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CHAPTER III

Labour in Great Britain[1]

I. *The Industrial Revolution: Economic Models of the Labour Market*

In Britain, the hundred years or so between *c.* 1750 and *c.* 1850 saw the competition of what is conventionally called the industrial revolution, and with it the corresponding transformation of the labour force from its traditional structure into a modern industrial working class. These changes constituted a stage in an irreversible social evolution, the creation of modern industrial capitalism. The new character given to society included the emergence of new classes and of new relationships between classes.

The period as a whole has a certain unity and is marked off without much difficulty as the transitional link between relatively more stable economic relations that preceded it and a re-stabilized, but different, framework that followed. Economic theorists who lived through it, beginning with the 'classics' of Political Economy, as well as more recent writers on economic development, have been inclined to treat it as a particular and indeed unique phase with certain laws and characteristics of its own. As far as the market for labour in this period is concerned, there has been a remarkable and indeed striking unanimity among them and among all observers. The general axiom is that in this period as a whole the market operated against labour, and that wages tended therefore to be at or near subsistence levels.

The mercantilist writers of the seventeenth and eighteenth centuries had looked upon labour as merely a factor of production, which, in a competitive world in which most industry was highly labour-intensive, should be obtained at the lowest possible cost. By and large, they were not concerned with labour as being made up of consumers whose satisfaction was the end of the productive process.[2] With the rise of individualist political economy, however, the latent clash between these two conceptions emerged into the open. Their humanism obliged economic writers to agree that high or rising wages were desirable and were a sign of economic success.[3] At the same time, their concern for the progress of society as a whole, seen implicitly or explicitly from the point of view of the capitalist–entrepreneur or, as in the case of Malthus, from that of the landowner, often led them to emphasize the benefits of low wage rates. This ambiguity was clearly reflected in the uncertainty about the specific issue of whether high or low real wages were more

likely to induce labour to work hard – an objective considered desirable by all. Some, from Defoe and Mandeville to William Temple and Arthur Young, plumped for low wage rates; others, among them Sir James Steuart, Malachy Postlethwayt, James Anderson, and Adam Smith, tended to prefer the incentive of high wages for most workers and were mindful of the internal market created thereby: 'Men are forced to labour now', commented Steuart, 'because they are slaves to their own wants . . . Wants promote industry, industry gives food, food increases numbers.'[4] Malthus, unable to decide between the two, opted for a 'moderate scarcity' of labour, with wages neither too high nor too low, to make 'the lower classes of people do more work, and become more careful and industrious'.[5] With Adam Smith and Malthus, however, we enter a new phase of economic thought, for now that the political economists were satisfied with the political basis of the social framework and its class relations, they turned from a consideration of what ought to be to a description of what was.

Adam Smith found it natural – as did all others who lived through the industrial revolution – to begin by assuming that wages were normally at subsistence level. They could not fall below it, as by definition the race of labourers would not then survive. But, writing before the consequences of massive industrialization and urbanization became visible, Smith was optimistic enough to believe that a sustained increase in capital, as long as it was increasing ahead of the supply of labour, could keep wages well above the survival minimum for long periods, though ultimately the supply of population would catch up and bring wages down again. Some of his successors were even less hopeful for labour.

Malthus's pessimism derived from his naive theory of population, although it might also be argued – bearing in mind the occasion of the writing of the first version of his essay – that he began with the conviction that the majority must always remain poor and picked on the existing population theories of Wallace, Townsend, and others as his means of proving it. Be that as it may, the outcome was that while for Adam Smith increasing population was a sign of progress, for Malthus it was a guarantee of stagnation.[6] The Malthusian theory was welcomed by those who wanted to reform the Poor Law drastically against the interests of labour: ratepayers eager to cut poor rates, and employers eager for a pool of willing labour.[7] Only thus can we explain why it was that the Malthusian analysis enjoyed the greatest vogue in the period 1815–34, when it was most demonstrably untrue, since British agriculture, far from being unable to supply the necessary food, was expanding fast[8] and was in a crisis of overproduction for the majority of those years. Malthus was in fundamental disagreement with the majority of his profession over such issues as the Corn Laws and the

law of the market, yet even they all accepted at least a part of his unrealistic population theory.

John Barton, another contemporary, held a rise in wages to be self-defeating, since it would reduce profits and thereby reduce the funds out of which future wages could be paid. He also believed that wages were paid out of circulating capital only, and that the increasing proportion of fixed capital in the total was bound to reduce the demand for labour and depress the wage level on a long-term view. Barton, indeed, saw the mechanism of industrialization as one in which it was the fall in the value of money which raised prices faster than wages, thus permitting profits to rise and offering greater employment while real wages were held down. These higher profits in manufacturing would draw capital – including some of the wages found – away from the land into industry, so that the agricultural employer would get higher profits, but the workers would get no higher wages while the prices of things bought by him would increase. It would take many years before higher profits would attract capital back to the land, just as it would take many years (up to twenty-one in the case of skilled workmen) before any Malthusian effects could be felt in the labour market. This analysis recalls the more recent theory of E. J. Hamilton, though the latter saw the fall in the incidence of rents and other fixed payments, rather than wages, as the source of the boon to profits.[9]

Ricardo came to accept much of Barton's analysis in a later edition of his *Principles*, but his own pessimism had a slightly different basis. Diminishing returns on land would, in the long run, raise the share of rent and diminish the share of wages and profits combined. Since wages could not fall below subsistence, it was profit rates which would bear the reduction, cutting accumulation and thereby the demand for labour while the labour supply increased. In some respects, Ricardo's was a doctrine of capital shortage: at any given level of technology, there were never enough savings to match up with all the potential labourers, and in consequence, unemployment and disguised unemployment kept labour's bargaining position weak. Thus wages would be firmly held down.[10]

'Subsistence' was, of course, an elastic term for the Ricardians, even for the more rigid of them like J. R. McCulloch. They would admit that if wages rose or fell for any temporary cause, the new level might fairly quickly come to be accepted as 'normal' or 'necessary'; thus, McCulloch, comparing the agricultural wages in some Southern counties with those of Yorkshire and the Northeast which were nearly twice as high, concluded that 'this comparative lowness of their wage is at once a consequence and a cause of the depressed condition of the peasantry in the counties referred to'.[11] With this somewhat

question-begging proviso, the Ricardians as a whole assumed subsistence wages in their reasoning – though it has been doubted if Ricardo himself held to it consistently.[12]

The 'colonizers' differed from the other writers on economic matters in having to defend certain specific measures, from which they promised themselves greater prosperity for labour. But they, too, had been reared on Ricardian soil and assumed labour to be depressed in the Britain of their day. Wilmot-Horton, arguing for his programme of 'Systematic Emigration', based himself on the observation that the supply of labour exceeded the demand for it.[13] Wakefield (and Torrens) assumed that there was a glut both of labour and of capital in the mother country, which could be remedied by combining them with land overseas. Wakefield anticipated Marx in other respects also, predicting the decline of the lower middle classes into the ranks of the proletariat, and a revolt of the latter; but, unlike Marx, he hoped to avert such an outcome, in a country 'in which the subject order, composing the bulk of the people, are in a state of gloomy discontent arising out of excessive numbers', by opening up the colonies.[14]

Perhaps the most pessimistic view of wages in that stage of development was that expressed by Marx. According to him, not only would wages not rise: their tendency was to be depressed even further. The main economic mechanism for depressing them was the 'industrial reserve army', the numerous workers who would inevitably be rendered unemployed, part-employed, or casually employed by the progress of capitalism, and who could always be used to turn the terms of collective bargaining in the employer's favour. Marx had no difficulty in showing that such an 'army' existed as an important element in the British industrial revolution, both as a factor undermining the bargaining position of labour in general, and as an explanation of certain features of the phenomenon of the trade cycle in particular: 'Taking them as a whole, the general movements of wages are exclusively regulated by the expansion and contraction of the industrial reserve army . . . corresponding to the periodical changes of the industrial cycle.'[15]

That there was a general labour surplus, over and above the special problems of declining skills and declining industries, was a commonplace among working men in the 1830s and 1840s and among keen observers like Mayhew.[16] It was one of the main drives behind the repeated land schemes mooted by Owenists, by Poor Law reformers and by the Chartists. In O'Connor's words:

The first use the land would be to them was to ease the labour market of its surplus; the second was to create a certainty of work for the people; and the

third was to create a natural rate of wages in the artificial market; for so long as there was a surplus to fall back on, or a workhouse from which to procure labour, so long would work be uncertain and wages low.[17]

In the long term, the industrial reserve army was seen by Marx as a product of the irreversible, and accelerating, change in the structure of capital itself. According to this reasoning, technical progress and competition ensure that there is ever more and more constant capital, which does not create employment, and an ever smaller share (though perhaps absolutely a rising quantity) of variable capital, which does. The reserve army will thus become larger and depress wages: not primarily, as Barton and Ricardo thought, because there would be too little capital, but because there would be too much.[18] Marx's analysis did, however, probe much deeper, and he observed more acutely than his contemporaries did. Among the ideas introduced by him into the mainstream of economic debate was his recognition that the trade cycle was an integral part of development, and that the level of wages depended not only on impersonal economic forces but also on deliberate action by employers as a class. There was here a struggle for power which had political, social, legal, and other aspects, and there were countervailing forces, so that 'the laws regulating wages are very complicated, sometimes one predominates and sometimes another, according to circumstances, [and] therefore they are in no sense iron but on the contrary very elastic'.[19]

In the second half of the nineteenth century, interest in the wage level during the Industrial Revolution lapsed somewhat. Economic writers were more concerned with the rise in real wages in their own time than with their alleged stagnation before. Marshall, though holding to a marginalist explanation of the wage level for his own time, agreed that in previous eras wages had depended on a socially acceptable subsistence minimum, plus a percentage for skill, and that the population mechanism helped to keep it there. But generally, theories which abstracted from social or political factors or which assumed that workers all make individual contracts [20] when the fact that they do not is one of the most decisive influences on the wage level – could have little relevance for explaining the early stages of industrialization.

Recent preoccupation with economic development has again focused attention on the position of labour in the British industrial revolution. The most significant new model is that of W. Arthur Lewis, according to which industrialization with 'unlimited supplies of labour' [21] may be viewed as taking place in two sectors – an 'agricultural' traditional sector characterized by endemic disguised unemployment, in which labour is therefore paid at subsistence level; and an

'industrial' sector able to draw labour from the former, in any quantities desired, by paying wages only slightly higher than those in the 'agricultural sector', without forcing up wages against itself to inhibit its own expansion. C. P. Kindleberger[22] believes that this dual economy operated in Britain in the first half of the nineteenth century (but not after 1850, when the agricultural labour supply is said to have become exhausted, and real wages therefore began to rise in both sectors), and there is much good evidence both for disguised unemployment on the land at that time and for a widening productivity differential between agriculture and industry.[23] Habakkuk's analysis also rests on an abundance of labour, i.e. labour that was both low in cost and elastic in supply, but it is not always clear whether he speaks of labour as abundant in any absolute sense or only in relation to the USA. Significantly, he exempts from this tendency not only the decades after 1850 but also most of the eighteenth century, which therefore also became, according to him, a period of comfortable wage rises.[24] The mechanism suggested by E. L. Jones was slightly different again: here agricultural change was driving farms in less favourably placed areas out of production, by virtue of raising productivity in more favoured areas. This agricultural population thus displaced had to turn to industry for survival in the early stages of industrialization. The motive force was therefore a push rather than a pull.[25]

Compared with classical and particularly neo-classical theory, the views of these present-day development economists and historians have the great merit of recognizing that labour was not perfectly mobile and that non-economic factors played a part in the friction. Indeed, in terms of current economic theory, the idea of 'abundant' labour, noted by every historical observer, makes no sense unless, indeed, the equilibrium wage level lay below a true absolute survival minimum:[26] at the actual wage level, labour supply should be neither abundant nor short, but just meeting demand.

There is thus an impressive degree of agreement among observers of the British industrial revolution that it was characterized by low wages and abundant labour, and that the cheap and elastic labour supply itself played an instrumental part in the progress of industrialization. 'The whole Industrial Revolution of the last 200 years', Hicks stated in an oft-quoted aside, 'has been nothing else but a vast secular boom. largely induced by the unparalleled rise in population.'[27] The earlier belief in poverty as the sole stimulus to work may no longer have been universal, and the lure of consumption goods was increasingly stressed; but virtually every model contains both the need to keep down wage rates in order to leave high profits for further investment, and the

problem created by the consequent low level of demand on the part of the mass of the population.

This unanimity about the historical facts is all the more remarkable in view of the enormous variety of the models used to explain them. The impression of labour abundance must have been powerful indeed to unite observers as diverse as those quoted here. Similarly, although every economist saw a different mechanism by which labour was supplied to the employments needing it, they all had at least this much in common: that each was envisaged as a simple one-way movement, from country to town, from agriculture to industry, from domestic employment to factory.[28]

Both these groups of assumptions are open to challenge in view of the evidence now available about the labour market during the industrial revolution. Both contain a large element of truth: the bargaining position of labour was generally poor, and net movement of labour was in one direction rather than another. But the models available are too simple to do full justice to the complex and often contradictory movements by which the demand and supply for labour were adjusted to each other in the century *c.* 1750–1850. The deviations from the general trend were as important and as significant as the conformity, and to these deviations we must now turn.

A MULTIPLICITY OF LABOUR MARKETS

It is well known that there was nothing like a single national labour market at the beginning of the period, nor was such a market operating very smoothly even at the end, though its creation is one of the chief features of the hundred years of change.[29] Even the most general and common wages – those of agricultural and general labourers – were widely different as between regions, and they moved in different ways. In the course of the eighteenth century, Northern wages overtook those of the rural South and West, and in the first half of the nineteenth the gap was widened further still, appearing to make the labour market less rather than more perfect: if agricultural wages in 1770, according to Arthur Young, were 10 per cent higher in the North than in the South, by 1850 the difference had risen to 37 per cent.[30] In Scotland in the 1790s, the ratios between the highest and lowest rates were as high as three to one.[31] There were equally striking differences within the regions, not only between town and country but also between one town and another very similar one. It is important to note that these were not temporary differences, about to be ironed out by the forces of the market; on the contrary, as contemporaries were well aware, these were often self-reinforcing distinctions, in which cultural heritage, social

expectations, and even physical stamina might play as large a part as economic opportunity. It has been argued very persuasively that it was the lower efficiency of the poorly paid labourer which was at least in part responsible for the agricultural wage differentials in England; and even a critic of this view had to agree that there was an apparent correlation between regional harvest wages and productivity.[32] A similar point has been made about the undernourishment of the Cornish miner.[33] As for differences between cultures, a labourer would need 2*s*. a day in England, but '5*d*. is deemed sufficient in Ireland and 3*d*. in Hindostan'; while high wages promoted exertion in England, Holland, or America, the author continued not without some exaggeration, 'even an Irishman is an example of the stimulating influence of good wages; in his own country he is notoriously lazy and negligent in the extreme; after crossing the channel he becomes a model of laboriousness and enterprise'.[34] Labour mobility, therefore, far from wiping out these cultural and economic differentials – as it ought to have done in a proper labour market – tended still further to confirm them.

In other occupations, even as late as the mid nineteenth century, when tramping and the railways had effected some levelling-out of unemployment and wage rates,[35] it was still one of the hardest tasks of the national unions established about that time to even out the rates within firms or towns, let alone over the country as a whole.[36] Even within the metropolis, Mayhew found the wages of parish rubbish-carters to range from 14*s*. to 20*s*. a week, according to the location of the city parishes in relation to the labour supplies from suburban harvesters. In Ashton in 1831, it was shown that work of the same kind, in the same town, varied from 3*s*. 4*d*. to 5*s*. per thousand hanks, 'and the highest sums were frequently given where the oldest machinery was employed, because the union had there accidentally acquired the greatest power'.[37] In Nottingham, the earnings of lace-machine hands varied from 15*s*. to 30*s*. a week; in 1819 carpenters' wages were 31*s*. 6*d*. in London, 25*s*. in Manchester, and 14*s*. in Glasgow, and masons' wages were 31*s*. 6*d*., 22*s*., and 15*s*. respectively.[38] As late as 1867 it was expressed as a pious wish of the trade unions that taking into account the cost of living 'and other local advantages and disadvantages, the pay of all workers of equal standing in a given trade shall be equivalent, wherever they may be employed', and the unions were only beginning to learn the 'rules of the game' of demanding what the trade would bear. Masons' wages were still varying, in different parts of the country, between $4\frac{1}{2}d$. and $7\frac{3}{8}d$. an hour, bricklayers' between $4\frac{1}{2}d$. and 8*d*., and carpenters' between $4\frac{5}{8}d$. and 8*d*.[39]

The reasons for this are many, and most are not difficult to find.

Adam Smith had noted the many non-pecuniary considerations which had to be eliminated before wage payments could be compared,[40] but beyond this there were frictions impeding mobility, and there were other factors powerful enough to impose their own logic on the labour market irrespective of wage rates. In fact, goods moved much more freely than labour. Factory employment was hated, long-distance migration was eschewed, and family income – rather than the individual income – often became the operative quantity;[41] nor were employers always certain whether to offer exceptionally high wages or relatively lower rates, in order to draw the whole family into employment. Much labour still migrated seasonally; workers could not be sure if a boom was short-lived or portended a secular trend, so that 'over short periods . . . the supply of industrial labour . . . was inelastic'.[42] The notion of 'skilled' work, the incidence of apprenticeship, and the power of trade unions were all in flux and were uncertain at any given time. If even in the mid twentieth century conventional and institutional elements enter largely into wages,[43] they must have exerted very great influence in the eighteenth.

It is clear that the vast sectoral shifts in employment and the absorption of millions of additional workers between 1750 and 1850 took place in a multitude of related markets, some only very tenuously related, rather than in a single labour market.

II. *Population Increase and Migration*

The population increase, adding these millions of hands to the labour force, was clearly one of the central features of the British industrial revolution: it would be surprising indeed if it did not form an important part of the mechanism by which that revolution was accomplished. There may be much controversy about the exact cause of the population increase which accompanied industrialization before 1801 and about its causation,[44] but there is near unanimity on at least two issues: one is that the 1780s mark a stepping-up in the rate of growth, and the other that most explanations of the increase – whether centred on a rising birth-rate or a falling death-rate – ultimately derive it from the demand for labour. Basically, no one has been inclined to dispute Arthur Young's observations:

> The hands, it is said, leave certain villages and go to towns. Why? Because there is not employment in one case, and there is in another – their going to the town, proves that they go to employment – they go to that very circumstance which is to increase their number. They go, because they are demanded; that demand it is true takes, but then it feeds them.

Let any person go to Glasgow, and its neighbourhood, to Birmingham, to Sheffield, or to Manchester, according to some writers, every cause of depopulation has acted powerfully against such places: how then have they increased their people? Why, by emigrations from the country. It would be very difficult for any person to show me a depopulation in the country comparable to the increase of towns, not to speak of counter tracts in the country that have doubled and trebled their people: But why have not these emigrations been to other towns, to York, to Winchester, to Canterbury, &c.? Because employment does not abound in those places – and therefore they do not increase. Does not this prove that in every light you view it, it is employment which creates population? A position impossible to be disproved; and which, if allowed, throws the enquiry concerning the depopulation of the kingdom into an examination of the decline or increase of employment.[45]

The explanation in terms of a rising birth-rate is often based on earlier marriage, or on the earlier possibility of children's earnings opened up by the new industry; that in terms of a falling death-rate, especially in the first years of life, is based on the new power of society to counteract the rising mortality which is the traditional response to a rising birth-rate, so that now more of the newly born were able to survive.[46] There may, indeed, have been a two-phase acceleration. The first, associated with a turning point around 1740, depended mainly (after the usual lag) on a higher survival rate based on better nutrition; the second, beginning in the 1780s, reflected the earlier age of marriage and the greater recklessness of the early stages of industrialization. Explanations in purely medical terms – such as the conquest of smallpox by inoculation, or the national development of resistance to diseases, or a weakening of the attacking viruses – would require a truly remarkable historical coincidence;[47] medical historians have firmly ruled out improved medical knowledge as an explanation,[48] though their views have recently been challenged,[49] and improved medical care and attention, coupled with the containment of certain killers, may have contributed to better survival or at least may have counteracted the fatally adverse effects of urbanization in the first half of the nineteenth century.

The idea that the sharp population increase is itself one of the responses to industrialization is supported by the fact that the industrial counties like Warwickshire, Cheshire, Lancashire, and the West Riding actually showed a greater natural increase (and a lower average age at marriage) than the purely agricultural counties, quite apart from the effects of internal migration.[50] This itself might help to account for the labour abundance of the industrial revolution, but before jumping to the conclusion of a simple model relating population to industrialization it is well to remember that the socio-medical

factors could not be limited to the strictly industrial areas but had necessarily to spill over into the agricultural areas or those with stagnating industries, where they led to such phenomena as the Speenhamland system and the Malthusian alternatives following upon a sharp population increase – starvation or emigration.

According to the Lewis model there should now have ensued an adequate migration from the latter areas, called for convenience the South, to the industrializing North. But the striking fact was that this migration did not take place. There was a substantial movement into London. There was also migration from the countryside into the towns and the industrial and mining villages, but it was all short-distance migration.[51] When the Southern villager finally decided to emigrate, he was more likely to turn his steps to the United States or to Canada than to Lancashire.

> We see [wrote John Barton], in point of fact, that the fluctuations of manufacturing labour scarcely affect in any sensible degree the rate of husbandry wages in their immediate neighbourhood; much less is it to be supposed that this effect should be perceptible in distant parts of the kingdom: that a rise in the earnings of the Lancashire weavers, for instance, should induce a farmer's man in Sussex to migrate to the north for the sake of bettering his circumstances.[52]

> [If the Corn Laws were to be repealed], is it supposed, then, that the ploughmen no longer wanted in Sussex might travel to Manchester, and there find employment as cotton-spinners? Surely such a proposition is too absurd to require serious refutation. The slightest attention to facts might show that a district overburdened with population is scarcely ever relieved, unless by the cruel process of extermination. Not one in a thousand of the inhabitants of the agricultural districts would migrate to the manufacturing counties – nor probably one in a hundred of their grand-children, or great-grand-children. 'Of all commodities', observes Adam Smith, 'the most difficult to transport is men.' And I may add, that of all men, the most difficult of transport is an agricultural labourer.[53]

Even in the Northern areas, parishes not in easy communication with the rising industrial districts, like Gisburn, Sedbergh, Pately Bridge, and Kettlewell in the West Riding, had 'a genuine labour surplus and the working population was sustained by practices similar to those found in the south'. In Glamorgan, conversely, there was a labour shortage into the 1830s and 1840s because of the relative inaccessibility of the industrial valleys even to potential short-distance migrants.[54]

Just as the mills' recruiting agents seem to have limited themselves to nearby communities after the falling-off of the supply of paupers from city workhouses, such mobility as there was in the Southern counties appears to have been mainly local also:[55] if it went further

afield, it was to London or overseas. 'Yes, wages were low then, but few 'ad the 'eart to leave Heyshott [Sussex]', recalled a villager; 'they was afeared of them outlandish parts.' 'I've done all sorts of work in my time,' recalled another, 'movin' about from place to place, just where I could get the most... Sometimes I even went as far as Lunnon, grass-mowin', to Wandsworth and Wimbledon.' One man recollected that his father, about the 1840s, 'made his escape to that goal of every countryman – London'; another, one of a large family from East Anglia, remembered that 'two of my brothers went to America because my father did not know what to do with them'; a third, from Wiltshire, reported that 'there was a surplus of labour, and few outlets beyond the village of their birth. A few drifted into the towns, and the recruiting sergeant periodically at fairs selected some of the best lads. The girls made excellent domestic servants.'[56] Few seemed to view the Northern industries as possible destinations.

The latter, in turn, when they needed more labour than their vicinity could supply, drew on the Irish, as did the Scottish lowlands, which also drew on the expelled Highlanders. However, in the main the urban manufacturers depended on labour from their near neighbourhood, even though wages were already higher there and labour was in relatively short supply, so that this process of recruitment itself drove up wages even further. They did not, as the Lewis model would have led one to believe, go for labour from the overpopulated and low-wage agricultural South.[57] Moreover, at a time when some parts of the home economy were avaricious for labour, a substantial emigration from other parts of Great Britain took place, some of it even subsidized by the authorities. These complex divergences from the simple model are significant.

Why did urban industry fail to use a large part of the English countryside as its natural recruiting ground? There were several reasons. One was the sheer technical difficulty of transport. For a man of Kent or a man from Gloucestershire, it was easier to take ship from London or Bristol respectively than to take the high road to Manchester or Leeds. When the railways finally removed this obstacle, they inhibited cross-country movement by themselves becoming the main magnet for rural labour, as well as drawing manpower from Ireland and Scotland and from other transport undertakings.[58]

Secondly, there was ignorance and fear of the novel industrial employment and a consequent reluctance to face a new occupation as well as a new environment: to that extent, emigration to rural Canada might leave a countryman in more familiar surroundings than migration to Manchester. If experience of internal British migration in the twentieth century is any guide, workers are attracted by the avail-

ability of work rather than by pay differentials, which in the case of family earnings are in any case hard to establish, so that higher prospective pay would not exert an effective pull over long distances. Besides, the pay, even if higher, might well be less certain: 'North and South have each gotten their own troubles,' observed Higgins in Mrs Gaskell's *North and South*.[59] 'If work's sure and steady theer, labour's paid at starvation prices; while here we'n rucks o' money coming in one quarter, and ne'er a farthing th'next.' Moreover, higher wages might soon be swallowed up in higher prices (above all, higher rents), and it is not impossible that the overcrowding and lack of amenities in the towns, which we now know to have gravely increased mortality over that of comparable classes in the countryside, were not unknown to contemporaries as adverse urban factors also.[60]

Thirdly, there was the Poor Law. The role of the Settlement Acts has continued to be the subject of debate to the present day.[61] They clearly prevented neither urbanization nor migration, yet their nuisance value should not be underrated. Pitt declared in 1796 that

> The poor laws of this country . . . had constituted a fetter to the circulation of labour . . . the laws of settlement prevented the workman from going to that market where he could dispose of his industry to the greatest advantage, and the capitalist, from employing the person who was qualified to procure him the best return for his advances.[62]

Complaints may be found in plenty, coming from agriculturists who deplored the Poor Law's effects on the land, industrialists in such towns as Stockport who deplored the periodic dispersal of a skilled labour force, and Poor Law administrators who spent considerable sums on removals and litigation arising from settlement cases in all the major towns. In London, Mayhew declared, the failure of orphans and runaways from other areas to get relief drove them into the ranks of the criminal and submerged classes.[63] Certainly, the Scots had no doubt that their freedom from the restraints of Settlement increased the mobility of labour in their country.[64]

Yet it is not without significance that the Poor Law Commission of 1832–4 paid virtually no attention to the Settlement Acts and certainly did not propose to make them less restrictive. Even more strikingly, with all the economic expertise and all the massive information at its command, it totally failed to relate the rural unemployment to the potential industrial demand for labour. At no point did it seem to have occurred to its members that one way of solving the apparent idleness and wastefulness in the Southern rural communities would be to transfer labour to the mills and mines in the North, where it could find employment, increase its marginal product, and incidentally lower the

bargaining power of the existing industrial labour force. Instead, the new law was to set all the labourers to work in their own villages or, if that failed, would force them to emigrate altogether.

One reason for this curious failure was that it was in the interest of the landlords and farmers to keep the labour reserve on the land for the harvest weeks, and this became increasingly critical as the reduction in part-time rural industries in many districts removed some of the traditional harvest labour reserve. Indeed, Speenhamland could be taken to be an alternative to declining cottage and rural industry. Of course, relief payments were a burden for the rest of the year, but the alternative was worse. The Poor Law, in John Barton's words, gave 'a sort of monopoly, or at least a right of pre-emption, of the services of the labourer, to the employer of labour in the parish where he happens to be settled'.[65] In the same strain, John Christian Curwen remarked rather naively about the Irish:

If it had not been that a great number of these people had been resident in Cumberland during the war, it would have been impossible to bring into cultivation the 300,000 acres which have been cultivated; therefore, to a certain amount, I consider the residence of the Irish to be an advantage to us and that it is only bringing in hands when we do not want them, that an inconvenience arises.[66]

The failure to relate labour surplus and deficit areas is more surprising in the case of those familiar with the needs of industry and commerce, rather than agriculture, particularly since the idea, besides being obvious, had been discussed many times since Patrick Colquhoun derived it in 1806 from the earlier practice of sending Southern pauper children into the Northern mills.[67] The First Report of the Factories Commission of 1833 had been most explicit: it accused the Poor Law of being

an obstruction . . to the circulation of labour . . . The fact that the general wages of children and youths in the manufacturing towns are double the wages of children and youths in the agricultural districts, whilst in the latter the workhouses are full of unemployed persons, affords an indication of the working of the system . . . The present administration of the poor laws, and in some degree the state of the law itself, frequently operate most mischievously, by indisposing workmen to follow the demands of employment into new districts, and also by weakening the motives to seek new employments when old ones have altogether ceased . . . We trust . . . that the present system of the poor laws will not be allowed by parliament to remain a barrier to the wholesome circulation of labour.[68]

As chance would have it, almost as soon as the New Poor Law was enacted in 1834, with its emphasis on forcing labour into employment

at its existing location, there began one of the most rapid phases of industrial expansion in nineteenth-century Britain, leading in some areas, particularly in Lancashire, to an unexampled shortage of labour. Three of the leading cotton-spinners, Edmund Ashworth, Robert Hyde Greg, and Henry Ashworth, seeing their mills stand idle for want of labour and finding their usual recruiting grounds barren, approached the Poor Law Commissioners between June 1834 and February 1835 with a request to use their facilities to transfer docile surplus labour from the South to the Northern mills: 'English labourers are much preferred to the Irish', as Greg put it in his letter of 17 September 1834 to Chadwick, 'and justly so. We cannot do with refuse population, and insubordinate paupers. Hard working men, and widows with families, would be in demand.'

The Commissioners took up the suggestion with alacrity. They were encouraged by J. P. Kay, who reported on 22 July 1835 that

> Irish labour has certainly (under the circumstance of the extraordinary extension of trade, and a deficiency of supply from the English counties) been absolutely necessary to maintain the commercial position of the cotton manufacture of England amongst its foreign rivals, but it has not been an unmingled benefit. With the deepest and most sincere commiseration of the sufferings of that gallant but degraded race, I cannot but consider the extent to which the immigration of the Irish has proceeded in the cotton district, an evil, as far as the manners, habits and domestic comfort of the people are concerned . . . The English are more steady, cleanly, skilful labourers, and are more faithful in the fulfilment of contracts made between master and servant . . . The unwillingness of hand-loom weavers to enter the mills and manufactories, is known to the whole trade. This arises from their having acquired habits which render the occupation in mills disgusting to them, on account of its uniformity and of the strictness of its discipline. They are unwilling to surrender their imaginary independence, and prefer being enslaved by poverty, to the confinement and unvarying routine of factory employment.[69]

The choice therefore was between employing more Irish and employing Southern agricultural labourers.

Edwin Chadwick, Secretary of the Commission, circularized manufacturers on 2 March 1835, asking them to submit lists of vacancies and promising the Commissioners' help in filling them by the supply of Southern paupers, and in their first Report the Commissioners stated that they 'felt it [their] duty to the pauperized labourers themselves to direct them to the sources of the highest wages; and we believe that this course of proceeding will be conducive to the most enlarged public interests'.[70] Two offices were set up, in Leeds and Manchester, and recruiting went under way in the middle of 1835.

Opinions differ on the degree of coercion used to move pauper families to the North, on the hardships endured by them on the journey, and on the difficulties they faced on arrival in an unfamiliar environment. But there can be no doubt that the scheme as a whole turned out to be a resounding failure. Only some three thousand were moved altogether (some higher official figures are suspect); a severe slump broke out soon after they arrived; and in the ensuing scramble the guarantees of three years' employment were often not kept, and the migrants were turned loose, generally to beg their way back to the homes they knew.[71] The failure of this official scheme illustrates some of the causes of the absence of any voluntary migration of any magnitude in this period.

There were certain select skilled trades which had no difficulty in following market demand across the country; but without doubt the largest and most significant migration of labour was that of the Irish – and to a much lesser extent that of the Scots, who moved much more freely over very long distances, even within the United Kingdom. The Irish in particular – much the largest single migrant group – form a crucial element in the response of labour to the industrial revolution. Up to around 1820, immigrants both to England and to Scotland were mostly seasonal and, in the absence of a Poor Law in Ireland, were often able to use the English Poor Law to get free transport part of the way home. This immigration, it should be noted, was into agriculture, the losing sector, not into industry, though it did allow England and Scotland to convert some of their own part-time agriculturalists, tied down as harvest labour reserve, into full-time industrial workers.

The main effect of the Irish incursion was to level out the peak labour demand at harvest time, and to reduce the chance of the poorly paid Southern labourer to exploit the one annual occasion when the market was in his favour.

> It is fortunate for corn counties, that the operation of the harvest is aided by Irish labourers. Were it not for these seasonal and able assistants, the work would not be performed in time, and the workmen of the country would know no bound to their demands, both as to price and as to beer.[72]

This annual influx continued when the wartime labour shortage turned into the post-war labour surplus, though in times of real distress migrant Irish harvest workers were liable to be met by much hostility on the part of the local labourers.[73] The number of migrant Irish harvesters has been estimated at 22,000 in 1810, rising to 63,400 in 1840 and to a peak of 75,000 in 1845, when they formed about half the migrant harvest labour force.[74] Significantly, however, they did not

settle on the land as regular labourers, even in the counties which took the main Irish immigration, such as Lancashire.[75]

After 1820 there were, in addition to the seasonal migrants, Irish arrivals who came to settle – first in a trickle and later, but even before the famine, in a flood. As fares were progressively lowered by the vigorous competition between the steamship companies, even the poorest could raise enough cash to cross the Irish sea. Most of them had been peasants, but even those who had been artisans at home could not find employment as such. They supplied the unskilled element of the building labour force (this was also, to some extent, a seasonal occupation) and of the canal, dock, and railway builders, particularly in those parts of the country where industrial development had reduced the local labour supply. They also provided the unskilled element in irregular or unpleasant jobs, in dock and road transport, in chemical and textile industries, in domestic service, and in a substratum of street cleaners, petty traders, and hucksters.[76] They were everywhere to be found among the poorest and among the least regularly employed, bearing much of the shock of trade fluctuation or technological unemployment. Thus in 1837, among 3,072 persons who were given work by the Glasgow Relief Committee 2,884 were weavers, and among those no fewer than 1,103 were Irish.[77] They were highly concentrated geographically: according to the Census of 1841, about three-quarters of the 419,000 resident in Great Britain lived in four areas only – the London region, the Glasgow region, the West Riding, and Lancashire/Cheshire; and the half-million or so who flocked in in the famine decade of the 1840s made for much the same areas. They were, in many aspects, the mobile shock troops of the industrial revolution, whose role consisted in allowing the key areas to grow without distorting the labour market unduly, and in keeping down the marginal return to labour at critical points in place and in time, particularly at the top of booms.

As the Rev. A. Campbell of Liverpool put it in 1854,

> In the present state of the labour market English labour would be almost unpurchasable if it were not for the competition of Irish labour . . . we are very frequently able to put on the screw of Irish competition.[78]

This was echoed by the *National Reformer*:

> The recent enormous, and still continued, immigration of Irish poor into England is operating fearfully upon the condition of the poorer classes of the latter country. The Irish beggar is eating up the rates and the soup, which the English pauper regarded as his vested interests; and the Irish able-bodied labourer is everywhere reducing the wages of the like class of persons in England, through the unequal competition of cheap against dear labour.[79]

Given the appalling and indescribable poverty of the inhabitants of Ireland, 'a people more wretched than those of any civilised country'[80] right on the doorstep of Britain, their concept of 'subsistence' and the minimum wage acceptable particularly to recent immigrants were such as to rule out any comparison with wages normally paid in England or Scotland.

> The Irish weavers are a little in advance in their career down hill, for they are the main cause of pulling the Scots down after them . . . when a manufacturer desires to lower his wages, it is ten to one but the Irish are the first to accept his terms.[81]

As the *National Reformer* hinted, the Irish added an exogenous element not only to the labour market but also to the Poor Law administration, and this was not without influence on the great Poor Law debate. As we have noted, their non-settlement gave the Irish greater freedom of movement than was possessed by the English poor, and in years of distress they could choose townships with more generous relief procedures – such as Manchester, for example – as against surrounding towns.[82] But beyond this it was alleged that not only would there be no labour redundancy 'sensibly and permanently felt in England and Scotland, were it not for the hordes of Irish who flock to either country for employment, and obtain it by underselling the inhabitants of both in their own market for labour', but they destroyed any chance of limiting population *via* the Poor Law, and indeed burdened the land in England with a Poor Rate which might be much lighter, were it not for the labourers thrown out of work by Irish competition.[83] It was the old dilemma of the propertied classes, of having to maintain in slack times the labour surplus which benefited them by pulling down wages in boom times.

Whatever the indirect pressure on the poor rates caused by the Irish, their pressure on capital resources was likely to have been small. Migrants drifting into building, hand-loom weaving, and domestic service made little demand on capital formation for their employment, nor did they require a great deal for their housing. When the numbers rose to a flood from 1846, it was fortunate, and perhaps not entirely coincidental, that they could be matched with the supreme effort of saving and investment represented by the building of the railways.

As a conspicuous alien element, sometimes deliberately used as strike-breakers,[84] at other times leading the rebellious spirits, the Irish were often hated and attacked, but they were basically acceptable because their vigorous and undisciplined labour provided a much-needed component of the labour force and allowed some British workers who

would otherwise have been on the bottom rung of the social ladder to take up a superior position.

The migration of the expelled Highlanders to the Scottish industrial Lowlands was of a similar nature, causing similar friction and resentment, but on a much smaller scale. By contrast, the Scots moving to England were generally men like mechanics or farmers who came to obtain the full value of their skills rather than to escape starvation.

The role of Ireland in the British industrial revolution was not, of course, limited to its function as a labour reservoir. In the critical first half of the nineteenth century, the exporting of food, such as grain, butter, pork, and bacon, to feed the growing population of Britain while the increased numbers in Ireland were progressively reduced to a potato diet, not only was of great significance by itself but also helped to reduce the demand for agricultural labour in Britain and to counteract a possible fall in the returns from British acres.[85] Moreover, a good proportion of these food exports was unrequited, representing ultimately the rent 'claims' by British residents on Irish land. This free gift – which a crude calculation reveals to have been of the order of 1–1½ per cent of the British GNP[86] – gains in importance when it is viewed not so much as an aid to consumption but, since most of it went to rich individuals, as an aid to capital formation in Britain. Ireland may therefore be said to have contributed not only the labour but also some of the capital to employ it and some of the food to maintain it.

Nevertheless, Ireland functioned predominantly as a labour reservoir, and this role was not lost on contemporaries. Thus Burness, the astute former land steward to the Duke of Manchester, calculated in 1848 that Irish agriculture, employing one million labourers, could in addition to the labour already exported free half that number for manufacture if the output of the remainder could be raised by suitable incentives.[87] This disguised unemployment on Irish soil corresponds to the agricultural sector in the Lewis model, and Irish labour became an integral part of British industrialization; but it should be noted that, as a result, the British economy in that phase was a triple rather than a dual economy, with British agriculture playing an independent part between the industrializing and the (Irish) 'agricultural' sectors. In turn, the labour supply from British agriculture could be divided into two parts, with several shades in between, the fairly inelastic supply from the North being drawn on heavily by the industrial sector, while the apparently elastic supply from the South was by-passed and used, at most, to populate London and some of the colonies. Even at this level of generalization, therefore, the actual movements are seen to have been far more complex than those represented by a two-sector model.

III. *Movements and Counter-Movements*

The general evolution of a much-enlarged 'industrial' sector is usually assumed to have been accompanied by other changes working, in a subordinate way, in the same direction. Among them are the movement from the countryside to the town; the destruction of old skills and the creation of a fairly undifferentiated proletariat; the increasing employment of women and children; the conversion of part-time workers into full-time ones; and the change from domestic manufacture to factory industry. This assumption is basically correct, but closer inspection reveals that each of these changes represented not a simple one-way movement, but the net effect of complex and multi-directional developments. We shall examine each of them in turn.

One of the best-documented movements is that from rural to urban communities, generally from the villages into the nearby towns. In the years 1820–50 in particular, this move was one from low-mortality to high-mortality areas. According to the Census figures of 1841 and 1851, around half the population in most industrial cities were born elsewhere, mostly in the surrounding counties, and a further proportion was made up of the young children of immigrant families.

Nevertheless, even here the movement was by no means simple and one-directional. The growth of towns, it has often been remarked, was seldom the result of a pure inflow but was the net result of a two-way movement.[88]

The absorption of population by towns from their hinterland of ten to twenty miles' radius antedates the industrial revolution. Where some figures exist, as for Norwich and Sheffield,[89] let alone London, they show that earlier types of industry could attract new citizens at a faster rate than urban conditions could kill them off. Further, agriculture and rural Britain did not experience any net loss of population, and it is only the surplus or additional numbers which went to swell the towns.[90] But behind this statistical fact there is hidden a variety of movements. Much of the new agriculture required more labour rather than less. Over long periods, industrialization in such trades as textiles and metals implied greater specialization rather than migration, as rural domestic workers increasingly dropped their agricultural by-employment and turned from part-time to full-time industrial work.[91] Thus, despite the enormous development of the cotton industry, the proportion of textile workers among bridegrooms in Walton-le-Dale, Lancashire, between 1705–14 and 1809–12 rose only from 55 per cent to 64 per cent.[92] In such conditions, development meant an expansion rather than a contraction of the rural population. Before 1800 even the large-scale new industries such as coal-mining, iron-making, copper-

smelting, and water-driven cotton-spinning[93] were mainly rural, so that at times, as in the case of the parish apprentices, development meant movement from the towns to the villages. Other industries left the towns – and London in particular – for the countryside, in search of cheap and docile labour, lower rents, more space, or fewer restrictions, or for other reasons. These industries included silk-weaving, framework knitting, boot- and shoemaking, papermaking, and printing.[94] The pull to the countryside was, to some extent, true of the railway-building period also.

Many rural workers who were attracted into the towns, particularly young men or young couples with growing families, did not settle easily or quickly. Out of their ranks were recruited those drifting and nomadic workers who formed, with the Irish, the shock troops and buffers of an erratic and ill-organized labour market and who were described with such compassion by Faucher:

> The migrators to Manchester are whole families, who wander from town to town, from factory to factory, seeking work, and who have no settled home. These unfortunate operatives live in furnished rooms, where several families are often crowded together in a single bedroom, at the rate of threepence each for bedding.[95]

Faucher goes on to quote an enumeration of the Manchester Statistical Society, according to which, out of 169,000 inhabitants in Manchester and Salford in 1836, 12,500 lived in lodging-houses. Some of these one-roomed lodgings, like those taken by William Chambers in Edinburgh in 1814–15,[96] were occupied by country lads who had good hopes of making their way in the city; but others housed the migrants and drifters, mainly on a temporary basis.

A representative view of the living conditions of that type of labour may be obtained from an inquiry conducted in some central parishes of London in about 1840. The total population of the area had been *c.* 48,000 in 1831, but the statistics cover what are described as the working classes only – 16,176 persons. They formed 5,294 families, of whom 3,852 lived in single rooms and 181 in lodging houses; only 1,053 families had two rooms, and only 208 had three or more. Of the 5,031 male main breadwinners, 1,718 were classed as labourers, and 431 were in the building trades. Of the 4,982 women, 929 were employed in domestic work, 420 in needlework, and 264 as hawkers; the rest were listed as not employed. Most significant, however, were their origins. Of 5,366 families, only 1,430 (or under 27 per cent) were Londoners. 2,624 came from the English provinces, 598 from Ireland, and 320 from Scotland, Wales, and elsewhere. There was no information about the remaining 394 families.[97]

There is much evidence that in periods of local or national slump many of these families returned to their villages, even if they were not compulsorily repatriated under the Poor Law. In the distressed years 1841–3, 15,365 persons were removed from the industrial towns of Lancashire, Yorkshire, and Cheshire to their (generally rural) places of settlement.[98] In the slump of 1825–6, Somerville described how 'labourers returned to the country [from Edinburgh] as well as the skilled artisan; and while fifteen months before I had been made a ploughman, men being so scarce, I could with difficulty get work of any kind now'. This illustrates, incidentally, that a slump could mean not only widespread unemployment but also widespread demotion. In the slump of 1837 it was estimated that at least one-third of the persons who had migrated to the towns in the boom had returned home. In 1847, when the slump was accompanied by massive Irish immigration, the ebb-tide back to the land flowed even more strongly.[99]

In these various ways, industrialization included a flow of labour out of the towns as well as into them, and the land – or that part of it which yielded up any labour at all – was not simply a source of supply but an integral part of a complex pattern of movements. It should also be borne in mind that the simple statistics of urbanization include innumerable cases in which no migration and no outward change took place, but in which total population growth turned villages, or strings of neighbouring villages, into towns.

It was only well after 1800 that the industrial town became the typical place of the new employment. It possessed external economies, a competitive environment, and above all a flexible labour supply, including an industrial reserve army of Irish, unemployed, and other submerged groups, for whom the employer was not responsible in any way except when he wanted their services. The rate of growth, wholly unplanned, of cities like Manchester (17,000 in 1760 to 180,000 in 1830), Liverpool (25,000 to 165,000), Birmingham (30,000 to 140,000), or Leeds (14,000 to 120,000)[100] has never been repeated and could probably not have taken place in any other social context.

A second aspect of the labour supply in which changes are associated with industrialization is the element of skill. Skill in the context of a fundamentally changing technology is not easy to define. Traditionally it involved manual dexterity, acquired after many years of practice, but it also included knowledge and judgement of processes and materials. Additionally, in the new conditions of machine technology, it might embrace a sense of responsibility, some reliability in timing of attendance and speed of work, a degree of literacy and other abstract (e.g. mathematical) knowledge. It is the very many-sidedness of the concept

which makes it impossible to speak of a one-way change. Some skills were driven out and made redundant; others were newly created; others saw their rise and fall within this period; and the status and role of the skilled workers as such changed also.

Skilled labour normally received higher wages and, usually though not always, higher status. Coal-hewers, for example, enjoyed little prestige. The privileges of skill were protected by several separate, though interrelated, factors. Some of them were of a kind which are found in most ages: natural talent; a predisposition to hard, sustained, or responsible work; and years of training or experience. In some cases a strong trade union also helped to maintain a high wage differential. But there were other factors which were of particular significance in this period. The traditional element, according to which some occupations were paid at a higher rate, was to some extent broken down, especially in the textile trades; against this, new differentials were created by growth in other occupations rapid enough to keep demand for labour ahead of supply, irrespective of the skill involved, as in the early decades of machine spinning and in the case of the engineers; and differentials might be extended where expanding technological and managerial knowledge was kept in the hands of the wage earner, as in shipbuilding or ironworking. Skill and its protection thus depended on an amalgam of economic, social, technological, and political factors.

What, then, was the role of skill in the British industrial revolution? It has sometimes been argued that industrialization in Britain destroyed skills and turned the labour force into an undifferentiated proletariat dully serving the machine which had become its master. A parallel change in status was the decline of self-employed craftsmen and their conversion into wage-workers. The displaced skilled man looking for an unskilled labouring job is a familiar figure of the age.[101]

> The old standard trades [wrote the London *Phalanx* in October 1842] remain almost in the same condition in which they were 40 or 50 years ago; but whenever steam-power and machinery has interfered with human labour, there misery has been the consequence to those immediately engaged in the process of production . . . Those who provide the staple materials of food and clothing, viz. the agricultural labourers, the spinners and the weavers, are now in the lowest physical condition.[102]

The simultaneous collapse of status and skill is, in fact, perhaps best documented in the textile industries. The Lancashire muslin-weaver of the 1780s, of the type of Samuel Bamford's father (even if remembered romantically and stated to be untypical), who 'was considerably imbued with book knowledge, particularly of a religious kind; wrote

a good hand; understood arithmetic; had some acquaintance with astronomy; was a vocal and instrumental musician, singing from the book and playing the flute . . .', or the well-known type of independent Yorkshire weavers, 'with their 50 or 100 or 200 *l.*, who were able to make their cloth at home, and go to sell it in the market', or the Kirkintilloch hand weaver who 'could ask from eighteen to twenty shillings a week, and that working ten hours a day, with now and then a holiday for digging in his garden, rambling in the country, or some merry-making; and the old race of weavers were the best educated, most reading, and most respectable of all the operatives of the north'[103] – all these were among the aristocracy of labour of their day. But within two or three decades, the formerly respected and privileged occupations of weaving, framework knitting, or calico-printing had been reduced to virtual unskilled status, to be entered by any untrained outsider.[104]

Nothing is more striking than the differences in 'morals and intelligence' between the older and younger generations of weavers noted in the hand-loom weavers' inquiry of 1839.[105] An apparently safe 'skill' could then very quickly become precarious.

> It has been stated, that the trade of a Handloom Weaver can be learned in a few weeks; so can the trade of a carpenter, if learning to saw a piece of wood constitutes a carpenter; but to learn to be a good and practical silk weaver it will take many years. It is true, persons may soon learn to make the lowest sort of work, by having an experienced hand to superintend it; and it is on that account that persons can become weavers with apparent facility; because when they have learned to make one sort, they can, with further instruction, learn to make another, and so on; so that, in the course of years, and by the instructions of the experienced, they become practical workmen.[106]

Those who were at that time attempting to classify industrial society drew a very sharp distinction between the skilled and apprenticed artisan, with his reasonable and secure income, and the mill hand, overworked, always on the verge of starvation, and buffeted by every wind of trade.[107] Indeed, in 1833 one of the Factory Commissioners thought it most inappropriate that in their demand for a ten-hour day the mill-hands should compare themselves to

> the small class, comparatively speaking, of labouring artisans, such as carpenters, stonemasons, bricklayers, etc. who they say work only from six to six; a class, however, in this respect distinguished from the operatives, that their work is done entirely by hand labour, and after service of apprenticeship, accompanied with some outlay; but what do they think of the numerous classes of domestic operatives, the framework-knitters, the hand-loom weavers, the wool combers, the lace-manufacturers, and a variety of others,

who work, and work hard, from twelve to fifteen hours a day to earn a bare subsistence; and this frequently from a very early age, and in a state of confinement which may be truly called injurious to the health?[108]

Trades not directly affected by mechanization, particularly the finishing of consumer goods, offered what looked like a haven of refuge, and in these there was likely to occur a more than proportionate and uncontrolled increase in the labour supply. The inrush of young men badly trained in the countryside or in small towns, and the rearing of 'colts' or young men not properly apprenticed and with limited skills only, might depress all or part of a formerly privileged trade, as in the 'slop' shops and sweated trades.[109]

Tailoring in London, particularly after the disastrous strike of 1834, was a well-attested example. Elsewhere, as in shoemaking, hosiery, or knitting, formerly despised provincial machine work might capture larger markets and offer better conditions to its labour, while the old metropolitan crafts sank into a hopeless depression. The old, stable world – a world in which 'tradesmen' had their fixed and secure position in society, and in which institutions like the Lincoln Bluecoats (charity) School could, as late as 1802–28, safely send out twenty-six boys to be apprenticed to cordwainers, curriers and leather dressers, nineteen to joiners, fifteen to blacksmiths, eight to wheelwrights, and so on through a list of 110 names – was crumbling.[110] Neither the seven-year apprenticeship nor the subsequent independence could be taken for granted.

But it has also been maintained, on the contrary, that some of the benefits of the new age were transmitted to labour in the form of new skills, a higher proportion of skilled work, and widening horizons,[111] symbolized by the audiences of intelligent and interested mechanics at the Andersonian Institution in Glasgow and the early membership of the Mechanics' Institutes. The engineers were the most successful among the newcomers in raising themselves to an accepted high level, maintained – at least in the large cities like London – by tough rules restricting entrance, which emphasized proper training and skill.[112] While in this they followed the practices of some of the established trades, like those in building, the latter for their part found it hard to survive the rapid growth and influx of labour from the provinces and underwent a temporary decline before again re-establishing themselves as privileged skilled trades in the second half of the nineteenth century.

Both views are correct, and examples of both declining and rising skill can be found. By the end of the period there were numerous trades in which the trade unions had rules on apprenticeship and limitation of numbers but could not enforce them,[113] while elsewhere new trades

established and enforced their apprenticeship rules and limitations with great effectiveness. Some historians have held that the true difference between apprenticed skill and the 'undifferentiated mass of unskilled labour' existed only up to the early nineteenth century, representing the particular shortage of skill in a generally surplus-labour economy, while at the end of the century there was 'a whole spectrum of degrees of skill'. Some, indeed, see the true period of the 'labour aristocracy' to be pre-industrial England, and their view may be coloured by the fact that a very large part of the skilled crafts of the day, among building workers, furniture, glass, or printing workers, and the like, was deployed in luxury trades for the rich in which skill mattered much and cost mattered little, rather than in making mass-produced manufactured articles for the masses.[114] Others saw the aristocracy of labour, based on skill, developing only in the second half of the century and reaching its high point of privilege some time near its end.[115]

Again, both are right. The practices of the traditional 'aristocracy' are well described by Somerville in his reminiscences as a mason's labourer. The labourers were not allowed into the same room in the public house as the masons, and if there was only one room the labourers had to drink out of doors; for speaking out of turn, Somerville was ordered by the mason to be beaten by the apprentices; and even his friend, a mason, opined that 'building could not be carried on if labourers were to have equal rights with masons'. There were then social distinctions not only in the upper classes but

> also between the artisan who has long tails to his coat, and the humbler labourer who has short tails to his coat; between the engine-maker, who is a free member of his trade, and the blacksmith, who has not been apprenticed to engine-making . . . No matter how high the ability of the blacksmith may be, nor how willing the master mechanic may be to promote him and make use of his superior abilities, he is doomed to remain a blacksmith; he cannot pass the boundary which rigorously excludes him from rising above the level of the blacksmith class.[116]

In the course of the first half of the nineteenth century, contemporaries were well aware of the gap between the aristocracy and the rest, and Sir Archibald Alison referred to the trade combination of 1838 as 'just a system of the aristocracy of skilled labour against the mass of unskilled labour', while Ernest Jones criticized the skilled building workers for not coming to the aid of the less skilled: 'The aristocracy of 30*s*. per week looked down upon 7*s*. per week, saying "we are safe". Our *skilled* labour can never become a drug.'[117] Here were the origins of that more modern, Victorian 'aristocracy' which was based largely on strong national trade-union organization.

The repeal in 1814 of the apprenticeship clauses of the Statute of Apprentices, following the fruitless attempt by some London trade unions to invoke them in their favour, marked the end of the old era, represented typically by the independent craftsman–shopkeeper or the subcontracting artisan.[118] For the next decades, the status of skill was uncertain. In the 1830s, Marx noted, mechanics and other skilled artisans were expressly excluded from the Factory Acts but included in the statistics derived from them.[119] The rise of the Amalgamated Society of Engineers in 1851 marked the beginning of the new era, when skill was defined and protected not so much by a temporary excess in demand or by arcane knowledge as by using a new type of organization to conduct collective bargaining with the employer. It is not even possible to say with any certainty whether the proportion of skilled and semi-skilled workers as a whole rose or fell in this period; all one can say is that the nature of skill and the sources of privilege were different in the new conditions, both within the factory and without.

Similarly complex is the evidence relating to the employment of women and children. In one conventional view, they were among the groups detached by the process of industrialization from the disguised unemployment or part-employment in homes and farms in order to enter the labour market as an additional element. Labourers in the early spinning mills, for example, were recruited in this way, and the workhouses were raided for them; when cotton power-loom weaving became predominant from 1820 on, women and children took over weaving also from the men. By 1839, of 420,000 cotton factory workers 193,000 were aged under eighteen years; only 97,000 were adult males; and the rest were adult females. In the other textiles the proportions were higher still: thus in 1844, when females represented about 56 per cent of the labour force in cotton mills, they formed around 70 per cent in woollen, silk, and flax mills. They were also to be found, in many cases in growing numbers, in such less obvious occupations as coal-mining, nailmaking, and file-making, and in agricultural gangs.[120]

Yet women and children were employed perhaps even more widely, though usually far less intensively, before industrialization – in agriculture, in domestic work, and elsewhere. The industrial revolution merely increased and regularized their work, and it did so both in the mills and in the home. It was this aspect – that of taking the woman away from the home altogether – rather than her employment as such which led to the widespread observation that the factory system was associated with a disruption of family life and a decline in the domestic virtues.[121] In some areas, as in the Cornish mining districts, the absorption of female and child labour proceeded in two stages. In the first,

mining expansion turned the part-time farmer into a full-time miner and increased the domestic and farming activities of his wife and children; in the second, further intensification required that the wife and children drop domestic and farm work and also engage in work on metals, mainly on the surface, dressing and preparing the ores.[122] It is significant that the proportion of children in employment did not fall with the 1833 Act,[123] since they continued to be eagerly employed both inside and outside the mills.[124] The strikingly low wage level for both women and children – estimated, perhaps even generously, by Kuczynski at 30–50 per cent of the male wage for women and 5–25 per cent for children[125] – seems to suggest that the demand did not press on the supply any harder than in the case of the men, though in some textile districts there were periods when men could find employment only if they brought with them women and child labour,[126] and in a few, men could find no work at all and had to be kept by their families.

Yet another aspect of the conventional view is that industrialization increased the rate of participation of all types of workers by turning part-time work into full-time work, by creating specialization within specific industries, and by transferring workers out of disguised unemployment in agriculture into full employment in industry or agriculture.[127] This is usually held to be one of the major sources of the easy labour supply which characterizes the Industrial Revolution. But here, too, the movement was not all one way. For while the participation ratio for some was increased, industrialization and urbanization created their own part-employment and unemployment. There was casual labour and seasonal labour, and there were the trade slumps affecting growing numbers as the share of market-oriented (and overseas-oriented) industries increased. A study purporting to show the typical wage level of Leeds in 1839 assumed nine months' average work a year for such trades as cloth pressers, slubbers, woollen piecers and fillers, dyers, paper-stainers, wood-sawyers, painters, plasterers, and bricklayers, and ten months' work for wool-sorters, weavers, woolcombers, shoemakers, wood-turners, hatters, wheelwrights, plumbers, and masons.[128] Building workers had always faced slack times in the winter, but what was new was that now there was no plot of land of their own, no agricultural economy to fall back on. Visitors from more traditional economies noted with surprise what Englishmen had come to take for granted, that 'not one of all the many thousand English factory workers has a square yard of land on which to grow food if he is out of work and draws no wages'.[129]

It was only superficially true, as some economists alleged, that the underemployment reflected by such less-than-full-time work represented an over-supply of labour.[130] Among the poorest and weakest

workers it was the other way round. Precisely because among the London tailors one-third were only part-employed and a further third were wholly unemployed, their poverty forced them to send their wives out to work and thus to overstock the labour market even more.[131] In the sweated trades, in general, it was precisely because excessive hours were being worked that the labour market seemed overstocked: if labour had been strong enough to limit hours, the ensuing labour shortage would have strengthened its hand to limit hours further – a concept not unfamiliar to the trade unions pressing for factory legislation.[132] A recent study of changes in the hours of labour since the eighteenth century had as one of its most striking findings the close correlation between short hours and high wages, and vice versa.[133] The choice between income and leisure is largely an unreal one, invented by economists: labour in a strong position gained both, just as the large majority of workers in the industrial revolution lost out on both counts. Among the hangers-on of urban life – the porters, gardeners, casual workers, and labourers – the bane of seasonal unemployment in the winter was obvious enough to draw sympathy even from the Poor Law Commissioners.

> Those who have not been accustomed to observe them [wrote William Pulteney Alison], are not aware how much reduction of comfort the family of the labouring man, disabled or deprived of employment, may undergo, and not only life be preserved, but the capacity for occasional and precarious employment continue. Their better clothes may be pawned, their furniture and bedclothes may be sold . . . two or more families may be crowded into a single room, and struggle to pay the rent among them . . . They gather cinders in the street late at night and early in the morning, they beg for bread . . . Three meals in the week will support life for many weeks . . . Thus, almost without visible means of subsistence, many of the poorest families in this and other great towns manage to pass the winter, while in summer they find precarious and desultory employment in fields and gardens.[134]

Mayhew estimated 'conservatively' that 125,000 families' income depended on the weather, 450,000 on seasonal fluctuations, and 150,000 on trading booms, making a total of 725,000 families or 3 million people. In any given trade, in London at least, one-third of the workers would be fully employed, one-third part-employed, and one-third unemployed – a total employment rate of 50 per cent – in the mid nineteenth century.[135]

Mayhew may have been exaggerating for normal years; but in slack times, especially in general trade slumps, the effects might be far worse than in former bad years of harvest failure. They were greatest in such vulnerable industries as ironmaking, a capital-goods industry,

or cotton, which depended on exports. At times, unemployment rates of two-thirds were not unknown.[136]

In 1811, of perhaps 10,000 Spitalfields weavers it was found that 2,852 were unemployed and something like an equal number half-employed. In 1812, there were 'a considerable number out of work' in Stockport, others 'only partly employed . . . Never before saw the labour poor looking so ill, or appearing so ragged; many miserably wretched; a few nearly in a starving state.' In Bolton, 'in a population of 17,000 there are 3,000 paupers, notwithstanding *great numbers* have removed to seek for employment'. In Mansfield, 'Vast numbers experience great distress; many utterly unable to procure the common necessaries of life, many who had lived far above want, now in *very, very* abject poverty.' And so it went on, through large industrial towns and small, down to a little settlement like Disley near Stockport, where 'the writer has not heard of any place inclosing more indigence and perishing want; many families have sought sustenance from boiled nettles and wild greens, without salt'. At least one observer thought 'that the awful period is arrived, when there exists a greater amount and variety of individual distress arising from the want of provisions, than I believe has been heard of for many centuries'.[137]

It is this comparison with earlier periods which is so difficult to make. There had been years of unemployment and distress before, resulting from wars, bad harvests, interruptions of overseas trade, or the secular decline of individual industries. But it may be doubted if these were as regular and persistent as the cyclical unemployment now superimposed on the evils of casual work and structural unemployment; and above all it is most unlikely that in the past there had ever been such a large proportion of the population exclusively dependent on income from market-oriented industry.

As late as 1819, it would still cause surprise in Paisley that relief was given for no better reason than 'that they could get no work'.[138] But in 1831–2, it was found that of 2,047 [*sic*] looms in Leeds, 434 were fully employed, 1,025 partially employed, and 587 standing idle; in Macclesfield, there had been 10,229 engaged in silk-throwing in 1824, but employment was only 3,762 in 1832, working but four days a week; and in Leeds, out of a population estimated at 71,602, 25,496 individuals were on relief.[139]

Over the period 1834–41 as a whole, it was estimated in the factory districts that although the nominal working day was twelve hours, the average, taking into account short time because of the slump, was only ten hours a day.[140] But this was totally put in the shade by the distress of 1841–2. It was found then that in a town like Leeds, 20,000 people subsisted on an average income of $11\frac{1}{4}d.$ per head per week; in Paisley,

14,657 were on the roll of unemployed men, or nearly one-third of the *total* population; while in Stockport, an investigation of 2,965 houses showed that of 8,218 people seeking employment, only 1,204 were fully employed, 2,866 partially employed, and 4,148 totally out of work. In Bolton, of 8,124 operatives in cotton mills, 5,061 were on short time or were unemployed; and of 2,110 ironfounders, 785 were out of work, and the rest were on short time.[141]

In 1847, the same kind of statistics once more emerged from the manufacturing districts. In the cotton towns around Manchester, for example, of 382 mills only 126 were in full work, 212 were on short time, and 44 had stopped altogether. Of 71,215 hands usually employed by them, 10,141 were totally idle, and 26,510 were on half time.[142]

Unfortunately, the scattered nature of the statistics and the variations in the methods of calculation make it impossible to derive a meaningful national series on cyclical underemployment, even with the aid of occasional statistics of reductions in payrolls, or spindles or blast furnaces idle, which might be used to lend meaning to such terms as 'short-time work' or 'partial employment'. However, in view of the fact that in the trough of the depression, employment in the industrial centres ran at about one-half of labour capacity only, and in the worst cycles at one-third, an estimate of a loss of employment of 15–20 per cent of capacity averaged over good and bad years together does not seem too pessimistic.

To this must be added those sectors which as a matter of regular practice created underemployment by holding on to an excessive pool of labour. Some industries collected a penumbra of attached workers, like the 'grass hands' in printing, 'hanging round the offices . . . till a call came from this or that newspaper for temporary help'.[143] Casual labour was found particularly in the docks – where according to Mayhew employment might vary by 7,000 out of 20,000 daily in London – and in urban carting, portering, and other transport. Part-time employment remained the rule even in modernized agriculture, where additional labour had to be drawn out of 'unemployment' from the towns and the homes and from Ireland, for the weeks of the harvest. Further, more rapid technical change led to an increase of that structural unemployment which left displaced workers seeking new jobs for long periods before falling back on some unskilled jobs in unfamiliar industries.[144] Finally, there were part-time domestic industries, such as spinning or lace-making, which formerly employed agricultural part-time labour, especially women, but were now taken over by the factory, and created new rural underemployment.[145]

The balance is thus difficult to strike. Old-type underemployment

before 1800 gave place to new-type underemployment after that date. The new type, however, was of a kind to increase the availability of a willing labour supply.

Finally, domestic work itself is usually pictured as a victim of industrialization, or as an earlier stage in industrial development, to be replaced in due course by the factory. On the contrary, in fact, it was often a product of industrialization,[146] though in the process it was being changed in a fundamental sense, turning from a family-based occupation – allowing some degree of independence, and integrated with the domestic duties of the housewife, with a small plot of land, or with the harvest cycle of the surrounding countryside – into full-time dependence on a factory or on a warehouse. Thus the large numbers of domestic weavers and of stocking-knitters *c.* 1790–1830 had been called forth precisely by the success of the spinning mill; and when, in turn, weaving became mechanized, domestic tailoring and dressmaking were greatly enlarged as a result, particularly in London. Both these waves of massive new employment opportunities resulted from the mechanization (and consequent cheapening) of an earlier stage in the productive process, which conforms to a very common pattern in the process of industrialization. It should be noted that both our examples – the hand-loom weaving of the 1790s and the tailoring and dressmaking of the 1830s and 1840s – drew their labour mainly from outside the industrial sphere itself,[147] so that the machine, which was basically labour-saving and therefore restrained the demand for labour within the mills, may be said to have had a more powerful effect in increasing the demand for and the extent of domestic labour than of factory labour.

The kind of division of labour which requires no elaborate new machinery, described by Adam Smith at the beginning of the industrial revolution and realized by entrepreneurs of genius like Boulton and Wedgwood inside their works, turned out also to offer very large opportunities for domestic work outside the factory. The more it led to sweating, to under-payment, and overwork, and the more easily it permitted large fluctuations in output without overhead costs to the employer, the more tenacious it became in the face of competition by improved machine technology. The dressmakers and milliners and cabinet-makers of London, the cutlers and nailmakers and straw-hat-makers and finishers of machine-made lace in the provinces, had by 1850 greatly expanded in numbers since the rise of the factory system and in some periods were multiplying faster than the factory population itself. Even when a new technology was introduced, as in cotton power-loom weaving in the 1820s and 1830s, domestic outwork might survive for long, and even be strengthened for a transitional time as the

buffer between high and low demand, before it was finally supplanted.[148] Conversely, at least in the early decades, the mills were filled not by former domestic workers but by an influx of agricultural workers, labourers, and paupers, together with a few necessary skilled mechanics.

This brief survey has shown that the pattern of changes in the labour market in the course of the industrial revolution was a much more complex one than a mere measurement of net changes would show. Movements in one direction – from the villages to the towns, from part-time to full-time work, from domestic employment to factory work – were often alternating with, or accompanied by, movements in the opposite direction. At other times, a movement leading to an ultimate net change might involve several intermediate moves, each creating new conditions and new reactions in the labour market: thus it might be the Irish migrant who freed an English labourer's wife from part-time harvest work and permitted her to seek work, with her family, in an urban mill, which in turn added her husband to the town's labour force. Finally, it is important to stress at this point that the apparent retention, or re-creation, of a traditional institution generally hid a basic change in character. Thus child labour before industrialization was not the same as child labour afterwards; the domestic system, when it represented the most advanced technology, was not the same as domestic industry as an adjunct to the factory, which included the worst exploited and sweated labour; and the skilled craftsmen of the eighteenth century played a different role from that of the typical skilled artisan of the later nineteenth.

IV. *Case Studies of Four Typical Industries*

Perhaps the point and counterpoint of the labour supply accompanying the main theme of industrialization is best illustrated by some concrete examples. We have chosen four – the cotton industry, building, coal-mining, and agriculture – which between them cover a broadly representative share of the labour market.

The cotton industry saw what were perhaps the most spectacular, but also the most erratic, changes in the demand and supply for labour. In the mid eighteenth century it had been a rural or small-town industry, employing mainly part-time female spinners and part-time male weavers. As the demand for cotton goods expanded, the supply of spinners – several of whom were needed to keep one loom going with yarn – tended to be exhausted first, and this bottleneck was broken by the invention of spinning machines, which became generally available

in the 1780s. It is with this decade that the modern era may be said to have started, and the industry's development from then on is best seen as a series of consecutive phases.

In the first phase, to *c.* 1792, the spinning output expanded largely by technological improvement. In so far as it absorbed additional labour, it did so mostly by employing women and children, drawn partly from the former domestic workers, but also from a variety of other backgrounds including the workhouses. Male workers were relatively few, mainly overseers and mechanics, and this allowed the bulk of the additional male labour force to flow into weaving, where the vastly increased demand had to be met – in the absence of any substantial rises in productivity – by an increase in numbers. Skilled weavers for fine work were drawn mainly from former weavers of cotton and other textiles; they never formed a high proportion. It was the coarse work, employing at least 75 per cent of the labour force, which could be quickly learned by almost anyone and which attracted a rapid influx of labour from outside. Demand for labour remained ahead of supply for some years, especially for fine work, 'masters wanting servants, not servants wanting masters; so the workman demands excessive wages, is insolent, abandon'd, and drunk half the week'.[149] and the high wages (or at least the full employment) of this 'golden age'[150] themselves helped to attract more men into the trade. A further attraction was the work offered to other members of the weaver's family in the other sections of the industry. In Lancashire, recruiting was also furthered by the contemporary depression in small farming, by an abundance of casual labour, and by the availability of weavers in silk, linen, or wool in the surrounding counties.[151] The isolated rural water mills in Scotland and in such areas as the Midlands found it harder to recruit hands, mainly because of limited employment opportunities for men, and relied more on the uneconomic parish apprentices; by the 1800s either they were modal population centres or they showed signs of failure.[152]

An industry as volatile as cotton could not hope to match up its labour supply exactly to the demand, and when the first phase was over, in the comparative stagnation of 1793–7, the balance swung the other way: the crisis of 1797 actually pushed the most mobile adult workers out of the industry and into enlistment.[153] The supply of hand-loom weavers, having risen from 108,000 in 1788 to 164,000 in 1801,[154] henceforth remained well ahead of demand; and in consequence their wages, especially in the easily learnt coarse branches, underwent a long and painful process of erosion.[155] As Davies Giddy noted in 1808 with great perception, the weavers' troubles arose 'because at one time [their wages] had been too high, a circumstance which induced more

people to adopt this trade than there was a demand for, or than it could support'.[156]

In spinning, the second boom of 1797–1803 could tap a supply of drifting unskilled labour in the towns and of migratory artisans.[157] For the rest of the war years, the growing output, interrupted by crises, was met mainly by better equipment and faster working, and there seems to have been no great shortage of labour in spite of military recruitment. The easier supply conditions are also shown by the fact that this was the period when unfree apprentice labour could be almost wholly replaced by 'free' women and children. Conditions were thus particularly unfavourable for returning soldiers and displaced agricultural labourers in 1815–20, who were further handicapped by the rapid population rise in Lancashire. It was in this period that adult male labour was restricted to about 17 per cent in spinning, and the exploitation of the labour of children, who were dismissed when they reached adulthood and wanted a full wage, was perhaps at its highest. The family unit now played a major role as recruiting agent: families moved to textile areas specifically to obtain employment for all members, the earnings of children often compensating for the decline in the earnings of adults and making at least one witness before the Select Committee on the State of Children in the Manufactories in 1816 'believe that the wages of the cotton factory are greater for children than they are for most other sorts of labour'.[158] The extent to which the household budget in the factory districts depended on the interplay of the number of dependants, children's pay, and adult earnings is shown by the sample in Table 32.

Table 32. *Family Size and Earnings in Eight Households, 1841*

Household no.	Workers	Eaters	Weekly earnings (£ s. d.)	Daily average per head (d.)[a]
1	4	8	1 4 0	5·14
2	4	11	1 5 0	3·90
3	1	5	0 15 0	5·14
4	3	5	0 14 0	4·80
5	1	4	0 12 0	5·14
6	4	10	1 0 0	3·43
7	2	9	0 17 0	3·24
8	2	6	0 12 0	3·43

[a] Turned into decimals (the original has fractions and appears to be full of errors).

SOURCE. *McDouall's Chartist Journal and Trades' Advocate*, no. 27, 2 October 1841, p. 210. Cf. also W. Felkin, 'The Labouring Classes in the Township of Hyde, Cheshire', *Journal of the Royal Statistical Society*, 1 (1838–9), 417.

Up to this point, the revolution in the cotton industry had turned many children temporarily,[159] and some women and fewer men permanently, into a factory proletariat, but it had also expanded greatly the domestic employment of an almost equally large number of mostly adult workers in weaving. It was the outworker who acted as a buffer bearing the brunt of depressions, and whose declining status made him view improvements in machinery with particular fear.[160]

From 1820 until the 1840s the industry sustained a remarkably high rate of growth. Spinning was, on balance, still recruiting labour, particularly in the boom of 1834–6, in spite of the rapidly rising output per head, and trade unions were now helping to keep up male wages. But in weaving the spread of the power loom allowed the operative to produce between three and six times as much as on a hand loom,[161] and the rising speed of its working limited the demand. It is likely that in *c.* 1830–45 output per head actually rose faster in weaving than in spinning. Moreover, the demand was now for girls rather than for men, and while the hand-loom weaver of Manchester could find employment in other expanding industries, those in the weaving villages lingered on for some decades more at starvation wages, unless they were sturdy enough to take to labouring or energetic enough to switch to other fabrics, such as silks or woollens. The large influx of Irish labour tended to augment the problem in certain areas of Lancashire, Cheshire, and the West of Scotland.[162] This phenomenon of the long-drawn-out agony of the decline of the hand-loom weavers, whose numbers did not decrease as their wages were inexorably depressed even further below subsistence level, forms one of the best known and most puzzling episodes of the industrial revolution. It will be better understood if it is remembered that many weavers were now women, often part-time; others combined weaving with farming;[163] and still others clung to their spurious independence with the help of other members of the family working in the mills (a factor which helped to split up the old family economy of the spinning mill).[164] Also, in boom times there was still work to be had, and the superiority of the power loom was not immediately obvious. Moreover, many of the new entrants were Irish (including weavers working in Ireland for Scots masters),[165] and even those among them who had been experienced textile workers in their own country were content on immigration into England to accept lower wages. Because of the hostility shown them, few were able to contemplate entering any other industry.[166]

The reduction of child labour by the Factory Acts did not provide new employment opportunities for men. They continued to form 24–28 per cent of the labour force, and the place of the children excluded by the Acts was taken by women and young persons; mean-

while, the children gravitated to related employments like calico-printing, where by the 1840s they formed 50 per cent of the labour force, one-third of them being under thirteen years old.[167]

By 1850 the industry had become wholly a factory industry,[168] fairly capital-intensive and with falling wage costs. Family employment was still characteristic, and as a result the local labour force was able to show superior resilience and attachment to the industry in depressions, even though wages were not high, apart from the small proportion of skilled men. Seventy years – in which output increased a hundredfold but the numbers engaged probably did not change very greatly – had seen the mushroom growth and massive rundown of a large male labour force in weaving. The industry's particular characteristic, however, was its ability to by-pass reliance on male labour, both in its labour-intensive phase and in the later phases of its development, avoiding in this way acute competition for labour with other sectors, even in boom years in boom towns.

Our second example, the building trades, represent perhaps the opposite extreme, an industry which saw virtually no technical change at all. Unlike cotton, building was entirely a home-market industry, but as such it was somewhat exceptional in that the demand for its products was growing faster than the population as long as population growth was accelerating. It formed the largest trade group for men in the country outside agriculture, and Clapham estimated the numbers employed in Great Britain in 1831, including apprentices and labourers, at 350,000 to 400,000, all men and boys.[169] Given an absence of technical innovation, the more-than-proportionate increase in demand for housing should have led to a more-than-proportionate increase in the labour force, and with it a need to attract labour from elsewhere by means of a favourable wage level. This was particularly so in London, which enjoyed an unusually high wage differential.[170] In the second half of the century, when census figures can be used in proof, there was a substantial increase of the proportion of building labour in the total occupied population,[171] and although no figures exist for earlier decades, it seems highly probable that the same relationship obtained then.

No very close correlation can, however, be established. This is partly because building showed substantial cyclical swings in activity.[172] But partly the reason seems to lie in the wasteful and archaic nature of the industry itself, which permitted substantial increases in productivity, at least for long runs of work, by better organization, even without an improved technology. Thus the censuses of 1831, 1841, and 1851 show no larger proportion of building labour among total labour, or among total population, in the rapidly growing industrial cities

than in the older, stagnant towns in which housing figures registered hardly any increases. The explanations for this paradox may be complex and cannot be pursued here but are likely to include a different range of activities subsumed under such categories as 'carpenters' in old towns and in new, the differing incidence of repair work, a different complement of labourers and carters for each craftsman, and the speed-up associated with all the new industrial cities. But the better organization and utilization of labour in large-scale new domestic building together with such aids as cranes and the 'temporary iron rails . . . employed on construction works to transport materials, to remove earth from excavations, and to carry soil for the construction of terraces'[173] undoubtedly played a major part in this spatial contrast, which hides a form of temporal contrast between the traditional and the new. We may wonder even today at the speed of building large mills, when Benjamin Gott's mill of six stories, with over 100 windows on one side, took six weeks to erect, including roofing and flooring, and another, larger one, also of six stories, took three months in 1825; while a mill and engineering works which burnt down in Glasgow in 1814 had joiners and bricklayers working in the still-smoking ruins the next morning and was confidently expected to be in operation again in four to six weeks.[174]

Building was traditionally carried on by skilled, relatively well-paid craftsmen and their unskilled helpers, the latter receiving 60–70 per cent of the wage rates of the former.[175] While it was sometimes in the older, stagnating towns like Dublin that the skilled union could be most restrictive,[176] wages kept up best in the new industrial towns and in London, where the demand for building labour grew fastest. In 1816, skilled builders' wages in an old town like Tiverton were only 2*s*. a day, or half those of London.[177] This would be likely to set off a classical migration of skilled men as well as of labourers from the stagnant areas to the growth towns – a migration increasingly resisted by the localized trade unions in the reception areas in proportion as their power grew.

Organizationally, one section of the industry was transformed in this period, first by the large contractor of major public works or urban developments, and after 1815 by the master builder who maintained a permanent work force of skilled men, supplemented by the direct employment of others as occasion demanded.[178] It was as a reaction to these relatively new types of organization that the self-governing operative builders' guild arose in the heady days of Owenite influence in 1831–4. Its intention was to take contracts directly, by-passing the capitalist contractor; and, significantly, in September 1833 it expressed the hope that quarrymen, brickmakers, and labourers

might in due course also be permitted to join 'as soon as they can be prepared with better habits and more knowledge to enable them to act for themselves assisted by the other branches'.[179] Even the former contractors were invited to 'consider yourselves as members of one great family'.[180] This attempt failed, and in the next three decades the scope of the large-scale builder and contractor expanded greatly, encouraged partly by the erection of public buildings, factories, and complete streets and squares in the large cities,[181] partly by railway works, and partly by the massive urban reconstruction schemes made necessary by the railways themselves.

The majority of workers, however, continued to be employed in a traditional manner by small master-craftsmen. The trade-union membership, even as late as the 1850s, probably did not exceed 10 per cent of those eligible, but it was strategically concentrated in London and the other major immigrant cities; and because of the genuine high skill involved, the survival of proper apprenticeship, and the favourable demand situation, the building craftsmen kept their status as 'aristocrats' of labour throughout the vicissitudes of this period. In the course of the second and third quarters of the nineteenth century, modern-type unions, managed with increasing skill and experience, were added to the prestige of the old-established crafts to regularize hours, reduce irregularity of work, and increase wages step by step, in spite of occasional relapses and in the teeth of a powerful body of employers. They were among the first to gain a sixty-hour week, and then to reduce their standard week below sixty hours in the 1850s.[182] T. S. Ashton noted the striking similarity in the wage movements of workers in the cotton industry – which saw enormous changes in technology – and in building – which saw virtually none (see Table 33).

Table 33. *Wages of Cotton and Building Workers, 1810–50* (*index: 1900 = 100*)

	Cotton factory workers	Building workers
1810	58	57
1820	57	57
1831	52	53
1840	51	57
1850	51	58

SOURCE. T. S. Ashton, 'Some Statistics of the Industrial Revolution in Britain', *Manchester School*, XVI (1948). On the problem of paying similar wages in industries with very different changes in productivity, see Ashok V. Desai, *Real Wages in Germany, 1871–1913* (1968), 97–8.

Coal-mining was among the fastest-growing industries between 1750 and 1850. Its output increased well over tenfold in this period, but in contrast to cotton-spinning its productivity was not raised very greatly by any major technological breakthrough. The reason for this was that, as industrialization proceeded and annual output increased, the easy operations on shallow workings still prevalent in most districts *c.* 1750[183] gave way increasingly to much more costly deep mining, spreading outward from the Northeast and the Northwest, so that whatever technological improvements were made did little more than to neutralize the natural cost increases. Consequently, the growth of coal output was achieved mainly by an increase in the labour force itself, and since this rate of growth was much higher than the natural rate of growth of the population at large, the industry – like building in London and some of the growth cities – was obliged as a condition of its existence to go on attracting labour out of other employments.

These apparent conditions of labour shortage, in marked contrast with the conditions of labour surplus assumed for the economy as a whole, should have provided a most favourable economic bargaining setting for the coal-miner. In practice, however, it did so only very intermittently. There were several reasons for this. One was the enormous extra-economic power wielded by the coal-owner. Unlike the German miner, or the man in the English non-ferrous metal mines, the British coal-miner had no medieval privileges on which to build a high status, and – such may be the power of social reality over the theoretical economic 'market' forces – his scarcity was perversely turned into a disadvantage rather than as advantage. In Scotland, because of the labour shortage in the pits, miners were made into serfs until 1799,[184] and in Northeastern England the normal yearly 'bond', together with a common state of indebtedness, made them only a degree less unfree.[185] Their social and geographical isolation became a further source of weakness as the coal-owners controlled the magistracy, while the company cottage was used to throttle independent trade-union action, blacklists of 'agitators' were widely maintained and used,[186] and educational facilities were even poorer than elsewhere. The influx of capital made matters worse rather than better: 'it was in the coal fields where technical progress was most marked that the extension of child labour was greatest'.[187]

How could labour be attracted into such an unusually oppressive social framework and into an occupation which appeared to most men to be dirty, lowly, and dangerous, enjoying only very erratic fortunes?[188] The most obvious source was the miner's own family, whose employment was encouraged by a form of subcontract in which the hewer himself was responsible for finding assistants to trans-

port the coal from the face to the bottom of the shaft, or to the bank. Such recruitment may have been helped by the often-noted tendency of miners' families to be more fertile than the average.[189] Certainly, the marked isolation of the mining villages ensured that the miners' sons, and sometimes their daughters too, went into the pit as a matter of course. Since there was no formal apprenticeship, but instead a recognized progression to the skilled hewer's job,[190] the absorption of such new labour was easy. There was also some recruitment out of declining areas, such as the Derbyshire lead mines, and a movement of skilled men – specialist pit sinkers, and engineers, viewers, and overseers – from one coalfield to another.

These sources alone could not have sustained the kind of expansion of the labour force that was required. The relatively smooth absorption of additional labour into such an unattractive industry occurred thanks mainly to two factors. One was that the chief source of the additional influx was the agriculture of nearby areas, e.g. the Border country for the Northeast, and the Welsh Marches for Shropshire. Whatever the other comparative advantages, in terms of wages it was not difficult to trump the lowly earnings on the land. In some regions the miner remained partly an agriculturist for a time. In South Yorkshire and North Derbyshire, for example, 'the high proportion of very small holdings throughout the coalfield [suggests] that the collier, like the nailer and edge tool worker, was probably a landowner himself. It is certain that the majority of the miners were natives of the area in which they worked, as the Poor Law certificates . . . show only a thin trickle of movement into these [mining] parishes and in almost all cases, such migration was from a narrowly restricted region.'[191]

The second factor was more complex and rested on the unusually severe fluctuations of labour demand in the industry. The effective pull generally occurred in boom years, when mining wages were especially high, or at times when agricultural labour was made locally redundant. Thus in *c.* 1780–1800, when the demand for labour outran the supply in the Northeast, wages were raised, binding money and high premiums were paid, worker indebtedness was permitted or encouraged, 'play wages' were paid in temporary slack periods, and there were many complaints over the poaching of workers by rival firms. Similar conditions, at a much lower absolute wage level, applied to the South Wales coalfield in its period of expansion a little later. 'It was rapid adaptation of the ordinary labourers to colliery work which favoured the swift development of the Monmouthshire valleys in the first decades of the nineteenth century.'[192]

Coal-mining, however, was a notoriously fickle industry. Even in expansions the general upward trend could be temporarily interrupted,

and there were some major slumps also. At such times, the glut of coal and of labour would be sudden and substantial, since supply was normally inflexible, and capacity could be closed down only at great expense, involving the idleness of a great deal of overhead capital. Thus the coal boom of the 1790s involved the creation of a canal network, with a lag of about ten years. The new areas opened up by it, in turn, used much newly recruited, formerly unskilled labour and less sophisticated techniques, and these ultimately helped to bring down wages and conditions from their boom levels, while even the period of high wages had not succeeded in raising the miner's status socially. By 1830, there were widespread complaints of excess capacity,[193] and the great strike in the Northeast in 1831 was successfully broken with the help of blackleg labour. The following twenty years saw another rapid expansion. Paradoxically once more, strikes were often responsible for a massive labour influx paid for by militant employers. Thus, 180 Irishmen were taken to the Marquis of Londonderry's Penshaw colliery in 1841, and one-half were reported to have settled there permanently; and in 1844 Harton recruited 'common labourers, blacksmiths, waggon-men, joiners and farm labourers' from Wales, Staffordshire and Nottinghamshire.[194] On the other hand, the coalfields near the cities or other centres of employment, as in the Black Country, or far from any population reservoir, as the western extension of the South Wales field, became once more subject to acute labour shortages during the iron and railway booms.[195] Management in areas of alternative employment would share the experience of the Worsley Colliery which, having sacked numerous workers systematically in the slump of 1849, found itself desperately short of labour when trade picked up again in 1851.[196]

Thus the violent fluctuations in fortunes formed perhaps the most striking aspect of the industry and – in an industry as labour-intensive as mining – were reflected in equally violent fluctuations in rates and earnings, and in an unusually unstable and erratic trade-union development. The amplitude of these swings was increased by the common practice of skilled men to work to a 'stint' or 'darg' and – in good times, as wages rose – to work shorter hours, thus increasing the coal shortage even more. It was in these periods of voluntary stinting and rapid promotion of young men to skilled jobs that new unskilled labour could be introduced into the industry without running into objections by the unions. Thus it was said of Northumberland and Durham that at such times 'the boys of the hewers are insufficient to carry on the collieries and hence the boys of mechanics and labourers in the adjoining villages are generally employed, and hence in collieries families are eagerly sought after'.[197] By contrast, in slack times 'a collier rarely

changes his occupation – one who has spent his infancy in the pits is fit for few if any other employments'. Even if made redundant, 'few of them entertained any thought of endeavouring to gain any livelihood by other means than their usual work'.[198]

Further, by the mid-century the structure of coal-mining adapted itself to some extent to a high growth rate, thus neutralizing the natural advantages for labour. This is shown by its age distribution even after the legislation of 1842 which limited the employment of women and children in the industry. According to the Census of 1851, there were 150,000 adult males and no fewer than 65,000 lads under 18 (besides 2,650 women) employed in coal-mining. But this structure of the labour force was ultimately connected with the sharp fluctuations in fortune, and between them they ensured that the excess demand for labour should not permanently raise wages much above the general level. For it was in booms that the additional labour was attracted by temporarily high earnings, and absorbed without friction; it was in slumps that wages were pulled down to something like the normal long-term level elsewhere. At the same time, the social powers of the mine-owners ensured that the miners' status should remain low.

Agriculture, the fourth sector to be examined, bears an altogether different relationship to the process of industrialization and to the labour market than do the industries examined so far; for it was, in one form or another, the main internal reservoir of labour which permitted a flexible expansion of the economy. In many ways, the whole character of the transformation of the economy took on its colouring from the way in which British agriculture was able to free labour for manufacture, transport, and other occupations.

Yet this process was not simple, either. Not even its statistical dimensions can be presented with any hope of clarity of meaning, still less reliable accuracy – though, in view of the importance of the issue, an attempt must be made.[199] According to the most authoritative recent estimate, the proportion of agriculture (together with forestry and fishing) in the total occupied population fell from 35·9 per cent in 1801 to 21·7 per cent in 1851.[200] The proportions in the middle of the eighteenth century are harder to come by; but taking the same authors' estimate that the agricultural population may have increased by about 25 per cent between 1750 and 1801,[201] and assuming that the total occupied population formed the same proportion of the total British population in 1750 as it did in 1801, 'agriculture' would have employed about 41 per cent of the occupied population in 1750. Other estimates, based on contemporary tabulations of shares of national income, which gave agriculture 56 per cent in 1688 (Gregory King) and 46 per cent in 1760 (Massie),[202] would put the 1750 figure nearer 50 per cent,

particularly if it is assumed that output per head may have been lower in agriculture than elsewhere. In absolute figures, 'agriculture' might then have employed 1·35–1·6 million persons in 1750, 1·7 million in 1801, and 2·1 million in 1851.[203]

It is clear that the definitions used beg all the questions. Even leaving out of account the complication arising from the inclusion of 'fishing', the definition of an 'agricultural' population at a time when large numbers were engaged part-time in farming and part-time in industry, and when the changeover to greater specialization in one or the other was one of the most significant developments, was likely to be of very limited value. Similarly, when the economic roles of wives and children were in rapid flux, the concept of an 'occupied population' is likely to obscure more than it illuminates.

However, if we carry through the calculations for the purpose of arriving, at least, at an order of magnitude, we find that if agriculture had kept its share of 41 per cent it would have occupied about 2 million in 1801 instead of 1·7 million, and about 4 million in 1851 instead of 2·1 million, so that in some sense there had taken place a net 'transfer' of 300,000 by 1801, and 1,900,000 by 1851. These figures are the end-figures of a slowly accruing series and include the descendants of people who were born into industrial families but who had at some earlier stage left agriculture. The numbers of those who themselves transferred from agriculture to other occupations would of course be much smaller. The order of magnitude involved (see Table 7) may be derived from the calculations shown in Table 34. From the estimates of the total occupied population and the population occupied in agriculture for certain years we may interpolate year-by-year figures for these two series (T_t and A_t), and compare the yearly rate of increase in the total, $(T_t + 1)/T_t = \lambda_t$, with the actual agricultural rate of increase, the difference being the imputed emigration ($= e$) from agriculture, so that $(A_t + 1)/_t\lambda A_t = 1 - e_t$. The rate of emigration e is then applied to the annual agricultural population to give the actual numbers migrating every year, and these are summed for ten-year periods in the final column.[204] It will be seen that the net 'transfer' amounted to only 226,000 for 1751–1800 and 891,000 for 1801–51 – or just over 1,100,000 for the century as a whole, instead of 1,900,000 as suggested by the earlier calculation. Even then, the later T_t series, particularly for the 1840s, is unduly boosted by Irish immigration, which could not have added much to the A_t series. On the other hand, if the majority of Irish immigrants are counted as transferees from agriculture to other occupations, the number of the latter would be much higher.

Another way of measuring the net transfer is to assume that in the later periods the non-food-producers could not have borne any higher

ratio to the actual agrarian population of their time than they did in 1750, i.e. 59:41. This would have limited the non-agrarian working population to 2·4 million in 1801 instead of the actual 3·1 million, and to 3·0 million in 1851 instead of the actual 7·6 million. In some sense, therefore, the increasing efficiency on the land and the ability to acquire the produce of foreign soils by the export of other goods and services, permitted another 700,000 to work in non-agrarian occupations in 1801 and 4,600,000 in 1851.

Table 34. *Emigration from Agriculture, 1751–1851*

Year	Estimate of total occupied population T_t (millions)	Estimate of numbers occupied in agriculture A_t (millions)	Decade	Average decennial emigration (e) per 1,000 in agriculture	Imputed total emigration in 10-year period
1751	3·3	1·35	1751–60	2·00	27,600
1761	—	—	1761–70	1·80	26,100
1771	—	—	1771–80	1·61	24,300
1781	4·0	1·55	1781–90	4·95	78,200
1791	—	—	1791–1800	4·18	69,400
1801	4·8	1·7	1801–10	7·87	137,700
1811	5·5	1·8	1811–20	11·90	214,200
1821	6·2	1·8	1821–30	14·90	267,500
1831	7·2	1·8	1831–40	9·96	184,300
1841	8·4	1·9	1841–50	4·38	87,600
1851	9·7	2·1			

SOURCE. Deane and Cole, *British Economic Growth, 1688–1959* (1962), Table 31, p. 143.

Neither of these two sets of counter-factual calculations may have much to recommend it in strict logic, but they help to illustrate some of the difficulties in the concept of the transfer of labour. Moreover, they also indicate the relatively minor role played by the actual movement of workers out of agriculture (as distinct from the compounded figure which includes their descendants) in comparison with the immense importance of the natural population increase itself: probably little more than 200,000 in 1750–1801, on the assumptions used above, compared with the 1,100,000 actual increase in the non-agrarian working population; and (say) 1,100,000 in the whole century 1750–1851, compared with the actual increase of 5,600,000 in the non-agrarian working population. In other words, on our assumptions, only about one-fifth of the additional working force in non-agrarian occupations was derived from direct transfer out of agriculture. Even then, many of these 'transfers' were not direct migrations but consisted of

two separate movements – the emigration of agricultural labourers to the empty spaces overseas, and their 'replacement' by Irish immigrants into towns and industrial occupations.

The relative lightness of the pressure which the labour demand from industry exerted on the labour supply in agriculture is also illustrated by the fact that employment in 'agriculture' actually increased in this period – from perhaps 1,350,000 in 1750 to 1,700,000 in 1801, and to 2,100,000 in 1851. This figure includes farmers and peasants as well as wage-labourers, but since the numbers of landholders does not appear to have changed very much over 1750–1850, though their character was differentiated in many areas from peasant-type holders into either large farmers or part-industrial smallholders,[205] the changes represented mostly an increase in paid labour. The figures themselves should not be taken too literally and may, perhaps, represent little more than the transformation (in the statisticians' hands) of the work of members of the holder's family into what technically became paid wage labour. But they emphasize yet again that British agriculture in 1750–1850 bore no relation to a model which assumes mass disguised agrarian unemployment, out of which the stream manning the factories is fed. On the contrary, agriculture was itself transformed technically in line with industry and transport, and in a manner which makes it generally quite impossible to separate out the contributions of the different sectors. Thus the influence of road-building on enclosures and associated improvements, and the contrary influence of enclosures on road-building, would be difficult to separate out; and the agricultural labour freed by coal, reducing the demand for peat-cutters,[206] woodmen and horse-breeders, was quite substantial. In the process agriculture managed to feed a far larger urban population with a disproportionately small increase – but still an increase – in labour power, using not many more acres; and it was therefore in no position to release very great numbers into other occupations. This generalization hides the very different responses of agriculture in the North, and South, and Ireland, with important further variations within the regions.

It has sometimes been assumed that this industrialization by natural increase instead of by the massive siphoning off of labour from agriculture was a distinctive feature of the industrial revolution in Britain: a feature not matched elsewhere,[207] and one reflecting, perhaps, the leisurely progress of Britain as the pioneer, at a speed determined by the availability of resources rather than by the pressure of foreign competition or political demands. E. J. T. Collins has stressed the limited extent of labour demands from industry before the massive railway and urban building of the 1840s, since the industries growing fastest were those in which labour-saving devices were most highly developed; and

in his view the social problem in agriculture in that era was to find employment and make work rather than to release labour.[208] However, Sir Arthur Lewis has recently extended his own model of the process of industrialization by showing that under conditions of rapid population increase there will be heavy unemployment and a labour surplus in the towns without trenching on the agricultural labour supply, since the additional population will be larger than even a fast-growing industry can absorb[209] – a picture which shows many essential similarities with the classic British model, though at lower absolute growth rates.

Ideally, an account of the agricultural labour market should pay great attention to the numerous local variations to be found in Britain. Unfortunately, space allows us to note only the striking differences between the industrial areas and the outskirts of London on the one hand, and the underdeveloped South and East (which were also the main wheat areas) on the other, and to treat the history in three main phases: the years of uneven development to the 1790s, the war years, and the crises and responses of the period *c.* 1815–50.

In the mid eighteenth century, agricultural labour was still far from conforming to a fully developed capitalistic model. Many workers were part-time, and had their own plots or domestic industry to fall back on; employment was in small numbers per farm, and there was a great deal of pay in kind, especially when living in; while the hours worked were uncertain but on the whole long and irregular, depending on the needs dictated by nature rather than on a labour contract. 'The custom of the time of course dictated that women take a large part in agricultural work . . . children too were set to work at an early age;[210] these groups were likely to have even less regular employment and pay. At least half the farms in the early eighteenth century 'could be worked with the labour of the farmer's family, no hired help being necessary except perhaps at harvest time'.[211] At such time, however, not only did the intensity of work increase sharply, but wages also rose to at least 50 per cent above normal, sufficient to attract out into the fields the whole of the labourer's family, as well as numerous urban artisans, their wives, and their children.[212] For the normal labourer, the additional harvest wage was a vital part of his income, and for that reason he was very sensitive to its loss. For example, in one survey of 1838, based on information provided by farmers in Norfolk and Suffolk, it was found that of a total wage roll of £19,130, £2,691 was made up of harvest wages, and £424 of the value of corn gleaned – or 14·1 per cent for wages, and 16·3 per cent for both combined.[213] In the second half of the eighteenth century, and in some regions well into the nineteenth, the effects of the rhythm of harvest work also still tended to spill over into much of the remainder of the labour market. As late

as the 1830s, Somerville still left his Edinburgh job in the summers to make some money at the harvest, just as in the slump of 1826 craftsmen returned to the villages to find jobs. This 'two-way labour flow' for temporary reasons was superimposed on the multi-directional long-term migration.[214] Where there was no local reservoir of non-agricultural labour, or where it proved insufficient, regular seasonal migrations took place, frequently organized by contractors, particularly from Scotland, Wales, and Ireland, revealing a distinct difference in the degree of rural disguised unemployment in the different parts of the United Kingdom; there was also much short-distance migration during harvest time.

It was one of the achievements of the New Husbandry of the eighteenth century that it raised the output per worker on the land. It did this partly by more effective techniques; but it also increased the work load and intensity of independent holders, and of women and children in the village. By making some of them full-time, it made others redundant or (depending on the labour market) freed them for other work. The loss of commons lowered the reserve price of some labour; and the loss of domestic employment to the factory, and the nineteenth-century decline of cottage industry, freed other workers. In a period of accelerating population increase, the net result of all these tendencies was to create a potential surplus of labour in the villages.[215] The formerly disguised unemployment turned into something like an agricultural reserve army; it became more visible, and seasonal imbalances became more clearly marked.

In the Southern and Eastern counties, away from London, where there was no alternative employment, real wages therefore tended downward, to touch subsistence levels if they had not been there before, and stayed there. By contrast, in the areas in which quickening industrial development offered growing competition for rural labour, at wage rates which were traditionally higher, agricultural wages began to rise, to overtake 'Southern' agricultural wages, and soon to leave them far behind.[216] At first, this rise tended to be local or even temporary only, reflecting perhaps the digging of a canal or the expansion of a local firm. By the 1790s, however, the diffusion of higher agricultural wages was pretty general over all the industrial counties, though there were still local variations which usually reflected fairly precisely the pull of other local employment.[217] It should be emphasized that the pull was not merely from the factories but from a whole range of primary, secondary, and tertiary occupations, characteristic of the industrial revolution; it also came from the expanding opportunities for part-time work. Thus it was said of the farm worker in northern Lancashire, by no means a fully industrialized area, that he

frequently combined his agricultural labours 'with handloom weaving, quarry work, iron ore mining (as in Furness), fishing or cockle gathering, or with canal excavation. He might make his winters more tolerable by obtaining work in the repair of the turnpike roads, or his family less poor by sending sons and daughters to work in a country cotton mill.'[218]

The war years saw a dramatic change in the fortunes of English agriculture. Agricultural labour also should have gained, since military recruitment reduced the supply just as the extension of canal-building, coal-mining, the reclaiming of wastes, and rising agricultural output itself all increased the demand. It was said that the harvest which formerly took three weeks could not now be finished in six.[219] Yet real wages in the agricultural areas did not benefit but, on the contrary, fell substantially,[220] and the reason was not wholly the normal time-lag of wages behind food prices during an inflation. For just as in mining the social power of the employer prevented the miner from raising his status, though it could not entirely prevent a rise in his income, so in agriculture – where the discrepancy in the non-economic power between capital and labour was even greater – agricultural labour was prevented from benefiting either in status or in income in the purely agricultural regions. Political repression, including prohibition of all forms of combination, was one method used. The Speenhamland system, which extended the pre-existing system of public subsidy for the war years, was another. It had the advantage, for the squires and farmers, of forcing the general public to contribute to the cost of their harvest labour reserve, and further of preserving the degraded status of the labourer and permitting a rapid scaling-down of costs when prices dropped after the war.[221] On the assumption that the demand for food was not totally inelastic, the artificially low costs of labour may also have helped to keep down unit costs and thus to extend cultivation to marginal lands during the war.

It was after 1815 that the last barriers broke and the agricultural depression ushered in the worst years for labour. These were the years of bitterness and revolt in the countryside,[222] the years of Cobbett's eloquence and of Malthusian argument. Output rose substantially, but both wages and employment, particularly in the winter, fell; industrial by-employment was further curtailed, and gang labour used women and children to replace men, where they were not being replaced by machines. Thus labour remained redundant except for harvest times,[223] and whatever absorption by other occupations occurred was more than counterbalanced by the continuing high rate of population growth. The New Poor Law merely brought into the open, but did not create, rural male unemployment, which could be as high as 60 per

cent[224] – though it should be stressed that the Poor Law Commission Report gave a misleading impression of conditions on the land. In agriculture, too, a dual economy had developed, separating out those who had regular employment at subsistence wages, which were not lowered even when the market was depressed by surplus labour, from that surplus labour itself – employed intermittently, paid badly, and living on the mercy of the rates. It was one of the signs of deterioration in 1830–4 that the number of the latter was rising at the expense of the number of the former.[225] It was only the railway-building of the 1840s which seriously began to alter the labour surplus situation, and then only locally, fitfully, and temporarily.[226]

All this was true of the agricultural counties only; in the North there began a period of even faster growth in industry and communications, which stepped up the recruiting from the countryside, pulling agricultural wages up with it. Areas containing expanding collieries did particularly well. The differential between North and South now widened, according to Caird, to 37 per cent overall and 100 per cent in extreme cases; and it was found that in many Northern areas money wages had doubled between 1770 and 1850, while in some Southern areas they had not changed at all.[227] In 1850, labour was 'almost everywhere felt as a burden instead of a benefit to [the] employer' in the South, while in Lancashire 'native labour is so short that the farmers declare they could not get on at all without the aid of the Irish', and in Yorkshire 'the harvest could not be accomplished without the aid of the Irish'.[228] Not only were wages lower in the South: pauperism in 1850 was twice as high over the South as a whole as it was in the North, and several times as high in extreme cases.

It will be seen that the rural South exhibited, right up to the middle of the century, many of the features associated with an under-developed economy.[229] Low wages, low productivity, and overmanning were combined with a 'low wage' philosophy by the employing class. Mobility was fairly high seasonally and over very short distances, and the younger, more active men were drawn permanently from the farms into the towns or its railway building. But the power of ignorance and conservatism on the land, and the power of the landed classes, who wished to retain a labour surplus for the sake of the harvest and for the sake of the wage bargain, prevented any basic adjustment of supply to demand before 1850 (see above, pp. 107–11). In the social reality of the Southern English village, neither a trade union (such as had proved increasingly effective in the towns) nor the more traditional forms of direct protest were within the realm of the possible to allow agricultural workers even to make the most of their poor market opportunities: the prosecutions of 1830 and 1834 were sufficient proof of that. Other factors, too, could

be perverted from their economic logic by the overweening control of the proprietors – as in the colliery villages. Thus the policy of limiting the number of cottages and allowing the existing ones to deteriorate was not punished by a falling-off in labour supply or by demands for higher compensatory wages but, on the contrary, led to even greater clamour for the few cottages, to greater overcrowding, and to a willingness to pay even higher rents.[230] Economic laws were not allowed to operate unhindered in the English village until it felt the pull of urban labour markets.

Thus the Southern agricultural labour reservoir, together with the Irish peasantry, undoubtedly forms part of the explanation of the general labour surplus economy in the decades to 1850. But this part was more complex, and less direct, than has often been allowed.

The four industries briefly discussed here were among the largest employers of labour and have been chosen to illustrate some of the main cross-currents of the labour supply. A larger number of examples would have shown still more idiosyncrasies and complexities in the shifts in labour and in labour utilization, set against the background of the ever-widening circles of industrialization and capitalistic employment for an ever-increasing proportion of the population.

The temporary counter-movements and periods of labour shortage in a world of labour surpluses; the geographical barriers to mobility; the extra-economic powers of social control; the irrational results of a joint supply of family labour which might leave the father idle while the children went out to work – these and numerous other instances brought out by a micro-study of single industries are not merely aberrations and frictions, to be ignored on a broad canvas, but are an integral part of the mechanism of British industrialization. In the absence of any exogenous pressure, the industrial revolution in Britain developed naturally and organically, and the availability of resources was therefore among its main determinants. Labour was one such resource, and it was transformed and transferred not by regimenting the old into the new according to some pre-existing master plan and by the shortest route, but as and when it became available, from the nearest, cheapest, and most convenient source, irrespective of whether the move would in the ultimate analysis prove to have been in a retrograde direction. By and large, this erratic, dovetailing, piecemeal kind of industrialization proved to be economical of labour; it eased industrial change, and to that extent it reduced the demand pressure on the labour market.

This need not necessarily mean that the labouring families were spared the drastic social changes known in other countries: probably the changes were as ruthless here as anywhere. It was rather that they

were not as purposefully forward-looking to a known goal and reflected the many false starts and blind alleys associated with the pioneer economy. Moreover, they were imposed on an already advanced and complex economic and industrial fabric, and on a society enjoying a fairly high level of incomes, and therefore the movements of labour could be achieved not only by upward changes in the expanding sectors, but also by reductions of wages in the declining ones.[231] All this was in contrast both with more backward economies and with more purposeful later industrializing countries.

V. *Economic and Non-Economic Influences on the Labour Market*

It is time to return to the main outlines of the labour market and to reconsider it in the light of the last section. If we accept, as we must, the view of all observers that in general there was a plentiful labour supply or labour surplus for the period as a whole, and particularly *c.* 1814–50, the apparent difficulty – which all the economists' models were trying to solve in their different ways – is this: How could this easy labour supply be maintained at a time when new industries and occupations were voraciously absorbing labour at unprecedented rates? How did the industrial revolution manage to have its cake and eat it too?

Conventionally, part of the answer has been sought in the massive population increase which accompanied the process of industrialization (see above, pp. 105–8). The British population is estimated to have increased from around 7·4 million in 1750 to 8·9 million in 1781, 10·7 million in 1801, 16·4 million in 1831, and 20·9 million in 1851; the population of Ireland increased at a similarly rapid rate, from 3·1 million to 4·1, 5·2, 7·8, and 6.5 million in the same years respectively, having reached a peak of 8·3 million in the mid-1840s.[232] The total occupied population increased *pari passu*, from 4·8 million in Great Britain in 1801 to 9·7 million in 1851;[233] projected backwards at similar ratios, it must have numbered around 3·3 million in 1750. But the addition of 6·4 million to the occupied population of Great Britain, almost trebling it in a hundred years (or the addition of 5·6 million to the non-agrarian working population (see above, pp. 141–2), almost quadrupling it), does not by itself tell us much about the labour market, for the ratio of hands to mouths remained constant, and there is no reason to assume a drastic change in the ratio of producers to consumers. Changes of significance must be looked for in the variations between labour and the other factors of production, capital, and land; and it is in those terms that classical economics evaluated the effect of a

population increase on the labour market. According to some observers, population was increasing too fast for circulating capital and was thus outrunning the supply of cash in the wages fund. In the case of land, diminishing returns brought into operation by the population increase, i.e. more and more people pressing on a virtually unchanging acreage, was alleged to have depressed real wages – though, perversely, it should also have led to an overwhelming demand for labour on the land, which clearly did not take place. Some 'colonizers' thought that there was a relative surplus of both capital and labour, and their solution was to combine both with overseas land; while Marx was outstanding among those who traced the weak bargaining position of labour to a disproportionate growth of capital, associated with a change in its organic and technical composition.

Plainly, there was not then, and there is not now, any agreement about the effect of a long-drawn-out population increase; nor is there much to be said for generalizations such as diminishing returns on land, or increasing returns on machinery, which leave out the vital factor of technological and market changes over time. The changes traced here took place over three generations, and most economic theories have not allowed sufficiently for the inevitable concomitant changes within such a time span. Bearing in mind the differing proportions of factor supplies and the changing technologies in the different industries over such a period, no simple formula can hope to describe them all.

Seen in this light, the large population increase helped to provide an 'abundant' labour supply not so much because there were now more potential workers – for the demand for labour also rose with the population – but because the growth factor eased the transition between one employment and another, which the industrial revolution made necessary. We noted above that because of this factor, only a relatively small exodus of agricultural labourers from the land sufficed to permit a massive and disproportionate increase in employment in industry (see p. 141 above). This applied, on a smaller scale, to every region and to every industry. In view of the erratic and multi-directional changes required, there appeared temporary and localized shortages, solved in part by attractive wage payments; but the overall mobility implied by the growing total labour supply made such effects rarer and weaker than they otherwise would have been. The dovetailing, the switching, and the marching and counter-marching thereby became cheaper and could be engineered mainly by a push, and only rarely by a pull.

Associated with the fact that the population change did not take place in an economic vacuum is a second factor – the fact that economic

change itself did not take place in a political and social vacuum. We have seen how powerful this element was in certain special cases, as in Southern agriculture and in coal-mining, but it may also be generalized. First, both the property in the means of production and the economic initiative belonged to the owning classes, and change was, almost by definition, initiated by them and carried through only if it was in their favour. One of the most obvious reactions to a local labour shortage was a labour-saving invention, and in one sense it would be permissible to see the industrial revolution as a series of linked reactions to localized bottlenecks of labour, as well as of land and capital. The protests of skilled labour which was made redundant – or at the least was losing the benefit of its skill in the process – had no influence on the decision-making, though the social costs were real enough. In such cases, labour was defeated by economic attrition as well as by the use of the state's power. Its will to resist was sapped also by emphasizing the stigma that attached to those who opposed 'progress'. The use of social prejudice and social mores in the interests of those who made the economic decisions was, indeed, another important means of weakening the bargaining position of labour. One of the most interesting examples of this was the deliberate change in attitude towards the employment of women, independently and (as it were) in 'public' places, whenever a male labour shortage threatened.[234]

More significant, perhaps, than the broad social and economic powers of the employers was the fact that all these changes necessarily took place at a time when political power also came increasingly to be in the hands of the owning and entrepreneurial classes. The state apparatus of coercion was used, whenever necessary, and whenever economic and social forces alone could not have achieved it, to make sure that there was an overall abundance of labour, so that the market was rigged against labour.

In practice, economic and non-economic pressures could not always be easily separated. Thus the subversion of the traditional concept of mutuality (which involved rights as well as duties) inherent in apprenticeship, particularly the abuse of parish apprenticeship by cotton-mill-owners who employed the children as docile and cheap labour, clearly had elements of both; so had the use of Poor Law agents to procure labour for the cotton mills at times of labour shortage, after the passing of the New Poor Law. And working in the same direction, again, was the taxation system, which taxed the poor more heavily than the rich and transferred much of the resulting revenue to the latter. At times, however, the use of brute legal force clearly predominated. Among the most blatant pieces of class legislation designed to injure the bargaining power of labour were the Combina-

tion Acts of 1799 and 1800, the repeal of the justices' power to fix wages in 1813 and of the apprenticeship clauses in 1814, and the Poor Law Amendment Act of 1834.

> The New Poor Law has in fact, placed in the hands of wealth a *perfectly despotic power over the labour of the people . . . that law deprives the poor of the Point of Resistance which by enabling the labourer to make terms, imposed a restraint upon employees . . .*
>
> The New Poor Law has placed a screw in the hands of the masters, against which it is impossible for the workmen to bear up. The master, in fine, has the power of saying to the workman, *you must accept such wages as I choose to give*; for if you dare to refuse them, however inadequate or disproportionate to the value of your labour, the *New Poor Law has enacted that you shall starve.*

It is difficult to quarrel with these statements, by the *Standard* and by the *Morning Herald*,[235] as representing a major part of the intentions behind the new law and a considerable part of its effects, whatever the pious sentiments expressed when it was passed. There were numerous other measures passed with similar general tendencies, while many bills with opposite tendencies were rejected. It is not, however, without significance that the legislation of 1799–1800 and 1813–14, which in each case followed a temporary revival of labour organization, was passed without much public outcry, whereas the Poor Law of 1834 came perhaps nearer than any other Act of Parliament in the nineteenth century to provoking a civil war in Britain.

Beyond the actual law to be found in the Statute Books, there was its administration. It might seem surprising that, massively biased as the law was against the wage-earner, there was still need or room for its further misapplication by grossly partial Justices, to remove what protection the poorer citizen enjoyed as a nominal equal before the law, but there was. It is well known that the magistracy in the villages and in the mining districts, when faced with cases of poaching, breaches of contract, pay disputes, and the like, simply used the compulsion of the police power to enforce their selfish prejudices over the claims of other classes and of natural justice; but a glance at the pages of a journal like the *Poor Man's Guardian* will show that conditions were not very different in city magistrates' courts either – or indeed in the higher courts of the land. The staggering successes achieved in the 1840s by W. P. Roberts, the 'Miners' Advocate', in spite of all the odds against him of prejudiced judges, of coalmasters as magistrates, of lack of resources, illness, and overwork, were achieved merely by ensuring from time to time that the law as it stood was actually applied.[236] Similarly, much of the effectiveness of the trade unions at the time was due to their success in using as the thin end of the wedge one of the

achievements of the preceding centuries: the fact that laws did not refer to men of property and status and men without, but simply to men, and slowly but inexorably this had to be recognized by the judiciary also as applying to wage-earners.

It is also important, though less easy, to bear in mind the pro-labour legislation that failed to reach the Statute Book, as well as the anti-labour legislation which succeeded. Nothing is more instructive than to trace the fate of the repeated attempts to provide, by legal encouragement, smallholdings for agricultural labourers, which had proved, wherever they were maintained by philanthropic landlords, to be highly beneficial to labourers and to the community. The causes of the failure are perhaps best given in Cobbett's language, describing the fatal opposition he encountered in his parish of Bishops Waltham when he attempted, during the post-war slump, to offer each married labourer an acre of waste land on condition that he would enclose it, cultivate it, and live on it: 'Budd said, that to give the labourers a bit of land would make them "sacy"; Chiddle said, that it would only make them "breed more children"; and Steel said, it would make them demand "higher wages".'[237] The social reality however was that farmers, landlords, and employers had votes, and labourers had not.

It would not be difficult to find other parallels, for example in the history of the factory legislation of that time. Perhaps most interesting is the attempt to deal with the trade unions, which helped to stabilize the labour market and carried out much that the middle classes were constantly urging labour to do for itself (including thrift, insurance, and the creation of self-respect), but which had one fatal flaw: they tended to raise wages. The period can show much legislation and proposed legislation about Savings Banks, Friendly Societies, and similar institutions that could relieve the middle classes of poor rates without strengthening the bargaining position of labour: perhaps the clearest such proposal is that for 'Employment Fund Societies' mooted by the Select Committee on Manufacturers' Employment[238] with precisely those aims in mind, and with the additional promise of a sounder actuarial base than the trade unions could offer. Among the most ingenious, however, must rank the battery of proposals put forward by the 'Society for Bettering the Conditions and Increasing the Comforts of the Poor,' which attempted to improve the lot of the lower-paid without affecting the labour market in their favour. This included the following: reducing the number of pence in the shilling to eight or ten, so that the lower-paid – whose pay was usually reckoned in pence – would obtain an increase in real income without raising prices or affecting other incomes; repeal of the Combination Acts; easing the Settlement Acts and constructing 'convenient movable

houses', so that 'it is probable that a perambulatory population would originate, which would transfer itself expeditiously wherever wages rose, and thus keep them at a natural and even price all over the country'; reduction of taxes on food; improvement of hospitals for the aged and infirm; creation of better friendly societies; and the creation of a national system of teachers of domestic economy.[239] Except for the repeal of the Combination Acts over twenty years later, not one of these proposals was put into effect in the following decades, and several were altered in the reverse direction, unfavourably to labour.

Against this, the repeal of the Combination Acts in 1824, as modified in 1825, and the Factory Act of 1833 were the first important legal measures to favour labour's bargaining position. They were the first fruits of the power of labour to organize in new ways in the towns. But there were other causes also. Thus the 1824 repeal is usually represented as having been slipped past an unsuspecting House by a group of Radicals who believed trade unions to be ineffective,[240] and it can be argued that the Act of 1833 owed at least some of its success to the support of the large manufacturers, who wished to abolish some unfair competitive advantage held by the small ones; indeed, it is not impossible that large manufacturers, for the same reasons, may even have supported trade unions.[241] Furthermore, behind all these concessions stood the unreasoning fear of rebellion, on the part of 'the new ruling class of England, those whom late events have made the great men of England', as Edward Gibbon Wakefield wrote in 1833.

> Even before the late change [i.e. the Reform Act], while the fears of the great men were urging them to bring about that change, while fires were blazing and mobs exacting higher wages in the south of England, a dread of the political evils likely to come from excessive numbers, induced the English government to form a Board of Emigration, with the avowed purpose of improving the conditions of the labouring class, by removing some of them to the colonies . . . for a country, situated like England . . . in which the subject orders, composing the bulk of the people, are in a state of gloomy discontent arising out of excessive numbers . . . for such a country, one chief end of colonization is to prevent tumults, to keep the peace, to maintain order, to uphold confidence in the security of property, to hinder interruptions of the regular course of industry and trade, to avert the terrible evils which, in a country like England, could not but follow any serious political convulsion.[242]

Nevertheless, the measures of 1824–5 and 1833 reflect above all the beginning of the new response of labour, adapting itself to the new conditions by trade-union association and by political pressure, in order to bend the wage bargain back in its favour.

There had, of course, been trade unions in the eighteenth century, and some even succeeded in surviving and in raising their money wages by strike action in the years of prohibition.[243] But essentially these were unions of exclusive, skilled groups which enjoyed some privileges, often of long standing.[244] The trade unions of employees in mills and mines, in large towns, or on great contracts were then only going through their embryonic stages. Many of their members were still badly educated, communications were poor, experience was lacking, over-enthusiasm was common, the barriers between the skilled and the unskilled were high, and the law was still hostile – frequently penalizing leading unionists, and encouraging others to embezzle the union funds with impunity. The first great peak of enthusiasm for trade unions and the ethos which they represented occurred in the early 1830s, and the unions reached maturity (in the sense of knowing how to play the market and how to secure permanency) only from about 1850 on.

Before 1850, the extent of the power of trade unions to influence wages was extremely uncertain. No doubt unions contributed to the frictions and rigidities of the market, and their role is perhaps best understood if we see it played out against a market which was neither very smooth nor highly responsive. On the contrary, the normal reaction was for pressures to be absorbed by elasticity in the system, by longer (or shorter) hours, by faster work, or by varying the length of the working day for part-time workers. Even in the 1830s, wages – except in cotton – did not move with trade cycles but at most reflected the movements of food prices.[245] The pressure would build up, however, and at some point, a crisis or a labour famine, or (particularly) a combination of both, would break through the barriers and set up new relationships. The trade cycle and earlier fluctuations thus not only shaped the industrial reserve army, as in the Marxian model,[246] but also played a vital part in the adaptation of the labour force, and at such critical points even a weak or ephemeral union might be in a position to influence events.

These were exceptional, even if important, cases. In general, over the period as a whole, the powers of trade unions and of the more traditional forms of rioting and intimidation were pathetically weak compared with the powers of legal coercion, political domination, and social pressure, coupled with the actions of employers' associations, which were used regularly and persistently to the detriment of labour.

Furthermore, a labour contract or wage bargain in which one side sets the conditions and gives the orders, while the other has merely the freedom to refuse to accept the terms but not the freedom to alter them, lends itself particularly to enhancing and snowballing the powers of the employer if he begins with a naturally strong position. The

regular employment of women and children was one example of this, where it was induced by under-paying the adult male worker, for the competition of his wife and children was likely to depress his wages still further, and make him even more dependent on the labour of his family. Another example – one lying very near the heart of the complex issue of the adaptation of labour to the new system of working – was the increase in the speed and intensity of work.

The increase in the intensity of work that accompanied the industrial revolution did not necessarily mean that people worked 'harder' at any given task, though that might be included in the term; it might merely mean that they rested less between exertions, or had the job planned out so that its inherent rest periods or variations were eliminated. It is clear that in Adam Smith's classic example of a pin factory a vast increase in output was achieved very largely by keeping each worker at one constant, repetitive, high-speed task instead of allowing him the more leisurely method of moving between several tasks. In this some energy was no doubt wasted, but mental and physical recuperation were insensibly incorporated in the process also. This speed-up, described in *The Wealth of Nations*, was described from life[247] and was more typical in many industries, particularly before 1800, than the more spectacular introduction of complex machinery. Greater intensity often also included longer hours or fewer rest days. Like the employment of women and children, its introduction – by increasing, as it were, the labour supply while holding everything else constant, including the total wage bill – at the same time helped to lower wage costs in the future by weakening the labourer's bargaining position, so that a further increase in intensity became easier to enforce on the next occasion.

This was perhaps clearest in the case of the hand-loom weavers, as competition, first by the influx of new men and then by the spread of steam looms, drove down wages.[248] When the weavers were collected into hand-loom or 'dandy-loom' weavers' sheds in the 1830s and 1840s, the masters 'could control holidays and other absence from work and could enforce regular habits and prompt schedules'.[249] In the 1790s, Aikin had observed the Halifax weavers and had concluded that 'it appears evident, that the same number of hands regularly employed, will do more work by one third than when they depend on casual employ. One day in six is always lost to the head of a family by attending the mill, and another by attendance at the market.'[250] Fifty years later, by cutting out all other forms of lost time, the unremitting toil of weavers in supervised sheds allowed the masters to see that their output was doubled.

In turn, machine-loom working was markedly speeded up, from 7

pieces a week by one girl in 1823 to 20 pieces a week by two girls in 1833, and 22 in 1845 – the earlier two-loom working giving place to three-loom and four-loom working at the same time.[251] There is no suggestion here of a new technology which would have made labour per loom any easier.

A similar process took place in spinning. The mule spinner, for example, who walked 8 miles a day in 1815 walked 20 miles in 1832, and even further – up to fourteen to thirty-two miles – in 1844, in spite of the shorter hours. This was in part because 'since 1825, when Sir John Hobhouse brought in his bill . . . the speed in cotton machinery generally has been increasing, to speak within compass, one-fourth, or, in other words, equivalent to an additional labour of three hours a day'.[252] While the speed increased, so did the number of spindles supervised by one person: from the 300 on each of a pair of mules, it had risen by the early 1840s to 600, 1,000, and even 1,344. One man was alleged to have worked 3,360 spindles, and another 2,400. 'It is said', commented Dodd, 'that working these frames will break the strongest constitution in six years.'[253]

Comparison with even the most advanced countries on the Continent showed to what extent, at every stage, the exertions called forth by the industrial revolution exceeded those of an earlier system. 'To reach Manchester efficiency [in cotton-spinning] in Swiss factories', one Swiss observer noted sadly in 1814, 'we should have to sack all our operatives and train up a new generation of apprentices.'[254] Even the Belgians, working in the most advanced country on the Continent, could not match the British cotton workers:

> The energy of our operatives, the quickness of their hands, the heart-and-soul interest which they take in the work they see about while they *are* about it (or in other words, the quantity of work which their almost *ferocious* industry can turn out in a given time) more than compensates the capitalist manufacturer for the superior wages *per day* which he gives. . . . It may be doubted if that vigorous activity which characterises the English workman above *all others* is to be found here [in Belgium].
>
> Comparing the work of a British with a foreign [cotton-]spinner, the average number of persons employed to spindles is – in France, one person to fourteen spindles; in Russia, one to twenty-eight spindles; in Prussia, one to thirty-seven; in Great Britain, one to seventy-four.[255]

Of course, it had taken time to reach that position; and 'even among British manufacturers, confessedly the most industrious labourers in Europe, those who work in their own houses are comparatively idle and irregular, and yet they work under the stimulus of certain and immediate gain'.[256] Conversely, within a few decades, Continental

factory workers would be induced to work at the same obsessive speed as the British.

Equally striking was the testimony of the railway engineers, who compared the prodigious efforts put in by the British navvies on the early railway lines constructed in France, with the much slower work of the native French, moving only a third or a quarter as much earth in a day as the British. But within a few years their exertion and their wages equalled those of the British. The same experience was met with in other countries.[257]

Similar examples may be found in all the other major sectors of the economy. In the traditional mining industries of Cornwall, work was intensified gradually by cutting out holidays, drinking days, and sports, by reducing the time wasted between shifts, and by abolishing 'St Mondays' or other off-days traditionally used to compensate for particularly heavy work. The Bank of England closed on forty-seven holidays in 1761. This was steadily and systematically reduced to eighteen in 1830 and a mere four in 1834: Good Friday, Christmas Day, the first of May, and the first of November. In retailing (as in many other industries) it was the opportunity provided by gas lighting which led to late opening and the consequent intensification of the assistants' labour; indeed, the role of improved lighting in lengthening the working day and allowing the employer to impose his control over the formerly predominant demands of the natural day and the seasons has not yet been fully acknowledged. Even in agriculture, it was alleged, the inducement of piecework payments could reduce the costs of excavating a trench from 8*d.* to 4*d.* a cubic yard in two years, and could increase the speed of harvesting threefold, though the corn might be badly hacked down in the process; and in the new circumstances farmers themselves 'have been obliged to be more industrious, and do the greater part of the labour themselves'.[258]

The same process even took place in traditional crafts which apparently underwent no technical change. The speed-up involved in new domestic building has been noted above (p. 134). The London coopers were obliged to work with more difficult materials at the old rates. And the London 'slop-work' shops, the 'slaughterhouses', employing non-union and partly skilled labour to produce at lowest prices, forced sections of the formerly highly regarded crafts of tailors, dressmakers, and milliners to work sixteen hours a day, seven days a week, and reduced, among cabinet-makers, the wage costs of 100 tables from 30*s.* to 5*s.*, and the wage costs of mahogany desks from 10*s.* to 2*s.* 3*d.* a unit.[259]

Piecework, subcontract, the 'butty' system, and specialization – the latter often involving the subdivision of skills and the killing of the

joy of work – were all designed, in different ways, to increase speeds or to intensify work in other respects. The piecework system, according to McCulloch,

> gives the workmen an interest in being industrious, and makes them exert themselves to execute the greatest quantity of work in the least space of time. And, in consequence of its prevalence, this practice materially influences even the day labourers; who, to avoid invidious comparisons, make exertions unknown in other countries. Hence, a given number of hands in Great Britain perform much more than is executed by the same number of hands almost anywhere else.[260]

A less favourable view of the same phenomenon notes that

> when liberally paid by the piece, [workmen] are tempted to overwork themselves, and to ruin their health and constitution in a few years. This is the case of porters, coalheavers and many common labourers in London. A carpenter is not supposed to last in his utmost vigour above eight years. The double wages paid to country labourers during harvest, or to tailors during a general mourning, are frequent sources of permanent injury, from the inducement they offer to over-exertion.[261]

But in one respect McCulloch was surely right. The intensification of work might have many particular reasons and points of origin; but it was something which communicated itself, and became the norm, through the whole of society. In a generalized way, it changed the attitude of the worker to his job and that of the employer to his hands. It represented a form of inner colonization, a way of drawing forth labour whose existence had not been suspected – labour, moreover, that was paid either at cut rates or not at all. It was a factor of production that escaped the orthodox economists, though it was grasped by Marx in his concept of 'absolute surplus value'. Yet it was a major factor in filling the demand for labour in the industrial revolution without driving up its price.

Beyond a certain point, the intensification of work was likely to become a self-defeating process. If hours were lengthened and the effort of each hour increased, there would come a point when real wages would have to be raised to allow the worker to feed better, or one or other of the two processes would have to be put in reverse. Some examples of each course of action can be found, but in the end the main change of the second half of the nineteenth century was to keep the exertion at the new high level, but to reduce hours and raise wages. In many cases, the reduction in hours was directly linked with the speed-up.[262] This solution appeared to satisfy best both the needs of capital, which began to find long hours increasingly uneconomic as it had earlier found night work increasingly uneconomic with improved

technology and greater intensity of work, and the aspirations of labour, which reached out not merely for a higher income but for more leisure, now that its work had been turned into alienated drudgery.

The general reduction in hours of work, following their earlier extension to the humanly tolerable peak, began in some industries as early as the 1830s and was driven forward by the actions of both trade unions and factory inspectors. It reached different industries at different times, but it was everywhere a vital change affecting both the labour market and the quality of life for the majority of the population. It was, perhaps, the key to Victorian social history; but it should not be forgotten that, in origin, it was largely the consequence of the earlier intensification of labour.

Finally, a fourth factor might be mentioned which, in a generally unfavourable environment, contributed to weakening labour still further at times when it was weak, and reduced its bargaining power even at times when market conditions were in its favour. This factor is the disproportionate influence of the marginal unit, during the temporary conditions at the peak of the boom or at the worst trough of a slump, in a mobile and fluctuating market.

Thus in the French wars only the money wages of powerfully (and illegally) organized skilled trades rose to anything like the extent of the price level. The majority of workers found it impossible to enforce actively the substantial money-wage increases required to keep to the same real standards; and even if the market was in their favour, the Combination Acts and the repeal of legal protection in 1813–14 made it impossible for them to exploit that situation.[263] The resulting drop in real wages, to which workers had become accustomed in such sectors as agriculture, then persisted in many regions after the war, when heavy unemployment permitted employers to take the active step of *cutting* money wages in line with prices. This was the period in which Robert Owen recalled men begging for work at wages which he knew could not possible maintain them.[264] Again, in 1834–6, the great boom attracted much labour into the cotton-spinning mills and weaving sheds, while a real bottleneck developed in the supply of building labour, leading to mass absorption of labour there too. When the boom broke, this additional labour was stranded and helped to weaken labour's eroded bargaining position still further.[265]

This could be generalized: in booms, the better-off and privileged sections of labour were disarmed by massive absorptions of labour which at such times they were generally unable to prevent, while the underprivileged areas were not in a position to benefit fully from either the boom or the loss of labour; in slack times they were then both

weakened and unable to resist dilution and wage cuts.[266] This sequence was broken only towards the middle of the century, when more comprehensive and national union organization, as well as the unprecedented demands of railway building,[267] began to differentiate the fate of different groups more permanently. The hitherto temporary loss of control by the stronger groups thus tended to have permanent consequences.

However, where the system worked the other way – where secular, cyclical, or technological factors might all combine at critical points to favour labour and thus to raise its rewards with similar, potentially more widespread effects – there was one final mechanism, in addition to all the social and political measures wielded against labour, to prevent its operation: the Irish immigrant. The range of occupations open to the Irish, particularly the first-generation immigrants, was in fact extremely limited, but it included occupations at the peak of their demand, with potential long-term effects on the whole wage level, like hand-loom weaving in the 1790s or railway work in the 1840s;[268] and these peaks were cut off either by the Irish themselves or by workers freed from their former jobs by Irish replacements. The addition to the labour force did not have to be very large at a critical point in time to act as the marginal unit and reduce the peak wage level, and with it the accepted level for years to come; and sometimes even the mere threat of the mobile Irish (or Highland) reserve might be enough to have the same effect.

The effect of the Irish in depressing British wage levels also worked in several other ways. By subsisting in overcrowded cellars or lodging-houses on a potato diet they lowered the accepted minimum subsistence level, and with it the whole spectrum of wages fanning out from it, and in fact taught the English labourer 'how to live upon a lower scale of diet, and of household comfort, than he was wont to do'.[269] As the recipients of charity, both privately and through the Poor Law, they reduced the funds available to English paupers and, above all, reduced the standards which it was thought fit to impose on the native poor. In the Northern towns, in particular, a scale that could be considered 'less eligible' than the standards of an Irish family at work represented a drastic cut in standards indeed. Finally, the Irish, by being mobile, prevented the emergence of local and temporary shortages and bottlenecks which could have raised the long-term accepted, and expected, wage levels.

The list is by no means exhaustive. But it covers the main factors which ensured that in spite of a high and rising demand for labour from industry, in spite of innumerable local and temporary bottlenecks in the labour supply, and in spite of great increases in the exertions

of labour and in the value of the marginal product of labour, the general character of the labour market was that of surplus or at least of easy supply conditions.

VI. *Changes in the Standard of Living*

It now remains to see how far the share of labour in the total product changed as a result of these diverse influences, and how workers were affected as consumers in absolute terms. Unfortunately, no overall estimates of incomes and income shares are possible, even at the modest degree of accuracy of those available for the later decades in the century, and the partial information available has proved difficult to interpret.

It is generally agreed that total national income per head increased substantially in the period 1750–1850; it is also beyond dispute that the relative share of labour fell. A recent calculation concluded that a substantial share of national income, between 6 and 14 per cent, was transferred from labour to capital between 1790 and 1850 – assuming that in 1850 some 40 per cent of the national income was paid in wages.[270] Few indices are quite as striking in this period as the stagnation in *per capita* food consumption[271] and the increase in the numbers of domestic servants. What is not clear is whether the smaller share of a larger total represents an absolute rise or fall; nor is it clear how to evaluate a variety of non-pecuniary rewards and conditions, or how far to take them into account.

It may be granted that the standards of consumption of the lower-income-earners rose up to the 1760s or perhaps the 1770s, and that they began to rise sharply again towards the end of the 1840s. It is the years between, consisting of two periods separated by over twenty years of war, which are uncertain.[272] We have seen what complex internal adjustments of labour to the market were necessary in those years, and while many were achieved by means other than the purely economic one of differential payment, these clearly played a vital part. We would therefore expect different groups to have widely differing experiences. Thus it may be stated with confidence that those who moved from agriculture into manufacturing, mining, or transport improved their position, and so, to a lesser extent, did those who stayed in agriculture in the growth areas; but agricultural labour in rural districts was worse off at the end than at the beginning of the period. In any case, cheap coal gave some comforts to the poorer homes in the North and West which were lacking in the traditional wheat areas. Domestic workers who transferred to the factory raised their earnings;

those competing with factories had them reduced. Craftsmen in new skills, or those in increasing demand, raised their wage levels; those displaced by machines or forced into sweatshops, into manufactories, or into mass production lost out.[273] Labourers who felt at home in the changing, new, ruthless, competitive world might rise to become employers; but traditionalists among independent craftsmen could sink down to the proletariat. Taxation, if anything, took even more from the poor to give to the rich after 1815 than before 1793.

It is also certain that those whose wages went up worked much harder at the end of the period than at the beginning. Further, it is at least probable that women and children, by transferring from largely domestic to largely public employment, also worked much harder, and that the higher family money incomes, where indeed they were found at all, were generally achieved because of their work. The factories multiplied the social costs of the child work which had always existed, while they removed its positive aspects. Disguised unemployment – which before industrialization had often been, from the worker's point of view, simply a more leisurely way of life,[274] – now gave way to sharp bouts of massive and involuntary unemployment, which carries no compensations. Such years as 1816–19, 1826–7, 1830–1 and 1839–43, with their increasingly pervasive crises,[275] substantially weakened labour's general bargaining power and contributed to the need to send wives and children to work. The numbers and proportion of casual, inferior, and rootless labour of the kind found mainly in the cities (and merging into the criminal classes) certainly also increased. Again, nominally higher wages were often reduced by truck and by other chicanery.

Added to this were the problems of accepting the new work discipline and the new urban conditions of living, both of which were felt to be catastrophic declines from previous experiences. The valuation of urban amenities is a subjective matter, and their decline has been disputed; but statistics show beyond doubt that the state of the new towns appreciably shortened the life expectancy of those affected and increased their physical debility during those shorter years. Wherever comparisons can be made – either over time in any one city, or between industrial towns and the rest of the community at any one time – staggering differences in life expectancy appear, amounting in the worst decades to an average of twenty years of life expectancy lost by the average male urban wage-earner; and whatever horrors the English statistics showed, the Scottish were invariably even worse.[276] Nor is this surprising when we read the hair-raising accounts of housing and sanitary conditions which became the rule in London and the major towns, and which even today sicken and dismay the reader. If

there had been slums before, the industrial revolution multiplied them, both absolutely and as a proportion of the total.[277]

Conditions within the factories have also been disputed, and there are those who today believe the defensive statements of the factory-owners, and of those who were financially dependent on them, to the effect that work in factories was carried out in pleasant and healthy or at least tolerable conditions. But again, measurements of air-space, and indeed the very buildings, survive and stir the imagination. And among those who had no axe to grind and who saw the mills and mines for the first time before they had time to become gradually inured to them, the horror was genuine and intelligible.[278] It was significant that at first only the riff-raff, the paupers, the displaced Highlanders and discharged soldiers went into the factories; and even later, many entered only as a last resort. As the first generation of the new proletariat was alienated from work and the family-based community, it sought solace in drink or in millennial religion, both of which made it harder for them to stand up to the new conditions by new methods. The confusion of movements in different directions within the labour market itself inhibited organization and solidarity, which, to be successful, require at least the feeling of a common destiny and firm roots in one milieu or another.

It took a generation – which was a lifetime in industrial Britain – to learn how to deal with industrialism, but in due course it was done. Workers learnt by bitter experience,[279] and after experimenting with all kinds of organization they ultimately evolved the most viable types of trade union.[280] New forms of mass agitation achieved some protective legislation. Hours began to be reduced, by Act of Parliament and by union power, so that the twelve-hour day became common in the 1820s, the eleven-hour day in the 1840s, and the ten-hour day thereafter.[281] Men came to accept the factory discipline; children were taught new skills; housewives learnt to make the best of urban shopping and cooking facilities.[282] Education, introduced in order to improve obedience, also promoted independent thought. Labour not only learnt the 'rules of the game' of capitalist society: it also helped to make its own rules. Town life and industrial change ultimately provided greater intellectual stimulus than rural or small-town life, or even the traditional crafts. The 'fork grinders of Sheffield . . . always confined to the same locality, following a dangerous occupation from boyhood to the grave, in the same slough of local interest, prejudice and passion, bear but a slight moral resemblance to the men of the engineering, building and other trades who are associated in their tens of thousands, who pass continually from shop to shop and from town to town, acquiring information by experience, and rubbing off or lessening stupid

prejudices and personal animosity by constant contact with fresh faces, new ideas, and altered conditions of life'.[283]

The course of wages during the industrial revolution is uncertain. It is doubtful if real wages as a whole increased; and if they did, this gain had to be paid for by longer hours, by more intensive work, and by changes – generally felt to be for the worse – in working conditions. Our uncertainty stems largely from the fact that the movement was not all one way, but that, on the contrary, it reflected contradictory experiences of different groups of workers, in an expanding, industrial capitalism progressing by uneven development in what has recently been aptly called a 'syncopated' process.[284]

The observations of contemporaries were therefore correct. Throughout a period of nearly a century, wages remained somewhere near a level which had come to be accepted as subsistence. This betokens an economy operating essentially in conditions of abundant labour, and it is clear that an elastic labour supply at low cost and a transfer of income from labour to capital were two basic features of the British industrial revolution. This was a remarkable phenomenon in view of the vast expansion in the demand for labour and in output per head, which required massive, repeated, and complex internal shifts of labour. The labour market was rigged in such a way as to allow the labour supply to react sensitively to detailed attractions and repulsions while remaining in a state of overabundance as a whole. It was only when labour found its feet, in the second half of the nineteenth century, that a true labour market – one in which the supplier had at least a semblance of power – began slowly to emerge.

VII. *The Century since 1850*

About the middle of the nineteenth century there occurred a significant change in the development of the labour market in Britain. In the nature of things, no exact dating is possible, but the change was well on its way in the boom of 1845–6 and was largely completed in the boom years to 1857. Briefly, and in a greatly simplified way, it could be characterized as a change from a situation in which real wages remained constant, thus representing a falling share of a rising national income, into an economic system in which real wages rose in step with national income, thus remaining a constant share of a steadily rising total.

In superficial terms, it is not hard to see why this should have been so. An elementary model may make the basic difference clear. Suppose an

economy using traditional methods in which a single major invention *reduces the labour costs of making a certain product – say cotton* yarn – by 90 per cent, thereby cutting total costs, including enlarged capital and other costs, by one-half. Three extreme solutions for dealing with the new situation may be imagined: (*a*) prices to the buyers of yarn (and therefore quantities produced) are left unchanged, entrepreneurs take the same profit rate as before, and all the benefits go to labour in higher wages; (*b*) prices to buyers (and quantities sold) remain constant as before, wages remain unchanged, and entrepreneurs pocket all the cost savings; or (*c*) the remuneration rates of factors of production remain the same, but selling prices are cut by fully one-half on (presumably) increased sales. Each of these improbable positions could be envisaged as the point of a triangle within which the actual solution must lie.[285] The problem is to find the actual locus of the distribution in relation to the three reference points.

Solution '*a*' is clearly the most unlikely. It is difficult to see why entrepreneurs should go to the trouble of venturing more capital and new methods without benefit to themselves; it is still more difficult to see how labour, hard pressed by the redundancies arising from the innovation, could hold its wage rates, let alone increase them, while everyone else was being sent away empty-handed. Solution '*b*' is somewhat more plausible. Certainly, unless we assume unlimited supplies of capital, the greater demand for capital will raise its price, if only slightly, to tempt resources away from hoards, from other uses, or from consumption. If a monopoly in the new method exists, say by the grant of a patent, solution '*b*' might be approached quite closely. Otherwise it will exert some pull, but not much.

In a competitive world, solution '*c*' will be the most powerful magnet, leading at once to sharp price reductions to the public, quickly followed by increases in quantities produced – increases which, depending on elasticities, may absorb part, or all, or even more than the total of the labour made redundant by the new device. This, in turn, will require much new capital, which may lead to an increase in its price and a move away from solution '*c*'. In a society with the features of eighteenth-century Britain, the upshot will be a point very near (*c*) – i.e. a sharp reduction in cotton yarn prices – but swinging to the (*b*)–(*c*) side, well away from the (*a*) apex of the triangle. The effects on real wages will be small; if, as in the case of cotton, the major portion of the output is exported, the contribution of lower cotton yarn prices to real wages will be negligible and may well (as the early cotton inventions did) benefit the foreign consumer of British exports much more than the workers in the cotton industry.

Now suppose a similar invention, not as an isolated event, but as part

of a stream of such cost-reducing innovations, including both capital- and labour-saving examples, impacting upon a dynamic world in constant process of adjusting to, but never quite catching up with, earlier and similar disturbances. Competition will still tend to drive the market towards the (*c*) apex, but in the supplies both of labour and of capital each industry will have to meet the opportunity cost of other progressing industries if it is to attract any additional quantities. In the case of labour, there is now no longer an 'unlimited supply' available outside the system; and since there is no reason to suppose that the flow of innovation will affect the overall level of employment as such, industries reducing costs in high-elasticity markets will have to attract labour away from industries in which there are no cost-reducing innovations, or in which reductions in labour cost lead to less-than-proportionate increases in demand. In the case of capital, the nearer the market had been to (*b*) in an earlier phase, the higher the capital accumulation, and therefore the more effective the weakening of the magnetic powers of point (*b*) in the following phase. But the general tendency of drifting to (*c*) – i.e. the real cost reductions to consumers – will now automatically raise real wages, unless the market is driven even further away from point (*a*) than before. A constant location of the market point over time will mean that labour shares fully in the growth of national income by way of reductions in costs.

If we now introduce some of the complications of the real world, and take the watershed around 1850 in Britain to represent in principle a transition from a situation approximating to the first model to one more akin to the second, it will be seen that the major differences between two periods are: (i) an end of a totally elastic labour supply from outside the system; (ii) a powerful force, outside the labour market itself, raising real wages 'automatically' via real cost reductions; and (iii) probably an easier supply of capital, reducing the chances of a continued one-sided gain by capital. Further complications may easily be introduced in the interest of greater realism: we may postulate changes in the value of money, so that higher real wages have to be fought for in terms of higher money wages rather than accruing at constant money wages simply by falling prices; or we may investigate the complex process by which wages in industries without technical progress, or in those suffering reductions in demand, are kept fairly but not wholly in step with wages in the favoured industries showing drastic cost reductions or increases in demand. In our model the market point may be located anywhere within the triangle, depending on innumerable complex factors.

In point of fact, a large proportion of the economic literature published in the past century has been concerned with precisely this ques-

tion of its location. It is a debate into which we cannot enter here except to note that – in contrast with the presumptions on the phase of industrialization up to 1850, which were remarkably uniform among economists to the point of unanimity – there has been no agreement regarding the phase after *c.* 1850, covering the mature industrialized economy. Different theories have assumed wages to have formed a rising, constant, falling, or variable share of the national product, and real wages in the absolute sense to have taken an equally erratic course. Moreover, the concept of real wages, still more that of wages as a share of GNP, is itself a highly dubious one. For apart from the universal problem of defining 'real wages' and 'average wages' or earnings, particularly for a working force of changing composition, there is – as the economic structure redefined itself as mainly one of employers and employees – the additional difficulty of the changing ratio of wage-earners to all income-earners. In the phase of industrialization itself, the proportion of wage-earners in the population increased at the expense of peasants, independent handicraftsmen, and others. But in the mature economy the proportion fell, particularly in the last fifty years, when there occurred a dramatic rise in the numbers of white-collar workers, professional people, and other salary-earners.[286] If, say, in a given period the proportion of wage-earners among all occupied had fallen from 75 per cent to 60 per cent – a fall of one-fifth – and wages had fallen similarly by one-fifth from 40 per cent of all incomes to 32 per cent, would this constitute a proportional fall in wages, a constant share, or even a rise, in view of the fact that those promoted upwards into the salariat had been the better-paid section and that the remainder might have been expected to earn lower wages on average?

Bearing in mind the wide range of uncertainties, and the substantial increase in GNP and in GNP per head over this period, the stability of the share of wages shown by the available statistics is truly remarkable, as is the ratio of the wage levels to other income levels. In view of the ambiguities, no single indicator of these ratios would be adequate, and we therefore reproduce three of the most commonly used ratios here.

The simplest is the share of annual wage incomes in total incomes. Most wage statistics for the pre-1914 years are based on the work of A. L. Bowley, whose definition of wages excluded all salaries except those paid to shop assistants. The national income figures are those of Prest.[287] Various minor adjustments may be made to link the pre-1914 series with those of the war years and after. Table 35 is based on the series computed by Brown and Hart in 1952.

Although the annual figures show somewhat greater variations than the five-year averages, the extremes being a peak of 42·7 (1893) and a trough of 36·6 (1913), it is still evident that Keynes was right to stress

that 'the stability of the proportion of the national dividend accruing to labour, irrespective . . . of the level of putput as a whole and of the phase of the trade cycle . . . is one of the most surprising, yet best-established, facts in the whole range of economic statistics, both for Great Britain and for the United States', and to reflect that 'the result

Table 35. *Shares of Wages and Wage-Earners, 1870–1950*

Annual averages	Wages as percentage of national income	Wage-earners as percentage of occupied population
1870–4	40·7	83·7
1875–9	41·5	82·7
1880–4	40·0	81·7
1885–9	40·1	80·8
1890–4	41·9	79·7
1895–9	40·7	78·7
1900–4	40·3	77·5
1905–9	38·0	75·9
1910–13	37·3	74·6
1924–9	41·1	72·7
1930–4	41·2	72·1
1935–9	39·4	71·6[a]
1940–4	38·9	—
1945–50	41·3	66·3[b]

[a] Average 1935–8.
[b] Provisional figures for 1948–50.

SOURCE. E. H. Phelps Brown and P. E. Hart, 'The Share of Wages in National Income', *Economic Journal*, LXII (1962), pp. 276–7, Table 1, Appendix.

remains a bit of a miracle'.[288] Bowley, who was equally struck by this stability, was led to the conclusion that 'the constancy of so many of the proportions and rates of movement . . . seems to point to a fixed system of causation and has the appearance of inevitableness'.[289]

It should be borne in mind that wage proportions vary greatly among different industries,[290] so that there must have been an uncanny compensatory industrial redistribution to arrive at such constancy. But what is perhaps even more 'miraculous' is that this stable share was paid to wage-earners, who formed a steadily declining proportion of the population and who therefore appeared to receive an increasing portion of the national dividend *per head* while taking a similar portion *as a group*. Clearly, the stability of around 40 per cent for wages depended in part on definitions of the terms 'wages' and 'salaries', and if a stable functional relationship is considered remarkable, this kind of stability

– *which must be the result of compensatory movements, with fewer* people receiving relatively more per head – is even more noteworthy.[291]

The share of 'income-earners' as a whole, far from remaining stable, was in fact rising sharply throughout this period at the expense both of rents and of profits and interest, as is shown in Table 36. The rising elements were salaries and employers' statutory insurance contributions.

Table 36. *Distribution of Total National Income and GNP, 1860–1968 (per cent)*

	Share of national income			Share of GNP			
Average for decade	Wages and salaries	Rents	Profits, interest, and mixed incomes	Wages	Forces' pay	Employers' contributions	Salaries
1860–9	48·5	13·7	38·9	38·7		—	6·5
1870–9	48·7	13·1	38·2	38·9		—	6·3
1880–9	48·2	14·0	37·9	38·6		—	7·6
1890–9	49·8	12·0	38·2	39·5		—	8·5
1900–9	48·4	11·4	40·2	38·0		—	9·7
1910–14	—	—	—	34·5	2·0	—	10·8
1920–9	59·7	6·6	33·7	38·0	1·7[a]	2·0[a]	16·6[a]
1930–9	62·0	8·7	29·2	37·4[b]	1·5[b]	2·5[b]	18·1[b]
1940–9	68·8	4·9	26·3	39·3[c]	3·6[c]	3·3[c]	19·1[c]
1950–9	72·4	4·9	22·7	39·3	2·1	4·2	20·6
1960–8	74·1	5·4	20·5	37·8[d]	1·6[d]	4·9[d]	23·1[d]

[a] 1921–9.
[b] 1930–8.
[c] 1946–9.
[d] 1960–3.

SOURCES

National income. Feinstein, 'Changes in the Distribution of National Income', in Marchal and Ducros (eds.), *Distribution of the National Income* (1968), based on Table 2, p. 119.

GNP. Deane and Cole, *British Economic Growth*, 245 and 247; for 1960 onwards, *National Income and Expenditure* (annual).

Although it might appear at first sight that labour alone also gained, since it formed a falling proportion of earners obtaining a stable share, this conclusion might well be misleading. For one thing, the additional non-wage-earners in the population consisted to a substantial extent of traditionally low-paid groups,[292] such as female clerks; and for another, a large proportion of the 'salaried' people were identical with the owners and partners of earlier decades, before the spread of the joint-stock form of organizing, whose income would then have come under

the category of profit and interest. Even though, as Table 37 shows, there appears to have been a substantial shift of incomes from 'property' to 'labour' during the two world wars (the peacetime years between showing remarkable stability), it is not clear how much of this arose from an actual transfer and how much from a change in classification.

Table 37. *Distribution of GDP (per cent)*

	Labour	Property
1910–14	60·2	39·8
1921–4	70·6	29·4
1935–8	70·0	30·0
1946–9	74·3	25·7
1960–3	74·5	25·5

SOURCE. Feinstein, 'Changes in the Distribution of National Income', Table 5, p. 126.

It was to isolate this factor of numbers that Brown and Browne developed an elaborate alternative set of measurements for the share of labour in the British economy, as well as in four other economies. This measure, called the wage–income ratio, compares the total incomes of those employed with total incomes within industry – i.e. (generally) mining, manufacturing, transport, public utilities, and construction (see Table 38). Other sectors have been omitted because of the high

Table 38. *Wage–Income Ratios (annual averages)*

1871–4	61	1905–9	66
1875–9	70	1910–13	65
1880–4	71	1924–9	70
1885–9	72	1930–4	72
1890–4	70	1935–8	64
1895–9	65	1949–54	78
1900–4	64	1955–9	81

proportion of self-employed persons, for whom the wage element cannot be isolated. Although there are some exceptional years, such as 1873 (ratio = 54 per cent) and 1879 (79 per cent), the wage/income ratio, thus defined, remained remarkably stable over long periods, though it showed a substantial shift after the Second World War.[293]

Brown and Browne explain this long-term stability, both in Britain and in the other countries studied, in part by the stability of the other elements in the national income. Given the identity $S \equiv 1 - rk$, where S is the share of labour in the product, r the rate of profit, and k the

capital–output ratio,[294] a profit rate of around 10 per cent and a capital–output ratio of 2·5 will produce a wage–income ratio of around 0·75, as $1 - (0{\cdot}10 \times 2{\cdot}5) = 0{\cdot}75$. However, it is not clear why the other two elements should be stable or move in a compensating way in the long period.

A third type of measure has been developed out of the Cobb–Douglas function and relates wages and salaries to total value added in manufacturing. By this measure also, though the ratios between different industries vary widely, the ratios for developed countries jointly and severally have stayed remarkably stable at 50 per cent over long periods.[295]

In the century of so since 1850 the national product, absolutely and per head, has multiplied several times over; and in that growth, drastic changes in the structure of industry and of the economy have taken place. Yet throughout that period wages, far from hovering around subsistence or any other fixed level, have clung like leeches to the upward curve of the national product, giving labour a closely proportionate share of the increase.

The result can be seen in the increase in real wages over the same period, shown in Table 39. These averages hide a multitude of relative internal changes, between industries, between occupations, and

Table 39. *Index of Real Wages*

Average of years	Average wages (not allowing for unemployment): Wood (1850 = 100)	Wages: Bowley (1914 = 100)	Average weekly real earnings of adult males in manufacturing: Min. of Labour (1958 = 100)	Approximate continuous series (1850 = 100)
1850–9	100	—	—	100
1860–9	111	—	—	111
1870–9	130	—	—	130
1880–9	146	—	—	146
1890–9	171	—	—	171
1900–9	196	100	—	196
1910–14	—	98	—	193
1924–9	—	115	—	225
1930–9	—	129[a]	66·2	253
1940–9	—	—	85·6	327
1950–9	—	—	93·9	359
1960–6	—	—	119·7	457

[a] 1930–6.

SOURCES. Based on Mitchell and Deane, *Abstract of British Historical Statistics* (1962), 343–5; London and Cambridge Economic Service and *The Times*, 'The British Economy: Key Statistics, 1902–1966', Table E.

between levels of skills. In the second half of the nineteenth century, the position of the labour 'aristocracy' was being strengthened very substantially in a number of major industries;[296] while in several of the same industries, the contrast with unskilled labourers and helpers increased, and there are indications that the gap between them may have widened.[297] Certainly, the remarkable similarity of a figure of around 30 per cent of the population (or, say, 40 per cent of the working-class population) living in poverty in widely different communities of London, York, and four provincial towns respectively in *c.* 1890, 1900, and 1912–13 – as found by Booth, Rowntree, Bowley, and their collaborators [298] – points to a widening gap between that submerged section and those in receipt of regular wages; though even here the uniformity is deceptive, the poverty being caused in varying proportions by unemployment, casual work, low pay, or the incapacity or death of the male breadwinner.

Yet, bearing in mind the complexities and uncertainties of definition, it is significant that the ratios of labourers' wages to those of the craftsmen they served in five major industries remained fairly constant between 1886 and 1913, averaging 60 per cent in the first year and 58·5 per cent in the last.[299] For the period since then, more detailed data exist, and they show the same noteworthy stability of the ratio:[300]

	1906	1960
Median earnings of unskilled as % of foremen and skilled (6 industries)	61·9	61·9
Median earnings of semi-skilled as % of foremen and skilled (5 industries)	75·7	73·3

Again, this represents not a simple immobility but the compensatory result of diverse movements in diverse directions. In particular, the two wars saw a substantial improvement in the relative position of the lower-paid, partly because over-full employment benefited them relatively more, partly because their particular form of machine-minding labour was in greatest demand, and partly, perhaps, because flat-rate wage increases favoured them marginally; yet it should be noted that the unskilled also gained in 1935–9, when heavy unemployment should have worked against them.[301] In the years after the wars and the post-war booms, however, these gains were whittled down again. It seems as if there were a force to rectify any disturbance of a traditional distribution pattern, no matter how caused.

Women's pay as a percentage of average pay remained stable also, averaging 63 per cent in 1913 and 64 per cent in 1960. The weighted average of women's *earnings* was 54 per cent in 1913–14 and the same in 1960. This result was partly based on the relative decline of the pay of

some typical women's occupations, like clerical and professional work, and on the sharp rise in the remuneration of women in unskilled occupations from an absolute low of 10*s.* or 12*s.* a week pre-war, irrespective of the male rate, to a rate proportional to male earnings. The overall dispersion of men's pay was narrowed, while that for women was widened, between 1911 and 1958, so that again stability was obtained by compensatory movements.[302] Only the highest decile, and the very highest centiles within it, lost out relatively – but this may well be illusory, representing merely the greater need for, and greater skill at, successful tax evasion, rather than a genuine relative decline of the best-paid.

The substantial long-term increases in real wages since *c.* 1850 were accompanied by significant reductions in working hours. The trend to a shorter working week had begun before 1850, enforced by legislation for women and children in textile mills, but thereafter it became more widespread and was achieved as much by trade-union power as by Parliament. It may also be significant that it occurred in several brief periods of strong labour bargaining power, rather than in a slow and piecemeal progression; and since these reductions were not reversed (with the major exception of the miners after the defeat of 1926), there was, over a long period, a strong ratchet effect on the standard working week.

The first major reductions in hours were achieved in the boom years of 1871–4, which were marked by labour shortages, particularly in the capital-goods industries. The engineers won a nine-hour day, which became pretty nearly universal in the metal working trades; the textile hours were reduced from 60 to 56½ to allow for the Saturday half-holiday (and were reduced further to 55½ in 1902), and the London building trades, already working a 56½-hour week, were reduced to 52½–54 hours.

The re-awakening labour movement of the 1890s in Britain and abroad made the 8-hour day one of the central planks of its platform, but in Britain its success was limited to a few individual progressive firms rather than to whole industries which granted an eight- or eight-and-one-half-hour day.[303] The only major success was registered by the miners who after a lengthy struggle achieved a reduction of one hour per shift, belatedly, in 1909.[304] It was the immediate post-war years, 1919 and 1920, that saw the next substantial and general reduction in hours, to make the eight-hour day standard not only in those industries where nine hours had been worked before, but even in those, like steel-making, where twelve-hour shifts had still been common. A further slight reduction to a nominal seven- or seven-and-one-half-hour day followed after the Second World War, though actual hours

of labour (including overtime) continued to average 46 to 48 a week. By that time a fortnight's annual holiday with pay had also become the norm.[305] The same time-span of a century also saw the enactment of compulsory schooling and the consequent elimination of, first, children under ten years of age, and ultimately all children under fifteen, from the work force, while the share of wage-earning families in the national income remained constant.

There is no obvious method of incorporating the fact of the reduction in hours into the concept of division of the national product between wages and other shares. On the face of it, it looks as though labour gained the whole of the increase in leisure while paying only its fractional share of the cost of lowered output, so that it gained at the expense of the other factors of production. In fact, the process was a much more complex one.

In the earlier decades of industrialization, the changeover to new processes had generally meant longer (or more regularly longer) hours, together with greater intensification of work, at roughly constant real wages. This crude method of achieving higher returns on capital, pursued by an unsophisticated entrepreneurial class, was bound to be self-defeating beyond a certain point. If one started with an overtired, listless, and underfed proletariat – this stage was reached at different times in different industries, but the incidence bunched in the 1830s and 1840s – it was soon found by the experience of enlightened employers, and by others under compulsion of law, that higher returns could be achieved by shorter hours, by better pay and conditions, or by the substitution of adult for child labour. This discovery involved the shock of recognizing workers not merely as automatons with 'hands', but as human beings with a complexity of motives, abilities, and potential contributions to their firms. In place of the three simple variables – time of attendance, intensity of work, and wage, the first two to be kept as high, the other as low as possible – there was discovered a multiplicity of variables, relating to motives, skill, responsibility, and so on, and it was by no means clear at what combination of these the optimum results would be obtained.

Once the process had started, it acquired a logic and momentum of its own. Given more leisure and higher pay, workers could build up their trade unions; given the incentives, they could react more positively to monetary rewards, to status and responsibility, to invitations to loyalty and respectability. Every reduction in hours withdrew some labour from the market and in the long run strengthened labour's bargaining power for more pay, just as the surviving sweated trades spiralled in the opposite direction into ever worse conditions by weakness engendered by long hours and starvation. In this respect, also, the

equilibrium position, which once had been fairly clearly definable, became wholly indeterminate. The framework of the labour market as a whole had changed radically, accompanied by all manner of variations, vagaries, and relapses in individual industries.

With the field wide open, what influence did in fact lift wages in general proportionately with national income? One approach to this long-term question might be an inquiry into the influences which have affected the short-term, cyclical variations in wages and wage shares of the national income. Broadly, two types of answers have been offered: those that seek to derive wage changes from the state of the demand for labour, and those that seek to derive them from the militancy or 'pushfulness' of the trade unions.

Among the former, the greatest success has been achieved by using unemployment as an indicator of the demand for labour, and thus linking wage changes with the rate of unemployment. The approach is particularly associated with Professor A. W. Phillips, and a considerable literature now exists on the 'Phillips relation',[306] which links the *rate of change* of wages with the *rate* of unemployment as well as the *rate of change* of unemployment. Thus for the first part of the period investigated, namely 1862–1913, Lipsey found that over 80·6 of all wage changes can be 'accounted for econometrically by changes in these two variables.[307]

What is perhaps most remarkable about Phillips's findings is that a single formula, without any 'shifts', can be used for the whole of the period covered by him, 1861–1957, even though it falls into three distinct phases, separated by the two world wars. From one point of view, the years to 1914 should be described as having moderate rates of unemployment, with strong cyclical characteristics; the years 1919–39 as suffering very heavy unemployment, with strong cyclical characteristics; and the years after 1945 as exhibiting very low unemployment on a weak cycle. As far as other relevant variables are concerned, the trade unions in period one would have to be described as weak, rising (after 1910) to moderate, in period two as starting strong and falling to moderate, and in period three as very strong. Price movements showed equally strong variations as between the three phases, although it may well be that it was precisely the compensatory movements of prices which kept the ratios similar in all three phases, despite the other massive secular shifts. Thus, if it could be assumed that the labour market had become in some way immune to the heavy unemployment of the 1920s and 1930s, leading to smaller wage cuts than similar rates of unemployment would have provoked before 1914, it was also the overall decline in world prices (particularly import prices) which kept real wages up to the 1862–1913 curve; and similarly,

even if the economy might have become immune to the wage push of the very low unemployment rates of phase three after 1945, it was also world price rises which limited real wage increases, in an uncertain mixture of demand pull and cost push. Lipsey, indeed, re-working Phillips's figures, found that after 1918, contrary to Phillips's own deductions, wages reacted much more to prices than to unemployment rates or changes of rates.[308]

Phillips himself had allowed that price changes (at least beyond a minimum threshold) might act to disturb the relationship between unemployment and wages; and both Phillips and Lipsey recognized that trade-union power might also have some influence in this respect.[309] Moreover, the Phillips–Lipsey curve has a very peculiar slope. It is highly elastic at low levels of unemployment, indicating that as the economy approaches full employment a further increase in the demand for labour (as shown by a further reduction in unemployment) would lead to a disproportionately large increase in wages. At high unemployment, however, the curve is very inelastic, further reductions in employment opportunities leading to only very slight cuts in wages. This asymmetry or non-linear relationship is explained by Phillips by the mechanism of the labour market: 'when the demand for labour is high . . . we should expect employers to bid wage rates up quite rapidly', whereas 'on the other hand it appears that workers are reluctant to offer their services at less than the prevailing rates when the demand for labour is low'.[310] It is difficult not to associate that reluctance with the attitude and power of the trade unions.[311]

Trade-union power is, in fact, the other major cause to which short-term wage changes have been attributed. It has found its most elegant expression in the work of A. G. Hines,[312] who related wage changes in his period (which is some thirty years shorter than the period covered by Phillips) to trade-union 'pushfulness', measured by the rate of change in union membership rather than by absolute numbers. However, for the period 1921–61, excluding the war years, Hines also found a correlation between the level of unionization and changes in wages.[313] Against this, he found that the level of unemployment made no 'significant contribution' to the rate of unionization except for the period 1893–1912.[314] It is particularly regrettable that the data did not allow him to push the analysis further back in time to see if this exception held good generally before 1914, even if it failed to explain the changes after 1919,[315] for the independence of the variable of union 'pushfulness' is clearly the weakest link in the chain of the argument. *A priori*, it does not seem plausible that accessions to trade union membership should have no connection with the state of the labour market, the success of other wage demands, or the recent history of wage changes

in the industry concerned, even though they may also have exogenous causes, like political agitation, or may even be correlated with a learning process and thus may be a function of time.

It is not altogether surprising that the Hines formula does not hold unchanged for the whole period, and different slopes indicate certain shifts in the numerical value of the constants as between the three phases of the period which are separated by the two world wars. Again, empirically one would expect different reactions to accretions of union strength when these occur to weak unions as compared with strong ones, and expect similar accessions of members to count for far more among unions that have scarcely won recognition (typical for the 1890s) than they would count among unions that enjoy the prestige of having become part of the Establishment in the 1940s and 1950s. Certainly one would expect unions at the time of their effective creation or resuscitation to register more-than-normal, once-for-all wage gains for their members.[316] But if in the years before 1914 and especially before 1910, when trade-union membership was very unevenly distributed, high union density coincided in general with high wages, it was by no means clear which was cause and which was effect.[317]

Both the Phillips and the Hines theories have been criticized in detail as explanations of short-term, cyclical wage changes. From our point of view, attempting to find explanations for the behaviour of wages in the long run, the outstanding conclusion is the powerlessness of the factors which evidently weigh so heavily in the short run.[318] For the period of 1919–39, as compared with the long decades of peace before 1914, it could be argued that the two kinds of influences cancelled each other out: massive unemployment, showing a relatively low level of demand for labour, tended to lower relative wages, while substantial accretions to union strength, especially in the 1930s, pushed them up, leaving their share where it was. After 1945, however, both full employment and a high level of trade-union power ought to have worked in the same direction, yet they did not lead to a shift in the distribution of incomes but merely provided the steam behind the inflation in the economy. It is as if a force of gravity, or rather (to use an apter metaphor) a gyroscope, kept wages going in the same direction as national income, overriding any separate pulls affecting the demand and supply of labour.

It is noteworthy that all the most thorough of the studies of the long-term labour markets in the United Kingdom, like those of Brown and Browne or of Routh, in the end not only have to admit a variety of directly measurable influences on the share of wages, some being active and others permissive, but also have to fall back on some imponderable

or other which either tends to beg the question or else throws the discussion back on to a further line where it cannot be pursued. Thus Brown and Browne had to admit the limitations of their analysis by concluding that (within certain tolerances themselves depending on such imponderables as employers' expectations of their future markets) 'the rate of rise of money wages depended on the vigour with which claims were pressed'.[319] Routh, covering a substantially shorter period in his empirical observations, quoted with approval a statement by Elliott Jacques that 'payment at the equitable level is intuitively experienced as fair relative to others . . . Deviations in payment below the equitable level are accompanied by feelings of dissatisfaction which *become stronger the greater is the deviation*'; *and Routh added: 'There* is something elemental in this attachment of a person to his level of income, measured in terms of its purchasing power . . . and in terms of the earnings of other occupations, that is not unlike the attachment of an animal to its young'.[320] The constancy of the wage share, and of the relationship of different wages to each other, may thus be explained by paths which economic science cannot tread.

We have observed many examples, and many more could be produced, showing that the apparent constancy of shares and apparent equilibrium in the labour market were due not so much to single natural (or metaphysical) causes, but to the complex balance of compensatory movements. The longer this phase lasts, however, and the more resilient the system is, the less plausible does it become to put these compensations down to a series of accidents, and the more are we obliged to assume the existence of Galbraithian countervailing power itself as an inherent characteristic of the system. Whether it be that the forces affecting the bargaining power of labour also affect the bargaining power of capital, so that in slumps and deflation both are weakened, and in booms and inflation both are strengthened; whether there is a sense of justice which is outraged by changes, and a past which imposes itself on economic reality far more than economic speculation has ever admitted; or whether the power of capital calls forth trade unionism, and trade unions call forth employers' federations, and the strengthening of each leads to a strengthening of the other, just as the use of political power by one leads to the use of political power by the other in classic countervailing manner: the outcome has been that shares have been broadly unchanged and the labour market broadly neutral and in balance, over more than a century.

The empirical data have shown a major switch in the behaviour of the labour market around the middle of the nineteenth century.[321] They are consistent with a view of the century before that turning point as a period of fundamental social transformation and realignment of classes,

a period in which the wage-labouring class was being created in its modern and recognizable form, under conditions which put it at a sustained disadvantage and perhaps made that disadvantage a necessary *engine of the transformation itself. Since that turning point much has* changed, and wages, in terms of what they can buy, have increased four- or five-fold, keeping in step with national income per head. Yet the changes have been essentially of quantity, not of quality. The fundamental structure of society has not altered in the past century or so, and among the constancy of relationships one of the most remarkable has been the share of labour in the national product.