

*Factory Discipline in the Industrial Revolution.*¹

BY SIDNEY POLLARD

It is nowadays increasingly coming to be accepted that one of the most critical, and one of the most difficult, transformations required in an industrializing society is the adjustment of labour to the regularity and discipline of factory work.² Current interest in this process has led to a certain amount of re-examination of the experience of Britain during the corresponding period of her development.³ Much more requires to be known, and only detailed research can add to our knowledge. The present article is less ambitious: it seeks to further the discussion by examining briefly the evidence available so far, and drawing some tentative conclusions. The subject will be treated analytically rather than historically, that is to say, the first generation of factory workers will be examined, irrespective of its appearance at different times in different industries.

I

The worker who left the background of his domestic workshop or peasant holding for the factory, entered a new culture as well as a new sense of direction. It was not only that 'the new economic order needed ... part-humans: soulless, depersonalised, disembodied, who could become members, or little wheels rather, of a complex mechanism'. It was also that men who were non-accumulative, non-acquisitive, accustomed to work for subsistence, not for maximization of income,⁴ had to be made obedient to the cash stimulus, and obedient in such a way as to react precisely to the stimuli provided.

The very recruitment to the uncongenial work was difficult, and it was made worse by the deliberate or accidental modelling of many works on workhouses and prisons, a fact well known to the working population. Even if they began work, there was no guarantee that the new hands would stay. 'Labourers from agriculture or domestic industry do not at first take kindly to the monotony of factory life; and the pioneering employer not infrequently finds his most serious obstacle in the problem of building up a stable supply of efficient and willing labour'. Many workers were 'transient, marginal and deviant', or were described as 'volatile'. It was noted that there were few early manu-

¹ This paper is part of a wider study of management in the Industrial Revolution, made possible by a grant from the Houlton-Norman Fund of the Bank of England.

² C. Kerr, John T. Dunlop, F. H. Harbison, C. A. Myers, *Industrialism and Industrial Man. The Problems of Labour and Management in Economic Growth* (1962), pp. 193 ff.

³ Neil McKendrick, 'Josiah Wedgwood and Factory Discipline', *Historical Journal*, IV (1961).

⁴ Werner Sombart, *Der Moderne Kapitalismus* (Leipzig, 3rd ed., 1919), pp. 809 ff., 829-31; and *Das Wirtschaftsleben im Zeitalter des Hochkapitalismus* (Munich and Leipzig, 1927), I, 424-30.

factures in the seaport towns, as the population was too unsteady, and Samuel Greg, Jr. complained most of the 'restless and *migratory* spirit' of the factory population. Thus it was not necessarily the better labourer, but the stable one who was worth the most to the manufacturer: often, indeed, the skilled apprenticed man was at a discount, because of the working habits acquired before entering a factory.¹ Roebuck and Garbett left Birmingham for Prestonpans in order, *inter alia*, to escape the independence of the local workers for the 'obedient turn of the Scots', while Henry Houldsworth found hand spinners to have such irregular habits that the introduction of machine spinning in Glasgow 'rendered it desirable to get a new set of hands as soon as possible.'²

Elsewhere in Scotland even the children found the discipline irksome: when the Catrine cotton mills were opened, one of the managers admitted, 'the children were all newcomers, and were very much beat at first before they could be taught their business'. At other mills, 'on the first introduction of the business, the people were found very ill-disposed to submit to the long confinement and regular industry that is required from them'. The highlander, it was said, 'never sits at ease at a loom; it is like putting a deer in the plough'.³

In turn, the personal inclinations and group *mores* of such old-established industrial workers as handloom weavers and framework knitters were opposed to factory discipline. 'I found the utmost distaste', one hosier reported, 'on the part of the men, to any regular hours or regular habits ... The men themselves were considerably dissatisfied, because they could not go in and out as they pleased, and have what holidays they pleased, and go on just as they had been used to do; and were subject, during after-hours, to the ill-natured observations of other workmen, to such an extent as completely to disgust them with the whole system, and I was obliged to break it up.'⁴

As a result of this attitude, attendance was irregular, and the complaint of Edward Cave, in the very earliest days of industrialization, was later re-echoed by many others: 'I have not half my people come to work to-day, and I have no great fascination in the prospect I have to put myself in the power of such people.'⁵ Cotton spinners would stay away without notice and send for their

¹ A. Redford, *Labour Migration in England, 1800-50* (Manchester, 1926), pp. 18, 20; Neil J. Smelser, *Social Change in the Industrial Revolution* (1959), p. 105; T. Garnett, *Observations on a Tour Through the Highlands* (1811 ed.), I, 23; A. Ure, *The Philosophy of Manufactures* (2nd ed. 1835), pp. 15, 20-1; R. S. Fitton and A. P. Wadsworth, *The Strutt and the Arkwrights, 1758-1830* (Manchester, 1958), p. 221; Charles Wilson, 'The Entrepreneur in the Industrial Revolution in Britain', *History*, XLII (1957), 115; Frances Collier, *The Family Economy of the Workers in the Cotton Industry During the Period of the Industrial Revolution, 1784-1833* (M.A. Thesis, Manchester, 1921), p. iii; Dipak Mazumdar, 'Under-employment in Agriculture and the Industrial Wage Rate', *Economica*, n.s. XXVI (1959), 334 ff.

² Fitzmaurice, *Life of William, Earl of Shelburne* (2nd ed. 1912), I, 278; *Select Committee on the Children Employed in the Manufactories of the United Kingdom*, Parl. Papers, 1816, III, p. 234.

³ *Factories Inquiry Commission* (referred to henceforth as 'Factories Commission'), First Report, Parl. Papers 1833, XX, A. 1, p. 83, ev. Hugh Miller; Richard Ayton, *A Voyage Round Great Britain* (1815), II, 214; M. G. Jones, *The Charity School Movement* (Cambridge, 1938), p. 208; Anon. 'Some Glasgow Customers of the Royal Bank around 1800', *The Three Banks Review*, 48 (1960), 39.

⁴ *Committee on the Woollen Manufacture of England*, P.P. 1806, III, ev. Robert Cookson, p. 70, Wm. Child, pp. 103-4, John Atkinson, p. 116; H. D. Fong, *Triumph of the Factory System in England* (Tientsin, 1930), pp. 180-1; also A. P. Usher, *An Introduction to the Industrial History of England* (1921), p. 350; Herbert Heaton, *The Yorkshire Woollen and Worsted Industries* (Oxford, 1920), p. 353.

⁵ A. P. Wadsworth and Julia De L. Mann, *The Cotton Trade and Industrial Lancashire: 1600-1780*

wages at the end of the week, and one of the most enlightened firms, McConnel and Kennedy, regularly replaced spinners who had not turned up within two or three hours of starting time on Mondays, on the reasonable presumption that they had left the firm: their average labour turnover was 20 a week, i.e. about 100 per cent a year.¹

Matters were worse in a place like Dowlais, reputed to employ many runaways and criminals, or among northern mining companies which could not guarantee continuous work: 'the major part of these two companies are as bad fellows as the worst of your pitmen baring their outside is not so black', one exasperated manager complained, after they had left the district without paying their debts. Elsewhere, ironworks labourers, copper and tin miners and engineering labourers deserted to bring in the harvest, or might return to agriculture for good if work was slack.²

'St Monday' and feast days, common traditions in domestic industry, were persistent problems. The weavers were used to 'play frequently all day on Monday, and the greater part of Tuesday, and work very late on Thursday night, and frequently all night on Friday'. Spinners, even as late as 1800, would be missing from the factories on Mondays and Tuesdays, and 'when they did return, they would sometimes work desperately, night and day, to clear off their tavern score, and get more money to spend in dissipation', as a hostile critic observed.³ In South Wales it was estimated as late as the 1840's that the workers lost one week in five, and that in the fortnight after the monthly pay day, only two-thirds of the time was being worked.⁴

As for the regular feasts, 'our men will go to the Wakes', Josiah Wedgwood complained in 1772, 'if they were sure to go to the D—I the next. I have not spared them in threats and I would have thrash'd them right heartily if I could'. Again, in 1776, 'Our men have been at play 4 days this week, it being Burslem Wakes. I have rough'd & smoothed them over, & promised them a long Xmass, but I know it is all in vain, for Wakes must be observed though the World was to end with them'. Soho was beset by the same troubles.⁵

¹ *Lords' Committee on the Bill for the Preservation of the Health and Morals of Apprentices*, P.P. 1818, XCVI, pp. 147, 168, 175. Also cf. Oliver Wood, *The Development of the Coal, Iron and Shipbuilding Industries of West Cumberland, 1750-1914* (Ph.D. Thesis, London, 1952), pp. 138-9; R. H. Campbell, *Carron Company* (Edinburgh and London, 1961), p. 65. Turnover was lower in the country: Strutt's was only 16 per cent a year, and John Marshall's, in a Leeds suburb, 20 per cent. Fitton and Wadsworth, *op. cit.* p. 239; W. G. Rimmer, *Marshalls of Leeds, Flax Spinners, 1788-1886* (Cambridge, 1960), p. 106; Redford, *op. cit.* p. 20.

² Charles Wilkins, *The History of the Iron, Steel, Tinplate and Other Trades of Wales* (Merthyr Tydfil, 1903), p. 258; *William Brown's Letter Book 1749-56* (MS. North of England Inst. of Mining and Mech. Eng., Newcastle), Leonard Hartley to Brown, 16 Feb. 1755; A. Birch, 'The Haigh Ironworks, 1789-1856', *Bull. of the John Rylands Library*, XXXV (1953), 331; John Rowlands, *A Study of Some of the Social and Economic Changes in the Town and Parish of Amlwch, 1750-1850* (M.A. Thesis, Wales, Bangor, 1960), p. 302; A. H. Dodd, *The Industrial Revolution in North Wales* (Cardiff, 1933), p. 330; John Rowe, *Cornwall in the Age of the Industrial Revolution* (Liverpool, 1953), p. 19.

³ *S.C. on Children in Manufactories*, P.P. 1816, p. 259, ev. Wm. Taylor; A. Ure, *Cotton Manufacture of Great Britain* (1835-6), II, 448; also *Factories Commission*, Second Report, D. 2, p. 36, ev. Peter Ewart; Usher, *op. cit.* pp. 349-50; J. F. C. Harrison, *Learning and Living, 1790-1850* (1961), p. 39.

⁴ A. H. John, *The Industrial Development of South Wales, 1750-1850* (Cardiff, 1950), p. 71.

⁵ Josiah Wedgwood, *Letters to Bentley, 1771-1780* (Priv. Circ. 1903), p. 88 (19 Aug. 1772), p. 295 (5 July 1776). Also McKendrick, *loc. cit.* pp. 38, 46; *S.C. on Children in Manufactories*, ev. Josiah Wedgwood, p. 61; *Boulton and Watt Correspondence* (MS. Birmingham Assay Office), Watt to Boulton, 30 Oct. 1780.

Employers themselves, groping their way towards a new impersonal discipline, looked backwards sporadically to make use of feasts and holidays, typical of the old order in cementing personal relationships and breaking the monotony of the working year. Thus John Kelsall noted in 1725 that Charles Lloyd was 'abroad this day with the workmen etc, coursing' and about the same time, the famous Derby silk mill had an annual feast and dancing at Michaelmas, financed by contributions of the curious visitors in the course of the year. The Arkwrights and the Strutts, standing on the watershed between the old and the new, had feasts in Cromford in 1776, when 500 workers and their children took part, and annual balls at Cromford and Belper as late as 1781, whilst in 1772 the Hockley factory had an outing, led by the 'head workman' clad in white cotton, to gather nuts, and be regaled to a plentiful supper afterwards.¹

Other examples from industries in their early transitional stages include Matthew Boulton's feast for 700 when his son came of age, Wedgwood's feast for 120 when he moved into Etruria, Heathcote's outing for 2,300 from Tiverton, and the repast provided by the Herculanum Pottery at the opening of its Liverpool warehouse in 1813.² Conversely, the Amlwch miners organized an ox-roast in honour of the chief proprietor, the Marquis of Anglesea, when he passed through the island on his way to take up the Lord-Lieutenancy of Ireland.³ 600 workmen sat down to a roasted ox and plenty of liquor at the Duke of Bridgewater's expense to celebrate the opening of the canal at Run-corn,⁴ and feasts were usual thereafter at the opening of canals and railways, but within a generation it was the shareholders that were being feasted, not the workers, whose relationship with the employers had by then taken on an entirely different character.

Once at work it was necessary to break down the impulses of the workers, to introduce the notion of 'time-thrift'. The factory meant economy of time and, in the Webbs' phrase, 'enforced asceticism'. Bad timekeeping was punished by severe fines, and it was common in mills such as Oldknow's or Braids' to lock the gates of the factory, even of the workrooms, excluding those who were only a minute or two late. 'Whatever else the domestic system was, however intermittent and sweated its labour, it did allow a man a degree of personal liberty to indulge himself, a command over his time, which he was not to enjoy again.'⁵

¹ Kelsall MSS. (Friends' House, London), Diary, 13 Sept. 1725; William Bray, *Sketch of a Tour into Derbyshire and Yorkshire* (2nd ed. 1783), p. 108; Fitton and Wadsworth, *op. cit.* pp. 99-102, 259; Ure, *Philosophy*, p. 344.

² Erich Roll, *An Early Experiment in Industrial Organisation, being a history of the Firm of Boulton and Watt, 1775-1805* (1930), p. 222; H. W. Dickinson, *Matthew Boulton* (Cambridge, 1937), p. 179; E. Meteyard, *The Life of Josiah Wedgwood* (1865-6), II, 126; W. Felkin, *A History of the Machine-wrought Hosiery and Lace Manufactures* (1867), p. 263; *Herculanum Pottery Minute Book* (MS. Liverpool Central Library, 380. M.D. 47) 3 Dec. 1813. Also, e.g. Collier, *Family Economy*, p. 175.

³ *Mona Mine MSS.* (University College, Bangor), nos. 1005, 1009.

⁴ Wadsworth and Mann, *op. cit.* p. 313.

⁵ *Ibid.* p. 391; N. S. B. Gras, *Industrial Evolution* (1930), p. 84; John Brown (ed.), *Memoirs of Robert Blincoe* (Manchester, 1832), p. 59; *Factories Commission*, First Report, A. 1, p. 37, A. 2, p. 8; Campbell, *Carron Company*, p. 71. For freedom in the Welsh Slate Quarries, see Dylan Pritchard, *The Slate Industry of North Wales* (M.A. Thesis, Wales, 1935), p. 71.

By contrast, in the factories, Arkwright, for example, had the greatest difficulty 'in training human beings to renounce their desultory habits of work, and identify themselves with the unvarying regularity of the complex automaton'. He 'had to train his workpeople to a precision and assiduity altogether unknown before, against which their listless and restive habits rose in continued rebellion', and it was his great achievement 'to devise and administer a successful code of factory diligence'. 'Impatient of the slovenly habits of workpeople, he urged on their labours with a precision and vigilance unknown before'.¹ The reasons for the difference were clear to manufacturers: 'When a mantua maker chooses to rise from her seat and take the fresh air, her seam goes a little back, that is all; there are no other hands waiting on her', but 'in cotton mills all the machinery is going on, which they must attend to'. It was 'machinery [which] ultimately forced the worker to accept the discipline of the factory'.²

Regular hours and application had to be combined with a new kind of order in the works. Wedgwood, for example, had to fight the old pottery traditions when introducing 'the punctuality, the constant attendance, the fixed hours, the scrupulous standards of care and cleanliness, the avoidance of waste, the ban on drinking'. Similarly, James Watt had to struggle to introduce cleanliness into the Albion Mills.

Finally, 'Discipline ... was to produce the goods on time. It was also to prevent the workmen from stealing raw materials, putting in shoddy, or otherwise getting the better of their employers'. It allowed the employer to maintain a high quality of output, as in the case of John Taylor and Matthew Boulton in Birmingham, and of Samuel Oldknow at Stockport.³

Works Rules, formalized, impersonal and occasionally printed, were symbolic of the new industrial relationships. Many rules dealt with disciplinary matters only,⁴ but quite a few laid down the organization of the firm itself. 'So strict are the instructions,' it was said of John Marshall's flax mills in 1821, 'that if an overseer of a room be found talking to any person in the mill during working hours he is dismissed immediately - two or more overseers are employed in each room, if one be found a yard out of his ground he is discharged ... everyone, manager, overseers, mechanics, oilers, spreaders, spinners and reelers, have their particular duty pointed out to them, and if they transgress, they are instantly turned off as unfit for their situation.'⁵

¹ Ure, *Philosophy*, p. 15; and *Cotton Manufacture*, pp. 259, 269; Paul Mantoux, *The Industrial Revolution in the Eighteenth Century* (1961 ed.), p. 376.

² *Committee on the Labour of Children in the Mills and Factories of the United Kingdom* (Sadler's Committee), P.P. 1831-2, XV, QQ, 1881-2, 6065-9; Usher, *op. cit.* p. 350; also Gras, *op. cit.* pp. 85-6.

³ J. Kulischer, *Allgemeine Wirtschaftsgeschichte* (Munich, 1958 ed.), II, 459; W. H. B. Court, 'Industrial Organisation and Economic Progress in the Eighteenth-Century Midlands', *Trans. Royal Historical Society*, 4th ser. XXVIII (1946), p. 94; *Mona Mine MSS.* no. 2633, pp. 44-5; McKendrick, *op. cit.* p. 83; J. Lord, *Capital and Steam Power* (1923), pp. 197, 201; Kerr *et al. op. cit.* p. 200; John Kennedy, *Miscellaneous Papers* (Manchester, 1849), p. 18; E. Surrey Dane, *The Economic History of the Staffordshire Pottery Industry* (M.A. Thesis, Sheffield, 1929), p. 14; Llewellyn Jewitt, *The Wedgwoods* (1865), p. 129.

⁴ The best-known codes were those of Josiah Wedgwood (1780), the Soho Foundry (1796), Heathcote's at Tiverton, the Wear cotton mills, Stockport, Alexander Galloway, and John Marshall.

⁵ Rimmer, *op. cit.* p. 119. Belper Round Mill was built like a Benthamite Panopticon prison: an overseer at the centre had a clear view of what went on in all the eight segments. Fitton and Wadsworth, *op. cit.* p. 221.

While the domestic system had implied some measure of control, 'it was ... an essentially new thing for the capitalist to be a disciplinarian'. 'The capitalist employer became a supervisor of every detail of the work: without any change in the general character of the wage contract, the employer acquired new powers which were of great social significance.'¹ The concept of industrial discipline was new, and called for as much innovation as the technical inventions of the age.

Child work immeasurably increased the complexities of the problem. It had, as such, been common enough before,² but the earlier work pattern had been based on the direct control of children and youths, in small numbers, by their parents or guardians. The new mass employment removed the incentive of learning a craft, alienated the children by its monotony and did this just at the moment when it undermined the authority of the family, and of the father in particular.³ It thus had to rely often on the unhappy method of indirect employment by untrained people whose incentive for driving the children was their own piece-rate payment.⁴

In the predominantly youthful population of the time, the proportion of young workers was high. In the Cumberland mines, for example, children started work at the ages of five to seven, and as late as 1842, 200-250 of the 1,300-1,400 workers in the Lonsdale mines were under eighteen. At Alloa collieries, 103 boys and girls of under seven were employed in 1780. In the light metal trades, the proportion was higher still. Josiah Wedgwood, in 1816, had 30 per cent of his employees under eighteen, 3.3 per cent under ten years of age.⁵ The greatest problems, however, were encountered in the textile mills.

The silk mills were dependent almost exclusively on child labour, and there the children started particularly young, at the ages of six or seven, compared with nine or ten in the cotton mills. Typically from two-thirds to three-quarters of the hands were under eighteen but in some large mills, the proportion was much higher: at Tootal's for example, 78 per cent of the workers were under sixteen.⁶ Adults were thus in a small minority.

In the cotton industry the proportion of children and adolescents under eighteen

¹ Usher, *op. cit.* p. 348; Kerr *et al. op. cit.* p. 193.

² E.g. *House of Lords Committee on Apprentices*, P.P. 1818 (V) and 1819 (I and II), App. 34.

³ *Committee on Woollen Manufactures* (1806), ev. Joseph Coope, p. 49; R. M. Hartwell, *The Yorkshire Woollen and Worsted Industry, 1800-1850* (D.Phil. Thesis, Oxford, 1955), pp. 444-6; Smelser, *op. cit.* pp. 190 ff. 231, 269-72. According to the Parliamentary returns of 1816, only 17.7 per cent of the work force in cotton were adult males.

⁴ *Sadler's Committee*, P.P., 1831-2, QQ. 497, 9607-8, 10286; *S.C. on Children in Manufactories*, P.P. 1816, pp. 61, 132, 135, 268; John Thomas, *The Economic Development of the North Staffordshire Potteries since 1730, with Special Reference to the Industrial Revolution* (Ph.D. Thesis, London, 1934), p. 553; John Fielden, *The Curse of the Factory System* (1836), pp. 5, 9.

⁵ O. Wood, *loc. cit.* pp. 130-3; *S.C. on Children in Manufactories*, P.P. 1816, p. 60; D. F. MacDonald, *Scotland's Shifting Population, 1770-1850* (Glasgow, 1937), p. 71.

⁶ *Factories Commission*, First Report, B. 1, pp. 77 ff; *S.C. on Children in Manufactories*, P.P. 1816, pp. 76, 191; *Observations on the Ages of Persons employed in the Cotton Mills in Manchester* (Manchester, 1819), p. 8; G. B. Hertz, 'The English Silk Industry in the Eighteenth Century', *English Historical Review*, XXIV (1909), 724; Sir F. M. Eden, *The State of the Poor* (1928 ed.), p. 171; *Factories Commission*, First Supplement, D. 1, p. 149, D. 3, p. 257; G. R. Porter, *The Progress of the Nation* (1838 ed.), p. 261; *Select Committee on the Silk Trade*, P.P. 1831-2, XIX, Q. 5591, ev. Henry Tootal.

was around 40–45 per cent. In some large firms the proportions were higher: thus Horrocks, Miller and Co. in 1816 had 13 per cent of their labour force under ten years of age, and 60 per cent between ten and eighteen, a total of 73 per cent. The proportion of children under ten was mostly much smaller than this, but in water mills employing large numbers of apprentices it might be greater: New Lanark, under David Dale in 1793, had 18 per cent of its labour force nine years old or younger.¹

In the flax and the woollen and worsted industries, the proportions of workers under eighteen were rather higher than in cotton, being around 50 per cent. Again individual large works show much higher figures. In John Marshall's Water Lane Mill in 1831, for example, 49·2 per cent were under fifteen, and 83·8 per cent altogether under twenty-one.² Further, in all the textile branches the children were largely concentrated in certain sections, such as silk throwing and cotton spinning. In such departments, the difficulties of maintaining discipline were greatest.

II

These, then, were the problems of factory discipline facing the entrepreneurs in the early years of industrialization. Their methods of overcoming them may be grouped under three headings: the proverbial stick, the proverbial carrot, and, thirdly, the attempt to create a new ethos of work order and obedience.

Little new in the way of the 'stick', or deterrent, was discovered by the early factory masters. Unsatisfactory work was punished by corporal punishment, by fines or by dismissal. Beatings clearly belonged to the older, personal relationships and were common with apprentices, against whom few other sanctions were possible,³ but they survived because of the large-scale employment of children. Since the beating of children became one of the main complaints against factory owners and a major point at issue before the various Factory Commissions, the large amount of evidence available is not entirely trustworthy, but the picture is fairly clear in outline.

Some prominent factory owners, like Benjamin Gott, Robert Owen and John Marshall, prohibited it outright, though the odd cuff for inattention was probably inevitable in any children's employment. More serious beatings were neither very widespread, nor very effective. Robert Blincoe's sadistic master was untypical, and large employers frowned on beatings, though they might turn a blind eye on the overlookers' actions. 'We beat only the lesser, up to thirteen or fourteen ... we use a strap', stated Samuel Miller, manager of

¹ Ure, *Cotton Manufacture*, pp. 398–400; *Factories Commission*, First Report, D. 2, p. 107, First Supplement, D. 1, pp. 136A, 123; D. 3, pp. 259–68; *S.C. on Children in Manufactories*, P.P. 1816, pp. 52, 236–7, 258, 261; Sir John Sinclair, (*Old*) *Statistical Account of Scotland* (Edinburgh, 1795), XV, 37; Porter, *op. cit.* p. 273; John Wade, *History of the Middle and Working Classes* (3rd ed. 1835), p. 570, Thomas Ellison, *The Cotton Trade of Great Britain* (1886), p. 72.

² *Factories Commission*, Second Supplement, C. 1: the average of the 19 large West Riding woollen mills with over 200 workers each was 50·5 per cent under eighteen, of whom 14·3 per cent of the total were under twelve. *S.C. on Children in Manufactories*, P.P. 1816, p. 237; Rimmer, *op. cit.* p. 316.

³ E.g. *Factories Commission*, First Report, B. 1, p. 9, E, p. 9; Llewellyn Jewitt (ed.), *Life of William Hutton* (1872), p. 105.

Wilson's mill in Nottingham, one of the few to admit to this to the Factory Commission, 'I prefer fining to beating, if it answers... (but) fining does not answer. It does not keep the boys at their work'. The most honest evidence, however, and the most significant, came from John Bolling, a cotton master. He could not stop his spinners beating the children, he stated, 'for children require correction now and then, and the difficulty is to keep it from being excessive ... It never can be in the interest of the master that the children should be beaten. The other day there were three children run away; the mother of one of them brought him back and asked us to beat him; that I could not permit; she asked us to take him again: at last I consented, and then she beat him.'¹

Dismissal and the threat of dismissal, were in fact the main deterrent instruments of enforcing discipline in the factories. At times of labour shortage they were ineffective, but when a buyers' market in labour returned, a sigh of relief went through the ranks of the employers at the restoration of their power. Many abolished the apprenticeship system in order to gain it,² and without it others were unable to keep any control whatsoever. Where there were no competing mill employers, as at Shrewsbury in the case of Marshall and Benyon's flax mills, it was a most effective threat.

In industries where skill and experience were at a premium, however, dismissals were resorted to only most reluctantly. At Soho Watt lost his temper quickly with engineers who made mistakes and demanded their discharge, but Boulton quietly moved them elsewhere until the storm had blown over. Similarly, John Kelsall, being accused of leniency at his Welsh ironworks, defended himself in his diary with the excuse that 'being strangers in the Country and divers necessities upon us at times', he did well to keep his labour together at all.³

Fines formed the third type of sanctions used, and were common both in industries employing skilled men, and in those employing mostly women and children. They figure prominently in all the sets of rules surviving, and appear to have been the most usual reaction to minor transgressions. Where the employer pocketed the fine there was an additional inducement to levy it freely, and in some cases, as in the deductions and penalties for sending small coal or stones up in the corves from the coal face, these became a major source of abuse and grievance.

Their general level was high and was meant to hurt. Typically, they were levied at 6d. to 2s. for ordinary offences or, say, two hours' to a day's wages.⁴

¹ *Factories Commission*, First Report, C. 1, pp. 44-5, D. 1, pp. 133, 173-4.

² Ure, *Philosophy*, p. 365; *Factories Commission*, First Report, A. 1, p. 84; *Sadler's Committee*, P.P. 1831-2, Q. 1049; *S.C. on Children in Manufactories*, P.P. 1816, pp. 364-5.

³ T. H. Marshall, *James Watt (1736-1819)* (n.d.), p. 125; *Boulton and Watt MSS.* (Birmingham Central Library), Watt to Boulton, 26 Jan. 1789; John Kelsall, *Diary* (MS.), II, end of 10 Mo. 1719; *Sadler's Committee*, P.P. 1831-2, QQ. 5312, 5343.

⁴ G. Unwin et al. *Samuel Oldknow and the Arkwrights* (Manchester, 1924), p. 198; Jean Lindsay, 'An Early Industrial Community. The Evans' Cotton Mill at Darley Abbey, Derbyshire, 1783-1810', *Business History Review*, XXXIV (1960), 299; British Transport Commission (York) Archives, MSS. SAD. 8/107 (Stockton and Darlington); Marshall Papers (MSS. Brotherton Library, Leeds), no. 43; D. Glyn John, *Contributions to the Economic History of South Wales*, I (D.Sc. Thesis, Wales, 1930), Sect. 3, p. 19.

Wedgwood fined 2s. 6d. for throwing things or for leaving fires burning overnight, and that was also the penalty for being absent on Monday mornings in the Worsley mines. At Fernley's Stockport mill, swearing, singing or being drunk were punished by a fine of 5s. and so was stealing coal at Merthyr. Miners were fined even more heavily: average weekly deductions were alleged to be as high as 1s. or 2s. out of a wage of 13s.¹

Deterrence as a method of industrial discipline should, strictly, also include the actions taken against workers' organizations, but as these are well known, they need only be noted briefly here. The law could usually be assumed to be at the service of the employer, and was called into service for two types of offence, breaches of contract and trade-union organization and rioting. Workmen's combinations were widely treated as criminal offences in employers' circles, even before the law made them explicitly such, and in turn, the legal disabilities turned trade disputes easily towards violence, particularly before the 1790's.² In the Scottish mines, serfdom was only just being eradicated, and in the North-East the one-year contract, coupled with the character note, could be used also to impose conditions akin to serfdom; opposition, including the inevitable rioting, was met by transportation and the death penalty not only in the mines, but even in such advanced centres as Etruria as late as 1783.³

Where their powers permitted, employers met organization with immediate dismissal: 'any hands forming conspiracies or unlawful combinations will be discharged without notice' read one rule as late as 1833.⁴ More widespread, however, was the use of blacklists against those who had aroused the employer's disfavour. Little was heard of them, even in contemporary complaints by workmen, but their importance should not be underrated: as more evidence is becoming available, it is increasingly obvious that they were a most important prop of that reign of terror which in so many works did duty for factory discipline.⁵

By comparison with these commonly used examples of the 'stick', more subtle or more finely graded deterrents were so rare as to be curious rather than significant. John Wood, the Bradford spinner, made the child guilty of a fault hold up a card with his offence written on it; for more serious offences, this punishment was increased to walking up and down with the card, then

¹ T. S. Ashton, 'The Coalminers of the Eighteenth Century', *Economic History*, I (1928), 320; V. W. Bladen, 'The Potteries in the Industrial Revolution', *ibid.* I (1926), 130; *Factories Commission*, Second Supplement, D. 1, pp. 69-70; Madeleine Elsas (ed.), *Iron in the Making: Dowlais Iron Company Letters, 1782-1860* (Glamorgan Records Committee and Guest, Keen Iron and Steel Co., 1960), 28 Feb. 1829; *S.C. on Children in Manufactories*, 1816, p. 356; *Nevill MSS.* (National Library of Wales), Charles Nevill Sr.: Diary (no. 3), 18 Aug. 1797; Hylton Scott, 'The Miners' Bond in Northumberland and Durham', *Proc. of the Society of Antiquaries of Newcastle-upon-Tyne*, 4th ser. XI (1947), 71; R. L. Galloway, *Annals of Coalmining and the Coal Trade* (1898), pp. 269-70.

² E.g. *Boulton and Watt MSS.* (Birmingham City Library), Watt to Boulton, 11 Oct. 1781, Watt to Garbett, 12 Oct. 1781.

³ Campbell, *Carron*, pp. 68, 69; McKendrick, *op. cit.* p. 52.

⁴ *Factories Commission*, Second Supplement, D. 1, pp. 69-70.

⁵ E.g. Fitton and Wadsworth, pp. 238-9; J. L. and B. Hammond, *The Skilled Labourer, 1760-1832* (2nd ed. 1920), pp. 13 ff.; Elsas, *op. cit.* pp. 36, 66; *Select Committee on Artizans and Machinery*, P.P. 1824, V, p. 25; *Dowlais MSS.* (Glamorgan County Record Office) from Penydarran 20 Sept. 1803, from Birmingham Metal Co. 23 Sept. 1820, from Aberdare Iron Works 15 Jan. 1828, W. Lewis to J. Guest, 6 Oct. 1800.

to having to tell everyone in the room, and, as the highest stage, confessing to workers in other rooms. Witts and Rodick, the Essex silk-mill owners, made their errant children wear degrading dress.¹ These measures presuppose a general agreement with the factory code on the part of the other workmen which today few would take for granted. There was no serious discussion on the techniques of maintaining discipline until after 1830.²

III

Employees were as conservative in the use of the carrot as they were in the use of the stick. For a generation driving its children to labour in the mills for twelve to fourteen hours a day, positive incentives must indeed have been hard to devise and, for the child workers at least, were used even less than for adults. Much better, as in the case of at least one flax mill, to give them snuff to keep them awake in the evenings.³ The extent of the predominance of the deterrent over the incentive in the case of the factory children is brought out in the returns of the 1833 Factory Commission, in replies to item 57 of the questionnaire sent out: 'What are the means taken to enforce obedience on the part of the children employed in your works?' In the following tabulation, the number of answers does not quite tally with the number of factories who sent replies,⁴ as doubtful, meaningless and obviously formal answers, e.g. 'scolding', 'persuasion', 'kind words', have been omitted, while some firms gave more than one reply. Bearing in mind that most respondents were merely concerned to deny that they beat their children, and that many replied with the method they thought they ought to use, rather than the one actually in use, the following proportion may appear even more surprising:

*Number of firms using different means to enforce obedience among factory children, 1833**

Negative		Positive	
Dismissal	353	Kindness	2
Threat of dismissal	48	Promotion, or higher wages	9
Fines, deductions	101	Reward or premium	23
Corporal punishment	55 †		
Complaint to parents	13		
Confined to mill	2		
Degrading dress, badge	3		
Totals	575		34

* *Factories Commission*, Second Supplement.

† Obviously too low, see above, p. 260.

¹ *Sadler's Committee*, P.P. 1831-2, Q. 3061; *Factories Commission*, Second Supplement, B. 1.

² The earliest, and very limited attempt, was that of J. Montgomery, *The Theory and Practice of Cotton Spinning* (Glasgow, 1833), pp. 251-2.

³ *Factories Commission*, First Report, A. 2, p. 89.

⁴ 595 replied, from four districts: A. 1 (Scotland: 173), C. 1 (North-Eastern: 51), B. 2 (Western: 129), D. 1 (Lancashire: 242).

The contrast is surely too strong to be fortuitous, especially since the bias was all the other way.

For adults, there were two positive methods which formed the stock-in-trade of management in this period. One was sub-contract, the transference of responsibility for making the workers industrious, to overseers, butty-men, group leaders, first hands and sub-contractors of various types. But this solution, which raises, in any case, questions of its own,¹ was not a method of creating factory discipline, but of evading it. The discipline was to be the older form of that of the supervisor of a small face-to-face group, maintained by someone who usually worked himself or was in direct daily contact with the workers.

The other method was some variant of payments by results. This provided the cash nexus symbolic for the new age. It was also a natural derivation from the methods used in earlier periods in such skilled and predominantly male trades as iron-smelting, mining, pottery or the production of metal goods.² In 1833, of 67,819 cotton-mill workers in 225 mills, 47·1 per cent were on piece-work and 43·7 per cent were paid datally, the method of payment for the remainder being unknown.³ Labourers, children and others under direct supervision of a skilled piecemaker, and some highly skilled trades in short supply, such as engineers and building craftsmen, did, however, remain on fixed datal pay.

In many enterprises the 'discovery' of payment by results was greeted as an innovation of major significance, and at times the change-over does seem to have led to marked improvements in productivity. In 1688 piecework was said to have transformed the character of northern lead-mining and of copper-smelting at Neath some years later; Benjamin Gott spread piece payment from the overlooker to all men at Bean Ing and noted that 'the men consequently feel that they are as much interested as he and cease to look upon him as their master'. In Soho the near-bankruptcy of 1773 was diagnosed to have been caused partly by the lax supervision of the datal workers in the button and related trades, and Scale, the manager, proposed universal piece-work,

¹ I hope to deal with them elsewhere.

² R. H. Mottram and Colin Coote, *Through Five Generations: The History of the Butterley Company* (1950), p. 62; A. H. John, *The Industrial Development of South Wales, 1750-1850* (Cardiff, 1950), pp. 72, 86; *Mona Mine MSS.* nos. 1274, 1599, 2254-65, 3738; H. Louis, 'The Pitmen's Yearly Bond', *Trans. of North of England Inst. of Mining* (1930), pp. 1-2; William Brown, *Letter Book 1749-56* (MS.), to Carlisle Spedding, 24 Jan. 1750/1; *Crawcrook Colliery, Cost Book of Sinking, 1821-5* (MS. North of England Inst. of Mining and Mech. Eng., Buddle Collection, no. 40); W. H. B. Court, 'A Warwickshire Colliery in the Eighteenth Century', *Econ. Hist. Rev.* VII (1937), 227; *Factories Commission*, First Report, B. 2, pp. 80, 81; *Wentworth Woodhouse Muniments* (MSS. Sheffield City Library), A. 1389, Staff Instruction Book, paras. 8, 32; Peter L. Payne, 'The Govan Collieries, 1804-1805', *Business History*, III (1961), 79-80; *Spencer-Stanhope Muniments* (MSS. Sheffield City Library), no. 60481; John Rowlands, *Amlwch*, p. 226; John Thomas, *op. cit.* p. 553; *Select Committee on Manufactures, Commerce and Shipping*, P.P. 1833, VI, Q. 10269, ev. Anthony Hill.

³ Edward Baines, Jr., *History of the Cotton Manufacture in Great Britain* (1835), pp. 369-75; Fitton and Wadsworth, p. 240; W. B. Crump (ed.), *The Leeds Woollen Industry, 1780-1820* (Thoresby Society, Leeds, 1931), p. 268; Frances Collier, 'Workers in a Lancashire Factory at the Beginning of the Nineteenth Century', *Manchester School*, VII (1936), 53-4; *Factories Commission*, First Report, D. 2, p. 128, B. 1, p. 14; *Sadler's Committee*, Q. 496; *S.C. on Children in Manufactories* P.P., 1816, pp. 28, 367; J. Montgomery, *op. cit.* p. 225.

though it was only the establishment of the Soho Foundry in 1796 under the senior partners' sons, with their newer and tighter management structure, which permitted the general change-over to piece-work among the engineers.¹

Many of the older systems of payment by results, as in copper or tin mines, or in sinking colliery shafts, consisted of group piece-work, in which the cohesion and ethos of the group was added to the incentive payment as such to create work discipline. The newly introduced systems, however, were typically aimed at individual effort. As such, they were less effective, unless they were made as sharply graded as that of Blincoe's overlooker, who was sacked if he produced less than the norm, and received a bonus if he produced more,² and they were often badly constructed, particularly for times of rapid technological change. There were many examples of the usual problems of this type of payment, such as speed-up and rate cutting, as at Soho and Etruria,³ loss of quality, and friction over interpretation and deductions. Nevertheless, it represented the major change and forward step in the employer's attitude towards labour, not only because it used cash as such but more specifically because it marked the end of the belief that workers were looking for a fixed minimum income, and a rate of earnings beyond this would merely lead to absenteeism,⁴ or Sombart's principle of 'subsistence',⁵ and the beginning of the notion that the workers' efforts were elastic with respect to income over a wide range.

The rise in the belief in the efficacy of incentive piece payments coincided with a decline in the belief in the efficacy of long-term contracts. These contracts were largely a survival of the pre-industrial age, adopted by many employers even during the Industrial Revolution at times of acute shortages of labour. In the north-eastern coalfield, the one-year binding had become almost universal since the beginning of the eighteenth century and it had spread to salters, keelmen, file-workers and others.⁶ Ambrose Crowley bound his men for six months, Arkwright for three months, Soho for three to five years, some potteries for seven years, some cotton mills for five up to twenty-one years and the Prestonpans chemical works for twenty-one years.⁷ But any hope that these indentures would ensure discipline and hard work was usually disap-

¹ Roll, *op. cit.* pp. 64, 191, 193, 209-15; Edward Hughes, *North Country Life in the Eighteenth Century* (1952), p. 44; Crump, *op. cit.* p. 38; J. E. Cule, *The Financial History of Matthew Boulton, 1759-1800* (M.Com. Thesis, Birmingham, 1935), pp. 39, 290; *Boulton and Watt Accounts* (Birmingham City Library MSS.), *Wages Books, 1828, 1829, 1830*; John W. Hall (ed.), 'Diary of a Tour by Joshua Field in the Midlands, 1821', *Trans. Newcomen Society*, VI (1925-6), 9; J. R. Immer, *The Development of Production Methods in Birmingham, 1760-1851* (D.Phil. Thesis, Oxford, 1954), pp. 182-3; William Waller, *An Essay on the Value of the Mines, late of Sir Carbery Price* (1698), 'Epistle Dedicatory'.

² Brown, *Robert Blincoe*, p. 21.

³ Roll, *op. cit.* p. 206; Wedgwood, *Letters to Bentley*, pp. 89-90, 23 Aug. 1772.

⁴ See my forthcoming article on 'The Factory Village in the Industrial Revolution', and E. S. Furniss, *The Position of the Labourer in a System of Nationalism* (New York, 1957 ed.), pp. 100-107, chapter 6.

⁵ See p. 254 above.

⁶ Hammond, *Skilled Labourer*, pp. 13 ff.; Galloway, *Annals*, pp. 269-70; H. Louis, *loc. cit.* *Miners' Bonds* (MS. North of England Inst., Newcastle, Forster Coll. vol. 2); Ashton, 'Coalminers', p. 310; Rowlands, *Amlwch*, pp. 228-9; H. Scott, 'Miners' Bond', pp. 55-6.

⁷ Fitton and Wadsworth, *op. cit.* p. 233; Roll, *op. cit.* pp. 65, 202; Wm. Bourn, *History of the Parish of Ryton* (Carlisle, 1896), p. 122; A. and N. Clow, *The Chemical Revolution* (1952), p. 138; *Boulton and Watt Correspondence* (MS. Royal Polytechnic Society, Falmouth), Watt to Wilson, 27 Aug. 1793; *Lords' Committee on Factory Bill*, P.P. 1818, p. 197; Elsas, *op. cit.* 26 Apr. 1827; John Thomas, *op. cit.* p. 520.

pointed, and the system was quickly abandoned as a disciplinary method,¹ though it might be continued for other reasons.

A few employers evolved incentive schemes with a considerable degree of sophistication. In their simplest form, overseers bribed children to work on for fourteen or fifteen hours and forego their meal intervals, and John Wood paid them a bonus of 1*d.* weekly if they worked well, but hung a notice of shame on them if they did not.² At Backbarrow mill, apprentices received a 'bounty' of 6*d.* or 1*s.*, to be withdrawn if offences were committed, and in silk mills articles of clothing were given to the children as prizes for good work; at one silk mill, employing 300 children aged nine or less, a prize of bacon and three score of potatoes was given to the hardest working boy, and a doll to the hardest working girl, and their output then became the norm for the rest.³ Richard Arkwright, in his early years, also gave prizes to the best workers.

Later on, these bonuses were made conditional on a longer period of satisfactory work, or modified in other ways. In the early 1800's the Strutts introduced 'quarterly gift money' – one-sixth of wages being held back over three months, and paid out at the end only after deductions for misconduct. At John Marshall's the best department received a bonus each quarter, amounting to £10 for the overlooker and a week's wage for the hands, and some Dowlais men, at least, also received a bonus of £2 every quarter, conditional upon satisfactory performance.⁴ At the Whitehaven collieries, the bonus to the foremen was annual and was tied to net profits: when these exceeded £30,000, the salary of the two viewers was nearly doubled, from £152 to £300, and those of the overmen raised in almost like proportion from a range of £52–82 to a range of £90–170 – a particularly effective and cheap means of inducing industry. In other coal mines, the ladder of promotion to overmen was used effectively as an incentive.⁵ It was left to Charles Babbage to work out in 1833 a more detailed analysis of the effect of monetary incentives on work, and to stress the importance of norms, of specific awards for exceeding them, and of accurate calculations of costs, of savings and of payments for them. But this remained on paper only, and another half century was to elapse before incentive schemes began to be made integral with general efficiency schemes.⁶

Compared with the ubiquity of financial rewards, other direct incentives were rare and localized, though they were highly significant. Wedgwood at times appealed directly to his workers, in at least one case writing a pamphlet for them in which he stressed their common interests. Samuel Greg, Jr. attempted to create a settled community spirit at Bollington. Arkwright gave

¹ *Lords' Committee on Factory Bill*, P.P. 1818, pp. 75–6; E. Kilburn Scott (ed.), *Matthew Murray, Pioneer Engineer, Records for 1765–1826* (Leeds, 1828), p. 40; 'Alfred', *The History of the Factory Movement* (1857), I, 284; Birch, 'Haigh Ironworks', pp. 320–1.

² See above. *S.C. on Children in Manufactories*, P.P. 1816, p. 135; *Sadler's Committee*, Q. 3061.

³ *S.C. on Children in Manufactories*, P.P. 1816, p. 288; *Sadler's Committee*, QQ. 7292, 7304, 10072.

⁴ Fitton and Wadsworth, *op. cit.* p. 233; Rimmer, *op. cit.* p. 120; Elsas, *op. cit.*, 26 Apr. 1827.

⁵ O. Wood, *op. cit.* p. 150; A. Raistrick, *Two Centuries of Industrial Welfare. The London (Quaker) Lead Company, 1692–1905* (1938), pp. 73–4.

⁶ Charles Babbage, *On the Economy of Machinery and Manufactures* (3rd ed. 1833), p. 255. Also e.g. Horace Bookwalter Drury, *Scientific Management: a History and Criticism* (2nd ed. 1918), pp. 24–5.

distinguishing dresses to the best workers of both sexes and John Marshall fixed a card on each machine, showing its output.¹ Best known of all were the 'silent monitors' of Robert Owen. He awarded four types of mark for the past day's work to each superintendent, and each of them, in turn, judged all his workers; the mark was then translated into the colours black-blue-yellow-white, in ascending order of merit, painted on the four sides of a piece of wood mounted over the machine, and turned outward according to the worker's performance.²

There is no doubt that Owen attached great importance to this system, entering all daily marks in a book as a permanent record, to be periodically inspected by him. There is equally no doubt that, naive as they might seem to-day, these methods were successful among all the leading manufacturers named, Robert Owen, in particular, running his mills, both in Manchester and in Scotland, at regular high annual profits largely because he gained the voluntary co-operation of his workers. Why, then were these methods not copied as widely as the technological innovations?

The reasons may have been ignorance on the part of other masters, disbelief or a (partly justified) suspicion that the enlightened employers would have been successful with or without such methods, enjoying advantages of techniques, size or a well-established market; but to limit the reasons to these would be to ignore one of the most decisive social facts of the age. An approach like Owen's ran counter to the accepted beliefs and ideology of the employing class, which saw its own rise to wealth and power as due to merit, and the workman's subordinate position as due to his failings. He remained a workman, living at subsistence wages, because he was less well endowed with the essential qualities of industry, ambition, sobriety and thrift. As long as this was so, he could hardly be expected to rise to the baits of moral appeals or co-operation. Therefore, one would have to begin by indoctrinating him with the bourgeois values which he lacked, and this, essentially, was the third method used by employers.

In their attempts to prevent 'Idleness, Extravagance, Waste and Immorality',³ employers were necessarily dealing with the workers both inside the factory and outside it. The efforts to reform the whole man were, therefore, particularly marked in factory towns and villages in which the total environment was under the control of a single employer.

IV

The qualities of character which employers admired have, since Weber's day,

¹ McKendrick, *op. cit.* pp. 47, 52-4; Fitton and Wadsworth, *op. cit.* p. 100; J. D. Chambers, 'Industrialisation as a Factor in Economic Growth in England, 1700-1900', in *Contributions to the First International Economic History Conference, Stockholm* (Paris, 1960), p. 207; E. S. Dane, *op. cit.* p. 14; Rimmer, *op. cit.* p. 121.

² Robert Owen, *Life of Owen* (1920 ed.), pp. 111, 189; G. D. H. Cole, *Robert Owen* (1925), p. 78.

³ From the Standing Instructions to the Staff Supervisor, *Wentworth Woodhouse Muniments* (MSS. Sheffield), no. A 1389.

been to some extent associated with the Protestant ethic.¹ To impart these qualities, with the one addition of obedience, to the working classes, could not but appear a formidable task. That it should have been attempted at all might seem to us incredible, unless we remember the background of the times which included the need to educate the first generation of factory workers to a new factory discipline, the widespread belief in human perfectibility, and the common assumption, by the employer, of functions which are to-day provided by the public authorities, like public safety, road building or education. All these raise questions which it would lead us too far to pursue here²; but one of their consequences was the preoccupation with the character and morals of the working classes which are so marked a feature of the early stages of industrialization.

Some aspects of this are well known and easily understandable. Factory villages like New Lanark, Deanston, Busby, Ballindaloch, New Kilpatrick, Blantyre, and Joseph Stephenson's, at Antrim, had special provisions, and in some cases full-time staff, to check the morals of their workers.³ Contemporaries tended to praise these actions most highly, and it was believed that firms laying stress on morals, and employing foremen who 'suppress anything bad' would get the pick of the labour.⁴ Almost everywhere, churches, chapels and Sunday Schools were supported by employers, both to encourage moral education in its more usual sense, and to inculcate obedience. Drink and drunkenness became a major target of reform, with the short-term aim of increasing the usefulness of scarce skilled workers such as Soho's engineer erectors, who were often incapacitated by drink, and the long-term aim of spreading bourgeois virtues.

In this process much of the existing village culture came under attack. 'Traditional social habits and customs seldom fitted into the new pattern of industrial life, and they had therefore to be discredited as hindrances to progress.'⁵ Two campaigns here deserve special mention.

The first was the campaign against leisure on Saturdays and Sundays, as, no doubt, examples of immoral idleness. 'The children are during the weekdays generally employed', the Bishop of Chester had declared solemnly in 1785, 'and on Sunday are apt to be idle, mischievous and vitious.' This was not easily tolerated. Thus Deanston had a Superintendent of streets to keep them clear of immorality, children and drink. Charles Wilkins of Tiverton formed an 'Association for the Promotion of Order' in 1832 to round up the children and drive them to school on Sundays. All the hands at Strutt's and Arkwright's under twenty had to attend school for four hours on Saturday afternoons and on

¹ Max Weber, *The Protestant Ethic and the Spirit of Capitalism* (1930); Sombart, *Hochkapitalismus*, I, 427-30.

² See my forthcoming article, 'The Factory Village in the Industrial Revolution', to be published in the *English Historical Review*.

³ Cole, *Robert Owen*, p. 78; *Factories Commission*, Second Supplement, A. 1; *S.C. on Children in Manufactories*, P.P. 1816, pp. 40, 164.

⁴ Smelser, *op. cit.* p. 106; Ure, *Philosophy*, pp. 415-16.

⁵ Harrison, *Learning and Living*, p. 40. Mercantilist writers had been waging a similar campaign for at least a century in the national interest, but had made little impact. The local employer could make his wishes much more effectively heard. Furniss, *op. cit.* pp. 150 ff.

Sundays to 'keep them out of mischief'. Horrocks' employed a man 'for many years, to see that the children do not loiter about the streets on Sundays'. At Dowlais the chapel Sunday school teachers asked J. J. Guest in 1818 to order his employees to attend, otherwise there was the danger that they might spend the Sabbath 'rambling and playing'.¹ Even Owen expressed similar sentiments: 'if children [under ten] are not to be instructed, they had better be employed in any occupation that should keep them out of mischief', he asserted.²

The second was the prohibition of bad language. At the beginning of the eighteenth century, Crowley's 'Clerk for the Poor', or teacher, was to correct lying, swearing, 'and suchlike horrid crimes'; while at the same time Sir Humphrey Mackworth, at Neath, fined 'Swearing, Cursing, Quarrelling, being Drunk, or neglecting Divine Service on Sunday, one shilling', and the Quaker Lead Company, at Gadlis, also prohibited swearing in 1708.³ Later this became quite regular, wherever rules were made: at Darley Abbey, in 1795, the fine was 9d or 1s.; at Mellor, 1s.; at Nenthead, 6d.; at Galloway's where 'obscene and vulgar language' was prohibited, the men themselves levied the fines. At Marshall and Benyon's also, according to Rule 4 of 1785, a jury of seven was to judge the offence of striking, abusing or harming another workman.⁴

Again, the rules of Thomas Fernley, Jr., Stockport, cotton mills, stated: 'while at work ... behaviour must be commendable avoiding all shouting, loud talk, whistling, calling foul names, all mean and vulgar language, and every kind of indecency'. Swearing, singing, being drunk were fined 5s.; overlookers allowing drink in the mills were fined 10s. 6d. Gott's Sheepshanks and other large works had similar rules in the West Riding.⁵

This preoccupation might seem to today's observer to be both impertinent and irrelevant to the worker's performance, but in fact it was critical, for unless the workmen *wished* to become 'respectable' in the current sense, none of the other incentives would bite. Such opprobrious terms as 'idle' or 'dissolute' should be taken to mean strictly that the worker was indifferent to the employer's deterrents and incentives. According to contemporaries, 'it was the irrationality of the poor, quite as much as their irreligion, that was distressing. They took no thought of the morrow ... The workers were by nature indolent, improvident, and self-indulgent.'⁶

¹ Fitton and Wadsworth, *op. cit.* pp. 103, 256; A. P. Wadsworth, 'The First Manchester Sunday Schools', *Bull. John Rylands Library*, XXXIII (1951), 310; *Factories Commission*, First Report, E, p. 24; A. R. Strutt; Elsas, *op. cit.* p. 71; *S.C. on Children in Manufactories*, P.P. 1816, p. 260, ev. Wm. Taylor.

² *Ibid.* p. 23. Compare Charles Hall: 'Leisure in a poor man is thought quite a different thing from what it is to a rich man, and goes by a different name. In the poor it is called idleness, the cause of all mischief.' *The Effects of Civilization on the Peoples of European States* (1805), p. 24.

³ Hughes, *North Country Life*, p. 342; D. J. Davies, *The Economic History of South Wales Prior to 1800* (Cardiff, 1933), p. 82; Raistrick, *Two Centuries*, p. 78; A. Raistrick, *Quakers in Science and Industry* (1950), p. 174; also his 'London Lead Company, 1692-1905', *Trans. Newcomen Soc.* XIV (1933-4), 136; D. G. John, *loc. cit.* p. 19.

⁴ Elsewhere, fines might go into the employer's pockets. Lord, *Capital and Steam Power*, p. 206; Hammond, *Town Labourer*, p. 21. Cf. also Lindsay, *op. cit.* p. 299; Unwin, *Samuel Oldknow*, p. 198; *S.C. on Artizans and Machinery*, P.P. 1824, pp. 25-6; *Marshall Papers*, no. 43, Raistrick, 'London Lead Company', p. 157.

⁵ *Factories Commission*, Second Supplement, D. 1, pp. 69-70. All workers had to attend church at least once every Sunday; *Sadler's Committee*, Q. 994.

⁶ T. S. Ashton, *An Economic History of England: The Eighteenth Century* (1955), p. 201.

The code of ethics on which employers concentrated was thus rather limited. Warnings against greed, selfishness, materialism or pride seldom played a large part, sexual morals rarely became an important issue to the factory disciplinarians (as distinct from outside moralists) and, by and large, they did not mind which God was worshipped, as long as the worshipper was under the influence of some respectable clergyman. The conclusion cannot be avoided that, with some honourable exceptions, the drive to raise the level of respectability and morality among the working classes was not undertaken for their own sakes but primarily, or even exclusively, as an aspect of building up a new factory discipline.

V

Any conclusions drawn from this brief survey must be tentative and hesitant, particularly if they are meant to apply to industrial revolutions in general.

First, the acclimatization of new workers to factory discipline is a task different in kind, at once more subtle and more violent, from that of maintaining discipline among a proletarian population of long standing. Employers in the British Industrial Revolution therefore used not only industrial means but a whole battery of extra-mural powers, including their control over the courts, their powers as landlords, and their own ideology, to impose the control they required.

Secondly, the maintenance of discipline, like the whole field of management itself, was not considered a fit subject for study, still less a science, but merely a matter of the employer's individual character and ability. No books were written on it before 1830, no teachers lectured on it, there were no entries about it in the technical encyclopaedias, no patents were taken out relating to it. As a result, employers did not learn from each other, except haphazardly and belatedly, new ideas did not have the cachet of a new technology and did not spread, and the crudest form of deterrents and incentives remained the rule. Robert Owen was exceptional in ensuring that his methods, at least, were widely known, but they were too closely meshed in with his social doctrines to be acceptable to other employers.

Lastly, the inevitable emphasis on reforming the moral character of the worker into a willing machine-minder led to a logical dilemma that contemporaries did not know how to escape. For if the employer had it in his power to reform the workers if he but tried hard enough, whose fault was it that most of them remained immoral, idle and rebellious? And if the workers could really be taught their employers' virtues, would they not all save and borrow and become entrepreneurs themselves, and who would then man the factories?

The Industrial Revolution happened too rapidly for these dilemmas, which involved the re-orientation of a whole class, to be solved, as it were, *en passant*. The assimilation of the formerly independent worker to the needs of factory routine took at least a further generation, and was accompanied by the help of tradition, by a sharply differentiated educational system, and new ideologies which were themselves the results of clashes of earlier systems

of values, besides the forces operating before 1830. The search for a more scientific approach which would collaborate with and use, instead of seeking to destroy, the workers' own values, began later still, and may hardly be said to have advanced very far even to-day.

University of Sheffield