, were wasteful and not suitable for highly mechanised and concentrated forms of production. 'Method' and system, these theorists argued, had to replace the improvisation associated with traditional management practices.(8)

The growth of the systemisation movement was closely associated with the rise of industrial engineers to

positions of prominence within industry. Prior to this period engineers had largely concerned themselves with the development of cost-cutting machinery rather than with the organisation of production.(9) The expanded need to discover new ways to offset the tendency for the rate of profit to fall by maximising the use of the firm's resources, however, compelled these technicians to turn to the problem of systemising the management of these resources. This included the management of labour-power.

. . . they were compelled to recognize that 'the domestic economy of the factory' had replaced the machinery as the limiting factor of production. Existing machinery could be used at peak capacity only if the human activity of production was organized in a correspondingly efficient manner. They thereupon deliberately expanded their engineering focus to include the workers. As managers in industry, engineers now undertook to expropriate and systemize the intelligence of production, to place it in the hands and handbooks of management, and to use it to reorganize the production process for maximum output and profit.(10)

Frederick Taylor

Of those engineers who took up the quest of systemising the production process, the greatest and most influential was undoubtedly Frederick Winslow Taylor. This scholar, Drucker has observed, has had as much impact on the modern world as have Freud and Marx, even if this has largely gone unrecognised.(11) As the 'father of scientific management', Taylor pioneered changes to the production process that radically changed not only the workplace but the whole nature of modern industrialised society.

The detailed nature of Taylor's research and the breadth

of his approach to the problems of production were enormous. He made a number of significant contributions to the systemisation of the production process in the areas of accounting, stores management, purchase, standardisation of machinery and equipment and plant design and layout. He also developed a number of important new products the most notable of which was high-speed steel. Layton has suggested that so extensive were Taylor's contributions even had he not pioneered the development of management science his joint discovery of high-speed steel, his research with metal-cutting and his many other engineering innovations would have been sufficient to make him famous.(12) He is best and in many cases exclusively known, however, for his work into means by which workers could be induced to increase the intensity of their labour-time. While his fame is primarily based on this aspect of his work and it is certainly true that this issue was to the forefront of much of his research, singular concentration on this topic by many scholars has generated a serious misunderstanding of the nature and impact the adoption of his methods had on the workplace and society. As Meiksins has pointed out, Taylor's ideal programme of systemisation involved much more than just the intensification of the workers' labour-time. It involved the application of the scientific method to the whole realm of organisation, administration, distribution and indeed all areas in which systematic management was necessary. The first step in his plan for organising a workshop was always the improvement and standardisation of tools, machinery and

equipment together with the sytemisation and planning of the workplace. This last step invariably involved the introduction of more efficient storage systems, cost-accounting procedures and the establishment of a system of routine maintenance and repair. Once these 'preliminary' steps had been undertaken, and he suggested this could be expected to take about a year, the scientific manager was then to turn to the task of reorganising the management of workplace activities.

Central to this process was the establishment of a planning department which directed and coordinated the work carried out on the shop floor. The planning department's instructions were conveyed to the shop through a system of written instructions, routing cards, and the like, and information about such matters as costs and production levels was relayed back from the shop floor in a similar fashion. Headed up by production engineers, this department was staffed by a number of clerks and "functional foremen" each of whom had control over a specialized aspect of coordination and supervision. All in all, this constituted a significant overhaul of the organization of the average shop and entailed a considerable expansion in the number of supervisory and clerical personnel. Only when these organizational changes had been made could the scientific manager pass to the business of instituting time study and developing a system of incentives appropriate to conditions in the shop.(13)

His control and rationalisation methods, Taylor believed, offered a means by which output, wages and profits could be radically boosted. He also believed they offered something of even greater importance, this was a means of ending the class war. He declared that his ". . . whole object was to remove the cause for antagonism between the boss and the men who were under him".(14) What workers wanted from their employers above all else, he insisted, was high wages and

what the employer wanted from the workers was labour-power at a price that would lower the cost of production. These two conditions, he argued, were not diametrically opposed. On the contrary, they could be made to go together with all forms of work if both employer and worker turned their concentration from the division of the spoils of production and concentrated instead on applying science to increasing the magnitude of the output and surplus.(15) The subsequent increase in productivity induced by a 'mental revolution' of this nature, he insisted, would be so large all major sources of friction between employer and worker could be overcome. There were, he suggested, two primary obstacles preventing this goal being attained.

The chief causes which produce this loss to both parties are: First, and by far the most important; the profound ignorance of employers and their foremen as to the time in which various kinds of work should be done (and this ignorance is shared largely by the workmen) . . . Second: Their indifference and ignorance as to the proper system to adopt and the method of applying it, and as to the individual character, worth, and welfare, of their men... On the part of the men the greatest obstacle to the attainment of this standard is the slow pace which they adopt, or the loafing soldiering or marking time, as it is called.(16)

Taylor and the Workers

The elimination of the first of these two obstacles, Taylor argued, necessitated the employers taking active steps to overcome their ignorance of exactly how much work their employees were capable of sustaining and of specifying exactly what degree of effort was required to undertake any given task. Because the workers alone had this knowledge employers could not know whether or not they were receiving

a fair return for the wages they paid. It was certainly not possible to rely on the workers' goodwill to ensure they provided a fair day's work, Taylor insisted, because workers were both naturally indolent and subject to the pressure of social effort norms which they had to maintain if wage rates were not to be cut. They consequently consciously restricted their efforts.(17) To overcome this restriction employers had to gain greater control over effort norms. Taylor's strategy for achieving this objective involved first, the detailed study and recording of all aspects of the production process. Second, the systemisation of this data into a form which would make it possible for the design of jobs to be undertaken by technicians away from the shop floor. Third, the 'scientific' determination of optimum standards of performance for worker and machine. Fourth, the redesign of all jobs in a manner which minimised variation, unnecessary effort and skill content and which maximised the employer's control over all aspects of the work.

Both to make the introduction of significant increases in the pace of work possible and because he believed it was morally correct that workers be given a share of the rewards generated by increased productivity, Taylor also advocated a new approach to the payment of wages.

If ... you expect your workmen to work very much harder than they do on Day Work (and my experience is that the greatest gain is to be made by increasing the pace of all your men) then you must recognize the fact that workmen will not double their rate of speed for the same wages for which they will work by the day. My experience is that it is necessary to pay them on Piece Work from 25 to 50 per cent more than they get on Day Work in

order to stimulate them to their maximum.(18)

If employers used his methods, Taylor argued, they would be able to ascertain just how much work the workers were capable of. This knowledge would permit the establishment of incentive systems that would induce the workers to raise the intensity of their labours but would not motivate the employers sufficiently to induce them to cut the rates. The development of work and time study was Taylor's major contribution to the debate on incentive wage systems. This method of determining effort norms was to become, by the late 1920s, a fundamental aspect of any efficient wage-incentive scheme.(19)

In the years after his death Taylor was to come in for a great deal of criticism for his concentration on financial reward as the workers' primary motivator. He was accused of ignoring human relations and the fact that the worker was a social being who was capable of responding to factors other than money. The search for these other motivators which would 'satisfy' human needs and make the worker happier and more productive was to become, particularly after the publication of the results of the Hawthorne studies, a major element in industrial psychology. The overwhelming bulk of incentive studies have, since the 1930s, downgraded money as a motivator and have had as their primary objective the discovery of alternative, non-financial ways to increase worker productivity.(20) This is despite the fact that money can be shown to be a very effective motivator and that ". . . no generalizable, functional, replicable relationship

between workers' satisfactions and their productivity has yet been found".(21) This research is simply based on the assumption, unproved, that the worker if made happier will be willing to work harder. The 'satisfier equals motivator' assumption, Macarov has argued, is almost incredibly naive.(22) Yet, despite this, and despite their continued failure, employers and industrial psychologists continue to pour money and effort into research based on this assumption. This is primarily because capitalists have never been happy with having to accept that those such as Taylor who insisted that a high-intensity work process necessitated high wages were correct; that if the workers are to be motivated to increase the amount of effort they put into their work they have to be paid for it. Employers consequently have continued to finance those human relations schools which have attempted to find new ways by which the amount of labour taken from the worker can be increased without it having to be paid for. As part of this process these 'scientists' have attempted to denigrate Taylor by de-emphasising his belief in the moral and technical necessity of paying high wages. Instead, they have emphasised his high-handed and often insensitive attitude to the workers. That Taylor was often authoritarian and even repressive is not to be denied but at least he was willing, unlike these 'servants of power', to pay the workers for what he took from them.

Taylor and the Employers

Taylor's criticisms of worker effort restriction and

his methods for heightening the pace of work have been extensively documented. His criticisms of what he considered the second primary obstacle to greater industrial efficiency, poor management, has received much less attention outside of the schools of business management. Taylor was very much aware that the market was not an effective mechanism for ensuring that employers utilised their firms' resources with maximum efficiency. He accepted that in most cases it required some form of external pressure to motivate capitalists to strive seriously to maximise productivity.(23) Any doubt he may have had on this score would certainly have been dispelled by the reception employers gave to his ideas. In general he met either lack of interest or active hostility. The correct use of Taylor's programme necessitated extensive research by highly trained and experienced technicians. For the average firm this research and its subsequent implementation normally took 2 to 4 years. The adoption of his system also necessitated the commitment of a significant amount of capital and the introduction of major changes to the traditional authority pattern within the firm. The existing linear hierarchy utilised by most enterprises, he suggested, had to be replaced by a system of functional management based on specific expertise. Within this system each foreman or manager would only control that aspect of the production process for which the individual had special training and expert knowledge. This specialisation was to be combined with an 'exception' principle in which, at each level of

management, the responsible person would receive information about exceptions to routine but not about everyday performance. Executives were not to be omitted from this specialisation. They were expected to cease involving themselves in those aspects of the daily running of the firm for which they had not been specifically trained and confine themselves to those areas in which they did have a high degree of expertise. (24)

The reorganisation of management practices, Taylor insisted, would enable a much higher degree of efficiency to be attained. It necessarily involved, however, a significant shift in power from the traditional manager to the technician. This attempt to limit the scope of the individual manager's authority alienated many employers and it was strongly resisted even by those capitalists who did make some attempt to reorganise their production methods by utilising Taylor's techniques.

Taylor's conclusion was that this was the greatest problem in organization. These men have been given or have acquired power, they have obtained their positions because of unusual force of character, they are accustomed to directing rather than in being directed, and their managerial methods, as far as they can see, have been successful, so they can see no reason for changing them.(25)

Indeed, Taylor and his supporters found that with few exceptions employers had little interest in the wider aspects of their plans for raising industrial efficiency. Their ignorance and indifference to the introduction of more efficient management methods led them to refuse even to consider the level of investment Taylor's strategy

necessitated. They invariably demanded, moreover, immediate results and refused to countenance the undermining of their traditional prerogatives. As Filipetti succinctly put it;

The . . . points, that time and money needed to be spent to realize the ends sought, were essentials that were not accepted by many of those who started shop reorganization. Too many were impatient for results; too many wanted something for nothing, the very thing that they, themselves, denied anyone had a right to expect.(26)

Capitalists, rather, tended to regard scientific management as merely a technique making the utilisation of incentive wage systems easier and more effective. In short, they equated taylorism merely with time-study and payment by results. Indeed, they even attempted to achieve this aspect of the total plan on the cheap. As time and work study became popular with employers many untrained 'efficiency experts' offered their services on the market. Most of these individuals sold cut-price wage systems that were nothing more than crude attempts to speed up the pace of work while offering the worker little, if anything, in return. The employers' wide use of these bargain priced experts was to make the labour movement even more hostile and resistant to any form of wage system that involved incentives.(27)

The employers' lack of interest in the broader aspects of scientific management was to lead Taylor, in 1911, to urge the public to demand a campaign for national efficiency which would compel the owners of productive resources to rationalise their enterprises.(28) It was his public support, the previous year, for those attempting to begin such a campaign that had brought him international

notoriety almost overnight. In June, 1910 a group of trade associations successfully opposed an application before the Interstate Commerce Commission for an increase in railroad rates on the grounds that the companies applying for the increased rates were inefficient. The railroads had based their application on falling profitability due to the necessity of having to pay higher wages. The trade associations' advocate, Louis Brandeis, with the aid of Taylor and a number of his colleagues, countered this claim by insisting that if the railroads were properly administered along the lines Taylor advocated it would be possible for these firms both to pay higher wages and maintain profitability without the need to raise prices. The skill with which Brandeis presented and publicised the data supplied by the scientific managers amazed Taylor. His admiration was reciprocated and this widely publicised incident, together with the serialisation of The Principles of Scientific Management in 1911 created an efficiency craze that was to become world-wide.(29)

Scientific Management and Worktime

The elimination of effort restriction should be supported by the workers, Taylor insisted, not only because they would receive higher wages but also because they would be able to enjoy improved home and working conditions and because it would enable the time they had to spend at work to be reduced.(30) Taylor was convinced that there were laws governing the relationship between work and fatigue. Though he was unsuccessful in discovering the nature of these laws,

being forced consequently to introduce arbitrary percentages for rest periods into his standard times, he spent many years undertaking research into the relationship between work, time and effort.(31) One aspect of worktime that Taylor did correctly recognise was that workers were often forced to labour for excessively long periods. That as a result much of the workers' capacity to undertake productive work was wasted for it was consumed simply by them having to be at work. Taylor and his associates were aware of the fatigue studies undertaken in Europe towards the end of the 19th century. His collaboration with progressives such as Brandeis, moreover, brought him into close contact with those advocates of the efficiency movement who were campaigning for a legal 8 hour day as a device for protecting the workers' health and as a means for raising the nation's industrial efficiency.

The fatigue researchers argued that the minute subdivision that was increasingly coming to characterise the labour process created in the worker a degree of 'passive fatigue' irrespective of the actual amount of work undertaken.(32) By compelling workers to remain at work for long periods, more of their productive capacity was consumed by this passive fatigue than was necessary.(33) Taylor believed that where such a situation existed the length of time the workers were compelled to labour should be reduced. This curtailment was to be part of a complete systemisation of all aspects of the production process. If this was done, and if intensity levels were raised as the temporal

reduction was progressively introduced it would be possible to thereby discover the balance of time and intensity which was most efficient. That workers might prefer to labour at a more leisurely pace even if this meant they had to remain at work for a longer period Taylor did not consider to be a factor that should prevent the most cost-efficient time schedule being implemented. If the workers did not agree to a new schedule that raised productivity, he suggested, it should be imposed on them.

An example of Taylor's approach to the determination and implementation of optimum work times was his experience at raising the output of women employed to inspect ball-bearings at the Simonds Rolling Machine Company. Taylor reports that in this firm 120 women were employed for 10.5 hours per day inspecting bearings for defects. After conducting a study of this task, he concluded that the working day was too long because of the high degree of concentration and attention that needed to be sustained. He suggested that while there was little physical effort involved in the work, the 'nervous tension' required was too high for a workday of this length. The work, his assistant Sandford E. Thompson reported, was hard on the workers for it was ". . . very confining, and it was difficult to maintain order. . . because they very naturally became tired before the day was done".(34) Taylor concluded that because of the fatigue induced by the long hours much of the workers' labour-time was spent in idleness and gossip. Therefore he suggested to the women that they should have

their workday shortened without a cut in pay. Taylor allowed the workers to vote on this proposition. They did not respond in the way he expected. The women were unanimous that not only did they not want any reduction in the length of time they worked, they wanted none of Taylor's innovations. He responded to this decision by compulsorily shortening the workday while holding wages constant.(35) The first reduction shortened the workday to 9.5 hours and a 5 minute break was introduced in the morning and afternoon. A month later he further reduced the workday to 8.5 hours and extended the breaks to 10 minutes.(36) With each reduction, Taylor reports, the output increased. Indeed, the curtailment in worktime and the heightened supervision, improved organisation, layout, selection and incentives enabled 35 women to do the work previously done by 120.(37)

When reducing the worktime of the women Taylor retained the half-day Saturday so that the workers continued to labour 5.5 days per week. He recommended, moreover, that the women, indeed he suggested all young women workers, should be given 2 consecutive days of rest per month (with pay) to be taken whenever they chose.(38) This worktime aspect of Taylor's research during the 1890s enabled taylorists to argue justifiably that their mentor was a pioneer in this area.

Mr. Taylor was one of the first to recognize and to prove the fact that overlong working hours are not conducive to high output, and that in very many cases hours of work may be sharply decreased to a certain point and output increased simultaneously.(39)

The Response of the Psychologists

If Taylor and his colleagues were aware and interested in the work of those undertaking research into worktime and fatigue this interest was soon reciprocated once scientific management began to spread widely through industry. Taylor's attempts to determine a scientific rule or law that would enable him to calculate the balance of work and rest that would maximise production was seen to be similar, in a number of respects, to the research of those undertaking studies of fatigue and worktime. Similarly, his insistence that all the worker's movements not strictly necessary for the completion of a given task be eliminated appealed to those wishing to eliminate 'useless wasted effort'.(40)

The psychologists, physiologists and economists studying industrial fatigue and its effect on production and the worker found the scientific managers' claim that they were applying science to the study of the labour process particularly exciting.(41) It was this attempt to establish conditions of work which were based on scientific analysis, Muscio observed, that differentiated the scientific managers' means of increasing the output of workers from simple speed-up.(42) Science, it was enthusiastically argued by these researchers, could radically increase the efficiency of the direct producer. If this was done correctly output would be increased and the cost of the work to the worker decreased. They enthused that the possibilities once "... the whole realm of science is brought to the aid of the humblest workman" intoxicated the imagination.(43)

The work of the scientific managers was to influence deeply the major contributors to the study of fatigue and working times. The efforts of Schmidt, the Pennsylvania Dutchman, were to be as widely publicised within the psychology literature as they were in that of the engineers. Indeed, Taylor and his colleagues determined to a large degree the whole direction, scope and nature of the emerging field of industrial psychology. As Baritz noted, they gave the industrial psychologists their purpose, their ethic.

The financial condition of the firm was the ubiquitous criterion of the success of scientific managers, and to an improvement of this condition they gave their attention. Increased efficiency was the goal. The aim was to help industry achieve the ends it defined for itself in the most efficient way. A similar acceptance of the industrialist's ethic became characteristic of industrial psychology as it criticized scientific management for failing to make industry efficient enough.(44)

The industrial psychologists, in other words, did not reject Taylorism, indeed they embraced it. What they were critical of was the degree of scientific rigour displayed by the engineers when considering the 'human factor'. This term referred to "... the degree of capacity and willingness to produce exhibited by any set of human workers".(45)

The capacity and willingness of workers to labour was interesting to these scholars because both factors had been proven to be highly variable. This variability, it was argued, could be manipulated in a manner which would increase output significantly and at the same time improve the lot of the worker. To attain these objectives it was argued that two things were necessary. First, a more

rigorous application of the scientific method to the study of the human factor. This necessarily had to involve the close alliance and collaboration of the industrial psychologists and the scientific managers. If the latter were to achieve their potential, it was insisted, they needed the knowledge only trained psychologists and physiologists could provide. The scientific managers did not have this knowledge and so their work with the human factor lacked any strong scientific base. Muensterberg, for example, accused Taylor of being guilty of "helpless psychological dilettantism" and insisted that it was the psychologists' duty to come to the aid of the engineer.(46) If this were not done, the engineers, precisely because they were engineers who by training were conditioned to work with machinery, would treat the workers as machines.

From his mechanistic standpoint the efficiency engineer expects man to behave like a machine, turning out (ideally) a constant hourly output throughout the working day. The industrial psychologist recognises and investigates the various factors that inevitably enter into, and influence the form of the work curve, and the different play of these various factors, at different times of the day, with different kinds of work, and with different types of worker.(47)

The second factor necessary for the complete development of scientific management's potential, it was argued by the psychologists, was acceptance of the need for integrating the unions and collective bargaining into the systemisation movement. Trade unions, it was argued, could play an important role in convincing workers that they stood to gain by the introduction of science into the

production process. Most importantly they could provide worker cooperation. Trade unions were also necessary, it was suggested, to prevent employers misusing the techniques of scientific management. This was important because, as the psychologists soon observed, the scientific managers all too often did not practise what they preached. Many employers, with the taylorists' cooperation, chose to introduce into the workplace only those aspects of Taylor's programme which were likely to obtain fast results at low cost. Time study, it was observed, was often carried out solely to make the introduction of intensity-increasing incentive schemes possible. In many cases the motion study that was supposed to accompany time study, in order to make the work easier for the worker, was simply not undertaken.(48)

That capitalists would need to be pressured, either by the unions or the state, if they and the workers were to gain the full benefits of scientific management, was argued by Goldmark as early as 1912. She insisted that if this did not occur scientific management would be 'perverted', the human factor would be ignored and the higher wages and reduced work times she believed were so necessary would not be introduced.(49) Her fears, it should be added, were not unwarranted. Most engineers displayed an almost universal unconcern for the effect of their techniques on the worker and had little interest in those aspects of their research pertaining to social justice.

Taylor and the Unions

The taylorists, with few exceptions prior to the First

World War, were hostile and extremely critical of trade unions believing them to be self-seeking bodies opposed to the public good. As Taylor believed he had found the natural laws governing work and production he considered trade union demands that they be given a say as to how the production process should be managed to be 'interference' with these laws and with science.(50)

The animosity felt by the taylorists to the trade union movement was soon reciprocated and, during the five years after 1910, the American unions bitterly fought the introduction of scientific management into the workplace.(51) The basis of labour's opposition, even where employers were willing to pay higher wages for greater intensity of work, was first the de-skilling involved in taylorism which was considered to be dehumanising and was believed to have the capacity to destroy the bargaining power of the skilled worker; and second, the fear that the increased intensity of work would cripple the workers. Extra wages in the short term were not very attractive, it was argued, if the long term consequence was an early death. As Samuel Gompers put it, "science would thus get the most out of you before you are sent to the junkpile".(52) The opposition of the unions was sufficient to induce Congress in 1915 to forbid the use of stopwatches within army workshops. Criticism of taylorism by the skilled unionists, indeed, was so violent ". . . that even the employers who were the most favourable to it dared only experiment in secret for fear of disturbances or strikes".(53)

The War and Scientific Management

In the immediate pre-1917 period the labour movement's resistance to Taylorism led a number of the more liberal scientific managers to begin reappraising their attitudes towards the trade unions.(54) This reappraisal was made easier by the death of Taylor in 1915. It was also aided by the beginnings of a tentative reexamination, by some unions, of what scientific management had to offer. The benefits that systemisation of the production process could bring to the worker in the form of higher wages, improved working conditions and shorter working times appeared very tempting to some union leaders and to many workers. What the unions wanted in return for their cooperation in introducing the new techniques, however, was a say as to how and where they were to be utilised and how the benefits were to be distributed.(55) What they wanted, if they were to have scientific management, in other words, was collective bargaining and the right to retain some control over the production process.

Prior to the First World War, then, there was within the United States a slow, even if weak, convergence of the attitudes of some of the scientific managers and some of the leaders of the trade union movement. This convergence coincided, indeed was partly induced by, a growing awareness on the part of the scientific managers of the validity of many of the criticisms made against them by the industrial psychologists. This was to induce some of the leading

taylorists, most notably Frank and Lillian Gilbreth, to begin taking a much more rigorous approach to the human factor and particularly to the study of fatigue.(56)

The war acted as a tremendous stimulant to the expansion of scientific management. It made it necessary for U.S. industry to maximise production while at the same time it generated an acute labour shortage which strengthened the labour movement. The dilemma caused by these combined factors motivated both the state and many private employers to turn to the taylorists. Most of the leaders of the movement became actively involved in war production and this enabled them to gain a rare opportunity to test and display their techniques on a large scale.(57) The need for maximum production also acted as a dramatic catalyst accelerating the growth of a more harmonious relationship between the trade unions, the scientific managers and the industrial psychologists. The war compelled the leaders of these three groups to work together with the employers and the state on an unprecedented scale. The success of this experience convinced many more of the leading scientific managers that an essential condition for the successful introduction of scientific management into the workplace was the cooperation of the workers. In order to find some means to obtain this consent the Taylor Society, in the immediate post-war period began actively promoting a policy of conciliation and began paying much greater attention to the human factor.(58)

The Waste Issue

At the end of the war the American unions, emboldened by vastly increased numbers, a new found radicalism and low unemployment, unleashed a major campaign to secure what they believed they were due. Through 1919 a massive strike-wave swept across the United States. A major demand of this offensive was the generalisation of the 8-hour day which, it was insisted, should be granted to the workers not only because of what they had contributed during the war but also because the scientific managers and the fatigue researchers had shown that this reform could be had at little or no cost to employer or worker. Why, therefore, the unions demanded to know should it not be had by all? The vehemence of the union campaign was also intensified by their experiences with worktime changes during the war. Their enhanced industrial power together with assistance from the state which had been anxious to maintain war production had enabled the unions in the 1914-1918 period to expand radically the spread of the 8-hour day through American industry. The unions were aware that many employers had responded to these enforced changes by overhauling their management practices and their production methods with the result that any possible detrimental effect on output had been largely offset.(59)

In their campaign the unions made great use of the scientific research into worktime and fatigue undertaken during the war. This information was used both as a

stimulant to activate the militancy of the workers and as an argument to undermine the opposition of the employers. At the First International Labour Conference held in Washington in 1919, for example, Gompers lambasted the employers for their continued refusal to acknowledge the greater efficiency of the 8-hour day. In this attack he abandoned the A.F.L.'s traditional arguments for reduced work times, the rights of the citizen and the spreading of the available work - and stressed the efficiency of the 8-hour standard.

. . . everything being equal, without improved machinery, without any additional driving force or power, a man, working in a factory or any other establishment 8 hours a day will produce more than in another establishment under the same conditions, if the workmen in that establishment work 10 or 12 hours a day.(60)

Production, Gompers further argued, would be enhanced if the shorter day was introduced because employers would then be compelled to rationalise the use of their resources so as to eliminate many of the inefficiencies that existed within the production process. He noted that it was in those industries that had the longest time schedules that the least improvement in technology was to be found and it was those with the shortest times that had the most efficient methods and equipment. Employers had to be made to realise, he insisted, that the longest workday did not necessarily produce the greatest output. They must also be made to realise that the managers as well as the workers needed to have their practices rationalised. In this regard, he said, he endorsed the arguments of the French workers' delegate to the conference who stated,

. . . we wish that at the beginning of its work the conference state explicitly that it has done with that human slavery which binds the laborer to his factory; and that it is no longer the human machine alone which determines production, but also the development of machinery and the rational organization of labor.(61)

The labour delegates to the conference argued that the war had shown that employers left to themselves were not competent to ensure that the nation's resources were used in the most efficient manner. The state, it was pointed out, had been forced to intervene to control production in every nation involved in the war as capitalists had proven inadequate to the task. Now that the war was over it was necessary for all concerned to ensure that employers were not allowed to revert to their old practices. In particular, they should not be allowed simply to concentrate their efforts on driving the workers as the main means of raising output while allowing gross inefficiencies to continue to exist within and between enterprises. Gompers, the following year, was to use this argument as a defence of both the trade union movement and the 8-hour demand. The promotion of the 8-hour day, he insisted, was a demand that should be supported by all for its introduction would be beneficial to the whole society. This included capitalists, for the shorter schedule would compel them to raise the efficiency of their firms and thus their profits would be enhanced.

That the movement of labor to reduce the hours of labor has much to do with the acceleration, with the development of industry that is taking place, no keen observer will dispute. Necessity is said to be the mother of invention. Each successful effort to reduce the hours of labor makes the laborers larger consumers of their product. It brings into

the ranks of the employed thousands previously unemployed, makes of them consumers as well as producers . . . Each such stage and step brings forth the necessity for still further improvement in the means of production - improved machinery. This process is either quickened or lessened in each and every industry in the same ratio as the movements of the workers to reduce the hours of labor is successful or otherwise.(62)

This stress on efficiency and the prevention of waste in the use of resources, including wasted labour-power, was to become a major theme within the propaganda of the U.S. labour movement during the 1920s. In 1919 a resolution was passed by the A.F.L. which called for the greater application of science to industry. In the following year the federation issued a document titled Labor, Its Grievances, Protests and Demands in which it called for closer cooperation between labour and capital to raise output. This document also suggested that if this objective was to be achieved it would be necessary for the engineers and the psychologists to become more actively involved in industry in collaboration with the trade union movement. This call for an alliance between the scientists and the workers was repeated later in the year in a number of other union publications and this policy was actively promoted by many of the leaders of the U.S. labour movement throughout the 1920s. In short, scientific management, with the active support of the Taylor Society, became a weapon which the labour movement could and did use to advance its demands. Taylorism, then, was not simply a tool only of use to the capitalists for raising the rate of exploitation, it was also an instrument that could be and was used by the workers.

Hoover, the State and Rationalisation

In promoting the efficiency issue the unions added weight to the state's campaign for greater national productivity begun during the war. This campaign was continued during the postwar period and its promotion was intensified in the early 1920s, by the most highly-placed exponent of scientific management during this period, Herbert Hoover. This engineer, though he was an ardent supporter of the private ownership of the means of production, recognised that the market was not a mechanism that was capable of ensuring that the society's resources were utilised with maximum productiveness. He believed, consequently, that the state had a crucial role to play within the production process. For Hoover, however, this did not mean the state should control or even regulate industry. He was vehemently opposed to direct state intervention of this nature. Rather, what he argued was that the state should adopt policies that limited the power of monopolies and that enhanced the capacity of the market to raise the level of productivity within industry. While Secretary of Commerce during the 1920s his strategy for achieving this latter objective involved the establishment of bodies, both public and private, which collated and disseminated statistical and scientific information which both enhanced employers' awareness and aided their realisation of the tremendous possibilities that existed for the more efficient utilisation of the firm's resources. As Shannon has put it, Hoover believed that the ". . . business of American

government is to help business by showing it how to rationalize itself".(63) In short, Hoover strove to overcome the shortsightedness of employers as regards X-inefficiencies which he believed was the greatest barrier to heightened industrial efficiency. To achieve this objective he campaigned both to extend the degree to which taylorism was utilised within the United States and to expand the breadth of its application. On issues such as standardisation, product simplification and the regulation of production to offset the trade cycle, Hoover's department was to take taylorism out of the workshop and apply it at the industry and even the national level.(64)

Hoover's attempts at broadening the application of taylorism pre-dated his appointment to the Department of Commerce. In November, 1920, he used his position as President of the Federated American Engineering Societies to commission a study which aimed to discover the major causes of industrial inefficiency within the United States.(65) Responsibility for undertaking this research he delegated to a committee made up of seventeen individuals, the great majority of whom were taylorists. Hoover was to claim the subsequent report, Waste in Industry, was a major step forward in the transition of scientific management from its pre-war devotion to the minutiae of shop and office routine ". . . to broad questions of policy-making".(66) The committee defined waste as the difference between the average efficiency of firms within an industry and the most efficient firms in the same class. In other words, waste

involved that output which could be produced with the resources and scientific knowledge that already existed, but which was not, because of the existence of X-inefficiencies. It was concluded that although the United States was leading the world in the rationalisation of the production process there was still tremendous potential to raise further the general level of efficiency. The conclusion of the committee that elicited the greatest interest from all sections of society, and from capitalists the greatest hostility, was the claim that poor management was responsible for over half the existing waste while inefficiency attributable to the workers was less than 25 per cent and that even this percentage was largely the result of workers' justifiable fears of how management would respond if productivity was to rise.(67)

The major causes of lost production, the waste report argued, were (1) faulty production control, (2) faulty materials control, (3) lack of cost control, (4) faulty design control, (5) faulty sales policies, (6) faulty labour control, (7) ineffective workmanship, (8) lack of research. The study examined six major industries and it castigated the established management practices in all of them. Its generalisations about conditions in the clothing industry were fairly typical.

From shop records it is found that the average loss in clothing factories during running time, not including shut downs, is between 30 and 35 per cent . . . It is found that at least ten hours per week per man is thrown away on energy-wasting and time wasting work resulting from lack of shop methods, while an additional two or three hours per man per

week are wasted in unnecessary work.

Fixing the value of annual output in the men's ready-made clothing industry at \$600,000,000 it should be relatively easy to save three-quarters of a million dollars a day, an increase of 40 per cent in effectiveness.(68)

The hostility displayed by the majority of employers to this indictment of their management practices was exceeded the following year when the results of a second major study commissioned by Hoover were published. This latter report was an investigation of the 12-hour day in continuous industries. The study was again undertaken by men closely allied with the scientific management movement.(69) Their report argued that the introduction of an 8-hour day, which capitalists in the steel industry had been vehemently and savagely opposing, was not only practical but was advantageous to all concerned. Those plants that had introduced this schedule, it was reported, had experienced little or no increase in costs. Indeed, some enterprises had registered individual efficiency gains of 25 per cent or more following the introduction of the shorter schedule. Great improvements, moreover, it was claimed, were clearly obvious in the quality of the workers' labour-time and in their general morale. The two major factors making possible these results, it was claimed, were the improved health of the workers as evidenced by reduced turnover and absenteeism and improved management.(70)

If the employers as a whole found Hoover's two studies offensive and abhorrent the trade unions hailed them with delight. The taylorists' conclusions that poor management

was the major cause of low productivity and that reductions in worktime could increase output were widely publicised by the unions and used by them as weapons to agitate the workers and to counter arguments that employers could not afford to pay higher wages or grant reduced working times. These reports were to be particularly useful in opposing employer arguments that the 12-hour day could not be abolished in continuous industry. Using the reports union leaders also attacked employers in general for their 'rule of thumb' methods. Increasingly they were to exhort capitalists ". . . to analyze production costs, to practise managerial economy, and make "intelligent efforts to eliminate waste and to establish more efficient methods"".(71) Rubbing salt into the employers' wounds they also declared they were eager to cooperate with management to remove the waste the latter's incompetence had caused.

The conviction of the Taylorists that the 'indifference of management' was the key obstacle to greater national efficiency was certainly justified, given that the ideas and methods developed by these scholars which were to revolutionise the production process had been widely known and available for over two decades. It needed the massive stimulus of war and the associated shortage of labour-power and state intervention in the production process to impel any significant number of U.S. capitalists to take the steps necessary to begin realising the potential offered by scientific management. For a significant number of firms, however, the war did have this effect and the post-war

competition generated by these leaders in the field together with fear of unionism, a shortage of skilled labour and state encouragement proved an adequate substitute impelling U.S. capitalists to either continue the rationalisation process or shift to areas, notably the southern states, where these pressures were less intense and traditional management practices could still be profitably maintained.

In the years following the war, there was an enormous expansion in the number of firms utilising the techniques of the scientific managers. During the 1920s this movement developed into an efficiency craze, with firms across the nation achieving tremendous successes in eliminating waste and raising productivity.(72) This movement to rationalise the use of the firm's resources was accompanied by the greater monopolisation and mechanisation of industry. In short the growth of monopoly which had given birth to scientific management was massively restimulated as firms amalgamated in order to take advantage of the possibilities offered by the rationalisers.(73) These developments had a tremendous effect on U.S. industry. Most importantly, the radically improved utilisation and cheapening of resources that taylorism made possible acted as a new massive counter-weight to the rising organic composition of capital and the associated tendency for the rate of profit to fall that had characterised U. S. capitalism for the previous forty years.(74) With the easing of the 1920-1922 depression profits within the U.S. began to rise radically. Over the next seven years the American economy, and particularly the

manufacturing and agricultural sectors, expanded radically and the return on investments grew phenomenally. Profits of industrial corporations increased at an average rate of 9 per cent during the years 1923-1927 and the annual return to shareholders rose during the 1923-1929 period from \$3 billion to \$6.3 billion, an increase of 110 per cent.(75)

Through the 1920s then scientific management proved, within the U.S., to have tremendous capacity to offset the tendency for the rate of profit to fall. By allowing the more efficient utilisation of resources it could generate tremendous increases in productivity without invoking Marx's 'general' source of crisis, i.e. the tendency for the share of invested capital utilised in the purchase of machinery and raw materials to rise relative to that utilised for the purchase of labour-power. In this regard it was not merely another Kondratieff type technical innovation. In raising the rate of profit, however, scientific management in the 1920s also created the conditions which, at the end of the decade, were to generate a massive crisis of realisation. In short, taylorism offered a powerful new method for offsetting the fall in the rate of profit engendered by the rising organic composition of capital. But, as applied during the twenties, it did not resolve the problem of how sufficient demand was to be generated to ensure the greater mass of goods produced could be sold and the profits, effectively reinvested. The hostility to direct government intervention in the economy that was maintained by politicians such as Hoover, by the

vast majority of capitalists and the economists proved a major calamity when the crisis struck the United States in 1929. It required the depression to convince the bourgeoisie and their ideologues of the need to expand the application of rationalisation to the level where manipulation of demand conditions on a national scale, in a word keynesianism, could be accepted.

Taylorism and Class Conciliation

Taylor had argued that his primary objective when developing scientific management was the removal of the primary 'cause for antagonism' between the two major classes. He believed that by raising the return each gained from the production process to a much higher level both classes would tend to become more satisfied with their lot. His claim that scientific management could achieve this objective was not to be entirely validated. Conflict between capitalist and worker over the distribution of the society's wealth has continued to characterise industrial relations throughout the 20th century. Taylor's belief in the conciliatory power of high wages and profits, however, was not totally unjustified. While it did not remove the cause for antagonism between the classes, taylorism's capacity to raise wages and the rate of profit has proven a powerful force moderating the intensity of this antagonism.

The years following the 1920-1922 depression saw an abrupt and dramatic easing of overt conflict between the classes within the U.S.A. The primary reason for this lay in the fact that those who managed to retain a job experienced

steadily rising real incomes largely as a result of the new taylorist wage and industrial policies widely adopted by employers. The National Industrial Conference Board has reported that real income of wage earners in manufacturing in 1929 was 40 per cent higher than it had been in 1914, in electric works 38 per cent, in gas works 33 per cent and on the railroads 30 per cent.(76)

The capacity of this increased income to moderate industrial conflict was made greater by the fact that the growth in real wages was particularly high amongst skilled workers. Differentials based on skill widened considerably through the decade.(77) This latter development was crucial because the manual sector of the skilled working class constituted the backbone of the U.S. labour movement. These workers had been able to organise effectively because the availability of their particular type of labour-power was in limited supply and consequently their capacity to resist the demands of capital was not so easily crushed as was that of the mass of unskilled workers.

With their incomes rising rapidly the skilled workers soon lost interest in industrial militancy and class politics. During the 1920-1922 depression a major anti-union offensive was launched by the employers which decimated the ranks of those trade unions covering unskilled workers. As the crisis eased, many capitalists, because they feared the revival of unionism, began introducing 'welfare' schemes which removed many sources of conflict.(78) At the same time

they successfully enlisted the aid of the state and particularly the courts to undermine the ability of the unions to organise or utilise their traditional methods of struggle. The consequences of applying this combination of high rewards for those with jobs and particularly for those effectively able to organise and brutal suppression of the weaker sections of the working class who attempted to resist the demands of capital resulted in a dramatic reduction in the level of overt industrial conflict.(79) This tendency was accentuated, it needs to be added, by growing employer interest and union enthusiasm for the schemes put forward by the taylorists for the regulating of industrial disputation through the establishment of structured grievance procedures and collective bargaining.

The Continued Need for Unionism

The wide adoption of the wage and personnel policies of the rationalisers led many observers, within the U.S., to suggest that trade unions were redundant. Capitalists, it was insisted by many enthusiasts, had at last come to realise that the Doctrine of High Wages was valid. It was claimed that they now accepted the rationalisers' arguments that the paying of high wages and the granting of reduced work times were not necessarily incompatible with high profits if these practices led to higher productivity. These conclusions had some validity in that the new policies did result in the wages of even the unskilled and unorganised workers tending to rise, albeit at a much slower rate than the growth of productivity and profits.(80) The

capacity of skilled workers to raise their wages to a much greater extent, however, showed that there were severe limits on the extent to which these claims were justified. Bernstein reports that between 1921 and 1926 the leaders of U.S. industry drastically overhauled their philosophical approach to high wages and industrial reform. He also reports that this apparent conversion was largely ". . . an exercise in verbal gymnastics".(81) In short, capitalists still needed the pressure of some external force to motivate them to convert their propaganda into practice.

This need for external pressure was necessary even in the case of the most innovative of the bourgeoisie. The need was evidenced, for example, by the approach of Henry Ford to the rationalisation of worktime. In 1914 Ford had introduced the endless chain conveyor for final assembly of motor vehicles into his major plants. This method of producing cars, within three months of its implementation, reduced the assembly time for the Ford Model T to one-tenth of the time previously required. The much faster rate of production was brought about partly because the new technology was more efficient in terms of the ratio of physical inputs to physical outputs. It was also the result of a great heightening of the level of work intensity. This technology gave to the employer much greater technical control over effort standards. The idea that machines could be used as tools for social control was a major element of Taylor's philosophy of organisation.(82) It was Ford, however, who took up and fully developed this element of Taylorism.

Taylor's system relied on written records, and the use of management experts for planning, coordination, and experimentation; Ford's assembly line was a nonverbal process in which the timing of the production process was built into the speed of the line; the organization of the work process between machines was invested in the design of the line itself.(83)

The technical form of control involved in mass-production, however, was in itself insufficient as a means of intensifying the labour process. For its full value to be realised it was necessary for the workers to be either unable or unwilling to resist the demand for an increased pace of work. Failure to appreciate the importance of this factor led Ford to make a serious error when introducing his modifications to the production process. He attempted to shift effort norms radically upward without offering the workers any compensating payment at a time when they could resist because they had alternatives. In order to cut costs he did away with incentive pay and attempted to maintain a high level of work intensity by the use of closer supervision. Wages in his enterprises were frozen at \$2.34 a day, the standard rate of pay for the area. The problem for Ford was that the workers in his plants, while not organised, were in a position to rebel. Other jobs paying similar wages but demanding less daily effort were plentiful in the area. Consequently, the workers responded to Ford's action by deserting the company. With the introduction of the production line, Sward has reported, the ranks of Ford's workforce fell apart.(84) Ford was to admit later that his innovations at this time brought on the outstanding labour

crisis of his career. He had a vast factory but not the workers to run it. The company had poured virtually all its innovative efforts into equipment and materials and all but ignored the fact that unless workers can be compelled or induced to submit to the assembly line it is unworkable.(85) Given the low level of unemployment, they had to be offered some inducement that would motivate them to endure the level of work intensity demanded.

Ford responded to this crisis by announcing, with great fanfare, that he was introducing an 8-hour day into his plants and that he was willing to pay those workers who remained in his employ for a sustained period \$5.00 a day. These dramatic changes in wages and conditions in one stroke eliminated Ford's labour supply problem. He later claimed that the introduction of the \$5.00, 8-hour day "... was one of the finest cost-cutting moves we ever made".(86) In short Ford had discovered the validity of the doctrine of high wages.

Ford's innovative strategy was extremely effective as a means of ensuring an adequate supply of high quality labour-power. The very nature of the capitalist market, however, ensured that this advantage was sustained for only a limited period. Ford's competitors were similarly compelled to overhaul their methods of production in order to compete. Thus Ford, by the competitive advantage he obtained, forced the production line on to his competitors who, in turn, by adopting this method of production effectively eliminated the relative advantage Ford had gained by being innovative.

His novel approach to the wage-effort bargain, however, was far from exhausted.

In 1926 Ford shocked American industrialists and trade unionists by choosing to introduce a 5-day, 40-hour week into his plants. Ford was not the first large U.S. capitalist to introduce this schedule but no other had applied it on the scale he did. Following the announcement of the new schedule's implementation, Ford was lauded by the leaders of organised labour and attacked by most major industrialists as a class traitor.(87) Despite the criticisms of his peers the schedule he introduced in 1926 was to become the model adopted by most rationalised industries within the United States over the next decade. By the end of the 1930s it was to receive the force of law at least partly because other capitalists studied Ford's experience and realised the benefits of the shorter week.(88)

While not denying that Ford had tremendous innovative capacities he should not be given all credit for introducing the new schedule. Sward reports that Ford took this step to offset a planned unionisation drive within the automobile industry and to offset possible industrial trouble caused by the necessity of having to retrench tens of thousands of workers while re-tooling for the Model A.(89) Ford, moreover, had been provided with extensive assistance from the state in that his plant in Detroit had been the 8-hour factory Florence had utilised in a state-funded study of the advantages of an 8-hour day.(90) The company management was also well aware, from personal

experience, that it was possible to reduce the workweek to 5 days without reducing output. During the 1920-1922 depression Ford had been compelled to close down his plants. Prior to the close-down he had reduced his workforce by 4,000 and instituted a 5-day week as a means to spread the available work. The fear of unemployment, however, enabled the management to extract from this smaller number of workers as much work as the greater number of workers had undertaken in six days. Output levels, Nevins and Hill report, were held constant during the shorter week.(91)

Having decided to introduce the 5-day week Ford became very vocal in his own praise. He reacted indignantly to any suggestion that his reform had been introduced as a measure of philanthropy. It was introduced in order to cut costs. He also became highly critical of those industrialists and economists who continued to insist that a curtailment of work times necessarily involved a reduction in output. He castigated German employers, for example, for taking back from the workers the 8-hour day they had won at the end of the First World War.

The hours of the labor day were increased in Germany under the delusion that thus the production might be increased. It is quite possibly being decreased. With the decrease of the length of the working-day in the United States an increase of production has come, because better methods of disposing of men's time have been accompanied by better methods of disposing of their energy.(92)

Ford had, in other words, no illusions that the introduction of shorter work times was a manifestation of the workers' desire for leisure rather than for greater income. On this

issue this capitalist had a much better understanding of economics than those in the universities who teach the subject as an academic exercise.

The hours of labor are regulated by the organization of work and by nothing else. It is the rise of the great corporation with its ability to use power, to use accurately designed machinery, and generally to lessen the wastes in time, material, and human energy that made it possible to bring in the 8-hour day.(93)

If so innovative an entrepreneur as Ford needed to be pressured by an acute shortage of labour-power or fear of the unions before he would introduce rationalised work times the overwhelming majority of capitalists required a good deal more pressure. When Ford introduced the 5-day week he was denounced by his peers. Bernstein reports that American employers, with few exceptions were not at all impressed by the arguments of the taylorists and the trade unions that productivity might be improved if working times were reduced.(94) Both the National Association of Manufacturers and the Chamber of Commerce vigorously opposed the reduction in standard times below 48 hours throughout the 1920s. Indeed, during the decade, working times actually increased for those workers on shorter schedules. The percentage of employees labouring 48 hours or less declined from 48.7 to 45.5 per cent between 1920 and 1929.(95) What reduction in standard times did occur tended to be in industries where excessively long schedules were maintained, most notably in the steel industry, and in those sectors where the labour movement had sufficient power to compel capitalists to take heed of their argument. With the 5-day

week, for example, few employers chose to follow Ford's lead. Where his action did strike a positive response, however, was in the labour movement. Ford announced the introduction of the new schedule only a few days before the A.F.L.'s national convention. This action, Laue reports, staggered the delegates and transformed the question of the 5-day week from a vague and sporadic demand of some of the affiliated unions into a national movement. Laue suggests that it ". . . charged the whole subject with the live current of immediate and concrete possibilities".(96) In short, the unions asked if this capitalist could rationalise his production methods in a manner that made the reduced schedule possible why could not all others.

The limited coverage of the A.F.L. meant that it could not compel the introduction of the 5-day week in most industries. Workers in the highly-unionised building industry, however, were able to insist on its adoption to a significant degree. By 1930 55.5 per cent of building workers were labouring a standard 5-day week.(97) Union pressure and Ford's example also induced a significant minority of manufacturers to experiment with this schedule.(98) The National Industrial Conference Board reported that 270 establishments employing 418,700 workers had adopted the 40-hour week by 1928.(99) This willingness to display a little entrepreneurial talent, however, was far beyond the capacity of most capitalists. By 1930 only 5.6 per cent of workers had attained the 40-hour standard.

The crisis of the 1930s depression was to change this situation radically.

The Depression, Rationalisation and Worktime

The important point to heed, if one is to comprehend the significance of taylorism for both the labour movement and for society as a whole, was not so much that it was a double-edged sword of use to both workers and capitalists, or that even entrepreneurs such as Ford needed to be pressured into introducing the wage and worktime policies of the rationalisers. Rather, what is of greatest significance is the fact that because taylorism reversed the tendency for the rate of profit to fall, capitalists could be so pressured. During the 1920s the American capitalist had a decidedly fragmented outlook as regards the labour movement.

He was not sure whether to crush organized labor under the American Plan or to woo the worker with welfare capitalism. He did not know whether it was better to seek discord or concord.(100)

The great value of taylorism was that it made this choice possible. The rationalisation of the production process enabled the generation of profit levels that made it possible to pay workers a wage that was sufficient to buy their cooperation. Likewise with worktime, the taylorists' importance lay in showing capitalists how it was possible to make concessions, when pressured, which did not have to involve an undermining of the profitability of their enterprises.

The importance of profit rates in promoting cooperation and conciliation between the classes was evidenced during

the 1920s both in those industries where increased profitability allowed a conciliatory relationship to develop, as with automobile production, and in those such as coal-mining where a structural crisis caused profits to fall so low the owners of the mines could not afford to buy cooperation and consequently turned to the use of thugs, scabs and guns in order to crush a highly-organised and militant labour force. (101)

The importance of the rate of profit and the limited nature of the conciliatory powers of taylorism was also evidenced by the savage offensive launched against the workers by the bourgeoisie during the 1930's depression.(102) Through 1930-1931 President Hoover tried desperately to overcome this problem by continuing to promote the doctrine of high wages and by urging employers not to cut wage rates. His pleas were to receive a degree of support at first, at least from the monopoly sector, but as the crisis deepened and profitability collapsed wage cuts, lay-offs, speed-up and reductions in the length of time workers were allowed to labour became the order of the day.(103)

The depression brought about an aggregate reduction of basic working times, within the United States, of approximately 20 per cent.(104) Capitalists used their greater power during the worst years of the crisis to foist as much of its cost on to the workers as was possible. One way by which this was done was to divide what work was

available amongst as many workers as possible. This tactic minimised the numbers of those with no work and enabled employers to pressure those who were hired to speed-up their efforts radically during the time they did work.(105) The work-sharing movement spread widely across the U.S.A. during the 1930-1932 period. By March, 1932, 56.1 per cent of all workers and 63 per cent of those in manufacturing were employed part-time.(106) Through 1932, however, the spread of the movement eased and during the first half of 1933 there was a clear tendency for employers to return to more normal standards. As the worst of the crisis began to pass many capitalists chose to increase the length of time their employees laboured rather than take on extra staff.(107) This tendency, at a time when there were still 15 million unemployed, and the working class was beginning to show clear signs of being eager to take advantage of any revival in its economic strength, compelled the U.S. state to intervene in order to ensure what work was available continued to be shared amongst as many workers as possible.(108) In June, 1933, the Roosevelt administration enacted the National Industrial Recovery Act. This bill established codes of fair competition for various industries, the codes invariably including a maximum limit on the length of the workweek.(109)

Congressional support for the N.R.A. was based on fear of the consequences of continued mass unemployment and on the assumption that reduced work times and higher wages would

spread employment and stimulate the economy by raising purchasing power. It also reflected the new found support of the A.F.L. for state regulation of standard work times and wages as a means to counter underconsumption(110) and, more importantly, it reflected the fact that a small but powerful section of the bourgeoisie stood to gain if legal national standards for wages and work times were enacted. There was a clear and significant difference between the extent to which the worktime and wage provisions of the codes affected the large, rationalised corporations and the non-rationalised firms using pre-taylorist methods of production. Many large industrialists consequently strongly supported these aspects of the Government's legislation.(111) Basically this was done because it was not going to cost them a great deal. It was their competitors whose operations were based on low wages and long time schedules who would be the ones who were to pay the cost of keeping unemployment to a minimum.

By 1932, the Bureau of Labor Statistics reports, 5.4 per cent of establishments employing 8.4 per cent of all employees had permanently instituted a 5-day week.(112) These figures understate the extent to which the reduced schedule had been introduced in that they did not include those firms which had adopted a 40-hour week with some expectation of retaining it on a permanent basis but had not yet decided definitely. Also omitted was the building industry where 90 per cent of many trades were working the 5-day schedule on a permanent basis.(113) Within manufacturing, 7.8 per cent of all establishments employing

12.3 per cent of the workforce had also instituted this standard by 1932.(114) For these capitalists a compulsory 40-hour standard was no hardship whatsoever. Its imposition on the non-rationalised sector of industry, on the other hand, would eliminate many of these firms or at least compel them to absorb some of the unemployed while they feverishly attempted to introduce production methods that would enable them to compete under the new conditions.

The N.R.A. codes covered two thirds of the total workforce of the U.S.A. and approximately 50 per cent of them had 40 hour maxima. When the N.R.A. was declared unconstitutional in 1935 there was a tendency for many employers to begin extending the length of the workweek. By this stage, however, the administration had become even more favourably inclined to a permanent curtailment of standard times. In promoting this policy the Government gained new found support from those many employers who, during the period of crisis, had been compelled to rationalise their production methods. That the N.R.A. codes stimulated non-rationalised firms to vigorously apply taylorist methods within their enterprises was attested by the Department of Labor at the end of 1939. The cost associated with the higher wages and the shorter week, it was reported, proved much less than was expected. This was primarily because of the greater ". . . utilization of improved machinery, better arrangement of processes and application of skilled labor and the more adequate scheduling of the flow of production and better selection of

raw materials".(115) Forced to rationalise their enterprises in order to survive under a compulsory 5-day week, a preponderant number of employers found that the aggregate effect of introducing this schedule was a considerable increase in efficiency and a saving in costs.(116) This result, together with the rising militancy of the working class, produced a wide acceptance of the viability of a permanent 40-hour national standard. The Congress accordingly was able to pass the Walsh-Healey Act and in 1938 the Fair Labor Standards Act. The second of these two bills made the 40-hour week the standard beyond which wages would have to be paid at penalty rates. Marx's belief that it would require a divided ruling class if worktime norms were to be reduced and Goldmark's conviction that it would need the application of state or trade union pressure if employers were to be motivated to rationalise their enterprises were thus both justified.(117)

NOTES

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5. E. J. Hobsbawm, 'Custom, Wages and Work-load in Nineteenth Century Industry', op cit, pp 356-363.
6. J. K. Loudon and J. Wayne Deegan, Wage Incentives, (2nd ed), John Wiley and Sons, New York, 1959, pp 3-4.
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12. Edwin T. Layton, The Revolt of the Engineers. Social Responsibility and the American Engineering Profession,

- Case Western Reserve University, Cleveland, 1971, p. 135. See also Rosita S. Chen, Frederick W. Taylor and the Evolution of Standard Overhead Costing, Working Paper No. 42, School of business, Virginia Commonwealth University, Richmond, Virginia, 1980.
13. Peter F. Meiksins, 'Scientific Management and Class Relations. A Dissenting View', Theory and Society, Vol. 13, No. 2, 1984, p. 181.
 14. F. W. Taylor, 'Special House Committee to Investigate the Taylor and Other Systems of Shop Management', in Scientific Management, Harper and Bros., New York, 1947, p. 42.
 15. Ibid, p. 40. See also F. W. Taylor, 'Shop Management', in Transactions of the American Society of Mechanical Engineers, Vol. 24, 1903, p.1343.
 16. F. W. Taylor, 'Shop Management', op cit, p.1348-1349.
 17. Ibid, p. 1349.
 18. F. W. Taylor to R. P. Linderman, published in Frank Barkley Copley, Frederick W. Taylor. Father of Scientific Management, 2 vols., Augustus M. Kelly, New York, 1969, Vol. 2, p. 13.
 19. Michael J. Jucius, 'The Use of Wage Incentives in Industry with Particular Reference to the Chicago Area', The Journal of Business, Vol. 5, No. 1, 1932, pp 78-79.
 20. David Macarov, Worker Productivity. Myths and Reality, Sage Publications, Beverley Hills, 1982, pp 91, 167.
 21. Ibid, p. 119.
 22. Ibid, p. 70.
 23. F.W. Taylor, 'Shop Management', op cit, pp1340-1343.
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 24. Edwin Layton, op cit, p. 139.
 25. George Filipetti, op cit, p. 35.
 26. Ibid, p. 34.
 27. J. K. Loudon and J. Wayne Deegan, op cit, pp 3-13.
 28. F. W. Taylor, The Principles of Scientific Management, Harper and Bros., New York, 1917, pp 5-8.
 29. Daniel Nelson, Frederick W. Taylor and the Rise of Scientific Management, University of Wisconsin Press, Madison, 1980, pp 174-175.
 30. F. W. Taylor, 'The Principles of Scientific Management', op cit, p. 15.
 31. Edwin Layton, 'The Diffusion of Scientific Management and Mass Production from the U.S. in the Twentieth Century', Proceedings of the 14th International Congress of the History of Science, No. 4, Tokyo, 1974, p. 378.
 32. Josephine Goldmark, Fatigue and Efficiency; A Study in Industry, Russell Sage Foundation, 1919, p. 164.
 33. Vernon has explained this concept by the use of a hypothetical example in which he assumed that the average worker began the day with 12 units of energy all of which could be utilised as labour without the

worker becoming over-fatigued. Of these 12 units, he suggested, probably 2 units would be consumed by the essential household duties and travelling necessary to maintain a normal life. This would leave 10 units of capacity. Assuming, he went on to ask, the workers are willing to transform this full capacity into labour, how could these units be used to the best advantage? A good deal of the workers' energy would be expended by them even if they were to stand idly all day in the workplace. Noise, inefficient ventilation and the physical effort of standing would account for a large percentage of their capacity. For argument's sake he assumed these factors used up half a unit per hour. If this was the case, then in a 10-hour day the workers would have 5 of their 10 units thus consumed. This would leave 5 units to be put into productive work. In an 8-hour day, on the other hand, only 4 units would be consumed unproductively, leaving 6 units for active work. Thus output could be greater in the shorter time. Vernon was aware that there must be limits to this relationship. He recognised that there was another factor operating in the opposite direction. This was the increased rate at which the workers' capacity to labour was used up as the intensity of the work rose.

Supposing it needs 1 unit of energy to produce 1 article in an hour, it does not need only 2 units of energy to produce 2 articles in the hour, but distinctly more than 2 units. The greater the speed of production, the relatively greater the call upon the physical energies of the body.

At some point the increasing efficiency in the use of labour-time arising from the decrease in the length of time worked will be equal to the increasing inefficiency arising from the greater intensification. The point where these two tendencies are in equilibrium is the optimum worktime in that it maximises the quantity of labour-power that it is possible to convert into active productive labour. See H. M. Vernon, 'Industrial Fatigue and Efficiency', op cit, pp 47-48.

34. Stanford E. Thompson, 'The Effect of Shorter Hours on Labor', Taylor Papers, cited by Daniel Nelson, op cit, pp 73-74.
35. F. W. Taylor, 'The Principles of Scientific Management', op cit, pp 86-88.
36. Daniel Nelson, op cit, pp 73-74.
37. F. W. Taylor, 'The Principles of Scientific Management', op cit, p. 95.
38. Ibid, p. 96.
39. H. H. Farquar, 'Positive Contributions of Scientific Management', in Edward Eyre Hunt (ed), Scientific Management Since Taylor. A Collection of Authoritative Papers, McGraw-Hill Book Co., New York, 1924, p. 40.
40. C. S. Myers, Mind and Work. The Psychological Factors

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 42. Bernard Muscio, Lectures on Industrial Psychology, Angus and Robertson, Sydney, 1917, pp 37, 164-165.
 43. J. Goldmark, op cit, pp 192-199.
 44. Loren Baritz, The Servants of Power. A History of the Use of Social Science in American Industry, Wesleyan University Press, Connecticut, 1960, p. 31.
 45. P. S. Florence, 'Economics of Fatigue and Unrest', op cit, p. 97.
 46. Hugo Muensterberg, op cit, p. 56. See also Eric Farmer, 'The Economy of Human Effort in Industry', Occupational Psychology, Vol. 1, No. 1, 1923, pp 18-22.
 47. Charles S. Myers, 'The Efficiency Engineer and the Industrial Psychologist', Occupational Psychology, Vol. 1, No. 5, 1923, p. 171.
 48. P. S. Florence, 'Economics of Fatigue and Unrest', op cit, pp 93-94.
 49. J. Goldmark, op cit, pp 209-210. See also J. R. Commons, 'Organized Labor's Attitude Toward Industrial Efficiency', The American Economic Review, Vol. 1, No. 3, 1911, pp 463-472.
 50. Daniel Nelson, op cit, pp 189-193. See also F. W. Taylor, 'Shop Management', op cit, pp 1448-1450.
 51. Milton J. Nadworny, Scientific Management and the Unions 1900-1932. A Historical Analysis, Harvard University Press, 1955, pp 48-67. Jean Trepp McKelvey, AFL Attitudes Toward Production 1900-1932, Cornell University, New York, 1952, pp 12-26. The major objections put forward by the unions have been detailed by H. F. Hoxie in his work, Scientific Management and Labor, Appleton, New York, 1916.
 52. Samuel Gompers, 'Machinery to Perfect the Human Machine', Federationist, Vol. 18, Feb., 1911, p. 117.
 53. Paul Devinat, 'The American Labour Movement and Scientific Management', International Labour Review, Vol. 13, No. 4, 1926, p. 466.
 54. Milton J. Nadworny, op cit, pp 97-121. Jean Trepp McKelvey, op cit, pp 21-26.
 55. Jean Trepp McKelvey, op cit, p. 21.
 56. See F. B. Gilbreth and Lilian Gilbreth, Fatigue Study, Sturgis and Walton, New York, 1916, and L. M. Gilbreth, The Psychology of Management, Sturgis and Walton, New York, 1914.
 57. Jean Trepp McKelvey, op cit, pp 27-42. Milton J. Nadworny, op cit, pp 103-104.
 58. Paul Devinat, op cit, pp 468-469. This sympathy with

- the rights of labour should not be overstated. Such attitudes were held only by a minority of engineers. The vast majority maintained their all but total allegiance to capital, continuing to use their skills to enhance the power of the corporation over the worker. Indeed, through the 1920s and 1930s there was a clear tendency for many within the profession to become closely allied with reactionary and fascist social policies.
59. National Industrial Conference Board, Practical Experience with the Work Week of Forty-eight Hours or Less, Research Report No. 32, New York, December 1920, pp 10-11.
 60. International Labour Conference, First Annual Meeting, (The Washington Convention), Washington, 1919. p. 45. For an outline of the American labour movement's more traditional arguments see; Samuel Gompers, Eight Hours, American Federation of Labor, Washington, undated. George Gunton, The Economic and Social Importance of the Eight-Hour Movement, American Federation of Labor, Washington, 1889. Harry A. Millis and Royal E. Montgomery, Labor's Progress and some Basic Labor Problems, McGraw-Hill Book Co., New York, 1938, pp 488-497. Marion C. Cahill, Shorter Hours. A Study of the Movement Since the Civil War, AMS Press, New York, 1968, pp 31-58.
 61. International Labour Conference, op cit, p.42.
 62. Samuel Gompers, The Eight-Hour Workday. Its Inauguration, Enforcement, and Influences, American Federation of Labor, Washington, undated, pp 7-8.
 63. David A. Shannon, Between the Wars: America, 1919-1941, Houghton Mifflin Co., Boston, 1965, p. 39.
 64. Evan B. Metcalf, 'Secretary Hoover and the Emergence of Macroeconomic Management', Business History Review, Vol. 49, No. 1, 1975, p. 61.
 65. Ibid, pp 64-66.
 66. Ibid, p. 64.
 67. Committee on Elimination of Waste in Industry of the Federated American Engineering Societies, Waste in Industry, McGraw-Hill Book Co., Washington, 1921, pp 8-10.
 68. Ibid, pp 12-13.
 69. Committee on Work Periods in Continuous Industry, The Twelve-Hour Shift in Industry, McGraw-Hill Book Co., New York, 1922, pp 3-4.
 70. Ibid, p. 290.
 71. Milton J. Nadworny, op cit, p. 121. The employers' hostility to these two reports was to lead them to take active steps to end the progressive movement within the engineering profession. This was to lead to the virtual collapse of the Federated American Engineering Societies. See Edwin Layton, 'The Revolt of the Engineers', op cit, p. 205.
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76. National Industrial Conference Board, Wages in the United States, 1914-1929, N.I.C.B. Inc., New York, 1930, p. 204.
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83. Ibid, p. 95.
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 89. Keith Sward, op cit, p. 177.
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 96. Charles Laue, op cit, p. 1. For material on the state of U.S. work times when Ford made his announcement see, International Labour Office, Hours of Labour in Industry. United States, Geneva, 1925.
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 106. Harry A. Millis and Royal E. Montgomery, op cit, p. 477.
 107. Alice Olenin and Thomas F. Corcoran, Hours and Earnings in the United States 1932-1940, U.S. Department of Labor, Bul. No.697, U.S. Govt. Printing Office, 1942. See also International Labour Office, 'Hours of Work in the United States', International Labour Review, Vol. 40, No. 2, 1939, p. 239.
 108. For a history of the working class revival and subsequent offensive see Irving Bernstein, Turbulent Years. A History of the American Worker, 1933-1941, Houghton Mifflin Co., Boston, 1970.
 109. Roosevelt and a number of his close associates such as Secretary of Labor Perkins and Felix Frankfurter had a long history of active involvement with the movement for rationalised work times. During the President's period as Assistant Secretary of the Navy, during the First World War, he oversaw the introduction of the 8-hour day into the naval shipbuilding industry. His experience in this area led him, in August 1919, to write to President Wilson urging the adoption of the 44-hour week as a national standard. His proposal was ignored. See G. D. Nash, 'Franklin D. Roosevelt and Labor: The World War I Origins of Early New Deal Policy', Labor History, Vol. 1, No. 1, 1960, p. 49. For details of the worktime provisions of the codes see, National Recovery Administration, Substituted Wages and Hours. Provisions of the President's Reemployment Agreement, U.S. Govt. Printing Office, Washington, 1933.
 110. Irving Bernstein, 'The Lean Years', op cit, pp 481-484.
 111. Harry A. Millis and Royal E. Montgomery, op cit, pp 477-478.
 112. Ibid, p. 479. See also Elmer F. Andrews, 'The Administration of the Fair Labor Standards Act in the United States', International Labour Review, Vol. 40, No. 5, 1939, pp 616-640. International Labour Office, 'Hours of Work and Wages in the United States under the Codes of Fair Competition', International Labour Review, Vol. 31, No. 6, 1935, pp 859-868. International Labour Office, 'Hours of Work Provisions under the National Industrial Recovery Act', International Labour Review, Vol. 29, No. 1, 1934, pp 84-107.
 113. Harry A. Millis and Royal E. Montgomery, op cit, p. 479.
 114. Loc cit.
 115. Richard A. Lester, 'Shortcomings of Marginal Analysis for Wage Employment Problems', The American Economic Review, Vol. 34, No. 1, 1946, p. 80.
 116. Harry A. Millis and Royal E. Montgomery, op cit, pp 500-501.
 117. During the postwar years, the stabilisation of the

working week within the U.S. at 40 hours has led many marginalists to hypothesise on why the workers 'chose' to cease struggling for reductions in their working times. Given their belief that worktime is a function of income they have generally argued that for one reason or another the American workers, since 1945, have preferred higher incomes rather than more leisure and so have kept the workweek constant. See, for example, John D. Owen, 'Workweeks and Leisure: An Analysis of Trends, 1948-1975', Monthly Labor Review, Vol. 48, 1976, pp 3-8. Donald H. Dalton, The Age of the Constant Workweek: Hours of Work in the United States Since World War II, unpublished PhD thesis, University of California, Berkeley, 1975. Benjamin Kline Hunnicutt, 'The End of Shorter Hours', Labor History, Vol. 25, No. 3, 1984, pp 373-404. The major problem with all of these contributions is that they attempt to solve a problem that does not exist. The workweek within the U.S.A., it is true, has stabilised at 40 hours, but, as Northrup and Greis have shown, this does not mean that work times have remained constant. These scholars have found that annual working times, during the postwar years, have declined significantly with the fastest rate of decline being in highly-rationalised industries. See Herbert R. Northrup and Theresa Diss Gries, 'The Decline in Average Annual Hours Worked in the United States, 1947-1979', Journal of Labor Research, Vol. 4, No. 2, 1983, pp 95-113.

Chapter 5

The Internationalisation of Rationalised Work Times

The technical and philosophical approach to management and the amelioration of class hostility pioneered by Taylor attracted a degree of interest, outside of the United States, during the first years of the 20th century. This interest was at first decidedly muted. In time, however, scientific management became a global "... systematic philosophy of the worker and work".(1) Its application soon expanded beyond the industrial workshop into the service industries and indeed into all areas of production and distribution. This was true of all industrialised nations including those in which ownership of the means of production is socialised. Employers throughout the world, in the years after 1918, viewed with a mixture of fear and awe the growing industrial power of the U.S. and were soon to realise that they had little choice but to follow the path pioneered by the Americans. Their fear was to accelerate radically the global diffusion of scientific management. In this expansion many of the American movement's concrete or specific aspects were severely modified. Its system, philosophy and method of operation, however, were largely transported undisturbed.(2)

As in the United States the global application of Taylorism was soon to move beyond the resolution of technical problems associated with the workshop. In the early 1920s it was to merge with industrial psychology with the result that the rationalisers came to place increasing emphasis on the human factor. At the same time its advocates

were to expand their horizons to the national and even to the international level as they applied Taylor's methods on an increasingly wider scale to such problems as standardisation, the elimination of waste, industrial concentration and the systemisation of both private and public bureaucracies. In Europe this development, by the end of the decade, was to lead many to ask how a 'common market' could be organised in Europe which would enable European producers to attain the economies of scale Taylorist mass production methods made possible, and which were available to their U.S. competitors but not to the bourgeoisie of Europe. This global diffusion of Taylorism, and more specifically of rationalised work times, will now be looked at and it will be argued that a common path tended to be followed by most industrialised nations during this period. It will also be argued that, as in the U.S.A., the knowledge that working times and wages could be improved without damaging industry if the development of the new science was guided in specific directions was to act as a tremendous force aiding the workers in their struggle to improve their living standards and reduce the length of time they were compelled to remain at work.

The General Course of the Movement

Between 1925 and 1927 preparatory to the establishment of the International Management Institute at Geneva, Paul Devinat, Chief of the Employers' Organisation Service of the International Labour Office, undertook a major study of the growth and progress of scientific management within Europe.

Devinat reported that; "Generally speaking, the movement would appear to have followed practically the same course everywhere".(3) He suggested that in every country studied, either prior to or immediately after the war, an initial phase could be observed in which certain individuals became convinced of the superiority of taylorist principles and of the general importance of applying science to industry. This introductory stage was followed by a second, which he termed the 'phase of adaption'. Generally this took the form of expanding and adapting the techniques previously diffused in a rapid attempt to recover from the ravages of the war. During this phase many of the original characteristics of the movement were changed to fit local and/or temporary conditions. This second phase finally tended to merge into a third, the phase of 'final adjustment' during which a more coherent body of opinion, as regards scientific management, came to the fore. In this last stage the rationalisers' propaganda became better coordinated and methodical while debate was narrowed down to more concrete application and attempts were made to systemise the movement under the guidance of centralised organisations.(4)

Devinat conceded that his divisions were somewhat arbitrary and appeared a little artificial in the case of a number of countries. He also acknowledged that the phases often overlapped to such an extent it was difficult to tell where one ceased and the next began. Subject to these reservations, however, he insisted, ". . . this method of subdivision would seem to correspond fairly closely, in

general, to the outlines of the movement's development, and in any case it facilitates the historical study of the subject".(5) Examination of the available evidence suggests that Devinat's claims, both as to the existence of these three stages and of the utility of his model for historical analysis, has a good deal of validity. Accordingly this three-stage approach will be utilised in this examination of the international dissemination of taylorism and rationalised work times.

The Introductory Stage

International interest in scientific management was first kindled when Bethlehem Steel made public the high-speed tool steels developed by Taylor and White in 1898. Taylor reported that within days of their discovery being made public they began receiving both requests for further information and visitors from all over the world.(6) Taking advantage of this widespread interest Taylor also took the opportunity to aggressively promote his management methods. The success he had managed to achieve with metal cutting ensured he had an audience and his work was soon recognised by a number of scholars as a major advance on similar management research that had been carried out in Europe. This was to lead a number of French and German technicians, though, indicative of the poor quality of its management, not the British, to begin circulating his ideas through industry. In 1901, for example, following their repetition of his metal cutting experiments, one of Germany's

leading engineering bodies began popularising scientific management amongst its members and began establishing contacts with the taylorists in the U.S.A.(7)

Over the next decade Taylor's works were translated and published throughout Europe. Interest in his methods of organisation, however, was largely restricted to technicians and teachers of technical subjects. These converts invariably propagandised the potential material and social benefits that could be gained from applying the scientific method to the management of the production process. They also undertook sporadic experiments and attempted to apply Taylor's methods within the workplace. In general where this positive response took place before 1914 it was confined to small groups of intellectuals for it **attracted** the attention of few capitalists. The small number of employers who did utilise some of Taylor's ideas during the prewar period, moreover, tended to do more harm than good for the popularisation of the movement. With few exceptions those few who were attracted to the American methods adopted the same attitude to scientific management as had most of the U.S. employers. They ignored the wider aspects of Taylor's programme which necessitated the investment of large sums of capital and effort and displayed little interest in the reorganisation of traditional management structures where this involved any undermining of their established perquisites and prerogatives. Instead, they concentrated their attention on the use of the stop-

watch and incentive wage systems which they attempted to force the workers to accept.(8) Also like the American capitalists these employers were attracted to 'efficiency experts' who offered to sell them cheap time-study and incentive wage schemes which aimed to extract as much labour as possible from the workers while giving them little in return. These policies elicited the same hostile response from the labour movements of most nations as they had from the American workers.(9) Bricard, for example, reports that French employers generally saw in taylorism merely a new means for speeding up the workers and the latter reacted accordingly.

It (the fundamental principle of Taylor) had been at times misunderstood, notably in the application that had been attempted in one of the great automobile factories in the region of Paris. The principle that the management wanted to adopt was to determine by experience the best method for making a piece. This result once required, a special worker would labor as fast as he could for three hours, using the work procedures thus studied. His production would serve as the base for the determination of tasks. This system was not accepted by the workers in the factory who went out on strike until the management returned to its previous practices.(10)

This employer strategy of choosing only to adopt those aspects of Taylor's programme which enhanced their control over the workers and compelled the latter to increase the intensity of their labour-time was to typify the bourgeoisie whenever and wherever they had the opportunity to impose their personal preferences.(11) In order for the vast majority of employers to be induced to follow that course

which involved effort and cost on their part it was invariably necessary for them to be placed under significant pressure and for them to be blocked, by the labour movement, from selecting that path that merely meant speed-up. Devinat reports that, in the early years and through the 1920s, the European scientific management technicians and theorists invariably complained that while some employers were willing to accept the costs, partial failure and slow results that the full adoption of Taylor's programme necessitated, many refused even to consider these methods. Employers usually claimed that Taylor's ideas might be suitable for the vast markets of the United States but they were not applicable in Europe.(12) Many engineers also reported that even where capitalists could be induced to begin experimenting with Taylor's methods they often abandoned this strategy when positive results were not obtained immediately. The technicians, Devinat reports;

. . . inveighed against the spirit of routine, the indifference, and the narrow-mindedness which certain owners exhibit as regards any innovation. They sometimes accused them of being more concerned with increasing the output of their workers than with the increase which they might themselves obtain by the introduction of improved methods or equipment, or, to put it briefly, improved management . . . According to the technicians, who expressed themselves freely to us, the employer, at all events in the case of the average sized undertaking, is not so much a support as an obstacle in the introduction of methods of scientific management.(13)

The inability of the advocates of Taylorism to attract the interest of significant numbers of capitalists to

Taylor's strategy for managing the production process prior to the First World War was radically reversed within many countries after 1914. As in the United States this dramatic change was a direct result of the pressures generated by the conflict and by the economic and political crises that characterised the immediate postwar years. As Devinat succinctly stated; "It is . . . a fact beyond dispute that the war created in every country an atmosphere favourable to the subsequent development of the movement."(14) During the war the shortage of labour, the dramatic expansion of mass-production and the necessity of employing unskilled workers, especially women, made the adoption of Taylor's methods a matter of immediate urgency. To make possible the attainment of this objective the state in all the belligerent nations actively intervened to direct and accelerate the production of the needs of war. This was done in many cases by utilising taylorism to systematically organise national production and to more closely integrating the army, the workshop and the laboratory.(15) In many cases this policy elicited a hostile response from sections of the bourgeoisie for it often involved enforced industrial concentration, standardisation and the allocation of raw materials and transport along lines determined by national efficiency rather than by individual profit.

The forces generated by the greater demand for the systemisation and rationalisation of the production process were also aided by the weakened resistance of the workers.

Patriotism severely limited the extent to which organised labour was willing to oppose the introduction of Taylor's methods. This factor was particularly significant in the front-line states during the early years of the war. As the conflict continued, however, the ability of patriotism to contain the increasing exploitation of the workers began to wane, being replaced in many states by growing resentment and radicalisation. In Russia, in 1917, this was to culminate in ~~these~~ forces representing the spectre that continuously haunts the bourgeoisie, seizing control of the state. This radicalisation was to influence significantly the character and direction of the postwar development of scientific management.

The Stage of Adaption

The achievements gained by the use of Taylorism during the war and the immediate consequences of the conflict, most notably the new-found militancy and radicalisation of the working-class and the dramatic fluctuations in the trade cycle, induced the development of a new phase in the rationalisation movement. Its principal characteristic, Devinat suggested, was the desire to adapt and present scientific management in a form more suitable to national conditions and to modify it sufficiently to make it widely acceptable and applicable to industry. Reflecting his ardent support for scientific management, Devinat suggested that these modifications to Taylor's principles constituted a widening and a liberalising, even an advance, on Taylor's programme. In doing so, however, he does acknowledge that

much of the scientific essence of taylorism was often deleted by these modifiers.(16) In fact, in many cases, their changes amounted to little more than crude attempts to make taylorism more acceptable to the employers.(17) The individuals promoting the programmes often tended to place as much concern on preserving traditional class relations as they did on maximising efficiency. In such cases their modifications consisted primarily of adopting Taylor's work to a form which would allow employers to utilise some of his techniques in order to improve the overall efficiency of the firm and tighten control over the workers without disturbing traditional positions of class and power.(18)

Numerous governments in the immediate postwar period attempted to continue the application of taylorist methods on the scale that had been undertaken during the war. The prestige and power of the state which had been expanded by the conflict together with a fear of the radicalised workers and a widespread belief that the state had a duty to ensure the efficient development of those industries necessary for the nation's military security, encouraged and enabled a number of taylorists within governments to begin attempting rudimentary economic planning or what was acknowledged to be the application of taylorism on a national scale.(19) These developments were particularly significant in France, Germany and most notably in the Soviet Union. The last of these three states was soon to lead the world in the application of taylorism to the economy as a whole.(20) For most other countries, however, resistance on the part of the

bourgeoisie to state intervention in the production process limited government involvement to the establishment of tariff barriers aimed at guiding the development of their economies and protecting those industries that were believed to be strategically necessary.(21)

Given the radicalisation and industrial strength of the working class during the boom years immediately after the war, taylorists tended to adapt their propaganda to a form which made it more acceptable to the workers. This was done even where the system was being modified to a form better suited to the employers. Much effort was made to convince the labour movement that it stood to gain by abandoning its traditional hostility to scientific management. References to Taylor tended to be deliberately avoided by his supporters during this period and the term 'rationalisation' came much more into vogue.(22) The time-study and wage incentive aspects of Taylor's programme also tended to be downplayed during this period with emphasis instead being placed on Taylor's teachings in regard to the preparation of work, the modernising of methods of administration and the reorganisation of the workplace along more systematic lines. Great emphasis was also placed on the ability of a rationalised production process to deliver improved living and working conditions. Of the latter, stress was placed on the ability of rationalised industry to provide the labour movement's major demand, the 8-hour day. The rationalisers' propaganda, it needs to be added, did not go unheeded by the workers. Labour leaders were particularly impressed by the

research undertaken during the war which suggested that reductions in working time did not necessarily reduce output. The results of this work were widely publicised by the unions and used by them in the fight for the 8-hour day.

During the period of the boom, the 48-hour week became the basic workweek in virtually every industrialised country in Europe.(23) Within some nations this new schedule was adopted as a result of collective bargaining between employer bodies and trade unions. In the vast majority of cases, however, employer hostility necessitated state intervention usually in the form of legislation to make the new standard enforceable. In the overwhelming majority of cases the employers remained unmoved by the arguments of the unions and the fatigue researchers that working time and output were not necessarily proportionally related. In France, for example, the Paris Chamber of Commerce argued that the introduction of the 48-hour week would be disastrous for industry and capitalists predicted it would cause a fall in productivity of 30 per cent.(24) To claims that the scientists had shown that this need not be the case the employers retorted that the small workshop nature of French industry made such arguments irrelevant. Despite their hostility, however, the French bourgeoisie did not attempt any serious resistance to the proposed 48-hour law. It was widely believed within their ranks that it was necessary to make this concession, at least for the moment, if the workers were to be appeased. The French capitalists, consequently adopted a similar policy to their counterparts

in the rest of Europe.(25) In other words, they "... protested, but in general leading industrialists accepted the eight hours as a dike upon which the radical tide could break".(26)

The politicians and state functionaries who promoted the 8-hour day generally shared the industrialists' fear of the radicalised workers. Many of them, however, were also motivated by the belief that the shorter day was a reasonable claim given the strength of the evidence put forward by the fatigue researchers. For these reformers it was generally understood that the concession necessarily involved a quid pro quo. They argued that the workers could have their 8-hours but in return they would have to ensure that they intensified their efforts and did not allow production to be decreased as a result of the reduced schedule. In the words of the British Government's delegate to the Washington Convention of 1919;

But now, having said so much of what is due to labor, let me by way of another word or preface just say something of what in my opinion is due from labor. There is, in my opinion, due from labor whole-hearted cooperation in the largest possible production of goods But I submit, fellow delegates, that the way to get that is not by long hours of labor . . . the way to get it, and the only way to get it, is by a better organization of industry, by humanizing the conditions of labor. I believe by carrying out those two principles we can get labor to put its back into its work while it is at it. I hope it will; I believe it will; and I believe further that labor, as well as other classes in the community would benefit thereby.(27)

The Employers' Offensive

The conciliatory attitude displayed by the bourgeoisie during the period of expansion was brought to a sudden halt

by the global depression of 1920-1922. By this period the wave of war-induced radicalisation had greatly subsided, swamped by the reforms and prosperity attained during the boom. Conservative governments were returned in many nations and when the economic crisis undermined the capacity of the workers to resist the employers, in alliance with these governments, counter-attacked. Throughout Europe this period saw the workers lose many of the gains they had won during the boom years. These losses included the renunciation of many of the postwar worktime laws as across Europe such laws were abrogated or ignored.

The employers' offensive against the 8-hour day, it should be added, was not merely a manifestation of their bias against reductions in working time. The much promised increased hourly output the rationalisers had insisted would result from the worktime laws had not in general materialised. The reduction in the length of the workweek had consequently significantly driven up unit costs. Lowe's description of the attitude of the British capitalists is equally applicable to capitalists in general;

. . . the failure of the workforce (in the eyes of the establishment) to respond immediately to a reduction of hours with increased productivity stiffened employers' prejudice against "sentimental" social reform which, by adding to the costs of production, was held to decrease international competitiveness and hence increase unemployment.(28)

The reasons why output fell when the 8-hour day was introduced are numerous and diverse. Lipmann, in 1924, put forward a number of reasons that help to explain this

development. He stressed in particular the point that it did not follow that if the length of time worked was reduced hourly output would necessarily rise automatically. Certainly there was no reason to believe it would do so to a degree sufficient to offset fully the temporal reduction. If this level of offset was to be attained active steps had to be taken by both employers and workers. This fact, he suggested, had not been realised by many within industry. The workers, for instance, even though they had used the arguments of the fatigue researchers to further their claims, all too often had really fought for the 8-hours as a means of decreasing unemployment. In reality they had envisaged the introduction of the shorter day as being a work sharing reform which would increase employment and enhance the bargaining power of labour. Within the labour movement it was widely believed that a 20 per cent reduction in working time, from 10 to 8 hours per day, would mean each worker would undertake 20 per cent less work. In other words many workers believed, as did the employers, that the 8-hour day was a reform for which labour would not have to bear any cost.

[Workers] accepted the 8-hour day as a free gift, without realising the necessity of making some return for it by increased intensity of work. As a matter of fact, during the period of demobilisation this return was unnecessary; it is only now, when competition in industry has become acute, that the workers must be reminded that with shorter hours increased intensity of work is necessary, and the employers that a reduction in hours does not necessarily mean a decrease in production and that output will not necessarily be increased by increasing hours of work.(29)

Lipmann's conclusion that both worker and employer had to contribute actively by raising the intensity of their efforts on the one hand, and by improving the technical and managerial aspects of production on the other, was endorsed by Milhaud in his massive study into the global conditions of production undertaken during the 1920s.(30) Milhaud agreed that the effect on output of the passage of the 8-hour laws had not been as positive as had been hoped. He reported that the laws had certainly acted as a stimulant motivating employers and workers to greater efforts as theory, pre-war experience and experimental evidence suggested they should. The response, however, had not been sufficient to offset totally the temporal reduction.(31) He conceded this failure was partly the result of workers choosing to accept the shorter day as a costless gain. This response had been accentuated by the significant wage increases also won during the 1919-1920 period and by the abolition of piece-work in a number of states. As a result of these developments many workers had chosen to reduce the amount of effort they normally contributed, electing instead to relax a little and enjoy a little more leisure.(32) He added though, that this failure was also the result of employers not adequately carrying through the reorganisation of the production process as the rationalisers suggested was possible and necessary. This was not because they could not do so, he insisted, but rather because in the immediate postwar period a number of specific circumstances had existed which had tended to limit the

'free play' of those factors which should have ensured they were forced to do so. These were, (1) the limited availability of new machinery and equipment relative to the massive demand, (2) the tremendous business boom that followed the war which resulted in such high profits employers did not need to worry about their increased unit costs, (3) the acute depression that followed the boom which severely limited the funds available to firms to finance the necessary technical adjustments. Collectively, Milhaud suggested, the significance of these developments was sufficient to justify the claim that given more normal conditions and a longer period for adjustment, the responses needed from both employers and workers would be forthcoming.(33)

The Americans and the 8-Hour Day

Milhaud's optimism was soon justified. Indeed, by the time he published his report many of the factors he identified as problems limiting the degree of offset were being or had been resolved. One of the first to be overcome was the workers' decision to reduce the amount of effort they were willing to undertake. The unemployment generated by the depression enhanced the employers' capacity both to drive the workers and in many cases to compel them to accept those aspects of Taylorism to which they were most vehemently opposed, i.e. time-study and payment by results. Many employers also found the opportunity to cut wages too great to resist. In a great number of instances time-study and wage incentives were

utilised as a means to intensify the workers' labour-time and then rates and bonuses were cut to a level where the higher rate of effort was treated as the new norm.(34)

The attempt both to force the workers to intensify their efforts and accept as much of the cost of the crisis as possible was the typical strategy of the vast majority of capitalists. A significant number throughout the industrialised world, however, did not limit themselves solely to this method for combating their competitors. That they did not was firstly because of the growing general awareness of what could be gained by applying Taylor's methods on a much wider scale and second by their personal experience in dealing with the 8-hour laws.

The awareness of the possibilities inherent in Taylor's programme was intensified within Europe after 1921 by the tremendous expansion in industrial productivity enjoyed by U.S. industry. This development, Albert Thomas, the Director of the I.L.O. was to report, acted as a powerful factor compelling European employers to emulate their U.S. counterparts.

In short, the new element [motivating Europeans] is the realisation by many persons in Europe that the economic progress of the United States threatens disaster to the older continent, and that the only way to salvation lies in the rationalisation of production.(35)

Through the early years of the decade the bourgeoisie's growing fascination with what was happening within U.S. industry was reflected in the numerous industrial delegations sent to America to study the new methods and by

the massive quantity of Taylorist literature that was flooded on to the world's markets. Devinat reports that Taylor's works were translated into practically every language and the major part of the debate on scientific management that raged at this time centred around these works.(36) He also reports that there was wide translation and dissemination of the works of a number of Taylor's close collaborators, with the Gilbreths in particular proving popular with some governments and with the labour movement. Hoover's Waste in Industry also proved highly influential, particularly in Czechoslovakia, Germany and the U.S.S.R.(37)

One other author whose works were widely read during the 1920s was Henry Ford. Merkle reports that his publications were especially popular in Germany where they were often taken at face value with the result that it was widely believed that Ford was as much philanthropist as capitalist.(38) The extent of Ford's influence was enhanced by the direct experience many industrialists had with his methods, for he not only exported his books, he also exported his plants and his techniques. International dissemination of American production methods was greatly assisted, during this period, by the growth of the multi-national corporation. This personal contact, Layton has suggested, was crucial because of the highly "complex combination of process innovations" involved in these methods.

Like Taylorism, Mass Production represented not merely a few general principles, but a mass of details and orientations, which could be most

easily transferred by the movement of people. Ford's international operations provided a mechanism for the transfer of people and for training local technologists in American methods. Thus, the receiving country got not only working examples of the new ideas, but a pool of engineers and others with the new knowledge.(39)

The decision by a growing number of employers to adopt rationalised production methods was also a result of their experiences with the 8-hour laws. For a significant minority these laws acted as a major stimulant motivating them to overhaul their methods of production. This development, the I.L.O. reported in 1931, while limited in the years immediately after the war became much more prevalent through the 1920s.(40) Indeed, as early as 1922 the Swedish Department of Labour and Social Welfare reported;

In the case of the manufacturing industries, in the strict sense of the term, it would seem that at least a certain degree of compensation for the limitation of hours of work has been found in a greater concentration of labour and an increase in its productivity, secured by technical changes and reforms in organisation . . . The Eight-hour Day Act, in certain industries at least, has proved a powerful stimulus to these improvements, which are still being extended.(41)

Through the decade the I.L.O. was able to report observers in many countries found similar results. The most comprehensive of the studies undertaken of this development was conducted in France between 1922 and 1927 by the Ministry of Labour. Despite their claims of 1919 that they would not be able to change their production methods, this study reported that the modifications introduced by French employers to counter the 8-hour law covered the ". . . whole field of scientific management".(42) Included amongst these

changes were improved selection and training of the workers, the use of time and motion study, improved working methods and greater specialisation in the division of labour, new forms of work organisation, improved plant and workplace layout and the widespread introduction of payment by results.(43) There was also a great increase in the mechanisation and electrification of the production process. This involved the widespread extension of the use of mechanised equipment for the handling of goods, the use of automatic machines, significant improvements in the tools utilised, increases in the speed of machines and the mechanisation of much work formerly done by hand. As part of this process there was also a growth in the size of the enterprise brought on by a wave of amalgamations. This last development enabled firms to scrap much inefficient plant and equipment and gain great efficiencies of scale.(44)

The cumulative evidence gained by observing the way employers responded to enforced reductions in working times during the postwar years led the I.L.O. researchers to conclude that it was clear that ". . . measures of a collective nature for the reduction of hours of work lead the managers of industry to make efforts to rationalise their undertakings".(45) Having reached this conclusion these researchers then turned to consider whether rationalisation measures irrespective of their origin had an influence on worktime, and if so, what was its nature? To answer these questions the researchers first of all surveyed the various consequences of the rationalisation measures

that had been introduced in response to the introduction of the 8-hour day.(46) This survey led them to conclude that in the overwhelming majority of cases the rationalisation measures had enabled output to be increased under the shorter schedule despite the fact the introduction of the 8-hour laws had involved on average a worktime reduction of 20 per cent.(47) They further concluded that the introduction of rationalised techniques, no matter why they were introduced, also tended to lead to the introduction or further extension of reduced time schedules. This latter result, it was argued, was brought about by the following factors;

- (1) Certain changes in the nature of the work in rationalised industry. Intensification of effort.
- (2) Facilities offered by increased productivity.
- (3) Intellectual, moral and social factors.
- (4) The importance of spare time in the development of markets.
- (5) The progress of the science of labour. The rationalisation of the distribution of work in time.
- (6) Factors concerning the technical workings of undertakings.(48)

It was concluded that rationalisation measures encouraged reductions in working time either by consolidating progress already made or by stimulating further progress.(49) In other words, the studies of the 1920s reaffirmed Marx's argument of how capitalists would respond to a compulsory reduction in the standard length of working time. The 8-hour laws had galvanised employers into applying closer supervision and furthering the adoption of piecework. Moreover, they had motivated them to speed up the

mechanisation of the production process and to improve the quality of the machinery utilised. These developments had in turn induced increases in the level of work intensity of such a magnitude that the old schedules were no longer economically efficient and, indeed, in many instances the intensity levels the workers were being compelled to maintain were being pushed to a point where further reductions in the length of time worked were bound to occur.

The Labour Movement, the Engineers and the Psychologists

The loss or constant pressure from employers to revoke the 48-hour week within Europe during the early 1920s shows clearly the difficulty workers invariably face in trying to hold on to a reform the retention of which is based solely on class power. The bargaining power of the working class is too susceptible to fluctuation because of shifts in political allegiances and changes in the demand for its commodity on the market to enable major gains to be permanently retained where it is only power that holds them. Indeed if the gains are of such a magnitude that they place too great a strain on the rate of profit, these advances in themselves will tend to ensure their eventual loss because they will lead to greater unemployment and thus an undermining of the power upon which they are based. This lesson, having once again been driven home to the workers by their losses in the 1920-1922 depression, significantly influenced their tactics in the fight for the shorter week through the rest

of the decade. It added a strong negative influence to the positive attractions being held out by those wishing to induce the unions to accept the rationalisation of industry. This combination of force and reward, as in the United States, was to prove too attractive for many unionists to resist. In the period after the crisis, unions around the world began to reappraise their attitude to rationalisation. By the middle years of the decade there was even a growing demand from labour that employers adopt many aspects of taylorism within their enterprises. Albert Thomas argued in 1927 that this development was characteristic of all countries. By this period, he claimed, the world's workers had become ". . . warm adherents of the doctrine of rationalisation".(50)

Thomas's assessment tends to overstate the case. Unionists did not fully embrace Taylor's programme during the 1920s. Rather, what they did was cease rejecting taylorism en bloc and become much more selective in their criticisms. Moreover, they began to use certain aspects of taylorism to attack the employers and advance their interests. This strategy was to be particularly important in regard to worktime.

Very frequently these organisations make a quite general demand for shorter working hours as compensation for the disadvantages of rationalisation or simply on account of the increased productivity to which it leads. Such are the resolutions of the International Congress of Painters, July 1928, the French General Confederation of Labour in 1927 and 1929, the Congress of Polish Socialist Trade Unions, May-June 1929, the Congress of the Hungarian Federation of

Trade Unions in March 1930, the Conference of the Railwaymen's Section of the International Transport Federation in Madrid, April-May 1930, and the General Council of the International Federation of Trade Unions at Prague in May 1929.(51)

Increasingly the unions argued that the gains to be had from the rationalisation of production were the rightful due of the workers. Employers, consequently, had to be stopped from trying to raise profitability simply by driving the workers and they must be made to turn to the scientific development of production. This meant they had to be compelled to adopt the most modern methods of organisation, the most modern forms of machinery and the most modern management practices. It was recognised by all, that this meant they had to adopt the methods of production pioneered in America.

To the factors attracting and propelling unions to adopt a more conciliatory attitude towards scientific management were added two further factors in the years after 1922. The first of these was a revival in their bargaining power which enabled them to have greater influence over the direction and nature of the rationalisation movement. The second was the all but total coalescing of the opinions of the European engineers and the psychologists. Devinat reports this latter development had a "particularly fortunate" effect on the labour movement's assessment of taylorism.(52) The convergence was openly cemented following the publication of a scathing attack on the engineers by the psychologists in 1922. In the first edition of the journal, Occupational Psychology, Farmer opened the attack by arguing that while time and motion studies were wonderful tools for the

scientific examination of the labour process, the attitude of the engineers to these tools was simply not acceptable. He suggested the technicians had been so keen to find new ways to increase output they had been willing to accept any cost to achieve this objective. The vast majority had consequently refused to consider what they were doing to the workers. This was not only immoral it was also inefficient.(53) A year later the doyen of the industrial psychologists, Charles Myers, took up this attack criticising in particular the concept of the 'one best way'. Myers insisted that human varied and variability had to be considered when determining both norms and the way work should be undertaken. He further castigated the engineers for their mechanistic approach to the worker and denounced them for their failure to confide in the unions and gain their collaboration. The workers, he insisted, must be involved in the rationalisation process and they must be involved at the level of the trade union.

It should be one of the functions of the trade unions to inquire into good and bad methods of work and of training and into the wide individual mental differences which demand different methods of work and of training, and to insist that their members obtain adequate and suitable training in their occupation.(54)

Frank and Lillian Gilbreth, representing those engineers who were open to a critique of this nature, replied in 1924. Responding to Myers' paper in particular they stated that they agreed with the greater part of what had been written by their accusers and that even where there appeared some differences of opinion between the engineers

and the psychologists they now considered these to be superficial. All 'progressive' industrial engineers, they claimed, had come to recognise and accept that the human factor had to play a major role within scientific management. They conceded that many taylorists and Taylor in particular were open to criticism for the rigidity of some of their early work but, it was insisted, those who attacked Taylor for driving the workers ought to remember that it was not only the employers that he wished to help, it was the workers as well. In order to distance themselves from Taylor's faults they argued that they and their colleagues, while retaining the essence of their mentor's principles, had moved beyond his position. It was unfair, therefore, to judge them strictly on Taylor's application of scientific management. They defended, moreover, the idea of the 'one best way' but in doing so introduced a significant reformulation of the concept. From being the one standard all workers had to maintain, the term was redefined as ". . . the One Best Way at the time, under the specific conditions, and with the particular individual, considering his psychological and physiological differences".(55) It was insisted the concept was an ideal derived from studying the best worker obtainable, not necessarily the fastest method, but the best when all factors were considered. If one allowed for individual differences, they asked, what was wrong with attempting to determine the most efficient way to undertake a task and then setting this as the model for other workers to emulate.(56)

Having made these concessions the Gilbreths went on to make it clear that they agreed with the suggestion that the engineers and the psychologists had to work together. They suggested, however, that the engineer had centuries of experience within the workplace while the psychologist was a relative 'new-comer' to industry and was traditionally more at home in the laboratory. Consequently, the psychologists had not only to cooperate with the engineers if they wished to be successful in industry, they had to acknowledge the latter's greater experience in this area. (57) This was to prove a stipulation the psychologists were more than willing to accept if this is what it took to gain acceptance from the owners of industry. Over the next two years the differences between the European psychologists and engineers all but disappeared, being replaced to an increasing degree by mutual 'back-slapping'. By 1926 it was even possible for the psychologists to concede that their criticisms of Taylor may have been unjustly harsh, given the enormity of his contribution to the rationalisation of the production process.(58)

The coming together of scientific management and industrial psychology enabled engineers to gain valuable information upon which they could base effort norms, time and motion studies and the design of machinery.(59) The more rigorous application of the concept of fatigue that it helped to instil in the designers of jobs promised, moreover, to lessen the danger that scientific management would be used

as a tool to drive the workers beyond their capacities. For the workers it meant they could utilise the arguments of the rationalisers to an even greater extent. They could argue that both the psychologists and the engineers were now agreed that the maximisation of efficiency demanded not only the payment of high wages and significantly improved working conditions but also the rationalisation of worktime. From this period, Devinat reports, there was a clear ". . . tendency, both among the workers and among the employers, to appeal to scientific management to supply a rational basis for the eight-hour day".(60)

The Phase of Final Adjustment

In Devinat's three stage description of the development of scientific management within Europe, the third stage consisted of the application of Taylorist principles to the resolution of the general problems of industry and government. It was characterised by a desire to coordinate the scattered activities and developments associated with rationalisation that had emerged within nations and by a growing awareness of the need to establish properly qualified, scientific institutions which would be charged with the development and diffusion of scientific knowledge to all areas of industry.(61) This included agriculture, the extractive industries, manufacturing, distribution and finance.(62) This third phase also saw the establishment of national and international standards associations, the development of national campaigns for the

elimination of waste, the further extension and application of national planning, attempts at international cooperation aimed at overcoming barriers to greater industrial efficiency caused by the existence of nation states and a radical increase in the growth of the monopoly sector.(63) The outstanding developments of this stage, Urwick suggested, included efforts;

. . . to improve the General Organisation of Production and Distribution on national and international lines by elimination of waste, simplification and standardisation, horizontal and vertical combinations, industrial agreements, action by Governments and Public Services, and by organisations of employers and workers, mass production and distribution, forecasting of business movements, and by the statistical study of the general world conditions bearing on these issues such as the supply of raw material and of labour, markets, transport, and power.(64)

The publication of Waste in Industry acted as a powerful goad stimulating the development of this third stage. It made it clear to many that there existed a great capacity for raising industrial efficiency by applying the scientific method to the management of the production process. If Hoover's report about the level of waste within the United States was correct, it was reasoned, how much greater must be the capacity for the elimination of X-inefficiencies within those nations only just setting out on the taylorist path. Filipetti suggested the report concentrated enormous interest on the question of the systematic elimination of waste.(65) Between 1923 and 1927 throughout Europe, government and semi-government scientific bodies were established to give substance to this movement

to promote interest in and knowledge of the gains to be had from applying scientific method to all areas of the production process and where possible applying the techniques and principles of rationalisation within industry.

Governments also aided the progress of the movement by convening national and international congresses the purpose of which was to coordinate and systemise its growth and direction. Thus, in 1921 and 1924, congresses were held in Moscow designated the 'All-Russian Scientific Management Conference' and in 1923 and 1924, similar congresses were held in France. Also in 1924 the first international scientific management conference was held in Prague. The delegates to this conference, amongst other things, endorsed the 8-hour day. A similar congress was held in Paris in 1926 and in 1927 the League of Nations convened an International World Economic Conference in Geneva with the twofold purpose of preparing the way for international economic rapprochement and of improving the economic state of the global economy.(66) This conference, the I.L.O. reports, was dominated by the idea of rationalisation.

The resolutions on international trade were inspired by the ideal of the rational distribution of work between nations. The resolutions on agriculture placed in the foreground the idea of the rational organisation of the relations between agricultural producers and industrial consumers. Finally, the various industrial questions were studied from the standpoint of rationalisation, particularly the question of international industrial agreements, this part of the programme being headed by the problem of rationalisation.(67)

The importance of this conference, it must be added, should

not be dismissed because of the collapse of international cooperation and rationalisation during the 1930s. Certainly the depression and the war set back the progress of this movement, but in the postwar period the ideas developed at this time were to underpin the reorganisation of the capitalist world undertaken in the 1940s.

The State and Class Divisions

The national and international nature of the issues involved in the phase of final adjustment invariably necessitated the state having to further extend its involvement in the rationalisation process both to regulate and guide its development. As the rationalisation process grew it everywhere centred attention on the problems of power and this necessarily meant it centred attention on the functions of the state.(68) In those nations such as the United States where big business took up and promoted the rationalisation process on a massive scale, the state tended to limit its involvement to the provision of advice and assistance rather than strict control of industry. In other countries, however, it was necessary for the state to take a leading role in promoting the movement, it often being necessary for governments to exhort, guide and compel those within industry, both capitalist and worker, to accept that rationalisation was a matter of urgent necessity if the nation's industry was to combat the growing competition of those societies who led in the field. Even where the bourgeoisie and the working class as a whole came to accept the need for rationalisation, difference

of opinion on the question of the precise form the process should take ensured state power remained a factor of crucial importance. That the interests of neither of the two major classes were homogeneous moreover, was a further factor ensuring rationalisation was a source of intense political disputation and conflict, both between and within these classes. Thus, within the labour movement serious divisions often emerged between those workers who stood to gain from the process and those whose immediate or long-term interests it was seen to endanger. This division of interests in many cases led to severe splits in the solidarity of the workers. When the state and/or the employers moved to impose a rationalisation strategy on specific sectors of the class or failed to defend the interests of those most adversely affected, these divisions often resulted in the disadvantaged sector finding itself isolated. Similarly within the bourgeoisie, the question of precisely whose interest the state was to serve in its drive to rationalise industry created intense divisions. As Brady observed, profits are often 'differential gains', i.e. rewards which can be had only at the cost of definite losses to other individuals or groups.(69) While nearly all capitalists, he observed, could find common ground on wage and worktime issues there was often little scope for agreement on numerous other matters crucial to the rationalisation debate.

. . . all business men cannot agree on tariffs, the exercise of monopoly powers, or the price, production, and marketing policies of cartels and trade associations. Gain to one group frequently constitutes loss to another. Tariffs benefit

manufacturers and agricultural interests catering to home markets, but harm importers and (in the long run) exporters. Tying contracts damage competitors in the same line of business. Price and market control tend to damage purchasers in different lines of business.(70)

Exactly how the state behaved in such circumstances depended on a tremendous number of different factors precise policies being specific to individual nations. By the end of the 1920s, however, the factor common to all the industrialised states was government recognition that the policies pioneered in America had to be adopted. The only question that remained was, how was this to be done?

Rationalised Work Times in Germany

The history of the German experience with worktime and rationalisation during the 1920s will now be looked at briefly both to give greater substance to what has been argued in this chapter and to provide an example of how a major industrialised, capitalist nation handled this issue. The German example is particularly important because within Europe Germany became a model and a leader in the race to adapt American production methods to local conditions.

In order to understand the development of rationalisation in Weimar Germany it is necessary first to give a brief summation of the major fluctuations in the nation's economy between 1918 and 1930. The period leading up to and after November 1918 was one of acute political and economic turmoil the intensity of which was not to ease until 1920. Following this period of crisis there was a state stimulated economic boom in 1921/1922 which was brought to a

sudden and dramatic halt in 1923/1924 by the French occupation of the Ruhr. The consequent economic crisis eased briefly in 1924/1925 and slumped again in 1925/1926. During these two crises unemployment averaged 2 millions. From this point the economy boomed as German industry undertook a massive rationalisation campaign. The prosperity, however, was not to last, the economy deteriorating through 1928 and then degenerating into all but total collapse in 1929/1930.(71)

The dramatic economic fluctuations of the 1918-1930 period significantly affected standard working times in the Republic. Maier reports that as it became clear in 1918 that surrender was near, the leaders of German industry desperately began striving to establish bulwarks that could withstand the expected political upheaval. As the petit bourgeoisie and the discredited Junkers were considered unreliable, the industrialists turned to the moderates within the trade unions affiliated to the Social Democratic Party.(72) In return for their support against the radicals these capitalists agreed to renounce company unionism, to establish unemployment and health insurance and to concede the 8-hour day. This social contract it needs to be added was forged despite intense opposition from the owners of small and medium-sized firms.(73) With respect to working time the agreement of November 1918 stated that the ". . . maximum of daily working hours should be stipulated at eight in all occupations. On no account may wage reductions take place because of the shortening of working hours".(74)

The November agreement brought about a reduction in average weekly working times of 6 to 12 hours and in some cases this went as high as 18 hours. These new time standards were implemented by means of Demobilisation Orders which were valid for 5 years, with the supposition being that they would be made permanent once an appropriate bill could be processed through the legislature. A draft bill designed to achieve this objective for industrial workers was submitted to the Federal Economic Council in August 1921 and a similar bill for salaried workers was submitted in May 1922.(75) The council did not report until 1923 by which time the postwar radicalism had greatly eased and the 1921/1922 boom had faltered being replaced by mass unemployment and hyper-inflation. As a result of the uncontrolled price rises and spiralling unemployment, real wages during this crisis fell to 70 per cent of what they had been in 1913.(76) At the same time the bourgeoisie in a "united capitalistic front" attacked the 8-hour day both in the workplace and in parliament.(77) As the crisis deepened the employers demanded that the unions allow restoration of piecework and the extended use of overtime. Given the collapse of their bargaining power and their real wages the workers were compelled to accept these stipulations. In November 1923 the state also moved against the workers following the ending of the period of validity for the Demobilisation Orders. In December the Government abandoned the worktime bills already drafted and introduced a new act which, while pretending to continue the 8-hour principle,

allowed so many exemptions it all but totally annulled its application. The combined result of this assault was the widespread restoration of the 9 and 10-hour days.(78)

With little bargaining power the unions attempted to shelter from the employers' attacks by hiding behind the arbitration provisions of the Constitution. This legal barrier, however, proved far from effective. The bourgeoisie demanded free collective bargaining with all conditions being determined by the workers and their employers. In January 1924 the Union of German Employers' Associations directed its members to disregard any arbitration judgments they considered were intolerable and in Berlin the metal manufacturers simply refused to attend arbitration hearings thus forcing the workers to accept collective bargaining.(79)

During the 1923/1924 period of crisis, then, the employers concentrated their attempts to maintain profitability on cutting wages, raising intensity levels and on extending the length of time workers were compelled to labour. As the crisis eased through 1924/1925, however, their capacity to ensure an adequate return on their investments by these methods waned significantly. Limitations on the availability of skilled labour was a particularly acute problem in this respect. This restriction on the bourgeoisie's capacity to drive the workers accentuated the difficulties they were experiencing with over-production, surplus of fixed capital, lack of

liquidity and a general lack of future profit prospects.(80) Blocked in this direction they turned or, in many cases, returned to rationalisation as a means by which profits could be raised and efficiency enhanced without the necessity of having to invest exorbitant amounts of capital.(81)

German experience with scientific management dated back a quarter of a century. Merkle suggests that the development of taylorism within Germany passed through three distinct phases.(82) These stages, it should be added, appear very similar to those outlined by Devinat. The first stage, Merkle reports, began at the turn of the century when taylorist techniques were widely publicised by intellectuals and transferred directly into German factories by engineers converted to the new methods. The tactics of these converts met with opposition from the German working class both because of the way taylorism was used and because of a general cultural rejection of the foreign system. This latter sentiment was intensified during the war though a number of taylorists, most notably Wichard Von Moellendorff, applied Taylor's methods on a vast scale to the systemisation of areas of war production.(83) The end of the war saw a revival of engineering exchanges with the United States and an expansion in the extent to which the American methods were adopted within industry. This second phase consisted of a 'nativization' of taylorism in which its class conciliatory character was emphasised and attempts made to overcome hostility to its foreign origin. Finally,

there emerged the phase of final adaptation, a national rationalisation campaign aimed at reconstruction of the nation via the infusion of American production methods under the guidance of planned state industrial development.(84)

In each of these three stages the state played a crucial role in planning, promoting, and regulating the movement on a national scale. Indeed, the breadth and intensity of the state's commitment went far beyond that undertaken within the United States. Through the 1920s the Government became involved in virtually all areas of the rationalisation process with the Ministries of Traffic, Labour, Food and Agriculture and Economics playing leading roles.(85) As a result of a close study of what Hoover's department was undertaking within the U.S.A., moreover, the Government established the National Economic Advisory Board in 1925. This institution was charged ". . . with the duty of studying rationalisation in all its forms, including standardisation and simplification".(86) It was also instructed to propagate Taylorist ideas and to ensure that their adoption was taken up in all areas of the economy.(87)

In many cases the interventionist policy adopted by the state was met with severe hostility by those sectors of the bourgeoisie who failed to gain from the rationalisation process or who felt themselves harmed by the assistance given to those who did. With few exceptions capitalists were more than willing to accept government assistance, but they invariably resented what they considered

immoderate government spending which in essence meant assistance to others. They were particularly incensed at having to pay taxes for socio-economic reforms even where these had the clear purpose of systemising the amelioration of class-conflict, ensuring that there was sufficient high quality labour-power available on the market or rationalising the use of the labour-power that was available.(88)

The utilisation of taylorism as a weapon to combat one's opponents was not a strategy that was adopted only by the German employers and the state. In the early 1920s a great deal of scientific research on working conditions and the effect of worktime reductions on productivity, costs and product quality was undertaken within the Republic. The unions enthusiastically endorsed this research and actively collaborated with the rationalisers' attempts to introduce improved lighting, safety measures and working arrangements favourable to the workers. They worked closely, moreover, with researchers such as those at the Wilhelm Institute for Labour Physiology who undertook extensive studies into the nature of fatigue.(89) The scientific support this research gave the unions in the struggle for a number of their major demands was to lead them to reappraise their attitude to the rationalisation process. From this period the unions, rather than opposing rationalisation, began to demand that capitalists accelerate the pace at which those taylorist production methods which enhanced productivity and

price reductions were introduced. Under this new policy, it was insisted, the capitalists must be forced to adopt the positive aspects of rationalisation while at the same time they must be stopped from utilising those elements which merely led to speed-up and greater exploitation. They must be compelled, moreover, to accept that the benefits of rationalisation did not belong solely to the employers. The stance adopted by the German capitalists, of insisting that gains from rationalisation did not have to be shared with the workers or consumers as it was the management who had introduced the new methods, was savagely condemned. Repeatedly the unions warned that the continued retention of this policy was a recipe for disaster. Ten years before Keynes published his General Theory the German unions, when officially endorsing rationalisation, beseeched the employers to accept that there was a major problem with demand management, a problem which was greatly accentuated by the partial use of scientific management. The unions argued;

Rationalisation is necessary. It is a task both for separate concerns and whole industries. Its aim must be a reduction in the costs of production and lower prices, together with a simultaneous increase in wages. Only by means of an increase in mass purchasing power created in this way can the workless become re-employed. The method, often practised at present, of rationalising without simultaneous lowering of prices and raising of wages must produce a crisis of over-production.(90)

Like their American counter-parts, then, the German unions used taylorism as a tool to combat the employers and advance their own interests. The successes that were to be gained by the use of this strategy during the time when the

unions retained a significant degree of bargaining power was to lead them to become increasingly enthusiastic about the rationalisation process. Again, this is not to suggest that this positive attitude was held without reservation. Labour leaders continued to oppose those aspects of Taylorism of which they disapproved. Their enthusiasm, moreover, was to be short lived. It was to be retained only while the workers had sufficient industrial power to guide and limit the freedom with which capitalists could utilise Taylor's techniques. Workers' experience of how Taylorism could be used if employers were given a free hand was, during the depression, once again to make Taylor's name a synonym for the worst forms of exploitation. It must be stressed, however, that this experience did not, and indeed never has, led the European working class to embrace Luddism and abandon all support for the rationalisation process.

. . . with the coming of the depression in 1929, opinion seems to have returned to the earlier position. As the depression continued the mood tended once more to become distinctly hostile. Yet with comparatively few exceptions the charges brought against rationalization have had to do not with the movement as such but with its use for purposes of exploitation of the laboring class. Rationalization that lightens and simplifies labor, increases its productivity, grants to labor a hand in management, shortens hours, increases wages and purchasing power, and betters the status of the workers has been approved almost without exception.(91)

The unions' argument that the use of the rationalisers' methods would make the 8-hour day economically viable was to be increasingly forced to the attention of the employers as the crisis of 1923/1924 eased.(92) For many capitalists

the validity of the rationalisers' worktime claims was made clear during the crisis when they personally experienced the effect on output of maintaining longer time schedules together with the higher intensity levels their use of Taylor's methods had made possible. By May 1924 there was a marked tendency for the length of the workday in many industries to return to 8 hours. This trend accelerated through the rest of the year as the economy revived, continued through the crisis of 1925/1926 and spread at a faster rate through the boom years of 1927-1928.(93)

The establishment of the 8-hour schedule, did not spread evenly across industry. To a significant degree its adoption was dependent on whether the workers had the capacity to induce the employers to take the steps that would make the schedule viable. Whether they had this capacity was in turn largely dependent on the average level of skill required within an industry. Thus, Bonig reports, in those areas where the quality of human input largely determined productivity outcomes, such as the machine-technical industry, certain parts of metal manufacturing and the fine mechanical trades, those rationalisation techniques designed to reorganise the production process in a manner which would enable a greater concentration and intensification of effort within a reduced working time were largely introduced.(94) In sectors such as textiles and certain parts of the chemical and steel industries where on average less skill was required, on the other hand, the high level of

unemployment amongst unskilled workers throughout the 1920s meant that employees in these industries had much greater difficulty inducing employers to adopt those aspects of Taylorism favourable to their interests. Indeed, while it is true that in these latter areas working times did fall significantly overall, in some areas the partial introduction of rationalisation led to the adoption of longer time schedules.(95)

The differing nature of their experiences with rationalisation was to have serious effects on the solidarity of the workers. Those with few skills and consequently little bargaining power primarily experienced greater insecurity, unemployment and intensification of work. Conversely, skilled workers tended to fare much better achieving higher wages and greater security together with their improved working times. These differing experiences not only divided the workers within the workplace but also affected their political consciousness, with the communists gaining the bulk of their support from the unemployed and the unskilled workers, while the skilled continued to support the social democrats.(96) As Peterson has shown, in his study of the iron and steel industry, this division had serious repercussions when the major employers, in November 1928, launched a powerful offensive against their employees when the latter attempted to use the power of the state to enforce the introduction of the payment of higher wages and the re-introduction of the 8-hour day. This offensive, it needs to be added, was launched not only against

the workers' demands but against ". . . that policy of state intervention in economic affairs which regulated class conflicts and institutionalized labor union influence".(97) In short, once the economic situation began seriously to deteriorate, employers were not willing to allow the state to give the workers that which they could not take at the point of production. The state was not to be allowed to arbitrate or protect the workers from the 'tanning' the bourgeoisie had become convinced the deepening crisis necessitated.

The belief of the German trade unions that it was possible ". . . to pull out the "poisonous teeth" carried by the monster imported from America and to turn its powers of destruction into service of the common weal "(98) was to be ground into the dust by the depression and fascism during the 1930s.(99) Likewise throughout Europe once the working class lost the capacity to influence the pace and direction of the rationalisation process few capitalists chose to emphasise those aspects of taylorism the labour movement had found attractive. This was certainly the case with rationalised working times. With the taylorisation of industry not having developed to the extent that it had in the U.S.A., the alliance between labour, the state and rationalised industry that made possible the introduction and maintenance of the 40-hour week under the Roosevelt administration was not able to be replicated elsewhere until after the Second World War. Consequently, much of the productivity-inducing capacities

of taylorism were not to be widely realised outside of the United States until the 1950s. For most of Europe, for example, it was only when the massive over-supply of labour-power induced by the destruction of the war began to ease in the mid-1950s that capitalists were again to turn seriously to the all round rationalisation of industry including the rationalisation of working time.(100) This was to mean that it was not until this period that these states were to fully experience the capitalist regeneration that taylorism had made possible.

A New Historical Epoch?

In his work Americanism and Fordism, written in the early 1930s, Antonio Gramsci discussed the effects taylorist production methods were having on European society and on the social and political attitudes of the various classes. Gramsci, like Lenin, firmly supported the rationalisation of industry. He opposed the greater exploitation of the workers that the use of taylorism often made possible but at the same time he recognised that the working class had much to gain from the widespread application of science to the problems of managing production. Indeed, he noted, that while workers strenuously opposed some of the specific forms taylorism could take if capitalists were given a free hand they were not opposed to rationalisation as such.(101) Rather, he suggested, at least within Europe the major source of opposition to the American methods was not the workers but rather 'parasitic' elements left over from feudalism such as the small landlords and their attendants,

civil service personnel, the church, the army and a reactionary intelligentsia ". . . stuffed with myths about its cultural heritage and unable to accept its own uselessness and impending supercession by more vital forces".(102) He believed that in time the fullscale development of taylorism throughout Europe would destroy the last vestiges of feudalism and would raise capitalism to a new high point based on the elimination of inefficient sectors, planning, high profits and high wages. The last of these, he suggested, was necessary so that the workers could enjoy a mode of living that would enable them to sustain the high-intensity work levels demanded by rationalised industry.(103)

One of the basic questions Gramsci attempted to resolve in his discussion was whether this new, higher stage of capitalism made possible by rationalisation could constitute a new 'historical epoch' for the capitalist system in which capitalism would be radically changed by a process of gradual evolution or whether the forces and contradictions generated by the widespread adoption of taylorism would produce a revolutionary 'explosion'.(104) At no stage in his discussion does Gramsci explicitly answer this question but, as Hoare and Smith have noted, it is clear throughout that he believed that, in the face of the capitalist regeneration made possible by taylorism, those committed to the revolutionary overthrow of capitalism were everywhere in a phase of retrenchment and retreat and consequently the forthcoming changes would invariably take place within an

evolutionary rather than a revolutionary scenario.(105) For the communist Gramsci this was clearly a pessimistic position to adopt. However, it did not mean he believed rationalisation had permanently resolved the basic contradictions of capitalism. He argued that the competitive lead taylorism had given American industry and the accompanying monopoly profits this lead had generated would in time be eliminated as the American production methods became generalised. As soon as this possibility was realised the contradictions inherent within capitalism would again manifest themselves in crisis, making it both necessary and possible for capital to begin taking back the advances made by the workers.(106) In other words, once the productivity-inducing capacities of taylorism had been so exploited that gains from further rationalisation ceased outweighing the forces tending to lower the rate of profit, capitalists would once again be forced to turn on the workers. The taylorist epoch was thus to be of a decidedly limited nature.

Gramsci's understanding of the capacity of the American production methods to raise productivity, profits and wages, and the consequent effect this capitalist regeneration would have on the revolutionary movement has certainly been realised in the time since he wrote. The techniques and ideas associated with rationalisation have proven a tremendous stimulant to the rate of economic growth and the rate of profit within the capitalist nations. The capacity to expand production by the use of these methods has been far greater than that attainable from the greater

accumulation of physical capital and, indeed, from all other sources. Denison, in his analysis of the sources of economic growth in the U.S.A. between 1948 and 1973, has reported that in this period of the total growth;

. . . 15 per cent resulted from more capital, that is, more nonresidential structures and equipment and more inventories. Another 15 per cent is ascribed to changes in employment and working hours, with account also taken of the age-sex composition of workers. Fourteen per cent was due to increased capabilities of workers resulting from more education. Ten per cent resulted from improved resource allocation, taking the form of a reduction in the amount of labor overallocated to farming and to self-employment and unpaid family labor in nonfarm establishments too small for efficiency. Thirty-seven per cent was contributed by advances in technological, managerial and organizational knowledge as to how to produce at low cost, together with miscellaneous output determinants not separately estimated. This is the residual in the calculation. In the 1948-73 period it probably provides a tolerable approximation to the contribution of advances in knowledge alone. If so, advances in knowledge were much the largest single source of growth. Economies of scale made possible by the growth of markets contributed an estimated 11 per cent of the growth rate. Finally, certain changes in the legal and human environment, together with irregular factors, subtracted 2 per cent.(107)

In short, Denison's calculations show that in the period outlined, rationalisation measures allowed a tremendous expansion of the capitalist economies to occur largely by methods associated with organisation and systemisation of the production process rather than with dramatic increases in the mass of accumulated capital which would have tended to drive up the organic composition. It should be noted too that the tendency for the organic composition to rise was also offset by the tremendous increase in productivity and consequent fall in prices made

possible by the global application of rationalisation to the production of raw materials.(108)

Gramsci's belief that the rejuvenation of capitalism would have a debilitating effect on the revolutionary movement has also been proven justified. In societies characterised by high growth rates and rising standards of living the call to revolution appeared increasingly ludicrous and fell to an ever greater extent on deaf ears. The improved living standards rationalisation made possible, in other words, undermined the communists' primary justification for demanding the abolition of capitalism, i.e. that the capitalist system necessarily involved the ever greater immiseration of the working class. It also undermined the primary source of the revolutionary movement's recruitment base, the workers who were forced to suffer the poverty and degradation of capitalism in decay.

To conclude that Gramsci's assessment of the potential for rationalisation to rejuvenate capitalism and counter the revolutionary challenge has been validated by historical events leaves one to ask what of his forecast that taylorism would in time prove increasingly ineffective at sustaining the vitality of capitalism. To attempt to tackle this problem within this thesis would involve moving too far outside the question of worktime and the associated problems with which this work has attempted to come to grips. Indeed, the author may well be open to the criticism that he is already clearly guilty of this offence. Consequently,

comment on Gramsci's prediction will be limited to observing that, as Rostow has shown, the postwar global boom was largely based on the falling price of raw materials and the global exploitation of the production techniques pioneered within the U.S.A. prior to the Second World War.(109) Further, that as he notes, it was the European and Japanese delayed exploitation of these techniques that largely explains the higher growth rates in these countries in the period 1950-1973.(110) As the potential of these techniques has been realised these countries have, one after another, followed the path again pioneered by the United States since the mid-1960s. In short, since 1966 there has been an accelerating decline in the rate of productivity growth, and a fall in the rate of profit.(111) To what extent a decline in the effectiveness of taylorism is a cause of this deterioration is a question that at this stage is unresolved. Given the nature of the sources of growth during the postwar boom, however, it may not be unreasonable to suspect that the deteriorating situation is to be explained by the relative weakening of these factors. This is an explanation many have found impossible to accept because of its tremendous ramifications. The response to the crisis in the U.S.A. has been typical .

As the trusted formula of high-volume, standardized production has ceased to deliver prosperity, America has been ready to embrace any explanation but the most obvious: The same factor that previously brought prosperity - the way the nation organizes itself for production - now threatens decline. Everywhere America has looked, it has seen the symptoms of its economic impasse, but the nation has been unable to recognize the problem because its roots are deeply in the

organization of America's business enterprises, labor unions and government institutions.(112)

To put forward this hypothesis, it is stressed, is not to suggest that capitalism has necessarily reached any final stage of development or even that the generative capacities of rationalisation have been exhausted. What is suggested is that there are grounds to suspect the capacity of taylorism, as thus far applied, to hold back capitalist decay has greatly weakened and that at the present time it is difficult to see what can take its place. Gramsci's argument that the taylorist epoch would be of limited duration, in other words, may well be being validated.(113)

Finally, what of Gramsci's claim that as capitalism moved once again into a stage of decay the bourgeoisie would be compelled to begin taking back the gains won by the workers during the period of expansion. Writing in early 1985 one can fear that this prediction is also proving to have a good deal of substance. As growth and profit rates have declined, the depth of cyclical crises has intensified and unemployment has risen the bourgeoisie throughout the industrialised world has moved to offset the fall in profit rates by unleashing what Rostow has termed a 'barbaric counter-revolution'. This offensive has involved the cutting of wages and welfare spending, the undermining of working conditions, the driving up of the rate of exploitation and in general the growing spread of immiseration amongst the working class. This 'supply-side' strategy, particularly if it is combined with

fiscal and monetary policies which place pressure on producers to innovate, restructure and remove those X-inefficiencies which still exist within the production process does have the ability to raise the rate of productivity growth and the rate of profit. The capacity of any such revival to be sustained will depend to a significant degree on how great the remaining inefficiencies are, and on how effective the application of rationalisation measures are at removing them. After 70 years of the rigorous application of scientific management it may well be that there is simply not that much slack left. If a significant ongoing boost to productivity growth can not be achieved by this manner capitalists will be forced to compete by increasing investments in high technology, low employment areas. Along this path, however, lies the problem of how to maintain the rate of profit when so many competitors are all investing in this form of technology and increasing the ratio of constant to variable capital. In short, there looms the spectre of Marx's ultimate source of capitalist breakdown, the tendency for the organic composition of capital to rise and thus for the rate of profit to fall.

NOTES

1. Peter F. Drucker, The Practice of Management, Harper and Row, New York, 1955, p. 274, Braverman has correctly noted that its fundamental teachings have become ". . . bedrock of all work design", Harry Braverman, 'Labor and Monopoly Capital', op cit, p. 87. Where investigators have actually examined the criteria utilised by those who design jobs in contemporary industrialised societies it has been found that ". . . job design practices are consistent with the principles of rationalisation or scientific management". See Louis E. Davis, Ralph R. Canter and John Hoffman, 'Current Job Design Criteria', Journal of Industrial Engineering, Vol. 6, No. 2, 1955, reprinted in Louis E. Davis and James C. Taylor, Design of Jobs, Penguin, London, 1972, pp 65-82.
2. Edwin Layton, 'The Diffusion of Scientific Management and Mass Production from the U.S. in the Twentieth Century', op cit, p. 377.
3. Paul Devinat, Scientific Management in Europe, International Labour Office, Studies and Reports, Series B (Economic Conditions), No. 17, Geneva, 1927, p. 16.
4. Ibid, pp 16-17.
5. Ibid, p. 17.
6. Frank B. Copley, 'Frederick W. Taylor: Father of Scientific Management', op cit, Vol. 2, p. 111-118.
7. Judith A. Merkle, op cit, p. 178.
8. Paul Devinat, 'Scientific Management in Europe', op cit, pp 24, 144.
9. For an example of how scientific management was perceived and utilised by the employers see Dieter Groh, 'Intensification of Work and Industrial Conflict in Germany, 1896-1914', Politics and Society, Vol. 8, Nos. 3 and 4, 1978, pp 349-397.
10. George Bricard, cited by Judith A. Merkle, op cit, p. 153.
11. Paul Devinat, 'Scientific Management in Europe', op cit, pp 100, 105. Edwin Layton, 'The Diffusion of Scientific Management', op cit, p. 383.
12. Paul Devinat, 'Scientific Management in Europe', op cit, pp 129-138.
13. Ibid, p. 144.
14. Ibid, p. 19.
15. Ibid, pp 18-22. In France for example, Georges Clemenceau ordered managers in all factories engaged in producing the needs of war to study and apply Taylor's methods for systemising the production process. See Daniel A. Wren, The Evolution of Management Thought, The Ronald Press, New York, 1972, p. 179. Martin Fine, 'Albert Thomas: A Reformer's Vision of Modernization, 1914-32', Journal of Contemporary History, Vol. 12,

- 1977, pp 546-552.
16. Paul Devinat, 'Scientific Management in Europe', op cit, p. 29.
 17. This was certainly not true, it needs be added, of all the contributions to the systemisation of production made by the Europeans at this time. Management scholars outside of the United States proved particularly innovative in modifying taylorist ideas and practices to make them applicable to problems of a national scale.
 18. For details on two of the more influential of these modifiers see Judith A. Merkle, op cit, pp 139, 158-166, 267. L. Urwick and E. Brech, 'The Making of Scientific Management', op cit, Vol. 1, pp 39-47, for a discussion of Henri Fayol's work and Edwin Layton, 'The Diffusion of Scientific Management', op cit, pp 382-384, for the work of Charles E. Bedaux.
 19. Robert A. Brady, The Rationalization Movement in German Industry. A Study in the Evolution of Economic Planning, University of California Press, Berkeley, 1933, pp 52-66. Judith A. Merkle, op cit, pp 184-186, 121-127. See also Robert A. Brady, 'The Meaning of Rationalization: An Analysis of the Literature', The Quarterly Journal of Economics, Vol. 46, May 1932, pp 526-540.
 20. For taylorism in the Soviet Union in the 1920s see; Rainer Traub, 'Lenin and Taylor: The Fate of "Scientific Management" in the (Early) Soviet Union', Telos, No. 37, Fall 1978, pp 82-92. Judith A. Merkle, op cit, pp 103-129. George Filipetti, 'Industrial Management in Transition', op cit, pp 190-203.
 21. Paul Devinat, 'Scientific Management in Europe', op cit, pp 27-28.
 22. Judith A. Merkle, op cit, p. 181. L. Urwick, The Meaning of Rationalisation, Nisbet and Co., London, 1929, pp 13-17. Urwick also provides a number of definitions of the term 'rationalisation' from diverse sources, see pp 154-156, and for a similar list see Walter Meakin, The New Industrial Revolution. A Study for the General Reader of Rationalisation and Post-war Tendencies of Capitalism and Labour, Victor Gollancz, London, 1928, pp 12-16.
 23. A. A. Evans, 'Hours of Work', op cit, pp 8-9.
 24. Charles S. Maier, Recasting Bourgeois Europe. Stabilization in France, Germany, and Italy in the Decade After World War 1, Princeton University Press, Princeton, 1975, p. 78.
 25. Ibid, pp 78-79.
 26. Ibid, p. 80. See also Gerald D. Feldman, 'The Social and Economic Policies of German Big Business, 1918-1929', The American Historical Review, Vol. 75, No. 1, 1969, pp 47-55.
 27. International Labor Conference, Washington, 1919, op cit, p. 34.
 28. Rodney Lowe, 'Hours of Labour: Negotiating Industrial

- Legislation in Britain, 1919-39', The Economic History Review, Vol. 35, No. 2, May 1982, p. 256. See also J. A. Dowie, '1919-20 is in Need of Attention', The Economic History Review, Vol. 28, No. 3, August 1975, pp 429-450. For details of this offensive see, International Labour Office, 'Employers' Organisations-Hours of Work', International Labour Review, Vol. 7, No. 4, 1923, pp 552-555. Charles S. Maier, 'Between Taylorism and Technocracy: European Ideologies and the Vision of Industrial Productivity in the 1920s', The Journal of Contemporary History, Vol. 5, No. 2, 1970, pp 27-61. Albert Thomas, 'The Eight-Hour Day: "Taking a Reckoning"', International Labour Review, Vol. 14, No. 2, 1926, pp 153-174.
29. Otto Lipmann, 'Hours of Work and Output', International Labour Review, Vol. 9, No. 4, 1924, p. 490. The failure of the labour movement in Britain to recognise this relationship largely explains the gap between actual work times and standard times that has developed in that country during the postwar years. British workers were able to use their industrial and political strength to win reductions in the normal length of time they worked after the Second World War, but the power they utilised to win this reform was also used to prevent a corresponding increase in intensity levels. The ineptitude of British management was such employers could not overcome this difficulty anywhere near as effectively as did the capitalists of most other industrialised nations. Being unable to rescind the changes to standard times, British employers found that it was profitable to allow workers to labour extensive quantities of overtime. To the workers this appeared as a real financial bonus as overtime is generally paid at penalty rates. The fallacy of this hypothesis is that in Britain there is a clear inverse relationship between the quantity of overtime worked and the hourly wages paid. Industries with the lowest average hourly earnings all tend to have actual working times higher than the British average. (Barry Hughes and Derek Leslie, 'Hours of Work in British Manufacturing Industries', Scottish Journal of Political Economy, Vol. 22, No. 3, 1975, p. 303.) Indeed, there are indications that the working of large quantities of overtime on a permanent basis lowers total income. (E. G. Whybrew, Overtime Working in Britain. A Study of its Origins, Functions and Methods of Control, H.M.S.O., London, 1968, p. 61. E. H. Phelps Brown and N. H. Browne, 'Earnings in Industries of the United Kingdom 1948-59', The Economic Journal, Vol. 72, Sept. 1962, pp517-549.
30. Edgard Milhaud, 'The Results of the Adoption of the Eight-Hour Day: The Eight-Hour Day and Technical Progress', International Labour Review, Vol. 12, No. 6, 1925, p. 820.
31. Ibid, pp 821-853. See also Edgard Milhaud, 'The Results

- of the Adoption of the Eight-Hour Day: 11. The Eight-Hour Day and the Human Factor in Production', International Labour Review, Vol. 13, No. 2, 1926, p. 175.
32. Edgard Milhaud, 'The Eight-Hour Day and the Human Factor in Production', op cit, pp 175-179.
 33. Ibid, p. 210.
 34. Paul Devinat, 'Scientific Management in Europe', op cit, p. 149.
 35. Albert Thomas, in Paul Devinat, 'Scientific Management in Europe', op cit, p. vii. For evidence of the validity of these fears see, League of Nations, Industrialization and Foreign Trade, Geneva, 1945, pp 76-121.
 36. Paul Devinat, 'Scientific Management in Europe', op cit, p. 13.
 37. Ibid, pp 12-13.
 38. Judith A. Merkle, op cit, pp 193-194. Charles S. Maier, 'Between Taylorism and Technocracy', op cit, pp 54-56.
 39. Edwin Layton, 'The Diffusion of Scientific Management and Mass Production', op cit, p. 381.
 40. International Labour Office, 'The Social Aspects of Rationalisation', op cit, p. 96.
 41. Loc cit.
 42. Ibid, p. 99.
 43. Ibid, pp 100-114.
 44. Ibid, pp 114-126.
 45. Ibid, p. 127.
 46. Ibid, pp 131-144.
 47. Ibid, pp 144-146.
 48. Ibid, p. 146.
 49. Ibid, p. 127.
 50. Paul Devinat, 'Scientific Management in Europe', op cit, p. xi.
 51. International Labour Office, 'The Social Aspects of Rationalisation', op cit, p. 154. See also L. Urwick, 'The Meaning of Rationalisation', op cit, pp 62-63, 71-73.
 52. Paul Devinat, 'Scientific Management in Europe', op cit, pp 34-35. See also Lloyd Humberstone, Science and Labour. Being the Principal Addresses at the Conference on Science and Labour held in London on 30th and 31st May 1924, Ernest Benn Ltd., London.
 53. Eric Farmer, 'The Economy of Human Effort in Industry', Occupational Psychology, Vol. 1, No. 1, 1922, pp 18-22.
 54. C. S. Myers, 'The Efficiency Engineer and the Industrial Psychologist', op cit, p. 170.
 55. Frank B. G. Gilbreth and Lillian Gilbreth, 'The Efficiency Engineer and the Industrial Psychologist', Occupational Psychology, Vol. 2, No. 1, 1924, p. 41.
 56. Ibid, p. 42.
 57. Ibid, p. 45.
 58. G. H. Miles, 'The Uses and Abuses of Time Study. A Reply (iii)', Occupational Psychology, Vol. 3, No. 3, 1926, pp 145-146.

59. J. M. Scott Maxwell, 'The Uses and Abuses of Time Study (ii). A Criticism', Occupational Psychology, Vol. 3, No. 3, 1926, pp 143-144.
60. Paul Devinat, 'Scientific Management in Europe', op cit, p. 39.
61. Ibid, p. 37.
62. L. Urwick, 'The Meaning of Rationalisation', op cit, pp 33-37.
63. Paul Devinat, 'Scientific Management in Europe', op cit, p. 40. Urwick has suggested;

The characteristic which inspired and was common to these developments was the belief that a more rational control of the economic life of the world was possible and desirable, and that it could be achieved by a close application of the discoveries, and of the intellectual methods and standards of science, to the whole of the problems involved.

- L. Urwick, 'The Meaning of Rationalisation', op cit, p. 19.
64. L. Urwick, 'The Meaning of Rationalisation', op cit, p. 19.
65. George Filipetti, op cit, pp 175-176.
66. Ibid, pp 180-190.
67. International Labour Office, 'The Social Aspects of Rationalisation', op cit, p. 5. For details of this conference see, League of Nations, International Economic Conference. Agenda of the Conference. Report of the Preparatory Committee, Geneva, 1926. League of Nations, The World Economic Conference. Final Report, Geneva, 1927. A. Loveday et al., The Economic Consequences of the League. The World Economic Conference, Europa Publishing, London, undated.
68. Robert A. Brady, 'The Rationalization Movement in German Industry', op cit, p. 362.
69. Ibid, p. 369.
70. Ibid, pp 369- 370.
71. M. E. Falkus, 'The German Business Cycle in the 1920s', The Economic History Review, Vol. 28, No. 3, August 1975, pp 451-465. P. Temin, 'The Beginning of the Depression in Germany', The Economic History Review, Vol. 24, No.2 , 1971, pp 240-249.
72. Charles S. Maier, 'Recasting Bourgeois Europe', op cit, pp 56-60. John A. Moses, 'The Concept of Economic Democracy Within the German Trade Unions During the Weimar Republic: The Emergence of an Alternative Route to Socialism', Labour History, No. 34, May 1978, pp 47-49. For details of German working times prior to this period see Jurgen Kuczynski, Germany 1800 to the Present Day, Frederick Mueller Ltd, London, 1945, pp 97-100, 143-155.
73. Gerald Feldman, op cit, p. 50.
74. Cited by Jurgen Bonig, 'Technik, Rationalisierung und

- Arbeitszeit in der Weimar Republik', Technikgeschichte, Bd 47, Nr. 3, 1980, p. 306. See also Jurgen Kuczynski, op cit, pp 222-224.
75. Johannes Feig, 'The New German Labour Protection Bill', International Labour Review, Vol. 15, No. 2, 1927, pp 176-177.
 76. Gerhard Bry, Wages in Germany 1871-1945, Princeton University Press, Princeton, 1960, pp 74-75.
 77. Jurgen Bonig, op cit, p. 307. See also Charles S. Maier, 'Recasting Bourgeois Europe', pp 383-384.
 78. Johannes Feig, op cit, p. 177. The arguments put forward by the employers and the state for insisting on this abrogation of the 8-hour day are given in detail by Robert Kuczynski, Postwar Labor Conditions in Germany, Bureau of Labor Statistics, Bulletin 380, 1925, pp 104-115.
 79. Charles S. Maier, 'Recasting Bourgeois Europe', op cit, p. 447.
 80. Jurgen Bonig, op cit, pp 303-304.
 81. Ibid, p. 304.
 82. Judith A. Merkle, op cit, p. 177.
 83. Ibid, pp 184-186.
 84. Ibid, pp 177-178.
 85. Robert A. Brady, 'The Rationalization Movement in German Industry', op cit, pp 375-382. See also Julius Hirsch, National and International Monopolies from the Point of View of Labour, the Consuming Public, and Rationalisation, League of Nations, Geneva, 1926.
 86. Walter Meakin, op cit, p. 156.
 87. Ibid, pp 157-158.
 88. Gerald Feldman, op cit, p. 53.
 89. Robert Brady, 'The Rationalization Movement in German Industry', op cit, pp 330-332. Jurgen Bonig, op cit, p. 308.
 90. As quoted by Walter Meakin, op cit, p. 214.
 91. Robert Brady, 'The Rationalization Movement in German Industry', op cit, pp 328-329.
 92. Walter Meakin, op cit, p. 224.
 93. Robert A. Brady, 'The Rationalization Movement in German Industry', op cit, p. 346.
 94. Jurgen Bonig, op cit, pp 317-318.
 95. Ibid, p. 318. For details of how rationalisation influenced working times in various industries see, International Labour Office, 'Recent Official Enquiries into Wages and Hours of Work in Various Industries in Germany: 1', International Labour Review, Vol. 20, No. 3, 1929, pp 408-419. International Labour Office, 'Recent Official Enquiries into Wages and Hours of Work in Various Industries in Germany: 11', International Labour Review, Vol. 22, No. 6, 1930, pp 807-816.
 96. Larry Peterson, 'Labor and the End of Weimar: The Case of the KPD in the November 1928 Lockout in the Rhenish-Westphalian Iron and Steel Industry', Central European History, Vol. 15, No. 1, March 1982, pp 57-95.
 97. Ibid, p. 57. See also Walter Meakin, op cit, pp 73-85.

- Gustav Stolper, Karl Haver and Knut Borchardt, The German Economy 1870 to the Present, Wiedenfeld and Nicolson, 1967, pp 104-106. U.S. Bureau of Labor Statistics, 'Restoration of the 8-Hour Day in the German Iron Industry', Monthly Labor Review, Vol. 25, No. 4, October 1927, pp 134-135.
98. Robert Brady, 'The Rationalisation Movement in German Industry', op cit, p.330.
99. For German worktime changes during the 1930s see, Fritz Sitzler, 'Recent Emergency Legislation in Germany, with Special Reference to Wages and Hours of Work', International Labour Review, Vol. 25, No. 4, 1932, pp 459-479. International Labour Office, 'The Reduction of the Working Week in Germany,' International Labour Review, Vol. 29, No. 6, 1934, pp 765-783. International Labour Office, 'Hours of Work in Germany', International Labour Review, Vol. 40, No. 3, 1939, pp 360-372. Gerhard Bry, op cit, pp 47-49.
100. The revival of labour's bargaining power during the 1950s was to generate a rebirth of interest in worktime research. See, for example, International Labour Office, 'Repercussions of a Reduction in Hours of Work', International Labour Review, Vol. 74, 1956, pp 23-45, for general interest and for capitalist Germany, Rolf Kregel, Arbeitszeit und Produktivitat: Untersuch ungs ergebnisse wissenschaftlicher Forschungsinstitute, (4 vols.), Berlin, 1962. Muller and Neususs report, moreover, that the economic slump of 1967 in capitalist Germany also resulted in a vehement push to extend the rationalisation process. They further report that the unions once again were strongly supportive of this strategy.

This push not only involved a rationalization of the technical means of production, but primarily the intensification of labour. (Firing of "superfluous" labor, strict overall cost analysis of the organizational structure of the company as well as of the work place in search of possibilities to eliminate labor. This has reduced what was left to the individual worker in terms of his freedom to determine his work and work time. In particular, these measures apply to employees, clerical workers, but also skilled labor; increased piece-work, evaluation of work-place efficiency, procedures that up-date Taylorism, etc.)

- Wolfgang Muller and Christel Neususs, 'The Illusion of State Socialism and the Contradiction between Wage Labor and Capital', Telos, No. 25, Fall 1975, p. 88.
101. Antonio Gramsci, 'Americanism and Fordism' in Selections from the Prison Notebooks of Antonio

- Gramsci, edited and translated by Quintin Hoare and Geoffrey Nowell Smith, Lawrence and Wishart, London, 1971, pp 277, 292-293.
102. Ibid, p. 278.
103. Ibid, pp 310-313.
104. Ibid, pp 279-280.
105. Ibid, p. 277.
106. Ibid, pp 310-311.
107. Edward F. Denison, 'The Contribution of Capital to Economic Growth', The American Economic Review. Papers and Proceedings, Vol. 70, No. 2, 1980, p. 70. See also, Edward F. Denison, Accounting for Slower Economic Growth. The United States in the 1970s, The Brookings Institution, Washington, 1979. Denison has waged a constant struggle against those economists and politicians who continued to believe that the rate with which physical capital is accumulated is the primary determinant of economic growth. The Reagan administration and its supply-side advisers, however, in their eagerness to cut corporate taxes and restore profitability have generally ignored his advice. For an overview of the supply-siders' prescriptions see, Federal Reserve Bank of Atlanta, Supply-side Economics in the 1980s. Conference Proceedings, Quorum Books, Westport, 1982.
108. W. W. Rostow, The Barbaric Counter-Revolution, Cause and Cure, University of Texas Press, Austin, 1983, pp 10-17. See also W. W. Rostow, Why the Poor Get Richer and the Rich Slow Down, Essays in the Marshallian Long Period, University of Texas Press, Austin, 1979.
109. W. W. Rostow, 'The Barbaric Counter-Revolution', op cit, pp 8-9. See also Angus Maddison, Economic Growth in the West. Comparative Experience in Europe and North America, The Twentieth Century Fund, New York, 1964, pp 60-63, 66-75.
110. W. W. Rostow, 'The Barbaric Counter-Revolution', op cit, p. 11.
111. For material on the falling rate of profit, see, William D. Nordhaus, 'The Falling Share of Profits', Brookings Papers on Economic Activity, Vol. 1, 1974, pp 169-217. Martin Feldstein and Lawrence Summers, 'Is the Rate of Profit Falling?', Brookings Papers on Economic Activity, Vol. 1, 1977, pp 211-228. Martin Neil Bailly, 'Productivity and the Services of Capital and Labor', Brookings Papers on Economic Activity, Vol. 1, 1981, pp 1-65. John Harrison, 'The Profit Squeeze, Unemployment and Policy: A Marxist Approach' in Angus Maddison and Bote S. Wilpstra, Unemployment. The European Perspective, Croom Helm, London, 1982, pp 175-180. Thomas E. Weisskopf, Samuel Bowles and David M. Gordon, 'Hearts and Minds: A Social Model of U.S. Productivity Growth', Brookings Papers on Economic Activity, Vol. 2, 1983, pp 381-450. Jeffrey D. Sachs, 'Real Wages and Unemployment in the OECD

Countries', Brookings Papers on Economic Activity, Vol. 1, 1983, pp 255-289. Michael Bruno, Raw Materials, Profits and the Productivity Slowdown, Working Paper 660, National Bureau of Economic Research, 1981. Peter K. Clark, 'Productivity and Profits in the 1980s: Are they Really Improving?', Brookings Papers on Economic Activity, Vol. 1, 1984, pp 133-181. Martin Neil Baily, 'Will Productivity Growth Recover? Has it Done So Already?', The American Economic Review. Papers and Proceedings, May 1984, pp 231-241.

112. Robert B. Reich, op cit, p.119.

113. A number of scholars have recently attempted to argue that a weakening of this factor is in fact the primary cause of the present crisis. At this stage, however, any such conclusion is certainly open to debate. See, William J. Abernathy, Kim B. Clark and Alan Kantrow, Industrial Renaissance: Producing a Competitive Future For America, Basic Books, New York, 1983. Paul R. Lawrence and Davis Dyer, Renewing American Industry, The Free Press, New York, 1983. Robert B. Reich, The Next American Frontier, Times Books, New York, 1983.

PART 2

Worktime Change in Australia

1900-1930

Chapter 6

The 48-hour Standard, Scientific Management and the 44-hour Week

The Australian economy in 1900 was dominated by the rural sector. Factory output as table 6.1 shows made up only 12 per cent of gross domestic product, being of markedly less value than primary production and only a little more than mining. Both agriculture and manufacturing until this period had been heavily protected by natural advantages, the former by the availability of cheap land and the latter by its exploitation of local resources and/or the production of goods expensive to freight. These advantages permitted the continued existence of a level of efficiency that was low by international standards. Indeed, the economy as a whole was at a fairly simple level of development compared to that reached in a number of the more industrialised nations by this time.(1) The fifty years after 1900, however, saw radical changes in this situation. During this period a dramatic restructuring of the economy was undergone. Manufacturing rose to a dominant position within industry, experiencing a very high growth rate overall.(2) This growth and transformation in the structure of the economy was accompanied by a concomitant transformation of the labour process as production in Australia was increasingly subjected to the process of rationalisation.

Table 6.1

GROSS NATIONAL PRODUCT AT FACTOR COST BY INDUSTRY OF ORIGIN, AUSTRALIA,
SELECTED YEARS, 1900-1 TO 1967-8

Year	Primary production	Mining	Manufacturing	Public business undertakings	Construction	Private water transport	Distribution	Government services	Other services	Finance	Unallocated items	House rents	Total value
	1	2	3	4	5	6	7	8	9	10	11	12	13
	Percentage of total												
1900-1	19.3	10.3	12.1	4.9	7.0	1.8	15.1	3.4	13.8	1.9	0.3	10.1	382
1913-4	23.5	5.1	13.4	5.2	9.9	1.3	16.3	3.7	12.0	1.6	0.3	7.7	830
1919-20	23.5	3.0	13.5	5.3	9.8	1.3	19.2	3.8	11.6	1.8	0.3	6.7	1,161
1928-9	21.2	1.8	16.7	6.1	8.5	1.3	17.5	4.5	11.0	2.1	0.5	8.7	1,607
1938-9	19.5	3.3	18.5	5.4	6.6	0.9	18.8	4.8	10.7	2.5	0.5	8.5	1,697
	Primary production	Mining and quarrying	Manufacturing	Electricity, gas and water supply	Building and construction	Transport and communication	Commerce	Public administration (incl. defence)	Community and business services (incl. professional)	Finance and property	All other industries	Ownership of dwellings	\$m
	Percentage of total												
1948-9	21.3	2.5	26.2	1.9	6.0	7.3	15.3	3.7	4.8	2.4	4.6	4.0	4,031
1950-1	29.0	2.1	23.7	1.5	6.3	6.3	14.7	3.2	4.2	2.2	4.0	2.7	6,583
1955-6	15.9	2.3	28.0	2.4	7.8	7.6	15.7	4.2	5.8	2.5	4.2	3.6	9,483
1960-1	13.0	1.9	28.5	3.2	7.9	8.3	14.8	3.8	6.8	3.2	4.3	4.4	13,062
1965-6	10.5	1.9	28.5	3.5	8.6	8.2	14.2	4.1	7.8	3.2	4.2	5.3	18,538
1966-7	11.4	2.0	28.0	3.4	8.3	8.1	13.9	4.3	7.8	3.3	4.2	5.3	20,384
1967-8	8.5	2.2	28.4	3.5	8.4	8.4	14.5	4.5	8.1	3.4	4.5	5.5	21,612

Source: E.A. Boehm, 20th Century Economic Development in Australia, p. 8.

In this chapter the changing nature of Australian worktime standards during the years 1900-1920 will be looked at. It will be argued that, as in Europe and North America, local worktime curtailments were not simply a matter of worker preferences or working class power. These changes were also the result of a perceived need to systemise and standardise basic time schedules and a growing awareness of the relationship between shorter work times and industrial efficiency. They also reflected a realisation by an increasing number of individuals within the state that the relative inefficiency of Australian industry was largely a result of poor management and that employers had to be forced to accept the need to overhaul their approach to the management of the production process. The twin issues of worktime and scientific management played

a crucial role in this development.

Scientific Management in Australia

In the decade prior to the First World War knowledge of scientific management was widely disseminated within Australia. While few local employers suffered from the high overheads experienced by the major American industries one factor that did induce an early interest in these ideas was the high wages and relatively short work times enjoyed by a large number of Australian workers.(3) Local capitalists, consequently, were among the first of those who followed the star of high-speed steel to Bethlehem at the turn of the century in order to learn personally from Taylor.(4) Some employers began experimenting with the new production techniques almost immediately they became widely known. As early as 1912 the workers at the Lithgow Small Arms Factory, for example, complained of the 'American hustling methods' being adopted by the management.(5) Employer attempts to introduce premium wage systems also became common during this period while the use of time-study and a number of Taylor's other techniques were extensively utilised by Pelaco in 1912.(6)

The typical response of the overwhelming majority of those capitalists who displayed an early interest in scientific management was similar to that adopted by their peers in the U.S.A. and Europe. With few exceptions it was the possibilities inherent within Taylorism for increasing the employer's control over labour-time and effort norms that attracted attention. In 1911, for example, the

Adelaide Register discussed the work of the taylorists in laudatory terms. It was, however, only the potential savings in labour-power that were highlighted. Criticism of traditional management practices and the high costs of the new methods were ignored. It was only the scientific manager's ability to increase ". . . the utilisation of human energy with the view of saving time and preventing waste of labour" that was stressed.(7)

The First World War was to accelerate radically the spread of time - study and payment by results. It also significantly expanded the influence of those attempting to promote greater industrial efficiency within Australia. In his discussion of the efficiency movement's significance, Rowse asserts that it was not until World War Two that the Australian corporate sector was sufficiently developed to provide an audience and market for scientific management. Local capitalists with their small establishments were not ready for the sophistications involved in Taylor's programme prior to this period. Those who advocated the rationalisation of industry before 1940, Rowse says, ". . . tended to function primarily as disseminators of an abstract ethic, since they were given no opportunity to elaborate and test techniques of efficiency".(8) He further claims that the intellectuals involved with the efficiency movement were not able to 'capture' strategic positions within Australian society that would enable them to transform their theory into practice.(9) Rowse's claims do have a degree of validity if what is being discussed is

Taylor's full programme. Australian employers proved as resistant to those elements of the new science which involved the investing of large amounts of capital and effort as did their counterparts in Europe and the U.S.A. Within the vast majority of firms traditional management methods continued to be the norm until after 1945. The problem with his hypothesis, however, is that it goes too far. It ignores the early interest shown by Australian capitalists in time-study and taylorist incentive systems. This interest during the 1920s, it should be added, became a passion, with many employers coming to see the workers' opposition to these aspects of scientific management as the primary reason for their inability to compete with their international rivals. Rowse also fails in his analysis to recognise the importance of the role played by intellectuals within the labour movement and state instrumentalities in promoting scientific management in the years before World War Two. The failure of the market prior to this period, compelled these bodies to take active steps to force employers to adopt the American methods.

Rowse's failure to recognise these developments is surprising given one of the primary documents upon which he based his discussion was a series of lectures which were given as part of a campaign promoted by the governments of Victoria and N.S.W. to support the efficiency movement. This campaign was opened in March 1914 by the Victorian Commissioner of Public Works, F. Hagelthorne. The Commissioner had N. C. Harris, a public servant and a

committed taylorist, prepare and present a series of lectures on industrial efficiency.(10) These lectures were given publicly and were heavily attended, the audiences including many employers, union officials and parliamentarians.(11) Hagelthorne had a broad conception of what needed to be done to raise the efficiency of industry. He insisted, however, that it was necessary to **concentrate first** on increasing the 'productiveness of labour'.(12) The way to do this was by introducing the techniques developed by Taylor and his colleagues into the workplace. Harris' lectures consequently consisted of first, an outline of Taylor's work with particular emphasis on incentive wage systems and time study, second, a listing of the benefits, for both workers and employers, to be gained by the adoption of scientific management and third, a plea for a conciliatory and objective attitude to the new science by all parties.

Hagelthorne insisted that Taylor's system of management did not benefit any particular group within society. "These issues are purely economic, and should not be mixed up with questions of political partisanship, or obscured by the prejudices of the classes".(13) The following year he continued his campaign by commissioning a number of academics to give a series of lectures on some of the broader aspects of the efficiency movement. Of these, the one given by R. F. Irvine was the most wide-ranging and set the tone for the whole series. Irvine argued that the free

market did not automatically ensure society's best interests were served.(14) Experience, he insisted, had shown that private enterprise, left to itself, was often inefficient. This was because employers tended to be exceedingly self-satisfied, untrained and unobservant.(15) These characteristics produced waste and incompetence throughout the society. That this situation was able to continue to exist within a market economy he attributed partly to lack of enterprise, partly to ignorance and partly to a general apathy on the part of the consumer.(16) Much the same situation existed, he claimed, within the state sector; indeed, in this area the level of efficiency tended to be even lower because of bureaucratic ineptitude. Given such a situation, Irvine asked, how could the level of efficiency within Australian industry be raised?

Irvine's answer to this problem was to suggest that to begin with, much could be done within both public and private enterprises by ". . . the application of the principles known as scientific management".(17) The aims of the taylorists, he argued, had frequently been misunderstood by both employers and workers. Employers generally felt they had little to learn from the scientist while the workers suspected that scientific management was nothing more than a new form of exploitation. These beliefs, he insisted, were misconceptions, for there was much the employer could learn and much the worker could gain from the application of Taylor's principles. Scientific management, Irvine further argued, had much to offer beyond the level of the individual

enterprise. Efficiency at the level of the nation and particularly the efficiency of the state would also be greatly improved by the adoption of the rationaliser's approach to problem solving. The knowledge necessary to attain this latter objective, however, was too great for the individual to absorb. The collection and dissemination of industrial knowledge consequently also required organisation. He urged, therefore, the creation in each state of what he termed Bureau~~x~~ of National Efficiency. These institutions would collect and disseminate the latest information upon every aspect of the problem of national organisation and efficiency. Their ideal place, it was suggested, was midway between the universities and the state departments in order to overcome both the 'ivory-towerism' of the academic and the officialdom of the bureaucrat.

The State and the Systemisation of Industry

The intellectuals within the state who sought to promote industrial efficiency did not limit themselves merely to the organising of public lectures. At both the Commonwealth and the state level government functionaries took active steps to promote the strategy outlined by Irvine. This activity was radically increased once the war made it clear that Germany's greater application of science within industry had given its rulers a number of economic and military advantages.(18) To promote greater efficiency and the exploitation of the possibilities of science, the Federal Government utilised its war powers to limit strictly the

ability of individual capitalists to influence the pattern of development of Australian trade and industry. It also inaugurated two new institutions - the Bureau of Commerce and Industry and the Institute of Science and Industry. The former of these was charged with,

[the] . investigation of Australia's resources with a view to establishing or developing industries; the improvement of their organisation; finding of new markets, despatch of trade commissioners; formation of export associations, and so forth. This bureau was comparatively short-lived, but some of its developmental functions were subsequently undertaken by the Migration and Development Commission.(19)

The second body began as an Advisory Council in 1916. Its purpose was to organise, undertake and promote industrial research. It was also delegated with the responsibility of establishing a central bureau which would collect and disseminate scientific information of use to industry.(20) The success of this body during the war encouraged the Federal Government, in 1920, to establish a permanent body, the Institute of Science and Industry. This institution was later to become the Commonwealth Scientific and Industrial Research Organisation.

One of the first projects the Advisory Council undertook was a study of the various methods being adopted by employers ". . . to improve the conditions of employees, to promote efficiency and to create and foster the best possible relations between employer and employee".(21) In the immediate postwar years the Council issued two bulletins which overviewed these policies in some detail. The first of these, published in 1919, outlined the developments in the

U.S.A. and Europe. The second, published the following year, examined the extent to which such schemes were being adopted in Australia.(22)

The 1919 report dealt with 'welfare work' which, it was suggested, covered all voluntary efforts on the part of individual employers to improve the conditions of the workers.(23) It was suggested that the greatest impetus to the introduction of these programmes had come from the development of scientific management. The taylorists, it was claimed, had managed to attract employer interest in improving the workers' lot by showing that it was possible to increase efficiency and profits radically through the use of welfare programmes where these were based on high wages and the elimination of excessive fatigue.(24)

Among the issues dealt with in the two bulletins was worktime. It was argued that the employers' claim that a reduction in the length of time workers laboured necessarily resulted in a reduction in output was not valid. Moreover, there was every chance productivity would be maintained in a workweek of less than 48 hours.(25) The labour movement was to make extensive use of these reports in its campaign for the 44-hour week.

Time Study and Payment by Results

The war also began bringing home to at least some employers that there was a serious need for science to be more actively integrated into the production process. In 1916 this new awareness encouraged the N.S.W. Chamber of Manufacturers to begin the publication of a new journal,

The Australasian Manufacturer. This was ". . . a weekly newspaper devoted to industrial efficiency and the manufacturing progress of Australia". The journal soon made it clear that it considered the integration of taylorism into the workplace to be vitally necessary if greater efficiency was to be achieved. By scientific management, however, the editors appear to have merely meant incentive wage systems and time-study.(26)

During the war both state and federal governments promoted and then attempted to compel the unions to accept what the latter termed "insidious humanity wrecking systems of payments by results".(27) At the Commonwealth level the Hughes Government promoted piece work in the new shipbuilding industry it wished to see established while in Victoria Hagelthorne organised a series of conferences involving unionists, employers and engineers to discuss the extension of piece and task work into new areas of industry. The exhortations at these meetings were backed up with overt threats of legislative action should the unions reject the Government's proposals.(28) At the same time the N.S.W. Government, upon receiving a report from an investigator it had sent to study scientific management in the U.S.A., both encouraged private employers to adopt Taylor's programme and proceeded to introduce some of his techniques into state-owned industries.(29) Meredith Atkinson reports that by 1917 the time-card system of the scientific managers was in use in many private establishments within the state.(30) This claim is supported

by a survey undertaken in 1916 for the N.S.W. Railways Commissioner. The study found the use of such systems in a number of large establishments of a mechanical nature in Victoria, Queensland and N.S.W..(31) Those undertaking this investigation advised the Commissioner to adopt similar practices in the railway workshops.(32) The Commissioner's acceptance of these recommendations and their subsequent introduction in 1917 sparked off one of the greatest strikes in Australian 20th century history.(33)

To what extent the Australian labour movement's hostility to Taylorism was a result of local employer attempts to compel the introduction of piece work and time-study is difficult to ascertain. What evidence does exist suggests this hostility was based more on fear of what could be done with Taylor's techniques rather than by what had been done. Most of the workers involved in the Great Strike of 1917 almost certainly had little or no personal experience of Taylor's methods. This is not to suggest they did not have a clear understanding of what they were resisting. The unions were fully aware of the struggles of the workers of the United States and Britain against the employers' use of this system.(34) Some workers, moreover, both on the shop floor and in the union leadership had personal experience of how Taylor's ideas could be used as a means of heightening exploitation.(35) Claude Thompson, the General Secretary of the Amalgamated Railway and Tramway Service Association in N.S.W., for example, had worked in a number of plants in the United States which had introduced time-study and incentive

wages. His experience had convinced him that the Taylor system was in essence nothing more than a method of increasing the effort demanded of the worker. Employer claims that they had no intention of introducing the 'drastic methods' adopted by American capitalists into the Australian workplace were greeted with a large degree of scepticism. Time study was opposed because the workers correctly recognised that it constituted ". . . the thin edge of the wedge, the first instalment of what is termed the Taylor card system of America"(36) The essence of the workers' hostility to taylorism is contained in evidence given by Thompson to the Royal Commission established to investigate the causes of the strike,

The gist of their objection is not so much to what is taking place now, but they look upon the introduction of this timing system as a prelude to a system of speeding up. The objections are founded on that, and what they know has occurred on the introduction of the timing system in other places. As far as Randwick is concerned, some of the objections have been founded on what is known as the bonus system, which is in operation in certain workshops there. That is a system of speeding up, although many workmen might express themselves in favour of that system because they may earn a little additional money thereby. (37)

The response of the Australian workers and employers to scientific management then differed little from most of their counterparts overseas. The workers' hostility was to be maintained throughout the 1900-1920 period and was not to be ameliorated until it began to be realised in the 1920s that scientific management was a weapon that could be used by the workers in the fight for a number of their claims. Of these the most significant was to be the 44-hour week.

The 48-hour Week

At the beginning of the 20th century Australian workers were in the vanguard of the international movement to reduce work times.(38) The 8-hour day, or rather the 48-hour week spread over 6 days with a half day on Saturday, was common within many industries.(39) Precisely how many workers laboured on this schedule is not known. Statistical data on Australian work times, prior to the First World War, is virtually non-existent. Indeed, what data does exist for even the fifty years after this period is poor. The Australian Bureau of Statistics has maintained records, since 1914, on 'standard hours of work' which is divided up by occupation and state.(40) This series, however, does not report actual work times, including overtime. Accurate statistics on this subject have only been compiled and published since 1966.(41)

One exception to the general dearth of information on late 19th century work times is a list of basic times, by occupation, published by the New South Wales (N.S.W.) Statistical Register in 1889.(42) This list suggests that while the 48-hour week was common it was certainly not a universal standard. By 1890 probably half of the wage earners in Sydney were working this schedule and a similar situation existed in Melbourne. In the country areas and in the cities of the other colonies, however, significantly longer schedules were considered normal in all but a few trades. Most unskilled and semi-skilled workers, both men and women, continued to work a 10 to 12 hour day.(43) In

effect therefore the 48-hour week, while common by international standards, was very largely a schedule maintained by only a minority of workers. It was mainly confined to those craft workers who had a significant degree of bargaining power, to their assistants who had to stop work when the tradesmen did, and to government employees.

Worktime Theory in the Late 19th Century

The claim that reductions in worktime did not have to necessitate reductions in output was widely propagated by the Australian labour movement in its attempts to spread the adoption of the 48-hour week. It was suggested that '... workers, being less exhausted, would do more work in eight hours than under the old system, and that an eight-hour day was therefore in the interests of employers as well as workers'.(44) The extent to which unionists actually believed this argument is open to debate for they also put forward a number of other arguments which were not always consistent with this basic proposition. The shorter week, it was also argued, should be adopted because it would reduce the amount of work each worker would have to undertake and this would enhance the worker's ability to utilise leisure time for educational purposes. It would also reduce the supply of labour-power and thus tend to raise wages and, most importantly, it would reduce unemployment by spreading the available work.(45)

Eight Hours Legislation in the Nineteenth Century

Rae has claimed that 19th century worktime reductions in Australia had little effect on output levels. As elsewhere,

when employers chose or were compelled to reduce standard times they invariably attempted to offset any detrimental effects on their enterprises by both intensifying the time that continued to be worked and by improving management practices.(46) The employer's success in offsetting reductions in worktime did not, however, motivate those capitalists who primarily hired unskilled workers to concede the 48-hour week. Because these workers lacked sufficient bargaining power to enforce their desire for a shorter schedule the labour movement was compelled to turn to politics and to the state. The 8-hour day, Gollan has argued, became a political issue during the second half of the 19th century in two ways. First, as a policy common to all unionists, it linked together organisations which in other respects were separatist, sectionalised and jealous of their independence. Second, it induced unionists to organise to enable them to apply pressure on the legislature. As early as 1859 the unions began demanding state enforcement of the shorter workweek. This demand was to become one of the major planks of the unions' political platform.(47) In 1869 and 1870 attempts were made to introduce a general 8-hour bill in Victoria and during the following thirty years similar attempts were made in every other colony. Prior to federation in 1901 none of these attempts were successful.(48)

The Arbitration System

Under The Australian constitution the Commonwealth Government is not at liberty to pass legislation which

regulates working conditions within industry except in times of national emergency. Power to do this is reserved for the state governments. This means that a Commonwealth Government cannot legislatively determine wages or the standard worktime that industry has to adopt. What the Commonwealth is allowed to do is establish a court charged with ' . . . the prevention and settlement of industrial disputes extending beyond the limits of any one state'. This court may establish legally enforceable awards which can standardise working conditions for those under its jurisdiction.

The legislation creating the Commonwealth court, in 1904, provided no instructions or firm guidelines for judges to follow in determining the respective rights of parties to a dispute. The legislation said nothing about such fundamentals as the minimum wage and nothing about what were to constitute the worktime limits of any industry. The court, moreover, had no power to award a common rule. It was not possible, therefore, for a judge to set a worktime schedule which had to be accepted by all employers. In 1910 the difficulty this situation created for standardisation of conditions was compounded when the High Court ruled that the Arbitration Court did not have the power to make its rulings binding on all employers in an industry. As a result of this ruling only those employers who were respondents to a dispute were bound by the Court's decisions.(49) These provisions made it impossible for the Court to decree a standard workweek for an industry. The only way a national

standard could be established was for a typical dispute to be recognised by general consent as a test case. Though any determination arising from this case was technically only binding on those who were parties to the claim, it was possible for the Court to announce that in future cases of a similar nature, a similar determination would be made.

In this judgement and award, particularly in the indication as to the Court's future intentions, lies the foundation of the principle. The second stage is the strict application of this principle or ratio decidendi to such a number of cases that the rule may de facto be said to be general in operation. Both stages are essential - the propounding of a principle in a test award and its unswerving application in dealing with every log or plaint of a similar nature that comes within the Court's competence.(50)

The 48-hour Standard

On the 14 September 1907 Henry Bournes Higgins became President of the Commonwealth Court. Upon taking up his position he immediately began establishing and making known the basic propositions upon which he intended to base his determinations. Higgins believed that the establishment of principles which would be consistently maintained would enable the Court to systemise and standardise industrial conditions. Standardisation, he was convinced, was a necessary prerequisite for industrial peace. If workers in comparable industries were not granted similar conditions then, unfavourable contrasts would be made by the disadvantaged workers, dissatisfaction would arise and industrial unrest ensue.(51)

The determination in which Higgins established the wage and worktime standards that were to be considered 'fair and

reasonable' by the Court, was to gain fame as the Harvester Judgement.(52) In this case Higgins fixed 7 shillings as the daily wage that was to be paid to an unskilled labourer. In order to establish this base it was necessary for Higgins to also establish standard working times. After what length of time, it needed to be determined, should extra wages in the form of overtime payments begin. Foenander reports that as Higgins had received no instructions on this issue from the legislature he decided to ascertain what was the normal working week within Australia that was 'generally accepted by agreement or custom'. After undertaking an empirical investigation of this question, Foenander reports, Higgins was to claim that in the average Australian industry the 48-hour week, scheduled to enable workers to have a half day on Saturday, was the norm.(53) Consequently he proceeded to apply and enforce this schedule as a standard in the settlement of disputes that came before his court.(54) In the Harvester Judgement he made clear just how long he considered a 7 shilling day to be.

The following conditions as to remuneration of labour are declared to be fair and reasonable, for the purposes of the Excise Tariff 1906, for persons employed on time-work in the manufactures referred to in the Act, if . . . their hours of work do not exceed eight hours per day, or 8 3/4 hours on five days in the week, and 4 1/4 on the sixth day, or if . . . there be some other similar distribution of hours for the purpose of securing a weekly half-holiday on the basis of an eight hours day.(55)

Given that only a minority of workers actually worked a 48-hour schedule at the turn of the century the question arises: why did Higgins choose the 48-hour week as the

Australian standard? Macarthy's study of the Harvester judgement led him to conclude that Higgins's determination that 7 shillings a day was to be the minimum wage was based on two streams of thought.(56) The first was the collective bargain equivalent. Higgins strongly believed that the living conditions of the poorest section of the working class needed to be safeguarded from the vagaries of the market. He was particularly concerned with protecting the interests of workers in less prosperous industries and the mass of unskilled workers who had not been able to organise effectively to defend their own rights. The Court, he believed, had to aid these workers by compelling the payment of a minimum wage that would be equal to that which would be paid had the workers been able to organise and negotiate a collective agreement.(57) The second stream of thought underpinning the 7 shilling day was the widespread approval this wage had already received within the community. By 1907, Macarthy reports, this minimum had become a 'social creed'. It was widely considered to be the minimum payable to any full time worker even if disagreement did exist as to its application and timing.(58)

Macarthy's explanation of Higgins's thought on the minimum wage issue would also largely explain the worktime provisions of the Harvester Judgement. With few exceptions the 48-hour week was the schedule worked by skilled labour. This schedule consequently constituted the collective bargaining equivalent. The 48-hour week also had widespread approval in Australia. Large sections of the bourgeoisie

accepted it and it was considered by the unions to be one of their most elementary demands. For Higgins, moreover, it had the appeal of having had official blessing from the most important of the state arbitration courts.

Macarthy has argued that, by the time of the Harvester Judgement Judge Heydon, in N.S.W., had already undertaken much of the conceptual work involved in formulating uniform wage standards for industry. Heydon, Macarthy suggests, laid down a "string of principles" which were later adopted by Higgins.(59)

In effect, dealing with similar problems in similar institutional, economic, social and industrial conditions, Heydon and Higgins came to approximately the same conclusions. If there was any dependence one on the other, the time sequence suggests Higgins emulated Heydon rather than the other way round.(60)

A similar conclusion would appear to be justified if the determinations of the two judges on the workweek is examined. In 1905 Heydon rejected an application by the Carpenters and Joiners Union for a 44-hour week. The union had based its claim primarily on the proposition that the shorter schedule would lead to a wider distribution of the available work, i.e. more workers would be required to undertake the same amount of work and thus unemployment would be reduced.(61) The judge rejected this argument on the grounds that a reduction in the working week which did not involve a concomitant reduction in wages would raise labour costs and this would cause more unemployment rather than less.(62) He further stated that he accepted that a 48-hour week constituted a 'fair week's work' and that this

assumption was generally accepted by the community.(63) To grant 44 hours to a particular group of workers who were indistinguishable from many others within the workforce would thus involve 'a serious industrial innovation'. To concede it to the carpenters would necessarily mean conceding it to these other workers. No matter how great such a reform might be, Heydon insisted, he did not feel it was up to the Court to take so innovative a step. A change of this nature would seriously delay building operations, it would raise costs and it would lower the productivity of every worker and thus the national output. These repercussions, Heydon concluded, were too great for the Court to accept. A decision of this nature must be made by the legislature.(64)

Higgins, in the Harvester Judgement, appears to have accepted Heydon's claim that the 48-hour week was an Australian standard that was fair and reasonable. He was also to accept that reductions in worktime were not an effective means for controlling employment levels.(65) This was to become a basic proposition maintained by the Court to the present day. On the question of the relationship between output and worktime Higgins had some doubts that a reduction in working time would necessarily slow down production. As late as December 1913, however, he appears to have accepted that a reduction in worktime would necessarily reduce the amount of work an employee would undertake. In the Builders Labourers' case he stated that if a specific group of workers were granted a 44 hour week they could not

expect to be paid the same wages as workers who laboured for 48 hours. As workers on a reduced schedule did less work it necessarily followed that they should be paid less. "It would, indeed, be absurd to reduce the length of the working week, and then treat the reduction as a ground for increasing the rate per hour."(66)

In this same case Higgins also made clear his agreement with Heydon that a group of workers, who were indistinguishable from many others within the workforce, could not be given a workweek below the general standard. To do so would necessitate the granting of a similar change in working conditions to all other comparable employees. If he undertook such a step, Higgins insisted, he would be exceeding his proper function.

It is my duty to accept recognised standards, not to create them; . . . In establishing generally a limit of 48 hours for the week, Australia has achieved a result which is the envy of many other nations; and, if a further limitation ought to be made, it surely ought to be sanctioned deliberately by the legislature or legislatures.(67)

In the years prior to the First World War, Higgins generally adhered to the 48-hour standard in the disputes upon which he was called to adjudicate.(68) There were, however, some exceptions to this normal policy. For Higgins was aware that labour-time has both a qualitative and temporal dimension. He recognised that the effort required per unit of time in different trades sometimes varied greatly. Consequently to enforce rigidly a worktime standard solely on a temporal basis would not bring about standardisation of an even more basic working condition,

i.e., the amount of labour a worker had to undertake to achieve a given wage. Standardisation of the effort bargain would only be achieved by standardising work times of trades that were of an 'average' or 'normal' character.(69) This was the principle adopted by the Court. Where it could be shown that exceptional circumstances existed, and only in such cases, a workweek other than 48 hours was prescribed.(70) This policy was maintained in the years up to 1914. In May of that year, however, Higgins travelled to Britain and the United States on a year's leave of absence. During this trip he was to come into close personal contact with the rationalisation movement and with some of those who were attempting to reform it. This contact was to change significantly: Higgins's concept of the nature of worktime and of the relationship between time and output. This new found appreciation was to have dramatic repercussions for standard work times in Australia.

Brandeis, Frankfurter and Goldmark

During his trip to the United States Higgins met and befriended the jurists, Louis Brandeis and Felix Frankfurter. These friendships were to last for the rest of his life. The three men, all of whom became judges of their nation's highest court, to a large extent had the same outlook on politics and social affairs.(71) They were liberals who believed that social justice and social reform could be achieved by peaceful means and that the judiciary needed to play a crucial role in this process. All three, moreover, believed in the need for industry to achieve

greater system and rationality and Brandeis, as already reported, was a personal friend of Frederick Taylor.

Higgins's work with arbitration, McQueen has reported, was of special interest to American liberals who were attempting to find some means to ease the violent class struggle then raging within the United States.(72) The work of Brandeis and Frankfurter would also have interested Higgins. Between them these two men had many years experience of reform politics and industrial law. An area of labour reform they were particularly concerned with was legislation limiting the length of the working day. Within the U.S. laws of this nature had traditionally been considered unconstitutional as they supposedly breached the right to freedom of contract. While a clause guaranteeing this freedom did not appear in the constitution, U.S. courts equated the term with 'due process', a clause that did.(73) Frankfurter argued, in 1916, that the intense hostility of the U.S. judiciary to laws which limited freedom of contract undoubtedly influenced the court's judgement as to their constitutional validity. That a judge's preference could determine his interpretation of the law was, Frankfurter asserted, the major weakness in constitutional government. He suggested, ". . . it requires minds of unusual intellectual disinterestedness, detachment, and imagination to escape from the too easy tendency to find lack of power where one is convinced of lack of wisdom".(74) (my emphasis)

During the 19th century the only major exception the

Supreme Court had allowed to its ban on worktime laws was where the nature of the work to be regulated was particularly dangerous to the health of the employee. In 1898 in *Holden v. Hardy* the Court determined that workers employed in underground mines and in the smelting, reduction and refining of ores were compelled to labour in conditions so onerous that an exception to the general rule had to be made.(75)

Brandeis, in 1908, achieved a breakthrough which had partly overcome the legal barrier to general worktime laws. His sister-in-law was the taylorist, Josephine Goldmark, and she approached him, on behalf of the National Consumers League, to defend an Oregon law attempting to establish a 10-hour workday for women. Brandeis accepted the brief on condition that he represent the State Government and that the League provide him with a huge mass of data on the effects of worktime on women. These conditions were agreed to and Goldmark contracted to work with Brandeis on the compilation of this material.(76) In presenting his case, Brandeis chose largely to ignore abstract constitutional and political arguments as to whether a legal limit to the workday constituted an infringement on the individual's life, liberty and property. He chose, instead, to base his argument on the knowledge of the scientific managers. He concentrated on two issues. First, he detailed the fact that most industrialised nations had already enacted laws of this nature. Second, he stressed the issue of fatigue and the relationship between human, psycho-physiological capacities,

worktime and the intensity of work. That part of his brief dealing with the philosophical and constitutional validity of the Oregon law was only two pages, while that dealing with the state of worktime legislation and the scientific data available on the subject of worktime was over 100 pages.(77)

Faced with the mass of data compiled by Goldmark and Brandeis, the Court upheld the constitutional validity of Oregon's legislation. This case was a major step forward in the development of constitutional law. The form of the argument used henceforth became known as a 'Brandeis brief'. It was this form of argument, rather than the decision, which gave the case its importance. As Frankfurter has pointed out;

. . . the Muller case is "epoch making", not because of its decision, but because of the authoritative recognition by the Supreme Court that the way in which Mr. Brandeis presented the case - the support of legislation by an array of facts which established the reasonableness of the legislative action, however it may be with its wisdom - laid down a new technique for counsel charged with the responsibility of arguing such constitutional questions, and an obligation upon courts to insist upon such method of argument before deciding the issue, surely, at least, before deciding the issue adversely to the legislature.(78) (my emphasis)

Following his victory Brandeis argued a similar brief in a number of state courts. These cases were fought out over a number of years. When he met Higgins, in 1914, he and Goldmark were preparing a Supreme Court brief, again for Oregon, in support of a 10-hour law for men. In 1915, however, Brandeis was named to the Supreme Court. The

Consumers League then approached Frankfurter who agreed to take on this work, without fee. Frankfurter also continued Brandeis' personal collaboration with Goldmark and Frederick Taylor. The brief they subsequently produced was based on the work of the Taylorists and the fatigue researchers and was monumental. It was over one thousand pages and it gathered together a vast mass of information on almost every aspect of worktime.(79) It contained comprehensive tables on worktime legislation in both the United States and numerous other nations. It also condensed and presented virtually all the known data on the psycho-physiological, social and economic factors the rationalisers insisted made a legal limit to the length of the workday a necessity. In its determination the Court conceded the validity of this mass of evidence and ruled that worktime laws, for men, were not at variance with the constitution.

In 1916 Frankfurter followed up his interest in worktime legislation by publishing an article in the Harvard Law Review in which he discussed a ruling given by the Massachusetts Supreme Court. The paper, 'Hours of Labour and Realism in Constitutional Law', examined why this court had determined that a worktime law, passed by the state's legislature, was an unwarrantable interference with the rights of the individual. He argued that the Court had reached this decision because the case was not presented correctly. The Court had been asked to pass judgement not on the validity of the statute as such but rather on the claim that the nature of the work done by the particular group of

workers concerned was unusually arduous. Frankfurter pointed out that the assumption behind this argument was that where work was not inherently unhealthy it did not matter how long the worker laboured. As this was incorrect, he insisted, a wholly unscientific issue was presented to the Court. Consequently the Court had no choice but to declare the law unconstitutional.

This decision, Frankfurter argued, revealed anew a situation of grave importance. A judge's decisions were largely determined by the fact and argument counsel chose to put before the bench. This meant that the Court's determination might be greatly affected by the selection of counsel. This drawback of the legal system worked out well enough in disputes between individuals, but the question of the constitutional validity of worktime laws was a dispute between the Court and the legislature. In such a case, he insisted, a judge should have but two choices.

In such a case either the legislative judgement should be sustained if there is "no means of judicial determination" that the legislature is indisputably wrong, or the court should demand that the legislative judgement be supported by available proof. It would seem clear that courts have inherent power to accomplish this by indicating the kind of argument needed to reach a just result; or even by calling for argument from members of the bar - officers of the court - of particular equipment to assist in a given problem.(80)

The Forty-four Hour Week 1914-1918

Higgins returned to Australia in 1915. By this period the work of the Arbitration Court had increased enormously. In 1910 it had only to deal with eight applications. In 1914-1915 there were 114.(81) Two years previously Justice Powers

had been appointed as Higgins' deputy. Even so, by 1915 the demands on the Court were such that the two men had difficulty keeping up. The result was long delays in the settling of industrial claims. In a period of inflation this meant that the arbitration system effectively became an instrument for the lowering of wages. This effect was compounded by the Court's refusal to raise the margins for skill to the extent that these had been eroded.(82) The wage cutting well suited the employers and the Federal Government which refused to grant Higgins any more assistance. The labour movement, fired with patriotism and weakened by high war-induced unemployment, at first accepted the need for wage restraint.(83) This conciliatory attitude, however, collapsed as the upward spiral in prices accelerated through 1915. By 1916 there was a dramatic shift in the degree to which unions were willing to consider industrial action.

Table 6.2

	Number of Disputes	Number of work-people involved	Working days lost	Estimated loss of wages
1913	208	50,283	623,528	£287,739
1914	337	71,049	1,090,395	551,228
1915	358	81,292	583,225	299,633
1916	508	170,683	1,678,930	967,604
1917	444	173,970	4,599,658	2,594,808
1918	298	56,439	580,853	372,334
1919	460	157,591	6,308,226	3,951,936
1920	554	155,566	1,872,065	1,223,716

Source: Ernest Scott, p.665.

The labour movement's growing militancy and hostility towards the Government was compounded, once Billy Hughes became Prime Minister, by the conscription issue. A good

deal of the unions' hostility to the state was also directed at the Arbitration Court. Those industrial militants who insisted that the workers would have to fight outside of the courts if they were to gain justice, gained increasing influence as the delays unions were compelled to sustain before their cases could be heard grew longer. In November 1915 this hostility erupted at Broken Hill when the underground miners rejected Higgins' insistence that they cease industrial action over their claim for a 44-hour week while their case was being heard. This rejection was maintained despite Higgins' offer to hear the claim in February and the clear indication he gave to the miners' delegates that he would concede the demand. The miners, however, wanted the 44-hour week immediately and they refused to go into court unless they were given a prior assurance that it would be granted. Higgins believed that a commitment of this nature would besmirch the dignity of his Court and he therefore refused to make such a commitment. This standoff was not resolved until the middle of February when a compromise was reached where the Federal Government applied to the Court to have the case heard immediately, the men resumed work and no prior determination had to be given by Higgins. The case was subsequently heard and the claim granted.

The success of the Broken Hill miners, in 1916, gave great credence to those militants within the labour movement who advocated a boycotting of the Arbitration Court. The result, it was claimed, was a clear example of

what could be gained by direct action. A similar conclusion was reached by the coal miners in the same year. The latter also refused to cease industrial action in support of their claim for the 44-hour week and this resulted in Higgins refusing to hear their case. To overcome this crisis Hughes established a special tribunal, much to Higgins' chagrin, which quickly granted the miners' demand.

That these victories for the workers would not have been won had the issue been left in the hands of the Arbitration Court is possibly correct. Higgins, at this time, was still convinced that it was the Court's duty to adhere to the Australian standard of 48 hours and that if this was changed it was up to the legislature to so determine.(84) If the miners had not forced his hand he may well have felt too constrained by this belief to grant their claim. Moreover, even if this had not been the case it was probably necessary for the workers to take up the militant position they did. In 1909 the Broken Hill mine owners had shown Higgins and the workers that there were severe limits to how much the Court could grant beyond that which could be won by the use of the union's industrial strength.(85) This meant that it was probably necessary for the miners to show not only that they had sufficient power to win their goal but that they were willing to use it. This conclusion, however, is not necessarily correct. There is a good deal of evidence to suggest that by 1916 Higgins' attitude to worktime change had undergone a major shift. In short, that the new

knowledge, gained while overseas, as to the nature of worktime may well have induced him to grant the claim even had circumstances not compelled him to do so.

In his judgement in the Broken Hill case Higgins, after reiterating his belief that it was his duty to accept recognised standards not to create them, suggested that the 48-hour standard was mandatory unless ". . . there be some strong and distinctive reason for a reduction".(86) Is there, he asked, any good reason to justify the granting of exceptional treatment to the workers involved in this dispute. He dealt first with the miners and then with other workers who were party to the claim. Underground workers, he began, are different from the average employee. In the first place they are invariably paid piece rates. Secondly the nature of their work is more dangerous than that undertaken in most occupations and work in lead mines is particularly unhealthy. The dangers to health are distinctly relevant to the length of time worked, he suggested, because the longer the worker was exposed to the conditions underground the more likely was the chance of accident or illness. In support of his statements he cited the Holden v. Hardy case from the U.S. Supreme Court.(87) This indication that his meeting with his American colleagues was influencing his decision was further reinforced when he turned to the question of output. The companies had asserted that a reduction in worktime would result in a proportionate reduction in output. In his 1913 determination, in the Builders Labourers' Case, Higgins had agreed with this

proposition. Now, however, he claimed that this was not necessarily the case. "I am not at all satisfied that the reduction is to be ascertained by mere arithmetic - 1/12 reduction of hours, 1/12 reduction of output."(88) There was a mass of evidence, he suggested, to show that a worktime reduction rarely resulted in a proportionate reduction in output. For those interested he cited a number of examples of worktime experiments, taken from Josephine Goldmark's Fatigue and Efficiency.(89)

In arguing their case the miners' union had claimed that the workers would maintain output levels if Higgins conceded the reduced schedule. He accepted their offer, writing this understanding into the award. He then turned to consider the other workers involved in the dispute. In the case of the Port Pirie smelter workers he again applied the Holden v. Hardy criteria, granting an 8-hour reduction. As for the other workers he could not see any reason why the Australian standard should not be maintained.

It has been argued by some scholars that the criteria upon which Higgins claimed he had based his determination was mere face-saving.(90) This proposition is difficult to sustain, however, given the nature of some of his worktime determinations during the immediate post-war period. In 1919, for example, the Federated Clothing Trades Union applied to the Court for a 44-hour week. The union, a far from militant body, had 9761 female members and 2090 males.(91) In his judgement Higgins argued that this situation created a major difficulty. If only men worked in

the industry he felt he would have to enforce the 48-hour standard. As the vast majority of employees were women, however, he did not see that he necessarily had to do this even though granting a reduced schedule to the women would necessitate granting it to the men. The problem to be resolved, he argued, was whether women should have a lower standard than men. He concluded that they should. In defence of this decision he cited evidence compiled by Goldmark which suggested that industrial work was particularly harmful to women. He noted that Goldmark had shown that speed of work, complexity, piece-work and overtime made the greatest demands on human energy. While piece-work was not worked by the employees in the industry, he conceded, the task system advocated by the scientific managers was, and this was tending to force the workers to undergo excessive strain. The new technology being widely introduced into the clothing trade, particularly the new motor sewing machines, was also raising the level of work intensity and the problems caused by this development were compounded by the women having to undertake a great deal of labour outside the workplace.(92)

Turning to the question of output, Higgins noted that it had been acknowledged by some employers, that the workers could do as much work in 44 hours as they did in 48. The question was would they? While it was not possible to give a definite answer to this question he suggested that the experience of textile manufacturers, both overseas and

in Australia, indicated that they would. As the effect of his ruling would be of far-reaching importance Higgins had asked the Government to provide a witness who could give the Court expert advice as to the nature of the relationship between worktime, output and human capacities. This was agreed to and Ethel Osborne, an academic, provided the required information. Osborne had worked with the fatigue researchers of the Health of Munition Workers' Committee in Britain during the war, and had acted as an investigator for the Industrial Fatigue Research Board. In her work for the Court she investigated the conditions in numerous factories in and around Melbourne. The main conclusion she drew from this study was that the intensity of work in the Australian textile industry was such that a 44 hour week was the most suitable ". . . having regard to health efficiency and output".(93) Higgins granted the claim.

The Post-war Crisis

During the years 1918-1920 the Australian economy boomed and inflation spiralled upwards. As a result real wages fell and profits and dividends rose rapidly.(94) These profits funded a significant industrial expansion and diversification.(95) The boom also gave rise to a political and industrial crisis. The three years after 1915 had seen prices remain relatively stable. In 1919 and 1920, however, the cost of living rose by almost 15 per cent each year.(96) Coming on top of the war-induced discontent, the consequent fall in living standards created an extremely volatile situation. In 1919 this package exploded as it did in the

U.S.A. and Europe in a massive strike-wave. Whereas in 1918 the number of working days lost, through strikes, was 580,853, in 1919 this figure was 6,308,226 days.(97)

For a significant section of the labour movement the increased industrial militancy was part and parcel of a radical shift to the left. This was particularly the case in N.S.W.. The leftward shift, which had accelerated after the 1917 strike, was given added impetus by the Bolshevik revolution. The workers' struggle in the Soviet Union had wide support within the labour movement.(98) McQueen has reported that the Australian bourgeoisie, on the other hand, were shocked by these developments and well before the war ended were taking steps to counter what they perceived as the new enemy - international communism.(99) The ruling class, McQueen suggests, responded first by forming counter-revolutionary organisations; second by launching an ideological offensive against bolshevism, and third by displaying a highly conciliatory attitude towards the unions.(100) As with so many other booms since this time there was much talk of profit-sharing and industrial democracy with the employers, as Boote put it, being "all affability". Boote's analysis of the employer's new found desire for friendship and his response was not atypical of that taken by the workers in general.

Mostly this transformation has taken place since the war. Also it happens to coincide with a world-wide outbreak of unrest amongst the working class.

An instinct for freedom that seemed to have been extinguished by centuries of drudgery and oppression has suddenly burst forth like a flame, and its fierce intensity has startled the despots

of the world.

Revolutions have swept kings from their thrones and strewn the earth with the debris of established institutions, and in some countries the strange and bewildering spectacle is seen of Socialist Republics with THE WORKING CLASS SUPREME.

. . . The boss has become very considerate all at once. Look out!(101)

G. S. Beeby

Given his position as N.S.W. Minister for Labour and Industry, in 1919, and his later roles as Royal Commissioner and Arbitration Court judge, a particularly interesting example of this fear-induced conciliation was provided by G. S. Beeby. In 1917 Beeby had strongly supported the N.S.W. Railways Commissioner in his attempt to introduce time-study and incentive wages into the railway workshops. Both prior to and during the course of the strike he displayed an uncompromising attitude apparently being determined on a showdown over this issue.(102) After crushing the workers' resistance to the rationalisation demand the state government followed up its offensive by dispatching Beeby to the United States with the purpose of gaining further information on the Americans' production methods. The major objectives of this trip were; first, the determination of just how much greater was the level of productivity in the United States; second, the determination of how this greater productivity was being achieved and third, the determination of whether the arbitration system was an obstacle to greater efficiency.(103) Beeby was not long in the United States, however, before he reached the conclusion that compared to the profound economic and

industrial problems the war had generated these were questions of relatively little immediate importance. This realisation induced him both to extend his trip to London and led him to significantly expand the scope of his investigations. What Beeby discovered, that so shocked him, was that the whole future of what he considered civilization appeared to be threatened; that the war had led the organised working class to challenge the very nature of society and, in particular, had led the workers to question the validity of capitalism. If the capitalist system was to survive the challenge of the immediate post-war years, he became convinced, it must prove that it could meet the workers' demand for a reasonable degree of security and a decent standard of living.

To-day the demands of labour go right to the root of things. Concessions and compromise, readjustment of wage bargains, charitable doles to unemployed, all the palliatives which had done service in the past, fail to satisfy even the most docile groups of workmen. The whole existing social system is challenged, not only by theorists, not only by professional agitators, not only by the destructive agents of anarchy, but by the intelligent workers of the world. The system of capitalistic production, the wage system, is on trial. It must justify itself. It must adapt itself to the new outlook. It must prove itself capable of meeting the reasonable aspirations of all classes, or it will surely be superseded by some general scheme of socialisation.(104)

The revolutionary challenge had already swept the Bolsheviks to power in Russia, Beeby argued, and numerous other nations were being rocked to their foundations. The workers' rejection of capitalism he attributed primarily to the system's **failure**

to halt the deterioration in the direct producers' standard of living at a time when profits were at record levels.(105) The state, within the industrialised nations, he insisted, had proved unable or unwilling to remedy this wrong. As a result the workers had come to distrust the parliamentary system and were determined to use their industrial power to take what their governments would not give them. If this situation was not to result in victory for the communists it was necessary for the whole system of production and distribution to be reconstructed. This reconstruction had to involve material improvements in the workers' standard of living and a democratisation of the production process.

To achieve these primary objectives, Beeby argued, it would be necessary both to expand production and enact legislation that would compel employers to institute reforms. In his report to parliament he outlined some of the reforms being introduced by governments in the U.S.A. and Europe aimed at stemming the flood of radicalism and militancy. These included consultative committees of workers, employers and consumers, the expansion of industrial welfare, social and unemployment insurance, workers' compensation, profit sharing and numerous others.(106) He also outlined the success American employers had achieved in expanding production by the use of scientific management. While clearly in favour of taylorism Beeby's discussion of this issue reflected his recognition of the need to tread warily. The workers, he noted,

"... regard the system as the 'superlative device of capitalism for their exploitation".(107) To compel the introduction of scientific management practices in the face of the workers' militancy and radicalism was clearly to invite further hostility and danger. Yet production had to be expanded if the struggle between the classes was to be eased. For Beeby this meant scientific management had to be accepted. It was necessary, however, to cease forcing Taylor's methods on the workers and begin trying instead to explain to them that they had nothing to fear from the new system and much to gain.

Beeby's trip convinced him that the communist spectre haunting the U.S.A. and Europe was also a serious danger to Australian capitalism. If this danger was to be overcome it was necessary for the Federal Government to take immediate steps to improve existing industrial conditions. He recommended the immediate adoption of a number of reforms. Included among these was the 44-hour week.

That as rapidly as possible what is known as the "clean eight-hour day" should be adopted, i.e., that normal working hours with necessary exceptions shall be eight hours per day on five days with the Saturday half-holiday. This change could be applied first to all female and child labour and subsequently extended to other occupations without any serious effect on production.(108)

Beeby's radical shift proved too much for his ministerial colleagues and shortly after his return to Australia he denounced the ineptitude and corruption of the State Government and retired from the N.S.W. cabinet.(109) Having taken this step he became a strong supporter of industrial

reform and conciliation. The report of his fact-finding trip was published in September 1919 and his recommendations aroused a great deal of interest both at the state and federal levels. In his subsequent roles as Royal Commissioner and Arbitration Court Judge, what is more, he was able both to elaborate and test a number of his ideas for easing the struggle between the classes and for raising industrial efficiency. Over the next two decades he was to actively utilise his positions to promote the rationalisation of Australian industry along the taylorist lines he outlined during this period of crisis.

The 1919-1920 Strikes

While wages may have been of primary importance in the immediate post-war strikes, the central demand of the labour movement in this campaign was the 44-hour week. This issue was taken up on an unprecedented scale by both the craft workers and the semi-skilled trades. The Broken Hill miners began the worktime offensive in April 1919, demanding the introduction of a 30-hour week because of the prevalence of phthisis and other industrial diseases. This strike was to last 18 months and though the miners were not successful in winning their demand they did manage to have their workweek reduced from 44 hours to 35.(110)

In January 1920 the building workers of Melbourne resolved to ban Saturday work and in March their Sydney counterparts did likewise. A conference of 75 N.S.W. unions met on April 10 to plan a strategy for a general campaign. As there was a good deal of unemployment amongst the

unskilled workers the conference decided to concentrate on giving support to the skilled trades.(111) While this policy was accepted by most workers, the shearers, in the Australian Workers Union, insisted that the 44-hour week worked in Queensland had to be made the national standard for their industry before they would begin work. The new technology that had been introduced into the industry, they insisted, made the longer schedule both unnecessary and foolish.(112) When the Graziers Association of N.S.W. refused to concede the claim in July a successful two-month strike brought them into line with the other graziers throughout the country who had agreed to the claim.

In September the N.S.W. branches of the Amalgamated Engineering Union (A.E.U.), the boilermakers, sheetmetal workers and stovemakers joined the building trades in their refusal to work Saturday. The Storey Labour Government responded to this pressure by offering to commission an investigation into the whole issue of worktime.(113) As G.S. Beeby was to be the commissioner the unions accepted.

Turner has argued that the labour movement's post-war concentration on the 44-hour week was a manifestation of the workers' belief that inflation would prevent them making any real gains in wages, whereas a reduction in worktime was a gain that could not be eroded.(114) This parochial explanation, while certainly having some partial validity, ignores the fact that 1919-1920 were the years during which the 8-hours movement swept across every industrialised nation in the world. It was in 1919 that the Washington

International Labour Conference endorsed labours' claim that the workers should be given the 8-hour day both because it was their right and because science had proven that it was completely foolish to compel them to work longer.

The knowledge that the workers across the world were winning the 8-hour day and the knowledge of the fatigue research undertaken during the war, was widely publicised within Australia in the popular press and in scientific, trade union and employer journals.(115) The Australian labour movement, immensely proud of its tradition as an international leader in the fight for the shorter workweek, was galvanised into action by the developments in Washington.(116) The conference's declaration acted as a spark which transformed the 44-hour week from a general issue into an immediate demand.

The Arbitration Court and the 44 Hour Week

Even had the labour movement not been aware of what was happening overseas through their own contacts, the Commonwealth Court's utilisation of the work of the rationalisers in the awarding of work times would soon have ensured that they became both aware and interested. The workers' knowledge that working time could be curtailed without output being correspondingly reduced placed the Court in a difficult position when confronted with a demand for a reduced standard. To ignore totally the scientific evidence was difficult if the Court was to retain any credibility with a militant and radicalised labour movement. Higgins, consequently, was placed in a position where he had

to reconsider his insistence that the 48-hour standard had to be maintained. The difficulty of the Court's position was detailed by Powers, in the Millers Case, in March 1920.(117) He noted, that despite the perpetual claim of the employers that worktime reductions would damage industry he did not know of one case where he had allowed a reduction in standard times where this had occurred. The policy maintained by the Court, he went on, had been to maintain the 48-hour standard leaving it to parliament to introduce a general reduction if it saw fit. This practice had worked well, both prior to and during the war, as it had been accepted by both the unions and the employers. In the post-war period, however, all this had changed because in every "civilized" country the workers had decided that the pre-war conditions were both unfair and unnecessary. Many large employers in Britain and the U.S.A., he noted, had conceded that this was true. If the Australian Parliament and the Courts refused to do likewise the workers would take by force that which they were refused by law.

In the light of the fact that it has been proved that shorter hours, with rest periods, enable workers to produce as much as they produced working longer hours, this Court must, I think, reconsider the position as to claims for shorter hours. . . . It is the Court's duty to consider what is just in these days, not what was fair twenty years ago; or what the employees recognised as hours of duty because they had to.(118)

Having made this statement Powers went on to grant the claim for the 44-hour week. He did not, however, attempt to set a new standard. The millers were given their new schedule on the grounds that their work was particularly unhealthy. The

task of setting a new standard was left for Higgins.

The Timber Workers Case

At the time Powers gave his judgement in the Millers Case Higgins was hearing an application for a new award from the Timber Workers Union.(119) One item in the log of claims submitted for arbitration was the 44-hour week. The union argued that the national standard should not be applied to its claim because the timber workers' job was particularly onerous. It was argued that the work was more dangerous, more unhealthy and required greater attention than was demanded by most trades.(120) It was also suggested that the new technology being introduced into the industry was increasing the pace of work, the monotony and the degree of exertion the workers were compelled to sustain.(121)

In support of their claims the union provided witnesses with experience in the industry and put forward a medical practitioner who gave evidence as to the unhealthy nature of the work. The union's advocate also argued that he believed that the workers in the timber industry, within three or four months of a reduced schedule being introduced, would be able to raise their hourly output to a sufficient degree to easily offset the temporal reduction. In support of the claim that this could be done, he cited the evidence published by the British munitions researchers and the Bureau of Science and Industry.(122)

The employers countered the union evidence by denying that timber work was unusually onerous. Rather, it was suggested, there were definite aspects of the work which

were positively good for the workers; and as for the machinery that had been introduced, it was insisted, this had improved conditions by decreasing the danger of the work and by reducing the degree of effort required. In support of their claims the employers put forward industrial and medical witnesses of a similar calibre to that provided by the union.(123)

The employers' response was their typical strategy when confronted with a demand for the shorter workweek. Higgins, however, indicated early in the hearing that he would not be satisfied with the type of evidence that workers, employers and medical practitioners normally submitted. He wanted, he stated, scientific data such as statistics and scientifically based inter-industry comparisons.(124) He would not, he suggested, give credence to ordinary medical practitioners as these were invariably biased.(125) "I want something far more scientific than the statements of practitioners. If there is to be any scientific evidence let it be the right scientific evidence."(126)

As the case progressed Higgins became increasingly critical of the vague nature of both union and employer evidence and he began to make clear what he considered was the "right scientific evidence". To begin with he urged the employers to study the fatigue data put in by the unions and also indicated he thought they should look more closely at Taylor's work in this area.(127) When the union failed to produce much evidence on the relationship between fatigue, worktime and output that was specific to the timber

industry, he complained that, overall, their evidence was not very definite or well collated.(128) The union, he indicated, would have to do better. In short, what Higgins wanted the union to present was a "Brandeis brief". In criticising the nature of the evidence presented he was attempting to implement Frankfurter's advice that judges utilise their power to accomplish this by calling on the court's officials to provide the right kind of argument. The union's advocate soon took up this cue. In cross examination of the employer witnesses he began to concentrate on the relationship between worktime and output.(129) He exposed the fact that the employers had made no attempt to see if a reduction in the length of time worked would result in less output. The employers replied that of course they had not. They denied that the evidence that output and worktime were not inversely related had any relevance or validity. Output, it was insisted, was proportionally related to the length of time worked.(130) When the union provided evidence from Taylor's works this was also rejected, as was their request that the employers undertake tests to determine how the introduction of a 44-hour week would effect productivity. They had not undertaken tests of this nature, it was stated, and they would not.(131) The workers, the employers asserted, far from being overworked were systematically loafing.(132) They did not need science to tell them how much work a worker did or could do. From their experience in the trade, they knew. As one employer put it; "Personally speaking I do not believe in figures or tabulation, as I

think a man who understands his trade knows whether a fair thing is done or not."(133)

Having set the union's advocate off on what he clearly believed was the right kind of examination, Higgins again interrupted the case. This time it was to give further advice to the employers as to the type of argument he believed they should present. He warned them not to concentrate solely on the arduous nature of the work. If they were not to be taken by surprise, he warned, they should also consider the fact that the Court had the power to grant 44 hours as a new Australian standard if it so desired.(134) The employers' advocate, however, does not appear to have comprehended what Higgins was suggesting. He continued to provide non-scientific evidence and masses of detailed information of an irrelevant nature. Higgins finally erupted, describing this evidence as "detail rubbish" and stated that he was not going to accept the argument that output and worktime were proportionally related. This, he insisted, was an old fallacy which was simply not true.(135)

Upon the union stating finally that it had no more evidence to submit and nothing more to contribute to the case, Higgins announced that he did not think that the timber worker's lot was worse than that of the average manual worker.(136) The union's claim consequently could not be granted on the grounds that it was unusually arduous. This, though, did not mean that the claim for the shorter week was settled. While it was not possible, Higgins

stated, to grant the union an exception from the norm it was possible to establish a new federal standard.

The question that I have got to face in this as well as in other industries, is this: has the time come for altering the standard from 48 to 44? . . . I hope I am not making it obscure to you. The thing is a standard to be adopted in all industries.(137)

The difficulty, Higgins went on, was that he did not feel justified in taking such a dramatic step without giving all employers, unions and the community, as represented by the Government, a chance to put their views in a general inquiry. He consequently announced his intention of conducting an investigation into the whole question of the length of the workweek and asked for the assistance of all in the carrying out of this endeavour.(138) Upon being assured that the Central Council of Employers of Australia and the Timber Workers Union would be represented at the hearing, Higgins, in an obvious barb aimed at Hughes, further announced that irrespective of whether or not those invited to give evidence appeared he intended to go ahead: ". . . if the others I invite do not appear so much the worse for them".(139) As it was, the trade unions as a whole did appear, being represented by E.J. Holloway, secretary of the Trades Hall Council. The Commonwealth Government, however, did not. Nor did the Employers' Council, this latter development leading the unions to suspect that there were steps afoot to negate any attempt by Higgins to introduce a reduced standard. Higgins, consequently, invited the Chamber of Manufacturers to

present the capitalists' case and this offer was taken up.(140)

During the hearing the unions argued that the length of the workweek "should be fixed scientifically". Having gathered material and evidence from the labour movements in the U.S.A., Europe, New Zealand and South Africa they were able to present the substantive type of case that Higgins was trying to encourage. Holloway summed up the union case in his opening remarks,

The problem of regulating the hours of labor, not only in this country, but in all the countries of the world, has become the most burning question of the hour; so much so, that the universal desire for a reduction of the working hours has, during the last few years, grown and developed into a demand, both in Australia and in every industrial country of the world; but, unlike the early period of this campaign, when the representatives of labor stood alone, to-day we find by their side leaders of medical science and progressive schools of thought generally. Therefore, at this late stage, there should be no need to reiterate the old and familiar arguments in favour of shorter hours of labor, but such a huge volume of scientific evidence has been forthcoming during the last decade, not only from the point of view of greater production (which has been so completely demonstrated both in England and America during the war period), but also from the point of view of the general improvement of the people from the standpoint of health, education, morals and general economic well-being, and in the interest of that industrial harmony without which no real economic prosperity is possible.(141)

Despite the mass of evidence put forward by the unions the employers throughout the hearing continued to insist that the suggested reduction in worktime would produce a proportionate reduction in output.(142) They employed the taylorist Meredith Atkinson to give evidence that their claims were not mere assertion. Atkinson

dutifully carried out his commission arguing that, in the majority of cases, a simple reduction in the length of the workweek below 48 hours would almost certainly reduce output. This would be particularly so in industries in which machinery determined the pace of work. Having made these observations, however, he continued under cross-examination to state that this did not mean output would necessarily be less under the shorter workweek. It was possible to maintain output even with the reduced schedule, he argued, if employees were willing to increase the intensity of their efforts and if employers were willing to adopt more efficient plant, machinery and management practices. If, in other words, scientific management was adopted. Greater efficiency could be achieved, he claimed, if Australian capitalists improved their organisation and management methods. By international standards, he suggested, Australian management was poor and needed to be seriously upgraded.

The experience of America and Great Britain goes to show that production can be enormously increased by better organisation. Organisation has become almost as important as machinery. I certainly think, from my observation in this country, that it would be possible to get a greater output from our machinery, particularly with better organisation. I still think that the evidence shows a tendency towards reduction in output, following a reduction of hours from 48 to 44, but I do not think it impossible to adopt means to maintain output if you can get the scientific means that are known. The evidence in America and Great Britain is that the tendency to reduce production can be counteracted by better organisation.(143)

Atkinson's evidence devastated the employers, their

horror being proportional to the unions' glee. He went on to provide the Court with material from the U.S.A. and Britain on the relationship between fatigue and efficiency. In answer to the employers' claim that output must fall if the workweek was reduced, Higgins was consequently able to cite a vast collection of evidence to show that this simply was not the case. In his judgement Higgins stated that he accepted the validity of this evidence. He did, however, acknowledge that it was not simply a question of whether the workers could maintain output. There was also the question, would they? This problem, he suggested, would remain unanswerable for as long as industry continued to operate on the old schedule. A rejection of the claim therefore could not be based on this issue. Likewise the fact that employers had not yet taken any significant steps to overhaul and modernise their production methods was also no justification for compelling workers to labour longer than was necessary. He stated that while he continued to believe it was the legislature's duty to resolve the question of standard times the Government had refused to act. In the face of such blatant lack of wisdom the Court could not continue to do likewise. He announced he intended to establish a new Australian standard workweek of 44 hours.(144)

The New South Wales Royal Commission

When citing scholars who argued that output would not necessarily fall if worktimes were reduced, Higgins included

G. S. Beeby. Beeby had been conducting his inquiry into the 44 hour week at the same time as Higgins was undertaking his examination. Ten days after Higgins gave his determination Beeby completed his report. In this document the Royal Commissioner stated that his study had convinced him that it was reasonably certain that the general introduction of the 44 hour week would reduce production at least temporarily. It could be assumed, he argued, that once the working week fell below 48 hours there would be no automatic offset arising solely from increased physical capacity.(145) This, however, did not mean reduced work times had to necessitate a permanent reduction in output. He suggested it was possible for a significant degree of offset to be achieved by employers introducing improved plant and management methods.(146) In support of his conclusion he cited a number of Australian employers who had adopted the shorter week with no ill effects. To achieve this objective, he noted, it had been necessary for these capitalists to reorganise their methods of production and introduce improved equipment and closer cooperation between themselves and their employees.(147) He warned all concerned that the adoption of taylorist methods would have to be accepted if the prejudicial effects of the reduced week were not to be substantial. He reported that he had attempted to concentrate the attention of the Royal Commission on this central issue.

I invited discussion of the gain in production which could be secured from the better laying out of plant, the further installation of machinery, the

standardisation of tools and equipment, the adoption of more carefully-planned shop routine, the selection of overseers, the provision of comfortable workshop surroundings, the introduction where practicable of piecework with proper safeguards, and the adoption of bonus and profit-sharing schemes.(148)

Unfortunately, he stated, he had received little positive response. The employers assured him that their enterprises were modern and that their management practices were up-to-date while the unions were suspicious of any proposals to extend the adoption of scientific management(149).

Australian workmen still regard all proposals of this kind with suspicion, and there is no doubt that patience will be needed in breaking down the opposition to what is usually termed "scientific management." In Australia there is not the same scope for specialisation of industry as in more populous countries in which plants give a much bigger turnover; but I am convinced that there is room for a general overhaul of shop methods in the light of the experience of other countries.(149)

The intransigence of the employers and their refusal even to consider the scientific evidence appears to have convinced him that the argument put forward by the iron trade unions, that employers would not re-examine their methods unless compelled to by the enforced introduction of the reduced schedule, was correct. He consequently recommended that the shorter schedule be adopted into the industries he had studied throughout N.S.W. The Response of the N.S.W. and Commonwealth Governments

In N.S.W. Beeby's report was immediately adopted by the Labor Government and the Eight Hour (Amendment) Act, 1920, was introduced and passed. To ensure that the State Arbitration Court, which the unions considered hostile to

their interests, could not act as a barrier to the widespread adoption of the 44 hour week. The Government created a Special Court, with Beeby as the sole judge, and gave it the power to enquire into the effect of introducing the reduced schedule into any particular trade. The recommendations of this court were then adopted by the Government and implemented by a proclamation of the Governor. Upon such proclamation the new workweek became the standard for the trade, irrespective of any award to the contrary. The special court remained in existence for two years and during this time 78 proclamations were issued affecting over 150 awards.(150)

At the Commonwealth level the response of the Nationalist Government was decidedly different though equally as dramatic. By mid 1920 the conciliatory attitude displayed by the bourgeoisie during the previous two years was changing to outright aggression.(151) The return of a conservative government, the diminution of the war-induced radicalism, and rapidly rising unemployment as the global depression brought the post-war boom to an abrupt end, gave courage and enhanced political power to the forces of reaction. When it became clear that Higgins was likely to establish the 44 hour week as the new Commonwealth standard the Government hurriedly added a clause to the Conciliation and Arbitration Bill then before Parliament. This clause decreed that the Arbitration Court, which had only two judges, should not have jurisdiction to make an award reducing the standard workweek of any industry to less than 48 hours per week

or, where the award was already below 48 hours, grant any further reductions unless the case had been heard by the President and at least two Deputy Presidents. The determination was to be decided by majority vote.(152)

The blatant nature of this attack on the Court, its clear bias in favour of the employers and a lingering fear of how the unions would react was too much for even some of the supporters of the Government. To get the clause added to the bill Hughes was forced to accept two amendments. First, that a single judge also not be allowed to increase the length of the workweek.(153) Second, that the clause be not applicable to any case in which the hearing of a claim had already commenced.(154) This latter proviso, Hughes insisted, would enable Higgins to complete the hearing of the Timber Workers Case. A study of the debate gives the impression that Hughes considered his second amendment would only be applicable to this one award. Higgins, however, had also partly heard and temporarily deferred a claim from the A.E.U. for 44 hours. When this case reconvened the President announced that ". . . the parties should know that the proving should now rest on the respondents (i.e. the employers) to show that 44 hours should not apply".(155) Upon hearing this, his last case, Higgins granted this union the new standard. Both the Timber Workers and the A.E.U., however, were to find that the struggle for the 44 hour week still had a long way to go.

Notes

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5. Ken Buckley, The Amalgamated Engineers in Australia, 1852-1920, Australian National University Canberra, 1970, p. 237.
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15. Ibid, p. 10.
 16. Ibid, p. 11.
 17. Ibid, p. 15.
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 20. A. Montgomery, 'The Movement for Closer Application of Science to Industries', The Journal of the Royal Society of Western Australia, Vol. 4, 1919, p. 8.
 21. Advisory Council of Science and Industry, Industrial Cooperation in Australia, Bulletin No. 17, Government Printer, Melbourne, 1920, p. 4.
 22. Advisory Council of Science and Industry, Welfare Work, Bulletin No. 15, Government Printer, Melbourne, 1919,
 23. Advisory Council of Science and Industry, 'Welfare Work', op cit, p. 5.
 24. Ibid, p. 15.
 25. Ibid, pp 51-63.
 26. See, for example, J. G. Law, 'The New Industrialism', The Australasian Manufacturer, Vol. 1, No. 51, 1917, pp 19-20. J. A. Crabtree, 'Scientific Management in the Factory', The Australasian Manufacturer, Vol. 2, No. 53, 1917, pp 14-15. Anon, 'The Taylor System of Scientific Management', The Australasian Manufacturer, Vol. 2, No. 73, 1917, pp 14-15.
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 31. Royal Commission into the Time Card System', op cit, pp 2, 13.
 32. Ibid, p. 2.
 33. For details on this strike see, Dan Coward, 'Crime and Punishment' in John Iremonger, John Merritt and Graeme Osborne (eds.), Strikes. Studies in Twentieth Century Australian Social History, Angus and Robertson, Sydney, 1973, pp 51-80. Vere Gordon Childe, How Labour Governs. Melbourne University Press, 1964.

34. 'Royal Commission into the Time Card System', op cit, p. 28. See also Australian Workers Union (A.W.U.), 'The Taylor System', The Australian Worker, August 30, 1917. A.W.U., 'The Human Automaton. Capitalism's Devilish Labour-Saving Device', The Australian Worker, Feb 15, 1917.
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 80. Felix Frankfurter, 'Hours of Labor and Realism in Constitutional Law', op cit, p.20.
 81. Nettie Palmer, op cit, p. 222.

82. Ernest Scott, op cit, p. 664.
83. Ibid, p.665.
84. 10 C.A.R., pp 185-186.
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87. Ibid, p.187.
88. Ibid, p. 188.
89. 10 C.A.R., p. 189.
90. George Dale, The Industrial History of Broken Hill, Fraser and Jenkinson, Melbourne, 1918, p. 206 and Colin Hardie, Struggles for Shorter Hours, B.A.(Hons) thesis (unpublished), Sydney University, 1978, p. 44.
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105. Ibid, pp 14-15.
106. Ibid, pp 25-100.
107. Ibid, p. 76.
108. Ibid, p. 106.
109. H.E. Boote, 'Beeby Throws a Bomb', The Australian

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110. 1926 Main Hours Case, Transcript pp 1144-1172. The reduction in the workweek of the Broken Hill miners, between 1916-1920, resulted in a 10 per cent increase in output. These figures were based on union calculations though B.H.P. conceded their validity.
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 112. The Australian Worker, July 15, 1919. This argument was proved correct in that the overwhelming majority of shearers proved capable of shearing more sheep in 44 hours than they could in 48. 1926 Main Hours Case: Transcript, pp. 1081-1083.
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 116. Main Hours Case 1926, Transcript, pp 1623-1625.
 117. 14 C.A.R. at 114.
 118. 14 C.A.R., p. 123.
 119. The Australian Timber Workers Union and John Sharp and Sons Ltd., 14 C.A.R. at 811.
 120. Transcript of Timber Workers Case, pp 52, 400, 578.
 121. Ibid, pp 355, 398-399.
 122. Ibid, pp 488-492.
 123. Ibid, pp 484, 488, 655, 806, 908.
 124. Ibid, pp 402, 805-805a.
 125. Ibid, pp 657, 933.
 126. Ibid, p 657.
 127. Ibid, pp 491, 1122-1124.
 128. Ibid, p. 825.
 129. Ibid, pp 886-888, 1111, 1167.
 130. Ibid, pp 1037-1038, 1103, 1161, 1207, 1117-1118, 1222.
 131. Ibid, pp 1362A-1364.
 132. Ibid, pp 1081, 1091-1096, 1099.
 133. Ibid, p. 1114.
 134. Ibid, p. 1147.
 135. Ibid, pp 1254-1255.
 136. Ibid, pp 1290, 1312.
 137. Ibid, p. 1291.
 138. Ibid, pp 157-1581.
 139. Ibid, p. 1610.
 140. The Commonwealth Arbitration Commission has lost the transcript for the hearing. It is necessary, therefore,

- to reconstruct what occurred from alternative sources.
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 142. 14 C.A.R., p. 862.
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 144. 14 C.A.R., p. 863.
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 150. C.P. Mills, op cit, p. 805.
 151. Humphrey McQueen, 'Shoot the Bolshevik', op cit, p. 196.
 152. Commonwealth Parliamentary Debates, 1920, Vol. 93, p. 4121.
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Chapter 7

The 44-hour Week and the Rationalisation of Industry, 1921-1929

During the First World War the Australian economy experienced a number of significant developments which had important, long-term repercussions for the society as a whole. State aid, the limitation on imports and war-induced expanded demand for particular commodities enabled some local capitalists to diversify and expand their operations.(1) These war-time developments were continued during the boom that followed the armistice but their progress was brought to a sudden halt by the deep, world-wide recession that struck in 1920. Early in that year prices, in Europe and the United States, began to fall dramatically while those in Australia continued upwards until August. This resulted in Australian wages reaching a level 50 to 100 percent higher than those paid in Britain, Australia's major trading partner.(2) Employers responded to this development by demanding sharp and immediate cuts in wages.(3)

The re-emergence of a significant wage gap created major trading difficulties for the newly expanded manufacturing sector which also suffered from a marked productivity disadvantage relative to many overseas competitors. Faced with this serious threat to the country's infant industries, the Federal Government intervened and provided local manufacturers with higher levels of tariff protection,

preferential purchasing and strict anti-dumping legislation.(4) As a result of this assistance the local market for Australian manufactured commodities was maintained. Local manufacturers were thus able to survive and to continue to grow and diversify. This development, however, only tended to continue for as long as the employers felt assured their investments were safe. Thus, during the boom and the period immediately after the introduction of the tariff there was a significant expansion in the quantity of plant and machinery utilised by the manufacturing sector. This expanded level of mechanisation and the concomitant electrification program undertaken by the state manifested itself in a high level of productivity growth.(5) This, though, was not sufficient to offset the continued decline in the price of imports with the result that the protective capacity of the tariff waned significantly. As competition intensified many Australian employers, fearful of their long-term ability to survive, restricted their investments in new plant and equipment.(6) The net result of this response was Australian manufacturing fell even further behind in the fight for those markets subject to external competition.

The difficulty Australian manufacturers had in maintaining their share of the local market, during this period, was accentuated by developments within the United States. The application of scientific management, on an increasingly large scale, within the U.S.A. produced dramatic falls in the price of American manufactured

commodities. The higher productivity of U.S. manufacturing was reflected in a major shift in Australia's trading pattern with American producers taking an increasing share of the local market. This development made the economy much more vulnerable because, unlike Britain, the United States had an abundance of most of the commodities that Australia traditionally exported. Australian producers had little, therefore, they could sell to the U.S. in return.(7) If the nation's non-American markets were to decline the economy would face serious balance of payments difficulties.

Table 7.1 Australian imports: percentage from various countries

	1904-8	1909-13	1919/20- 1923/4	1924/5- 1928/9
<i>Declining</i>				
United Kingdom	60.4	59.8	47.1	42.2
Germany	7.0	6.4	0.3	2.4
New Zealand	5.5	3.9	1.7	1.5
<i>Increasing</i>				
U.S.A.	11.6	11.4	21.7	21.5
Canada	0.7	1.3	3.2	2.6
Japan	1.0	1.2	3.2	3.0
Netherlands East Indies	0.7*	1.2*	4.6	4.1

Source: Colin Forster, *Industrial Development in Australia*, p. 25.

For local manufacturers the competition generated by low British wages and high American efficiency created an ongoing problem throughout the 1920s. The need for local producers to improve their competitive position generated a debate on the utility and applicability of scientific management similar to that being conducted within Europe at

this time. This debate centred around the question of how local industry could survive in the face of fierce international competition. The overwhelming majority of employers argued that the answer to this problem lay in a combination of high tariffs, long worktime schedules and greater effort on the part of the workers. The principal means for achieving greater effort, it was generally agreed, was the all-round introduction of time-study and payment by results. Most conservative politicians strongly supported the argument that the workers had to be made or cajoled to put more effort into their work. There emerged, however, serious divisions within their ranks over the extent to which this factor was the primary cause of Australia's poor level of efficiency and over the question of the tariff. Many conservatives became highly critical of the ever higher degrees of protection demanded by the manufacturers in particular. These critics rejected the argument that the whole blame for manufacturing's poor performance could be placed on the backs of the workers. Rather they developed a good deal of sympathy with the argument that a major source of manufacturing inefficiency lay in poor management. This hypothesis was strongly taken up by the labour movement which argued that it was not necessary to cut wages and compel long time schedules in order for Australian manufacturing to survive within the international market. The U.S.A., it was insisted, had proven that high wages and reduced work times were not incompatible with low prices. Australian goods

could be competitively priced if Australian employers would only adopt the rationalised production methods being so successfully applied by the Americans. A crucial element in this debate was the issue of working time.

The Federal Court and the Recession

As the 1920-1922 recession deepened, relations between capital and labour became virulent.(8) The employers became increasingly vocal in their demand that the courts aid them in cutting the costs of production. Ignoring the fact that real wages had fallen since 1914 the employers demanded that the workers accept further cuts in their living standards. The country, it was claimed, had been living beyond its means and the workers had failed to carry out their duty by demanding wages that were too high and by limiting the amount of work they were willing to undertake. The only solution to this problem, it was insisted, was wage cuts across the board, the maintenance of the 48-hour week, the abolition of all limitations on output and the introduction of payment by results wherever possible.(9)

In response to these demands the unions declared that the employers were exaggerating the extent to which profits had fallen and that anyway this was a crisis brought on by the capitalist system. The capitalists should consequently bear the cost, not the workers. They opposed any reduction in wages and were particularly vehement in their opposition to the employers' policies regarding the 48-hour week.(10)

During the crisis the labour movement abandoned much of its hostility towards the Arbitration Court. This was

because it was soon realised that the Court was a bulwark behind which it was possible for the workers to shelter from the worst ravages of an adverse market.(11) For the courts, on the whole, continued to accept that the cost of living was the basis upon which wages would be determined and though money wages might be cut the real value of the basic wage would be maintained despite the workers' weak bargaining position.(12) The court's action in preventing wages from falling to the extent the capitalists believed the market warranted was savagely attacked by the employers. The latter insisted that real wages had to be reduced if their firms were to survive. The bourgeoisie's new found hostility towards arbitration was particularly acute in relation to the Federal Court which, even after Powers became President, continued to be more sympathetic to the workers than were the state courts.(13) The employers' hostility gained added strength from the success the labour movement had in improving the workers' position by moving back and forth between the state and federal systems. In Whybrow's case, the High Court had determined that Commonwealth awards could not prevail over state laws or awards.(14) It was held that where there was inconsistency between a state and Commonwealth law the former would prevail. Where there was no inconsistency both laws had to be obeyed. In the case of the 44-hour week this meant that the N.S.W. act of 1920 prevailed over any determination of the Commonwealth Court.(15)

The overlapping caused by the Whybrow decision tended to

raise wages and played havoc with relativities for it meant that workers in the same workplace and undertaking work of a similar nature could be covered by awards in which wages and conditions varied to a significant degree. The discontent this caused proved a major source of industrial conflict and these issues, collectively, ensured that employer hostility towards the arbitration system and the search for a new method for standardising the wage-effort bargain remained a central issue in national and state politics throughout the 1920s.

Powers and the Loss of the 44-hour Week

While Powers did protect the basic wage during the recession, he showed no inclination to follow the same course in regard to margins and the 44-hour week. In June 1921 he was appointed President of the Commonwealth Court with Justice Duffy and Justice Rich as his Deputy Presidents. Owing to their commitments in the High Court the two Deputies were not able to take up their positions on the arbitration bench until August 6, 1921.(16) Until this time, therefore, it was not possible for the Court to hear any cases which involved changes to the working week. Once the full bench was duly constituted, however, Powers lost no time in making it clear he had no intention of accepting Higgins' decision to set a new worktime standard.

At the beginning of September the Court began hearing an application from 5 unions for a flow-on of the 44-hour week. The basis of the union claim was that Higgins had

granted this schedule as a new standard, that it had been given to the engineers and the timber workers and consequently it should be extended to all normal trades. It was further argued that the workers around the world had gained significant reductions in the length of time they had to work, that the new schedule was being widely implemented in N.S.W. and that it was only right that all Australian workers should partake in this movement.(17) In support of their case the scientific data on worktime was once again submitted together with a mass of material detailing postwar international movements in working times. Clearly aware of their vulnerable position the A.E.U. and the Timber Workers Union also presented submissions in which they attempted to argue that Higgins had granted them the shorter week because he believed it was a reasonable and desirable thing to do and for no other reason.(18)

In reply the employers submitted evidence that since the onset of the crisis, working times in Europe and North America had been significantly extended. They also provided statistical data of the effect of the reduced schedule on the productivity of their enterprises. In every case, it was claimed, there had been an at least proportionate reduction in output. It was further asserted, with a good deal of vehemence, that if the increased costs the shorter week had engendered were enforced on the rest of industry the country would be bankrupted.

In the determination given by the Court the two Deputy Presidents had little of any consequence to say. They had

clearly been placed on the arbitration bench merely to fulfil the requirements of the amended Arbitration Act and once the 48-hour standard had been re-established they were returned to the High Court. Powers, on the other hand, gave an extended and in some ways insightful, even if conservative, explanation for why he was opposing Higgins' attempt to set a new standard. He rejected, to begin with, the claim that Higgins had reduced the length of the working week merely because he believed that the workers should have an increase in the amount of leisure they enjoyed. His examination of Higgins' determination, he claimed, had convinced him that the former President had reached his decision first, because work times in other countries were falling rapidly and to a significant degree and this was likely to be a permanent development. Second, because the reduction would not materially reduce output. Third, because the workers were entitled to spend less time at work if new machinery was introduced which increased output. Fourth, because he gave some credence to the union argument that Australian employers were not utilising the most modern methods and machines and that they would require a stimulant, such as the 44-hour week, to compel them to be more efficient. Powers asserted that his decision not to continue the new standard was not at variance with Higgins' arguments, given industry's experience of the shorter week and the changed economic circumstances. He made clear that he believed that the deterioration in the state of the

economy, since the Timber Workers' determination was handed down, was of such dramatic proportions that the society could not afford to continue experimenting with new ideas that might still further undermine profits and living standards. The hypothesis upon which Higgins had based his determination, moreover, had not been substantiated by subsequent events. The downward international movement in working times, rather than continuing, had been reversed and the new trend was for an extension of standard times. Output had not been maintained but had fallen, in most cases, in proportion to the decrease in time worked. This was, Powers suggested, not because the workers could not do as much work in the shorter period but because the unions had continued to oppose piece work and had resisted all attempts to increase the intensity of the new work schedule. He also rejected the argument that the introduction of machinery which increased productivity should lessen the amount of work the employee had to undertake. He correctly observed that while this might be a nice idea he regretted that he could not see how improved machinery could have this result. Australian capitalists had to introduce new machines merely to maintain their position vis-a-vis their foreign competitors who had done likewise. With Australia's international competitors using the same machinery as the local employers there was no way the productivity of these firms could be allowed to fall by permitting the workers to do less work. Finally he rejected

Higgins' acceptance of the argument that employers needed the stimulant of the 44-hour week to compel them to be more efficient. The market was clearly already providing sufficient motivation. Powers concluded by advising the unions that if they wanted the 44-hour week they would have to accept that it was necessary for the workers to increase the intensity of their efforts. In practice, he suggested, this meant the acceptance of piecework and the abolition of all output limitations.(19) There could, in other words, be no trade-off between leisure and goods. A backward bending labour supply curve could not be allowed to characterise the Australian labour market.

The A.E.U. and the Timber Workers

In September 1922 Powers followed up his decision to restore the 48-hour standard by compelling all members of the A.E.U. and most of the timber workers to revert to the old schedule.(20) By this time the employers were able to produce a mass of evidence to show that, in the overwhelming majority of cases, output had not been maintained under the new standard.(21) Indeed, they provided documents from the Timber Workers' Union which clearly showed that the union's officials had not really believed their claims that output would be maintained.(22) The question of output and whether workers had done as much work under the reduced schedule, they insisted, was the central issue in the whole debate over the 44-hour week. As one employer put it:

But, after all, leaving aside the academic (sic) discussion, we have to get down to facts, and whatever has been said there is the outstanding

evidence of the experience of those employers whose employees have been reduced from 48 to 44 hours, that the effect on the output-the production of labour-the production of wealth-the production of the mines and smelters- has been at least reduced in proportion to the reduction in time.(23)

The unions attempted to ward off the capitalists' arguments by challenging their claims that output had fallen and by providing affidavits from the small number of employers who were happy with the new standard and were willing to say so.(24) That there were not more of these, it was claimed, was because most of the employers who had been able to maintain output levels were afraid to say so publicly because of intimidation from the employer associations. It was also ardently insisted that even if it were true that output had fallen this was not the fault of the workers. It was pointed out that Meredith Atkinson had made it clear, in the Timber Workers' hearing, that it would be necessary for the employers to take active steps to improve the machinery, organisation and indeed all aspects of management if output was to be maintained. The unions insisted that the capitalists had not taken up this advice. With few exceptions they had refused to accept that the reduced standard could or should be offset by any effort on their part. Rather, they had placed the whole responsibility for maintaining output on to the workers. In support of their claim that labour was not to blame for any failure for output to be maintained, the unions cited evidence from those American scientific managers who were arguing that the poor quality of the employers' contributions to the

production process was the primary cause of industrial inefficiency.(25) These arguments, however, were received with little sympathy by Powers.

Reaction in New South Wales

In the N.S.W. elections of March, 1922, the Labor Party put itself forward as the party of high wages.(26) As a result it was vehemently opposed by the employers, lost the election and was replaced by a Nationalist administration committed to wage reductions and the restoration of the 48-hour week. The Nationalists rejected out of hand all arguments that suggested it was possible to reduce the length of the workweek without necessarily reducing output.(27) They insisted that the maintenance of a 44-hour standard, at a time when the Victorians were working 48 hours, would destroy the state's industries. Consequently, one of their first acts after parliament reopened, was to introduce legislation which revoked the previous government's proclamations on the working week and which provided the state's arbitration court with rigid guidelines as to how it was to deal with this issue in the future. As Beeby was later to put it; "We were told what we had to do. We could only grant or continue the 44-hour week if it could be shown that the health of the workers was affected".(28) To ensure that the Court could not get around the 48-hour decree the Government's amendments closed off a number of avenues which judges had previously utilised to reduce the workweek below the standard where they were convinced the 'conditions' warranted such action.

Despite the high priority with which the Nationalists viewed the workweek issue, and their use of the parliamentary gag to force their amendments through the legislature, the bill modifying the state's worktime act did not become operational until November 10. This meant that N.S.W. employers were forced to operate under the 44-hour schedule for almost two years.

Once the Nationalists' amendments did become operational many of the state's employers successfully approached the state arbitration court to have the awards of their industry varied. This action was widespread, however, it was not universal. In a large number of cases employers did not apply for any variation.(29) Hardie has argued that the capitalists who made up this latter group did not ask for the restoration of the 48-hour week because the crisis was easing and consequently labour's bargaining power was improving. Similarly he suggests this was the reason for the host of agreements providing for a 44-hour week which were filed with the State Court in the period up until 1925.(30) While this hypothesis does have some validity it would appear only partly to explain the employers' behaviour. What was almost certainly another contributing factor was the results many N.S.W. employers obtained when they were compelled to adopt the reduced schedule. In short, many capitalists found that it was true that they could produce as much in 44 hours as they previously had in 48.(31) The Chief Commonwealth statistician, J. T. Sutcliffe, attempted, in 1926, to determine the extent to which the reduction in

the length of the working week in N.S.W. had been offset by higher hourly output. While not totally successful in this endeavour he was able to conclude that the statistical data indicated that the adoption of the reduced schedule had not adversely affected the state's economy in any manner.(32) During the period that the 44-hour week had operated, he reported, productivity had risen faster in N.S.W. than it had in Victoria.(33) While it may be true that these developments did not eliminate employer opposition to the reduced schedule it certainly would have undermined its vehemence.

Innovative Employers and Efficiency

A great deal of the credit for bringing about the high degree of offset attained in N.S.W. must go to the labour movement and to those within the state, such as Higgins and Beeby, who had promoted rationalised work times. The workers and these state functionaries collectively, created a situation where the N.S.W. employers had to begin introducing at least some of the modern production methods necessary to raise the efficiency of Australian industry. The credit for this development, though, does not belong solely to these bodies for there were other influences also promoting modern production methods at this time. Some capitalists, even if only a small minority, did not need this form of external pressure to motivate them to introduce rationalised methods into their enterprises.(34) There were even examples of employers voluntarily reducing their time schedules as part of a rationalisation strategy. The

directors of the Pelaco Company, for example, beginning in 1912, undertook experiments with varying worktime schedules in order to determine which would maximise their profitability. As a consequence of these tests the company's 960 employees were allowed a 44-hour week and rationalised rest pauses. This was done, the company reported in 1926, both because a reduced schedule was what the workers wanted and because it was found that the shorter schedule reduced unit costs.(35) Such employers, however, were few and far between. Australian manufacturers, at this time, appear to have put more time and effort into constructing new arguments for why they should be given higher levels of protection than on attempting to rationalise their production methods. In many areas this failure reflected the simple level of Australia's development, but as the taylorist manufacturer Walter Rose noted in 1930, in the majority of cases it resulted more from the ignorance and ineptitude of local management.(36) In short many of the opportunities that existed for improving productivity simply were not taken up. The nature of the development of the manufacturing sector during this period has been well summarised by Sinclair.

Total manufacturing output increased rapidly but very largely as a simple reflection of the increasing size of the work-force. Such instances as there were of new techniques or methods of production being introduced tended to be isolated examples, or when, as in the early 1920s, there were sufficient numbers of these to register in the statistics of output per factory worker, the effect was short-lived.(37)

Those few local capitalists who did pioneer the

introduction of rationalised production techniques were important for they provided the workers, other employers and the state with concrete examples of what could be done if greater rationality was introduced into the workplace. Further examples of rationalised production methods were provided by the many foreign manufacturing enterprises that established plants in Australia during the 1920s. This was one of the positive results of high tariffs. Protection tended to encourage inefficiency within industry by allowing marginal producers to continue to exist. However, it also encouraged highly efficient foreign corporations to establish production facilities within the country as a means of avoiding this barrier. These firms brought with them not only their capital but also their production skills and experience. In the motor vehicle industry, for example, the Ford Corporation and General Motors both established mass production facilities during the 1920s.

To oversee this development these companies despatched large numbers of technical personnel with experience of production in the U.S.A.. In time these developments were to have a significant impact on local manufacturers. They tended to increase the level of competition within industry and they gave Australian producers a close-up view of what scientific management was capable of achieving even in a small nation like Australia. Forster's description of the effect of these firms in this last regard, suggests they played a role in Australia similar to that described by Layton in his discussion of the spread of American methods.

The establishment of American assembly plants was of considerable importance to Australian manufacturing, since they were a means of demonstrating the latest American methods in manufacture which had reached their peak in the automobile industry. The plants were models of efficiency. Methods of management and operation developed in the United States were applied in Australia and the assignment of work, handling of parts and operation of the assembly line were on the same lines as any large plant in Detroit.(38)

Rationalised Production and the Theoreticians

The dissemination of the knowledge of what rationalised production methods were capable of achieving was also assisted by intellectuals within both parliament and the various state instrumentalities. The critique of traditional management published in Hoover's Waste in Industry, was to prove particularly influential with the Bruce-Page administration which, as a "businessman's government", included a number of individuals who had close contacts with companies with which Hoover had been intimately involved.(39) G. Knibbs, the Director of the Commonwealth Institute of Science and Industry, also strove to promote Hoover's report during the early 1920s. In 1922, when undertaking the formative groundwork for the Australian Engineering Standards Association, Knibbs drew the attention of Australian producers and engineering bodies to the standardisation programme being developed under Hoover's guidance in the U.S.A. When doing this he observed that the Committee on Elimination of Waste in Industry had found that most of the inefficiency within American Industry resulted from poor management. Knibbs noted that as with Australian producers capitalists in the U.S.A. needed to

compete against the low wage Europeans. This meant they had to produce goods in less time and with less non-wage costs. To assist in the attainment of this objective Knibbs reported, Hoover had established a division of simplified practice within the Department of Commerce. This body undertook similar activities to some of those which Knibbs hoped the standards association would develop.(40)

As part of his campaign Knibbs had his deputy, Gerald Lightfoot, deliver a paper to the 1924 Conference of the Australian Association for the Advancement of Science on the issue of waste and the efficiency of U.S. production methods.(41) This paper was enthusiastically received by the participants who called on the government and industry to follow the American lead.(42) The appreciation both of what American industry was achieving and the dangers this development held for the trading positions of other nations was to be as much appreciated by Australians during the 1920s, as it was in Europe. As one Australian observer of America succinctly summed up the situation;

Nothing about the United States is of greater interest to outsiders than the tale of her industrial achievements. They are a veritable triumph of production. Never before in the history of the race have any people harnessed and controlled the forces of nature to such an extent. In the last thirty years the United States has steadily overhauled all the other nations as a producer, and an organizer of productive capacity. To-day she is the industrial mistress of the world. She has displaced Great Britain from her century-long domination. She is richer - by all the economists' tests of riches - than any nation ever has been. The United States is the most powerful social group on this planet . . . Why is it? Why was it? Australians are not alone in asking these questions. The whole world wants to find out, and,

if possible, to share the secret of American prosperity.(43)

The State and Industrial Research

When promoting the efficiency issue Knibbs placed particular emphasis on the ignorance of both managers and workers as to the significance of X-inefficiencies. Neither group, he insisted, appreciated the extent of the waste problem.(44) It was necessary, therefore, for the state to play an active role if the gross inefficiency characteristic of industry was to be eliminated. In the early years of the decade most of his efforts went largely unrewarded. Once the war-induced enthusiasm for scientific research had waned, his institute was starved of funds by both the Hughes and the Bruce-Page Governments. In short, the vital role science could play within the production process was largely ignored.(45) This policy, however, was radically reversed in the mid-1920s as a consequence of a number of concomitant developments.

An immediate stimulant was the announcement, in December 1924, that the British Government had decided to provide a grant of one million pounds per annum, instead of trade preferences, for research into the efficient production and marketing of primary products within the empire.(46) This announcement was a severe blow to the Nationalist's development strategy. Throughout their time in office the Nationalist Party, both on its own and in coalition with the Country Party, attempted to foster the growth of what it called "balanced development". This meant supporting the

manufacturers as well as the rural producers.(47) The understanding of what this balance consisted of, however, changed significantly through the 1920s. Prior to 1925 the development programme had largely consisted of across the board protection for the manufacturing sector and the provision of financial assistance and immigrant labour to the rural areas. Emphasis in this programme was decidedly on the rural sector, which was to be expanded on an inter-imperial basis. The Australian Government was to provide the resources for the private sector to develop the available land and the British economy was to provide the market.(48) To this end both Hughes and Bruce attempted to cajole, pressure and blackmail the British Government into accepting a policy of empire preference which would eliminate the Americans and Europeans as suppliers of Britain's food and enable this market to be supplied by members of the empire.(49) In October 1923, Bruce attended the Imperial Economic Conference in London and managed to win Baldwin's acceptance of this programme. Shortly after, however, Baldwin was voted out of office largely over the question of tariffs and the effect empire preferences would have on Britain's trade pattern and food prices. When subsequently re-elected, in November 1924, the whole tariff programme was abandoned and the empire nations fobbed off with the offer to subsidise industrial research in a manner which would enable them to compete with the Americans.(50)

The British reversal compounded the problems the Government was having settling immigrants on new lands which

were often proving of marginal productive value.(51) To these difficulties were added two other troubling factors. The first was the tendency for Australian manufacturers to fail in the market place. The second was the revival of the labour movement, the political wing of which won office in 5 of the 6 states in the mid years of the decade.

The Tariff Critics

Imitation and suggestion, Mauldon argued in 1932, were important influences inducing some Australian employers to adopt rationalised production methods during the 1920s. Of greater significance, he insisted, was the role of the international market. As Australia's competitors rationalised their production methods and thus cut their prices there was mounting pressure placed on local producers to do likewise. In a number of industries, Mauldon suggests, this competition did induce some movement towards greater concentration and the adoption of a rationalised form of production. This effect, however, was uneven both across and within industries and in some sectors it was almost indistinguishable.(52) That firms could still survive, despite the failure of their owners to adopt the most efficient methods, was possible because of the tariff.

The Nationalist Party viewed tariff protection for manufacturers as an essential element in its strategy of balanced growth.(53) The primary producers within its ranks and within the Country Party, however, tended to maintain only a grudging acceptance of this policy.(54) Their

traditional hostility towards tariffs which had been ameliorated by the policy of all-round protection adopted in the early years of the decade, was strongly revived in 1925 by the Government's decision to grant the manufacturers higher levels of protection. Country Party politicians were particularly incensed by the decision of the Tariff Board to raise the protection on agricultural implements.(55) From 1925 these critics became increasingly vocal in their attacks on the Board, the manufacturers and the cabinet.

In their criticisms the critics insisted that they did not necessarily oppose protection as such but rather, they opposed the failure of the state to place clear limits on the degree of assistance that was to be given to the manufacturers. There were, it was pointed out, no guidelines laid down which would specify where protection was to stop.(56) This open-ended policy encouraged inefficiency, with the owners of infant industries putting little effort into attempts to improve productivity. They chose instead to demand that the state give them more protection from those of their international competitors who did elect to innovate.

There might be something in the argument that an industry should be artificially assisted over its initial difficulties. All we claim is that after protection for a limited period, it should be expected to get into deep water and swim by itself.(57)

After 1925 the Tariff Board was to add its voice to those who warned that the policy of protection was not working. The Board's criticisms, at first, tended to reflect the fact

that it was made up solely of employer representatives. Its reports of 1926, for example, blamed workers for manufacturing's poor performance and generally exonerated the employers. Despite the fact that there was a clear decline in the relative competitive capacity of Australian manufacturing, the Board insisted that those to whom it gave assistance were as efficient as could be expected.(58) The high cost of Australian manufactured goods, it was claimed, was caused by factors beyond the power of the manufacturers to deal with or were the result of the high cost of Australian labour.(59) Many of the Board's critics refused to accept this argument. Repeatedly it was pointed out that wages in the U. S. A. and Canada were even higher than those in Australia.(60) The problem, these critics insisted, lay not so much with the wages paid to the workers but rather with the failure of Australian manufacturers and unions to adopt the type of production that had enabled those countries to have both high wages and low prices. The impact of these criticisms was reflected in the reports of the Tariff Board over the years 1927-1928. In 1927 the Board again criticised the unions for 'abusing' the tariff. This time, however, the manufacturers and those primary producers enjoying protection were also subjected to a degree of censure for engaging in monopoly pricing and for failing to adopt a positive policy of innovation.(61) In 1928 this was followed up by a similar criticism of employers in the transport and distribution sectors.(62)

The 44-hour Week and the States

Those who opposed increased protection for the manufacturing sector did not gain any support from the Labor Party or the trade unions. As far as these bodies were concerned employment was the primary concern and high tariffs meant jobs in the immediate future and higher levels of employment and economic security in the long term.(63) The inefficiency of the manufacturers, however, was attacked by the labour movement from a different angle. During the course of the 1920s their arguments for improved conditions for labour reflected the changing nature of the rationalisation debate being undertaken in the U.S.A. and Europe. Taking up the taylorists' critique, published in Waste in Industry, it was argued that inefficiency resulting from the poor quality of Australian management was causing unemployment and was preventing the working class gaining the full standard of living the production process was potentially capable of producing. This thesis became a particularly important aspect of labour's campaign for the 44-hour week. While continuing to utilise the data provided by the British fatigue researchers on the relationship between worktime and output, the movement took up and developed with increasing degrees of sophistication, the argument that poor management was the primary obstacle preventing the workers gaining the shorter workweek. It was argued that science had shown that there was no reason why workers should have to labour a 48-hour standard. The introduction of the reduced schedule, it was insisted, would

not increase unit costs and thus undermine the nation's economy for it would be offset by the workers applying themselves more diligently during the time they did work, and by the greater efficiency that would result from placing employers in a position where they simply had to reduce management-induced inefficiency.

Until 1926 the promotion of the efficiency argument at the Commonwealth level, failed to generate sufficient support to overcome the conservatism of the employers, the Arbitration Court and the Federal Government. Powers continued to insist that the state of the economy was such as to preclude any possibility of the Court introducing a 44-hour standard.(64) Their path blocked in this direction the unions, after 1922, turned to the state arena. In Western Australia the metal tradesmen responded to Powers' decision to restore the 48-hour standard by staging a seven month strike. In April 1923, however, they returned to work under the prompting of their own leaders and the A.L.P. politicians who urged the workers to shift the struggle to the parliamentary arena.(65) Until 1924 the unionists' experience of the one A.L.P. government in office, i.e. in Queensland, must have held out little hope that the shorter week would be achieved by this means. Attempts to induce the A.L.P. administration in Brisbane to legislate for a 44-hour standard for the state was resisted by the parliamentary leadership on the grounds that reduction in the length of the workweek would necessarily undermine the state's economy. At a meeting of the Trades and Labour Council, in

December 1923, Premier Theodore attempted to shift responsibility for introducing the 44-hour week on to the unions and/or the arbitration courts. This task, he insisted, should not be undertaken by the State Government. Rejecting the claims of the fatigue researchers, he argued that a responsible government could not legislate for a change to industrial conditions that would necessarily increase the costs of production.

To knock off four hours a week would reduce the producing capacity of an industry, roughly, 8.5 per cent. Some would say that by reducing hours production would not be reduced at all, that there would be greater efficiency . . . Unhappily that was not the case.(66)

Any doubts as to the A.L.P.'S commitment to the shorter week in Western Australia, on the other hand, were soon dispelled once Labor was returned to office in the 1924 elections. Within a month of the new parliament opening the Government introduced legislation to amend the Arbitration Act to provide for a universal 44-hour week. The administration defended this action on the grounds that reduced work times did not necessarily involve reductions in output and consequently there was no reason why the workers should be compelled to labour the longer schedule.

The chief arguments used against the 44-hour week, judging by what has been said in parliament and has been published in the Press, are that it will mean decreased production and that it will mean that Australia will not be able to compete with other countries working longer hours. Those arguments are fallacious.(67)

The W.A. Government managed to have its legislation passed by the Legislative Assembly. It was, however, blocked by the

conservative dominated Legislative Council.(68) Unable to overcome the resistance of the bill's opponents in the house, the Government granted the reduced workweek, by decree to its own employees. At the same time it amended the Arbitration Act to give arbitration judges life tenure, then appointed Justice Dwyer, a former Labor parliamentarian as President of the Court and had him hear a test case involving a claim for a 44-hour week, along the lines pioneered by Higgins.(69) Following this investigation the Court, by a majority decision, announced in September 1926 that the overwhelming mass of scientific evidence made nonsense of the employers' claim that output would necessarily fall if work times were reduced. The claim was granted and Dwyer subsequently announced that the 44-hour week would henceforth be introduced into all state awards covering normal industries.(70)

Given the Western Australian lead Theodore found it impossible to continue refusing to legislate for a 44-hour week. In October 1924 his Government initiated and subsequently passed legislation which, from July 1 1925, made the 44-hour week the new standard in Queensland. The spread of the new schedule within the states was further advanced by the victory of the A.L.P. in the N.S.W. elections of June 1925. During the election campaign Labor made the restoration of the 44-hour week the foremost plank in its platform.(71) Following its victory the A.L.P. immediately set about redeeming this pledge. In September a Forty-four Hours Week Bill, which immediately gave the

reduced schedule to all workers covered by an award, was introduced and speedily pushed through the parliament.

The Federal Government and Scientific Development

The spread of the 44-hour week through the states at a time when Australian employers were losing many of their traditional markets was seen by the Federal Government as a major threat to Australia's economy.(72) Prior to late 1925, cabinet members refused to consider the possibility that it might be possible to reduce working times without necessarily raising production costs. The mounting problems associated with industrial development and the labour movement, however, caused the Government, in the mid-years of the decade, to undertake a radical re-consideration of many of its policies including those related to worktime. As a result of this re-evaluation it sought to integrate more closely the manufacturing and primary sectors along American lines by shifting emphasis on to the home market, and it actively intervened within the market with what it believed was "... a more scientific approach to development".(73)

The crucial role that science could play in the production process became a central pre-occupation of the Government from 1925.(74) Like their counterparts in Europe at this time, when ministers urged the adoption of scientific development they invariably meant by this the adoption of the policies being so successfully advanced within the United States.(75) During the early years of the decade a number of Australian industrialists and politicians joined the flood of researchers who travelled to the U.S.A.

seeking an explanation for America's growing domination of the global market.(76) Invariably these individuals returned convinced that the Americans' superiority was to be explained by their vast resources, their huge internal market and above all, as Hughes put it after his 1924 trip, by ". . . standardisation and the adoption of up-to-date methods".(77) Bruce also travelled to the U.S. in 1924, and early in 1925 Page was instructed to do likewise. The latter travelled extensively through the U.S.A. and Canada with the express purpose of discovering what it was about America's industrial and political structure that had enabled it to gain its overwhelming economic superiority.(78)

The influence of the rationalisers' wage policy on the Government was also evident from this period. This was reflected in a number of speeches given by Bruce through 1925-1926 in which he called on employers to reconsider seriously many of their traditional industrial policies. In these addresses he often pleaded with employers to accept what he believed were their management responsibilities.(79) As one unionist in the 1926 Main Hours Enquiry put it,

He urged the employers to realise their responsibilities in the matter of production; he told them to take their eyes for a while away from the supposed defaults of their workmen, and to engage upon a little introspective analysis, in order to ascertain whether their factory equipment is as good as it could be made, whether their systems of management and control are as good as they could be made, and whether there is proper co-ordination and organisation. He also urged them to proceed upon lines which would place the industries of Australia upon at least an equal footing to that occupied by the industries in the best organised countries of the world.(80)

An outline of the Government's development programme was provided by Earle Page in June 1926. In an address to the N.S.W. Chamber of Manufacturers Page argued that there was an "intimate connection" between primary and secondary industry, that the nature of this connection was being most effectively demonstrated by recent developments within the United States where a booming manufacturing sector was encouraging expansion of rural industries which were, in turn, enabling primary producers to reduce the cost of materials to the manufacturer. It was this balanced productive relationship between the two sectors, Page insisted, that necessarily had to be developed within Australia if the nation's industries were to survive.(81)

After outlining the importance he placed on this relationship Page turned to the role the state had to play in fostering industrial development. This activity, he insisted, had to be undertaken at a national level. The failure of former governments to lay down long term national plans for industrial development had imposed many unnecessary handicaps on industry. The costs associated with these handicaps, he went on, had been compounded by the federal system of government. The existence of seven different state and federal administrations, each promoting its own development strategy, created massive difficulties for the type of national planning the Commonwealth Government was convinced the growth of modern industry necessitated. These institutional difficulties, he insisted, could not be allowed to continue obstructing the nation's

progress. If Australian industry was to prosper it was vital that the Federal Government devise and implement an industrial efficiency programme based on national criteria.

Today no country can live unto itself. The capacity of any country to maintain its place in the world race goes back sooner or later to the cost of production. Every country, consequently, must devise a national programme of efficiency. . . The question as to whether the fertile soil of a country produces its full harvest or whether its workshops are busy or not, will depend ultimately on the capacity of that country to produce and sell at a competitive rate in the markets of the world alongside other nations. If its governmental institutions impede, they must be altered. If private methods of industry lessen our ability to compete they must be changed or we will go down in the race.(82)

The ability of a nation's industries to compete, Page insisted, was dependent on both its natural wealth and resources and on the efficiency of its production methods. A programme of national efficiency must aim to make the best use of the nation's capital, labour and management skills. He went on to examine the role each of these needed to play in a scientifically devised programme of development. Of capital he emphasised the vital necessity of employers utilising industrial equipment and plant of a quality comparable to that used by Australia's major competitors. Standardisation must be introduced into all stages of production. Distribution and transportation had to be rationalised and above all steps had to be taken to ensure that the new national programme of power generation the Commonwealth was planning came to fruition and that it developed in a manner which would encourage the expansion of large scale production.(83) Page warned the manufacturers

that the Government was considering a comprehensive review of its tariff policy. The purpose of this study would be to identify the natural and essential basic industries, both primary and secondary, which could be viably protected and fostered. This would mean, he suggested, the elimination of those 'unimportant industries' which were not deemed viable at the present stage of Australia's development. He also gave warning that those who did receive protection would be more rigidly regulated to ensure that they did strive to maximise efficiency.

The tariff, by giving control of the home consumption market to Australian producers and by being used in order to stimulate and encourage efficiency can be a very effective aid in international competition. If it is simply used as a defence of inefficiency instead of a stimulus to efficiency the tariff may become a national handicap instead of a factor for national progress. The justification for the continuance of the tariff protection granted to an industry should always be the efficient conduct of that industry.(84)

Turning to the role of labour, Page argued that a more efficient production process would mean higher wages for the workers. By stabilising industry it would mean greater security and continuity of employment and improved industrial relations. In return, however, the workers had to "give full service to achieve maximum output". Fair conditions, Page claimed, were laid down in Australia by impartial tribunals. Conflicting or duplicating controls, though, were not consistent with national efficiency and invariably led to chaos and confusion. For this reason the Government had decided it needed centralised control of the conditions of industry.

Finally, in an argument that could have been lifted straight from Waste in Industry, Page examined the role of management. Efficient management, he stated, was vital if the most productive use of the nation's resources was to be obtained. Management of firms needed to be improved and this needed to be supplemented by a national, collective effort aimed at eliminating all sources of waste.(85)

At the end of his address Page stated that his government was already bringing forward financial and industrial proposals which would establish the basis of its programme of scientific development. This legislation, he hoped, would ensure the future of the country and consequently the sooner it was put into effect the better. In making this declaration Page was certainly not overstating the extent to which the Government was committed to the rationalisation of Australia's industries. In late 1925 he had utilised the information and ideas he gained from his trip to the U.S.A. as a basis for new comprehensive banking legislation which aimed to systemise the provision of rural credit and rationalise the marketing of rural products. This trip had also provided him with the basic data upon which the administration was establishing its national transport and road construction programme.(86) In May 1926, in a legislative 'great leap forward' the Government furthered this programme by introducing a number of bills each of which, it was suggested, was ' . . . part of one single general policy'.(87)

In the eight days May 21-28 the Government introduced

four bills which clearly reflected the radical change in policy the ministry had chosen to adopt. The first of these acts, the Science and Industry Research Bill, established the Council for Scientific and Industrial Research. This organisation was to be a planning body which would cooperate with the states in the carrying out of industrial research throughout the country.(88) In introducing this act Bruce argued that recent developments within industry had shown that science could greatly assist the development of industrial efficiency and thus raise living standards. It was countries, such as the United States, that had grasped the significance of the role the industrial sciences could play in raising the efficiency of industry that were developing at the greatest pace industrially and commercially. Both the state and private corporations in the U.S.A., he pointed out, were spending vast sums of money on industrial research. It was clear that the Australian Government and Australian industrialists would have to do likewise if local industry was to survive.(89)

Bruce's concern with U.S. competition and the need for greater industrial efficiency within Australia was also displayed in the debate on the Development and Migration Bill introduced the following week. This act established a commission which became the planning agency upon which the Government came to rely on all matters affecting national economic development.(90)

The two other bills in the same vein, introduced in this week, had as their objective the rationalisation of

Australia's system of industrial relations. Like politicians around the world during the 1920s, Bruce was very much aware of the extent to which the new production methods being implemented within the U.S.A. had undermined trade union militancy and support for socialism.(91) Most observers of the American scene at this time invariably commented on this development and this factor was widely considered to be a crucial element contributing to America's industrial strength.(92) Bruce was also aware that this peace had been attained because both the employers and the unions had, to a significant degree, accepted that the rationalisation of industry required that they both abandon many of their traditional practices. In 1927 Bruce was to observe that if there was anything to be learned from the American experience it was that greater industrial efficiency required the cooperation of both worker and capitalist.(93) His problem was that the high profits which had enabled the American capitalists to buy the cooperation of the skilled workers within the United States were not available to Australian employers. These profits had been generated by the widespread application of taylorism but this had not yet occurred to a sufficient degree within Australia. Bruce, therefore, was promoting Rowse's 'abstract ethic' in the face of acute class hostility with little of substance to give it strength. A further complication was the fact that the relative shortage of labour within Australia together with the institutionalisation of industrial conflict within the courts had made it possible

for even unskilled workers to unionise. The second means by which the Americans had attained industrial peace, draconian repression of those too weak to defend themselves, was consequently also not freely available to the Government. This latter problem was intensified by the strengthening of the economy and the political revival of the Labor Party from 1924. In the face of these developments Bruce was forced to abandon the attack on the labour movement he had been preparing during his first term in office.(94) He turned instead to a strategy which aimed to achieve industrial peace by improving the return both capitalist and worker gained from their relationship. More specifically he gave support to that aspect of the rationalisers' programme most favoured by the unions, i.e. the 44-hour week, while at the same time he promoted those elements most desired by the employers, time study and payment by results.

The first of the two acts dealing with industrial relations was the Constitution Alteration (Industry and Commerce) Bill. This act proposed amending the Constitution to provide the Commonwealth Arbitration Court with the authority to deal with industrial disputes of an intra as well as an inter state nature. This would effectively concentrate all arbitral power in the hands of the Federal Court. In support of the act both Bruce and Page argued that the problem of overlapping awards was a source of confusion and a major hindrance to industrial progress. This

"unscientific system", they argued, was destroying industrial relativities and was a primary source of industrial disputation and economic waste. If Australian industry was to survive in the international market place the production process had to be given a sound economic basis. A primary element of this foundation had to be a unified and coordinated system of industrial relations.(95)

Developments within N.S.W., Government members insisted, made the passage of this bill a matter of urgency. In the previous month, in an historic decision arising out of an employer challenge to the N.S.W. 44-hours legislation, the High Court over-ruled the Whybrow decision and determined that Commonwealth awards were paramount.(96) This meant that no state court or legislature could institute measures that would vary or disturb the Federal Court's rulings. This decision was acclaimed by the employers, particularly those in N.S.W. who had rapidly abandoned their hostility to the Federal Court with the return of state Labor governments, while it was greeted with dismay by the trade unions.(97) Once the decision was announced, employers in N.S.W. attempted to compel the workers to return to the 48-hour week. When the workers resisted by refusing to labour on Saturdays many employers locked out their workers.(98)

Bruce was clearly aware that the immediate response of the labour movement to his announcement that the Government wished to concentrate all industrial power in the Court, would be suspicion that this was merely a ploy aimed at circumventing the spread of the 44-hour week via the state

legislatures. In their contributions to the debate, therefore, both he and Page dealt at some length with the worktime issue. They argued that if this was really their intention they would ask for direct power for the parliament to decree the length of the workweek, as was suggested by the A.L.P.. They would not merely request that this power be given to the Court. The administration did not want this power, it was insisted, because it was convinced the workweek issue was too complex and political a question to be dealt with by parliament. The 44-hour week, Bruce stated, was "... probably the most burning question in Australia today".(99) Many workers were convinced that the existing length of the workweek was detrimental to their well-being. Given the strength of this feeling and the existence of clear proof that output and worktime were not always proportionally related, Page added, it was crucial that an authoritative examination of the validity of the workers' claims be undertaken. What was needed was an independent, scientific investigation as had been conducted by Higgins in 1920. An enquiry of this nature could objectively examine the many questions associated with the worktime problem and it could look at how any given time schedule would affect production, output, trade, wages and workers' health.(100)

To facilitate the holding of such an enquiry, the following day the Attorney-General introduced a new Conciliation and Arbitration Bill. This act was designed to enable the Arbitration Court to hold general enquiries into such major issues as the basic wage and the standard

workweek. The decisions reached at such hearings would provide general guidelines which would govern the Court's determinations in all subsequent disputes. Thus, the issue of the 44-hour week would finally be settled.(101)

As Powers had announced his intention of resigning in June 1926 and the two-year terms of his deputies, Quick and Webb, were due for renewal the Government seized the opportunity to reconstitute the bench in line with its new strategy. The two deputies were virtually dismissed and a clause was inserted into the Conciliation and Arbitration Bill to provide the Bench with judicial powers.(102) Following the passing of this legislation George J. Dethridge "... a cautious but flexible conservative (who . . . more than his colleagues made the effort to keep abreast of social and economic writings" was made Chief Judge in July 1926.(103) L. O. Lukin, a conservative who invariably favoured the employers and who could be counted on to support the use of repression against the workers, was appointed one of the judges of the Court. The third member was the ardent taylorist, G. S. Beeby. Collectively, these appointments provided the Government with a judicial ally which, while progressive in that it would generally support the rationalisation movement within Australia, was also sufficiently conservative to enable the Bruce-Page administration to feel secure that it would not act in a manner likely to interfere with its policies.(104)

The 1926 Main Hours Enquiry

As a result of the Government's legislation, the unions and the employers in N.S.W. resolved to call off their strike/lockout pending the hearing of a general enquiry. This resumption of work was on a basis of 44 hours work for 44 hours pay. An application for the shorter week by the engineers was used by the trade union movement and the employers as a test case. This was heard by the newly constituted full bench. The hearing began on August 24 and it lasted until December 17. As in Higgins' 1920 case the central issue was the relationship between worktime and output. What the Court attempted to resolve was whether it necessarily followed that output and the productive capacity of industry would be adversely affected by the introduction of the shorter workweek. Dethridge made it clear that under no circumstances was there to be a trade-off of income for leisure.(105) The way in which both sides were to argue their respective cases reflected the state of the worktime debate then raging in the U.S.A. and Europe. The strategy of both worker and capitalist, in short, was to base their arguments on those aspects of scientific management theory that supported their case while attempting to ignore or denigrate those aspects they found unpalatable.

In the enquiry the unions strongly emphasised the fact that experience had shown that it was possible to reduce work times without necessarily reducing output and that the perennial forebodings of employers that reduced schedules would spell ruin, had time and time again been refuted once

labour, or the state, had compelled the introduction of a reduced standard. In making their claim for a progressive role in bringing about more humane and rational work times Holloway, again the unions' chief advocate, made it clear that they fully understood and conceded the vital role played by science in this process.

A study of the labor conditions in various countries of the world during the last 20 years will show that, prior to the last Great War, the outstanding feature of the working hours of labor from an International standpoint was the absolute lack of anything in the nature of uniformity; anything from 50 to 100 hours commonly constituted the week's work, but just prior to the first of war(sic) the growing strength of the Trades Unions and the volume of public opinion was gradually bringing about reductions in the working hours of the more highly developed countries. But it was not till the actual needs of the war period demanded greater production, that scientific analysis proved beyond any shadow of doubt that the old order of long hours was not only inhuman, but constituted the worst form of wastage and was extremely costly. Since then, huge reductions in the working day and week have taken place as the result of commissions of enquiry, conferences, etc.(106)

The unions also highlighted the fact that N.S.W. had not been adversely affected by its experience with the shorter week. It was pointed out that many employers, when put to the test, had found that after an initial adjustment period they could obtain the same level of output in 44 hours as had been previously obtained with the longer schedule.(107) It was true, it was conceded, that a total offset had not been achieved by all employers but where this was the case it was either because the period of adjustment had not been long enough or ". . . because the employers do nothing to assist in the direction of increased production".(108) The

failure of the vast majority of Australian employers to display any significant degree of innovative capacity was a crucial element in the union case. Much was made of the progressive high wage policies of Henry Ford, of the work of the American scientific managers, the European fatigue researchers and the inefficiency highlighted by Waste in Industry. It was argued that if it was true that managerial inefficiency was the major cause of economic waste in the U.S.A., this factor was certainly of even greater significance in Australia where few employers had even begun to tackle seriously the rationalisation of their enterprises.(109) The work of the scientific managers, it was further argued, showed conclusively that the market mechanism was not a sufficiently effective device for eliminating unnecessary waste. What was needed, it was claimed, was an external "dictatorial" force, and this meant either the state or the unions, which would compel employers to take up the opportunities that already existed.(110) If the 44-hour week was imposed on industry the workers would be stimulated to produce as much as they had in 48 hours and the employers would be compelled to improve their management practices. Collectively these responses would prevent any reduction in output.(111) To compel the workers to labour the longer week merely because management was fearful, wilful and incompetent was 'wrong', 'useless' and an 'indignity'.(112)

As part of their case the unions made explicit use of Taylor's research. This led Dethridge to state that

he had thought that Taylor and the scientific managers had not concerned themselves with the shortening of working times but rather had concentrated on raising output and eliminating waste motions. He went on to state that he had also believed that the trade unions were vehemently opposed to Taylor and his ideas. The unions conceded, that to some extent, it was true that the attainment of shorter work times had not been an original objective of the scientific managers but that, as a result of their experiments, they had become advocates of shorter times because they had discovered that a reduced workweek could increase total output. They also suggested that their earlier attacks on Taylor may well have been overdone.(113)

In their criticisms of the employers the unions did not deny that there were a minority who did strive to ensure that the most efficient machines, materials and production techniques were utilised within the workplace. In the engineering industry for example, it was conceded there were firms which did utilise the most efficient plant and equipment. Even these employers could not escape the charge of managerial inefficiency, however, it was claimed, if when introducing rationalised production techniques the employers failed to consider their effects on the workers. In particular it was stressed that modern methods of production, with their greater pace and monotony, placed new strains on the worker and these meant the workers needed increased time away from work in order ". . . to recuperate

in health of mind and body".(114)

In reply to these charges and arguments the employers put forward scientific witnesses who argued that while it may be true that work times beyond 48 hours per week were detrimental to the workers' health and to industrial efficiency this was not a relevant factor when the 44-hour week was being discussed. They further argued that they were efficient, that they did not need any external stimulant to motivate them to eliminate unnecessary waste and that, generally speaking, they had installed the most modern machinery and plant warranted by the limited size of the Australian market. That the mass production methods developed within the U.S.A. had not been widely adopted was acknowledged but this was because this form of production was simply not suitable for Australia.(115) If inefficiency did exist, it was insisted, this was not the fault of the employers. It was rather the result of conscious, organised effort restriction on the part of the workers together with their continued opposition to piecework, time - study, dilution and cuts in manning levels.(116) The issue of piecework was particularly stressed, it being argued that a major reason the Americans could so effectively undercut Australian producers was the wide adoption within the U.S.A. of time-study and payment by results. They consequently called on the Court to refuse the shorter week until the unions agreed to the free use of this form of remuneration.

The employers' argument for incentive wage systems and the union retort that employers invariably misused such

forms of payment particularly interested Dethridge and Beeby. Both judges insisted that surely employers and workers could come to some agreement on this issue which would enable both parties to improve their position.(117) The need for the workers to accept some form of wage incentive, if shorter work times were to be viable, was referred to by both men when handing down their judgments. Beeby, in particular, stressed the 'vital importance' of this issue. He dismissed union arguments that payment by results necessarily led to overwork. The arbitration system, he insisted, was capable of ensuring this did not happen. The unions' fear of unemployment arising from overproduction was reasonable but effort restrictions were simply not the answer. Some other means of overcoming this problem would have to be found. If Australian industry was to survive the unions would have to accept this fact.(118)

The Court by a majority of two to one, Lukin dissenting, voted to concede the shorter week to the engineers. It was further declared that, providing this concession did not endanger the continued existence of an industry, it would probably also be conceded to all other workers experiencing a degree of work-induced deprivation similar to that experienced by the engineers. In short, the intensity of the time worked, or "access to leisure", was to be the factor determining a claim's viability. As Dethridge put it;

The true criterion of comparison . . . in respect of working hours is not the mere number of hours worked. The just ideal is that different industries should, as far as is economically practicable, afford to the workers an equal real and not mere

nominal enjoyment of leisure. We must look at substance and not at mere labels. Eight and three-quarter hours of work in an occupation not attended with confinement, strain, or fatigue, or with a soiling which takes a long time to remove, may afford as much real leisure as eight hours work in an occupation subject to these disadvantages.(119)

Modern mechanised methods in the engineering industry, Dethridge and Beeby agreed, had largely eliminated severe bodily effort. The adoption of machines had, however, not decreased the total effort required within the workplace for there had been a corresponding increase in the degree of nervous strain due to the greater monotony, concentration of attention and over-specialisation. They agreed workers who experienced these forms of deprivation would benefit from a reduction in the length of time it had to be endured.

Finally, as for the argument that the shorter week was necessary to motivate employers to be more efficient, both men declared that they had some reservations about this claim. Dethridge stated that he thought it would be 'rash' to presume that this was correct.(120) Beeby suggested the failings of local employers were probably no greater than those of their peers overseas. Where he did think the unions had a case was in their claim that if capitalists were compelled to adopt a shorter week they would be stimulated to find ways to offset this reduction and that in most cases this search would be successful.(121)

The Efficiency Campaign

As part of its campaign to rationalise Australian industry the Federal Government implemented a number of important measures over the next three years. These included

the adoption of a much firmer policy towards those asking for protection(122); the commissioning of a major study of the tariff question(123); the establishment of a national body for the elimination of waste along the lines pioneered by the U.S. Department of Commerce(124); the commissioning of a British Economic Mission to advise on the development of Australia's resources, migration and bilateral trade(125); the establishment of a Bureau of Economic Research; the despatching of a delegation to the World Economic Conference in Geneva(126); and the despatching of a delegation of trade union and employer representatives to the U.S.A. ". . . charged with the responsibility of making a thorough and faithful investigation of the methods employed in, and the working conditions associated with the manufacturing industries of the United States".(127) These rationalising initiatives were similar to many being implemented in Europe at this time and they were crucial to Australia's long-term development. They had, however, little immediate effect on the economy or Australian industry's ability to compete, the deterioration of which began to accelerate after 1926. By the end of 1927 the national debt had passed 1000 million pounds and the ratio of overseas interest and dividend payments to exports had reached 28 per cent.(128) The problems associated with the servicing of this debt were radically compounded after 1926 by the dramatic falls in the price of Australia's export staples.(129) Unemployment, as a result of these problems, began to rise once again. In 1926 it was relatively low by

contemporary standards at 5.7 per cent. By the end of 1927 it had risen to 8.9 per cent and this deterioration was to continue unchecked but for a slight pause early in 1929, until the great collapse of the 1930's depression.

As the economic situation deteriorated the Government became increasingly desperate in its attempts to make Australian industry more efficient. In the early days of the rationalisation campaign it attempted to achieve its objectives by persuasion, conciliation and relatively gentle pressure. Through 1926-1927 Bruce and Page continuously berated and pleaded with the employers and manufacturers in particular to accept that traditional management policies were no longer viable. The Government also refrained, through this period, from becoming openly involved in industrial disputes despite the high number of strikes in 1927.(130) The failure of the employers to respond positively to hectoring, and the unions' continued opposition to a number of the rationalised work practices favoured by the Government, however, induced the administration to place increasing emphasis on coercion rather than persuasion. After Bruce's success in the 1928 elections, this tendency was exemplified by the appointment of H. S. Gullett, a strong tariff critic, as Minister for Trade and Commerce, and J. G. Latham, a firm advocate of the enforcement of industrial law, as Minister for Industry.(131) In applying this coercion the Government was to receive able assistance from its allies on the Bench of the Conciliation and Arbitration Court.

'Payment By Results or 48-Hours'

Following the decision in the Standard Hours Enquiry, those unions with federal awards became relatively quiescent as they happily joined the queue of those applying for a flow-on of the new standard. In May 1927 the shorter week was granted to five more metal trade unions on the grounds that there was no substantial difference in the intensity of the work undertaken by these workers and that of the engineers.(132) In this case Lukin opposed the granting of the claim while Beeby freely conceded it. This was to be the pattern for most future hearings. Effectively the nature of the Court's determination in any given case depended on Dethridge's decision, for the other two judges invariably cancelled each other out. Beeby's and Dethridge's support for rationalised work times, however, did not necessarily endear them to the workers, for the judges favoured the implementation of the whole of Taylor's programme and this meant that while reduced working times could be supported their introduction had to be accompanied by heightened work intensity. This, it was believed, necessarily meant the elimination of institutionalised effort restriction and the acceptance of payment by results. The judges' enthusiasm for time study and the abolition of 'customs and practices' which limited the workers' effort was encouraged by a renewal of interest in this topic by the employers. The deteriorating state of the economy and the enforced introduction of the 44-hour week raised to fever pitch the bourgeoisie's insistence that these aspects of Taylor's

programme had be introduced immediately. Indeed, even many manufacturers who had previously not advocated these methods for cutting costs began to insist that they now had to be accepted.(133)

In March 1927 Beeby opened the Court's campaign for rationalised work practices by refusing to hear the claims of the Waterside Workers Federation because of the union's insistence on its right to maintain a number of work practices. Dethridge followed this up in the Metal Trades Hours Case the following month. During the hearing he stated that he believed the retention of the new standard necessitated the unions abandoning all forms of effort restriction, providing full co-operation in the maintenance of output and accepting payment by results.

That is the crucial point to my mind. It is useless for the unions to evade that issue, payment by results or 48 hours. That is the conclusion I have come to on the investigation of the facts. . . . unless payment by results is adopted, and adopted properly and gradually by all concerned in these industries, the 44 hour week cannot be maintained.(134)

In response to the Court's demands the A.E.U. held a conference in May at which it was resolved that the Court be informed that the union would not accept any system of wage payment that involved incentives.(135) Given this response Dethridge, at the end of June, in turn replied that when he had given his determination in the Standard Hours Enquiry he had not felt it necessary to spell out the vital necessity of the unions agreeing to co-operate with the employers in the elimination of all forms of

institutionalised effort restriction. He claimed he had presumed that the workers would willingly provide this co-operation in return for the shorter week. If this proved incorrect, he warned ". . . the life of the 44-hour standard week will probably be very short".(136) The future of Australia's industrial development, Dethridge insisted, necessitated the abolition of all influences that restricted production. While accepting one of these might be poor management another was payment according to time rather than according to results. This situation, he insisted, had to be changed. The Court would protect the workers but the unions, in turn, would have to accept time study and payment by results.

The shorter working week is only made possible by the workers, i.e., both employers and employees, doing a sufficient amount of effective work in 44 hours to uphold the industry in which they are engaged. Nothing in the evidence before the Court gives support to the theory that any improvement in management or any curtailment of profits will avoid the necessity of employees working up to their full capacity in order to preserve the boon of the shorter working week which the Court has now given them an opportunity of acquiring.(137)

He went on to state that if, within any industry, the new standard proved an unduly heavy cost on the employer or the workers failed to do all they could to offset the reduction in the length of time they laboured, he would feel compelled to restore the 48-hour week. The time had come, he declared, to put the question of the practicability of the 44-hour week to the test.(138)

Exactly how the Court intended implementing its

conviction that the shorter week was not to be allowed to reduce the quantity of labour in a week's work, merely because the length of the week had been shortened, was made clear by Beeby two days later. When handing down a new award for the metal trades the judge ruled that, as from January 14 1928, any organised union opposition to incentive schemes would constitute a breach of the award. When making this declaration Beeby stated that in the 44-hour enquiry he had expressed the opinion that production in Australia could be stimulated by the wider adoption of this form of remuneration. Nothing had happened in the interim to make him change his mind.

On the contrary, I am more than ever convinced that if the employees will approach this matter reasonably they can assist in finding means of increasing production which will largely compensate for the added cost arising from the adoption of the 44-hour week standard, and which will not carry with it any reduction of status or earning power.(139)

This attempt to extract greater intensity of effort from the workers in return for the shorter week was greeted with acute hostility by the unions who immediately began an active campaign of resistance. At strike meetings and demonstrations around the country through July and August, the tradesmen pledged themselves to oppose Beeby's award and to refuse to accept any form of incentive wage.(140) The vehemence of this response, the economic strength of these skilled workers and their refusal to co-operate with the works committees that were to implement Beeby's ruling, compelled the Court to back down. The new provisions were

left in the award but they were not enforced.(141)

Sheridan reports that the unions' victory on the incentives issue ended the Court's attempts to impose piecework on the metal trades. In this he is correct. Where he is in error, however, is in the further claim that the Court made no effort to penalise the unions for their refusal to accept piecework.(142) Here he fails to understand the nature of the Court's response. The arbitration judges may have retreated from their insistence that rationalised forms of wage payment be accepted by the tradesmen as a result of their action; what they also did was penalise the unions by ceasing to advance the rationalisation of working time. In August 1927 there were 35 unions with applications before the Court for the shorter week.(143) Almost none were granted. Of those few workers who were conceded the claim, it was granted on the traditional criteria that had been utilised before the Standard Hours Enquiry. Thus the printers were allowed the reduced schedule because this was in fact the standard already long in use within their industry, and the Court had traditionally accepted such established practices.(144) Likewise the former policy of restricting the shorter week only to workers whose work was of an extremely onerous nature was re-established. Thus, in the gas and glass industries, only those workers whose work complied with this criteria were allowed the 44 hours. The Court refused to make this schedule the standard for these industries as a whole.(145)

In November 1927 Dethridge went beyond merely refusing to extend the spread of the shorter week. He began taking it back from some of those to whom it had already been granted. The Court had ruled that the agricultural implement industry was in such a poor state the 48-hour standard would have to be maintained.(146) Following this decision, Dethridge ordered the engineers in the country's largest agricultural machinery firm to work the 48 hours in order, it was claimed, to maintain a common standard within the company. In the light of this order a number of other employers from within the industry were also granted exemptions for their tradesmen and gradually, through 1928, such orders were extended to other 'mixed industries'.

If the Court decided that it would be wise to move warily in its campaign against the tradesmen it does not appear to have had any such reservations in regard to the unskilled. In its subsequent offensive against these workers it received able assistance from the Government. In June 1927, in the middle of the Court's struggle with the metal workers, the Government announced that it intended to again amend the Conciliation and Arbitration Act. The nature of the subsequent legislation was to be significantly influenced by the metal tradesmen's response to Dethridge's challenge.(147) While some of the conciliatory aspects of the act were strengthened and legal procedures were simplified in a manner favourable to the unions, the Court's powers to discipline the unions were also made more effective. The new act further stipulated that judges must

pay due heed to the economic consequences of their determinations on both specific industries and on the economy as a whole.(148) Despite the clear statement in the new bill that the economic instruction was not to apply to the basic wage, its inclusion, together with the systematising of the Court's repressive powers, was seen by the unions as preparatory to a general Government assault on wages and conditions. At least as far as wages were concerned this fear was to prove groundless. At no stage during its time in office did the Bruce-Page administration or the Court undertake a general attack on wages.(149) As far as working conditions were concerned, however, the unions' fears were justified, for a major assault did come and was aimed quite specifically at those aspects of the work contract the Government and the Court were convinced needed to be rationalised.

The administration presented its arbitration amendments to Parliament immediately prior to the summer recess, but did not attempt to rush them through. Rather, once the contents were made known the bill was left in abeyance for several months. In the intervening period the threat of enactment was used as a device to encourage the labour movement to be more conciliatory and appeasing. As part of this process Bruce attempted to arrange an Industrial Peace Conference from which, he hoped, would emerge '... new industrial outlook and a new spirit of co-operation".(150) When the unions refused to bow to this pressure the bill was enacted and became law in June 1928.

In March and April, while the Government was processing its new legislation, the issue of rationalised working conditions was brought to a sudden head when ships' cooks struck in support of a claim for higher staffing levels. This demand had been put forward by their union as a means of absorbing some of its many unemployed members.(151) Such 'feather-bedding' was precisely the type of action the rationalisers within the state were determined to oppose. Indeed, they were particularly adamant that their determination to 'decasualize and rationalize' this industry which was so important to the country's export market would not be thwarted by militant unionism.(152) When the cooks, though abandoned by the rest of the labour movement, persisted with their strike, Dethridge, on May 4th, suspended their award. At the same time the Government began preparing evidence to prosecute the union under the Crimes Act and encouraged the shipowners to take on scabs. On June 11th the Navigation Act was suspended thus enabling ships to sail without a certified cook, and on June 14th the union capitulated.(153)

Two weeks later, Beeby decided that the time had come to confront the waterside workers whose continued insistence on the maintenance of the type of work practices to which the Court was opposed had led to major strikes for three years in a row. Knowing he would cause another major conflict, Beeby handed down a new award for the industry in which all references to 'prevailing customs' was omitted and all work practices which limited effort or restricted output were

banned. In handing down this award it was Beeby's and the Government's hope that in the ensuing struggle the power of the militants within the union would be broken and these individuals removed in any subsequent reorganisation(154)

On September 10th the award became operative and the workers consequently struck as expected. Immediately the Government moved against the union, it refused to convene a conference or conciliate and urged the employers to take whatever steps were necessary to break the strike.(155) The Crown Solicitor's Office, at the same time, was instructed to concentrate on gathering evidence against the union, and State Governments were asked to co-operate by ensuring scabs were protected.(156) On September 21st the Federation was prosecuted and fined one thousand pounds. Early in the dispute, moreover, the Government began preparing a Water-side Workers Bill empowering the state to enact regulations prescribing the terms and conditions for workers in the industry and providing for their licensing. No worker was to be allowed to be employed on the wharves without a licence.

In the face of this offensive the union was abandoned to its fate by the rest of the labour movement and the employers were able to utilise the thousands of scabs who offered their services to break the strike. On October 19th the strike finally collapsed and union members applied for licences.

The refusal of the labour movement to rally to the support of those unionists suffering the brunt of the state's offensive was reversed in January 1929

following the Court's decision to restore the 48-hour week throughout the timber industry.(157) In response to what was believed to be a clear attempt by the Court to carry out its threat to restore the 48-hour standard the unions as a whole moved to support the timber workers and were crushed in the ensuing struggle.(158)

While the economy remained at a level where the skilled workers had enough economic power to cause serious dislocation the Court refused to admit openly that it had abandoned the 44-hour standard. A clear declaration of this fact was not made until December 3rd 1929 when the claim for the 44-hour week by the Coach builders was rejected. In this case the union based its claim on the nature of the work which, it was argued, differed little from that undertaken by the engineers. Dethridge, in his determination, acknowledged that the union had managed to substantiate its claim. This, it was insisted, was not enough. The Chief Judge stated that if conditions were the same as they had been when he conceded the shorter week to the engineers he would have approved the claim. However, the onset of the depression had created such distressing unemployment and depressed trade he was not willing to introduce any change to working conditions that might make things worse, and he would not be willing to do so while the crisis continued.

Until the community is able to counteract the effect of these and any other causes of the present unemployment, by increasing production of what people want at prices they are willing and able to pay, I think the present abnormal unemployment will continue, and so long as it continues, I do not think the working week should be shortened so as to

increase the cost of production and thereby aggravate that unemployment.(159)

Dethridge went on to suggest that the unions' continued opposition to piecework was probably adding to the level of unemployment rather than sharing out the available work. He reiterated his belief that those workers in the metal trades with the 44 hours could not expect to retain it if they persisted in their opposition to piecework. The Americans had proved that the workers, and indeed the whole society, stood to gain from union acceptance of incentive wage systems. So convinced was he of this fact and of the ability of such systems to offset the claimed reduction in the workweek, he concluded by stating that if the union would agree to the employers' demand for payment by results he would be willing to reopen the case on the understanding that the shorter week would be granted.(160) Until this was accepted or the economy revived there would be no further extension of the 44-hour standard.

The Fall of the Bruce-Page Government

The union hostility, generated by the state's attempt to rationalise Australia's industry, was mirrored by growing hostility on the part of the employers and the manufacturers in particular. The latter were incensed by the Government's increasingly firm insistence that they should show a little entrepreneurial talent and initiative instead of simply relying on the tariff and blaming the workers for their failures. Bruce constantly reiterated his belief that the only way Australian industry could retain its markets was by

reducing its production costs. As he was opposed to wage cuts he refused to accept the British model for achieving this objective. He insisted, rather, that employers must cut their prices by raising their efficiency. This hypothesis, Powell reports, was invariably Bruce's theme whenever he addressed meetings of employers.(161) It was not well received. Capitalists insisted it was not their fault they could not compete, rather it was the fault of compulsory arbitration which was giving the workers more than their fair due, high taxation which the Government was wasting on its schemes for child endowment and unemployment insurance and, depending on which employer group was involved, excessive or insufficient tariffs.(162)

The manufacturers were particularly offended at Bruce's insistence that they seriously enter the market and stop depending solely on the state to protect their interests. In May 1927 they called on the Government to link the tariff to wage increases so as to ensure they were free of wage-induced competitive pressures.(163) Bruce's refusal to consider such proposals resulted in the manufacturers becoming highly agitated and vocal in their denunciation of what they saw as his anti-manufacturing bias. This hostility was not ameliorated when the Government reluctantly agreed to a general increase in protection in 1928. Still more was needed if the tariff was to be made "effective".(164) An effective tariff was defined by the N.S.W. Chamber of Manufacturers as a level of protection that would ensure "... that the Australian market should be secured under any and all circumstances for all goods that are or can be

manufactured in Australia".(165) When Bruce refused to accept so ludicrous a position the manufacturers mobilised their political forces, both within and outside the Nationalist Party, and undertook a vigorous campaign against the Government's policies.(166)

In October 1928 Bruce addressed the annual meeting of the Associated Chambers of Manufacturers in Adelaide, and once again rejected the demands of these capitalists for higher tariffs. Instead, he once more called on them to be a little more innovative, defended his Government's fiscal policies and pleaded with them to take a more conciliatory attitude towards the labour movement.(167) In reply the manufacturers indignantly rejected any suggestion that their firms were not as efficient as was reasonable to expect. They also denounced Bruce's planned social welfare reforms, demanded that the level of protection be raised to a significantly higher degree and criticised the Government's lack of vigour in repressing working class resistance. As the President of the Association put it,

A thorough investigation of the capacity of industries to bear the imposition of burdens was imperative. Such schemes as child endowment and unemployment insurance were inextricably bound up with the wage fund of the community and before legislators gave way to sentimentality they should reflect upon what was likely to be the consequences.

After working under the Commonwealth Conciliation and Arbitration Act for more than 20 years the conduct of business, because of the lawlessness of certain unions, was as uncertain and embarrassing as it ever was ... any impartial student of arbitration as a method of regulating the conditions of employment must admit that it had substantially failed.(168)

As unemployment rose the manufacturers' anti-government hostility was increased by Bruce's continued support for the federal arbitration system. While maintaining his campaign against militant trade unionism, Bruce refused to accept that the single national system of arbitration he wished to see instituted should be abandoned. Nor would he accept that the system should allow the employers to have a free hand to impose the "nasty medicine" they were convinced the workers had to accept if the ills from which the country was suffering were to be cured. Through 1928 employers became increasingly adamant in their calls for a deregulated labour market, for freedom of contract, free collective bargaining and the free open economic ring where the brave 'entrepreneur' could stand toe to toe with an opponent decimated by unemployment.

The capitalist's conviction that the workers must be compelled to take their medicine was all but unanimous by the end of 1928. There were, however, serious divisions within their ranks over exactly what this medicine was to be. For the graziers, for example, it primarily meant wage cuts while for the manufacturers, who recognised the need to maintain consumer demand within Australia, greater importance was placed on the all round restoration of the 48-hour week.

One issue on which there was general consensus was the employers should have the right to determine the conditions of work. In practice this meant that above all they should

have the right to introduce the great panacea of payment by results and the right to impose it, moreover, in whatever manner they believed best suited their interests. Both the Employers' Association and the manufacturers, while tending to vacillate, were generally willing to accept that it might be necessary for the Court to retain some role in the determination of the basic wage and standard working times.(169) What they would not accept was the state's involvement in the fixing of piece rates and bonus systems. Paradoxically it was this issue that was a major factor that turned many employers away from the Federal Court, the very body the workers were fighting because it was trying to compel them to accept payment by results. The employers' hostility to the Court was based on their conviction that its insistence on maintaining control over the conditions under which incentive systems operated was rendering their panacea useless. The Court's attempts to set rates, it was insisted, invariably resulted in wages being raised to 'ridiculously high levels' and the norms set were often out of date almost as soon as they were handed down. The Court's policy of insisting that incentive schemes had to contain a guaranteed minimum wage was also resented it being argued that judges, if they had to interfere, should limit themselves to fixing the price per piece.(170)

Despite their growing hostility towards the Court the employers remained divided as to what should be done to improve a system from which there were significant benefits

as well as significant costs. In October 1928 the Central Council of Employers' Associations voted for the complete abolition of compulsory arbitration.(171) The manufacturers, on the other hand, limited themselves to verbal criticism of the Court.(172) This division partly reflected the employers' still existent fear of the power of the labour movement. Consequently, they were led to support Bruce's continued attempts to organise an Industrial Peace Conference through 1928. Such a conference was eventually held with apparent goodwill on all sides in December. By the time it reopened in late February 1929, however, all had changed, for the timber workers' strike had exposed just how really weak the unions were and the employers became, at least temporarily, united in their conviction that the federal arbitration system was costing more than it was worth.(173) In mid February, when it became clear the timber workers were being defeated, employer organisations and state Nationalist politicians began holding secret meetings in order to formulate a united policy on the future of arbitration.(174) At these meetings it was decided that Bruce must be forced to hand over all arbitration powers to the states. This decision having been made the Nationalist Premiers convened a meeting, prior to the May Premiers' Conference, and agreed on the need to confront Bruce, whose leadership of the party was coming under increased question, with an ultimatum on the arbitration issue.(175) Faced with this revolt from within his own party Bruce made one last plea for his rationalisation policies and then

capitulated.(176)

Following the Premiers' Conference Bruce vainly attempted to salvage what was left of his rationalisation programme. Through June and July he repeatedly returned to the need for greater effort from all concerned with industry, for payment by results and for some form of institutionalised protection for the workers that would guarantee that "stupid and avaricious employers" could not misuse incentive schemes.(177) The unions, aware of their inability to resist the gathering capitalist offensive, responded positively to these calls. The employers, on the other hand, dismissed them and demanded the Government fulfil its stated intention to vacate the industrial arena. On July 4, the Secretary of the Employers' Federation of N.S.W. replied to Bruce's pleas by stating that the Prime Minister was correct that Australian industry and trade was not performing very credibly. He also acknowledged that this was not because of the level of wages paid within Australia. Rather, he insisted, it was because Australians did not work hard enough.

There may be wild talk by politicians, appeals to Governments to do something, much threatening of some indefinite class called profiteers but in the end we must get down to the basic fact if we are to have real prosperity and progress in this country, the average amount of work done by the individual must be increased.(178)

He went on to criticise Bruce's continued belief in the usefulness of union-employer dialogue and collective negotiations. The experience of recent years, he claimed, had shown that the labour movement would never voluntarily

abandon the restrictions they had placed on individual effort. If this problem was to be overcome the employers must have freedom of contract and the right to negotiate individual agreements between themselves and their employees. In short, with massive unemployment the bourgeoisie saw no need for conciliation or arbitration when they could simply make the workers do as they wished. As with their German counterparts they concluded the state must get out of the way. In August Bruce finally bowed to these demands and introduced enabling legislation that would have limited the Federal Court to the shipping industry. This legislation was lost in the House and the Government defeated in the subsequent election. Arbitration was saved and Bruce left the country soon after.

Postscript: The Depression, War and Reconstruction

While the 1930s crisis halted the willingness of the Federal Court to experiment with the rationalisation of working time it intensified the insistence with which the labour movement demanded across the board reductions in standard times. Australian unionists, like their counterparts in the U.S.A. and Europe argued that the depression constituted a crisis of overproduction which had been brought on by the failure of the bourgeoisie to institute some means to ensure there would be adequate demand within the economy to absorb the greater mass of goods made possible by rationalisation.(179) Insufficient demand, it was insisted, had to be overcome by stimulating the purchasing power of the community. This necessarily

involved an expansion of Government spending and the immediate reduction of the working week in order to maximise the number of those employed.(180)

As in the U.S.A. the worktime demand of unionists became the 30-hour week.(181) In formulating its demands the Australian labour movement was heavily influenced by developments within the United States and Europe. The Codes of the N.R.A. stimulated particular interest and the enactment of similar legislation became a demand of immediate importance. International developments also influenced those promoting the rationalisation of Australian industry. The I.L.O. publication The Social Aspects of Rationalisation proved highly influential as did the American legislature's attempts to control unemployment by regulating working times and wages.(182) Taylorist theoreticians also urged careful study of developments in the U.S.A.. Thus while Mauldon warned, at the end of 1932, against any sudden and radical reduction in standard times he also argued that the limited degree of rationalisation that had already been undertaken within Australia might be sufficient to make the worktime arguments of the American taylorists of some relevance to Australia.(183) He further argued that the most propitious time to again begin promoting rationalised work times would be when the economy began to enter the phase of recovery. At this stage ". . . we might expect the most strenuous efforts to be put forth to improve productivity by methods of rationalization".(184)

Mauldon's prediction was soon justified as the Australian economy began to recover from 1934 onwards. During the crisis the employers instituted a savage speed-up.(185) Once profits began to improve they also instituted a whole range of rationalisation measures which radically transformed the production process.(186) As this development unfolded the Federal Court again began promoting the rationalisation of working times. Thus, in 1934, Dethridge fulfilled his pledge to grant the coach builders the 44-hour week when they agreed to accept time study and payment by results.(187) This course was pursued for some time with great caution but by 1938 the 44-hour standard was being freely granted to all and sundry.(188)

The greater work intensity resulting from the rationalisation process was to cause major problems for the maintenance of output during the war. Employers on 'cost-plus' contracts continued to find it extremely difficult to believe that longer working times would not increase production. Their attempt to induce workers to labour extensive overtime while maintaining the higher intensity levels produced by the rationalisation process was to compel the state to intervene once again to regulate work times in the national interest.(189)

In the postwar period the heightened intensity levels were put forward by the labour movement as a primary reason for the immediate introduction of the 40-hour week.(190) The unions, moreover, continued to promote the issue of X-inefficiency and the need for employers to be compelled by

external forces to rationalise their enterprises.(191) The validity of this claim was soon justified following the granting of the 40-hour week in 1947. As with the 10-hour day in Britain in 1848 the employers responded to this reform by striving to improve the efficiency of their enterprises by the wider use of piece work, mechanisation and improved organisation.(192) In this endeavour they were successful, the reduction in the working week soon being offset, and thus the stage was set for the long boom.(193)

NOTES

1. Colin Forster, Industrial Development in Australia 1920-1930, Australian National University, Canberra, 1964, p. 4. Colin Forster, 'Australian Manufacturing and the War of 1914-1918', op cit, pp 211-230.
2. Colin Forster, 'Industrial Development in Australia', op cit, pp 15-16.
3. Matt Wade, The Case for the Forty Hours Working Week, Labor Council, N.S.W., 1926, pp 5-18.
4. R. G. Opie, The Australian Tariff its Principles, Operation and Effects, 1920-1950, unpublished M.A. thesis, University of Adelaide, 1951, pp 49-52.
5. Colin Forster, 'Industrial Development in Australia', op cit, pp 10-13. See also Bryan D. Haig and Neville G. Cain, 'Industrialization and Productivity: Australian Manufacturing in the 1920s and 1950s', Explorations in Economic History, Vol. 20, 1983, pp 183-198.
6. Colin Forster, 'Industrial Development in Australia', op cit, p. 12.
7. Nancy Windett, Australia as Producer and Trader 1920-1932, Oxford University Press, London, 1933, pp 263-268. See also L. G. Churchward, 'Australian-American Trade Relations, 1791-1939', The Economic Record, Vol. 26, 1950, pp 69-85. M. Ruth Megaw, 'Australia and the Anglo-American Trade Agreement, 1938', The Journal of Imperial and Commonwealth History, Vol. 3, No. 2, 1975, pp 191-211.
8. Gordon Greenwood, Australia. A Social and Political History, Angus and Robertson, Sydney, 1955, p. 295.
9. Anon, 'The Industrial Conference', The Round Table, Vol. 12, 1922, pp 699-700. In the 1920s, Sheridan reports, the employers came to see wage-incentive schemes as a panacea for all their problems while the unions, with few exceptions, maintained a total hostility to their introduction. Tom Sheridan, 'Mindful Militants', op cit, pp 87-91.
10. Anon, 'The Industrial Conference', op cit, pp 700-701.
11. Ibid, p. 697.
12. D. B. Copland, 'The Economic Situation in Australia', op cit, p. 46. The Court's inability to immediately respond to market changes and the refusal to cut real wages at a time of rapidly falling profitability combined to push up the share of G.N.P. going to labour. See G. M. Richards, 'Wages and the Wage Share: Australian Manufacturing in the 1920s', Australian Economic History Review, Vol. 20, No. 2, 1980, pp 119-135.
13. Graeme T. Powell, The Role of the Commonwealth Government in Industrial Relations, 1923-1929, unpublished M.A. thesis, Australian National University, 1974, p. 20, 43, 49-50.
14. 10 Commonwealth Law Reports, p. 266.
15. Mark Perlman, 'Judges in Industry', op cit, pp 17-18.
16. Colin Hardie, 'Struggles for Shorter Hours', op cit,

- p. 62.
17. 15 CAR, pp 1049-1050.
 18. Ibid, p. 1050.
 19. Ibid, p. 1063.
 20. Powers granted an exception to those workers labouring in timber yards which were not actually involved in milling. The employers in these firms, he stated, had not proven the 44-hour week had caused them any harm. He consequently refused to make the workers labour the longer schedule merely because the employers preferred that they did.
 21. The Australian Timber Workers Union and John Sharp and Sons and the Amalgamated Society of Engineers and the Adelaide Steamship Company, (no.113 of 1920), Transcript, p.94-96, 109-110, 113-115, 183-184, 296-301, 354-355, 362, 432, 510-511, 521-522, 527, 1312-1318.
 22. Ibid, pp 1035-1038.
 23. Ibid, p. 296.
 24. Ibid, pp 211-217, 228, 233, 259-260.
 25. Ibid, pp 560, 778, 783a-784, 882, 1044, 1109, 1162.
 26. Anon, 'The New South Wales Elections', The Round Table, Vol. 12, 1922, pp 702-710.
 27. Anon, 'The Short-Hour Day - Why it is Difficult to Attain and Retain', The Australian National Review, May 21, 1924, p. 25.
 28. Transcript, 1926 Standard Hours Enquiry, p. 99. See also p. 1318.
 29. Ibid, pp 98-99, 1317.
 30. Colin Hardie, op cit, pp 65-66.
 31. Transcript, 1926 Standard Hours Enquiry, pp 76-77.
 32. Ibid, pp 1349-1353, 1441.
 33. Ibid, p. 1339.
 34. A classic example of such a firm was Holdens which even prior to its takeover by General Motors adopted American production methods wherever they could be applied. Colin Forster, 'Industrial Development in Australia', op cit, pp 37-47. See also J. Sutterby, "Remember the Virtue of Patience". Workers and the Rise of Mass Production: Holdens in the 1920s and 1930s, unpublished B.A. thesis, Flinders University, 1981.
 35. Transcript, Standard Hours Enquiry, pp 4743-4761.
 36. Rose argued that the vast majority of Australian employers were convinced that the only way production costs could be cut was by reducing wages and driving the workers. They failed to see, he suggested, that the market was not a sufficiently effective device for ensuring the maximisation of efficiency. Consequently, they refused to believe that they were not operating their enterprises as efficiently as they could. Indeed, they tended to become indignant if this possibility was suggested to them. The reasons why only a "small band" of Australian capitalists were willing to make the effort to rationalise their firms along the lines pioneered by the Americans, Rose stated, could be summarised under four headings.

1. Employers do not realize the possibilities of increased profits that lie in the system.
2. Managers trained in the application of the methods described are not available in sufficient numbers.
3. The capital necessary to effect savings of waste is not easily available to most employers.
4. The introduction of modern management methods is opposed by organised labour.

Walter Rose, Prosperity. What it is, Lothian Publishing Co., Melbourne, 1930, p. 57, and pp 9-13, 17-13. Edward Shann, An Economic History of Australia, Cambridge University Press, Cambridge, 1930, pp 409-447. For an interesting discussion of the quality of Australian management prior to the long boom see, Walter Scott, Greater Production. Its Problems and Possibilities including a Full Treatment of Incentives, The Law Book Co., Sydney, 1950. As late as 1950 Scott reported that many

"... good judges in this country and out of it consider that the productivity of the majority of factories in this country could be increased by at least 50 per cent by the application of better methods."

By better methods Scott made clear he meant the all round adoption of management science. He added that the only quibble he had with those who had reached this damning assessment was that it probably understated the percentages.

37. W. A. Sinclair, Australian Economic Development: Old Model and New Model, The Sixteenth Edward Shann Memorial Lecture in Economics, University of Western Australia, 1976, p. 12.
38. Colin Forster, 'Industrial Development in Australia', op cit, p. 46. Despite the positive example set by these firms many Australian producers continued to insist, throughout the 1920s, that the size of the Australian market did not justify the use of American production methods. Indeed, this excuse for the failure of local capitalists to innovate along these successfully-proven lines during this period is still uncritically put forward by some contemporary historians. See, for example, C. B. Schedvin, Australia and the Great Depression, Sydney University Press, 1970, pp50-51.
39. See John Hamill, The Strange Career of Mr. Hoover Under Two Flags, William Faro Inc., New York, 1931. Herbert Hoover, The Memoirs of Herbert Hoover. Years of Adventure 1874-1920, Hollis and Carter, London, 1952, pp 29-73. Wilton Eckley, Herbert Hoover, Twayne Publishers, Boston, 1980, pp 21-30. The title "business-mans government" is from David Potts who suggests the administration wore it with pride as it indicated

- "an aura of purpose and efficiency", David Potts, Australia Since the Camera. The Twenties 1919-1929, Cheshire, Melbourne, 1971, p. 18.
40. The Argus, Sept. 13, 1922, p. 9.
 41. Gerald Lightfoot, 'Standardisation and Simplification: An Approach to Industrial Efficiency', Report of the Seventeenth Meeting of the Australian Association for the Advancement of Science, Adelaide, August 1924, pp 555-556.
 42. The Argus, December 6, 1924, p. 31.
 43. G. V. Portus, The American Background. Sketched for Australians, Macmillan, Melbourne, 1928, pp37-38.
 44. G. H. Knibbs, 'Waste', The Australasian Journal of Psychology and Philosophy, Vol. 1, 1923, pp 162-173.
 45. George Currie and John Graham, op cit, pp 106-134. For an example of the Government's miserly attitude to industrial research see, Record of Proceedings and Documents, Imperial Economic Conference, H.H.S.O., London, 1924, p. 485.
 46. Ian M. Drummond, British Economic Policy and the Empire 1919-1939, George Allen and Unwin, London, pp 65-67.
 47. W. A. Sinclair, 'Economic Development and Fluctuation in Australia in the 1920s', The Economic Record, Vol. 51, No. 135, 1975, pp 409-410. See also A. E. Boehm, 'Australia's Economic Depression of the 1930s', The Economic Record, Vol. 49, 1973, pp 615-623. W. H. Richmond, op cit, pp 238-267. The clearest statement of Bruce's support for both sectors was a paper he wrote at the time it became clear Baldwin was not going to grant empire preferences. S. M. Bruce, Protection and Efficiency, Australian Archives CRS A1490, pp 4-14.
 48. For this policy see, 'Opening Speech by Mr. Bruce', Imperial Economic Conference, op cit, pp 57-83.
 49. Ian M. Drummond, op cit, pp 61-64.
 50. Making the best of a bad deal Bruce responded to the British offer by immediately calling a conference of relevant state ministers together with representatives of industry and the universities. The purpose of this meeting was to formulate a new national policy for industrial research. He also requested the British Government to permit Frank Heath, the Secretary of the British Department of Science and Industrial Research, to visit Australia in order to gain specialist knowledge of the most effective means for organising the nation's research. Heath arrived in October, 1925, and his report was to lead to the establishment of the C.S.I.R. in 1926. See George Currie and John Graham, op cit, pp 132-133. 'Commonwealth Institute of Science and Industry. Recommendations by Sir Frank Heath for the Reconstitution of the Institute', Commonwealth Parliamentary Papers 1926-1928, Vol. 5, pp 1193-1204.
 51. Neville Cain, 'Political Economy and the Tariff: Australia in the 1920s', Australian Economic Papers, Vol. 12, No. 20, 1973, pp 1-20. Neville Cain, 'The Economists and Australian Population Strategy in the

- Twenties', Australian Journal of Politics and History, Vol. 20, No. 3, 1974, pp 346-359.
52. F. R. E. Mauldon, 'The Rationalisation Movement and Australian Industry', The Economic Record. Supplement, Vol. 8, 1932, pp 99-114. See also F. R. E. Mauldon, 'The Doctrine of Rationalisation', The Economic Record, Vol. 7, Nov. 1931, pp 246-261.
 53. S. M. Bruce, Mr. Bruce on National Objectives, The National Federation, Melbourne, 1925, p. 5. R.C. Mills, 'The Tariff Board of Australia', The Economic Record, Vol. 3, 1927, p. 55.
 54. Report of the Thirty-second Conference of the Farmers and Settlers Association, 1925, p. 20. Ulrich Ellis, A History of the Australian Country Party, Melbourne University Press, Melbourne, 1963, pp 114-120.
 55. R. C. Mills, 'Tariff Board Report on Agricultural Implements', The Economic Record, Vol. 2, 1926, pp 43-50.
 56. Commonwealth Parliamentary Debates, Vol. 112, 1926, p. 1260.
 57. Ibid, p. 1253.
 58. 'Annual Report of the Tariff Board to June 1926', Commonwealth Parliamentary Papers 1926-1928, Vol. 4, p. 1612.
 59. Ibid, pp 1617-1618.
 60. Commonwealth Parliamentary Debates, Vol. 112, 1926, pp 1172, 1341-1342, 1473-1474.
 61. 'Annual Report of the Tariff Board to June 1927', Commonwealth Parliamentary Papers 1926-1928, Vol. 4, pp 1641-1645.
 62. 'Annual Report of the Tariff Board to June 1928', Commonwealth Parliamentary Papers 1926-1928, Vol. 4, pp 1661-1664. This criticism of the employers' failure to innovate and show a little entrepreneurial spirit was continued in the 1930s. Thus, in 1932 the Board criticised the manufacturers' failure to curtail overcapitalisation and overhaul their production methods. The Board concluded that there, "... appears to be evidence that a form of rationalization is desirable in some industries in which quite a lot of plant is but partially employed.", 'Tariff Board. Annual Report for the Year ended June 1932', Commonwealth Parliamentary Papers 1932-1934, Vol. 3, p. 322. See also G. D. Snooks, 'Growth and Productivity Change in the Australian Mechanical Engineering Industry 1910-1940', Australian Economic History Review, Vol. 24, No. 1, 1984, pp 55-56.
 63. Commonwealth Parliamentary Debates, Vol. 112, 1926, pp 1355, 1785. H. J. Curtis, Political Developments in the Commonwealth of Australia, 1919-1929, unpublished PhD thesis, University of Queensland, 1955, pp 104-105.
 64. 20 CAR, pp 1159-1164.
 65. Tom Sheridan, op cit, p. 30. 1926 Standard Hours Enquiry, Transcript, pp 3739-3740. Western Australia Parliamentary Debates, Vol. 70, 1924, p. 759.

66. Queensland Parliamentary Debates, Vol. 144, 1924, p. 1798. See also E. M. Higgins, 'Queensland Labor: Trade Unionists Versus Premiers', Historical Studies: Australia and New Zealand, Vol. 9, No. 34, 1960, pp 140-155.
67. Western Australia Parliamentary Debates, Vol. 70, 1924, p. 759.
68. 1926 Standard Hours Enquiry, Transcript, p. 3741.
69. Department of Labour, The Western Australian Industrial Gazette, Vol. 6, No. 1, 1926, pp 2-3.
70. 1926 Standard Hours Enquiry, Transcript p. 3742. See also Department of Labour, 'Hours of Work', The Western Australian Industrial Gazette, Vol. 6, No. 3, 1927, pp 214-226.
71. Graeme T. Powell, op cit, p. 169.
72. S. M. Bruce, A Policy for the People, National Campaign Council, Sands and McDougall, Melbourne, 1925, pp 9-11. Commonwealth Parliamentary Debates, Vol. 112, 1926, pp 2630-2636. The Government had difficulty knowing how to respond to this development given the reform was clearly highly popular with the electorate. This difficulty was compounded by serious divisions within the ranks of the employers. Those in states with the longer week were more than pleased with what they believed was a major competitive advantage while those compelled to work 44 hours strongly advocated the introduction of a national standard to be worked by all.
73. H. J. Curtis, op cit, pp 223-248.
74. W. H. Richmond, 'S. M. Bruce and Australian Economic Policy', Australian Economic History Review, Vol. 23, No. 2, 1983, p.245. Curtis has argued that the administration was to become so imbued with the 'scientific' approach to problem-solving it often failed to respond to crises with sufficient immediacy preferring to insist that it was necessary to await the outcome of the experts' scientific deliberations. H. J. Curtis, op cit, p. 244.
75. This was certainly the case with Bruce. As Heather Radi has suggested, the Prime Minister was "... a close observer of American production methods and he warned that a flood of their products would destroy existing price levels". Heather Radi, 'Bruce, Stanley Melbourne', Australian Dictionary of Biography, Vol. 7, Melbourne University Press, Melbourne, 1979, p. 455.
76. G. V. Portus, op cit, p. 38.
77. Anon, 'Mr. Hughes Returns. Australia's Relationship to the American Republic', The Australian National Review, September 19, 1924, p. 10.
78. Earle Page, Truant Surgeon. The Inside Story of Forty Years of Australian Political Life, Angus and Robertson, 1963, p. 147.
79. A report published by two British engineers who travelled to the U.S.A. in 1925 also had a profound influence on the Government. This report, The Secret of

High Wages, overviewed the industrial policies of U.S. industry and of the manufacturing sector in particular. Its authors concluded that the secret of the Americans' success lay, above all, in the new management policies being adopted. Traditional British management, they warned, was too often deceived by the proportion that wages bore to total costs and were overly prone to conclude that the only way costs could be reduced was by cutting wages and by extending working times. The Americans on the other hand, it was claimed, had realised that high wages were an essential ingredient in cost-cutting. See Bertram Austin and W. Francis Lloyd, The Secret of High Wages, T. Fisher Unwin Ltd., London, 1926, p. 12. Bruce made it quite clear that he accepted the validity of these arguments and he continually called on others to do likewise. See, for example, his 1927 statement to the industrial delegation to America,

You cannot increase wages by reducing the return on capital - all you will achieve by that method is stagnation and decay.

Similarly, you cannot increase capital returns other than temporarily by reducing wages. Some people in Australia talk and think as though you can, and they look to some diminution of the general standard of living as a pre-condition of more rapid industrial development. It is a fallacy. The experience of every country in the world proves it. The gospel of low wages as the secret of industrial success is an outworn error, and that is one fact we have all to face.

'Report of the Industrial Delegation', Commonwealth Parliamentary Papers 1926-1928, Vol. 5, p. 1160.

Bruce remained committed to a high wage development strategy throughout his time in office. While willing to agree to support wage cuts in individual industries where trading conditions had become critical, he insisted that an attack on wages in general would not only be immoral but also counter-productive as any significant wage reduction across the board would cause "stagnation and decay" by reducing the workers' purchasing power. Assertions by some historians that he abandoned this commitment in 1929 have not been substantiated. It is true that this accusation was widely believed at the time. Yet, in all of his public and private statements and correspondence, both before and after the 1929 election, Bruce continued to insist ardently that this was not part of his strategy. What he did argue was that the high Australian wage could only continue to be paid if Australian industry learned how to compete in an increasingly competitive world market. See, S. M. Bruce, 'Plea for National Effort. Mr. Bruce's Message to the People on Relinquishing Office', The Australian National Review,

- October 30, 1929, p. 7. S. M. Bruce, 'The Financial and Economic Position of Australia', The Joseph Fisher Lecture in Commerce, Adelaide, 1927, pp 20-21. S. M. Bruce, Arbitration and the Standard of Living, Australian Archives CRS A1490. W. H. Richmond, op cit, pp 253-257. Graeme T. Powell, op cit, p. 380.
80. 1926 Main Hours Enquiry, Transcript, p. 1263.
81. Earle Page, Australian Industries. The Interdependence of "Primary" and "Secondary", Simmons Ltd., Sydney, 1926, p. 2. This internal connection was particularly important now the assured British market was not to be had.
82. Ibid, p. 6.
83. Ibid, pp 8-17.
84. Ibid, p. 17. This policy had, in fact, already been implemented in the 1925-1926 tariff modifications where greater protection was not granted across the board but was structured to assist certain specific industries. Indeed, this more rigid policy had been adopted by Bruce as early as October, 1924. See, S. M. Bruce, 'Protection and Efficiency', op cit, pp 6-8.
85. Earle Page, 'Australian Industries', op cit, pp 21-22.
86. Earle Page, 'Truant Surgeon', op cit, pp 118-119, 147.
87. 'Report of the Industrial Delegation', op cit, p. 1161.
88. Commonwealth Parliamentary Debates, Vol. 113, 1926, p. 2329.
89. Ibid, pp 2330-2335.
90. Ibid, p. 2464. See, H. J. Curtis, op cit, pp 223-244 for an extended discussion of this body. The A.L.P., it should be noted, supported both of these bills. In doing so they made great use of Hoover's report in order to castigate Australian capitalists for their inefficiency and their refusal to take a more innovative approach to industrial development.
91. 'Report of the Industrial Delegation', op cit, pp 1160-1161.
92. See, for example, Carter Goodrich, 'The Australian and American Labour Movements', The Economic Record, Vol. 4, 1928, pp 193-203. Carter Goodrich, 'The American Labour Movement. Contrasts with Australia an Historical Outline', in J. B. Brigden (ed.), Pitt Cobbett Essays and Addresses, Workers Educational Association of Tasmania, Hobart, 1927. Carter Goodrich, 'American Methods of Management. Employers Devices to Combat Unionism. Constructive Trade Unionism', in J. B. Brigden, (ed.), Pitt Cobbett Essays and Addresses, Workers Educational Association of Tasmania, Hobart, 1927. Anon, 'The Industrial Mission to America', The Employers' Monthly Review, Vol. 24, No. 1, 1927, pp 4-6, 9. Anon, 'The Mission to America', The Employers' Monthly Review, Vol. 24, No. 9, 1927, pp 107-110.
93. 'Report of the Industrial Delegation', op cit, p. 1161.
94. For details of the repressive anti-union legislation

- Bruce had been planning to introduce prior to the political and economic revival of the labour movement, see Graeme T. Powell, op cit, pp 69-81.
95. Commonwealth Parliamentary Debates, Vol. 13, 1926, pp 2159-2170, 2631-2637.
 96. Commonwealth Law Reports, Vol. 37, 1926, p. 446.
 97. Powers was highly critical of this decision. He stated that it made the Federal Court a sanctuary for employers fearful of state labor governments. In reply he offered to hear applications for a 44-hour week immediately. He was unable to carry out this threat because he was over-ruled by the other two judges on the Arbitration Bench. See, Graeme T. Powell, op cit, pp 174-175.
 98. Tom Sheridan, op cit, pp 93-94.
 99. Commonwealth Parliamentary Debates, Vol. 113, 1926, p. 2165.
 100. Ibid, pp 2630-2637.
 101. Ibid, pp 2231-2233.
 102. Graeme T. Powell, op cit, pp 198-204.
 103. Ian G. Sharp, 'Dethridge, George James', Australian Dictionary of Biography, Vol. 8, 1891-1938, Melbourne University Press, 1981, p. 293.
 104. To be sure this could not happen the Conciliation and Arbitration Bill left unspecified the number of judges that could be appointed to the bench. This gave the Government great flexibility. It meant for example, that if Beeby became too excessive in his zeal for promoting taylorism it would be possible to appoint new judges to ensure his vote was negated.
 105. 1926 Main Hours Enquiry, Transcript, pp 5297, 5467.
 106. Ibid, pp 564-565.
 107. Ibid, p. 68.
 108. Ibid, p. 77.
 109. Ibid, pp 103-107.
 110. Ibid, pp 116, 150-151, 166, 407, 661, 1262, 5487, 5162, 5572.
 111. Ibid, pp 160-161.
 112. Ibid, pp 408-409.
 113. Ibid, pp 3204-3207.
 114. Ibid, p. 5456.
 115. Ibid, pp 697, 1894-1908, 5160-5162, 5248.
 116. Ibid, pp 1895-1896, 2020, 2032.
 117. Ibid, pp 2138-2140, 2165.
 118. 24 CAR, pp 773, 779, 874-877.
 119. Ibid, p. 768.
 120. Ibid, pp 777-778.
 121. Ibid, pp 886-892.
 122. L. F. Giblin, 'The Reports of the Tariff Board', The Economic Record, Vol. 6, No. 10, 1930, pp 102-115.
 123. J. B. Brigden et al., The Australian Tariff. An Economic Enquiry, Melbourne University Press, Melbourne, 1929.
 124. This body was the Commonwealth Association of Simplified Practice. It was merged with the Standards

- Association in 1929. See 'Annual Report of the Tariff Board to 30 June 1927, Commonwealth Parliamentary Papers 1926-1928, Vol. 4, pp 1637-1638. Standards Association of Australia, Australian Standards, Sydney, 1947, p. 11. W. I. Stewart, National Standards. Their Impact on Australia, 1922-1980, Standards Association of Australia, Sydney, 1980, pp 3-6. In the Matter of the Printing Industry Employees Union of Australia and Balmoral Press and in the Matter of Applications by Various Organizations of Employees for Variation of Awards. Re Standard Hours, hereafter referred to as the 'Forty-Hours Case', Transcript, pp 3232-3234.
125. 'Report of the British Economic Mission', Commonwealth Parliamentary Papers 1929, Vol. 2, pp 1231-1272. L. G. Melville, 'Report of the British Economic Mission', The Australian Quarterly, No. 1, March 1929, pp93-101.
126. 'International Economic Conference. Geneva, May 1927. Report of the Australian Delegation', Commonwealth Parliamentary Papers 1926-1928, Vol. 5, pp 1217-1257.
127. 'Report of the Industrial Delegation', op cit, p.1105. For details of this trip see, Hugh Grant Adam, An Australian Looks at America. Are Wages Really Higher?, George Allen and Unwin, London, 1928.
128. C. B. Schedvin, op cit, pp 72-75.
129. Ibid, pp 62-68. Graeme Powell, op cit, pp 344-345.
130. Graeme T. Powell, op cit, pp 206-209.
131. Dagmar Carboch, 'The Fall of the Bruce-Page Government', Studies in Australian Politics, F. W. Cheshire, Melbourne, 1958, pp 127-128.
132. 25 CAR, p. 216.
133. See, for example, E. W. Holden, Wage Incentive, The Economic Society of Australia and New Zealand, South Australian Branch, Adelaide, 1928. Anon, 'Piecework', Sydney Morning Herald, 18-11-1927, p. 18. Anon, 'Piecework and the Metal Trades', Sydney Morning Herald, 4-7-1927, p. 10. Anon, 'The Psychology of Mass Production: Does Mass Production Make Men Into Robots', The Australasian Manufacturer, Vol. 12, No. 621, February 1928, p. 13. Anon, 'Some Thoughts on Piecework and Set Wages', The Australasian Manufacturer, Vol. 14, No. 689, 1929, pp 11-13.
134. 25 CAR, p. 226.
135. Ibid, pp 230-231. Tom Sheridan, op cit, pp 102-103.
136. 25 CAR, p. 220.
137. Ibid, pp 223-224.
138. Ibid, pp 222-224.
139. Ibid, p. 375.
140. George Anderson, 'Fixation of Wages in Australia', op cit, pp 453-457.
141. Tom Sheridan, op cit, pp 104-105.
142. Ibid, p. 105.
143. George Anderson, op cit, p. 522.
144. 25 CAR, p. 1264.
145. Ibid, pp 996, 1300.

146. Ibid, p. 1148. See also, W. H. Loveday and G. L. Wood, 'The Agricultural Implement Industry in Australia', The Economic Record, Vol. 4, No. 1, 1928, pp 313-318. These authors argue that the primary reason this industry was in dire straits was its failure to adopt the rationalised production methods being utilised by competitors within the U.S.A. and Canada.
147. Graeme T. Powell, op cit, pp 208, 227, 232.
148. The instruction to the Court that it should weigh the broad economic effects of its determinations was in line with the administration's general policy of introducing greater rationality into all areas of industry. It was also indicative of the Government's awareness of the problems associated with Higgins' method of fixing wages. To base wage rates on the cost of living gave the workers no incentive to increase productivity. Indeed, under this system if prices fell because of an increase in efficiency the workers' wages would be reduced. Bruce was aware of the crucial link the American taylorists had established between wages and productivity and was strongly committed to ensuring this link was introduced into Australia's wage-fixing system. For a general discussion of the Government's recognition of this problem, see J.T. Sutcliffe, 'Wages and Production', The Economic Record, Vol. 1, November 1925. For further details of this legislation see O. de R. Foenander, 'The New Conciliation and Arbitration Act in Australia', International Labour Review, Vol. 19, No. 2, 1929, pp 151-174. George Anderson, 'The Commonwealth Conciliation and Arbitration Act 1928', The Economic Record, Vol. 4, 1928, pp 279-301. Graeme T. Powell, op cit, pp 206-258.
149. Those scholars such as Brian Fitzpatrick who have argued that the state's attack on the workers in 1928-1929 was part of a campaign to cut wages have failed to note that wages were not a major aspect of any of the disputes in which the Government and the Court confronted the unions. Across the board wage-cuts were not to be implemented until the Labor Party gained the Treasury Benches. See Brian Fitzpatrick, A Short History of the Australian Labor Movement, Lawson's Bookshop, Melbourne, 1944, pp 151-152.
150. Graeme T. Powell, op cit, pp 242-248.
151. Ibid, p. 272.
152. Ibid, p. 343.
153. Ibid, pp 273-276. See also J. B. Brigden, The Cooks' Strike and the Trade Union Congress of 25th June, Pitt Cobb Leaflet, The University of Tasmania, June 1928.
154. Ibid, pp 279-290. For a more conservative report of the strike see W. Jethro Brown, 'The Strike of the Australian Waterside Worker: A Review', The Economic Record, Vol. 5, 1929, pp 22-23.
155. Graeme T. Powell, op cit, p. 284.
156. Ibid, p. 285.
157. Ibid, p. 301.

158. See, Miriam Dixon, 'The Timber Strike of 1929', Historical Studies. Australia and New Zealand, Vol. 10, No. 40, 1963, pp 479-492.
159. 28 CAR, p. 421.
160. Ibid, pp 425-426.
161. Graeme T. Powell, op cit, pp 346-350.
162. Ibid, p. 347.
163. Ibid, p. 219.
164. C. R. Hall, The Manufacturers. Australian Manufacturing Achievements to 1960, Angus & Robertson, Sydney, 1971, pp 386-404.
165. Ibid, p. 386.
166. Dagmar Carboch, op cit, pp 196-200. See also, Peter Cochrane, 'Dissident Capitalists: National Manufacturers in Conservative Politics, 1917-34' in E. L. Wheelwright and Ken Buckley (eds), Essays in the Political Economy of Australian Capitalism, Vol. 4, Australian and New Zealand Book Company, Sydney, 1980, pp 122-147. Peter Cochrane, Industrialization and Dependence. Australia's Road to Economic Development, 1870-1939, University of Queensland Press, 1980, pp 116-118.
167. The Register, 23 October 1928, p. 9.
168. Loc cit. See also, The Register, 24 October 1928, p.17. For the employers' reaction to Bruce's planned welfare reforms see Anon, 'Federal Government and Child Endowment', The Employers' Monthly Review, Vol. 24, No. 6, 1927, pp 65-68. Anon, 'Child Endowment, an Extension of a Ruinous Policy', The Employers' Monthly Review, Vol. 25, No. 3, 1928, pp 28-36.
169. Dagmar Carboch, op cit, p. 192.
170. The Argus, 23 July, 1927, p.32. The Register, 23 Oct., 1928, p.15. The Argus, 20 July, 1928, p. 9. A. F. Hooper, 'Compulsory Arbitration System Severely Criticised', The Employers' Monthly Review, Vol. 24, No. 11, 1927, pp 141-142. The employers also found Beeby's public lambasting, condemnation and interference with their attempts to 'misuse' his pro-rationalisation decisions particularly offensive. See, Anon, 'Employers and Judge Beeby', The Employers' Monthly Review, Vol. 24, No. 7, 1927, pp 78-79.
171. Employers' Review, 28 November 1928, p. 9.
172. The Register, 24 October, 1928, p. 17.
173. The employers' temporary show of unity in the first half of 1929 was also partly a consequence of a campaign mounted by the employer associations during 1928, the aim of which was to forge a united front of all capitalists in opposition to the workers. See, Anon, 'Industrial Peace', The Employers' Monthly Review, Vol. 25, No. 6, 1928, pp 67-68. Even at this late stage Bruce continued to argue for the need for a more rational system of industrial relations. He had R. C. Mills present a paper to the conference generally conveying his ideas. See R. C. Mills, 'Some Economic Factors in Industrial Relations', The Economic

- Record, May 1929, pp 34-53.
174. C. R. Hall, op cit, pp 406-407.
175. Heather Radi, op cit, p. 458. See also, Heather Radi, '1920-29' in F. K. Crowley (ed.), A New History of Australia, William Heinemann, Melbourne, 1974, p. 413.
176. 'Conference of Commonwealth and State Ministers', Commonwealth Parliamentary Papers 1929, Vol. 2, pp 1425-1430.
177. Anon, 'Payment by Results. Mr. Bruce's Advocacy. Safeguards for Workers', Sydney Morning Herald, 18 June 1929, p. 10. Anon, 'Mr. Bruce. National Problems. Piecework Urged. Disclosure of Profits', Sydney Morning Herald,
Anon, 'Mr. Bruce. Industrial Peace. Minimum Wage and Payment by Results', Sydney Morning Herald, 31 July, 1929, p. 13.
178. Sydney Morning Herald, 4 July, 1929, p. 12. See also, Spectator, 'Capital and Labour Their Present Relations in Australia', Rydges Business Journal, Vol. 1, No. 9, 1928, pp 605-607.
179. E. R. Voigt, Menace of Rationalisation. Showing the Need for Shorter Working Week, Labor Research Bureau, Sydney, 1931.
180. C. E. Mundy, A Shorter Working Week, Industrial Printing and Publishing Co., Melbourne, 1931.
181. Tom Sheridan, op cit, p. 112.
182. Edward Masey, 'Mechanization in Australian Industry', The Australian Quarterly, Vol. 10, No. 3, 1938, p. 97.
183. F. R. E. Mauldon, 'Depression, Unemployment, and the Shorter Working Day', The Economic Record, Vol. 9, 1933, p. 281.
184. Ibid, p. 274.
185. For details of speed-up during the depression see, Victorian Parliament, Select Committee on Working Week, Unemployment Insurance and other Industrial Matters, Transcript, pp 389-392, 445-460, 900. At the hearings for this examination the unions continued to utilise the argument of the taylorists that traditional management methods were inefficient and that reduced worktimes did not necessarily reduce output. See, Nat Roberts, The Case for a Shorter Working Week in the Engineering Trade, paper submitted to the State Parliamentary Committee, 28 October, 1935, Amalgamated Engineering Union, Melbourne, 1935.
186. See, The Forty Hours Case, Transcript, pp 23, 62-63, 227, 973-994, 1224, 1457-1458, 3220-3283, 6242-6244. F. R. E. Mauldon, Mechanisation in Australian Industries, Research Monograph No. 1, University of Tasmania, Hobart, 1938. The Australian Institute of Cost Accountants, Aspects of Business Management, Melbourne, 1934.
187. J. Sutterby, op cit, p. 79.
188. Orwell de R. Foenander, Solving Labour Problems in Australia, Melbourne University Press, 1941, p. 42.
189. H. M. L. Murray, Hours of Work and other Factors

- affecting Industrial Efficiency, Institute of Industrial Management, Melbourne, 1942. Anon, 'Industrial Fatigue and Australia's War Effort', Medical Journal of Australia, Vol. 2, 1941, pp 455-456. The Forty Hours Case, Transcript, pp 75-76, 125, 131.
190. The Forty Hours Case, Transcript, pp 24, 62-63, 118-123, 568-569, 573-574, 602, 641-642, 719-720, 1238-1246, 1494, 1513-1517, 3836-3883.
191. Ibid, pp 23, 84, 133, 334, 1142-1153, 1224. See also May Brodney, The Forty-Hour Week, Victorian Labor College, Melbourne, 1946.
192. See, for example, Institute of Industrial Management, The Management Problems of the Forty Hour Week, Adelaide, 1947. J. B. Chifley, 'Incentive Payments', Manufacturing Management, Vol. 4, No. 9, 1949, p. 301. L. C. Danby, 'Problems of the Time Study Man', Manufacturing Management, Vol. 5, No. 1, 1950, pp 22-27. Anon, 'Incentive Payments - the Position in Australia: Union Report', Industrial Victoria, Vol. 11, pp 468-469. Anon, 'A Report upon the 40 hour Week', I.P.A. Review, Vol. 2, No. 6, pp 166-173. P. P. de Biro, P.M.H. Production Per Man Hour, Institute of Industrial Management, Adelaide, 1947.
193. S. P. Stephens, A Preliminary Report on the Effect of the 40-Hour Week on Australian Industry, Economic Society of Australia and New Zealand, New South Wales Branch, Economic Monograph No. 116, September 1949, p. 5.

Conclusion

The central objective of this thesis has been to determine why it is that industrialised capitalist societies are characterised by a tendency to reduce the length of time the direct producers normally spend at work.

Why work times tend to change has been a contentious political issue for as long as capitalism has existed. Through the 19th and 20th centuries the two major modern schools of economic thought, marginalism and marxism, have both attempted to construct and put forward explanations for this phenomenon. The marginalists have argued that the temporal change is the result of rising incomes together with concomitant changes in the workers' preferences for goods and leisure. Proponents of this thesis have no logical or deductive basis for their belief. The argument rests solely on empirical evidence. The refining of statistical analysis has gradually undermined the strength of this evidence with the result that the argument has become little more than assertion.

Marxism, on the other hand, argues that the fall in work times is to be explained by the tendency for capitalists to force up the normal level of work intensity within the production process. Because the efficiency of labour-power is in inverse ratio to the duration of its expenditure greater intensity of effort tends to lower the time schedule that is most efficient. For any given schedule there must be a level of intensity that is an optimum.

Within a capitalist society this means a level of intensity that will maximise profitability. If the schedule is held constant and the intensity level continually forced up, a sub-optimal situation may develop. As this inefficiency becomes more acute it becomes both more necessary and easier for workers to protect their interests by slowing down the rate at which their commodity is consumed. This need necessitates the placing of legal and/or worker enforced limits on effort norms and the length of time normally worked. If a temporal reduction is consequently imposed on the capitalist the subjective conditions may be established that will make it possible for workers to labour even more intensively. The competitive nature of capitalism will ensure that employers, sooner or later, will attempt to realise this possibility.

The validity and contemporary relevance of Marx's argument is strongly supported by the empirical evidence. Intensity levels have risen, both within and outside the workplace. As a result of this change the time schedule that maximises the quantity of labour that can be taken from the worker has fallen. Schedules considered to be normal and efficient in the early part of the 20th century are consequently no longer so.

That it is generally necessary for employers to be subjected to some external force beyond normal market pressures before they will introduce a reduced time schedule does not conflict with the argument that working times have often changed because shorter schedules are more efficient

and therefore more profitable. It is not the case that the market always places sufficient pressure on capitalists to induce them to operate their firms with maximum efficiency. Particularly in an area where 'commonsense' suggests the action would lower profitability it normally requires some force beyond the market, such as labour militancy, state action or dramatic heightening of competition, to compel employers to fully utilise their resources.

Recognition of the market's limited capacity to ensure the highest possible level of industrial efficiency was a primary factor inducing scholars such as Frederick Taylor to call on the consumer to organise, in order to compel capitalists and unionists to accept the need for scientific management. The contribution of the taylorists to the development of the forces of production has gone unrecognised in many quarters. Equally, the insistence of many of the scientific managers that management was often ignorant, incompetent and resistant to progressive ideas and practices, particularly those involving significant investments of capital and personal effort, has also gone unacknowledged by many. As a result, the bourgeoisie have been able to take full credit for the tremendous increase in productive capacity the development of the science of management made possible. The workers' contribution to the development of taylorism, on the other hand, has gone unacknowledged or even worse, employers have been able to claim they developed and implemented this science in the face of massive luddite resistance from the workers.

In the promotion of this slanderous claim those radicals who have failed to make the effort to understand correctly the nature of taylorism have played a prominent part. The policy followed by the overwhelming majority of radical scholars, even those whose primary interests lie in industrial relations, of confining their analysis to the realm of exchange, largely explains why they have contributed to this slander. Likewise, their failure to centre their analysis of capitalist society within the production process explains both why they failed to understand the nature of the capitalist regeneration that gave birth to the long boom and why it ceased.

This lack of understanding has led many of those who have wished to utilise Marx's insights into the nature of class societies and exchange, but have been embarrassed at the apparent failure of a number of his major predictions, to reject the essential elements of his theory of capitalist development. Rather than attempting to explain what happened within the production process that temporarily negated the scenario of capitalist decay depicted by Marx, these scholars have abandoned the central laws of his theory while claiming the barren shell that is left contains the essence of marxism. In short, it has been argued that if capitalism is to come to an end it will be because of a breakdown in the political realm. Thus, support is given to those scholars who insist that Marx's theory of capitalist breakdown is basically socio-political rather than economic. To accept this claim is to relegate

marxism to mere political sociology. It misses the point that central to Marx's argument is not only the politics of the struggle between classes engendered by the relations of production **but also** the economics of the production process itself. It was the latter that gave his belief in the eventual collapse of capitalism an objective basis.

What worries Ricardo is the fact that the rate of profit, the stimulating principle of capitalist production, the fundamental premise and driving force of accumulation, should be endangered by the development of production itself. And here the quantitative proportion means everything. There is, indeed, something deeper behind it of which he is only vaguely aware. It comes to the surface here in a purely economic way - from the bourgeois point of view, within the limitations of capitalist understanding, from the standpoint of capitalist production itself - that it has its barrier, that it is relative, that it is not an absolute, but only a historical mode of production corresponding to a definite limited epoch in the development of the material requirements of production. (1)

The necessity of centring one's analysis on both the production process and the relations of production has been shown in the discussion of the changing nature of Australian work times during the first three decades of this century. Such an approach provides a much more substantive, **explanation** of why this development unfolded as it did. Without this approach the actions of individuals such as Higgins, Beeby and Bruce become inexplicable or at best, explanations are put forward which do not accord with the facts or suggest their actions were based on little more than whim. Likewise, the reconsideration of taylorism, begun in the 1920s by the Australian labour movement and the state, also becomes

difficult to comprehend if this approach is not taken. The valiant efforts these individuals and bodies made to further the development of the productive forces within Australia deserve better recognition than this.

(1) Karl Marx, Capital, Vol. 3, p.259.

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