

**Aspects of the employment of children in the British coal-mining industry,
1800-1872**

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Summary

Kirby, P.T. Aspects of the employment of children in the British coal-mining industry, 1800-1872

This thesis examines aspects of historiography, legislation, working conditions and welfare relating to the employment of the children who worked in British coal mines between 1800 and 1872.

Contemporary views of children's employment in mines are considered in the light of the Children's Employment Commission of 1842. The movement for the abolition of child labour is examined and claims of 'indecent' underground working conditions are investigated.

It is argued that the decline in the incidence of children's employment in coal mining came about as a result of the declining economic viability of their labour to the industry. The legislative prohibition of children from the coal industry was a rational process driven largely by improvements in production technology and by safety considerations. The research suggests that the incidence of child employment was lowest in the most technologically advanced coalfields. Computer-aided prosopography was used to analyse ages and occupations of mining children.

The physical stature of mining children is discussed as an indicator of their nutritional status and welfare. A number of environmental influences upon the relative shorter stature of mining children are identified and these findings are viewed within the wider debate over the stature of historical populations.

Ill-treatment and corporal punishment of children did not arise primarily from the process of coal production. The lowest levels of ill-treatment existed in the most advanced enterprises. The incidence of corporal punishment was greatest in the less developed coalfields and serious ill-treatment was most prevalent among non-parented children. Punishment was an aspect of safety discipline and this issue too is explored.

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General note on text and footnote conventions

The short form of title is used throughout: reference should be made to the consolidated bibliography at the end of the thesis for full citations. Parliamentary Papers are referred to in footnotes by their year and volume number and Statutes are cited by their year of the reign followed by their chapter number.

It was considered necessary to provide a glossary of mining terms used in the text. This appears on pages 320-24.

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Preface

Coal was the most important single material factor in the industrialisation of Britain. George Orwell could state in 1937: 'The machines that keep us alive, and the machines that make the machines, are all directly or indirectly dependent upon coal. In the metabolism of the Western world the coal-miner is second only in importance to the man who ploughs the soil'.¹ Coal was the central factor in what Wrigley has so powerfully described as the 'mineral-based energy economy' emergent at the beginning of the nineteenth century.² Moreover, the labour-power employed in coal extraction was enormous. It has been estimated that the proportion of the employed male population in mining occupations rose from 4.3 per cent in 1841 to 8.1 per cent by the end of the nineteenth century.³

The importance of the coal mining industry, together with the success of miners' labour organisations, placed it in the forefront of industrial history. Reflecting this, coal mining has also been a major preoccupation among labour historians and has been central to questions regarding the relationship between capital and labour. In scholarship on these themes, the employment of children in mining has frequently been held up as an important yardstick by which to judge the worst effects of industrialisation: an example of the consequences of unfettered capitalism prior to the emergence of the moderating effect of trade unionism.⁴

That an industry whose product epitomised industrialisation should have been held responsible for harbouring some of its worst effects is not surprising. What is

¹ Orwell, *The road to Wigan Pier*, p. 18.

² Wrigley, *Continuity, chance and change*, p. 12.

³ Mitchell, *British historical statistics*, p. 104.

⁴ Tawney, for example, thought that 'the treatment of childhood' was the primary means by which to judge 'the true character of a social philosophy'. Tawney, *Religion and the rise of capitalism*, p. 265.

puzzling, however, is why the employment of children in the mining industry has been overlooked for so long as an issue for serious historical research.⁵ No work of history has treated it as its sole subject of inquiry: no major monograph has been produced. Despite this, however, some widely-held assumptions exist. Images of exploited coal-mining children loom large in the popular historical imagination. Examples of small children working in narrow coal seams, opening and closing ventilation-doors and suffering physical abuse at the hands of cruel masters appear in both popular and scholastic accounts of nineteenth-century child labour. In short, there has been a general perception that the employment of children in coal mines was an unqualified social evil.

A consequence of the received wisdom concerning industrialisation has been that historians dealing with the employment of children in mines have placed an overwhelming emphasis upon welfare issues. Besides the traditional 'optimist' and 'pessimist' outlooks, which continue to dominate debate over industrialisation, most of the accounts have fallen into one of two broad types: polemics, which have been written to conform to a received wisdom about the effects of industrialisation, and shorter references to mining children in more general social histories.⁶ Many of these works have depended for their impact upon an uncritical selection of anecdotes from parliamentary and other contemporary reports, most of which have been unfavourable to the practice of employing children. Historical perceptions of child labour, in common with the voluminous scholarship on the 'standard of living' issue, have also

⁵ There are exceptions to this. In his unpublished thesis, written in 1955, Hair devoted a chapter to the working conditions and ages of children employed in mines. Hair, 'Social history'. John Benson has also produced a valuable social history of the mining industry which addresses the position of working children. Benson, *British coalminers*.

⁶ The contribution of political ideology to the historiography of children's employment in coal mines is discussed in the first chapter.

been dominated by discussions of children's employment in particular industries: chiefly, factories and coal mines. However, histories of children in industry have frequently been deficient in developing a critique of the primary sources (those usually referred to are selected from Parliamentary Papers and the writings of middle-class reformers who campaigned against the industrial employment of children).⁷

In the absence of any previous major study, therefore, the author was confronted at the outset with a daunting variety of social-historical opinion but lacked a firmly established context within which to set case studies. The specificity of what might be achieved seemed, at first, limited. It was clear that those who had examined the subject had dealt primarily with the actions of those in authority over children, rather than with the activities of child workers themselves. This has caused the majority of accounts of child labour to treat children merely as the subjects of an innately abusive environment. In turn, this perspective has caused the issue of 'exploitation' to predominate in accounts of the experiences of nineteenth-century working-class children.

The resolute antipathy to the concept of 'child labour' has ensured that many other important questions concerning children and their work remain unresolved. One particularly lamentable result of this has been that the study of the economic aspects of nineteenth-century children has never been adequately developed as a

⁷ As Hutt pointed out in 1926, many pessimistic views of child labour in factories stem from the use of evidence contained in the report of Michael Sadler's committee (P.P. 1831-2, XV). This report, however, was extremely one-sided. Sadler's committee took the evidence against the employment of children first. Then, taking advantage of the close of the parliamentary session, Sadler published its findings without the alternative opinions. Hutt, 'The factory system of the early nineteenth century', pp. 161-6.

discrete category of economic history.⁸ That economic historians should have adopted this position is surprising since one of the most notable features in the development of all mature economies has been an absolute decline in the use of child labour. The histories of all economically developed states show a strong relationship between high levels of economic growth and a low incidence of children's employment. The author believes that it is important for economic historians to understand how and why that decline in children's employment occurred.

I

The problems posed by numerous gaps in the historiography of mining children prompted the adoption of a thematic structure for the research. It was thought of particular importance to examine the authenticity of a number of welfare issues that have dominated the subject of children's employment in coal mining. The discussion of discrete themes proved useful, for example, in the examinations of corporal punishment, ill-treatment and historiography. In the later stages of the work, the structure also proved valuable in allowing the application of newer methodological approaches (such as the analysis of records of the ages, work and physical stature of employed children).

⁸ Peter Lindert, in *Fertility and scarcity in America*, has examined the economic value of children to the household in the context of the United States. Pinchbeck and Hewitt's two volume *Children in English society*, and Hopkins' more recent book *Childhood transformed*, typify the broad synthetic treatments that the history of children has evoked. See also the chapter 'Working' in Walvin, *A child's world*. Nardinelli's *Child labor and the industrial revolution*, which deals most specifically with the employment of children in nineteenth-century industry, largely fails to address the problems of interpretation of evidence.

This work has not been concerned solely with conventional interpretations of the exploitation and welfare of working children. Computer-aided methods were used to process a variety of historical data. Two large datasets, relating to ages, occupations, nutrition and height, were compiled and interrogated using database and statistical programs. Existing historical generalisations about the nature and extent of child labour in coal mining were tested using these data. A prosopographical database of evidence to the Children's Employment Commission (hereafter C.E.C.) was produced in an attempt to gain a clearer understanding of whether variations in nineteenth-century coal-mining technology affected the incidence of child employment.⁹ Computer-aided methods were also used in order to inquire to what extent different levels of productivity, growth and efficiency affected the ages, treatment and working conditions of children in the coal industry. Computing was invaluable to the research. Indeed, in the absence of modern data-handling techniques, some of the inquiries would have been impossible to complete in the allotted time. The interrogation of the 4,108 row database taken from the evidence to the C.E.C, for example, would have been impractical without a computer.¹⁰ Similarly, the ordering, analysis and graphical representation of anthropometric data in the assessment of the nutritional status of working children, in chapter six, benefited greatly from the use of a statistical program.¹¹ Overall, the results of the computing work manifested certain basic patterns in children's employment which called into question some accepted views based upon assessments of anecdotal evidence.

⁹ (P.P. 1842, XV) (P.P. 1842, XVI) (P.P. 1842, XVII).

¹⁰ See Appendices A and B for details of the methods used.

¹¹ The database was FoxPro™ and the statistical program was SPSS™ (Statistical Package for the Social Sciences).

The use of computer-aided methods greatly enriched the author's experience throughout the period of the research, but the approach remained predominantly a mixture of qualitative and quantitative methods. If the study had a guiding philosophy throughout, it was to remain faithful to its subject of inquiry: an examination of how the development of the coal industry in the nineteenth century affected the ages, conditions and quality of labour of children employed in it.

Terminal dates are always arbitrary, but the period 1800-1872 covers a period of significant developments in coal-mining output and technology, and in the employment of children. Although little evidence of their employment prior to 1800 survives, the first half of the nineteenth century witnessed an unprecedented increase of public interest in children working within particular industries: alongside these developments grew a body of evidence, chiefly in the form of evidence to royal commissions and parliamentary committees, which remains our chief source of historical knowledge concerning working children.

The earliest factory acts were a result of these early investigations. Following the factory inquiry,¹² concerns for the conditions under which children worked spread gradually to other areas of the economy. The C.E.C. was set up in 1840 in response to claims of ill-treatment and poor working conditions among coal-mining children and the first legislation to affect their employment was prompted by the publication of the report of that commission in 1842.¹³ Thirty years later, the education clauses of coal mines legislation had begun substantially to address the employment of boys between ten and thirteen years.¹⁴ Legislation relating specifically to education during the final quarter of the century contributed to this trend. The already diminishing

¹² (P.P. 1833, XX) (P.P. 1833, XXI).

¹³ 5 & 6 Vict., c.99.

¹⁴ 35 & 36 Vict., c.76.

number of industries in which the labour of young children remained a viable part of production were further marginalised as a result of educational reform.

II

The proposition that the children employed in the nineteenth-century mining industry were exploited, or that they worked in conditions approaching slavery, has a long history. This research, therefore, begins with an examination of historiography of working children. The existence of children's employment, it has often been argued by 'pessimistic' historians, is one of the most detrimental effects of industrialisation and the ideology of economic liberalism. Like any debate that originated from the antagonisms between labour and capital, the integrity of the primary evidence that has been employed has suffered considerably in interpretation. Chapter one addresses existing accounts of children's employment in coal mines.

Chapter two points out how little is known about the nature of children's employment and about the numbers of children involved in work. The chapter examines children's employment in general and raises the methodological point that an 'age of starting work' is a very recent socio-economic concept. Indeed, the point is raised that the work socialisation of most children in the first half of the nineteenth century was much more of a transitional process than that experienced by modern children who enter labour markets at a fixed age. Claims that children's employment was 'widespread' or 'common', or that children began work at a 'very early' age, are based upon the acceptance of historical evidence, the veracity of which has been examined only very rarely. Such 'guesstimates' are examined in this chapter.

Chapter three examines the origins and structures of the most extensive nineteenth-century state inquiry into mining children, the Children's Employment

Commission. This commission, instigated by Lord Ashley in 1840, was the culmination of a long period of steadily increasing concern with children's employment. The inquiries were conducted by an elite group of, mainly, young metropolitan barristers. These upper-middle-class Commissioners were instructed actively to seek out abuses and their reports contained many instances of cruelty and indecency among miners. Accounts of underground indecency, which emerged from the reports of the Sub-Commissioners of 1840-1842, are discussed in chapter four.

Chapter five returns to the theme of working conditions to examine specific categories of child employment in coal mining in more detail. This chapter contains quantitative analysis of evidence of the age groups of employed children and examines the results in the light of the legislative intervention of 1842. Its starting point is the role conventionally accorded to humanitarians in achieving social legislation to exclude children from underground work. The chapter describes how historians have approached the subject of state action against children's employment from a number of different viewpoints. These range from the simple condemnation of any form of child labour to the more sophisticated stance that berates central government for not acting effectively against it. Traditional interpretations of nineteenth-century legislation affecting children's employment are challenged and economic causes for state action are sought. It is argued that the Mines Act of 1842, which excluded all females and males below the age of ten from underground employment, did not result primarily from the concerns of humanitarian campaigners. Innovations in haulage and ventilation technology, concerns about underground safety and a changing age-structure in the mining labour force were important factors in attracting support for an age restriction among owners and managers of technologically advanced collieries. The chapter shows that the Mines Act, through its failure to provide an adequate inspectorate, was essentially a *permissive* piece of

legislation. It provided owners and managers in the advanced coal districts with a legal pretext to exclude young children whilst allowing the operators of small primitive collieries, who employed the highest proportions of children, a wide degree of freedom from prosecution.

Variation in human stature is increasingly regarded as a reliable indicator of the relative nutritional status (and, implicitly, of the standard of living) of historical populations. Analysis of surviving anthropometric data strongly suggests that children employed in coal mining, although well-fed and possessing a robust physical development, were comparatively shorter than their working-class contemporaries. According to the established biological relation between nutrition and stature, this is paradoxical. Chapter six analyses evidence of the stature and girth of children in different occupations collected in 1841. It suggests that occupational selection for height, together with discrete environmental factors, were responsible for the comparative short stature of coal-mining children. The broader question of how occupation selection bias might affect other historical records of stature is also raised.¹⁵

That children were physically abused in coal mines is an enduring theme of nineteenth-century social history. More specifically, it is implicit in pessimistic views that there was a strong causative relationship between coal production and the ill-treatment of children. The final chapter examines whether, in fact, industrial causes of ill-treatment can be identified. It examines a variety of forms of abuse of children and suggests that social, rather than industrial, circumstances predisposed certain groups of children to abuse. The evidence suggests strongly that this predisposition depended primarily upon whether children had parents who were alive.

¹⁵ The main points of this chapter may also be found in Kirby, 'Causes of short stature among coal-mining children', *passim*.

Other aspects of the ill-treatment of children are addressed. These include social issues such as the binding of pauper apprentices and the maintenance of underground safety discipline in complex ventilation systems.

The research seeks to show that the process of mining coal was not simply, or *necessarily*, a socially immiserating process. It seeks to make clear that many extant historical perceptions of child labour stem largely from ideological predispositions: that many historians have 'taken sides' over the broader issue of industrialisation. It argues that variations in the quality of treatment and in the proportions of children employed were largely related to the extent of industrial advance in different coal-fields. The work has grown into a set of closely related studies centred upon the issue of the welfare of mining children.

III

The education of mining children is not examined at any length in this thesis. This requires an explanation.

A number of historians have claimed a relationship between schooling and the decline in children's employment. Some have asserted that schooling had an early and important role in eradicating children's employment. Minge-Kalman has argued, for example:

In the early stages of industrialization in the late eighteenth century, human labor went onto the market as a raw commodity with land and capital. As child labor legislation and compulsory education emerged during the nineteenth century, children were eventually rescued from factory work and from the farms so that they could be trained to meet the demand for increasingly specialized jobs.¹⁶

¹⁶ Minge-Kalman, 'The industrial revolution and the European family', p. 454.

The effect of schooling upon the incidence of children's employment has been asserted by other historians. Walvin, in particular, has claimed: 'Even when we make allowances for the imperfections of the education of the late nineteenth century, it still seems clear that it was schooling, and not industrial or agricultural legislation, which effectively ended the nation's commitment to widespread child labour'. He suggests that 'schooling was introduced in part to rectify the worst effects of child labour, which had rendered generations of the nation's children both ignorant and unimprovable'.¹⁷

Seccombe, a self-styled Marxist historian of the family, might be expected to identify economic influences upon the decline in child labour. It is his view, however, that 'In the course of the second Industrial Revolution ... young children were withdrawn from factories and sent to school in the face of mass campaigns against their exploitation in industry'.¹⁸

It is significant that supporters of the view that education eradicated child labour repeatedly fail to cite any substantial evidence to this effect. Indeed, what is most striking about such analyses is that they largely ignore the decline in the proportion of working children in the British population that began at least four decades before the emergence of compulsory education. The effect of education upon child labour came about very late in the nineteenth century: at a point when the labour of young children had become almost insignificant to the British industrial economy.¹⁹ Indeed, it is suggested here that the employment of very young children

¹⁷ Walvin, *A child's world*, p. 77.

¹⁸ Seccombe, *Weathering the storm*, p. 182.

¹⁹ In particular, it has been suggested that attempts to introduce education to mining children in the mid-century were largely unsuccessful, even where they were accompanied by cash inducements. See

in the nineteenth century was an exception to a general picture of child underemployment and unemployment.²⁰ As Cunningham has argued, the move to universal education for children was prompted primarily 'by a concern to structure the time of the idle rather than to rescue the poor factory child from labour'.²¹

This research, therefore, does not contain a chapter on education. It is concerned with the dynamic relationship between changes in one particular type of industrial production and the position of children within it. The relationship between the exclusion of children from industrial occupations and the development of schooling requires to be treated as a unique subject of inquiry: it was, consequently, beyond the scope of this thesis.

IV

Edward Thompson once wrote of Herbert Gutman, that he placed himself "'between the evidence and the received historiography" to create a "theoretically informed history"'.²² The author trusts that this work employs as simple and as unscientific a philosophy of history as that described by Thompson: it has been informed, rather than driven, by abstract theory. It is hoped that the result is more than a rearticulation of the widespread consensual view of children in the nineteenth-century coal-mining industry. If the research is regarded as a small contribution to the economic history of nineteenth-century children then it will have been worthwhile.

Hopkins, 'Tremenheere's prize schemes in the mining districts, 1851-1859', *passim*. It is argued in chapter four that legislation was not primarily responsible for declining numbers of children in coal mining.

²⁰ This is implied strongly in Hair, 'Social history', *passim*.

²¹ Cunningham, 'The employment and unemployment of children', p. 121.

²² Rowbotham, 'The informed historian', p. 5 (obituary of E.P. Thompson).

'Horrors of the coal mines', from Hodder, *Life of Shaftesbury*, p. 7.



HORRORS OF THE COAL MINES.

Chapter one. Introduction

In 1842, the *Bolton Chronicle* carried a short report describing the harsh conditions of children employed in British coal mines. The report was based upon accounts of child labour that had been made public by the Children's Employment Commission of the same year. 'That such a state of things should exist in a civilised country, and in the 19th century, may well stagger people in the present day', the paper asserted, 'but to posterity, we are convinced, it will appear incredible'.²³

The author of the report could never have imagined how enduring would be the picture of brutalised child labour resulting from the C.E.C.²⁴ Contemporary concerns about Chartism and a perceived lack of Christian morality among the working classes were aggravated by horrific stories of underground life: of workers of both sexes working entirely naked; of children of five or six years of age working twelve-hour shifts; of pauper apprentices suffering arbitrary violence and long hours at the hands of unscrupulous masters. As Lord Ashley, the evangelical instigator of the report, declared to the Commons, 'it is not possible for any man, whatever be his station, if he have but a heart within his bosom, to read the details of this awful document without a combined feeling of shame, terror, and indignation'.²⁵ Early Victorian society was scandalised by the revelations contained in the report.

Widespread concern for the conditions of children's employment began with the campaigns and inquiries of early nineteenth-century social reformers. The second quarter of the century saw the enactment of the first legislation intended to interfere directly with the hours and conditions of working children and to fix minimum ages

²³ *Bolton Chronicle*, 21 May 1842, p.2.

²⁴ (P.P.1842, XV).

²⁵ Cooper, *Speeches of the Earl of Shaftesbury*, p. 32.

at which they could legally embark upon a life of labour. Indeed, the factory and coal mines legislation that emerged after 1833 resulted primarily from evidence of exploitative working conditions reported by parliamentary inquiries. What was most important about these inquiries was that the reformers were concerned to connect industrial production (especially employment in cotton mills and coal mines) to a poor quality of life. The underlying assumption was that there were aspects of industrial production that were inherently demoralising to children. Moreover, the philanthropists saw the employment of child labour as a clear abrogation, by factory and mine owners, of their 'duty' to attend to the welfare of their workers. Ashley explained that the report of the C.E.C. in 1842 epitomised 'the ignorance and neglect of many of those who have property, and the consequent vice and suffering of those who have none'.²⁶ The philosophy of inquiry adopted by Ashley and his supporters has, to a great extent, informed the historian's picture of child employment during industrialisation. This chapter examines how historians have treated the issue of children's employment in mining.

I

The employment of children can be a contentious subject for historians because of its central position in the debate over the social effects of industrialisation. Indeed, the existence of child labour has frequently formed the basis of assumptions about the nature of industrialisation itself.²⁷ Among the issues discussed by historians

²⁶ Cooper, *Speeches of the Earl of Shaftesbury*, p. 32.

²⁷ Parties to this wider debate are usually preoccupied by the idea that it is possible to arrive at a general index of suffering or benefit prevailing under industrialisation. They believe that analysis of an aggregate of social conditions can provide an indication of the nature of 'industrial capitalism' in the early nineteenth century.

who have attempted to estimate the 'happiness', or the 'unhappiness', of the greatest number during the industrial revolution has been the plight of children in coal mining.

The historiography of children's employment in coal mining has never been systematic. Indeed, many general works of social history have done little more than recount the worst cases of exploitation and ill-treatment from the evidence of the C.E.C. Lewis has suggested that as early as 1845, as a result of an unlikely alliance of such social commentators as Disraeli and Engels, 'The trapper sitting in the dark and the girl harnessed so that she could hurry coal were entering literature as figures to pity'.²⁸ Four decades later a late Victorian historian stated that the C.E.C. 'revealed what was being done in the mining districts ... the whole mining population was sunk into a moral condition which was a scandal to the country and to the age'.²⁹ Seventy years after the publication of the report of the C.E.C., the Hammonds were able to claim that 'the factories and mines were responsible for the greatest sum of infant misery'.³⁰ In a recently completed thesis on coal miners' autobiographies, Howard has suggested: 'for these child labourers life was exceedingly brutal, monotonous, and frightening'.³¹ Accounts of child labour in coal mines selected from the C.E.C. continue to evoke incredulity and outrage among many people.

Most examples of children's employment drawn from parliamentary evidence, therefore, have been enlisted to support a pessimistic view of industrialisation. As a result, a popular historical dogma has persisted that child labour was immoral (an idea that nineteenth-century working-class persons would have thought odd) and that

²⁸ Lewis, *Coal mining in the eighteenth and nineteenth centuries*, p. 105.

²⁹ Ward, *Reign of Queen Victoria*, vol.I, p. 59.

³⁰ Hammonds, *Town labourer*, p. 176.

³¹ Howard, 'Miners' autobiographies', p. 66.

most children employed in the nineteenth-century coal-mining industry were the victims of 'exploitation'. The image sustained in many historical works is of a nation of ill-treated child-labourers working in dismal factories and mines receiving frequent moral and physical abuse at the hands of overseers and employers. In some instances this has taken the form of an ahistorical comparison between the treatment of twentieth-century children and those of the nineteenth. The resulting moral consensus (that the employment of children was bad) has caused the issue of child labour to be treated as a settled issue: a topic which, today, excites only self-satisfied indignation from interventionists and a measure of guilt from free market liberal thinkers. Hair has gone so far as to suggest that its 'telescopic contemplation ... induces mild hysteria in latter-day reformers, politicians and historians'.³²

It was almost inevitable that accounts of working children should be drawn into the debate over the social effects of industrialisation. Frequently, however, where the issue has been discussed it has degenerated to fatuity. Nardinelli, an American econometric historian, has referred favourably to the corporal punishment of working children claiming that it 'increased the productivity of child labor' and concluding that such punishments were 'an effective method of increasing work discipline and productivity in 19th century Britain'. Thompson, amid a plethora of selective quotations from parliamentary inquiries, described a 'mixture of terror and fatalism' among coal-mining children; suggesting that 'the exploitation of little children, on this scale and with this intensity, was one of the most shameful events in our history'.³³

³² Hair, 'Children in society', pp. 50-1.

³³ Nardinelli, 'Corporal punishment and children's wages', pp. 283-95; Thompson, *Making of the English working class*, pp. 369, 384. See the reply to Nardinelli by MacKinnon and Johnson, 'The case against productive whipping', pp. 218-23; Cunningham originally thought that Nardinelli's article, claiming that corporal punishment increased productivity, had been intended as a 'spoof'. Cunningham,

The views of professional historians on child labour are often barely distinguishable from those engaged in polemical and journalistic writing whose aim has frequently been to sensationalise the issue of child labour (usually in order to support a particular view of the development of industrial capitalism). Eric Forster's book *The pit children* (which drew largely upon the evidence of the C.E.C.) made the painful observation that, as a result of industrialisation in the early nineteenth century, 'apple-cheeked, cider-fed yokels were transformed into wan-complexioned, soup-begging operatives within the twinkling of an industrial entrepreneur's eye'. Forster railed against the 'pot-bellied rich ... [who] swung gold watches into weskit pockets and ordered buzzers blown to recall their men to twelve hours [sic] labour (or even sixteen or eighteen hours)'. Forster's pit children were 'carried to work still asleep on the shoulders of fathers or brothers'.³⁴ Tomalin, in a work chiefly on coal-mining technology, wrote of the employment of 'children of every age, from five upwards. Tiny children were sent down below to work for twelve or fourteen hours a day, their task being to sit alone in the darkness beside the traps (ventilation doors) and open them when a trammer with a load of coal wanted to get through'.³⁵ Michael Pollard's *Hardest work under Heaven* describes how 'sub-commissioners, sent to the pit villages from 1835 onwards to investigate accidents or child labour or working practices, emerged white and shaken, not only by what they had seen but by the difficulty of conveying the horror of it to the legislature'.³⁶

'Child Labour', pp. 48-51; In his later book on children's employment, Nardinelli claimed: 'Industrialisation, far from being the source of the enslavement of children, was the source of their liberation', *Child labor and the industrial revolution*, p. 102.

³⁴ Forster, *Pit children*, pp. 4-5. Forster is also the author of a book entitled *The death pit*.

³⁵ Tomalin, *Coal mines and miners*, p. 69.

³⁶ Pollard, *Hardest work under Heaven*, p. 27.

School books have also played a prominent role in transmitting a pessimistic view of children's employment. Indeed, an early influence in the historical education of most people is a connection between industrialisation and young children toiling in dark and dangerous coal mines. Walvin's description of factory children ('thousands of pathetic children were beaten awake, kept awake by beating and, at the end of the day, fell asleep too exhausted to eat') typifies a genre of historical writing about child labour that relies heavily upon received wisdom.³⁷ The same pattern is evident in Walvin's depiction of coal-mining children. 'Bad as [the factory evidence] was', he wrote, 'it was surpassed by the stories of child labour in the mines'. Walvin's coal-mining children were 'lost for days in the labyrinths of passages and galleries; weeping, unfed children hiding in underground holes; parents and other adults ill-treating young assistants simply to force a little more effort from them'.³⁸ Walvin's approach echoed earlier descriptions by Wymer who, in his 1955 school book on social reformers, revealed that

babies ... spent hours each day in the blackness of the mines, the babies being taken down because their mothers had nowhere to leave them while they were at work. Children of only five and six were set to crawl through traps of no more than two feet high, pushing the smaller coal carriages. Others were required to lie on their backs in the damp, foul atmosphere, opening and shutting air vents by means of strings attached to their hands and feet. Some, again, stood barefooted in pools of water for periods of twelve hours working the

³⁷ Walvin, *A child's world*, p. 64.

³⁸ Walvin, *A child's world*, p. 65. The example of lost children is possibly a reference to an isolated incident in Shropshire in which two children wandered into old workings and became lost ('we lost our way, and were not able to find the shaft for two days and a half. At last we did find out the water-engine shaft, and shouted up, and we were taken up'. (P.P. 1842, XVI), pp. 85-6). Walvin (according to his footnotes) did not consult the report of 1842, but relied heavily upon the selections of E. Royston Pike, *Human documents of the industrial revolution*.

shaft pumps. Many of the older boys and girls, like the women, were employed as pit ponies ...³⁹

For the writers of many school-books the great reformers provided the answer to the 'problem' of nineteenth-century child labour. Allen's 1979 book *Victorian Children*, for example, notes: 'The fact that laws were passed which gradually improved conditions was due to the kindness of such men as Lord Shaftesbury and Sir Robert Peel'.⁴⁰

Most school children (and, by implication, most historians), therefore, have been led to believe that industrialisation *caused*, or at least increased the incidence of, child labour and that social reformers eradicated the problem. Indeed, it has been suggested that 'mid-and-later twentieth century children are indoctrinated to believe that all child-labour is wicked'.⁴¹ In a standard GCSE text, currently in use, we can still read that women and children who worked in coal mines were 'used as mere animals in crippling and degrading conditions'.⁴² The populist appeal to emotions has had a considerable effect in maintaining the popular historical view of children's employment: but the comparison between the historical employment of children and late-twentieth-century standards of morality towards children is anachronistic.

³⁹ Wymer, *Social reformers*, pp. 243-44.

⁴⁰ Allen, *Victorian children*, p. 44.

⁴¹ Hair, 'Children in society', p. 50. It is not surprising that educators are inclined to overestimate the historical effects of their occupation upon children's employment (see pp. 23-25).

⁴² Culpin, *Making modern Britain*, p. 158.

II

In spite of the large amount of evidence that was elicited by the Sub-Commissioners of 1840-1842 (the evidence ran to two large volumes and a total of 2,087 folio pages) surprisingly little serious work has been produced on children in coal mines. Rarely have the conditions of these children and their work been addressed directly. Most discussion of their work, as argued above, has appeared as an adjunct to other, often wider, questions of nineteenth-century social history. For historians who have been pessimistic about the social effects of industrialisation, the sheer size of the evidence has, along with the reports of factory commissioners, provided fertile ground for the selective use of evidence and the all too frequent reporting of the worst cases of exploitation.

Although evidence of children working at four or five years of age might well be rooted out from the volumes of evidence taken before royal commissions, the contribution of these children to the coal industry was marginal. Indeed, the work of children was probably much less valuable to industrial capitalism than some nineteenth-century reformers or twentieth-century historians would have us believe. What kind of work might very young children have performed in an industry in which the majority of occupations were heavy and labour-intensive? Most of the small number of very young children found in the workplace by contemporary social inquirers were there for reasons other than labour: often because their parents had no child-minders or because their presence provided the parent with a greater share of output.⁴³

Overstatement of the conditions of children's employment has resulted from the emphasis placed by the nineteenth-century inquirers upon the collection of

⁴³ This issue is discussed in more detail in chapter two.

evidence from specific industrial occupations such as factory work and coal mining. But in coal mining, the number of very young children underground was, in fact, extremely small. Of 1,797 people working in coal mines who, in 1841, gave evidence of an age of starting work, only 12 stated that they had commenced aged four (this amounts to 0.7 per cent of those in the sample).⁴⁴ This is a startlingly low figure: it is all the more surprising since the Sub-Commissioners, who elicited the evidence, assiduously sought out examples of very young children to include in their reports.

Historians have fought shy of pointing out the small numbers of very young children involved in coal mining. Pinchbeck and Hewitt, whilst asserting that the C.E.C. report 'revealed the conditions of children's employment in all their horrifying detail', claimed that the evidence showed: 'At the age of five or six many girls spent the entire day in darkness as "trappers" attending to ventilation doors'.

How numerous is 'many' in the above example? Computer-aided analysis of the C.E.C. evidence indicates that of the 420 females who gave evidence to Sub-Commissioners in 1841, only four claimed to have started work in ventilation occupations between the ages of five and six (only eight females in the sample claimed to have started work between five and eight).⁴⁵ Moreover, of those females whose current occupations were recorded in 1841, only one (aged six) was at work as a ventilation door keeper. Of those females who gave evidence, only one seven year-old and one eight year-old were actually working in coal mines: the C.E.C. evidence contains no record whatsoever of any five year-old girls employed in ventilation in

⁴⁴ Prosopography of evidence. C.E.C. (P.P.1842., XVI., XVII); Booth, 'Occupations of the people', p. 371.

⁴⁵ Pinchbeck and Hewitt, *Children in English society*, vol.II, p. 401; Prosopography of evidence, C.E.C. (P.P.1842, XVI, XVII).

British mines in 1841.⁴⁶ Pinchbeck's and Hewitt's employment of the word 'many', in this context, is an example a qualitative term masquerading as a quantitative statement.

In similar vein, in his work on the Derbyshire miners, Williams has suggested: 'Many of these unfortunate children started work at the age of five or six. Few began work in the pits at a later age than eight'.⁴⁷ Computer-aided analysis of the starting ages of the 276 subjects observed in the C.E.C. evidence from Derbyshire, however, provides a mean age at commencement of 8.78 years. According to the evidence, therefore, most children working in Derbyshire mines commenced work *after* the age of eight. This is especially surprising since Williams claimed to have used the C.E.C. to estimate their ages at commencement.⁴⁸ Another historian has suggested that in the West Riding of Yorkshire 'by the time they were six, most of the children would be at work'.⁴⁹ Quantitative scrutiny of the C.E.C. evidence for west Yorkshire, however, indicates that the mean age at starting work there was greater than eight years.⁵⁰ Horror at the idea of child labour has also prompted instances of serious inaccuracy. Sawyer, for example, wrote: 'Until 1842, when the seventh Earl of Shaftesbury forced the issue in Parliament, boys under 13

⁴⁶ Prosopography of C.E.C. (P.P.1842, XVI, XVII).

⁴⁷ Williams, *Derbyshire miners*, p. 64.

⁴⁸ Williams appears to have relied for his ages at commencement upon a brief estimate contained in the shorter first report presented to Parliament by Lord Ashley. (P.P. 1842, XV), p. 11.

⁴⁹ Petherick, 'The movement for the abolition of child labor in the mines of England', p. 35.

⁵⁰ See table 14.

were still working in the mines'.⁵¹ In fact, children aged between ten and thirteen continued legally to work in coal mines until the 1870s.⁵²

The naming of individuals from multi-volume parliamentary evidence has also been used to provide a personalised dimension to the debate. Thus Pollard, having selected the suitably desperate case of 13 year-old 'John' (we are never provided with a family name) from the 3000-plus children interviewed by the C.E.C., immediately gets on to first-name terms: 'John's father, though in work, was a drunkard and his mother a slut. John reckoned himself lucky to get any kind of meal when he got home from work'.⁵³ Whilst such cases were, undeniably, pitiable one wonders how close a relationship such dire social circumstances might have had with the process of mining coal. Moreover, since retrospective improvement is impossible, the purpose of such authors must remain the subject of speculation.⁵⁴ Present-day polemicists and ideologists may feel justified in distorting evidence of present injustices in order to gain public scrutiny and achieve their goals: but should this to be an acceptable method for the social historian?

⁵¹ Sawyer, *Children enslaved*, p. 2. Only children under the age of ten years were excluded from underground work in 1842 (the relationship between production conditions and age structure is discussed in detail in chapter five).

⁵² The prohibition on the employment of boys remained unchanged until 1861 when the Mines Regulation Act of 1860 prohibited boys below the age of twelve from working underground. However, the second clause of this Act allowed the employment of boys between ten and twelve, provided they could present a certificate from a schoolmaster that they could read and write. Boys could also be employed if it could be proved that they had attended school for three hours during two days of each week during the month prior to their employment in the mine. 23 & 24 Vict., c.151. From 1873, boys below the age of twelve were excluded from underground employment, but the Secretary of State was empowered to order exemptions in mines working thin seams. 35 & 36 Vict., c.76.

⁵³ Pollard, *Hardest work under Heaven*, p. 60 (many examples *passim*).

⁵⁴ As Dunlop suggested in 1912, to 'dwell on it now may appear purposeless, since the evils have been happily remedied'. Dunlop, *English apprenticeship*, p. 281.

This questionable connection between the coal industry and the exploitation of children has allowed pessimistic historians to indulge their fondness for taking a shy at the 'Aunt Sally' of industrial capitalism. Wanda Neff noted in the 1920s, for example, that among the mining population of the 1840s: 'Miscarriages were frequent... Many children died in infancy'. However, was Neff claiming that these sad phenomena resulted from coal production? If readers did not know that miscarriages and infant mortality were common among working-class women and children in the nineteenth century, they might be seriously misled into thinking that the process of coal-mining induced miscarriages or increased infant mortality.⁵⁵

Pessimists, moreover, have often argued as if those who gave evidence favourable to employers had been 'coached', or threatened, by their employers to do so. However, these historians also display unquestioning acceptance of the accounts of those who painted a grim picture of their employment (whose evidence may well have been influenced by prompting from the inquirers themselves). There is, in fact, evidence of both types of influence in the taking of depositions from workers; but the prompting of witnesses in large parliamentary reports would almost certainly have had a small effect upon the general picture obtained. Indeed, it would have constituted conspiracy on a grand scale for it to have significantly affected the evidence of the 4,000-plus children and adults interviewed by the C.E.C.

III

The mere existence of child labour, therefore, has been taken to imply widespread cruelty and exploitation. Historians have done little more than repeat their assent to this view: by this process the potential for a history of children's

⁵⁵ Neff, *Victorian working women*, p. 72.

contribution to industrialisation has been stifled. Where the position of children has been discussed, it has invariably fostered the misconception that the emergence of the parliamentary inquiries into the employment of children in centralised industries coincided with an *increase* in the incidence of children's employment. Inglis, for example, claimed that: 'In the early part of the nineteenth century, child labour came to be used on a scale it had never been used on before. Children formed the bulk of the factory population'.⁵⁶ This is not the same as stating that a majority of children worked in factories, but readers conditioned by 'vox-pop' histories, or those unacquainted with the ambiguities of historical prose, might readily draw that inference. Hair's warning against the 'danger of writing the history of nineteenth-century childhood solely in terms of chimney-sweepers, trappers and coalminers, cotton-factory-piecers and such tiny minority groups - while ignoring the vast majority of children who were in agriculture, in trades, in less dramatic occupations in new industries, at school or at home' therefore remains valid.⁵⁷ Yet, despite this, another respected historian of the coal industry has adopted the orthodox line in emphasising the 'psychological effect of the mine ... inducing terror in small children (especially among trappers left in the dark for hours on end)'.⁵⁸

The problem, therefore, is overwhelmingly one of proportions. The issue of nineteenth-century children's employment is one of the few remaining areas of British social history in which it remains acceptable to extrapolate the particular as the general. Moreover, this situation has prevented a more dispassionate examination of the position of children in British economic development.

⁵⁶ Inglis, *Poverty and the industrial revolution*, p. 30.

⁵⁷ Hair, 'Children in society', p. 53.

⁵⁸ Church, *History of the British coal industry*, p. 197.

Many of these criticisms, of course, apply to the wider question of living standards during the 'industrial revolution'. Indeed, the 'standard of living' debate is also founded upon the possibly absurd premise that the overall level of suffering or benefit can be known and quantified. As Floud and others have suggested:

Part of the reason for the lengthy and sustained nature of the political and scholarly debate has been that the 'standard of living' is so amorphous a concept. At its narrowest, it has been taken to be identical to real per capita national income; at its broadest, it has embraced the contrast between an overcrowded urban hovel and a country cottage with roses blooming round the kitchen door.⁵⁹

It is indeed most surprising that, despite the expansion of social history and 'history from below' since the 1950s and 1960s, the view of most of the historical establishment on children's employment has remained a consensual one. The 'democratisation' of history singularly failed to address the issue afresh since fundamental beliefs about the nature of industrial capitalism have remained intact throughout. The *burden of responsibility for child labour remains a moral weapon*, to be directed according to the ideological position of educators, historians or politicians. Against such viewpoints, it may be worth again re-stating the words of Carr, who argued that 'the standpoints of the historian and the moralist are not identical'.⁶⁰ In discussions of child labour, moral boundaries have emerged: these have been defined by convention. Those who venture beyond the orthodox view risk, in the words of Hartwell, becoming 'drowned with moral tears or ideological shouting'.⁶¹ Indeed, Hartwell noted in 1971 that most commentators 'writing today

⁵⁹ Floud, Wachter and Gregory, *Height, health and history*, p. 278.

⁶⁰ Carr, *What is history?*, p. 75.

⁶¹ Hartwell, *Industrial Revolution*, p. 392.

about slaves and children, argue as though the issue at stake is *not* what happened, but is the moral issue, not only of the wickedness of plantation and factory owners, but also that of the historians'.⁶²

The picture of children's experience in the nineteenth century, therefore, remains dominated by a concern with hard-labour and exploitation. Frequently, however, the source of misery has been depicted as industrial, even though the suffering resulting from, for example, the prevalence of infectious diseases greatly outweighed the very small number of cases of severe ill-treatment among mining and factory children. In fact, it might be argued with some force that the 'sum of infant misery', perceived by the Hammonds and others, has never been adequately, or fairly, quantified.⁶³

The question of the economic viability of child labour, also, has been largely overshadowed by the desire to describe the *effects* of their labour. However, are the effects of children's work really being addressed in pessimistic works? Chaloner has stressed 'the danger of accepting at face value statements made in the course of the bitter social and economic agitations which enlivened the 1830's and 1840's'.⁶⁴ Poor welfare among nineteenth-century working class people has frequently been ascribed to the occupations that they followed. However, whilst some effects of occupation upon the health of workers can be clearly demonstrated (the effects of coal dust upon miners' respiration in later life, for example) does it really matter whether the master

⁶² Hartwell, *Industrial Revolution*, p. 392.

⁶³ Hammonds, *Town labourer*, p. 176. The views of the early labour historians frequently mirrored the philosophy of the early nineteenth-century reformers. This begs the question as to what extent the labour historians' views resulted from 'reverse permeation'. In other words, did the assimilation of Liberal Party reform-history by the Webbs, Hammonds *et al* continue the 'progressive' reform axiom within labour historiography?

⁶⁴ Chaloner, 'New introduction' to Dodd, *The factory system illustrated*, p. vi.

of an ill-treated parish apprentice, or orphan, was a coal miner, a weaver or a farmer? Historians have been too anxious to demonstrate a relationship between industrial production and the exploitation of children and the reason for this lies in the nature of the surviving evidence.

Daunton has successfully summarised the problems that inhere in the wider source materials traditionally used by historians of coal-mining labour:

A full social history of the coalfields should take account of the work itself, in a way which would unite the concerns of economic historians dealing with technology, treating the workforce as a factor of production, and of labour historians dealing with the organization of the men... Historians of the mining communities should realise this and commence their analysis where John Wilson or Thomas Burt or William Abraham started their careers - not in the union offices, but rather down the pit.⁶⁵

Daunton's methodological solution, however, is disliked by those who regard the issue of child labour as closed. It must be concluded that a major reason why the general picture of children's employment has been overlooked for so long is that a closer examination of the changing role of children in industrial production has the potential to show that there was a decline in their numbers: that industrialisation, far from causing harm to most children, liberated successive generations from a pattern of toil stretching back innumerable generations. The view that industrialisation caused a decline in child labour, therefore, runs counter to that which holds that industrialisation was a socially harmful experience: but it is clear that one of the primary characteristics of any mature economy, compared to economically under-developed states, is the absence of widespread child labour.

⁶⁵. Daunton, 'Down the pit', p. 597.

The process by which this occurred has historically been overlooked by the left. Sidney Webb, for example, echoing Robert Owen and writing on child labour in 1911, called for the application of a '"national minimum" in the standard of life, to be secured by law to every one of its citizens'. However, Webb's analysis of social legislation, mirroring the historicism of 'progressive' liberalism, failed to address more deeply-rooted economic and industrial causes of the decline in child labour. Webb was apparently oblivious of the relationship between high levels of industrial and technological development and the emergence of legislative minima relating to children's employment: he failed to identify the link between increasing levels of economic development and a decreasing incidence of child labour.⁶⁶

Historians of the left, therefore, although they deprecate the Whig conception of history, have frequently been as culpable as Whig practitioners in keeping alive the received wisdom surrounding nineteenth-century child labour: the brutalised images of working-class childhood; beatings received by children in factories and mines; or the harsh treatment of the chimney sweeps. Moreover, although most historians of the left would eschew the description 'conservative', it is difficult to envisage how else their continued support for received historical wisdom might be described. An uncritical assent to the idea of 'exploitation' among nineteenth-century working children might be seen as a shibboleth denoting allegiance to a moral consensus among historians. The emphasis upon industrial exploitation owes much to the unquestioning acceptance of the idea by almost all sections of the historical establishment: it also owes a great debt to the dominance within the labour movement, and within labour history, of miners' trade unionism.

⁶⁶ Preface by Webb to Hutchins and Harrison, *A history of factory legislation*, p. vii.

IV

But what questions should the social historian ask of the historical circumstance of child labour? There can be little doubt that ill-treatment existed among children: but was this the general picture of children's employment? Were child-workers really the 'victims' of industrial capitalism, or does the exploitation hypothesis result from an emotional and ahistorical comparison of our own social norms with those of the early Victorian working class? Child labour declined in absolute terms throughout the nineteenth century: but did this result from moral improvement crusades, legislation, or industrial and economic change?

Most of our historical understanding of the condition of children in the first half of the nineteenth century has been abstracted from the volumes of evidence to government inquiries.⁶⁷ A fundamental reappraisal of this evidence is required therefore. Indeed, scrutiny of the evidence of 1842 frequently shows the position of most child workers in nineteenth-century coal mines to have been much less brutal and less sensational than the picture presented by many the historians. Moreover, despite the implausibility of the horror stories surrounding their work, the employment of children in the nineteenth-century coal mining industry is no less stimulating a subject for the scholar of social and economic history. Furthermore, the changing role of children in coal mining formed an important part of more fundamental changes in the economic value of child labour and in the relationship of children to the household, to industry and to society.

⁶⁷ Engels, perhaps the earliest social commentator upon the condition of children in British coal mines, for example, relied almost entirely upon the evidence of the C.E.C. Coleman, *Myth, history and the industrial revolution*, p. 6.



Detail from 'Capital and Labour', *Punch*, Cartoon no.5, vol.5, 1843.

Chapter two. Children and work

In the first half of the nineteenth century, children in British society worked in a wide range of occupations. Labour, in agriculture, domestic manufacture or centralised industry, was a primary means of socialisation for many working-class children.

Historical perceptions of children's employment, however, are problematical. The concept of 'work' may describe recognisable modern forms of labour activity, performed during defined hours in return for a wage; or it can identify traditional and less regulated forms of labour that had more to do with the maintenance of small workshops or domestic production units. These latter forms of production were those in which most employed children worked prior to the mid-century. Indeed, the process of economic development in western states over the past two centuries has engendered a change from a situation in which most production was located in a domestic environment employing most, or all, household members, to one in which production has become a discrete activity usually performed by a head of household away from the home. As Mitterauer has suggested, the general history of labour organisation in Europe 'may be characterized as the development from the co-operation of the family economy to the marketing of individual paid labour'.⁶⁸

The divergence of the economic and private functions of households substantially affected the internal economy of the household. Indeed, the changes outlined above constituted perhaps the most significant alteration in the internal relationships of human families to have taken place in modern times. This had an effect upon perceptions of children and of their economic role.

⁶⁸ Mitterauer, *History of youth*, p. 116.

The role of children's labour within this process is difficult to assess since, firstly, their labour was usually ancillary to that of adults and, secondly, because their age of entry to the work process was dependent chiefly upon the economic need of the family. Just as there was no rigid understanding of what constituted *work*, there was also no clearly defined age at which *work* commenced. The age at which children began labour, therefore, was always determined by the immediate needs of the household and by the process of production itself. This creates conceptual problems for historians who have themselves been socialised in modern, economically developed, societies where older labour forms such as child labour have virtually disappeared and in which the entire issue of children and work has become the subject of an accepted set of legislative restrictions. Historical understanding of children's employment, therefore, is often hindered by a tendency to apply modern conceptions of work to historically diverse, and frequently obsolete, forms of labour. This has meant, for late twentieth-century historians, that the most easily recognisable nineteenth-century occupations are those that were first to be centralised and whose work patterns were clearly delineated: industrial occupations were those upon which the earliest and most detailed evidence was gathered.

I

The primary goal, for most nineteenth-century working-class households, was that children, ultimately, would succeed to an occupation: usually the occupation of the male head of household. Children constituted a major support to the household economy in assisting their fathers, mothers and siblings in production. Indeed, in domestic manufacture and in agriculture, the labour input of a child was often vital in sustaining the household both as an economically viable unit and as a source of future

supplies of labour. The historical contribution of children to the well-being of households is an issue that has increasingly come to interest historians of the family. As a result, the concept of the 'family economy' and its changing internal relationships is now a central theme in the field of economic and social history.

The recent work of Horrell and Humphries, in comparing working-class household accounts, for example, represents an innovative use of non-wage sources to assess the living standards of families in different occupations. Their work has escaped the narrowness of emphasis that has dogged previous studies based upon real wages, but has itself been hampered by the scarcity and poor quality of the surviving evidence.⁶⁹ Few household budgets have survived: those that did have inherent problems and are notoriously difficult to examine. Many were collected by state commissioners whose intention was frequently to compare the feckless with the frugal. This evidence can not be regarded as providing a typical picture. Indeed, the eagerness of historians to use it emphasises some of the difficulties involved in both the evidence and its interpretation. The household is an historical economic unit of which, through lack of evidence, we have only a vague picture; but whose significance to the production of goods becomes greater the further back in time one's examination goes.

In addition to the problems inherent in the study of internal household economics, there is the question of interpreting the occupations of family members. In her study of urban children in the later century, Davin has attempted to throw light upon the, historically, indistinct division between 'helping' and 'working'. She has argued that, even during a period in which children's employment was experiencing a steep decline, the ancillary role of child labour persisted. Children worked as helpers to their parents, commonly without a money wage. Although the work of nineteenth-

⁶⁹ Horrell and Humphries, 'Families' living standards', *passim*.

century children often amounted to little more than fetching and carrying, their 'helping' role was not a mere marginal economic activity: the census of 1851, for example, recorded 40,000 errand boys.⁷⁰

Indeed, ancillary work was the central feature of work socialisation for children in both industrial and agrarian society.⁷¹ The 1843 Poor Law report on agriculture noted that 'before a boy is regularly hired by the farmer, he frequently at an early age accompanies his father to work, not to labour, but to wait upon him, as it were, in different ways'.⁷² The 'helping' role was a recurrent theme among the working-class autobiographers, many of whom (especially in domestic industry) spent their infancy playing among the machinery of production, long before any labour was embarked upon. In rural districts, children would often be employed seasonally in hay-making, or simply to scare away birds from newly-sown fields.⁷³ Early employment in mining entailed carrying picks and candles, or carting wood for props. In some coal-districts, the mere presence in a coal mine of a young child (of doubtful labour value) allowed their fathers to claim a greater share of coal output.⁷⁴ Early work socialisation was commonly encouraged by parents and employers who thought early entry to work both necessary and desirable. Socialisation of children to employment was a subtle and diverse process which, historically, transcended the reductionism of the later historical debate over 'child-labour'.

The value of the labour of children to the household economy depended primarily upon the labour input of the other members. As Hennock has suggested:

⁷⁰ Davin, 'Working or helping?'; Hair, 'Children in Society', p. 48. Many children who 'helped' their parents in domestic industry were probably never enumerated by the censuses.

⁷¹ Berg, *Age of manufactures*, p. 259.

⁷² (P.P.1843,XII), p. 30.

⁷³ Vincent, *Bread, knowledge and freedom*, p. 76.

⁷⁴ See pages 73-76.

'What matters most about a household is its capacity to ensure the survival of its members'.⁷⁵ This needs to be borne in mind constantly: often the loss of a main breadwinner could disrupt internal economic household relations and shatter a household. In a society without a system of social welfare, orphans, or the children of widows, would often be forced out of the home and into work at an earlier age than those protected by a more stable household structure: the pages of the blue-books are strewn with such examples. Parish apprentices were most useful to workers who had no children to assist them; or to the owners of manufactures that were too large to be supplied by the natural increase of family labour-power (an early example of this was the exploitative employment and treatment of pauper children in textiles mills in the late eighteenth century and in coal mines in the early nineteenth century).⁷⁶

Besides the obstacles associated with historical definitions of work, the problems that inhere in the surviving evidence of children's employment make its quantification extremely difficult. Most nineteenth-century reports of child employment were concerned with a few centralised industries and, most importantly, they concentrated upon occupations in which the labour of children was seen as socially pathological.⁷⁷ The issue of the chimney-climbing boys, for example, indicates how broad social concerns over cruelty resulted in a large amount of evidence about a small number of working children. The monotonous work of children in textiles factories, or their employment in coal mining, were also occupations that were considered to be injurious to a child's moral and educational

⁷⁵ Hennock, 'Socialization', p. 5.

⁷⁶ MacDonagh, *Early Victorian government*, p. 22; Pinchbeck, *Women workers*, p. 183.

⁷⁷ Reports of the plight of the hand-loom weavers might be thought to be an exception to this rule. However, even these reports were chiefly concerned with the consequences of increasingly centralised production of textiles.

development and which became subject to the scrutiny of early government inquirers. Although greater in number than climbing-boys, these latter groups probably constituted a minority of working children in the early decades of the nineteenth century: agriculture and domestic manufacture probably comprised the largest number of employed children until after the mid-nineteenth century. As Pinchbeck has pointed out, the employment of children 'was equally characteristic of the older domestic industries. Hidden away in cottages, where they attracted no attention, thousands of children in rural areas worked factory hours every day, under conditions which were often no better than those which aroused so much feeling in industrial centres'.⁷⁸ Ward has suggested that it is 'often forgotten that child labour existed long before the factory system' and Samuel has also made the important point that the smaller workshop was much more common than the factory in industrial production until about the 1880s.⁷⁹

The Victorian inquirers' emphasis upon centralised industries, therefore, raises serious problems for the historian of nineteenth-century children's employment. Their concern for children in specific industries diverted attention from a wider labour force whose geographical dispersion and wide variety of occupations made them less visible to the inquirers. Whilst children engaged in all occupations were under-represented in the census schedules, those in centralised industries were, as a result of early royal commissions and other parliamentary inquiries, accorded a public visibility disproportionate to the wider population of children in nineteenth-century society.

The attitudes of the different branches of the early Victorian state offer valuable evidence of an 'official' distinction between children employed in domestic

⁷⁸ Pinchbeck, *Women workers*, p. 232.

⁷⁹ Ward, *The factory system*, Vol. 2, p. 67; Samuel, 'Mechanization and hand labour', p. 28.

manufacture and children in industry. The census enumerators of 1841, for example, were instructed to omit from their notebooks the occupations 'of sons or daughters living with and assisting their parents' and, as has already been suggested, the royal commissions of the first half of the nineteenth century confined their investigations almost entirely to children occupied in centralised industries, especially those in textiles and coal mining. The Children's Employment Commissioners of 1841 were given specific instructions to inquire into 'the Employment of the Children of the Poorer Classes ... in which numbers of Children work together'.⁸⁰ The under-registration of children's domestic occupations in census schedules suggests that contemporaries did not view the employment of children as 'work' but rather as a private function of households.

Despite the preponderance of children in agriculture, rural workers did not receive the attention of social inquirers until much later than the industrial sectors. Poor Law Commissioners produced a report on agricultural labour in 1843, but little serious scrutiny of agricultural labour emerged before the major reports of 1867-8 and 1868-9.⁸¹ There is, therefore, little 'first-hand' or quantitative evidence of early nineteenth-century agrarian life. Horn has suggested a level of poverty among agricultural children which far exceeded anything experienced by those in factories and mines (but her extensive use of polemical literary sources possibly exaggerates the poor conditions of agricultural children).⁸² Likewise, the large number of children employed in domestic service received little attention from nineteenth-century social inquiries.

⁸⁰ PRO RG27/1, p. 58., quoted in Higgs, *Making Sense of the Census*, p. 81; (P.P. 1842, XV) p. iii.

⁸¹ (P.P.1843, XII), (P.P.1867-8, XVII), (P.P.1868-9, XIII), (P.P.1893-4, XXV). The absence of early social inquiries into agriculture probably resulted simply from resistance to such interference from a predominantly land-owning legislature.

⁸² Horn, *Life and labour in rural England*, *passim*.

The increasing emphasis upon the conditions of children in the newer industries, throughout the early decades of the nineteenth century, therefore, resulted largely from a concern for the ruinous effects of industrial employment upon family life in general and upon the health and morals of children in particular. Indeed, the early social inquirers depicted certain types of domestic labour as synonymous with family life whilst viewing industrial work for children as corrosive to the 'traditional' household structure. There was a perception that the labour of children in industry was pathological and represented an assault upon the traditional family unit. There was a general antipathy, not toward child labour as such, which was widely accepted as a fact of working-class life, but toward a changing *quality* of children's employment. A contributor to the *Westminster Review* epitomised this view:

New systems of industry, unknown to former ages, have now so extended the demand for the labour of children as to expose them to a violation, through "undue" labour, of their moral right to a maintenance and education proportioned to the means and the wants of society; and, all considerations of humanity aside, it is the duty of society to protect itself from being defrauded out of the health and moral energies that may thus be destroyed.⁸³

II

In the early nineteenth-century coal-mining industry, the labour functions of adults and children were intimately connected. Coal mining was predominantly a family affair: most of the children working in British coal mines were the male children of colliers and the majority of those children were employed by their fathers

⁸³ Greg, 'Protection of children in mines and collieries', p. 87.

or brothers.⁸⁴ The size of mining households remained large throughout the nineteenth century.⁸⁵ The rate of occupation succession was, concomitantly, very high: most sons of miners became miners themselves.⁸⁶ The labour of children was indispensable to the production process and formed an essential input to the welfare of the household. In his 1842 report on Bradford and Leeds collieries, William Wood noted: 'Children who have been engaged in mining operations almost universally become colliers or miners; and there are, probably, no colliers who have not worked in the mines as children'.⁸⁷

These consanguineous labour units usually worked at piece-rates and their income was dependent upon bringing a quantity of coal from the face to the bottom of the shaft. Most children in coal mining were employed to haul (or, in some cases, to carry) the hewn coal: a smaller number of young children were employed to attend underground ventilation doors. Other children carried out a variety of ancillary tasks. The adult hewers, who cut the coal from the face, were usually left to their own devices in the employment of children to assist them.

Coal mining was the first large-scale and fully centralised process of production and all mining households relied predominantly upon an extra-domestic income. This circumstance existed for a considerable period before the emergence of factories and other centralised production processes. The basic requirement that a labour force be located within walking distance of a colliery also presented major obstacles to wider occupation choice for colliers and to recruitment from non-mining

⁸⁴ The exception to this was the North East, where all children were employed directly by colliery owners. In Lancashire, drawers were 'never mentioned in the wage-book of the master, but [were] paid by the collier'. (P.P. 1842, XVII), p. 209.

⁸⁵ Haines, 'Fertility, nuptiality, and occupation', table 3, p. 260.

⁸⁶ This was emphasised in the conclusions of the 1842 Commissioners. (P.P. 1842, XV), p. 255.

⁸⁷ (P.P. 1842, XVII), H.10.

areas: collieries were frequently located at some distance from longer-established communities. Even in industrially heterogeneous areas, miners lived in residentially segregated areas clustered about pit-heads. This pattern continued long after the development of cheap public transport systems and in many colliery communities, high levels of occupation succession continued well into the twentieth-century.

Despite total centralisation, therefore, the coal-mining labour-force remained dominated by family production units. Indeed, the system of work socialisation through which the vast majority of mining children passed mirrored more closely the domestic, rather than the typical industrial, model. Whereas, in other sectors of the economy (especially textiles), the household underwent radical functional changes, the internal economic relations of the typical mining household were approximately the same in 1900 as they had been in 1800 (even though the absolute number of households involved in coal mining increased greatly throughout this period). Unlike the textiles industry, coal mining escaped the crises of innovation of the 1830s and 1840s. The effects of radical technological change that were wrought by the introduction of steam-looms upon the structure of textiles households had no comparison among coal-mining communities.⁸⁸

Accompanying the relative stability of coal-mining household economies was a consistency in adult mining methods which remained virtually unchanged until the twentieth century. Mining technology in the nineteenth century underwent gradual improvement rather than radical innovation.

Successive increases in coal production required the introduction of more efficient underground haulage and the opening-up of more extensive underground workings. Most of the workers responsible for haulage and ventilation operations

⁸⁸ This makes coal mining a much more stable framework within which to study the relationship between technology and children's employment.

were predominantly male and were below the ages of 18 to 20 years.⁸⁹ Underground haulage operations invariably involved the labour of children and the numbers of these children, therefore, were very sensitive to varying levels of haulage technology. The upper age limit of haulage workers remained remarkably stable in most districts throughout the nineteenth century but the transition from haulage to hewing sometimes occurred earlier in the primitive coal districts. Almost all production workers who were not hewers were below the ages of 18-20. The Sub-Commissioner for south Durham noted: 'The hewers under eighteen years of age are so few, as scarcely to deserve to be noticed'.⁹⁰ By the end of the century, the picture remained roughly the same. Daunton's figures on age and occupation structure for the Durham colliery labour-force in 1894 (table 1) indicate that there were probably no hewers below the age of 18.

Table 1. Proportions (%) of underground workers in Durham coal mines, by age, 1894.

| | drivers | putters | hewers | total underground |
|----------|---------|---------|--------|-------------------|
| under 16 | 71.9 | 0.4 | nil | 8.4 |
| 16-18 | 27.7 | 18.6 | nil | 8.9 |
| 18-21 | 0.4 | 59.5 | 0.5 | 9.6 |
| over 21 | nil | 21.5 | 99.5 | 73.1 |

Source. Daunton, 'Down the pit', p.590.

Children's work in coal mining, therefore, was of a significantly different quality to that of adult workers. The position of children in the household and in underground

⁸⁹ The age of marriage among miners was consistently lower than most other occupational groups. Haines, 'Fertility, nuptiality and occupation', p. 259.

⁹⁰ (P.P. 1842, XVI), pp. 142-43.

production was an accepted fact of working life: children's work was important to the economic well-being of households. In most primitive coal-districts, the work of the smaller children was commonly an indispensable factor of production.

The intimate labour-relationship between coal-mining parents and their children displays a continuity from earlier forms of internal household economic relationships. Indeed, parents in many coal-districts were said to 'own' the labour-value of their children. A 70 year-old Scottish hewer observed to the C.E.C. that 'children were and are property, for they are taken down as soon as they can carry coal'.⁹¹ In South Wales, the vast majority of boys working underground were employed directly by their fathers.⁹² It was suggested there that:

The collier boy is, to all intents and purposes, the property of his father (as to wages) until he attains the age of seventeen years, or marries; his father receives his wages, whether he be an air-door boy of five years of age or a haulier of fifteen.⁹³

In most coal-districts, owners and managers interfered very little in this relationship. Some of them 'distinctly [stated] that they do not conceive they have a right to do so'.⁹⁴ Morris and Williams' suggestion that children 'formed a source of cheap labour, attractive to employers', therefore, overstates the culpability of coal-owners, whose role in child labour appears to have been characterised more by ambivalence and neglect than by positive attempts at exploitation.⁹⁵

⁹¹ (P.P.1842,XVI), p. 452.

⁹² (P.P. 1842, XV), pp. 39-40.

⁹³ (P.P. 1842, XVII), p. 482.

⁹⁴ (P.P. 1842, XV), p. 257; also quoted in Greg, 'Juvenile and female labour', p. 134.

⁹⁵ Morris and Williams, *South Wales coal industry*, pp. 212-3.

The pattern of children's entry to coal mining relied predominantly upon the internal structure and financial circumstances of the household and upon the prevailing demand for the labour of children. Differences in geology and technology ensured that the ages of children, and the quality of the work they performed, exhibited great variation from district to district.⁹⁶ It was pointed out by the C.E.C: 'From the widely different conditions under which ... coal mines are worked in different districts, the nature of the employment in each must be materially different'. It is safe to suggest, however, that the work socialisation of children in coal mining followed the expected progression from an ancillary, to an active, role in production. Very few of them were forced into heavy labour at a very early age, but they were often brought early into the underground environment. For the very young child, his mere presence in the mine would accustom him to most of the routine mining operations.

Most children became accustomed to underground work over quite a long period. There was a contemporary understanding that miners were 'born' to the work and that outsiders, once they had reached the age of 12 or 13, were too old to adapt to a working life below ground. John Buddle, the prominent mining engineer of the north-east coalfield, declared in 1842: 'our peculiar race of pitmen ... can only be kept up by breeding'.⁹⁷

The self-interest of miners, the desire to employ only their own children as drawers and the rational requirement for a safety-conscious labour force often coalesced. Miners' union representatives from St. Helen's complained in 1863 that,

⁹⁶ This point is argued more closely in chapter five.

⁹⁷ Quoted in Church, *The history of the British coal industry*, vol.3, pp. 203-4; John Buddle, after beginning life as a schoolmaster, followed his father's profession as a viewer.

no one be put as a coalhewer except he be proved to be competent by a competent man, and is not under 18 years of age, so that he may be able to protect himself; the same to have drawn from a coal-hewer at the least two years. By adopting such plans as these it may be the means of putting a stop to so many accidents that often occur.⁹⁸

Children had a wide variety of occupations in coal mining. The number of ancillary occupations increased alongside the expansion of mining enterprises throughout the nineteenth century. These supportive occupations frequently constituted the child's introduction to underground labour. As works were extended, and underground roley-ways increased further in length, children were employed to keep the ways clear of coal, wood and other debris. As horse-power increasingly augmented human-power in haulage, the labour of children was employed to remove accumulations of horse dung in the levels.⁹⁹ With increasing complexity in coal production, fetching and carrying occupations proliferated: 'water-leaders' removed water from the paths of underground vehicles, 'wood-leaders' were employed to cart timber and pit-props to various parts of the workings and 'stone-leaders' carried stone and waste for the underground masons to construct stoppings for the ventilation or to shore-up unsafe parts of the pit.

There were many other ancillary occupations for children: pump-operators manned temporary water pumps, engineers' assistants carried tools and 'cranemen' were responsible for lifting corves full of coals on to rolleys which the drivers would draw away to the eye of the shaft. Moreover, the numbers of children working at the bank (the mouth of the pit) also increased. Children drove horses carrying corves

⁹⁸ *Transactions and Results of the National Association of Coal, Lime, and Iron-Stone Miners of Great Britain, held at Leeds, November 9, 10, 11, 12, 13, and 14, 1863*, Grievances of St. Helen's district, p. 106.

⁹⁹ The considerable success of miners at gardening shows bears witness to the destination of much of the manure.

away from the pit mouth and were employed at the screens, grading and sorting coals.

Although underground haulage employed the largest numbers of children, in coal-districts where extensive ventilation operations were carried out, such as north-east England and south Wales, children were employed in ventilation systems. In these districts, some children began their underground employment as 'trappers'. The trappers operated the trap-doors which regulated the underground ventilation currents. Trappers usually sat in a small hole behind a door and pulled a string to operate it when they heard a putter or a horse and waggon approaching. In this way, they avoided having to step into the path of a speeding waggon. Work for trappers was in short supply and those who were fortunate enough to find employment were frequently relocated as the structure of the ventilation was extended to accommodate new workings. A Northumberland hewer explained the fluctuating nature of trapping: 'There are over many boys at times as trappers. The doors increase and decrease according to the workings, so that trappers' work is very uncertain'.¹⁰⁰ Kennedy, the Lancashire Sub-Commissioner, was surprised at the employment of children to open the underground trap-doors: 'there appears to be no reason why they [the colliers] should not open and shut these doors as they would a house-door'.¹⁰¹ However, this betrays an ignorance of the speed of underground haulage. It would not have been practical for haulage workers to stop at each trap-door. The trappers were expected to open their doors promptly to ensure that the rapid conveyance of coal from the face to the shaft was not slowed down.

¹⁰⁰ (P.P. 1842, XVI), p. 584; In his autobiography, George Parkinson painted a favourable picture of his own employment as a trapper aged nine in 1837. Parkinson, *True stories of Durham pit-life*, pp. 15-26.

¹⁰¹ (P.P. 1842, XVII), p. 156. Trappers were also known as 'air-door keepers', or 'tenters' (see glossary).

The work of trappers was generally light and, occasionally, monotonous. Nevertheless, although the *Westminster Review* described trapping as 'the solitary confinement of little children in the dark bowels of the earth', it was seldom so solitary an occupation as has frequently been suggested.¹⁰² Doorkeepers were required only on often-used underground levels. Little-used levels would be temporarily and cheaply 'stopped' by waste, or by a 'brattice', rather than by the installation of an expensive trap-door and its costly human attendant.¹⁰³ Thus, trappers were seldom left alone for long periods. In addition, they were often employed for less than a full week. John Leifchild's examination of pay-bills for the Heaton colliery revealed that the trappers had 'been employed for an average of nine days out of the eleven working-days per fortnight during the last year'.¹⁰⁴ Some trappers also needed to be extremely agile: in some of the Welsh coal-levels, trappers kept up to five doors; running before the horse drivers to operate their doors.¹⁰⁵ This practice was exceptional, however, and trappers usually controlled only one door. Many miners welcomed the employment of their children as trappers: not solely for the additional income which their employment brought, but also because it provided

¹⁰² Greg, 'Protection of Children in Mines and Collieries', p. 111.

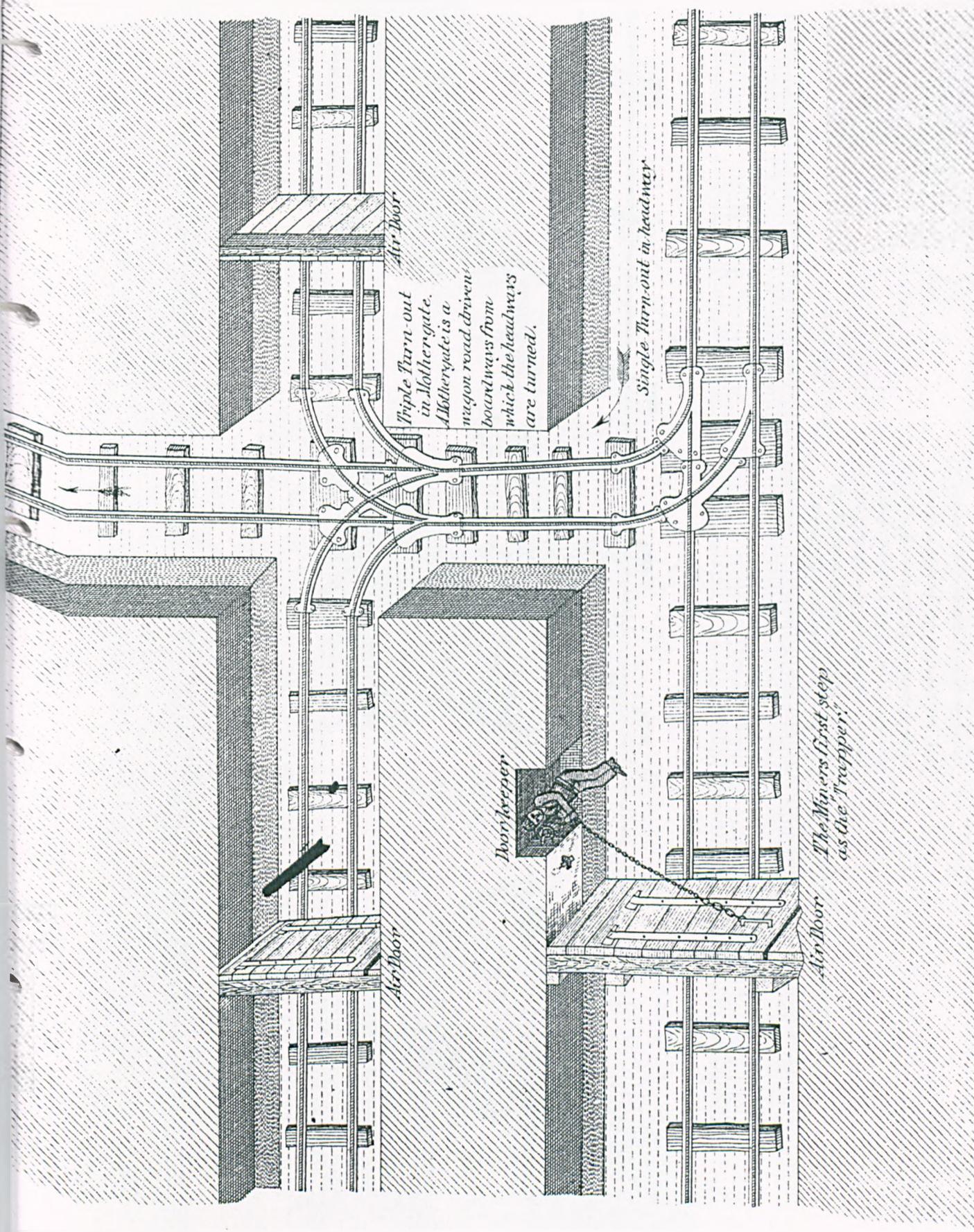
¹⁰³ A 'brattice' was a reinforced screen of strong fabric used to divide 'upcast' and 'downcast' ventilation currents in single-shaft pits or to temporarily redirect underground ventilation currents; a 'stopping' meant the more permanent blocking of passages with masonry or other waste in order to redirect the ventilation, or to protect the worked portions of the mine from accumulations of gas in 'goaves' (disused portions) of the workings; John Buddle explained the necessity of trap-doors to the 1835 Select Committee: 'All doors are substitutes for stoppings, they answer precisely the same purpose; but they are in places where constant passage is to be made, and consequently we cannot have a solid stopping in such places'. (P.P. 1835, V), p. 131.

¹⁰⁴ (P.P. 1842, XVI), p. 575; The introduction of some self-acting doors in the mid-century probably helped to deplete their numbers.

¹⁰⁵ (P.P. 1842, XVII), p. 658.

an opportunity for their children to become acquainted with important aspects of underground production and safety. One underlooker from Hyde in Cheshire, for example, thought that keeping an air-door was 'good practice for a beginner, and by degrees they learn how to take care'.¹⁰⁶

¹⁰⁶ (P.P. 1842, XVII), p. 202.



Triple Turn-out in Mothergate. Mothergate is a wagon road driven boardways from which the headways are turned.

Single Turn-out in headway

Doorkeeper

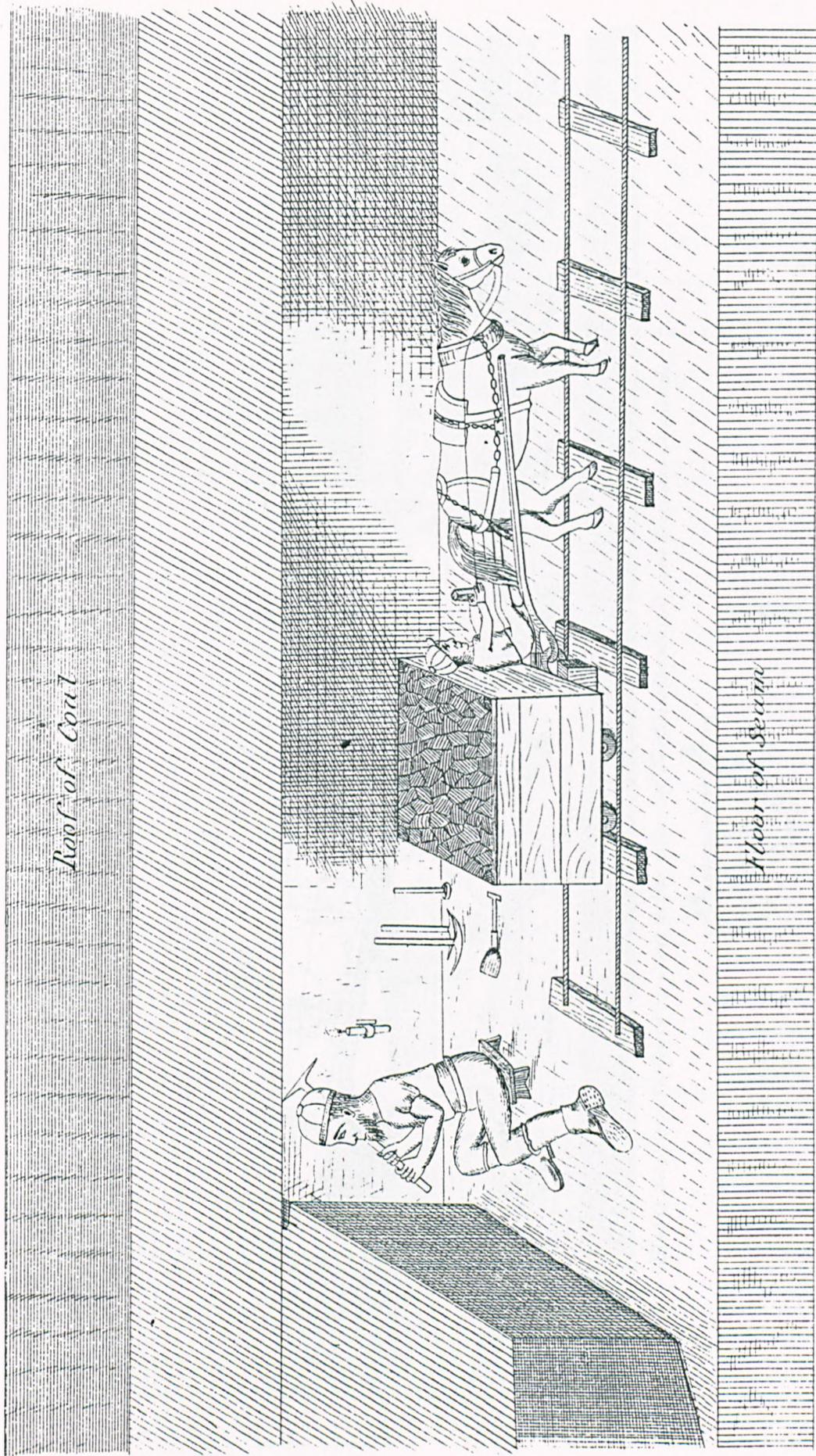
The Miners first step as the Trapper.

Air Door

Air Door

F Bourquin, Ing. Philad.

'Trapper' from Walton, Coal mining described and illustrated, plate 7, p. 63.



Roof of Coal

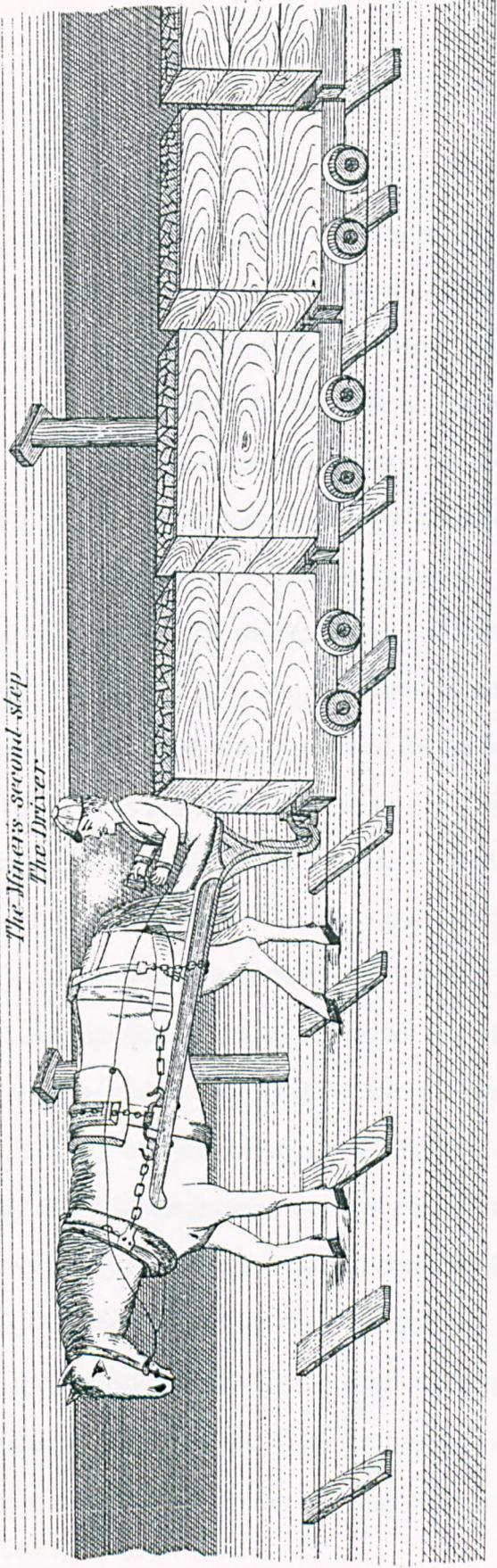
Aboard or Seam

Poney-Putter

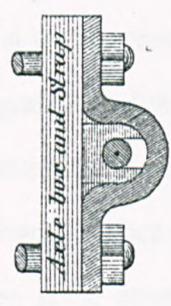
Coal Miner "niching" his Jud A "Jud" is made in a Board or headway by first undermining the face to a depth of 3 or 4 feet, then a niche is cut. A blast properly applied tumbles the Jud over. Wedges are substituted for powder where gas in dangerous quantities exists.

'Poney-putter' from Walton, Coal mining described and illustrated, plate 6, p. 54.

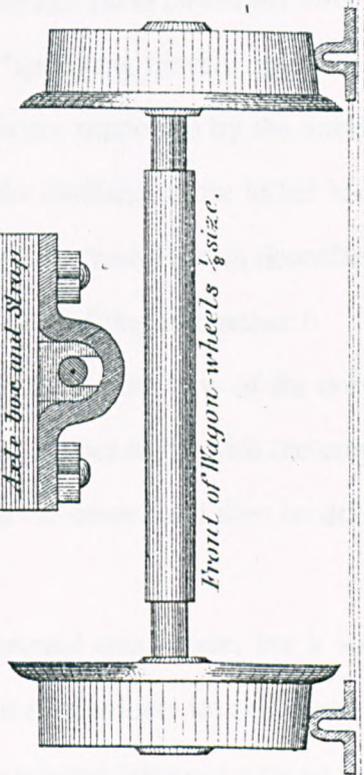
*The Miner's second step
The Driver*



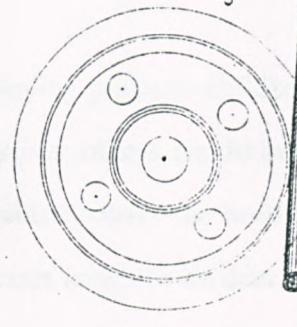
The Pit horse and his gears as used in the mines of Northumberland and Durham England.



Axle-box and Strap



front of Wagon-wheels $\frac{1}{8}$ size.



Side of Wheel

W. Bourgeois, Lith. Paris 1864.

'Driver' from Walton, Coal mining described and illustrated, plate 8, p. 64.

Along with trapping, the other occupation employing younger children was 'driving'. Many trappers would succeed to this occupation: others would begin their experience of underground work by driving. These children drove the horses that pulled the underground trains, or 'rolleys', along the main levels to be drawn to the bank. Often, horses and tubs would travel at great speeds and great agility and dexterity was necessary in order to avoid accidents from de-railments, or from workers getting in the way of the heavy rolleys. Sir George Head described how drivers would pass in the restricted space of the level: 'springing nimbly up in rear of the horse, on the near side, the right shoulder and hip were supported by the animal's hind quarters; the right foot then rested on the bed of the carriage, close to his hocks, while the left was placed upon the chain trace'.¹⁰⁷ A driver from Heaton described his occupation thus: 'drives the rolleys, 3 yoked together, holding altogether 6 corves, to the shaft. the onsetter then puts the chain-hook into the bow of the corf, hooking on 2 at a time, and then sends them up to bank... goes in by with the empty corves, and changes his empty corves for full corves at the crane, and then he drives to the onsetter again. This work he does all day'.¹⁰⁸

Driving was possibly the least laborious underground occupation; but it was possibly the most dangerous. Drivers were most prone to accidents involving the iron rolleys or tubs. Children would occasionally be squeezed between tubs whilst attempting to hook them together. In some pits 'hookers-on' were employed, whose sole responsibility was the linking together of tubs and these children were especially vulnerable to being crushed. The most serious accidents occurred where the wheels of rolleys or tubs had run over the fingers or the legs of a driver.

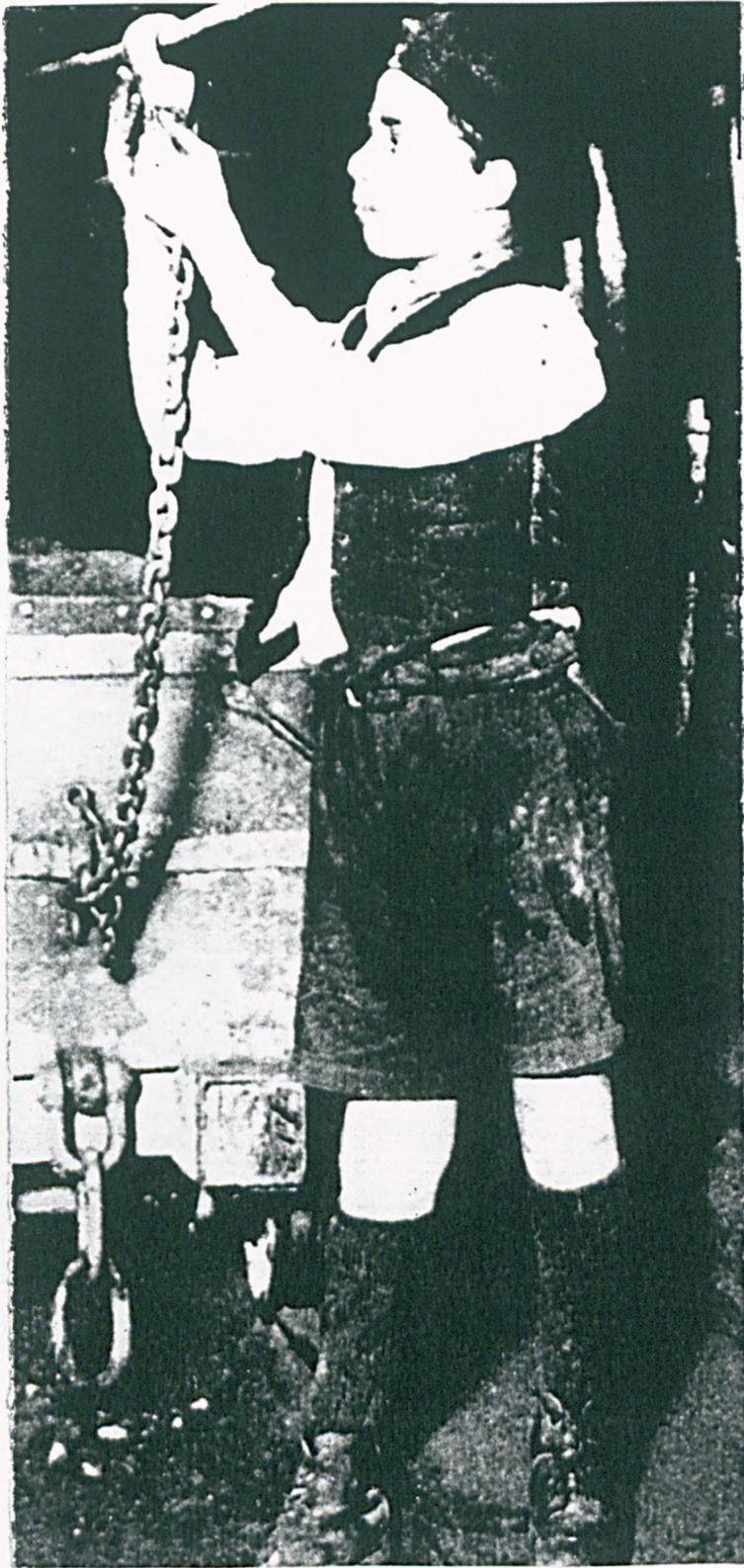
¹⁰⁷ Head, *Home tour through the manufacturing districts*, p. 400.

¹⁰⁸ (P.P. 1842, XVI), p. 571.

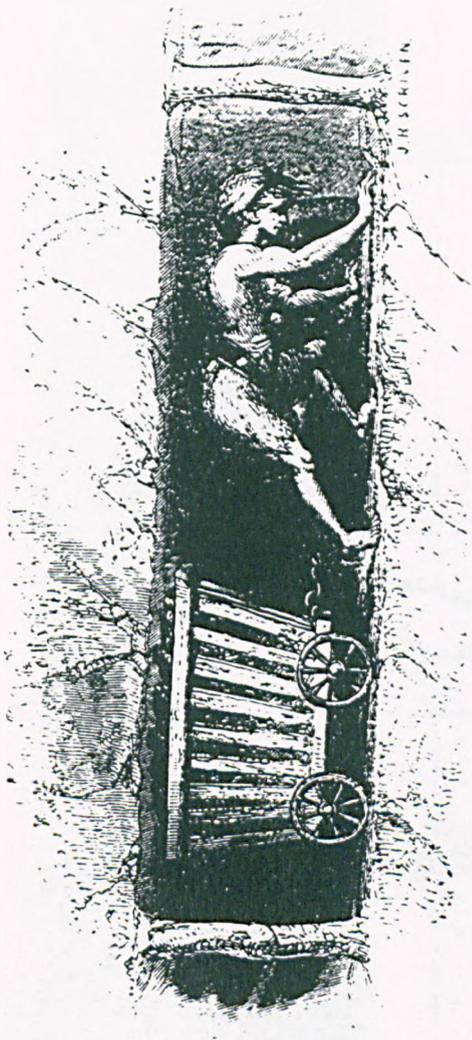
With the application of engine-power to haulage from the mid-nineteenth century (the 'endless-rope' system, for example, which entailed the lashing-on of tubs to a continuously moving rope or chain), the opportunities for accidents to haulage workers increased. Thomas Yates, who began work at the age of 13 in 1906, recalled a close shave in his autobiography:

Father said to me do you think you can 'lash on' Tom because it will lift your wages another fourpence a day to which I said I could because I had been watching and practising this work. This means fastening a 6 ft. chain to the twelve trucks I had hooked up and lashing them on a moving rope which took them further into the mine. I was doing this work for nearly six months when lashing a train of trucks to the moving rope I got my left hand fast in the chain and was dragged along with the moving rope. My cries for help were heard by a fellow working close to me who signalled to the engine driver of the rope to stop, lucky for me, because the chain that had me fast was nearing a pulley and I shudder to think what would have occurred.¹⁰⁹

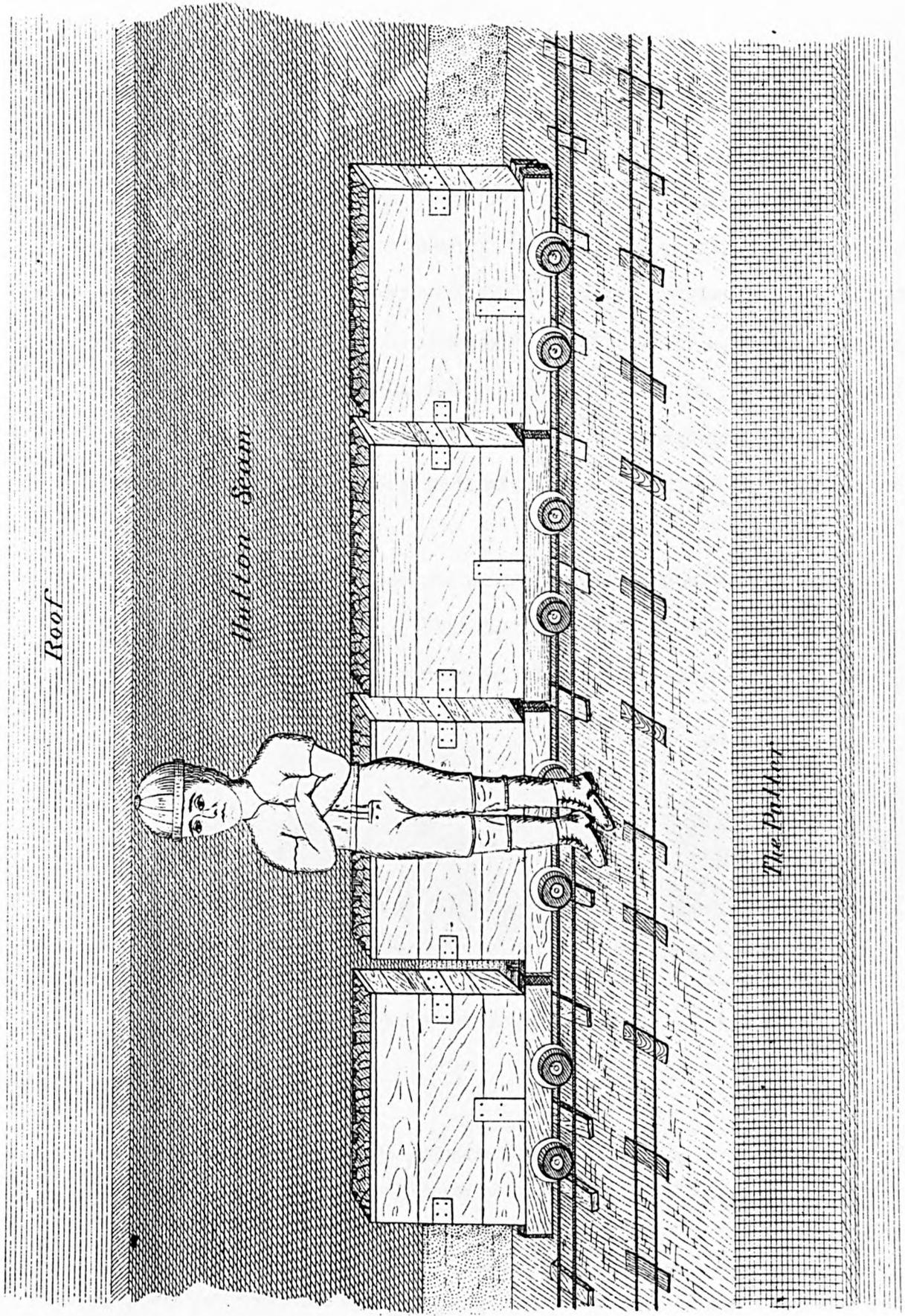
¹⁰⁹ Yates, *My memoirs*, p. 5.



Putter, late-nineteenth century (photograph courtesy of Woodhorn Colliery Museum).



Example of the use of the belt and chain , [Greg, W.R.] 'Protection of children in mines and collieries', *Westminster Review*, vol.38, July 1842.p. 115.

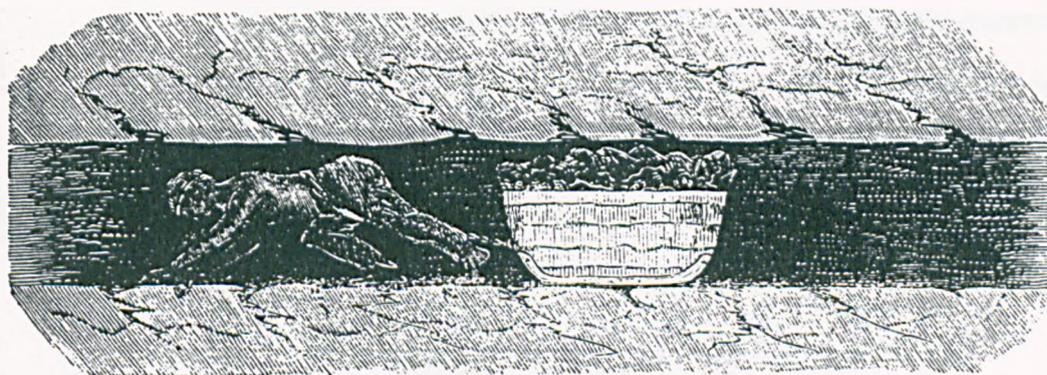


'Putter' from Walton, Coal mining described and illustrated, plate 5, p. 47.

F Bourquin Lith. Philad. Pa.

The most common employment for older children (chiefly those over about the age of 14) was 'putting' or 'drawing'. As figure 1 indicates, most children were employed in haulage and miners spent most of their early working lives in this sector. The putter held a position immediately below the adult hewer in the status hierarchy of pit labour.¹¹¹ Putting entailed pulling, or pushing, a cart (or in some districts, a sledge) from the coal-face along the seam to the main underground roads where the coal would be loaded into tubs to be taken away by the drivers to the bottom of the shaft.

In primitive coal-districts, the work of drawers was probably the most laborious occupation in mining. Thin seams and low-levels of haulage technology entailed the employment of children to draw flat sledges of coal along the seam.



Drawing coal in a thin seam using a sledge (P.P. 1842, XVII, p. 475).

¹¹¹ Wade, 'The Putter of the Northumberland and Durham coalfield', pp. 21-34; Benson stated: 'After two or three years the putter was generally moved on to pony driving'. This confuses the issue of miners' work socialisation. Pony-driving almost always preceded putting. Benson, *British coalminers*, p. 52. According to the *Concise Oxford dictionary*, the colliery term 'putter' is derived from the Middle English to 'put'. However, it is as likely to have been a corruption of the French word *porteur* since the term was in use by French miners to describe their underground haulage workers. Simonin, *Mines and miners*, p. 116 (see also the glossary).

In Yorkshire and Lancashire, drawing with a belt and chain was widespread in the small pits. Likewise, in the small coalfields of the Forest of Dean, south Gloucestershire and north Somersetshire, small children in harnesses were used.¹¹¹ However, drawers with belt and chain were only necessary where a seam was steep, or where rails were not laid.¹¹² In other districts where rails and machine haulage were employed, the work was not so strenuous.

The muscle power required to transport the trams depended chiefly upon the height and inclination of the seams, and the distance travelled. In a number of districts there was a lottery (known in the North East as the 'cavil') in which the furthest and nearest runs would constitute one lot, the next furthest and the next nearest, would constitute another lot, and so on. This ensured some kind of equality of physical exertion in putting. In some pits, the putters were paid simply according to the 'renk', a gradation of prices paid according to the rank, or distance, covered by the putter.¹¹³ In Northumberland and Durham, children employed in putting were given grades according to their age, strength and the weight of coal they could put. This grading was described by the viewer Nicholas Wood:

If one lad puts a tram by himself, he is called a "tram" ... If an old and strong boy, and a young boy together, put a tram, the older boy is called a "headsman," and the younger boy a "foal." The headsman pays the foal 4d. out of every shilling, retaining the 8d. for himself. The foal is the servant of the master... If 2 boys of about equal age and strength together put a tram, they are called "half-marrows," and they divide their earnings equally.¹¹⁴

¹¹¹ See pages 173-79.

¹¹² (P.P. 1842, XVII) p. 848.

¹¹³ (P.P. 1842, XV), p. 89.

¹¹⁴ (P.P. 1842, XVI), p. 586.

'Helpers-up' would be stationed at sections of a levels having a particularly steep inclination and they would help putters to push their trams on the most difficult part of the incline.

The work of the putter brought him into everyday contact with the coal-face workings, and it was in this environment that the putter was habituated to the special dangers associated with that part of the mine. Here he would acquire the skills which would enable him to assess signs of impending danger: the creaking of the wooden props giving warning of an imminent roof-fall, or the incandescence of a safety lamp indicating the presence of fire-damp. The putter would expect to progress to the occupation of hewer between the ages of 17 to 21.

III

Children were so closely integrated into the production process that in a number of coalfields, as a result of successful combinations of miners, there existed an allowance system which ensured that men with families, or those employing children, could earn the greatest share of potential income. The child, moreover, in order to qualify for this allowance 'was not required to work, only to attend during working hours'.¹¹⁵ In Scotland, south Wales and Lancashire the allowance system operated as a means of dividing the work available between families. The system ensured that a share of output was allocated according to the number of children working under a hewer or getter.

This custom sometimes induced fathers to take very young children underground with them. In the west of Scotland it was said that 'a man who is ambitious of earning more than the sum limited, by taking down a boy at any age,

¹¹⁵ Hair, 'Social history', p. 178.

becomes entitled to earn more than if he worked alone. This temptation is too strong for some parents to resist, and instances have been reported ... of colliers carrying the child too [sic] and from the pit on his back'.¹¹⁶ George Stephenson noted in 1835, 'sometimes it has happened that the father has carried the child to the colliery on his back, he being so young'.¹¹⁷ Many mining households relied upon this allowance system. In 1841, a miner from Tranent in East Lothian lamenting the cessation of the practice in his district remarked: 'We cannot now claim a turn for the sma' aines when we carry them on our backs below'.¹¹⁸ A miner who took a virtually useless infant (in terms of labour-value) underground could increase his personal share of coal output. A Lancastrian witness to the 1866 Select Committee on Mines described his entry into mining: 'I began working before I was 5 at Black Rod. My father took me down: I did nothing at first for a few months; he took me down to accustom me to the mine; I just knocked about as an errand boy for my father'.¹¹⁹

The Lancashire allowance system (or 'kale') was described by a colliery proprietor in 1842:

In some few instances the drawers are employed by the masters ... but they are generally employed and paid by the colliers themselves; and if the members of their own families can do the work, they always take them first... As regards the members of their own families, they not only take them down so soon as they can work, but often before they can do so. This ... results from regulations among themselves. The pit may be required to produce only a certain quantity of coals, while it is employing a number of hands who could produce from it much more, and they then among themselves adopt a system by which a certain

¹¹⁶ (P.P. 1842, XVI), p. 371.

¹¹⁷ (P.P. 1835, V), p. 108. Q. 1616. A child so young could not have performed much useful work.

¹¹⁸ (P.P. 1842, XVI), p. 467.

¹¹⁹ (P.P. 1866, XIV), p. 33.

quantity is assigned as a man's proportion, or "kale;" and beyond this they reckon additional proportions of a kale which he may turn out, according to the number and ages of the individuals whom he employs under him; and frequently to count merely as parts of a "kale, " and not to work, or to work very little, he takes down young children of his own family, with whose services he could otherwise, and would, dispense.¹²⁰

Edward Binney's account of a visit to a Lancashire mine described how he had encountered a child under four years of age who 'crept out of a hole'. The father of the child, when asked why he had brought the child into the mine, replied that 'his wife and daughters all worked in the mine, and there was nobody at home to take care of the child, so he brought him there to be out of harm's way' and 'that he would not be fit for work for a year'.¹²¹ A coal surveyor from Bolton noted the scale of coal output allowed for children of different ages:

If [a collier] takes a child of his own down the pits, of six to ten years of age, he is allowed one-eighth of a kale in addition to his earnings; if the child be 11 years old he is allowed one-fourth of a kale; if 14 years old half a kale; if 16 years five-eighths of a kale; at 17 six-eighths of a kale; at 18 seven-eighths of a kale ... consequently there is an advantage in having a child in the pits. I was measuring some work ... and I saw a child standing by its father doing nothing, whilst another little child was drawing for him. The object was to enable the father to count two small drawers, which give half a kale. If he has three children, one over 14 years of age, then he keeps the two small children to work for him, and sends the one over 14 years to work for some other collier. The one over 14

¹²⁰ (P.P. 1842, XVII), p. 838 (evidence of the coal-owner, Andrew Knowles).

¹²¹ Binney's reports were highly partial and must, therefore, be treated with great caution. He claimed that only five minutes after his conversation with this father and son, both were 'crushed to death, and buried under some hundred tons of the roof'. 'Copy of ... The Humble Petition of Edward William Binney ... Gentleman', p. 142 (see page 115).

gets half a kale to himself, and the father is allowed half a kale for the two little ones'.¹²²

Welsh colliers who took their boys underground were allowed to claim an extra 'dram' (or cart) of coal.¹²³ The small number of children said to have worked underground at the age of five or six were probably taken down as a result of the operation of this allowance system.

Children were also taken to work with their fathers because there was no-one at home to care for them: often because the child's mother was working elsewhere or dead. Being taken down a coal mine under the supervision of a parent was probably preferable to the risk of suffering an accident whilst at home and unattended. Children left alone at home while parents worked would frequently suffer accidents such as immolation due to their clothes catching fire. In 1836, for example, a Bolton newspaper reported that in seven weeks: 'there were no less than thirty two cases ... of children being burnt to death, and that 27 of the 32 were in consequence of the neglect of the parents in leaving them alone in the house'.¹²⁴ Indeed, children underground were often simply being 'minded' by their fathers and brothers, rather than being forced into hard labour. A seven year-old 'collier' noted, 'father lets me sleep when I am tired'.¹²⁵ A Scottish hewer noted that he took his daughter down at the age of three but that 'she did little below ground but play: it was for her safety I took her down'.¹²⁶

¹²² (P.P. 1842, XVII), p. 209; see also (P.P. 1842, XVI), pp. 438, 509 for other examples.

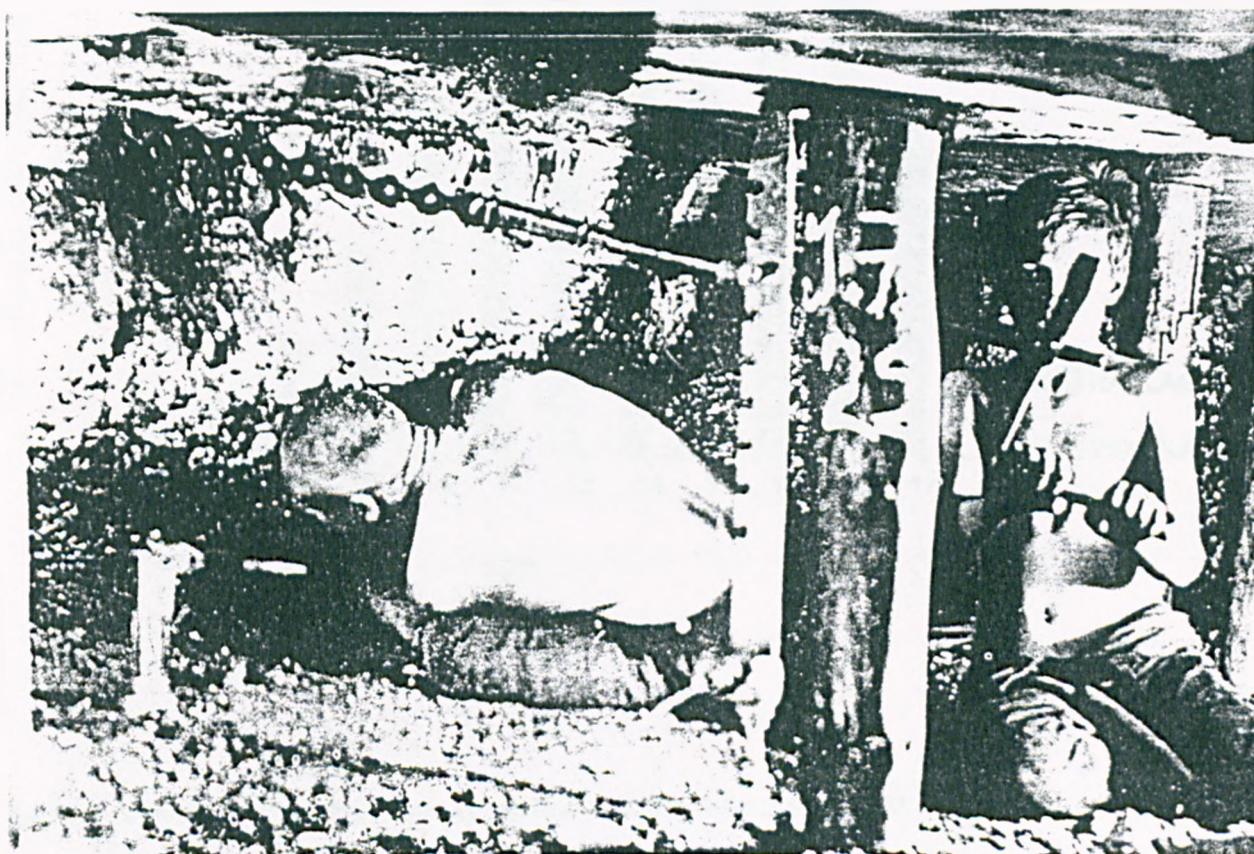
¹²³ (P.P. 1842, XVII) pp. 520, 525, 528, 529, 538, 539.

¹²⁴ *Bolton Free Press*, 19 Feb. 1836, p. 2.

¹²⁵ (P.P. 1842, XVII) p. 532.

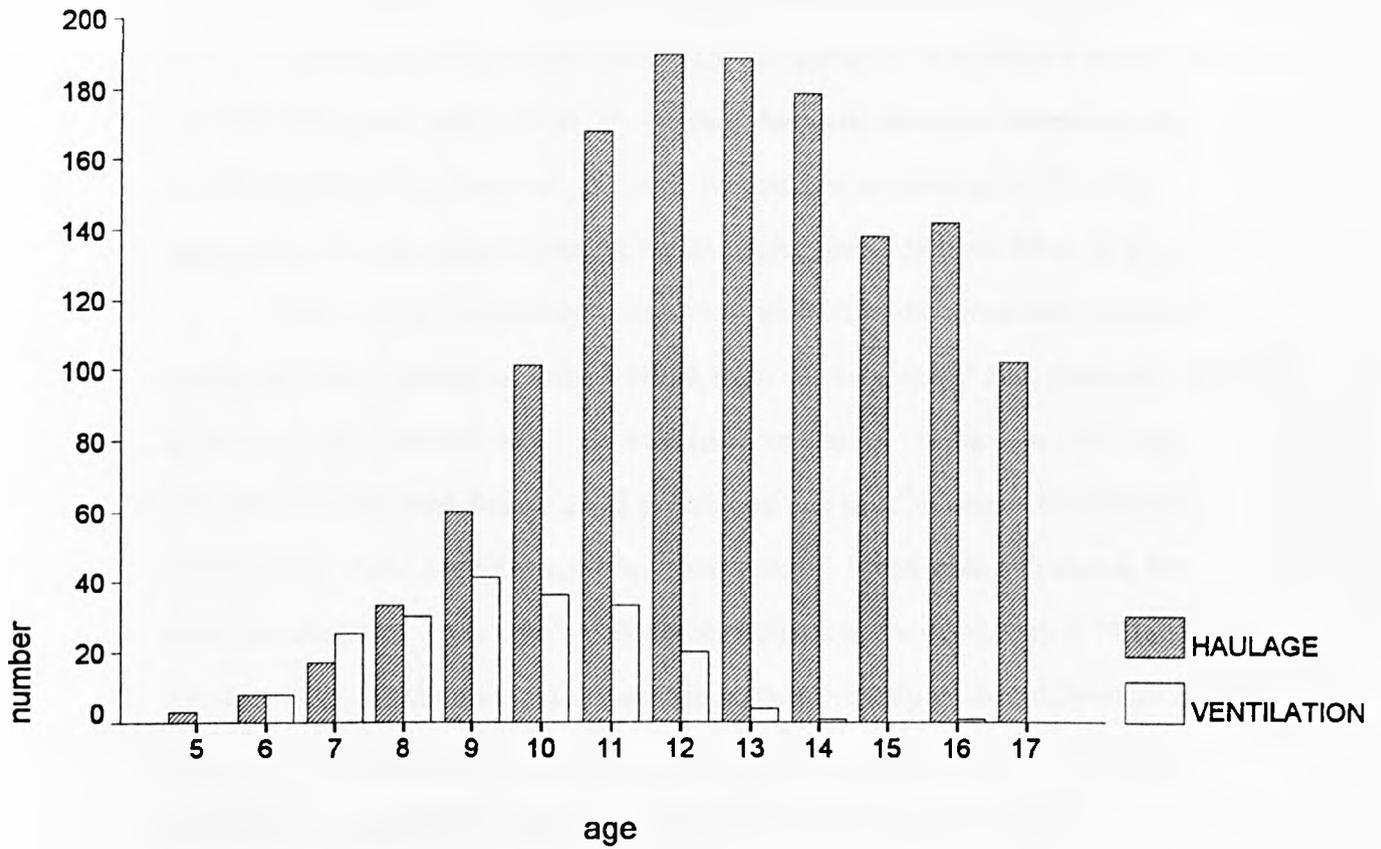
¹²⁶ (P.P. 1842, XVI), p. 481.

It is clear that no simple concept of 'work' can be applied to children in coal mining. If a child sat holding a candle while its father hewed coal, does this mean the child was working? It is true that such a child would be exposed to the dangers of the workplace. For the parent, however, the decision to bring a child below ground at an early age may well have resulted from the calculation that the mine offered a safer alternative to leaving it unattended at home: it was also cheaper than employing a child-minder.



This photograph from the 1870s, indicates the important ancillary nature of children's employment. The boy is using a 'rack drill' to drill a hole for explosives and the man is 'holing' (Lane and Anderson, *Mines and miners of south Lancashire*, p. 27.)

Figure 1. Numbers of children in ventilation and haulage discovered by the C.E.C.



Source: Ages and occupations taken by the Sub-Commissioners, P.P. 1842, XVI., XVII.

Numbers and ages

The rapid increase in the population of England and Wales during the nineteenth century was accompanied by an absolute increase in the size of the child population. Numbers of children in the age-group 5-14 increased from 2.55m in 1821, to 6.83m in 1901, while those in the age-group 0-19 increased from 5.16m to 13.79m during the same period.¹²⁷ Despite this rapid absolute increase in the numbers of children, however, the ratio of younger to older ages fell. The proportion of those aged below 20, for example, declined from 50 to 42 per cent.¹²⁸

Two common misconceptions about children in the nineteenth century are, firstly, that the majority of them worked from an early age¹²⁹ and, secondly, that they were employed predominantly in centralised industries. In fact, in 1842, the proportion of the total British child population that the Children's Employment Commission chose to report upon was very small. It has been calculated, for example, that only 1 per cent of occupied children in the age-group 0-14 (about 0.1 per cent of all children in this age-group) were nominally excluded from production by the 1842 Mines Act (the proportion of those occupied in the 5-9 age-group excluded as a result of the Act was about 5 per cent - about 0.2 per cent of the total of children in that age-group).¹³⁰

¹²⁷ Mitchell, *British historical statistics*, p.15.

¹²⁸ Returns of the ages of only 88 per cent of the male population were collected at the 1821 census. The returns suggested that 50 per cent of the male population were aged 19 or below. The proportions, by age-groups, were: 0-4, 15.36%; 5-9, 13.47%; 10-14, 11.72%; 15-19, 9.89%. Mitchell, *British historical statistics*, p. 15.

¹²⁹ This is in spite of the efforts of some historians to present evidence to the contrary. See Cunningham, 'The employment and unemployment of children', *passim*, and Hair, 'Children in Society', *passim*.

¹³⁰ Hair, 'Children in Society', p. 53.

Although these estimates are based upon censal evidence in which considerable under-registration of children's occupations existed, coal-mining children certainly represented a minority of employed children; and a tiny fraction of the total number of children in the under-10 age-group in the first half of the nineteenth century.

It has been supposed that an historically higher proportion of children in society led to a higher incidence of children's employment; this issue however, has never been addressed in quantitative terms. Coleman argued that where an economy had high proportions of children, child labour was 'normal'.¹³¹ Cunningham, however, has recently re-examined this supposed relationship, concluding that there was a generally high level of unemployment and under-employment among children during the period 1680-1851.¹³² As if to complicate matters, however, few of the nineteenth-century working-class autobiographers mention unemployment as a feature of their childhood.

The hypothesis that there was a relationship between proportions of children in society and proportions of children at work can be partially tested by comparing indices relating to population and occupations. Changes in the proportions of children in age-groups below the age of 14 are indicated in Table 2.

¹³¹ Coleman, 'Labour in the English economy in the seventeenth century', pp. 286-8. Cited in Cunningham, 'The employment and unemployment of children', p. 116.

¹³² Cunningham, 'The employment and unemployment of children', p. 116.

Table 2. Proportions of total population. Children by age-group. England and Wales, 1771-1931.

| YEAR | age group | | |
|------|-----------|-------|-------|
| | 0-4 | 0-14 | 5-14 |
| 1771 | 13.06 | 33.69 | 20.63 |
| 1781 | 13.84 | 35.37 | 21.53 |
| 1791 | 14.60 | 36.14 | 21.54 |
| 1801 | 14.32 | 37.40 | 23.08 |
| 1811 | 14.98 | 37.96 | 22.98 |
| 1821 | 15.53 | 39.21 | 23.68 |
| 1831 | 14.39 | 38.80 | 24.41 |
| 1841 | 13.39 | 35.99 | 22.60 |
| 1851 | 13.53 | 36.01 | 22.48 |
| 1861 | 14.08 | 36.15 | 22.07 |
| 1871 | 14.05 | 36.50 | 22.45 |
| 1881 | 13.55 | 36.45 | 22.90 |
| 1891 | 12.25 | 35.07 | 22.82 |
| 1901 | 11.43 | 32.42 | 20.99 |
| 1911 | 10.69 | 30.63 | 19.95 |
| 1921 | 8.77 | 27.72 | 18.95 |
| 1931 | 7.48 | 23.83 | 16.34 |

Source: England 1771-1871, Wrigley and Schofield, *Population History*, App.3, Back-projection results, table A3.1, pp.528-9; England and Wales, Mitchell, *British Historical Statistics*, p.15.

The proportion of children in the age-group 5-14 (encompassing the extreme lower and upper age limits of starting work for most children) did not change significantly before the 1890s, after which the lagged effect of declining marital fertility in the mid-1880s began to affect the proportion of this age-group. It is probable that the size of this group varied by no more than 2.34 per cent throughout the period 1801-1891.

Furthermore, it seems clear, from what is known of the age-group proportions of those occupied during the second half of the nineteenth century, that a significant decline took place in enumerated employment among younger age-groups despite the absolute rise in their numbers. The proportions of the under-15 labour force, for example, declined by approximately 38 per cent between 1861 and 1881.¹³³ This decrease is notable because it began at least two decades prior to the significant reduction in the ratio of that age-group to the total population as a result of declining fertility (and during a period when the proportion of the 15-20 age-group remained more or less stable). It is probable that this trend had been established much earlier.

Table 3. Age-groups of employed male population, England and Wales, 1841-1881.

| | 1841 | 1851 | 1861 | 1871 | 1881 |
|----------|-------|-------|-------|-------|-------|
| under 15 | 13.89 | 6.36 | 6.35 | 5.57 | 3.96 |
| 15-20 | | 13.35 | 13.40 | 13.52 | 14.11 |
| 20-25 | | 13.54 | 13.20 | 13.13 | 13.72 |
| 25-65 | 86.11 | 60.33 | 60.56 | 61.02 | 61.60 |
| over 65 | | 6.40 | 6.49 | 6.76 | 6.60 |

Source: Booth, 'Occupations of the People', App.A (1), p.371 (the figures for 1841 are for age groups 'under 20' and 'over 20').

¹³³ Booth, 'Occupations of the people', App.A (1), p. 353.

The proportion of occupied males remained at around 30 to 32 per cent of the total population between 1841-1881, but those occupied below the age of ten years declined in proportion from 2.09 per cent in 1851, to 1.23 per cent in 1881.¹³⁴ Indeed, by 1881 the census had ceased to count the numbers of employed children under the age of ten on the grounds that their numbers were so few.¹³⁵ Any simple relationship between proportions of children in society and the incidence of their employment, therefore, cannot be shown to have existed in the nineteenth century.

In contrast to the popular pessimism about the social impact of industrialisation, the proportions of children actually employed in the nineteenth century was remarkably low. It has been suggested by Hair, for example, that mid-way through the century, the occupied proportion of the 5-9 age-group stood at 3.5 per cent (Cunningham suggests 2.04 per cent) whilst those in the 10-14 age-group constituted 30 per cent.¹³⁶ The proportions of employed children became progressively lower throughout the century. This has been ascribed to changes in industrial technology. Nardinelli, for example, has suggested that the decline of child labour in textiles was not, as the traditional view would have it, attributable to social legislation but that technological change and rising real incomes were the chief causes of its decline. He suggests that child labour in factories was declining before parliamentary prohibition. The level of advancement in underground haulage and ventilation technology in coal mining had important effects upon the age-structure of

¹³⁴ Booth, 'Occupations of the people', p. 371. The proportions of occupied males below 15 years, to the total population, in the census years 1861 and 1871 were 2.06 and 1.78 respectively. The proportions of all occupied males were as follows: 1841, 30.15; 1851, 32.77; 1861, 32.48; 1871, 31.92; 1881, 31.22; Mitchell, *British historical statistics*, p. 103.

¹³⁵ Hair, 'Children in society', p. 47.

¹³⁶ Hair, 'Children in society', p. 47; Cunningham, 'The employment and unemployment of children', table 2, p. 142.

child workers (this is argued strongly in chapter five).¹³⁷ These estimates, however, only account for those who were enumerated as having an occupation: they do not take account of the considerable degree of under-registration that is now widely believed to have existed in the recording of the occupations of women and children.¹³⁸ Although the census figures almost certainly under estimate the proportions of children in work, however, it is probably safe to conclude that only a small minority of children in the age-group 5-14 were occupied and that this minority became progressively smaller.

The numbers of very young children in employment also declined sharply. There was an identifiable absolute decline in the numbers of children employed below the age of 10 after 1851.¹³⁹

Table 4. Numbers of children aged under 10 years occupied at three censuses.

| | 1851 | 1861 | 1871 |
|----------------|--------|--------|--------|
| Males | 26,492 | 22,755 | 11,592 |
| Females | 15,434 | 13,760 | 10,244 |

Source. Mitchell and Deane, *Abstract of British historical statistics*, p. 59.

¹³⁷ Nardinelli, 'Child labor and the factory acts', p. 739.

¹³⁸ Higgs, *Making sense of the census*, p. 81.

¹³⁹ Hair, 'Children in society', p. 47; Hunt, *British labour history*, p. 9.

There is little evidence that the enumeration of occupied children became more effective at later nineteenth century censuses: Higgs has suggested that it became less effective.¹⁴⁰ Moreover, it is probable that as employment moved away from the domestic sphere throughout the nineteenth century, problems associated with the definition of a child's occupation became fewer for both enumerators and parents. Although, following the emergence of compulsory education, the inducement for parents to conceal the occupations of the very young was great, the employment opportunities open to their children by the last quarter of the nineteenth century were minimal.

I

Coal output from British mines increased massively in the first half of the nineteenth century. Estimates from 1796-1800 show an output in that quinquennium of just under 11 million tons. By 1826-30, production had increased to almost 24.8 million tons and by 1846-50, almost 51 million tons were produced.¹⁴¹

The number of males employed in mining also increased from 218,000 in 1851 to 931,000 in 1901. As a proportion of all occupied males, coal miners increased from 4.28 per cent, to 8.06 per cent over the same period.¹⁴²

¹⁴⁰ Higgs, *Making sense of the census*, p. 83.

¹⁴¹ (Quinquennial averages) Mitchell, *British historical statistics*, p. 247.

¹⁴² Mitchell, *British historical statistics*, p. 104.

Table 5 . Age-groups of males employed in mining, England and Wales, 1841-1881.

| | 1841 | 1851 | 1861 | 1871 | 1881 |
|----------|-------|-------|-------|-------|-------|
| under 15 | 25.34 | 12.63 | 12.12 | 9.67 | 5.86 |
| 15-20 | | 16.60 | 15.50 | 16.97 | 16.87 |
| 20-25 | | 16.40 | 15.70 | 15.57 | 16.08 |
| 25-65 | 74.66 | 52.14 | 53.00 | 55.23 | 59.04 |
| over 65 | | 2.22 | 2.25 | 2.40 | 2.14 |

Source: Booth, 'Occupations of the People', App.A (1), p.353 (the figures for 1841 are for age groups 'under 20' and 'over 20').

Note: See the text for the unreliability of the 1841 figures.

According to Booth and the census, therefore, the proportions of the total mining labour force aged under 20 years increased between 1841 and 1851 and then gradually declined from just over 29 per cent in 1851 to just below 23 per cent in 1881. It was the youngest workers (i.e. those under 15 years) whose proportions experienced the steepest decline during the same period.

Between 1851 and 1871, the coal-mining labour force became older. During this period, the proportion of miners below the age of 15 declined in all major coal-districts (see table 6). The ratio of those employed below the age of 10 had become negligible by 1851 and fell thereafter: those in the age-group 10-14 declined significantly in all coal-districts.

But how accurate was Booth and the census in counting occupation age-structures by region? This question cannot be answered with great accuracy since the census abstracts enumerated occupations in 5 or 10 year age-groups, whereas the 1841 Sub-Commissioners, in accordance with their instructions, used the notional categories of 'adult', 'young person' and 'child' (over 18, 13 to 18, and under 13 years respectively).

Some evidence offering direct comparisons of age-groups does exist however: Symons' evidence from 1841 suggests that about 4 per cent of the mining labour force in the West Riding of Yorkshire was below the age of 10 (the census gives a figure of 1.17 per cent for 1851 and 0.22 per cent for 1871).¹⁴³ Even in a primitive coal-district, therefore, in which the highest proportions of young children were employed, a considerable decline in the employment of children was probably underway from about the third or fourth decade of the nineteenth century (even allowing for some under-registration by census enumerators).

¹⁴³ (P.P. 1842, XVI) pp. 210-11. Symons had worked on the Hand-Loom Commission.

Table 6. Age-group proportions of coal miners in different counties, 1851 and 1871 (%).

| age-group | Cumberland | | Derbyshire | | Durham | | Lancashire | | Leics | | Monmouth | | Northumb. | | Notts | | W.R.Yorks | |
|-----------|------------|-------|------------|-------|--------|-------|------------|-------|-------|-------|----------|-------|-----------|-------|-------|-------|-----------|-------|
| | 1851 | 1871 | 1851 | 1871 | 1851 | 1871 | 1851 | 1871 | 1851 | 1871 | 1851 | 1871 | 1851 | 1871 | 1851 | 1871 | 1851 | 1871 |
| 5-9 | .08 | .02 | .59 | .10 | .44 | .10 | 1.02 | .07 | .43 | .04 | .35 | .05 | .31 | .03 | .63 | .06 | 1.17 | .22 |
| 10-14 | 11.15 | 8.43 | 12.59 | 10.84 | 12.01 | 9.97 | 14.53 | 11.17 | 12.03 | 7.62 | 10.85 | 9.67 | 10.16 | 8.76 | 13.46 | 10.65 | 18.28 | 13.60 |
| 15-19 | 17.91 | 17.10 | 18.42 | 18.48 | 15.67 | 16.86 | 19.17 | 18.35 | 17.86 | 18.77 | 15.82 | 17.64 | 16.38 | 16.85 | 19.97 | 19.91 | 18.86 | 17.27 |
| 20-24 | 16.12 | 15.79 | 16.42 | 16.45 | 16.76 | 14.68 | 18.24 | 16.79 | 16.28 | 14.76 | 16.64 | 16.77 | 15.95 | 15.83 | 16.43 | 18.49 | 15.68 | 15.74 |
| 25-34 | 21.12 | 23.47 | 22.56 | 25.24 | 23.45 | 23.50 | 22.78 | 23.11 | 25.03 | 23.99 | 24.83 | 22.04 | 23.01 | 23.69 | 19.97 | 24.87 | 20.62 | 25.04 |
| 35-44 | 15.06 | 16.78 | 13.99 | 16.10 | 14.74 | 16.39 | 12.47 | 15.74 | 15.55 | 18.14 | 15.97 | 15.05 | 14.50 | 16.69 | 12.86 | 14.02 | 12.12 | 15.44 |
| 45-54 | 10.37 | 9.80 | 8.35 | 7.77 | 9.44 | 10.28 | 6.93 | 9.11 | 6.74 | 10.05 | 9.11 | 10.29 | 10.62 | 10.16 | 8.12 | 7.03 | 7.26 | 7.89 |
| 55-64 | 5.20 | 5.85 | 4.62 | 3.35 | 4.98 | 5.49 | 3.27 | 4.03 | 3.58 | 4.20 | 4.43 | 5.73 | 5.44 | 5.24 | 5.01 | 3.30 | 3.83 | 3.31 |
| 65-74 | 2.35 | 2.44 | 1.93 | 1.30 | 2.00 | 2.25 | 1.27 | 1.36 | 1.58 | 1.96 | 1.59 | 2.24 | 2.83 | 2.23 | 2.94 | 1.34 | 1.70 | 1.26 |
| 75+ | .64 | .32 | .53 | .37 | .51 | .48 | .33 | .27 | .91 | .47 | .41 | .52 | .78 | .51 | .63 | .34 | .48 | .23 |

Source: Census abstracts 1851, 1871. (P.P.1852-3, LXXVIII) Pt.II, pp.548, 566, 572, 632, 686, 758, 764, 770, 830; (P.P.1873, LXXI) Pt.I, pp.371, 378, 383, 424, 469, 518, 526, 572.

Table 7. Proportion of all coal-mining males under 20, 1841-1881.

| | 1841 | 1851 | 1861 | 1871 | 1881 |
|----------|-------|-------|-------|-------|-------|
| under 20 | 25.34 | 29.23 | 27.62 | 26.64 | 22.73 |

Source. As Table 5.

The proportions of child and juvenile workers in mining in the later nineteenth century underwent a general decline and this decline was especially pronounced among the youngest age-groups. The 1841 census abstract stated that about 25 per cent of the mining labour force was below the age of 20.¹⁴⁴ However, this figure must be wrong. Samuel Scriven's report on the districts of Bradford and Halifax suggests a much younger composition of the mining labour force. Taken together with evidence from Northumberland and north Durham (the former a technologically backward coal-district, the latter technologically advanced) these figures suggest that the census under-represented the proportions of those in the numbers in younger age-groups who were employed in coal mines in these districts.

¹⁴⁴ Flinn has given the figure of about 28 per cent. Flinn, *History of the British coal industry*, Vol.2, p. 338.

Table 8. Proportions (%) of coal miners by age-groups in two coal-districts, 1841.

| | N.land & N.Durham | West Yorks | Small Pits, West Yorks |
|----------|----------------------|------------|---------------------------|
| over 18 | 68.87 | 61.36 | 54.8 |
| 13-18 | 18.32 | 22.45 | 21.6 |
| under 13 | 12.79 | 16.18 | 24.7 |

Source: (P.P. 1842, XVI), p.556; XVI, pp.210-11; XVII, p.95.

Notes: The proportions of workers under 18 years for the three districts were 31.11 per cent (Northumberland and North Durham), 38.63 per cent (Yorkshire) and 46.3 (Small Pits, West Yorks). Figure for Small Pits includes females.

The figures in table 8 also show that within a single coal-field, the proportions of children employed in primitive coal pits was higher than those in more developed pits. Further from this, the C.E.C. report calculated proportions of age-groups at work in coal-districts from which 'a sufficient number' of tabular returns had been received.¹⁴⁵

¹⁴⁵ (P.P. 1842, XV) p. 37.

Table 9. Age-group proportions of coal miners in different coal-districts, according to C.E.C. employer returns, 1841.

| | over-18 | 13-18 | under-13 |
|------------------------------------|---------|-------|----------|
| Leicestershire | 71.1 | 16.1 | 12.8 |
| Derbyshire | 71.1 | 17.0 | 11.9 |
| Yorkshire | 62.6 | 22.0 | 15.4 |
| Lancashire | 64.6 | 22.7 | 12.6 |
| South Durham | 70.9 | 16.0 | 13.0 |
| Northumberland and North Durham | 68.9 | 18.3 | 12.8 |

Source. C.E.C. (P.P.1842,XV), p.38.

II

The figures provided by the 1842 Sub-Commissioners are often highly misleading. This is hardly surprising, given the predispositions of the inquirers and the low level of co-operation they received from coal-owners, colliery managers, and miners. Enquiries into the social condition of the iron and coal populations near Pontypool in 1841, for example, found many of the population living in ignorance of matters outside of their immediate locality. Leifchild stated that, in the 1830s and 40s, 'adults could seldom read and write with any degree of facility, and young people and children were mostly in pagan darkness of mind'.¹⁴⁶ Awareness of national issues was in general very poor, and popular beliefs often approached the level of superstition. Parents and children often avoided giving information, or tailored the information they provided to their perceived advantage. Enquiries about the ages of children were treated with great suspicion: 'Is it true that Government

¹⁴⁶ Leifchild, 'Life, enterprise, and peril in coal-mines', p. 363.

means to destroy all the children under three years of age?' asked one woman in reply to a survey by the Statistical Society in 1840. Another stated, 'Oh, I heard by the papers that you wanted to destroy all the children under four years of age, and I find now that the report is true.'¹⁴⁷ Since these views were collected during the period leading up to Christmas, it is possible that this fear arose from the account of the murder of children at the time of the nativity.¹⁴⁸ It is probable that such fears were promoted by Chartist agitators. Indeed, it was claimed that stories of the evil intentions of the state, such as that of killing the very young children, 'were disseminated through the whole of the iron district of South Wales'.¹⁴⁹

In Breconshire, there was a fear that the Sub-Commissioners were recruiting officers. Sub-Commissioner Jones found a boy who 'would not at first answer any questions put to him, but on my asking his name and age, ran back into the level crying, saying his brothers would beat him if he gave his name. I afterwards saw him with his brothers, who said that they had heard that I wanted the boys names for the purpose of taking them away for soldiers, and that they had warned him not to answer any questions'.¹⁵⁰

The Sub-Commissioners, therefore, were charged with a very difficult task in collecting evidence from workers. They relied for much of their data upon returns completed by managers or coal-owners from collieries that they did not visit, or at which they were allowed a limited freedom of inquiry.¹⁵¹ One of the Yorkshire Sub-Commissioners suggested that most of the returns had 'been a good deal filled up by

¹⁴⁷ Anon. 'Statistics of a recently disturbed district', p. 368.

¹⁴⁸ Herod 'slew all the children that were in Bethlehem, and in all the coasts thereof, from two years old and under according to the time which he had diligently enquired of the wise men'. *Matthew* 2. 16.

¹⁴⁹ Anon. 'Statistics of a recently disturbed district', pp. 368-9.

¹⁵⁰ (P.P. 1842, XVII) p. 678.

¹⁵¹ (P.P. 1842, XV) p. 38.

guess-work'.¹⁵² Indeed, in the more technologically backward districts, only the better sort of owners made returns. Leifchild, moreover, noted that: 'Many of the sheets are but half filled, more are evidently slurred over with the greatest haste and inattention'.¹⁵³ Non-co-operation with the Sub-Commissioners was noted to be highest amongst the most primitive collieries (i.e. those in districts employing the largest number of young children). For example, of the 185 Lancashire collieries enumerated by Kennedy, the returns of only 56 were received by the Commission.¹⁵⁴

Nevertheless, there is close relationship between the census figures for 1851 and the C.E.C. figures.

¹⁵² (P.P. 1842, XVI), p. 166.

¹⁵³ (P.P. 1842, XVII) p. 527. Only one of the returns appears to have survived: a search of Home Department files in the Public Record Office was fruitless. The example illustrated on page 121 was unearthed at the Northumberland Record Office and probably survived simply because it was not returned to the commission.

¹⁵⁴ (P.P. 1842, XVII), pp. 194-6; 'The returns have not all been sent in'. (P.P. 1842, XVII) p. 161.

Table 10. Proportions of young persons occupied as miners.
C.E.C. and 1851 census.

| | <u>C.E.C.1841</u> proportion of miners under 19 | <u>Census 1851</u> proportion of miners under 20 |
|------------------------------------|--|---|
| Leicestershire | 28.9 | 30.32 |
| Derbyshire | 28.9 | 31.60 |
| Yorkshire | 37.4 | 38.31 |
| Lancashire | 35.3 | 34.72 |
| South Durham | 29.0 | 28.12 |
| Northumberland and North Durham | 31.1 | 27.16 |

Source. As table 6 and C.E.C. (P.P.1842,XV), p.38.

One example of inaccurate returns is exemplified by Sub-Commissioner Kennedy's enumeration of the workers at the Bridgewater Collieries at Worsley, Lancashire. In the papers of the Bridgewater Collieries there exist some inventories of winding and pumping engines at all the Bridgewater pits. These were presumably prepared for or by an engineer connected with the collieries. One inventory, prepared in April 1839, contained a list of the numbers of persons employed in different occupations in the Bridgewater Collieries. It suggests that the returns provided to the 1842 Commission by the Bridgewater Trust, underestimated the number of working persons aged under 18 years by about 29 per cent. Why this inventory ought to include children is unknown, however, it had been prepared (probably by an engineer) two years before the Commission visited Worsley, and may not have been influenced by the desire to conceal the number of children employed. It is, therefore, probably a more reliable record of the incidence of child-

labour in the Worsley pits. The return for April 1839 shows a total of 686 persons under the age of 18 while Kennedy's inquiries for the Children's Employment Commission claims only 488 persons under 18 years.¹⁵⁵

III

Ashton and Sykes suggested in 1926 that, in the first half of the nineteenth century, the absolute number of children and their proportions relative to the total number employed in coal mining underwent a general increase. They also contended that this relative increase was at its highest in the most technologically advanced coal-fields.¹⁵⁶ This was challenged in the mid-1950s by Hair who, using evidence of ages collected by the C.E.C., argued that although the absolute number of children increased, their proportions within the coal industry were in decline throughout this period. Hair argued, moreover, that this relative decline was at its greatest in the most technologically advanced coal-fields.¹⁵⁷ Although Hair showed a steady decline in child labour in coal mining over the first four decades of the century, this decline increased in the period 1841-71.

¹⁵⁵ Lancashire Record Office, NCB w/191. The categories of the April 1839 inventory were: Miners, Colliers, Boys, Girls, Boatmen, and Hookers-on and Labourers. The average age at which men became miners or colliers was 18-19 years. Boys, girls and hookers-on and Labourers have been assumed as being under the age of 18 years, also, married women were allegedly forbidden to work in the Bridgewater Collieries. (P.P. 1842.XVII), p.215; Of the 185 collieries from which returns of numbers by age-group were solicited by Kennedy, only 56 replies were received. (P.P. 1842, XVII), pp. 194-6.

¹⁵⁶ Ashton and Sykes, *The coal industry in the eighteenth century*, pp. 172-3.

¹⁵⁷ Hair, 'Social history', p. 166.

It has been estimated that recruitment of the under-20s as a percentage of national recruitment to coal mining increased over three decennial periods between 1831 and 1860. However, the average age of recruitment also rose over this period.

Table 11. National recruitment to coal mining, 1831-1860.

| | 1831-40 | 1841-50 | 1851-60 |
|---------------------------------|---------|---------|---------|
| Juveniles as % of total supply. | 63 | 70 | 77 |
| Average age of recruitment. | 9.01 | 11.23 | 11.23 |

Source. Church, *History of the British coal industry*, p.227.

Note. Juveniles were classified as below 20 years.

The increase in the proportions of juveniles recruited, however, probably conceals important changes in the composition of the under-20 age-group. In the North East, despite the exclusion of children under 10 years, following the Mines Act of 1842¹⁵⁸, the proportion of gross recruitment of under-20s increased, from 59 per cent in the period 1831-40, to 81 per cent in 1841-50 and remained roughly at this level for the rest of the century.¹⁵⁹ The numbers of those recruited in the 10-20 age group must, logically, have been far higher after the exclusion of children under 10 years.¹⁶⁰ Figures for more primitive coal-fields do not show such a wide proportional increase after the early 1840s, suggesting, perhaps, that the coal-owners in more

¹⁵⁸ Mines Act. 5 & 6 Vict., c.99.

¹⁵⁹ Church, *History of the British coal industry*, Vol.3, p. 235.

¹⁶⁰ The argument that this was a result of the exclusion of women is not applicable to the North East where female employment in mining had been virtually unknown since the late eighteenth century.

developed coal-fields prosecuted the exclusion of the under-10s with more vigour than those of other coal-fields.¹⁶¹

Anecdotal evidence on ages at starting work can also be confusing. The 1842 report states that in Derbyshire there were 'few ... who began work in the pits at a later age than eight'; however, analysis of the 276 observations in the minutes of evidence for Derbyshire indicates a mean age of starting work of 8.78 years (in spite of the Sub-Commissioner's diligent search for very young workers).¹⁶² Ayton suggested, in 1813, that few of the trappers at a Whitehaven pit were more than eight years old. However, of the trappers interviewed in 1841 by Thomas Martin, the Whitehaven Sub-Commissioner, there were two aged nine, two aged eleven and one aged twelve.¹⁶³

Table 12. John Kennedy's account of the ages at which 828 children commenced working in Lancashire coal mines before 1841.

| Age | Number |
|---------|--------|
| below 5 | 3 |
| 6 | 10 |
| 7 | 73 |
| 8 | 309 |
| 9 | 160 |
| 10 | 131 |
| 11 | 73 |
| 12 | 44 |
| 13 | 25 |
| | 828 |

Source. (P.P. 1842, XVII), p. 149.

¹⁶¹ Church, *History of the British coal industry*, p. 235. This proposition is examined in more depth in chapter five.

¹⁶² (P.P. 1842, XV), p. 11.

¹⁶³ Ayton, *Voyage Round Great Britain*, vol.II. (1815), p. 156; C.E.C. (P.P.1842, XVI), p. 877.

Despite his tabulations, Kennedy was 'convinced that a very large proportion [of working colliers in 1841] have commenced work as early as the sixth or seventh year of age'. His own figures on ages at starting work in Lancashire, however, show that 52.6 per cent of the coal-mining labour force commenced between seven and nine years and that 72.4 per cent began work between the ages of seven and ten years. In Lancashire, the largest proportion of children began work between the ages of seven and eight years (37.3 per cent).¹⁶⁴

Children in coal mining did not commence work at an earlier age than those in other occupations. Table 13 below compares the age at starting work of children in the technologically primitive West Yorkshire coal-district with that of children in other occupations.

Table 13. Mean age at starting work in different occupations: males, 1841.

| | Age | Cases |
|-----------------|------|-------|
| Coal mining | 8.61 | 265 |
| Farming | 9.10 | 99 |
| Potteries | 8.88 | 150 |
| Worsted mills | 9.41 | 76 |
| All Occupations | 8.86 | 590 |

Source: C.E.C. (P.P. 1842, XVI), App.C. pp. 212-14., App.D, p. 215., App.E, p. 216; C.E.C. (P.P. 1842, XVII), App. A, pp. 77-86, tables 1-5.

¹⁶⁴ (P.P. 1842, XVII), p. 149.

The table 14 below provides the result of an analysis of all 1,797 workers who gave evidence of an age at starting work (some very small samples are included, e.g. Forest of Dean).

Table 14. Mean age at starting work underground in different coal-districts. Evidence from 22 reports, Children's Employment Commission, 1841, both sexes.

| | Mean | Std Dev | Cases |
|------------------------|-------|---------|-------|
| ALL DISTRICTS | 9.05 | 2.49 | 1797 |
| CUMBERLAND | 8.69 | 1.97 | 13 |
| DERBYSHIRE | 8.78 | 1.93 | 276 |
| E. SCOTLAND | 9.40 | 1.92 | 229 |
| FOREST OF DEAN | 8.00 | .00 | 2 |
| LANCS AND CHESHIRE | 8.52 | 2.60 | 44 |
| N. BERLAND AND N. DURH | 8.72 | 1.72 | 249 |
| N. LANCS | 9.43 | 2.64 | 7 |
| N. SOMERSETSHIRE | 8.28 | 1.23 | 18 |
| N. STAFFS | 9.58 | 1.35 | 19 |
| NORTH WALES | 10.28 | 2.00 | 129 |
| OLDHAM | 7.19 | 1.68 | 16 |
| S. GLOUCESTERSHIRE | 8.67 | 1.53 | 3 |
| S. STAFFS AND SHROPS | 9.24 | 2.40 | 29 |
| S. WALES (a) | 8.80 | 3.50 | 261 |
| S. WALES (b) | 9.97 | 3.40 | 174 |
| SOUTH DURHAM | 9.00 | 2.75 | 15 |
| W. R. YORKS (c) | 7.78 | 1.70 | 59 |
| W. R. YORKS (d) | 8.56 | 2.12 | 112 |
| W. R. YORKS (e) | 8.80 | 2.22 | 105 |
| W. SCOTLAND | 10.86 | 1.68 | 7 |
| WARWICK/LEICS (†) | 10.90 | 3.41 | 10 |
| WHITEHAVEN AND N. IRL | 9.30 | 2.43 | 20 |

Source. Prosopography of P.P.1842, XVI, XVII.

Notes. Reports: a, Franks; b, Jones; c, Scriven; d, Woods; e, Symons; † includes Ashby-de-la-Zouch.

A broad tabular summary of evidence of ages at starting work in different coal-districts is provided at the end of this chapter. The frequencies given are for males only since the samples of females were too small to produce meaningful comparisons.

It is probably impossible to speak of an 'age at starting work' in the context of coal-mining children since that age was determined by the household economy and by the demand for the labour of children. Other factors also played a part. In south Staffordshire, for example, the Midland Mining Commission noted that outdoor relief for widows with children ceased upon the children achieving the age of nine years. This might be regarded as the closest one can get to an 'official' age at starting work for the middle years of the nineteenth century.¹⁶⁵

¹⁶⁵ (P.P. 1843, XIII), p. 104; Hair, 'Social history', p. 53, n.1.

TABLE 15. FREQUENCY OF AGES OF STARTING WORK IN DIFFERENT COAL-DISTRICTS, MALES, 1841.

| AGE | DISTRICT | | | | | | | | | | | Total | | | | | | | | | |
|-------|-------------------|-----|----------|-----|------------|-----|-------------|-----|------------|----|-------------|-------|------------|--|-------------------|--|----------|--|-----------|------|--|
| | CUMB AND E. SCOT. | | MIDLANDS | | NORTH EAST | | NORTH WALES | | NORTH WEST | | SOUTH WALES | | SOUTH WEST | | STAFFS AND SHROPS | | W. SCOT. | | YORKSHIRE | | |
| | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | 2 | 1 | | | 1 | 1 | | | 1 | 6 | | | | | | | 1 | 11 | |
| 5 | | 1 | 4 | 5 | | 1 | | 5 | | 13 | | | | | | | | | 15 | 44 | |
| 6 | 2 | 6 | 24 | 19 | 1 | 1 | 15 | 45 | | | | | | | 3 | | | | 25 | 140 | |
| 7 | 6 | 13 | 49 | 36 | 5 | 5 | 7 | 60 | | 7 | | 7 | | | 6 | | | | 51 | 240 | |
| 8 | 8 | 25 | 47 | 62 | 16 | 16 | 7 | 62 | | 7 | | 7 | | | 6 | | | | 35 | 275 | |
| 9 | 7 | 28 | 63 | 60 | 22 | 22 | 7 | 61 | | 5 | | 5 | | | 12 | | 1 | | 42 | 308 | |
| 10 | 3 | 37 | 42 | 44 | 30 | 30 | 2 | 41 | | 3 | | 3 | | | 11 | | 3 | | 28 | 244 | |
| 11 | 2 | 17 | 27 | 20 | 27 | 27 | 5 | 34 | | 1 | | 1 | | | 2 | | 1 | | 14 | 150 | |
| 12 | 3 | 3 | 17 | 11 | 9 | 9 | 3 | 21 | | 3 | | 3 | | | 6 | | 1 | | 8 | 82 | |
| 13 | | 3 | 5 | 4 | 9 | 9 | 1 | 3 | | 1 | | 1 | | | | | | | 7 | 32 | |
| 14 | 1 | 1 | 2 | 1 | 3 | 3 | | 4 | | 4 | | 4 | | | | | 1 | | 4 | 17 | |
| 15 | | | | | 2 | 2 | | 2 | | 2 | | 2 | | | 2 | | | | | 6 | |
| 16 | 1 | | 2 | | | | | 2 | | 2 | | 2 | | | | | | | 1 | 6 | |
| 17 | | | 1 | 1 | | | | 2 | | 2 | | 2 | | | | | | | | 4 | |
| Total | 33 | 134 | 285 | 264 | 125 | 125 | 53 | 356 | | 23 | | 46 | | | 7 | | | | 231 | 1559 | |

SOURCE: Prosopography of P. P. 1842, XVI., XVII.

TABLE 16. PROPORTIONS STARTING WORK BY AGE IN DIFFERENT COAL-DISTRICTS, MALES, 1841.

| AGE | DISTRICT | | | | | | | | | | | Group Total | | | | | | | |
|-----|-------------------|-------|----------|-------|------------|-------|-------------|-------|------------|-------|-------------|----------------|------------|-------|----------------------|-------|--------------------|-------|-------|
| | CUMB AND E. SCOT. | | MIDLANDS | | NORTH EAST | | NORTH WALES | | NORTH WEST | | SOUTH WALES | | SOUTH WEST | | STAFFS AND SHERPS | | W. SCOT. YORKSHIRE | | |
| | | | | | | | | | | | | | | | | | | | |
| 4 | | .7% | | .4% | | 1.9% | | 1.7% | | 1.7% | | 1.7% | | 1.7% | | 1.7% | | .4% | .7% |
| 5 | | .7% | | 1.9% | | .8% | | 3.7% | | 9.4% | | 9.4% | | 9.4% | | 9.4% | | 6.5% | 2.8% |
| 6 | 6.1% | 4.5% | | 7.2% | | .8% | | 12.6% | | 28.3% | | 28.3% | | 28.3% | | 28.3% | | 10.8% | 9.0% |
| 7 | 18.2% | 9.7% | | 13.6% | | 4.0% | | 16.9% | | 13.2% | | 13.2% | | 13.2% | | 13.2% | | 22.1% | 15.4% |
| 8 | 24.2% | 18.7% | | 23.5% | | 12.8% | | 17.4% | | 13.2% | | 13.2% | | 13.2% | | 13.2% | | 15.2% | 17.6% |
| 9 | 21.2% | 20.9% | | 22.7% | | 17.6% | | 17.1% | | 13.2% | | 13.2% | | 13.2% | | 13.2% | | 18.2% | 19.8% |
| 10 | 9.1% | 27.6% | | 16.7% | | 24.0% | | 11.5% | | 3.8% | | 3.8% | | 3.8% | | 3.8% | | 12.1% | 15.7% |
| 11 | 6.1% | 12.7% | | 7.6% | | 21.6% | | 9.6% | | 9.4% | | 9.4% | | 9.4% | | 9.4% | | 6.1% | 9.6% |
| 12 | 9.1% | 2.2% | | 4.2% | | 7.2% | | 5.9% | | 5.7% | | 5.7% | | 5.7% | | 5.7% | | 3.5% | 5.3% |
| 13 | | 2.2% | | 1.5% | | 7.2% | | .8% | | 1.9% | | 1.9% | | 1.9% | | 1.9% | | 3.0% | 2.1% |
| 14 | 3.0% | .7% | | .4% | | 2.4% | | 1.1% | | | | | | | | | | 1.7% | 1.1% |
| 15 | | | | | | 1.6% | | .6% | | | | | | | | | | .4% | .4% |
| 16 | 3.0% | | | .7% | | | | .6% | | | | | | | | | | .4% | .4% |
| 17 | | | | .4% | | | | .6% | | | | | | | | | | .3% | .3% |

SOURCE: Prosopography of P.P.1642, XVI., XVII.

Chapter three. The Children's Employment Commission, 1840-1842

Origins

In the early decades of the nineteenth century, outside the coal mining districts, little understanding existed about miners and their working conditions. The small amount of information that was available was sometimes extremely misleading. William Pyne, for example, instructed the readers of his 1806 encyclopaedia that: 'There are many families who live under ground, and only visit the regions of day occasionally. They have regular markets below, to which dealers descend to supply them with the articles of subsistence and clothing which they want'.¹⁶⁶ William Cobbett, who visited the north-east coalfield in 1832, reported: 'Here is the most surprising thing in the whole world; thousands of men and thousands of horses continually living under ground: *children born there, and who sometimes never see the surface at all, though they live to a considerable age*'.¹⁶⁷ In some non-coal-mining districts, the belief that miners were a troglodytic race prevailed long after the publication of the report of the Children's Employment Commission. The north-east labour leader John Wilson, while employed on a coaster in 1856, encountered a barman in Shoreham who discovered that he was a pitman:

Pressing for more information, he inquired how long I had been down the pit. "Seven years," was the answer. In most surprised tones he said, "Have you not been up until now?" I was surprised at him, and replied, "Yes, every day except on rare occasions." "Why, I thought you pitmen lived down there always!" said the querist.

¹⁶⁶ Pyne, *Microcosm or, a picturesque delineation of the arts, agriculture, and manufactures of Great Britain*, p. 164.

¹⁶⁷ Quoted in Hair, *Views of the collieries*, p. 6 (emphasis in the original).

Wilson was to subsequently discover that 'there was a generally-held opinion that the coals ... were dug out of the bowels of the earth by a class of people who were little removed from barbarism, and whose home was down in the eternal darkness'.¹⁶⁸

According to John Leifchild, there was, 'no class of the labouring community so little known. They are buried in the darkness and distance of the mines'.

In addition to their concealed underground working conditions, there was also thought to be something sinister about the physical superiority of coal miners: 'While merely regarded as the possessors of so much physical strength', wrote Leifchild, 'they have displayed nothing more, and the possessor of the greatest bodily vigour, being entitled to the greatest honour and the largest emolument, will frequently display it in modes allowed by neither law nor order': miners were 'a peculiar race' he noted. Adverting to the campaign against the slave-trade, Leifchild remarked: 'Before the Reports of the Children's Employment Commissioners were made public ... England knew a great deal more of the blacks abroad than of the blacks at home'.¹⁶⁹ Colliers in the mining villages of north Somersetshire, where Hannah More attempted a number of her educational schemes in the 1790s, were reported to be in a 'savage and depraved' condition.¹⁷⁰ Describing coal mines to his child readers in 1823, the Rev. I. Taylor stated, 'it is much safer to sit still and read about them, than ... to go down into them; all in the darkness, to be let down in a basket

¹⁶⁸ Wilson, *Memories of a labour leader*, p. 95.

¹⁶⁹ Leifchild, 'Life, enterprise, and peril in coal-mines', pp. 338-9, 361. In his 1842 report, Jelinger Symons stressed that miners 'live out of sight of the rest of the community, and almost wholly out of its ken: they are reached by none of our institutions'. (P.P. 1842, XVI), p. 197.

¹⁷⁰ Hair, 'The Lancashire collier girl, 1795', p. 68.

among the black men!'. 'How glad one should be to get out again', he wrote.¹⁷¹ In 1829, a visitor to a north-east pit thought that coal miners 'looked really like inhabitants of the infernal regions ... and [in] his own natural wild look, [the coal miner] appeared more like a demon'.¹⁷² Such views raise considerable sympathy with a contributor to the *Colliery Guardian* of 1858 who lamented that:

Some people, especially the citizens of the great metropolis, whose travels have been circumscribed within a circle of ten miles radius, and which has St. Paul's for its centre, entertain rather curious ideas about the appearance of the mining districts, and the habits of the mining population... they are convinced that the working people engaged therein must be in the condition of slaves and savages.¹⁷³

The notion that pitmen might be racially different barbarians and devoid of Christian morality, therefore, had its high point in the early decades of the nineteenth century. The perceived low moral attainments of colliers and their lack of reverence for traditional authority, coupled with a superior physical strength, implied the existence of an unknown, and possibly dangerous, counter-culture. Moreover, the fact that children were working underground came to be looked upon with increasing abhorrence during the period 1814-40. Indeed, some observers had already identified specific moral and social problems arising from their employment.

¹⁷¹ Taylor, *Scenes of British wealth*, p. 247. The author was, almost certainly, the non-conformist pastor Isaac Taylor (1759-1829).

¹⁷² Anon, 'Itinerary of 1829', p. 150.

¹⁷³ 'Social progress in the mining districts', *Colliery Guardian*, 28 Aug. 1858, p. 131.

I

The first major critique of child labour in coal mining (and, in particular, of the employment of young children as trap-door operators) was produced by the writer and traveller Richard Ayton (1786-1823). After a visit to a Whitehaven coal mine in 1813, he noted: 'One class of sufferers in the mine moved my compassion more than any other, a number of children who attend at the doors to open them when the horses pass through and who in this duty are compelled to linger through their lives, in silence, solitude and darkness, for sixpence a day'. Ayton described how the children were introduced to underground work:

On their first introduction into the mine the poor little victims struggle and scream with terror at the darkness, but there are found people brutal enough to force them to compliance, and after a few trials they become tame and spiritless, and yield themselves up at least without noise and resistance to any cruel slavery that it pleases their masters to impose upon them... Surely the savages who murder the children which they cannot support are merciful compared with those who devote them to a life like this.¹⁷⁴

Optimistic views of children in coal mining also existed. For example, another underground visitor to a Whitehaven pit in 1836 failed to mention the position of trappers: nor did he display any concern for a moral decline among coal miners.¹⁷⁵

¹⁷⁴ Ayton and Daniell, *Voyage round Great Britain*, vol.II, pp. 155-6. The illustrations to the *Voyage* were engraved by the noted landscape painter William Daniell (1769-1837) under whose name the work is occasionally cited.

¹⁷⁵ On the contrary, Head wrote: 'The skin of every man in a coal-pit, by a very simple process, soon attains the same hue, but since no discoloration of the moral qualities ensues thereby, neither are the gradations of rank forgotten, nor is the mutual respect with which the workmen regard those set above them at all diminished'. Head, *Home tour through the manufacturing districts*, pp. 401-2.

The encyclopaedist Andrew Ure (1778-1857) described how 'vast multitudes of children are employed in mines, where day-light never penetrates and ... they grow up into as healthy and intelligent a race of men as may be found'. Another substantial report on north-east pits, produced in 1835, failed entirely to discuss, or to deprecate, child labour.¹⁷⁶

However, the pessimistic view continued to gain adherents and fears for the moral development of mining children grew. Indeed, the perceived effect upon children of immorality among adult coal miners was singled out as a force for evil: as Ashley pointed out, in appealing to the Commons for a royal commission to investigate the issue of child and female labour, adults were mostly irredeemable: 'the future hopes of a country must, under God, be laid in the character and condition of its children ... it is almost fruitless to expect, the reformation of its adults: as the sapling has been bent so will it grow.'¹⁷⁷ It was felt that the children would be the inheritors of the godlessness and immorality of their profligate parents.

The early influence of Ayton upon the development of a fear of moral 'contamination', arising from the employment of women and children underground must have been great. At least one of the Sub-Commissioners of 1842 was influenced by Ayton.¹⁷⁸ The mixing of the sexes below ground, it was claimed by Ayton, presented unrivalled opportunities for sexual depravity:

In consequence of the employment of women in the mines, the most abominable profligacy prevails among the people. One should scarcely have supposed that there would be any temptations to sin in these gloomy and loathsome caverns, but they are made the scenes of the

¹⁷⁶ Ure, *Philosophy of manufactures*, p. 472; Anon, 'The Collieries, no.1', pp. 121-8.

¹⁷⁷ Cooper, *Speeches of the Earl of Shaftesbury*, 4 Aug. 1840, p. 17.

¹⁷⁸ Indeed, evidence of very close paraphrasing of Ayton's work is evident in Symons' report of 1842. See page 139.

most bestial debauchery. If a man and woman meet in them, and are excited by passion at the moment, they indulge it, without pausing to enquire if it be father and daughter, or brother and sister, that are polluting themselves with incest ... it is not a little offensive to see them changed into devils in their appearance, but it is afflicting indeed to witness the perversion that takes place in their moral character. They ... become a set of coarse, licentious wretches, scorning all kind of restraint, and yielding themselves up, with shameless audacity, to the most detestable sensuality. Their abominations are confined during the day to the dark recesses of the mines; but at night they are cast up from the pits like a pestilence, to contaminate the town.

The 'ruffian-like' adult coal miners whom Ayton encountered were described as 'a band of devils'. 'Great God!', he pleaded, 'can nothing be done for the redemption of these wretched slaves?.. These dismal dungeons are certainly not fit places for women and children, the removal of whom would be an act of humanity'.¹⁷⁹ As late as 1843, the Rev. Charles Girdlestone described the effects of a life in coal mining thus:

As for their ignorance, it appears, that some are taken to work in mines and factories at so early an age, as never to have learnt the very name of Jesus Christ their Saviour, except perhaps as a name by which the profligate parties all around them habitually curse and swear. Of the scriptures they for the most part know nothing; never having learnt to read them, and in some cases never having so much as seen them, never having heard the word preached, never having attended public worship, nor having ever been accustomed even to pray in private. As to their wickedness, they practise falsehood, blasphemy, dishonesty, gambling, and filthy conversation, from their earliest years. Drinking soon follows; and that, carried to such a pitch, as that in one of our great towns of manufactories there are public houses set apart on purpose for the young; their manners being too coarse for those who are somewhat older to put up with, in their own places of general resort. And there, whilst mere boys and girls, they early learn and practise the worst vices of maturer age. And with souls thus steeped in sensuality, and bodies stunted by excessive

¹⁷⁹ Ayton and Daniell, *Voyage round Great Britain*, vol.II, pp. 159-60, 156, 158.

labour, hard fare, and close confinement, emaciated too by early indulgence in every excess of profligacy, they grow old long before their time, and go soon and suddenly to their last account, weary of life, but wholly unprepared for the solemn change of death.

Girdlestone believed that this was the fate of 'hundreds of thousands'.¹⁸⁰

The fear of moral decline among contemporaries was intimately connected to perceptions of industrial production. They saw the erosion of the an older moral economy by particular industrial processes such as textiles production and coal mining. William Dodd (the 'factory cripple') epitomised this view of industry and pointedly expressed his pessimism in one of his famous letters to Lord Ashley. Dodd was disappointed at the poor working conditions existing in the Arkwright mills at Matlock: 'I had been led to believe', he wrote, 'that the descendants of the great Sir Richard Arkwright ... were patterns for the manufacturers to copy after ... but I now find I was labouring under a mistake. I had heard of their work-people keeping cows, and having pasture land, and had fondly hoped that the old state of things was existing here, as in the happier times, to which we now so often look back with regret'.¹⁸¹

II

Disquiet over the conditions of children's employment in mines, therefore, was first voiced by humanitarian campaigners who were concerned about what they perceived as a general social and moral malaise. The campaigners believed that the employment of women and children underground represented a threat to the moral

¹⁸⁰ Girdlestone, *The judgement of Solomon*, pp. 5-6.

¹⁸¹ Dodd, *The factory system illustrated*, p. 208.

and sexual development of both and feared the wider social 'contamination' of the social order that might arise from it. The *Penny Magazine* reported in 1840 that, although miners' wages were high, 'corresponding benefits are thrown away upon those who have received no moral culture and are incapable of self-guidance'.¹⁸² Echoing the widespread media outrage that followed the publication of the evidence of the C.E.C., a contributor to the *Quarterly Review* stated that 'we have disclosed to us ... modes of existence, thoughts, feelings, actions, sufferings, virtues, vices, which are as strange and as new as the wildest dreams of fiction. The earth seems now for the first time to have heaved from its entrails another race, to astonish and to move us to reflection and to sympathy'.¹⁸³ The *Annual Register* remarked that children were being 'consigned by their parents almost from the cradle to perpetual labour'.¹⁸⁴

The official inquiry into labour in coal mines that took place during the years 1840–41, therefore, arose in part as a response to the efforts of private commentators and observers. However, three parliamentary reports heightened the growing concern for the moral and physical conditions of children in mines.

The first of these official publications was the evidence taken by E. Carleton Tufnell for the factory commission in 1833.¹⁸⁵ Although primarily concerned with workers in the textiles industry, Tufnell examined two adult colliers and a seventeen-year old drawer from Worsley, Lancashire. The witnesses depicted mining life as harsh and brutal, claiming frequent beatings of young children by colliers in the pits

¹⁸² 'Employment of Children in Coal-mines', *Penny Magazine*, no.549, 20 Oct. 1840, p. 416.

¹⁸³ Ferguson, 'Colliers and collieries', *Quarterly Review*, vol.LXX, June 1842, p. 159.

¹⁸⁴ *Annual Register*, 1842, p. 165.

¹⁸⁵ (P.P. 1833, XX), *First Report of the Central Board of His Majesty's Commissioners for inquiring into the Employment of Children in Factories, with minutes of Evidence and Appendix*, D.2, pp. 79-82.

where they worked. One of them claimed that serious injuries were inflicted upon both boys and girls with pick-axe handles.

The accounts of Tufnell's witnesses, however, were probably not typical of the experiences of the child collier population. All three were almost certainly orphans, among whom levels of ill-treatment were high: two testified that they were fatherless and the other that his work was, 'drawing from a man'.¹⁸⁶ The conditions described in Tufnell's 1833 report were among the worst in the nineteenth-century coal-mining industry. The geological conditions in the Worsley seams, moreover, were particularly difficult and were commonly very wet.¹⁸⁷ Tufnell noted that, in order to enter the pit he inspected, he had had to travel for some distance in a barge.¹⁸⁸ The experiences of Tufnell's witnesses, therefore, were not representative of working conditions in most British coal mines. Having inspected only one pit, however, Tufnell wrote:

I cannot much err in coming to the conclusion, both from what I saw and the evidence of the witnesses given on oath ... that it must appear to every impartial judge of the two occupations that the hardest labour in the worst room in the worst-conducted factory is less hard, less cruel, and less demoralizing than the labour in the best of coal-mines.¹⁸⁹

¹⁸⁶ Ill-treatment is discussed in more detail in chapter seven.

¹⁸⁷ (P.P. 1842, XVII), pp. 215-18.

¹⁸⁸ The pit that Tufnell visited probably belonged to the Duke of Bridgewater. For a history of the Bridgewater collieries see Atkinson, *The canal duke's collieries*.

¹⁸⁹ (P.P. 1833, XX), p. 82; A comparison with factory conditions was later drawn by Samuel Scriven in his 1842 report on West Yorkshire conditions to the C.E.C: 'There is nothing that I can conceive amidst all the misery and wretchedness in the worst of factories equal to this'. (P.P. 1842, XVII), p. 103.

By 1840, Leonard Horner (1785-1864), a colleague of Tufnell on the Factory Commission (and soon to be appointed to the Children's Employment Commission), had provided an even wider readership to Tufnell's findings. In his published report on the employment of children in industrial occupations, he reprinted the evidence given by the three Worsley colliers, noting further that: 'I myself spoke to a boy of eleven years of age who had worked in a coal pit in Lancashire, who told me that ... his occupation below ground was to drag a basket of coals to which he was yoked, in a place where he could not stand upright, and walking in water above his ankles. It has been stated to me that, in some parts of England they make little children creep into places not above eighteen inches high, to get out the coal, where the seams are so thin, that to cut away the stone with which the coal is interstratified, so as to make room for a grown man to work, the coal would not pay'.¹⁹⁰

A second influential official report on children in coal mining was that produced by William Edward Hickson (1803-1870), a member of the Royal Commission on Unemployed Hand-loom Weavers and a vigorous opponent of child labour. Hickson described the work of the trappers as 'monotonous and dismal'. He was

much struck by the enormity of this evil; I could not conceive of circumstances more prejudicial to animal existence than shutting up a little child throughout the day in subterraneous confinement, at the very period when air and light are as necessary to its growth as to a young and tender plant'.¹⁹¹

¹⁹⁰ Horner, *On the employment of children in factories and other works in the United Kingdom, and in some foreign countries*, pp. 14-15.

¹⁹¹ *Report on the condition of the hand-loom weavers* (P.P. 1840, XXIV). 'Report by Mr. Hickson on Conditions in the Weaving Districts', pp. 49-51. This report was originally published privately as *Notes and observations made during a tour through the weaving districts by W.E. Hickson, Esq.*, n.d., but was later ordered to be printed by the House of Commons in 1840. An extract from the report also

Hickson had been profoundly affected by the plight of the hand-loom weavers and believed that child labour in centralised industries was a major cause of breakdown in traditional family relationships, especially those between parents and children. He voiced the fears of many when he claimed in 1842 that, 'children require protection even against the authors of their being'.¹⁹²

Another official report, produced in 1840 by the Committee of Council on Education, noted the breakdown of parental control over children and the acquisition of bad habits among children resulting from an early age at starting work in mining. Hugh Seymour Tremenheere (1804-1893) reported from south Wales:

The boys are taken into the coal or iron mine at eight or nine years old, often earlier. The value of the labour of the youngest is about 6d. a-day. Their occupation consists in opening and shutting air-doors, in throwing small pieces of coal or ironstone into the trams, or in handing implements to the men at work. A boy thus learns early to become a good miner. It is not improbable, however, that not much skill in that respect would be lost by his beginning somewhat later; and it is certain, that from the time he enters the mine, he learns nothing else. A mother stated that her husband wanted to take one of her boys, then only seven years old, into the mine. She said, "that her others had gone there young enough at eight; and after they once went there, they turned stupid and blind-like, and would not learn any thing, and did not know what was right; and now they were like the rest, they went to the public-houses like men." ... They leave their homes at an early age, if they find they can be boarded cheaper elsewhere, and they spend the surplus of their wages in smoking, drinking and gambling. Boys of 13 will not unfrequently boast that they have taken to smoking before they were 12. All parental control is soon lost. Shortly after the age of 16 they begin to earn men's wages. Early marriages are very frequent. They take their wives from the coke-hearths, the mine

appeared in 'Employment of children in coal-mines', *Penny Magazine*, No.549, 20 Oct. 1840., p. 416. Hickson wrote parts of Greg's 'Protection of children in mines and collieries', pp. 86-139.

¹⁹² Greg, 'Protection of children', p. 138.

and coal-yards, or other employments about the works, in which they have been engaged from 16 years or earlier; having had no opportunities of acquiring any better principles or improved habits of domestic economy, and being in all other respects less instructed than their husbands.¹⁹³

The inquiry methods of the 1842 Children's Employment Commissioners were undoubtedly influenced by these earlier parliamentary reports.¹⁹⁴

III

Beside the campaigns of humanitarians and parliamentary figures, agitation for the exclusion of women and children came from local campaigners. Indeed, the Sub-Commissioners of 1841-2 were frequently assisted by local professional men who saw child and female employment as abhorrent. Samuel Scriven noted that he was accompanied on a number of his visits to West Yorkshire mines by a local solicitor and a physician.¹⁹⁵ Moreover, most local agitation (both for, and against, the regulation of child employment) was concentrated in the technologically primitive coal-districts, where the incidence of female and child employment was highest (and where the issue was most contentious). The Lancashire and Yorkshire coal-districts held a disproportionately large number of private campaigners compared to other British coal-districts.

¹⁹³ (P.P. 1840, XL), p. 212

¹⁹⁴ A select committee of 1835 was concerned primarily with safety issues but did discuss the dangers involved in employing very young children to operate ventilation doors. (P.P. 1835, V).

¹⁹⁵ Scriven was a surgeon and he later worked on the second report of the Children's Employment Commissioners into the employment of children in manufactures other than mining and textiles. (P.P. 1843, XV). The Commissioners appointed 'Samuel Scriven Esq, Surgeon of Artillery Place, Finsbury'. PRO HO74/1, Home Office. Various Commissions Letter Books, 1836-45, 17 Nov. 1840, p. 224.

In Lancashire, the campaign against the employment of women and children was directed by a Manchester geologist, Edward Binney (1812-1881).¹⁹⁶ Binney led an independent movement in the Manchester area whose emphasis was upon the exclusion of women. His interest in the geology of coal formations in Lancashire and Cheshire often brought him into contact with coal mine workings. Binney maintained a correspondence with the *Mining Journal* throughout the period of the investigations of the Commission and sought editorial support for the campaign: he also petitioned parliament on the issue before the publication of the Report of the Commissioners.¹⁹⁷

Binney was sceptical about the ability of the Sub-Commissioners to complete their task, noting, in a letter to the *Mining Journal*, that 'waiting for the Report of the Commissioners ... is all a device of the enemy; these gentlemen will never have a chance of seeing women and children employed as they generally are, and therefore cannot possibly give a correct report of their occupations'.¹⁹⁸ Binney made independent underground inspections and was responsible for the woodcuts of underground conditions that appeared in the Lancashire report.¹⁹⁹

¹⁹⁶ Pinchbeck, *Women workers in the industrial revolution*, p. 244 and n.1; Binney lived in Manchester from 1836 and played a leading role in the establishment of the Manchester Geological Society which was founded in October 1838; He was also a friend of the mining engineer William Peace (see pages 201-2).

¹⁹⁷ 'Copy of ... The Humble Petition of Edward William Binney ... Gentleman', *Mining Journal*, Vol.XII, No.349, 30 Apr. 1842, p. 142.

¹⁹⁸ *Mining Journal*, Vol.XII, 26 Feb. 1842, p. 69. Binney's claim had some substance to it: although a number of the Sub-Commissioners did actually visit the underground workings to report on conditions, they often met with considerable obstruction to their investigations.

¹⁹⁹ Binney often wrote as if he was acquainted with working people, but in 1843, at a meeting of the Society for the Relief of Scientific Men in Humble Life, he noted that 'he was not a native of Lancashire, nor had he resided in the county many years, therefore he could not be expected to know so many instances [of poor, but gifted, individuals] as people born and bred in the same county', *Manchester Guardian*, 13 Dec. 1843, p. 6.

Local supporters of reform were invaluable in calling meetings and producing petitions. A major result of their agitation was the presentation of a large number of petitions to the House of Lords. In the West Riding, Mark Crabtree, Secretary to the Yorkshire Central Short-Time Committee, 'prosecuted an extensive canvass for signatures to a petition in favour of Lord Ashley's bill'.²⁰⁰ At Wakefield, one of Crabtree's petitions was 'signed by our worthy Vicar and all the influential inhabitants of our town'. It was remarked that Crabtree had 'not met with a single refusal'.²⁰¹ The *Bradford Herald* praised Crabtree's role in the production of petitions.

Among the foremost in the cause of humanity we notice Mr. Mark Crabtree as the most prominent. This individual is unwearied in his exertions in the cause of humanity. He is now, we believe, returned to London for a short time, but we expect he will again be shortly revisiting the mining districts, in which he has already been very successful in attaching vast numbers of signatures (chiefly the colliers themselves) to the petition in favour of Lord Ashley's bill, which is to restore females to the proper sphere of life in the exercise of their domestic duties.

But the *Bradford Observer* wondered: 'Is this the same Crabtree who lived at Dewsbury a few years ago, and who, at the late election travelled up and down opposing Lord Morpeth? If so we suspect he is an agent, either paid or unpaid of the Tories'. Crabtree almost certainly was working for Ashley. Although Ashley claimed not to have had any involvement with the getting-up of petitions, he and Crabtree had corresponded over the issue of the Short-Time Committee prior to 1842.²⁰² Indeed, Ashley had written to Crabtree in September 1841 that they 'must

²⁰⁰ *Bradford Observer*, 21 July 1842, p. 8.

²⁰¹ *Bradford Herald*, 14 July 1842, p. 4.

²⁰² Hodder, *Life of Lord Shaftesbury*, pp. 182, 191, 194.

uphold the Conservative Government, for, although it be not good, another would be terrible'.²⁰³

Between May and August, 1842, 160 petitions concerning the Bill to exclude women and children were presented to the House of Lords; 116 were against and 44 in favour of legislation. 105 of the petitions originated in the West Riding of Yorkshire of which 73 petitions were against the regulation and 32 were in favour. Table 17 shows the full distribution of the petitions.

A majority of the petitions appear to have been the work of colliers or coal-owners. However, as the campaign intensified during July 1842, and the dissentients appeared to be gaining the upper hand, petitions from London began to appear (e.g. from the 'Inhabitants of Saint Marylebone in the County of Middlesex'): every London petition was in favour of regulation.

The petitions indicate that the most vociferous opinion over the proposed legislation came from those districts in which the work of children remained a viable part of the work process. Eighty-six per cent of petitions came from the then technologically primitive districts of the West Riding, Lancashire and East Scotland and seven per cent from south Staffordshire where, it was claimed that a 'trade' in putting out parish apprentices to colliers was being carried on. South Staffordshire

²⁰³ *Bradford Herald*, 21 July 1842, p. 4; *Bradford Observer*, 21 July 1842, p. 8; Hodder, *Life of Shaftesbury*, p. 194. William Dodd (the 'factory cripple') claimed in 1847 that Ashley had paid him 45s. per week and the hire of a coach while touring the factory districts in 1841 to gather material on the effects of factory work. In September 1841, Dodd was accompanied in his investigations by Crabtree ('whom I accidentally met with'). Dodd was also assisted by James Holroyd the Halifax surgeon who also acted as a guide to the West Yorkshire Sub-Commissioner, Samuel Scriven. Dodd, *The factory system illustrated*, pp. xiii, 6, 148.

Boards of Guardians at Newport, Stourbridge, Madeley, Dudley, Penkridge, and Shiffnal Unions petitioned the Lords largely on the issue of the age limitation.²⁰⁴

Ninety-three per cent of petitions (both for and against) emerged from districts in which the labour of children was an important factor of coal production: only two petitions emerged from the advanced coal fields of Northumberland and Durham.

Table 17. Petitions to the House of Lords concerning the Mines Bill, 1842: origin by regions.

| | |
|---------------------------|------------|
| W.R.Yorks | 105 |
| Lancashire | 19 |
| South Staffordshire | 11 |
| Northumberland and Durham | 2 |
| West Scotland | 0 |
| East Scotland | 14 |
| South Wales | 1 |
| Shropshire | 2 |
| London | 6 |
| Total: | 160 |

Source. *House of Lords Journal, Petitions*, 6 May - 1 August 1842, pp. 189, 367, 388, 401, 403-4, 409, 412-15, 417, 422-3, 425, 430, 432, 436-7, 440-1, 445, 450, 454, 499, 525.

Note. The London petitions came from Islington, Camberwell and Walworth, Westminster, Kensington and Chelsea, City of London, St Marylebone.

²⁰⁴ All 11 petitions from South Staffordshire were against the prohibition of young children. Five came from Poor Law Unions. *House of Lords Journal*, 1842, Newport and Shiffnal Unions, 11 July 1842, p. 413, Dudley and Stourbridge Unions, 12 July 1842, p. 415, Madeley, 14 July 1842, p. 423, Penkridge, 15 July 1842, p. 430. This concentration of petitions from Poor Law Unions appears at odds with the investigation conducted a year later by the *Midland Mining Commission*, which concluded that there were very few pauper children apprenticed to coal miners in South Staffordshire (see pages 267-85).

The commission

In August 1840, having 'long been taunted with narrow and exclusive attention to the children in factories alone', Lord Ashley appealed to the House of Commons for a royal commission to investigate the employment conditions of children not then covered by factory legislation.²⁰⁵ Ashley's desire was for an investigation into the employment of children in several industries. Tobacco-processing, bleaching, potteries, print-works, iron-works, pin-works and coal mining were cited by Ashley as industries in which abuses of child labour took place. The inquiry into the employment of children in several of these industries appeared as the second report of the C.E.C.²⁰⁶ However, it was felt that the most urgent inquiry was that into children's employment in coal mines and, in October 1840, four Commissioners were appointed to lead an inquiry into their employment. The Commissioners appointed were Thomas Tooke (1774-1858), the economist; Thomas Southwood Smith (1788-1861), the sanitary reformer; and the factory inspectors Leonard Horner and Robert John Saunders.²⁰⁷ A return to the Commons noted that Tooke, Smith and Saunders were to receive £500 for their services, but that Horner was 'acting without payment, because receiving a salary as Inspector of Factories'.²⁰⁸ The Commission was accommodated in the recently vacated offices of the Hand-Loom Commission at 3 Trafalgar Square.

²⁰⁵ Cooper, *Speeches of The Earl of Shaftesbury*, 4 Aug. 1840, p. 16.

²⁰⁶ *Second Report of the Commissioners, Trades and Manufactures* (P.P. 1843, XIII) ; Index to the *Second Report* (P.P. 1843, XLII); Appendix Pt.1 (P.P. 1843, XIV); Appendix Pt.2. (P.P. 1843, XV). The second report and evidence has not yet been adequately researched.

²⁰⁷ PRO HO74/1. Home Office. Various Commissions' Letter Books, 1836-45, 13 Oct. 1840, pp. 219-21. Smith had been appointed to the central board of the factory inquiry in 1832 (Smith was the grandfather of Octavia Hill).

²⁰⁸ *Return to ... House of Commons* (P.P. 1842, XXVI).

The scale of the inquiry was impressive. Between November 1840 and March 1841, more than twenty Sub-Commissioners were appointed. They were provided with a set of detailed instructions and each was allocated a coal-district upon which to report. The large number of Sub-Commissioners was a considerable innovation in state inquiries and arose in response to the practical difficulties of examining many scattered mining communities in a short period of time. Tabular forms, for completion by employers, were distributed to the Sub-Commissioners in the hope of gathering accurate statistics of working children.²⁰⁹

The Sub-Commissioners were urged to 'consider that the number whose welfare is involved in the Inquiry is so large that in a few years it will constitute a very considerable proportion of the adult working population of the country; and that, upon the religious, moral, and physical culture and improvement of this portion of the population, the well-being of the whole community will in a great degree depend.'²¹⁰ The Sub-Commissioners, therefore, were concerned with a specific age-range within the coal industry and they avoided any hint of 'interference' with adult labour. They were initially instructed to inquire into the 'children of the poorer classes in mines and collieries', but this stipulation was later extended to include 'young persons'. The instructions on age-groups was that 'children' comprised those aged under 13 and 'young persons' those aged 13-18.²¹¹ These age-groups were identical to those in the factory regulations that had been issued by Horner in 1836.²¹²

²⁰⁹ The final published number of Sub-Commissioners was 18, but at least two others were appointed who did not produce reports. PRO HO74/1, Home Office. Various Commissions Letter Books, 1836-45, pp. 225-49 (see Appendix 4 for a list of the Sub-Commissioners and their coal-districts).

²¹⁰ (P.P. 1842, XV), 'Instructions ... to the Sub-Commissioners', p. 268.

²¹¹ (P.P. 1842, XV), 'Supplemental instructions to the Sub-Commissioners', p. 269.

²¹² *Copy of regulations issued by Leonard Horner Esq. Inspector of Factories* (P.P. 1836, XLV), p. 4.

CHILDREN'S EMPLOYMENT COMMISSION.
3, Trafalgar Square, Westminster.

Young Men make up the year page

Form No. 1 No Column must be filled up with signs.—The Column marked thus (*) may be answered by the words "Yes" or "No," the remainder with words or figures.—Wherever additional quantity of the blank forms may be required to contain the names of all the Children employed, will be forwarded from the Office of the Commission, on application (by letter) to the Secretary.

Name of the Person or Firm carrying on the Work: *Christina White & Co.*

Description of the Work carried on: *Print Office*

Town, Street, or other Locality in which situated: *St. James Street*

Township of: *St. James*

Parish of: *St. James*

County of: *Westminster*

List and Description of all the Children under 18 years of age, here employed, up to the latest period to which particulars can be ascertained; being the day of 184 .

| CHRISTIAN and SERVICE. | Traded Age | BIRTHPLACE | | PERIOD OF RESIDENCE | PERIOD OF EMPLOYED | | EMPLOYMENT | Description of the person by whom Work is done in Child's employment | Time of day when employed | How paid | By whom paid | Time of day when paid | Kind of school attended | Instruction | If absent from any business |
|------------------------|------------|------------------|------------------|---------------------|-----------------------|-----------------------|----------------|--|---------------------------|---------------|---------------|-----------------------|--------------------------|--|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| | | Male | Female | | From Birth to Present | From Birth to Present | | | | | | | | | | | | |
| <i>John White</i> | <i>12</i> | <i>St. James</i> | <i>St. James</i> | <i>1898</i> | <i>1898</i> | <i>1898</i> | <i>Printer</i> | <i>Christina White & Co.</i> | <i>8 to 12</i> | <i>By day</i> | <i>By day</i> | <i>By day</i> | <i>At All Day School</i> | <i>Let each Child, who has not, sign his name in this Column</i> | | | | |
| <i>John White</i> | <i>12</i> | <i>St. James</i> | <i>St. James</i> | <i>1898</i> | <i>1898</i> | <i>1898</i> | <i>Printer</i> | <i>Christina White & Co.</i> | <i>8 to 12</i> | <i>By day</i> | <i>By day</i> | <i>By day</i> | <i>At All Day School</i> | <i>Let each Child, who has not, sign his name in this Column</i> | | | | |

Signature of the Person making this Return: *Charles W. Hall*

Private Principal or Agent: _____

Date of Answer: _____

Day of Month: _____ 184 .

The work of the Sub-Commissioners was hampered by a general opposition to interference from outsiders. The rights of property were vigorously upheld by coalowners. Moreover, it was regarded as unsafe to visit some collieries against the wishes of the miners themselves. Would-be 'inspectors' were sometimes the subject of assaults.²¹³ The Sub-Commissioners, therefore, discharged their duty with varying degrees of success. Samuel Scriven, the West Yorkshire Sub-Commissioner, having been instructed to 'acquire as intimate an acquaintance as may be practicable with the nature of the processes in which the Children are employed', experienced such difficulty in bringing pit-children forward for examination, that he had found it necessary to disguise himself as a collier in order to gain access to the underground workings.

I determined at once to provide myself with a suitable dress of flannel, clogs, and knee-caps, in order that I might descend as many [pits] as possible, and take the depositions of the children themselves during their short intervals of rest, feeling a conviction that this was the only means of arriving at anything like a correct conclusion as to their actual condition.²¹⁴

John Leifchild encountered little opposition to his presence, but found the north-east vernacular difficult to interpret. The nature of work in the north-east collieries also frustrated his attempts to interview Northumberland mining children:

my aim was chiefly to obtain the evidence of the children and young persons themselves. All attempts to secure it while they were pursuing their labours in the pit were utterly abortive. With the exception of the trappers, the lads were necessarily in continual locomotion, which, together with the difficulties incident to my own position, rendered it impossible in any case to effect my object in the pit. Hence I was

²¹³ See pages 207-8.

²¹⁴ (P.P. 1842, XVII), p. 58;

compelled to await their arrival on the surface ... If they had little time, they had less inclination to be examined, and still less to answer the questions of a total stranger; and even when their attention was obtained, the barriers to our intercourse were formidable. In fact, their numerous mining technicalities, northern provincialisms, peculiar intonations and accents, and rapid and indistinct utterance, rendered it essential for me, an interpreter being inadmissible, to devote myself to the study of these peculiarities ere I could translate and write the evidence.²¹⁵

In the Midlands, difficulties arose in coal-districts containing large numbers of contractors and sub-contractors. The descriptive categories of colliery operators were numerous, which sometimes made it difficult to determine precisely who was responsible for the running of collieries. Coal mines in Shropshire, for example, were frequently operated by charter masters who leased mineral reserves through landowners' agents and ground-bailiffs. The contractors were wholly responsible for the running of the collieries and for the recruitment of underground workers. In districts containing a high number of sub-contractors, therefore, many coal-owners were unaware of the employment of young children. However, in most cases, both employers and workers had an interest in subverting investigations which had the potential to reduce incomes and the welfare of families. Mitchell noted one 'remarkable instance' of a ground-bailiff's ignorance concerning the number of children employed in the mines of his lessee.

the ground-bailiff, two charter-masters, and a labouring collier, accompanied me: - "I say, Jonas," said the ground-bailiff to one of the charter-masters, "there are very few children working in this mine, I think we have none under 10 or 11." The collier immediately said, "Sir, my boy is only a little more than four." This was a very

²¹⁵ (P.P. 1842, XVI), p. 514; Leifchild did, in fact, make a study of their 'northern provincialisms' and provided a detailed 'Glossary of the Technical Terms in use in the Newcastle Collieries' (P.P. 1842, XVI), pp. 558-62. The glossary to this work owes much to that of Leifchild.

unseasonable interruption, and all that the ground-bailiff said was, "Well, I suppose that you take good care of him. You take him down and up when you go yourself."²¹⁶

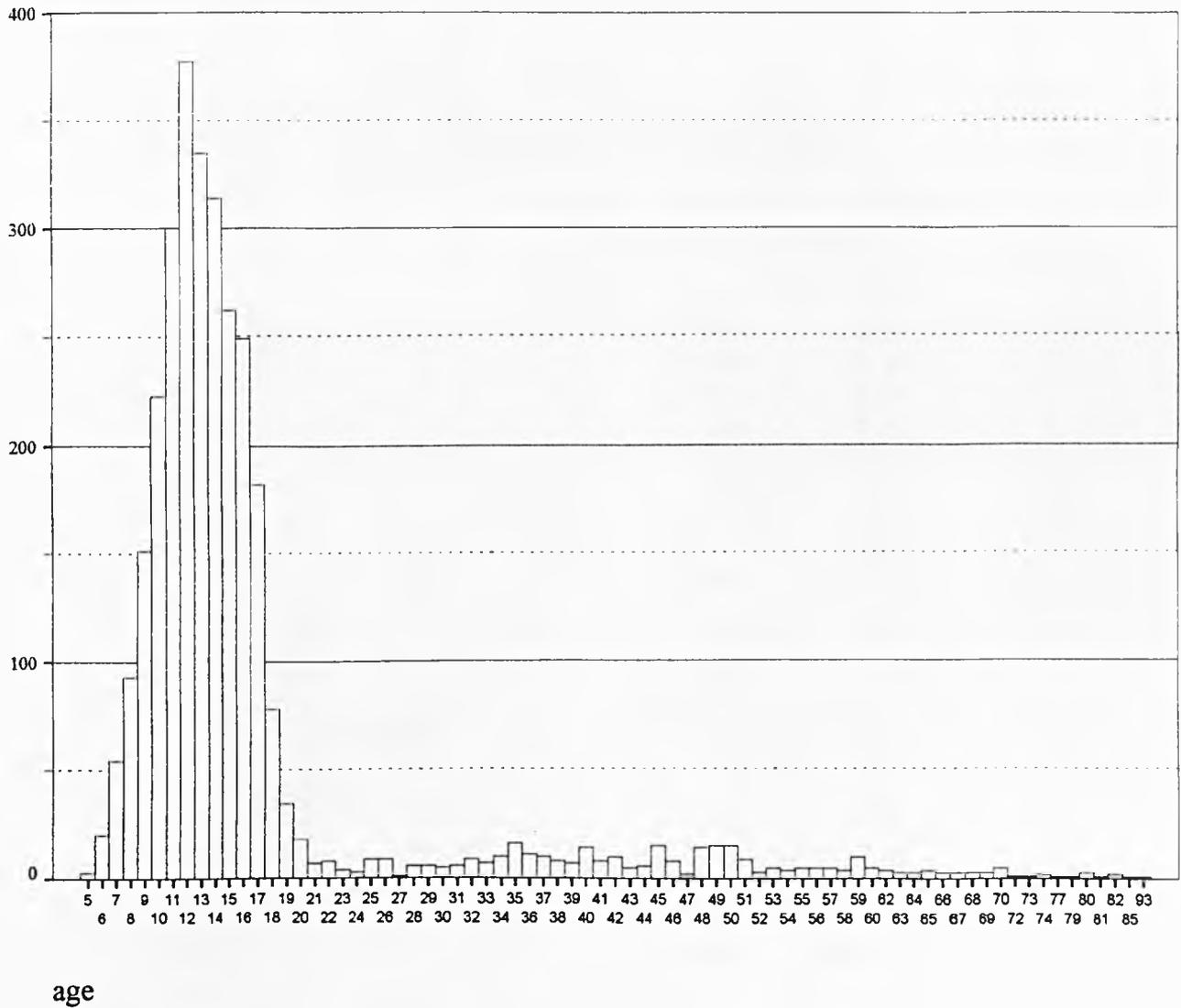
Whether such ignorance was a deliberate attempt at deception, or a result of mere indifference, is not clear (the fate of the collier responsible for the unfortunate outburst was not recorded). However, such examples highlight the questionable origin of much of the evidence. The absence of tabulations of age-groups employed in Mitchell's report on south Staffordshire, for example, is probably an indication of a tacit campaign of non-co-operation with his inquiries.

The Sub-Commissioners collected evidence from miners in the form of short autobiographical statements. Data such as ages and occupations, together with a variety of other information relating to individuals were recorded in these statements. This has enabled quantitative analyses to be made of the 4108 observations in the minutes.²¹⁷ Figure 2 (a frequency chart of the ages of the witnesses) provides a clear indication of the commission's target group and, in particular, the very large number of persons under 20 years of age.

²¹⁶ (P.P. 1842, XVI), pp. 33-4.

²¹⁷ See Appendix A on the compilation of a prosopographical dataset.

Figure 2. Age-frequency of all persons observed by the Children's Employment Commission.



Source: Ages and occupations taken by the Sub-Commissioners, P.P. 1842, XVI., XVII.

Most children were employed in underground haulage operations, and this is reflected in the distribution of occupations of those interviewed by the C.E.C. Table 18 shows that 40 per cent of those observed in the evidence were in haulage or ventilation occupations. The largest single group of subjects (35 per cent) were employed in underground haulage.

Table 18. Occupations of persons observed in evidence: Children's Employment Commission.

| | Frequency | Percent |
|--------------------|-------------|--------------|
| NOT GIVEN | 377 | 9.2 |
| ANCILLARY | 108 | 2.6 |
| AT BANK | 115 | 2.8 |
| AT FACE | 326 | 7.9 |
| COLLIERY OWNER | 82 | 2.0 |
| DIVINES | 67 | 1.6 |
| ENGINES | 70 | 1.7 |
| GENERAL | 19 | .5 |
| HAULAGE | 1438 | 35.0 |
| JUDICIAL | 16 | .4 |
| KIN OF MINERS | 38 | .9 |
| MANAGEMENT | 370 | 9.0 |
| MEDICAL | 93 | 2.3 |
| NOT IN COAL MINING | 654 | 15.9 |
| POOR LAW | 27 | .7 |
| SCHOOLTEACHER | 71 | 1.7 |
| VENTILATION | 208 | 5.1 |
| OTHERS | 29 | .7 |
| TOTAL | 4108 | 100.0 |

Source. Prosopography of (P.P.1842, XVI, XVII).
Notes. 'OTHERS' includes ANONYMOUS, APPRENTICE, COLLIER, PAUPER, GENTLEMEN, PROFESSIONAL and POLICE.

I

The Commission and its evidence were the subject of considerable criticism throughout the period of the campaign. Some of this was justified. The form of evidence taken by the Sub-Commissioners abandoned the typical 'question and answer' format adopted in many nineteenth-century parliamentary inquiries and doubts were raised concerning the reliability of evidence obtained by such methods. In addition, the failure to take evidence under oath was called into question. The Duke of Wellington complained that the inquiry 'had not been carried on by one, two, or more commissioners ..., but had been carried on by a number of sub-commissioners ... not having the power of examining on oath'.²¹⁸ Ainsworth noted: 'There was a case related of a little girl who had been taken before nobody knew whom, and great doubts were entertained of the accuracy of the story about her'.²¹⁹

Indeed, the published report of 1842 contained a number of exaggerations. The following evidence of the ill-treatment of a parish child appeared in the report:

there is a lad called Jonathan Dicks, from St. Helen's workhouse, he gets thrashed very ill. I saw his master beat him with a pick-axe on his legs and arms, and his master cut a great gash in his head with a blow of a pickaxe, and he threw a hundredweight at him and swelled up his eye and made it blue.²²⁰

²¹⁸ *The Times*, 15 July 1842.

²¹⁹ *Hansard* (Commons), LXIV, 4 July 1842, col.1000. P. Ainsworth was M.P. for Bolton-le-Moors.

²²⁰ (P.P. 1842, XV), p. 131.

This example was raised in the Commons by Stansfield, who thought it 'rather strange that the hundred weight so thrown should only have had the effect of "swelling up this boy's eye and making it blue"'.²²¹ Stansfield subsequently demonstrated that, according to the minutes of evidence, the alleged 'pick-axe' had been a 'pick-aum' (a handle) and that the 'hundredweight', which had allegedly been thrown, had in fact been a 'cut' (this was a short stick 'about a foot long and an inch in diameter' which was used as a token to distinguish the men's tubs).²²² The confusion almost certainly occurred as a result of an erroneous transcription of the Sub-Commissioner's hand-written report in which the word 'cut' had been mistaken for the abbreviation for a hundredweight, or 'cwt'.²²³

Moreover, although Ashley had claimed that those involved in the C.E.C. had 'discharged their duties with unrivalled skill, fidelity, and zeal', Lord Londonderry attacked the integrity of the Commission. He reported in the Lords that 'one of the sub-commissioners, named Franks, had kept two hat-shops, one in Regent street and the other in the city, and had failed, and that he had afterwards been imprisoned for a libel'.²²⁴ Londonderry also claimed to have in his possession 'other statements respecting the other commissioners, regarding their unfitness for their office ... they had got up the evidence by underhand means, and had finished it with exhibiting upon their lordships' table the most disgusting pictorial illustrations that ever were

²²¹ *Hansard* (Commons), Vol.LXIV, 5 July 1842, col.1007. W.R.C. Stansfield was M.P. for Huddersfield.

²²² (P.P. 1842, XVII), p. 857.

²²³ Nevertheless, it may have indicated a degree of suggestibility in the transcriber. The original minute read: 'I saw his master beat him with a pickaum on his legs and arms, and his master cut a great gash in his head with a blow of a pick, and he threw a "cut" at him and swelled upon his eye and made it blue'. (P.P. 1842, XVII), p. 223. See chapter seven for a discussion of the ill-treatment of parish children.

²²⁴ *The Times*, 8 June 1842, p. 3.; *Hansard* (Lords), Vol.LXIV, 14 July 1842, col.118; *The Times*, 15 July 1842.

seen'.²²⁵ He suggested, moreover, that any legislation emerging as a result of the inquiries of the 1842 Commission would be disastrous.

these gentlemen came to this inquiry fresh from the factory commission, with all the prejudices which that commission was likely to excite, and with an expectation and desire of finding similar oppressions amongst the miners to those which they had found amongst the manufacturing population ... communicating with artful boys and ignorant young girls, and putting questions in a manner which in many cases seemed to suggest the answer.²²⁶

Punch satirically compared the Sub-Commissioners to missionaries:

An expedition was, a short time ago, fitted out to explore the whereabouts of an undiscovered race of blacks. The members of the expedition resolved itself into a committee, and the result of their peregrinations has just been published. The discovered races are natives of coal mines, and consist, besides men, of girls, women, and children, who crawl on their hands and knees, and have a habit of dragging about large trucks of coals ... There has been some talk of improving their condition ... but that was soon hushed up when the philanthropists learned that such a measure would raise the price of coals, and, consequently, contract their steam-boat operations for the civilisation of Western Africa.²²⁷

Punch altered its satirical stance as the effects of the report spread. In 1843, it published the cartoon on page 131.

²²⁵ *Hansard* (Lords), Vol.LXIV, 14 July 1842, col.118. Chapter four discusses the woodcuts in more detail.

²²⁶ *Hansard* (Lords), Vol.LXIV, 24 June 1842, col.539; Leifchild was later to state that 'the public were half disinclined to believe the replies to questions [put to miners] by the visiting Commissioners'. 'Yet', he continued, 'we have reason to know that these were mostly unexaggerated notes of actual answers'. Leifchild, 'Life, enterprise, and peril in coal-mines', p. 363.

²²⁷ *Punch*, vol.2, Jan. to June 1842, p. 205.

'The public mind', wrote *Punch*, 'has been a good deal shocked by very offensive representations of certain underground operations, carried on by an inferior race of human beings ... but *Punch's* artist has endeavoured to do away with the disagreeable impression, by showing the very refined and elegant results that happily arises from the labours of these inferior creatures... When taken in conjunction with the very pleasing picture of aristocratic ease to which they give rise, the labours in the mines must have a very different aspect from that which some injudicious writers have endeavoured to attach to them'.²²⁸ At the centre of the 'picture of aristocratic ease', was Lord Londonderry, leader of the Lords' coal-owner lobby and a regular target of *Punch*.

²²⁸ *Punch*, vol.5, July to Dec. 1843, pp. 48-9.



CAPITAL AND LABOUR.

'Capital and Labour', *Punch*, Cartoon no.5, vol.5, 1843.

II

An important clue to the intended audience for the 1842 Report was provided in the Sub-Commissioners' frequent comparisons of the dimensions of coal mines to metropolitan features. Indeed, when introducing the Bill, Ashley recounted the story of 'a child of six years old with a burden of at least half a hundred weight, going 14 times a day a journey equal in distance to the height of St. Paul's Cathedral'.²²⁹

In the North East, a large coal mine was 'almost an underground city. It has its long main street, like the Strand or Cheapside'. A Sub-Commissioner recounted that mining engineers knew the underground workings 'as well as we know the streets around Belgravia or Cornhill'.²³⁰ Another suggested a design for a self-acting trap-door advocating the use of springs similar to those 'adopted for opening and shutting the entrance-doors in the club-houses'.²³¹ Yet another, in similar vein, proposed a trap-door rope-guide 'exactly like those used for conducting bell-wires round the corners of rooms'.²³²

The conditions in the East of Scotland pits were comparable to 'our lowest common sewers'.²³³ Samuel Scriven, after visiting a west Yorkshire mine, thought that it 'more resembled a city drain than anything else', and Symons described an underground 'gate' as 'not much above the size of an ordinary drain'.²³⁴ Writing

²²⁹ *The Times*, 8 June 1842.

²³⁰ Leifchild, 'Life, enterprise, and peril in coal mines', p. 343; Leifchild, 'Life and labour in the coal-fields', p. 347.

²³¹ (P.P. 1842, XVII), p. 156.

²³² (P.P. 1842, XVI), p. 175.

²³³ (P.P. 1842, XVI), p. 479.

²³⁴ (P.P. 1842, XVII), p. 62; (P.P. 1842, XVI), p. 178.

years after the Commission, Leifchild described the depth of one of the north-east pits in the following way:

The readiest way to apprehend it is, to suppose the Monument of London piled seven or eight times upon itself ... you may take the shaft as four times the height of St. Paul's dome.²³⁵

The Sub-Commissioners clearly had a clearly defined Metropolitan audience in mind in the preparation of their reports. Indeed, the help of influential Metropolitan figures was actively enlisted. Thomas Southwood Smith attempted to get Charles Dickens involved in the campaign. In December 1840, shortly after his appointment, he wrote to Dickens enclosing a copy of the instructions to the Commission. Dickens enthusiastically replied:

The little book reaches me very opportunely; for Lord Ashley sent me his speech on moving the Commission ... and I could not forbear, in writing to him in acknowledgement of its receipt, cursing the present system and its fatal effects in keeping down thousands upon thousands of God's images.²³⁶

In the light of Dickens' interest, Smith proposed an expedition to west Yorkshire, in the course of which Dickens was to inspect selected pits where very young children were known to be working under poor conditions.²³⁷ Dickens was

²³⁵ Leifchild: *Our coal and our coal-pits*, p. 148; Another shaft was 'eight times as deep as the Monument of London is high'. Leifchild, 'Life, enterprise, and peril in coal mines', p. 341.

²³⁶ House and Storey (eds.), *Letters of Charles Dickens*, Vol.2. To Southwood Smith, 15 Dec. 1840, p. 164.

²³⁷ Lewes, *Dr Southwood Smith*, p. 86; The object of Southwood Smith's interest in Dickens was a projected article, condemning child labour, for the *Edinburgh Review*. Dickens promised this to Macvey Napier, the editor, in June 1841. 'I have made solemn pledges to write about [mining] children'. However, despite further assurances from Dickens, the paper was never delivered to Napier. House and

unable to oblige, but explained in a letter to Smith: 'If you should see one place which you would like me to behold of all others, and should find that I could get easy access to it, tell me when you come back, and I'll see it on my way to Scotland'. Smith supplied Dickens with copies of the report of the Commission prior to its publication. He noted the need for strict discretion: 'As soon as these Documents are laid on the table of the House of Commons, they become public property, and may be treated accordingly; until that is the case, any communication of the matter contained in them must be strictly private and confidential... it must be entirely for your own private study'.²³⁸

Dickens' enthusiasm for the campaign waned however. Indeed, he foresaw difficulties resulting from the desired restriction of child labour. When Smith sent Dickens a copy of the second report of the C.E.C., Dickens replied: 'I fear ... that I cannot take up the subject... I greatly fear that until Governments are honest, and Parliaments pure ... it is almost a Cruelty to limit, even the dreadful hours and ways of Labour which at this time prevail... The necessity of a mighty change, I clearly see; and yet I cannot reconcile it to myself to reduce the earnings of any family - their means of existence being now so very scant and spare'.²³⁹ Dickens never did inspect a pit.

Storey (eds.), *Letters of Charles Dickens*, vol.2, pp. 290, 31 (to John Forster, 30 June 1841), 353 (to Macvey Napier, 8 Aug. 1841).

²³⁸ Quoted by Dickens in a letter of 8 Aug. 1841 to Macvey Napier, House and Storey (eds.) *Letters of Charles Dickens*, p. 353.

²³⁹ The reports of poor working conditions in Yorkshire had probably been sent to Smith by Scriven, the Sub-Commissioner for the West Riding; House and Storey (eds.), *Letters of Charles Dickens*, vol.2, p. 290. To Southwood Smith, 2 June 1841, vol. 3., 1 Feb. 1843, p. 435-6. Lewes failed to include this letter in her discussion of the exchange between Southwood Smith and Dickens. Lewes, *Dr Southwood Smith*, pp. 84-92.

Southwood Smith, however, continued with the proposed expedition and, along with fellow Commissioner Robert Saunders, spent the early part of June 1841 in the company of Sub-Commissioner Samuel Scriven visiting the small West Yorkshire pits that he had intended Dickens to see.²⁴⁰ Scriven's account of the visit of Smith and Saunders is one of only two documented examples of Commissioners visiting coal-districts during the period of the Commission.²⁴¹ Scriven noted in his report that it was, 'a visit, they will well remember'.²⁴²

Although no published details of the Report appeared before it was presented to the House of Commons, its details were circulated at an early stage to sympathetic and influential newspapers and periodicals. Londonderry, for example, complained 'that copies had been sent into the country for the purpose of obtaining the favourable comments of the press before it was laid on the table of their Lordships House'.²⁴³ Indeed, the Home Secretary expressed 'surprise' that Joseph Fletcher, the commission secretary, had prepared the report for circulation before he himself had had time 'to decide, upon the perusal of that Report, whether he should feel it his duty to advise Her Majesty to lay it before Parliament'. In contrast, Fletcher had

²⁴⁰ Scriven's noted concerning his visits to Barnsley, Elland (Mr Waterhouse's pit), and 'Mr Rawson's Day-hole Pit [Halifax] ... accompanied by Dr. Southwood Smith and J. Saunders, Esq., two of Her Majesty's Commissioners'. (P.P. 1842, XVII), p. 120. Saunders was Inspector of Factories for the district.

²⁴¹ Smith and Saunders visited collieries at Barnsley, Flockton, Elland, and Halifax together with two Leicestershire collieries. (P.P. 1842, XV), pp. 5-6.

²⁴² The Commissioners had probably been briefed by Scriven on what they were to inspect long before their visit. The element of surprise to which Scriven alludes, is, therefore, misplaced. (P.P. 1842, XVII), p. 62. Declining the offer to visit Yorkshire, Dickens wrote to Smith on 2 June, 'I will send your papers home by hand tomorrow'. House and Storey (eds.), *Letters of Charles Dickens*, vol. 2, p. 290.

²⁴³ *Hansard* (Lords), Vol.LXV, 25 July 1842, col.579.

already ordered that the Report should be 'immediately prepared'. Although the Home Department thought this step had 'been productive of consequences serious to all parties concerned', such complaints came too late to prevent the broad distribution of the report.²⁴⁴

The commission remained under the stringent financial control of the Home Department throughout the period of its investigations. Moreover, following the accession of Sir James Graham to the post of Home Secretary, the flow of funds to the Commission became severely restricted. In December 1841, with funds running low, Joseph Fletcher paid the salaries of Sub-Commissioners from the commission account without first gaining the authority of the Secretary of State. He received a letter from the Under Secretary of State containing a veiled accusation that he had appropriated the money himself, together with a blunt instruction to replace the amount.²⁴⁵

Financial matters became increasingly worse for the commission following the appointment of Graham and, by January 1842, funding appears to have been all but totally blocked by the Home Secretary. Several of the Sub-Commissioners, wrote to the Secretary of State from various parts of the country to plead their case for expenses, but Graham was adamant that no more money would be forthcoming 'until

²⁴⁴ PRO HO74/1. Home Office. Various Commission Letter Book. 1836-45, 28 Apr. 1842. The First Report was presented to the Lords on 3 May 1842. *House of Lords Journal*, 1842, p. 185.

²⁴⁵ 'you will replace, to the account of the Children's Employment Commissioners, the Sum of £250'. PRO HO74/1. Home Office. Various Commissions Letter Book, 1836-45, Phillipps to Fletcher, 7 Dec. 1841, pp. 281-3; Fletcher may have used this money to pay the expenses of the beleaguered Sub-Commissioners. However, Fletcher was not a wealthy man: upon his appointment as secretary to the Hand-loom Weavers' Commission it had been noted that he was 'the chief support of a widowed mother and his brothers and sisters'. PRO HO73/63.

another grant has been voted by Parliament'.²⁴⁶ The return was not forthcoming until February 1842, but by then the commission's fieldwork was all but complete. The total expenses of the commission, exclusive of the salaries of the Commissioners, totalled £4,648.²⁴⁷

²⁴⁶ PRO HO74/1, Manners Sutton to Martin, 8 Jan. 1842, p. 288. The return for the grant did not appear until 8 Feb. 1842. *Return to the ... House of Commons* (P.P. 1842, XXVI), No.346, 1 May 1838.

²⁴⁷ (P.P. 1842, XXVI), pp. 13, 4.

Chapter four. Indecency and the iconography of the C.E.C.

The moral predispositions of the Sub-Commissioners, together with their unfamiliarity with conditions of labour in coal mines, had an important effect upon historians. Indeed, the collection and interpretation of evidence by some of the Sub-Commissioners appear to have conformed as much to the requirements of a moral crusade as to the reporting of the general conditions of child and female labour in coal mines. The numerous citations of underground nakedness and illicit sexual intercourse, moreover, provided the added weight of public opinion to the campaign for reform during 1842. Moving the bill for the prohibition of women and young children from coal mines, Ashley could confidently state that young female coal miners 'commonly work quite naked down to the waist, and are dressed - as far as they are dressed at all - in a loose pair of trousers. These are seldom whole on either sex. In many of the collieries the adult colliers, whom these girls serve, work perfectly naked'.²⁴⁸ Ashley based these, and other accounts of licentious behaviour, almost entirely upon the evidence contained in the reports of the Sub-Commissioners.

A preoccupation with the moral and sexual conditions of the mining population is evident in a number of Sub-Commissioners' reports. Opportunities for sexual encounters, for example, were thought to be multiplied by a mixing of the sexes underground. 'What passes under ground in the dark tunnels in which the people work', noted the Sub-Commissioner for north Lancashire, 'is not known even to the under-ground overlooker'.²⁴⁹ Samuel Scriven remarked that: 'The colliers work alone in dark and secluded places, at great distances from each other'.²⁵⁰ In his

²⁴⁸ Cooper, *Speeches of the Earl of Shaftesbury*, 7 June 1842, p. 37.

²⁴⁹ (P.P. 1842, XVII), p. 804.

²⁵⁰ (P.P. 1842, XVII), p. 70.

report on the small pits around the Elland and Brighouse, Scriven depicted coal miners as a morally inferior and depraved race. He declared himself

shocked in contemplating the hideous, and anything but human, appearance of these men, who are generally found in a state of bestial nakedness ... Black and filthy as they are in their low, dark, heated, and dismal chambers, they look like a race fallen from the common stock.²⁵¹

In north Staffordshire, Scriven found that the miners' appearance 'had something truly hideous and Satanic about it, and prompted me to ask myself - Can these be human creatures? The heat arising from the congregation of so many persons and so many candles, together with the offensive odour from their excessive perspiration, was intolerable; all were naked or nearly so'.²⁵² Scriven had almost certainly been influenced by earlier reports of conditions in coal mines. His descriptions of miners, in particular, betray a striking similarity to those of Ayton almost three decades earlier: thus, where Ayton depicted a Whitehaven trapper as 'resembling in the abjectness of its condition some reptile peculiar to the place', Scriven, on his first encounter with a Yorkshire trapper, viewed him as 'abject and idiotic - like a thing, a creeping thing peculiar to the place'.²⁵³ Although the question of sexual impropriety among miners had not been given prominence in earlier official reports by Tufnell, Hickson and Tremenheere the issue was investigated by a number of the 1842 Sub-Commissioners. This tendency was most noticeable in reports by Scriven and

²⁵¹ (P.P. 1842, XVII), p. 63.

²⁵² (P.P. 1842, XVII), p. 127; Ayton had earlier observed of the Whitehaven miners that 'they were mostly half-naked, blackened all over with dirt, and altogether so miserably disfigured and abused, that they looked like a race fallen away from the common rank of men'. Ayton and Daniell, *A voyage round Great Britain*, vol.II, p. 155: .

²⁵³ Ayton and Daniell, *A voyage round Great Britain*, vol.II, p. 156; (P.P. 1842, XVII) p. 72.

Symons (who both reported on the West Yorkshire coal-district) and by Kennedy (the Sub-Commissioner for Lancashire and Cheshire).

I

Questions concerning the immorality of miners were further prompted by the remarkable set of illustrations that accompanied the reports of 1842. The two large appendices contained a total of 84 drawings, chiefly of working conditions, working methods and ventilation systems (27 of these were reproduced in the first report of the C.E.C). The commission was unique in its use of woodcuts to represent working-class conditions. The drawings were the work of a number of artists and they deserve some discussion since their impact upon public opinion was great.

The drawings of conditions in Lancashire mines that appeared in Kennedy's report to the C.E.C. were made by Binney, the prominent campaigner against female labour.²⁵⁴ Binney later, in 1870, noted: 'at the instance of Lord Shaftesbury and Mr. Brotherton I went down numerous pits to get drawings of the women to show how they were employed'.²⁵⁵ Binney had remarked in 1842 that it was 'nearly impossible to describe the details of a coal mine, and the employment of the men and women engaged in it, without the aid of drawings'.²⁵⁶ Indeed, the potential impact of the woodcuts was recognised by Kennedy who remarked in his report, 'no words I could use would convey to others, impressions, similar to those, which ocular inspection had given to myself. To aid the conception (for it can only be *aided* in endeavouring

²⁵⁴ (P.P. 1842, XVII), pp. 158, 160, 162-3, 165-7.

²⁵⁵ Greenwell, 'Underground conveyance of coals', p. 59. Joseph Brotherton (1783-1857) was M.P. for Salford from 1832 to 1857.

²⁵⁶ 'Petition of Edward William Binney', p. 142.

to convey the impressions received by the sense of smell as well as of sight in examining the places of work)', wrote Kennedy, 'I have had recourse to my friend Mr. Horner, to whose kindness I am indebted for the sketches which appear in the pages of this Report'.²⁵⁷ Both Binney and Horner were members of the Geological Society and Horner probably passed on Binney's drawings to the Sub-Commissioner. The Yorkshire woodcuts were probably produced by the Sub-Commissioner Samuel Scriven.

The drawings that appeared in the Report and Appendices of 1842 displayed some of the worst conditions in the British coalfields of the 1840s. In east Scotland, a quasi-feudal system of bonding was still in existence in the 1840s and coal haulage was performed by women, who carried baskets of coals to the surface by the use of ladders or staircases.²⁵⁸ The representations of coal-bearing women in east Scotland were often grotesque.

²⁵⁷ (P.P. 1842, XVII), p. 156-7; Galloway stated that Binney had executed the sketches. Galloway, *Annals*, vol.2, p. 149.

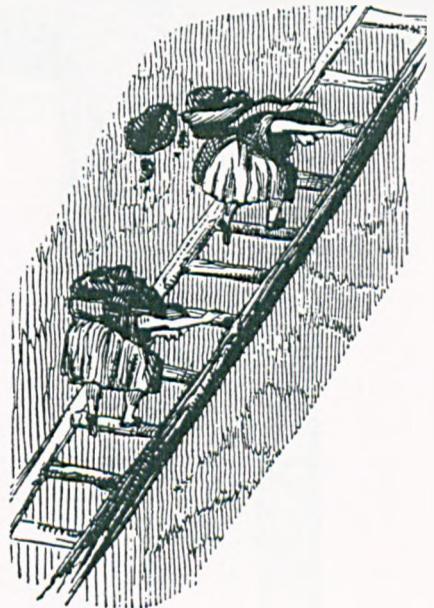
²⁵⁸ Galloway, *Annals*, vol.2, p. 148. For an account of the work of women as coal-bearers appears see Duckham, *History of the Scottish coal industry*, vol.1, pp. 95-101. For a good general account of the work of women in coal mines see John, *By the sweat of their brow*.



Women coal-bearers, together with some of the dangers of ascending ladders, are shown below.

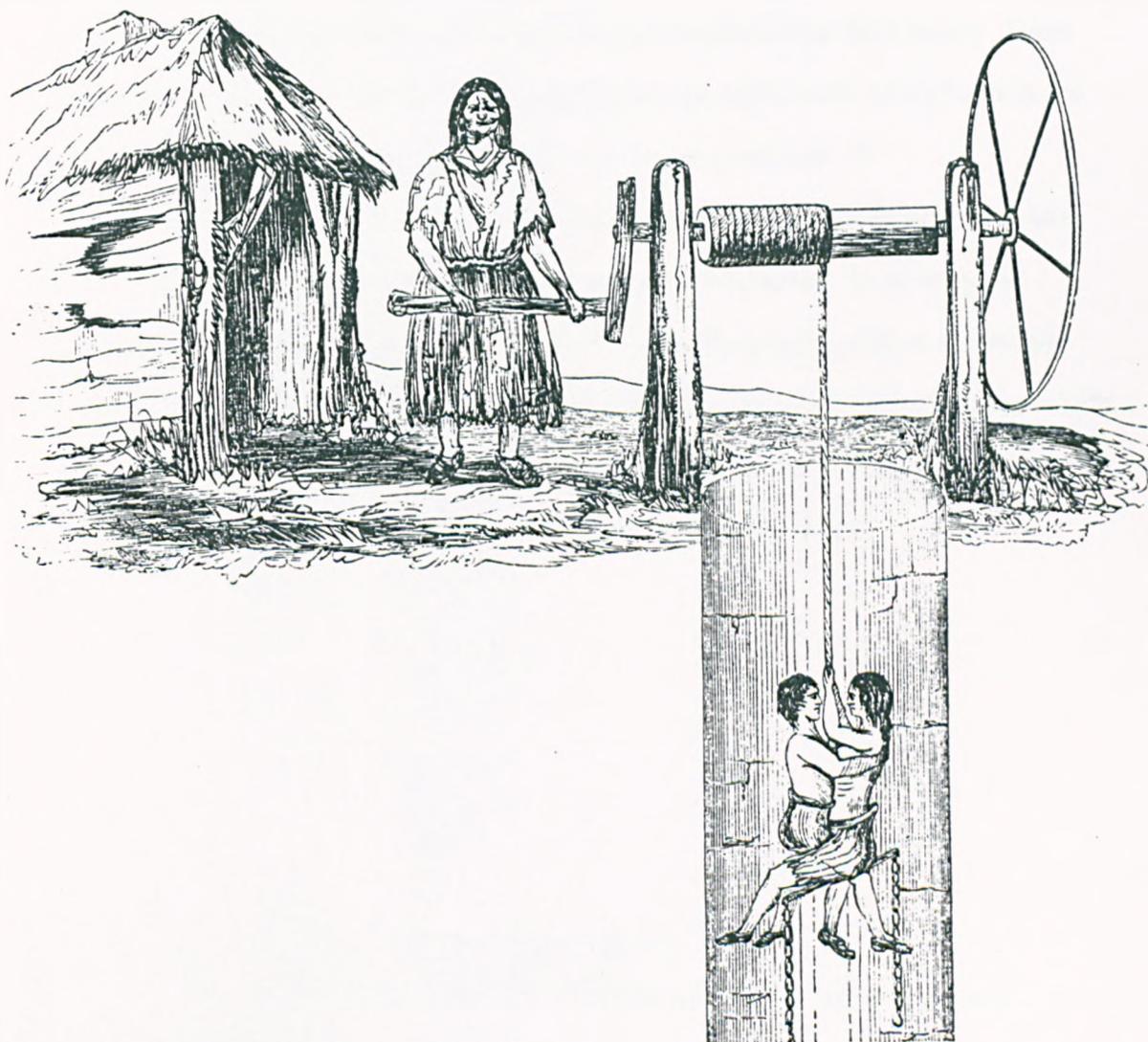


[Girl carrying Coals.]



[Load dropping on ladder while ascending.]

Sexual implications dominated the Sub-Commissioners' representations of mining life in Lancashire and Yorkshire. One important example of this was a drawing produced in Scriven's report. This image has frequently been used to illustrate the nature of child labour in nineteenth-century coal mines and depicts a 14 year-old boy and a girl of 'about 15 years of age' being wound up a mine shaft whilst sitting 'cross-lapped'. They are in what approximates to a sexual embrace: the girl is clearly naked from the waist up, and has her legs around the body of the boy.²⁶⁰



²⁶⁰ 'The sketch given is intended to represent Ann Ambler and William Dyson ... in the act of being drawn up cross-lapped upon the clutch-iron'. (P.P. 1842, XVII), p. 61.

Images such as these shocked early Victorian society. Londonderry, whose collieries employed no women, protested at the illustrations, claiming them to be 'pictures of an extravagant and disgusting, and in some cases of a scandalous and obscene character ... not such as should have been adopted in a grave publication ... more calculated to excite the feelings than to enlighten the judgement'.²⁶⁰

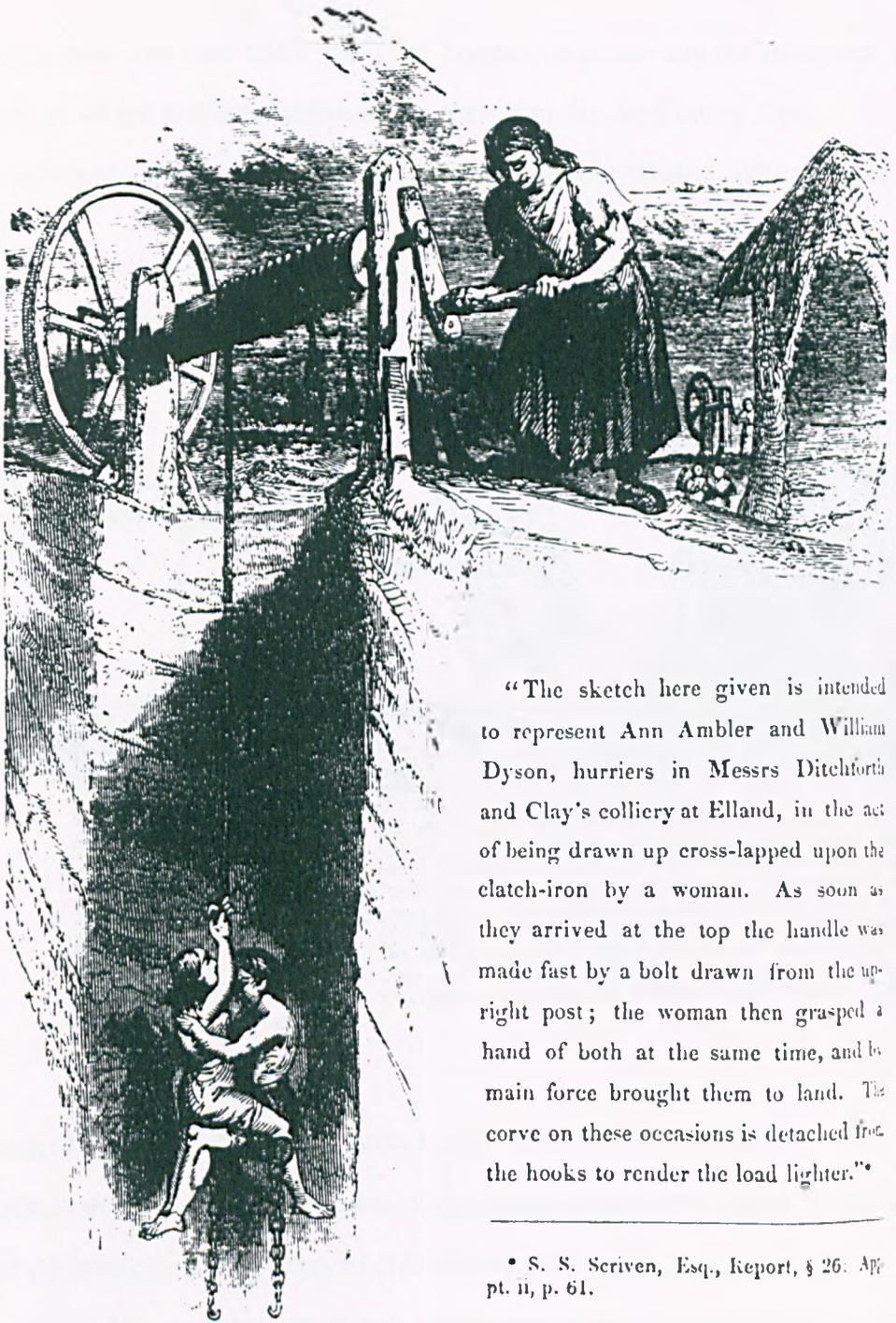
Londonderry thought that a 'mania' concerning the issue of women and girls in coal mines had arisen from 'the exaggerated report of the commissioners, and the disgusting pictorial woodcuts with which they had embellished their report. These prints were seen in the *salons* of the capital [and] the ladies were all enlisted in the cause of their own sex, thus represented in so brutal a manner'.²⁶¹

The emotive image of the two juveniles became highly influential and was reproduced in many metropolitan and provincial publications. An anonymous summary of the 1842 Report (probably by William Carpenter) printed the picture noting, 'the revolting indecency of this placing of a male and a female, each of them in an almost naked state'.²⁶² The *Westminster Review* of July 1842 published a modified version of the original drawing of the two young miners.

²⁶⁰ *Hansard* (Lords), 24 June, 1842, Vol. LXIV, col.539.

²⁶¹ Vane, *A letter to Lord Ashley on the Mines and Collieries Bill*, p. 29. Quoted in Heesom, 'The Coal Mines Act of 1842', p. 71.

²⁶² *The condition and treatment of the children employed in the mines and collieries of the United Kingdom*, p. 8. Edited and preface by "W.C." Carpenter (1797-1874) was also the author of *Machinery, as it affects the industrial classes; and the employment of children in factories, etc.* [?1844].

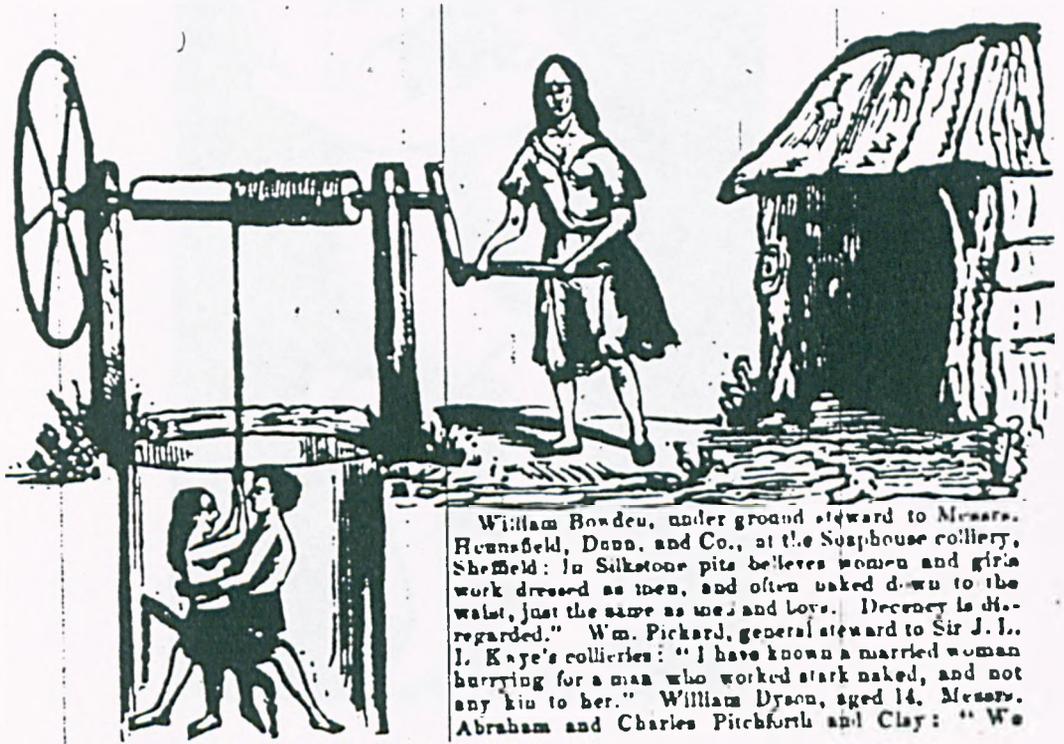


“The sketch here given is intended to represent Ann Ambler and William Dyson, hurriers in Messrs Ditchforth and Clay’s colliery at Elland, in the act of being drawn up cross-lapped upon the clatch-iron by a woman. As soon as they arrived at the top the handle was made fast by a bolt drawn from the upright post; the woman then grasped a hand of both at the same time, and by main force brought them to land. The corve on these occasions is detached from the hooks to render the load lighter.”*

* S. S. Scriven, Esq., Report, § 26: App. pt. ii, p. 61.

Here, a second figure has been added, operating a winding wheel in the distance; suggesting, perhaps, that this was not an isolated mode of labour.

During May and June 1842, the Tory *Halifax Guardian* and the *Bradford Herald*, both of which had been active in the campaign for the Factory Acts, published representations of the image in a series of articles entitled 'White Slavery in England'.²⁶³



The drawing of the two children was probably the most widely reproduced image from the report of the C.E.C. Moreover, it has subsequently proved very popular as a means of demonstrating the nature of child labour in nineteenth-century coal mining, particularly among writers of school text-books in the twentieth century.²⁶⁴

²⁶³ *Halifax Guardian*, 14, 21, 28 May and 11 June 1842, p. 2; *Bradford Herald*, 19, 26 May and 2, 16 June 1842.

²⁶⁴ The illustration was used on the cover of Henriques, *Early factory acts*. For other examples see Allen, *Victorian children*, p. 35. Aylett, *In search of history*, p. 19.



Another contemporary drawing showed the two children in a wretched state. (A.V. John, *Coalmining women*, p. 11. The author was unable to locate an original copy of this illustration).

However, questions must be raised concerning the veracity of the original C.E.C. drawing. Does it depict an actual historical event? Upon close scrutiny, it is apparent that the sketch has been altered at some point after the original drawing of the two figures had been made. The breeches worn by the children were added later, suggesting that the two figures were first depicted as having been naked. In the *Westminster Review* version the image was refined for a predominantly metropolitan audience (the 'drawn-in' breeches became an established component of the image). Moreover, in the Scriven image, it seems likely that the position of the boy's right leg has been altered. It is probable that an original nude drawing of the two children, showing the boys legs passing *around* the body of the girl, has been altered to add the breeches but depicting the boy's legs passing *between* the legs of the girl. Why this alteration took place is a matter for debate: that it took place can not be in doubt. Scriven noted categorically in his report: 'I visited this pit ... and saw the girl above alluded to ascend the pit in the manner described, viz. across the lap of the boy. She appeared about 15 years of age ... I was perfectly shocked at her style of dress'.²⁶⁵ James Holroyd (certifying surgeon of Halifax), Mr Brook (a local surgeon) and Scriven all claimed to have witnessed the two children being drawn up the shaft in the manner depicted in the drawing.²⁶⁶

²⁶⁵ (P.P. 1842, XVII), p. 103; Scriven perhaps over-estimated the age of the girl at 15. The 1841 census gives her age as 14, PRO.HO107/1299 (see Appendix 1 for family details of the girl, Ann Ambler). Clapham examined this drawing and saw no impropriety. He thought that it illustrated 'the hardships of children when getting to and from their work. A boy and a girl face one another, holding a rope and sitting astride of a pole or plank which is fastened to the end of it. Close above them, probably somewhat nearer in the sketch than in real life, is an old woman turning the handle of the winch which is hoisting them to the upper air'. Clapham, *Economic history*, p. 433.

²⁶⁶ Holroyd assisted William Dodd (the 'factory cripple') on his tour of Halifax factories in November 1841. Dodd, *The factory system illustrated*, pp. 148-49.

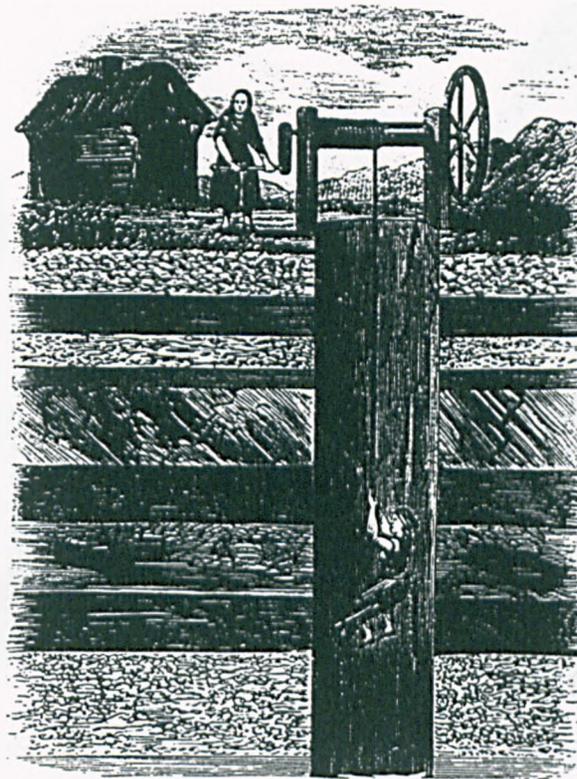
Setting aside the alteration that took place to the drawing, serious doubts remain about its authenticity. The depth of the pit was given as 150 feet:²⁶⁷ this raises doubts that a single female winder would have possessed the sheer physical strength to wind up the combined weights of the children using a primitive turn-wheel. Moreover, on the basis of Stanway's 1833 averages of the weights of male and female non-factory children, of the same ages as the two children in the sketch, the combined weights of the two children would have totalled approximately 172 pounds, or more than 12 stones (the combined weights for the average male and female factory children, of the same ages, approximated 165 pounds, or just under 12 stones).²⁶⁸ Even when allowances are made for the lighter body weights of nineteenth-century children, therefore, plausibility of this representation remains doubtful. Indeed, it is possible that the weights of the two mining children exceeded those measured by Stanway: the surgeon Holroyd noted in an appendix: 'In a physical point of view, the children and young persons are for the most part strong, robust, and healthy'.²⁶⁹ In addition, the drawing up of two children at one time would have been highly inefficient: the winding of a single child being a more practical method. Serious questions must remain therefore over whether the historical event that this drawing purported to represent ever occurred: it might be concluded that it did not.

²⁶⁷ (P.P. 1842, XVII), p. 102.

²⁶⁸ *First Rep. Factory Commissioners*. (P.P. 1833, XX), Cowell's report, p. 87.

²⁶⁹ (P.P. 1842, XVII) p. 97.

Single miner being drawn up a shaft (Burton, *The miners*, p. 23.)



Another image of a plainly sexual nature, originally from Scriven's report on west Yorkshire, was published in a much more erotic and romanticised form by the *Westminster Review*. Both are compared below.²⁷⁰ In Scriven's report (below left), a female coal miner was shown, standing by a fireplace, covered in coal-dust and with her breasts partially exposed. In the *Review* version (below right - clearly intended to represent the drawing in Scriven's report), the woman appears clean of coal-dust and holding her exposed breast in a provocative manner: her breeches were also drawn shorter. The review drawing was by 'J.R. Scriven', probably a relation of the Sub-Commissioner.

²⁷⁰ (P.P. 1842, XVII) p. 74; Greg, 'Protection of children in mines and collieries', p. 123.



These drawings indicate the degree to which concerns about underground sexual impropriety affected the inquiries of the Sub-Commissioners and, in turn, influenced the media campaign in support of Ashley's Bill.

II

However, the written reports were no less preoccupied with the sexual aspects of coal mining. Scriven evinced his fear of an intimate mixing of the sexes below ground, noting: 'There is no distinction whatever in their coming up the shaft or

going down ... Indeed it is impossible to distinguish, either in the darkness of the gates in which they labour, or in the cabins before the broad light of day, an atom of difference between one *sex* and the other'.²⁷¹ An underlooker at Hyde, Cheshire, when asked about the dress of working women, claimed: 'I have seen many a one with her breasts hanging out'.²⁷² Sub-Commissioner Symons noted that 'some little difficulty occasionally arose in pointing out to me which were girls and which were boys, and which caused a good deal of laughing and joking. In the Flockton and Thornhill pits the system is even more indecent; for though the girls are clothed, at least three-fourths of the men for whom they hurry work stark naked, or with a flannel waistcoat only, and in this state they assist one another to fill the corves 18 or 20 times a-day: I have seen this done myself frequently.'²⁷³ Symons and a Leeds solicitor obtained the following deposition from a particularly ardent 40 year-old collier: 'I have worked a great deal where girls were employed in pits. I have had children by them myself, and have frequently had connexion with them in the pits. I am sure that this is the case, especially in pits about Lancashire'.²⁷⁴

The nakedness of children was a particular focus for the Sub-Commissioners. A thirteen year-old male witness is reputed to have stated, 'Our breeches are often torn between the legs with the chain. The girls' breeches are torn as often as ours; they are torn many a time, and when they are going along we can see them all

²⁷¹ (P.P. 1842, XVII), p. 73. In his annual report of 1858, Tremenheere similarly noted his abhorrence of the employment of women underground. In recording an inquest into the deaths of some workers in a cinder pit at Nantyglo, south Wales, he referred to 'the death of a young man who, with two others, had been working in the same place with [three females], who were unmarried ... the consequences were apparent in one of them'. *Rep. Comm. Mining Districts* (P.P. 1858, XXXII), p. 6.

²⁷² (P.P. 1842, XVII), p. 202.

²⁷³ (P.P. 1842, XVI), p. 196.

²⁷⁴ (P.P. 1842, XVI), p. 284.

between the legs naked'.²⁷⁵ When Symons entered a pit at Barnsley, he 'found assembled around a fire a group of men, boys, and girls, some of whom were of the age of puberty, the girls as well as the boys stark naked down to the waist, their hair bound up with a tight cap, and trousers supported by their hips.... Their sex was recognisable only by their breasts'. At Flockton and Thornhill pits, he found the system 'even more indecent', and noted in a section entitled 'Prostitution in pits':

When it is remembered that these girls hurry chiefly for men who are *not* their parents ... that they go from 15 to 20 times a day into a dark chamber ... which is often 50 yards apart from any one, to a man working naked, or next to naked, it is not to be supposed but that where opportunity thus prevails sexual vices are of common occurrence... Add to this the free intercourse, and the rendezvous at the shaft or bullstake ... and consider the language to which the young ear is habituated, the absence of religious instruction, and the early age at which contamination begins, and you will have before you, in the coal-pits where females are employed, the picture of a nursery for juvenile vice which you will go far and wide above ground to equal.²⁷⁶

Binney, in his petition to parliament was also disturbed by the apparently indeterminate sex of the young Lancashire colliers which, he suggested, could be deduced 'only by the exposure of the upper parts of their persons and their voices'.²⁷⁷ Carpenter, in his anonymously published pamphlet, stated that in the West Riding, 'the men work in a state of perfect nakedness, and are in this state assisted in their labour by females of all ages, from girls of six years old to women of twenty-one,

²⁷⁵ (P.P. 1842, XVI), p. 295.

²⁷⁶ (P.P. 1842, XVI), p. 196. A contemporary pamphlet suggested worse. Strange, *Horrible prostitution and murder of women and children ... employed in mines and collieries*. A review of this book appeared, together with a review of Dodd's *The factory system illustrated*, in the *Literary Gazette*, 9 July 1842 (however, an extensive search failed to locate an extant copy).

²⁷⁷ *Mining Journal*, 30 April 1842, Vol.XII, p. 142.

these females being themselves quite naked down to the waist'.²⁷⁸ It was suggested that, in Wigan, 'Father, mother, and children will work together at times [in the pits], and not have a shirt amongst them'.²⁷⁹ When a Rochdale coal proprietor recounted examples of underground indecency, Kennedy wrote in his report that he had 'suppressed these stories as being unfit for publication'.²⁸⁰

The periodicals sustained the accounts of nakedness. The *Quarterly Review* noted in an article of June 1842 that: 'The commissioner found ... when hoisted in a corve to the bank with another human being - that it was a girl. She, like the rest, was naked, save "the rag which hung round her waist, which was once called a shift."' ²⁸¹ But the *Quarterly* was not alone in providing support for the campaign: in reference to the employment of women, W.R. Greg, in the *Westminster Review*, described the 'disgust with which we read of their being engaged, in the years of opening womanhood'.²⁸² The *Annual Register*, moreover, reported: 'In the West Riding, it appears, girls ... commonly work quite naked down to the waist'.²⁸³

Symons and Scriven both noted frequent encounters with naked, or semi-naked men, women, boys and girls. Scriven interviewed an eleven year-old hurrier:

She stood shivering before me from cold. The rag that hung about her waist was once called a shift, which is as black as the coal she thrusts ... During my examination of her the banksman ... wanted to take her away, because, as he expressed himself, it was not *decent* that she should be (her person) *exposed* to us; oh, no! it was criminal *above*

²⁷⁸ Carpenter, *The condition and treatment of the children employed in the mines and collieries of the United Kingdom*, p. 26.

²⁷⁹ Winter, *The busy hives around us*, p. 78.

²⁸⁰ (P.P. 1842, XVII), p. 200.

²⁸¹ Ferguson, 'Colliers and collieries', p. 177.

²⁸² Greg, 'Protection of children in mines and collieries', p. 121.

²⁸³ *Annual Register*, 1842, p. 165.

ground; and, like the two or three other colliers in the cabin, he became evidently mortified that these deeds of darkness should be brought to light.²⁸⁴

Having been asked by Scriven about underground lavatory arrangements, the same girl is said to have stated: 'If I want to relieve myself I go into any part of the pit; sometimes the boys see me when they go by'. Another girl noted however: 'If I wanted to relieve myself down here, I should do it in the old gate [disused workings]; I do do it sometimes; the boys do not see us as they go by'.²⁸⁵ There were few sanitary arrangements below ground (as Benson pointed out: 'Sanitation underground was appalling. Eating, drinking, urinating and defecating all went on side by side').²⁸⁶ Miners commonly used old workings as a lavatory and, therefore, the opportunities for miners to see each other performing bodily functions were frequent.²⁸⁷

Samuel Scriven (perhaps the most active in the pursuit of immorality) had, in fact, been a replacement for William Wood, the earlier west Yorkshire Sub-Commissioner who had retired from the Commission early on account of an 'indisposition'. Prior to his departure from the Commission, Wood had produced a substantial report together with minutes of evidence of 100 witnesses. Curiously, Wood's report makes no mention whatsoever of underground nakedness, or of sexual license. Moreover, according to Wood, it had been his intention at the outset to 'ascertain the *ordinary* and *general* condition of the children, rather than to search in the first instance for any special or extraordinary cases of ill-treatment or suffering'.

²⁸⁴ (P.P. 1842, XVII), p. 104.

²⁸⁵ (P.P. 1842, XVII), pp. 103-4, 124.

²⁸⁶ Benson, *British coalminers*, p. 33.

²⁸⁷ Douglass and Krieger have remarked that underground lavatory conditions remain primitive to the present-day: 'if you wish to relieve yourself, you do it just where you are'. *A miner's life*, p. 23.

Wood indicated that he wished in his own report 'to avoid the dangerous error of giving undue colouring to any particular portion of the picture, favourable or otherwise'. It is not clear whether Wood was implying that his colleagues had been selective in, or had exaggerated, their reports: nevertheless, where Scriven discovered 'bestial nakedness' and Symons a 'brothel', the single reference to the condition of children's clothing, in Wood's report, states unsensationally: 'With regard to clothing in the week-days, there is not the tidiness which could be wished'.²⁸⁸

III

Although in a few coal-districts miners may have worked naked, the Sub-Commissioners exaggerated its sexual implications. When asked about nudity among miners, a 38 year-old Lancashire woman audaciously claimed: 'I remember seeing a man who worked stark naked, and we would not go near him: we used to throw coals at him'²⁸⁹ Moreover, there appears to have been little shame attached to the practice among miners. The attire of the miners at the 'Strip-and-at-it Pit' in the Forest of Dean, for example, requires little imagination.²⁹⁰ Indeed, it was suggested to Kennedy in Lancashire that there was 'a great deal of fashion in the habit' and that 'it was inconvenient to work with clothes on, as clothes are apt to get into creases and

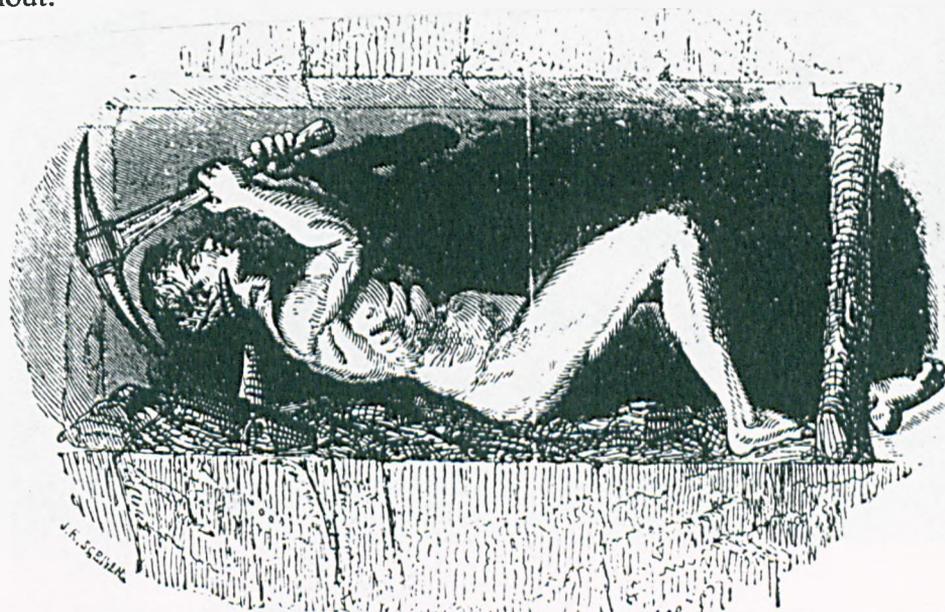
²⁸⁸ Wood remarked that 'the females of mining families are very generally employed in factory labour'. (P.P. 1842, XVII), H.7, H.9; Scriven produced a report on north Staffordshire which also noted nakedness among children. (P.P. 1842, XVII), p. 132.

²⁸⁹ (P.P. 1842, XVII), p. 214.

²⁹⁰ (P.P. 1842, XV), p. 182.

chafe the skin'.²⁹¹ Jonathan Presto, a Somersetshire coal miner who began work in 1864 at the age of twelve as a pushing-boy, described the working attire in his pit: 'The carting boys ... take off their boots ... and waistcoat and shirt, and there they are with nothing on but their hat'.²⁹²

It is doubtful, however, whether it would have been practical or safe to work, as was suggested in some of the C.E.C. woodcuts, without boots. In a letter to the *Mining Journal*, a Welsh collier doubted how 'any collier, if a sane man, could think of working underground perfectly naked... I have worked myself, for years together, with only a cap on my head, a pair of small-clothes, or trousers, on, and a pair of strong nailed shoes, which constituted the whole of my dress when at work underground, and, setting decency aside, I could not, under any circumstances, have done without.'²⁹³



PROTECTION OF CHILDREN.

Naked miner. *Westminster Review*, vol.38, July 1842. p. 120.

²⁹¹ (P.P. 1842, XVII), p. 159.

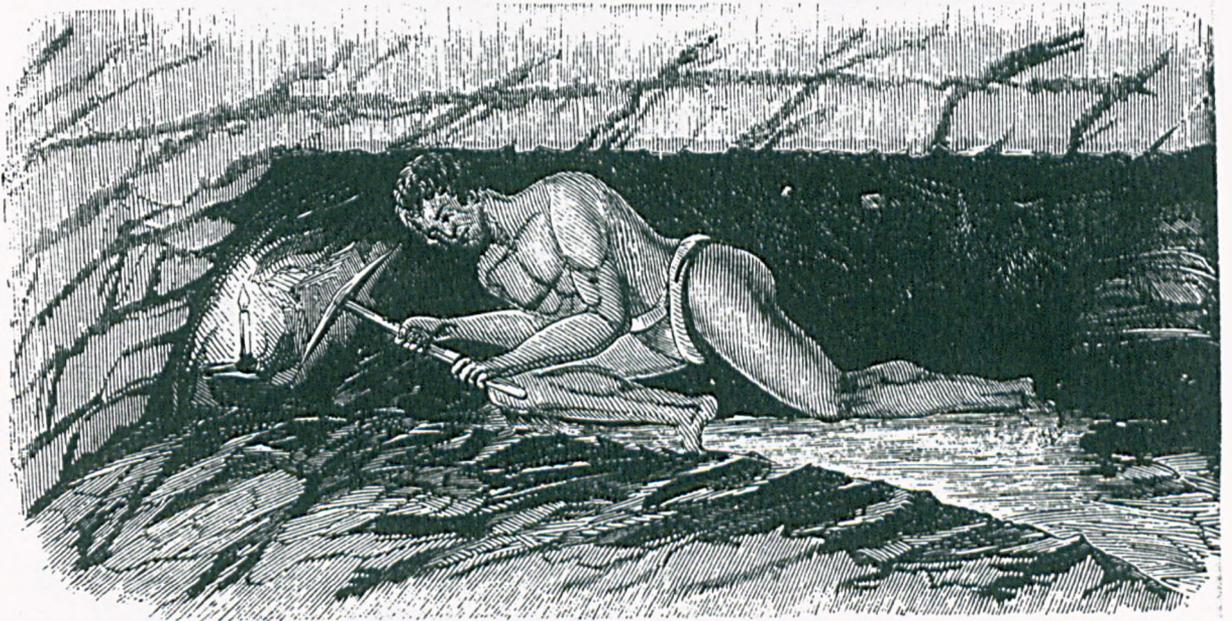
²⁹² Presto (Pseudonym of Charles Challenger), 'Five Years of Colliery Life', p. 21.

²⁹³ Letter from 'A Collier', *Mining Journal*, 23 July 1842, vol.XII, p. 237.

[No. 2.]



[No. 3.]



Naked and semi-naked miners working without boots (P.P. 1842, XVII, p. 158)

The widespread reports of profligacy which emerged from the investigation of 1840-42 did not pass without criticism. A West Riding coal-master pointedly claimed that miners attended to their work

with imagination rather less susceptible of evil from the want of clothing than those of the gentlemen Commissioners... behind that ragged attire, there often existed a degree of virtue and even modesty.. and yet these gentlemen presume to compare the conduct of these people, where deficiency of dress is occasioned by force of circumstance ... to the frequenters of brothels.²⁹⁴

Reviewing a book claiming both prostitution and murder in coal mines, the *Literary Gazette* commented: 'In these times of apathy, it may perhaps be necessary to get up excitement by such expedients as the disgusting cuts of naked men, women, and children in every shape of indecent exposure; but to our minds it would have been better, and more rational, to have addressed the sense of the public, and not its passions, which can be stirred by such means equally in a bad as in a good cause'. The review continued: 'we confess that we think too much fuss has been made about the scanty dress of the females... if not a fashionable ball-room, at any rate the Opera stage, might furnish the moralist with quite as startling topics for descant and reprobation'.²⁹⁵ Despite such protestations, outrage at the perceived attitudes and dress of women and children in coal mines persisted.

From a purely practical point of view, the incidence of underground nakedness was probably greater in proximity to the least public parts of the mine: at the headings, or coal-face, where the effects of heat and hard labour were most

²⁹⁴ *Leeds Mercury*, 18 June 1842.

²⁹⁵ *Literary Gazette*, 9 July 1842, p. 1.

intense. Haulage workers, it is true, would collect the hewn coal from their employer, but since their employer was usually their father or brother, this work practice was probably much less sinister than that represented by the Sub-Commissioners. Indeed, the illustrations in the 1842 reports suggest that nakedness was uncommon in the most populated parts of coal mines: most of the young haulage workers were clothed to some extent, whereas most of the hewers, working in the most secluded and inaccessible parts of the mine, were almost all depicted naked.



Naked miner. *Westminster Review*, vol.38, July 1842. p. 121.

40. I have often been shocked in contemplating the hideous, and anything but human, appearance of these men, who are generally found in a state of bestial nakedness, lying their whole length along the uneven floor, and supporting their heads upon a board or short crutch (Fig. 4); or sitting upon one heel balanc-

Fig. 4.

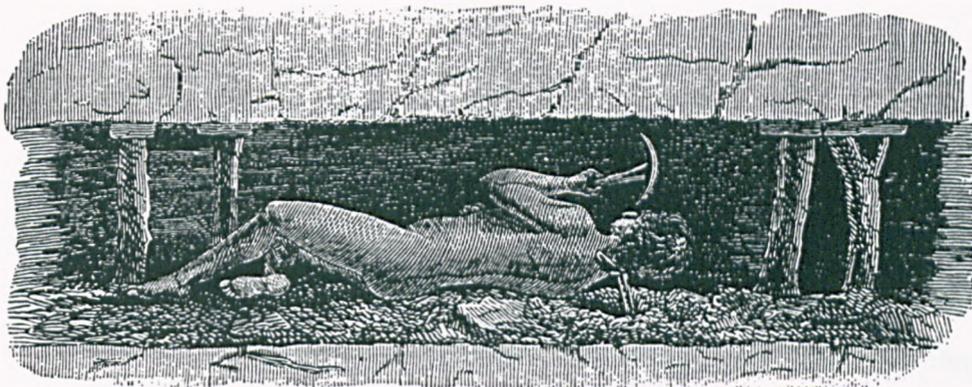


Fig. 5.

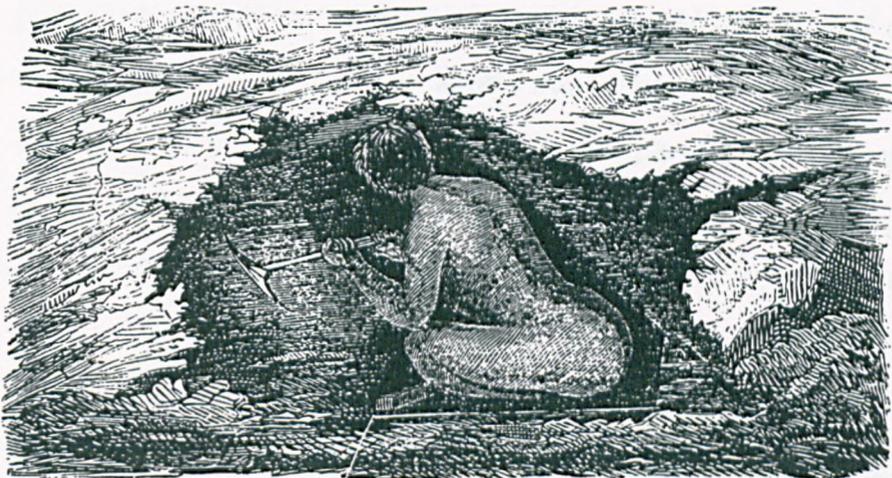
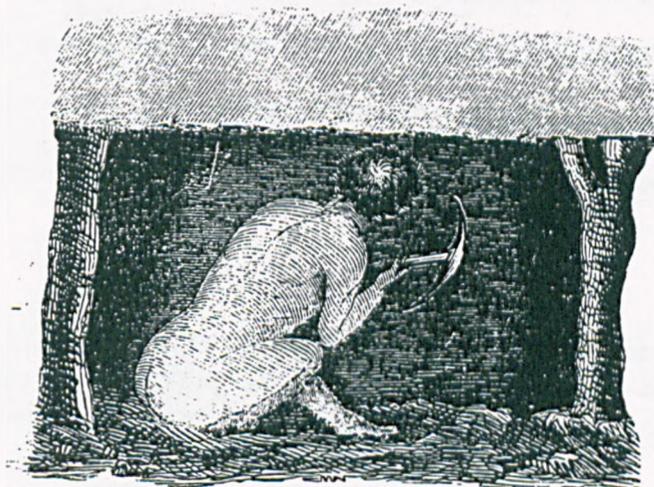


Fig. 6.



ing their persons by extending the other. Black and filthy as they are in their low, dark, heated, and dismal chambers, they look like a race fallen from the common stock. It did not much surprise me to be told that old age came prematurely upon them, and that they were "mashed up" at 40 or 45: indeed the care-

Three naked miners (P.P. 1842, XVII, 63)

It is likely, therefore, that underground nakedness disturbed the colliers less than the Sub-Commissioners. Indeed, a certain amount of nakedness was considered unremarkable by colliers. A Lancashire underlooker recalled that as a boy of six, he and other drawers had found themselves alone in a pit whereupon they began to imitate the hewers: 'we set to a-getting coals for our amusement, stark naked; and the girls were stripped too ... Some of the girls were 16 and some of them younger'. At one wet Lancashire pit, it was claimed that, 'The children have flannel dresses to go down in, which are pulled off and put in a dry place near the eye of the pit, and they work nearly naked'.²⁹⁶

Moreover, many coal miners washed regularly each day at home, and the 'miner's bath' probably brought family members into contact with nakedness on a fairly regular basis. Hair notes that in 1849 many of the pitmen in the North East were washed down by their wives, and in his 1856 book on coal miners, Leifchild noted: 'Upon their entrance into their little cottages they [the miners] proceed to strip and wash themselves, which, from the secluded character of the colliery villages, they see no harm in performing somewhat openly'.²⁹⁷ A Barnsley solicitor disclosed his disgust at the results of his private investigations of nakedness among local mining women:

At Silkstone there are a great many girls who work in the pits, and I have seen them washing themselves naked much below the waist as I passed their doors, and whilst they are doing this, they will be talking and chatting with

²⁹⁶ (P.P. 1842, XVII), pp. 813, 201; Only at one north-east pit (Shilbottle, Northumberland) were men said to have worked 'completely naked'. (P.P. 1842, XVI), p. 525.

²⁹⁷ Hair, 'Social history', p. 162; *Gateshead Observer*, 30 Aug. 1849; Leifchild, *Our coal and our coal pits*, p. 193. The 1989 edition of Orwell's *Road to Wigan Pier* contains a photograph of a miner being washed by his wife.

any men who happen to be there with the utmost unconcern, and men young and old would be washing in the same place, at the same time.²⁹⁸

IV

In view of the consanguineous composition of most mining labour units, underground nakedness among coal miners was much less promiscuous than was claimed in the reports of the Sub-Commissioners. It is likely that accounts of promiscuity resulted as much from imagination and gossip as from the reporting of actual events. Nevertheless, even after the prohibition of women, their continued attendance at Lancashire pit-brows continued to arouse consternation. A contributor to the *Mining Journal* declared: 'If the females at the collieries in the vicinity of Wigan do not toil in the mine, they may be seen at the pit mouth, engaged more like beasts of burden than anything else! habited in male attire, and breeched to boot, and nothing to distinguish the sex except their long hair'.²⁹⁹ Girls however, even before their prohibition, did not commonly work below ground after puberty. As a male Yorkshire miner modestly explained: 'Girls ought not to remain longer than 13, because there are things which make it improper afterwards. It is wrong for girls to come among naked folk after that'.³⁰⁰

Nevertheless, if a degree of underground nakedness was more or less accepted by colliers and their families, it did not prevent Ashley's campaign from using it as a powerful propaganda weapon. 'No brothel can beat it', claimed Symons, with

²⁹⁸ (P.P. 1842, XVI), p. 250.

²⁹⁹ *Mining Journal*, 17 Feb. 1844, vol.XIV, p. 55.

³⁰⁰ (P.P. 1842, XVI), p. 279.

reference to the situation in west Yorkshire mines. The comparison to a brothel was used by Ashley in moving the Bill to prohibit women and children from mines.³⁰¹

³⁰¹ (P.P. 1842, XVI), p. 181; Cooper, *Speeches of the Earl of Shaftesbury*, 7 June 1842, p. 31.

Chapter five. The viability of child labour and the Mines Act, 1842

The Mines Act of 1842,³⁰² like the factory acts, has been popularly regarded as a significant landmark in the removal of children from industrial labour. The Act sought to prohibit the underground employment of all females and of boys below the age of ten years. It was seen, at its passing, as a great humanitarian victory and has often been referred to as 'Lord Ashley's Act' in honour of its evangelical architect. Most studies have concluded that the prohibition of women and children was effective. Hutchins and Harrison thought that 'Lord Ashley's Bill struck at the root of the matter ... [and was] ... the most high-handed interference with industry enacted by the State in the nineteenth century'.³⁰³ Mathias has suggested that the 'horrors of the old system ... were exposed by a parliamentary investigation ... after which the Mines Act of 1842 promptly killed it by prohibiting the employment of women and children under 10 underground' and Buxton has remarked: 'Since the impetus for reform would not come from the industry itself, conditions governing safety, employment and the right of inspection had to be imposed by the State'.³⁰⁴

The few studies to address the detail of the 1842 Act have paid little attention to its implementation. Some have been contributions to the wider debate about laissez-faire and state intervention. As such, they focus on campaigns against child employment in coal mines and the passage of legislation through parliament. MacDonagh, for example, has suggested that public outrage surrounding the indecent

³⁰² Mines Act, 1842. 5 & 6 Vict., c.99.

³⁰³ Hutchins and Harrison, *History of factory legislation*, p. 82.

³⁰⁴ Mathias, *First industrial nation*, p. 183; Buxton, *Economic development of the British coal industry*, p. 131.

working conditions of women and children forced central government into legislative action.³⁰⁵ Heesom has indicated that the campaigners against child employment were representatives of a frightened class attempting to exercise a form of 'social control' over a growing number of immoral workers.³⁰⁶ Henriques has emphasised the influence of the Benthamite group upon early legislation against child labour.³⁰⁷ In similar vein, Pinchbeck and Hewitt have stressed the emphatic calls for the 'moral education' of the working class that appear to have underlain many of the early nineteenth-century campaigns against child employment. In addition to these studies are those which have seen the legislation simply as an aspect of the social progress of the era. Walvin, for example, has asserted that: 'It was the growing sensitivity to the industrial conditions of these children ... which ultimately led ... to legislative control of labour'.³⁰⁸

Any study of the history of social policy ought, however, to accord attention to the *effect* of reform upon society as well as the motives of reformers and the passage of legislation: after all, nineteenth-century social legislation ostensibly aimed at long-term improvement of the living or working conditions of people. This chapter, therefore, considers whether the reformers of children's employment were successful in their campaign to change the age-structure of coal miners. It asks whether the Mines Act of 1842 represents a successful intervention of legislators to

³⁰⁵ MacDonagh, 'Coal mines regulation: the first decade, 1842-1852', pp. 58-86; MacDonagh, *Early Victorian government*, pp. 78-94.

³⁰⁶ Heesom, 'The Coal Mines Act of 1842, social reform, and social control'.

³⁰⁷ Henriques, *The early factory acts*, p. 20.

³⁰⁸ Pinchbeck and Hewitt, *Children in English society*, vol.2, pp. 412-13. See also Colls, '"Oh! happy English children!" Coal, class and education', pp. 75-99; Walvin, *A child's world*, p. 61. For the view that the Act represented 'sex-specific protective legislation' see Humphries, 'Protective legislation, the capitalist state and working class men', pp. 1-33.

protect the weak against the interests of mineowners. It argues that accounts of social reform affecting children in coal mining have exaggerated the power of the early Victorian state to exercise effective control over labour conditions. One effect of this has been that other important factors have been overlooked. These include technical innovation, natural geology and increasing demand for coal; all of which tended to exclude young children from production. The process of exclusion, moreover, took longer than is usually acknowledged and was uneven in its progression. A closer examination of this process shows that the operation of the Mines Act benefited the most powerful and efficient coal enterprises whilst allowing small, marginal, producers a wide degree of freedom from inspection and prosecution.

I

Children were employed in all British coal-districts in the first half of the nineteenth century but the incidence and character of that employment differed markedly between districts. These differences resulted chiefly from the constraints of geology and an uneven application of technology.

In the second quarter of the nineteenth century, the demand for steam and iron coal began to rival that of the London sea-coal market upon which the North East depended most. The expanding rail system also increased competition from hitherto isolated yet abundant coalfields. This provided a national market for coal which previously been confined to domestic 'land-sale'.³⁰⁹ The key to increased coal productivity was improvement in underground haulage.

³⁰⁹ Leifchild described developments in the north-east coalfield thus: 'In 1773 there were only thirteen collieries on the Tyne; in the year 1800 there were upwards of thirty. The number of collieries had in 1828 increased to forty-one on the Tyne and eighteen on the Wear, in all fifty-nine ... and now there

However, nineteenth-century coal-face labour was overwhelmingly hand-labour. As late as 1900, only about one per cent of total coal output was cut by machine; indeed, the proportion of hand-cut coal continuously exceeded that cut by machine until 1934-5.³¹⁰ Successive increases in output were achieved by the employment of more men at the face and more boys in haulage, together with the development of more efficient underground haulage techniques.³¹¹ Almost all substantial improvements in nineteenth-century coal mining technology occurred in underground haulage and ventilation. These two sectors employed the vast majority of workers below the age of 20 and almost all children recruited to the coal industry started work in haulage or ventilation.

The haulage sector of coal mining became more efficient in the early decades of the nineteenth century through the diffusion of rails and horse-drawn rolleys and, from about the 1850s, as a result of the development of efficient machine haulage.³¹² By the second quarter of the nineteenth century, wheeled tubs were beginning to replace earlier wooden sledges or strong baskets. Iron edge rails were also

are in Northumberland and Durham 283 collieries. Colliery-railways, which at first stretched over the district in rare and remote lines, are now spread over it like an intricate web of iron, running and ramifying in all directions'. Leifchild, 'Life, enterprise, and peril', pp. 330-1.

³¹⁰ Mitchell, *British historical statistics*, p. 262; Greasley, 'The diffusion of machine cutting in the British coal industry', pp. 246-68. Coal-cutting machines only became cost-effective in the period between the First and Second World Wars. As late as 1938, only about 56 per cent of coal in England and Wales was cut by machine. Griffin, *Coalmining*, p. 120; The widespread introduction of machines after this radically changed the hewing process (and also the amount of coal-dust in the environment of the mine).

³¹¹ (P.P. 1842, XV), p. 126. Miners customarily regarded those who were below the age of 18-20 years, who were not employed at the coal-face, as 'boys'.

³¹² The 'endless rope' system could move large and heavy weights of coal long distances in continuous trains. Poole, 'Development of underground haulage', pp. 98-100.

superseding the more primitive wooden planks, or cast-iron tram plates.³¹³ In the north-east coalfield, throughout the first half of the century, an increased employment of ponies allowed greater weights of coal to be transported: in some pits, pony drivers could remove coal directly from the coal-face.³¹⁴ Between 1840 and 1860, there was a marked increase in the number of collieries that were able to transport coal from the face to the screens in the same container.³¹⁵ In the primitive west of Scotland district, a colliery overseer foresaw that the 'laying of tram-roads in new mines will reduce the demand for women and children, and much cheapen as well as facilitate the raising of coal'.³¹⁶

An important indicator of advancement in underground haulage technology is a high proportion of face workers to non-face workers. Taylor has calculated that the proportion of underground workers in the Tyne collieries who were not employed at the face decreased from 60.5 per cent in 1828 to 53 per cent in 1844. This led him to conclude that the 'principal gain in productivity underground in the third quarter of the nineteenth century would appear to have been made not in operations at the face but in the conveyance of coal to the shaft'.³¹⁷

However, the effectiveness of haulage technology was largely determined by the geology of coal seams. In districts such as west Yorkshire and in parts of Lancashire, where coal seams were thin, prohibiting the use of many kinds of underground mechanical conveyance, technology remained backward. In very thin

³¹³ Poole, 'Development of underground haulage', p. 98; Wood, 'On the conveyance of coals underground in coal mines', pp. 245-46; Greenwell, 'On the underground conveyance of coals', pp. 54-6.

³¹⁴ See Walton, *Coal mining described and illustrated*, Plate VI.

³¹⁵ Griffin, *Coalmining*, p. 145.

³¹⁶ (P.P. 1842, XVI), p. 444.

³¹⁷ Taylor, 'Labour productivity and technological innovation', p. 57.

seams, haulage was only possible by the employment of small children as putters or hurriers.³¹⁸ These children carried, or dragged, the coal along the seam to the bottom of the shaft. In thin pits, adult hewers of coal were often forced to lie on their sides to obtain purchase with their picks.³¹⁹ A large proportion of mines in primitive coal-districts, such as West Yorkshire, were not accessed by a shaft but were day-pits; that is to say adits or drift mines.³²⁰

Where thicker seams existed, however, hewn coal could be removed from the coal-face more quickly and efficiently. In most collieries, hewers cut the coal faster than the putters and drivers could dispose of it and it was usual for those involved in haulage to work twice as long as hewers in order to clear the backlog of hewn coal: in coalfields with low levels of technology children (who comprised almost all of the underground haulage workers) generally worked much longer hours than adults.³²¹ A greater roof space enabled more efficient haulage and allowed access to physically larger workers. In the North East, for example, where seams averaged between four to five feet, underground haulage was performed by older workers and by miniature horses and ponies.³²² The viewer at South Hetton, in Durham, stated: 'No seam below from two and a half to three feet would pay for working in this or the next county [Northumberland]'.³²³

³¹⁸ These children, together with the young 'trappers', were claimed by the reformers of the 1840s to be typical of child workers. They represent the popular historical view of children's employment in nineteenth-century coal mines.

³¹⁹ For a description of working methods in narrow places see Atkinson, *The Great Northern Coalfield*, p. 14.

³²⁰ (P.P. 1842, XVI), p. 181.

³²¹ Hair, 'Social history', pp. 213-14.

³²² For a description of the work of the north-east hauliers see Wade, 'The putter of the Northumberland and Durham coalfield', pp. 21-34.

³²³ (P.P. 1842, XVI), p. 135.

Technical innovations and geology, therefore, had important effects upon the incidence of children's employment.³²⁴ Hair has claimed that improvements in underground haulage technology caused a decrease in the proportions of employed children in the early century, and Poole has suggested that in Durham, between 1840 and 1850, ponies were increasingly substituted for putters at the coal-face.³²⁵ Indeed, this was part of a long-term increase in the numbers of ponies. Griffin has estimated that the numbers of pit-ponies increased from 11,000 in 1851 to 25,000 in 1881 and 70,000 in 1911.³²⁶ As for the effect of geology, a Lancashire Sub-Commissioner identified a relationship between the height of coal-seams and the incidence of child employment. He noted that 'generally throughout the district where the coal-seams are thicker, drawers of larger stature are required, as there the roads are higher and the tubs or waggons are much too heavy for very young children; but in those parts of the district where the thinner mines are worked, small children from seven to nine years are still employed'.³²⁷ When asked whether haulage work could be performed by men, T.E. Forster, President of the North of England Institute of Mining Engineers, stated: 'The men could not do the boys' work, at least I should not like to see them at it; they would get killed by the work.'³²⁸ One Derbyshire collier and father stated that children were more suited for small seams: 'You may sooner bend a

³²⁴ The unfortunate reality for the historian of technology is that the more primitive an enterprise was the less likely it was to keep records of its machinery and labour force. Such records which may have been kept by marginal producers are also less likely to have survived.

³²⁵ Hair, 'Social history', pp. 166-72; Poole, 'Development of underground haulage', p. 98.

³²⁶ Thompson, 'Nineteenth-century horse sense', Appendix, p. 80. The rate of increase in the equine and asinine population of coal mines was more than twice as fast as that of human miners over the same period. Compare Griffin's figures with Mitchell, *British historical statistics*, p. 104.

³²⁷ (P.P. 1842, XVII), p. 150.

³²⁸ (P.P. 1866, XIV), Minutes of evidence, p. 338.

twig than a tree.'³²⁹ In the Shropshire coalfield, as Table 19 shows, most of the seams worked in 1841 were thinner than three feet, allowing haulage access only to physically smaller workers.

Table 19. Height of seams worked in Shropshire, 1841

| Seam height in inches | No. of seams |
|--------------------------|--------------|
| 18-23 | 23 |
| 24-35 | 40 |
| 36-47 | 15 |
| 48-59 | 10 |
| above 60 | 8 |

Source: (P.P. 1842, XVI), p.32.

A mineowner of that county had stated in 1800: 'it is now difficult to get pitmen to work the coals. We now pay boys not ten years old six shillings per week - some of the seams not being 13", men cannot work them'. The Shropshire Sub-Commissioner observed that 'there is not above one bed in twelve in which a man can stand upright'.³³⁰

Such conditions, though not typical of the national picture, indicate the important effect of seam height upon the practical means of coal extraction and upon the size and age-structure of underground workers. As a Yorkshire coal-master put it, 'the smaller the vein of coal is in height, the younger and smaller are the children

³²⁹ (P.P. 1842, XVII), p. 304. Quoted in Hair, 'Social history', p. 178.

³³⁰ *Second Report from the Committee Appointed to inquire into the State of the Coal Trade*, (P.P. 1800, XXVI), p. 31; (P.P. 1842, XVI), p. 32.

required'. Another suggested that, in the thin coal-seams of Yorkshire, children were 'worth nothing unless they come at eight or nine years old ... the seam of coal being only 20 inches thick, and the gate no more than two feet high'.³³¹

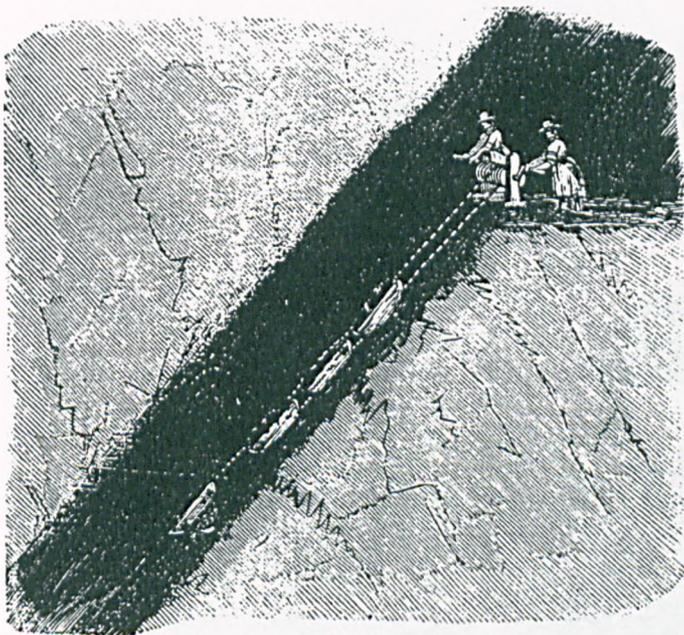
In thin seams, drawing loads of coal using belts and chains attached to wheel-less sledges remained the only practical method of transporting coal from the face to the shaft. In 1842 Franks noticed that in Scotland harnesses (or 'slypes') were 'only adopted in inconvenient and narrow seams'.³³²

³³¹ (P.P. 1842, XVI), pp. 226, 233.

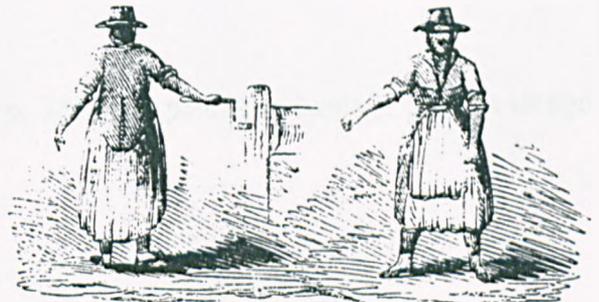
³³² (P.P. 1842, XVI), p. 389.



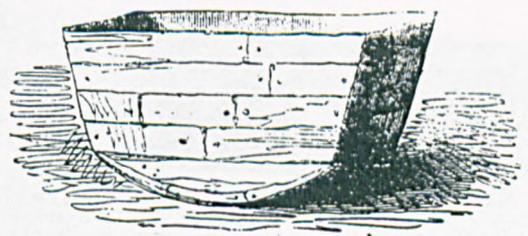
Boy guiding Skip down an Incline : Angle 45°—see Diagram No. 2.



Sectional View of Diagram No. 1, with Girls winding Coal from the Workings in the Dip.



Windlass Girls and Coal Wheelers of Pembrokeshire.

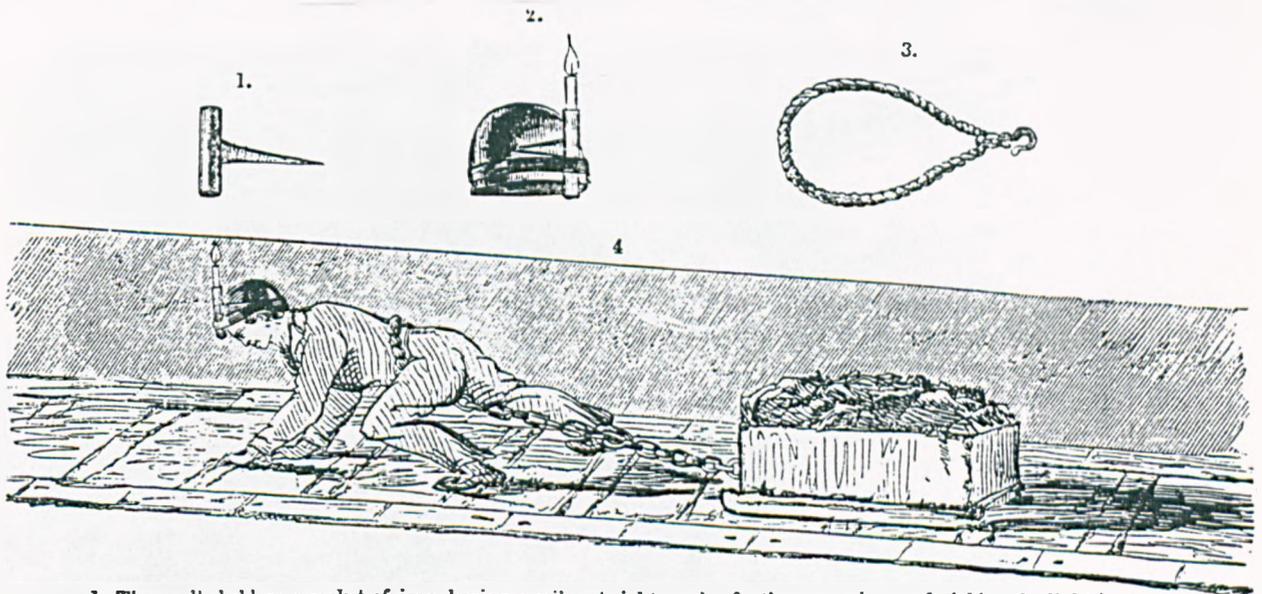


The use of wheel-less skips (P.P. 1842, XVII, p. 477)



[Harnessed Putters in Mid Lothian.]

Women's harnesses (P.P. 1842, XVI, p. 389) and primitive haulage using a sledge (P.P. 1842, XVII, p. 31)



1. The candle-holder: a socket of iron, having a spike at right angles for the convenience of sticking the light in the sides of the pit when stationary. The spike also forms a handle when the light is carried before them.
2. A skull-cap, having a leather band, into which the candle-holder is thrust when the hands are employed in locomotion.
3. The girdle and book for attaching to the chain.
4. Represents the position of the girdle.

[No. 8.]



[No. 7.]



An account of drawing with ropes in the Newcastle mines exists for 1807 and an example of drawing wheeled corves appeared in a report on north-east mines in 1835.³³³ Mitchell mentioned that in Durham 'the head man goes before the tram, and draws with a rope over his shoulder, whilst the little foal pushes behind'.³³⁴ Leifchild also mentions putting with 'soams' in Northumberland and north Durham.³³⁵ However, the method was vary rare in the North East and had largely died out by the 1840s. Much underground transport in the North East increasingly went over to endless-rope haulage during the second-half of the century.

In some technologically backward districts, however, harsh working conditions that were complained of by the Children's Employment Commissioners lingered long after the Mines Act. For example, the practice of 'hodding' (the use of a leather harness for dragging wooden sledges in thin seams: described as 'a wretched and slave-like mode of labour' in the C.E.C. Report of 1842),³³⁶ survived in the Forest of Dean as late as 1908. Fred Boughton, of Harrow Hill who was born in 1897 described his boyhood as a hodder:

They put an endless strap about six inches wide on me with an opening for me to put my head through, then they hooked it to a hodd or box of coal, and my job was to drag it on my hands and toes. I could not stand up because the hole was only three foot six inches high in some places. The only light I had was a candle stuck on the side. You took four size 16 candles, we called comps, each day. If the air was good they would last eight hours, but if the air was foul you only burned

³³³ Anon., *Picture of Newcastle upon Tyne*, pp. 174-75; 'The Collieries. no.1', p. 127.

³³⁴ (P.P. 1842, XVI) p. 134.

³³⁵ (P.P. 1842, XVI) p. 582 (see glossary).

³³⁶ (P.P. 1842, XV) p. 103. This method of haulage was also deprecated by many of the Sub-Commissioners in 1842. In north Lancashire, haulage with the belt and chain was said to be 'universal'. (P.P. 1842, XV), p. 86.

three. You only had about ten minutes for food and all you took was a lump of bread with a hole scooped out and a lump of cheese put in, and all you had to drink was a pint of cold tea with no sugar or milk.

At 2.30 we started walking back to the cage, then up in the fresh air. I remember all the miners were very friendly and would say, 'How dist get on, butty? Thee'll soon get used to it.' I used to look at the other hodders; they looked fit and well, and I thought if they can do it I can. I had a job to walk home after the first shift, so I had my tea and went to bed, but after a few days my muscles began to form and I didn't get so tired and began to feel like the other hodders fit and well. The tears I saw in mother's eyes when I gave her my first pay packet I shall never forget. What happened to me happened to all my schoolmates; some stayed at school until 14, but we all started work hodding.

The 'guss and hook' was still in use at a number of Somerset mines in the late 1920s when a Mines Department committee was set up to report on it.³³⁷ Indeed, Pollard claims the practice survived there until 1949.³³⁸ The Lancashire woman in the photograph below displayed the belt and chain she had worn as a girl.

³³⁷ Extract from the autobiography of Fred Boughton. Burnett, *Destiny obscure*, p. 313; *Mines Department Guss Committee* (P.P. 1928-29, VIII).

³³⁸ Pollard, *Hardest work under heaven*, p. 76. In addition to the geological constraints upon haulage technology, there was little history of coal-mining in north Somersetshire. Coal was only discovered there in the late eighteenth century when shafts were sunk through post-Carboniferous rocks around Radstock. Buchanan, *Industrial archaeology in Britain*, p.73.



Woman wearing pit-clothes and drawing belt and chain she had worn as a girl in Edgefold Pit, Wigan, c.1860-70 (photograph from Atkinson, *The Canal Duke's collieries*, p. 21).

The application of haulage technology and the incidence of children's employment in haulage, therefore, depended chiefly upon the prevailing geological conditions. This relationship is confirmed by evidence of a lower age of recruitment and a higher incidence of younger workers in coal-districts where thin seams and primitive technology predominated.³³⁹

The proportion of children employed in technologically backward coal pits was higher than in more developed pits. In the Halifax pits, the Sub-Commissioner knew of only 'two gates that will admit the use of horses ... hence has arisen the substitution of children'.³⁴⁰ In the North East, a greater seam height and the widespread use of horses and rails meant that employed children were older than in other coal-districts.

However, even within a single coal-district, the age-group proportions of underground workers could vary in relation to the heights of coal-seams. Table 20, calculated from Symons' figures indicates a significant relationship between age and seam height in west Yorkshire pits. The table shows the age-group proportions of the labour force working in collieries with varying seam height. Higher proportions of younger workers existed in pits with narrow seams. For example, in seams with a maximum height of 24 inches, children aged 10-12 constituted 25.06 per cent of the underground labour force, while in seams with a maximum height of 72 inches their proportion was only 13.18 per cent.

³³⁹ See table 8.

³⁴⁰ (P.P. 1842, XVII), p. 62.

Table 20. Age-groups (per cent) of working miners by seam height. 5742 males in 77 west Yorkshire pits, 1841.

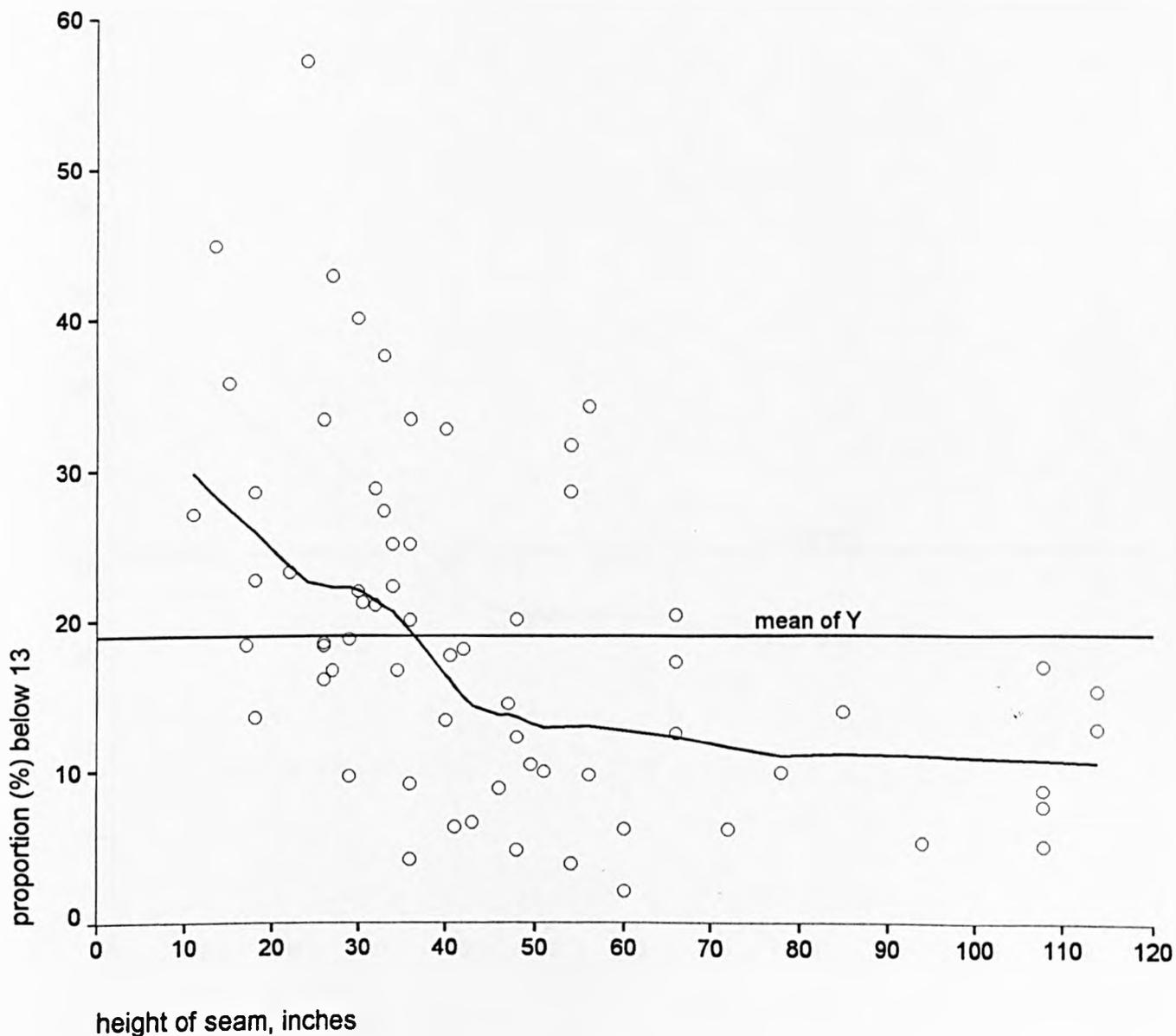
| | Maximum height of seam (inches) | | | | | | | | | | |
|------------------|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 12 | 18 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 |
| <u>age-group</u> | | | | | | | | | | | |
| under-7 | .00 | .78 | 5.94 | .59 | .12 | .23 | .00 | .00 | .58 | .00 | .00 |
| 8-9 | .00 | 6.41 | 16.28 | 4.22 | 3.44 | 1.29 | .85 | 3.70 | 2.33 | .00 | .53 |
| 10-12 | 27.08 | 23.33 | 25.06 | 17.17 | 9.33 | 13.62 | 13.18 | 6.17 | 6.68 | 7.61 | 13.46 |
| 13-17 | 37.50 | 33.04 | 17.70 | 30.77 | 19.86 | 21.37 | 19.96 | 23.46 | 14.23 | 23.84 | 23.57 |
| adults | 35.42 | 36.44 | 35.02 | 47.24 | 67.25 | 63.49 | 66.01 | 66.67 | 76.19 | 68.55 | 62.44 |

Notes: Where two seam heights were entered for the same pit, the mean of both is used.

Source: Proportions derived from employers returns to the Children's Employment Commission (P.P. 1842, XVI), Appendix B, pp.210-11.

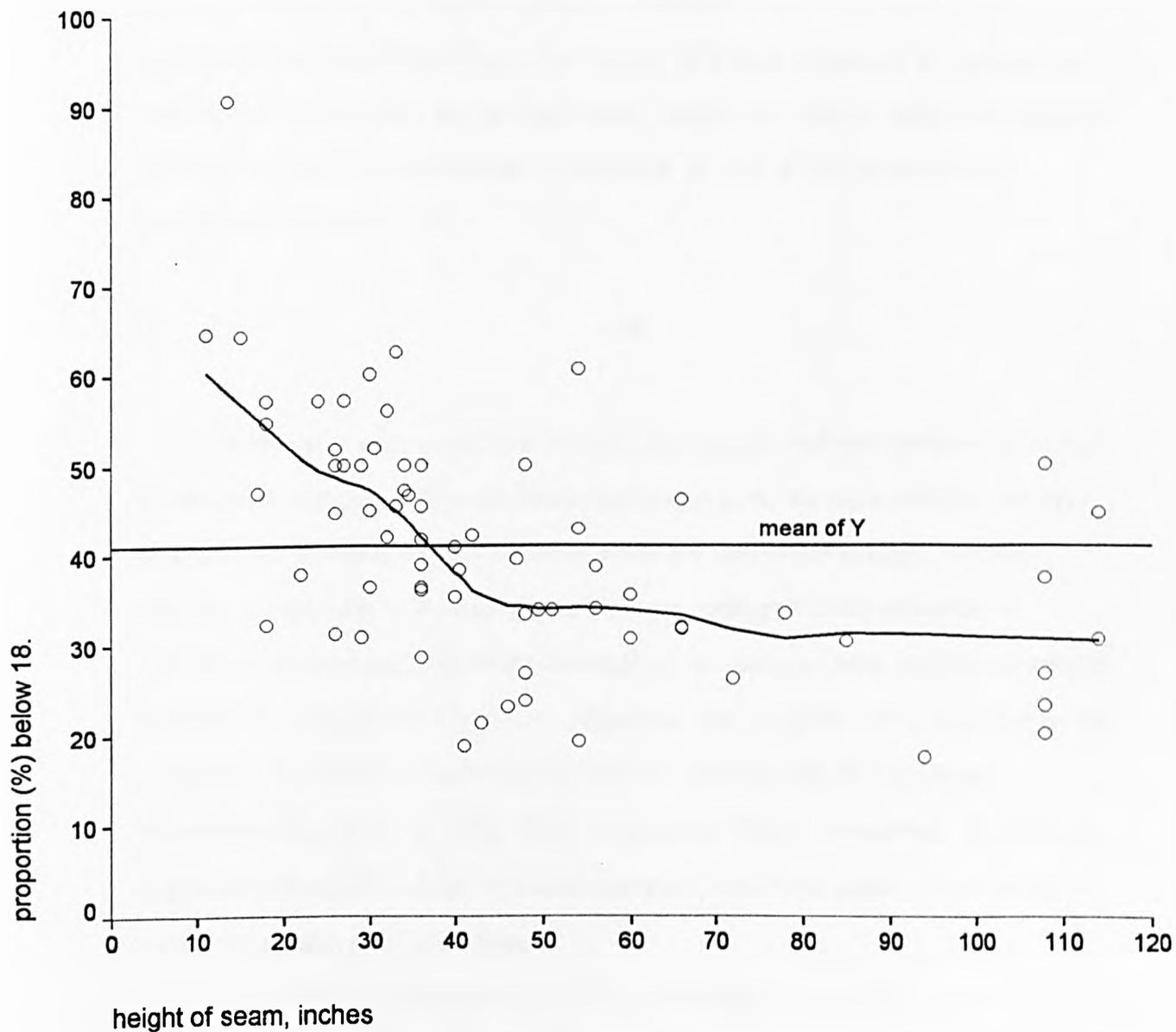
A more precise relationship is demonstrated in Figures 3 and 4 where the proportions of workers under 13 and under 18 in the same pits are plotted against the seams heights of the pits. The scatterplot smoother indicates a clear trend: in both cases, small seams contained the highest proportions of younger workers.

Figure 3. Employment of males under 13 years by coal seam height (LOWESS)



Source: P.P. 1842, XVI, Appendix B, pp.210-11.

Figure 4. Employment of males under 18 years by coal seam height (LOWESS)



Source: P.P. 1842, XVI, Appendix B, pp.210-11.

In general terms, therefore, technologically advanced areas with high output and thick seams evinced a lower incidence of children's employment and a higher mean age of recruitment compared to more primitive coal-producing districts. The necessity for employing smaller children in smaller seams was noted even in legislation: the Coal Mines Regulation Act of 1872 tried to prevent the underground employment of boys between ten and twelve 'except in a mine in which the Secretary of State, by reason of the thinness of the seams of such mine, considers such employment necessary'.³⁴¹

II

Although a relative decline in the proportion of employed children took place in advanced collieries before the Mines Act was passed, the most efficient colliery districts also tended to employ the most extensive ventilation systems. In these districts, an increase in the numbers of children employed in the operation of ventilation systems occurred in the first half of the century. Most children employed in this work were trap-door keepers. Moreover, the 'trappers' were identified by the reformers of 1840-42 as those most in need of protection by the legislators. Ventilation was a primary safety factor in complex colliery enterprises. In order to appreciate the significance of trap-door operators, therefore, some account of their method of employment is necessary.

Trap-door keeping was an occupation that had been virtually unheard of in the eighteenth century. Throughout the first half of the nineteenth century, however, increases in demand for coal provided an impetus to the opening of more extensive collieries. Previously inaccessible seams were brought into production by the sinking

³⁴¹ 35 & 36 Vict., c.76, 5.

of deeper shafts. These more extensive workings were at greater risk of accidents as a result of accumulations of methane gas (or 'fire-damp') or a suffocating mixture of carbon dioxide and nitrogen (known as 'choke-damp').³⁴² The dangers of explosion and suffocation were countered by the employment of increasingly complicated methods of underground ventilation. In order to maintain the ventilation currents used to purge pits of dangerous gases, the underground haulage roads were stopped by trap-doors. These doors were opened only momentarily to allow the passage of haulage workers and their carriages; but they required constant attendance. The doors were attended by children who were insufficiently strong to do other underground work.

The trappers were usually the youngest workers in a coal mine. Benson has suggested that in 1841 most of the 5,000 children between five and ten working underground in coal mines were employed as trappers.³⁴³ However, this overestimates the proportion of ventilation workers. Of 406 underground workers from British coal-districts aged ten or below, interviewed by the Children's Employment Commission, only 34.5 per cent were working in ventilation and 54.7

³⁴² The 'extreme "gassiness"' of north-east coal seams has been noted in Hair, 'Mortality from violence in British coal-mines', p. 549. Of contemporary descriptions of the ferocity of an underground explosion of methane gas, none compares to that given by Simonin: 'No meteor, however terrible it may be supposed to be, can be compared to an explosion of fire-damp. Let one of those scourges of heaven be imagined which appear sometimes as if designed for the punishment of human beings - a thunderbolt, a hurricane, a cyclone, or a whirlwind - burning, overthrowing, destroying everything in their course, and the effects produced by them will still be inferior to those caused by an explosion of mine-gas. A discharge of cannon loaded with canister shot, and fired point blank into a crowd; a powder magazine taking fire in the midst of a body of workmen; a gasometer exploding in a factory - can scarcely give an idea of an explosion of fire-damp suddenly overtaking the miner'. Simonin, *Mines and miners*, pp. 156-7.

³⁴³ Benson, *British coalminers in the nineteenth century*, p. 48.

per cent were in haulage. The claim that most of the under-tens were employed in ventilation can be substantiated only for the north-east district, where the proportion was large at 70 per cent. In other districts the proportions of trappers were much smaller: in the midlands, for example, it stood at only 10.8 per cent; in Yorkshire at 15.7 per cent; and in south Wales (probably the second most advanced district for ventilation technology in 1841) at 43.9 per cent.³⁴⁴ Primitive coal districts applied more rudimentary methods of ventilation and proportionately fewer ventilation workers. In Dysert, Fife, for example, mines were ventilated 'by leaving open unemployed shafts' and, as late as 1850, a 'sluggish natural flow of air was to be found in the mines of South Staffordshire, Warwickshire, Worcestershire, Shropshire and Scotland'.³⁴⁵ In 1841, there was only one instance of furnace ventilation (at that point, the most efficient form of ventilation) in the entire Derbyshire coalfield.³⁴⁶

Keeping a door was a simple operation: Hair has suggested that 'children were brought into the pits to do it at an age when they could have performed no other task'.³⁴⁷ The trappers would wait for a carriage to appear and would pull a string attached to the door to allow a carriage through. They were then responsible for ensuring that the door closed properly. The Northern Coal Trade Office stated in 1842 that 'properly constructed trap-doors close themselves, so that the trapper's duty is merely to pull them open with his string, and unless *they are wilfully propped open*, they must, from their construction, like a well hung gate, shut themselves.'³⁴⁸

³⁴⁴ (P.P. 1842, XVI, XVII). Prosopography of evidence.

³⁴⁵ (P.P. 1842, XVI), p. 510; Moss, 'Ventilation of coal mines', p. 138.

³⁴⁶ Williams, *Derbyshire miners*, p. 63.

³⁴⁷ Hair, 'Social history', p. 173.

³⁴⁸ Northumberland Record Office, Bell Collection, 9/122. 'Statement of the Coal Trade Office, Newcastle-upon-Tyne', 25 May 1842, p.5 (emphasis in original). The statement was presented in the

Despite the simplicity of trapping, however, the young trappers were charged with a huge responsibility for safety. Doors were sometimes propped open or left ajar by children; and trappers would frequently fall asleep in the warm, dark, atmosphere and fail to attend their doors. A seven year-old Welsh door-boy told the 1842 Commission, 'when I first went down I couldn't keep my eyes open' and a 17 year-old putter from Hetton Colliery noted that 'trappers often fall asleep very early in the morning, and the doors they ought to mind get knocked down'.³⁴⁹ Because of this, by the 1830s and 1840s, overmen in the north-east district were employed in regularly patrolling the ventilation doors to ensure that trappers were awake and attentive. Many large explosions were ascribed to the negligence of trappers.

Explosions also occurred as a result of simple misunderstanding of the ventilation system. In Yorkshire, a child 'found [an underground] door open and incautiously shut it, which had the effect of turning the current suddenly through the workings, and drawing out the gas in a body to the pit bottom, where the children were with their naked candles, and [an] explosion took place immediately'.³⁵⁰

In addition to these problems, ventilation systems became increasingly more complicated and extensive throughout the second quarter of the nineteenth century. John Buddle, the chief viewer of the north-east coalfield, noted that four discrete types of ventilation door were in use in the Tyne collieries in 1835, and five were mentioned at the Commission of 1842.³⁵¹ The engineer George Stephenson thought

House of Lords by the Marquess of Londonderry. *Hansard* (Lords), Vol. LXIV, 24 June 1842, col.543.

³⁴⁹ (P.P. 1842, XVII), p. 534; (P.P. 1842, XVI), p. 653.

³⁵⁰ (P.P. 1842, XVI), p. 297. Explosions sometimes occurred as a result of a lack of underground sanitary provision. Miners seeking a place to relieve themselves would sometimes enter old workings whereupon their candles might ignite accumulated gas causing disastrous results.

³⁵¹ *Select Committee on Accidents in Mines* (P.P. 1835, V), p. 131-2; (P.P.1842, XVI), p. 539.

that the age of a door-boy depended 'upon the situation of the door, for I think a boy of 10 years old would do well for many doors, and ought not to be entrusted with others of a more important description'.³⁵² One of the primary conclusions of the Commissioners' report of 1842 was that a 'frequent cause of fatal accidents in coal mines is the almost universal practice of intrusting the closing of the air-doors to very young children'.³⁵³ By the early 1840s, the employment of young children in complicated ventilation systems was becoming incompatible with safety. As the numbers of very young children operating ventilation doors increased, so did the likelihood of explosions due to simple negligence.

It is possible, of course, that explosions were attributed to the negligence of a trapper when no other cause could be ascertained and when any evidence of carelessness had been expunged by the violence of an explosion. As John Warburton noted, in a paper to the Manchester Geological Society: 'That such serious explosions should occur is much to be deplored; and that their cause should be involved in mystery is very sad. We thus lose, or rather do not get, what we otherwise should learn from them'.³⁵⁴ However, by the third and fourth decades of the nineteenth century, a general perception had emerged among north-east managers that inattentive and ill-disciplined children caused explosions. As the viewer of Heaton colliery told the 1835 Select Committee on Accidents in Mines: 'I think many of the serious accidents that have happened from the neglect of the trap-doors have been caused by leaving a door open after the men had given over work, and the boys had left their doors'.³⁵⁵ The report of the Committee noted that 'the trapper [is] (often a boy too

³⁵² (P.P. 1835, V), p. 107.

³⁵³ (P.P.1842, XV), p. 257.

³⁵⁴ Warburton, 'Economical working of mines', p. 62.

³⁵⁵ (P.P. 1835, V), p. 90.

young and thoughtless, who manages the air-doors) ... one act of omission of assigned duty, one solitary momentary neglect, may cause the instant destruction of life and property to an indefinite extent'.³⁵⁶ The report of an unofficial South Shields Committee of 1843 singled out cases of explosions due to young children leaving trap-doors open and referred favourably to the continental system of regulation of underground child labour.³⁵⁷ 'It is unfortunate', thought John Leifchild, 'that the youngest persons should have posts of such responsibility'.³⁵⁸ Sub-Commissioner Symons thought it 'difficult to devise any other really safe system than that of having a much older, better paid, and responsible class of persons to perform so very important an office'.³⁵⁹

Although MacDonagh suggested that coal mines safety only became a major issue towards the end of the 1840s, he arrived at this conclusion as a result of his over-emphasis upon parliamentary matters.³⁶⁰ Safety had long been a major issue in mining communities and among coal-owners: the perception of an extremely high death-rate from explosions had existed since the opening of more fiery coal-seams and more extensive workings at the turn of the century. Highly destructive explosions, such as that at Felling in 1812, prompted early efforts to prevent pits from firing.³⁶¹ Explosions, prior to the early 1850s, loomed large in the minds of

³⁵⁶ (P.P. 1835, V), p. vi; (P.P. 1842, XV), p. 137.

³⁵⁷ Galloway, *Annals*, vol.2, pp. 157-62.

³⁵⁸ Leifchild, 'Life, enterprise, and peril', p. 352.

³⁵⁹ (P.P. 1842, XVI), p. 175.

³⁶⁰ MacDonagh, 'Coal mines regulation', *passim*.

³⁶¹ The viewer John Buddle, for example, was a leading light in the Sunderland Society for the Prevention of Accidents in Mines, established in 1813. Safety lamps had been developed by Clanny (1812), Davy (1815) and Stephenson (1815). Because of the dim light emitted by safety lamps, men would sometimes open them in order to see better. *First Report from the Select Committee on Accidents in Coal Mines* (P.P. 1852-3, XX), p. 22.

employers as a major loss of men and profit. Added to this, the high public visibility and collective loss of life caused by explosions had prompted a miscalculation of the death-rate from this cause in the first half of the century. Prior to the Select Committee on Accidents in Coal Mines of 1852-3, the proportion of all coal-mining deaths resulting from explosions was believed to be in the region of 66 per cent. Despite a decline in the death rate from explosions before the mid-century, this was a gross over-estimate. The Select Committee arrived at the more accurate figures of 32.6 per cent for 1851 and 26.5 per cent for 1852.³⁶²

The introduction of self-acting doors may have contributed to a reduction in the number of explosions after the mid-century, but that contribution would have been small in the period 1836-50, because these doors were very unreliable; a north-east pit-man noted in 1847, for example, that 'swing doors .. open both ways by the tubs when pushed against them. If the tub knocks square on the door, it sometimes knocks it off the hinges ... The pit might get fouled by such an accident'.³⁶³ Indeed,

³⁶² (P.P. 1852-3, XX), p. 28. Many accidents, therefore, were not related to ventilation. Buddle, the mining viewer, had demonstrated his superior knowledge on this subject in 1842, stating: 'On an average, through this district [Northumberland and North Durham], I believe that the ordinary and unavoidable casualties in collieries occasion more calamity than explosions of inflammable air'. (P.P. 1842, XVI), p. 553. Another north-east viewer noted that local inquest records bore testimony to the fact that 'ordinary coal-pit accidents destroy more lives than even explosions'. Northumberland Record Office, ZB/3, 'Colliery journal of William Oliver for 1843', p. 265; Sidney Pollard regarded the viewers as highly influential: 'Perhaps the single most important group of professionals with managerial functions was the body of coal-viewers, spreading outwards from the Tyne and Wear in the course of the eighteenth and early nineteenth centuries'. Pollard, *Genesis of modern management*, p. 127.

³⁶³ *Report on Gases and Explosions in Collieries* (P.P. 1847, XVI), p. 18. Another collier claimed that 'it is easier to wake a sleeping boy than to do carpenters' work and right a fallen door' (P.P. 1847, XVI), p. 174. However, the colliers' wish to continue the employment of their own family members may have prevented them taking any 'objective' view of self-acting doors. Curr had outlined a

self-acting doors were probably more likely to cause explosions than to prevent them before about the mid-1860s. At a West Yorkshire pit, the Sub-Commissioner found 'no less than two doors ajar; one owing to a defect in the hinge, and the other from coal having fallen and blocked the doorway. When I arrived at the bank face, I was not allowed to hold my candle near the roof for fear of an explosion!'³⁶⁴ Increasing efficiency of underground machinery and the introduction of some self-acting doors meant that some of the younger and less reliable workers could be dispensed with.³⁶⁵

Perceptions of economic losses resulting from large explosions cannot be discounted in discussing the interest of the employers in the parliamentary negotiations concerning the age restriction. To have excluded all children below the age of thirteen, as Ashley had wanted, would have removed most of the trappers

prototype automatic door in 1797. Curr, *The coal viewer and engine builders' practical companion*, p. 32.

³⁶⁴ Symons' opinion was categorical: 'It is difficult to devise any other really safe system than that of having a much older, better paid, and responsible class of persons to perform so very important an office'. (P.P. 1842, XVI), p. 175. The viewer Nicholas Wood, however, was of the opinion that: 'Old men are too stupid for door-keeping'. (P.P. 1842, XVI), p. 587.

³⁶⁵ The viewer of Seghill Colliery gave the following description: 'In regard to our self-acting trap-doors, there is little difference in the size and the shape is slightly altered from that of the ordinary trap-door, being a little wider at the bottom than the top... They are made to open either way, and shut again, without the assistance of a trapper-boy. This is done by placing the door-cheek or post on which the door is hung a little out of the perpendicular line towards the centre of the door. In my opinion this description of door answers the purpose very well, and renders the use of boys almost unnecessary; although there are certain localities in mines where the current of air can only be changed in its direction by the means of trap-doors, where it is of so much importance that trapper-boys must be employed to open and shut them. In case a new mine was commenced on a proper plan, and there were a sufficient number of downcast shafts, I think it is quite possible to ventilate without the aid of trapper-boys; but where mines have been extensively worked, and a series of difficulties to contend against, it is impossible. These self-acting doors are now in use at other collieries on the Tyne'. (P.P. 1842, XVI), pp. 612-13.

from the north-east coalfield. The exclusion of those under ten, however, as many leading north-east coal-viewers advocated, would retain the older and more reliable trappers in the 10-13 age-group and allow the removal of the young and unreliable children: moreover, legislation would provide a legal ground for that exclusion. Indeed, it was this age-group which was the main point of contention between the north-east employers and Ashley in the negotiations over the final form of the legislation.

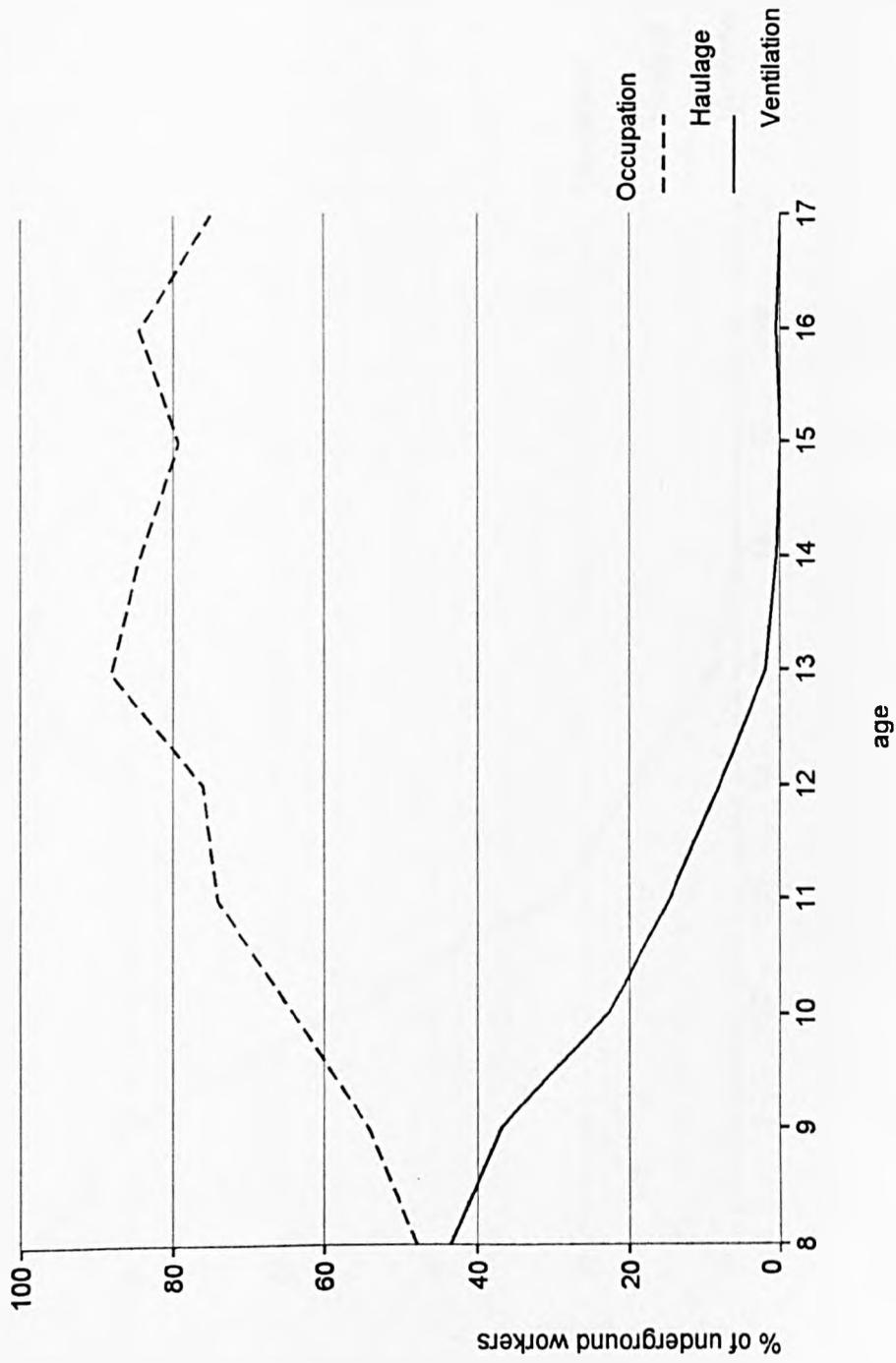
Table 21. Age distribution of 235 trappers in 14 collieries, South Durham.

| Age | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|----------|-----|-----|------|------|------|------|------|------|------|
| Number | 4 | 12 | 50 | 69 | 53 | 25 | 16 | 4 | 2 |
| Per cent | 1.7 | 5.1 | 21.3 | 29.4 | 22.5 | 10.6 | 6.8 | 1.7 | .8 |
| Cum. % | 1.7 | 6.8 | 28.1 | 57.5 | 80.0 | 90.6 | 97.4 | 99.1 | 99.9 |

Source: (P.P. 1842, XVI) p. 125. The Collieries were, Hetton, North Hetton, South Hetton, East and West Rainton, Pitlington, Broomside, Coundon, Tees, Thornley, Sherburn, Great Lumley, Newbottle, Cocken, Painshaw [Penshaw], and St. Helens Auckland.

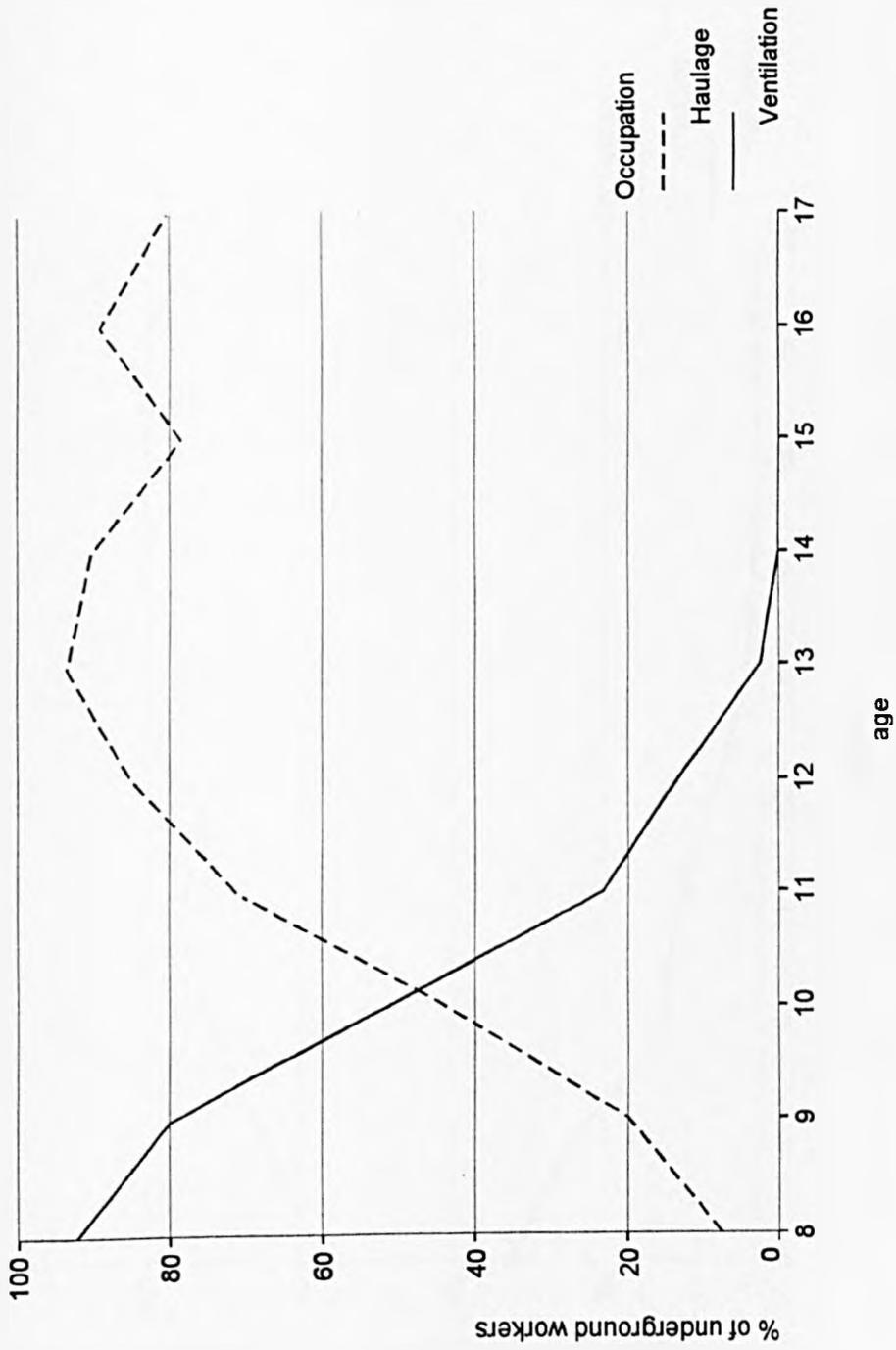
The majority of trappers employed in the North East belonged to the age-group 9-12. Table 21 shows that the most common age for trappers was ten (almost 30 per cent of all trappers) and that about half were below, and half above, this age. Over 97 per cent of trappers were aged thirteen or below. In the North East, children began to move into driving and putting after the age of eleven or twelve. Figures 5, 6 and 7 below provide an indication of the relationship between age and occupation.

Figure 5. Proportions of underground workers in haulage and ventilation by age: all British coal-districts, 1841.



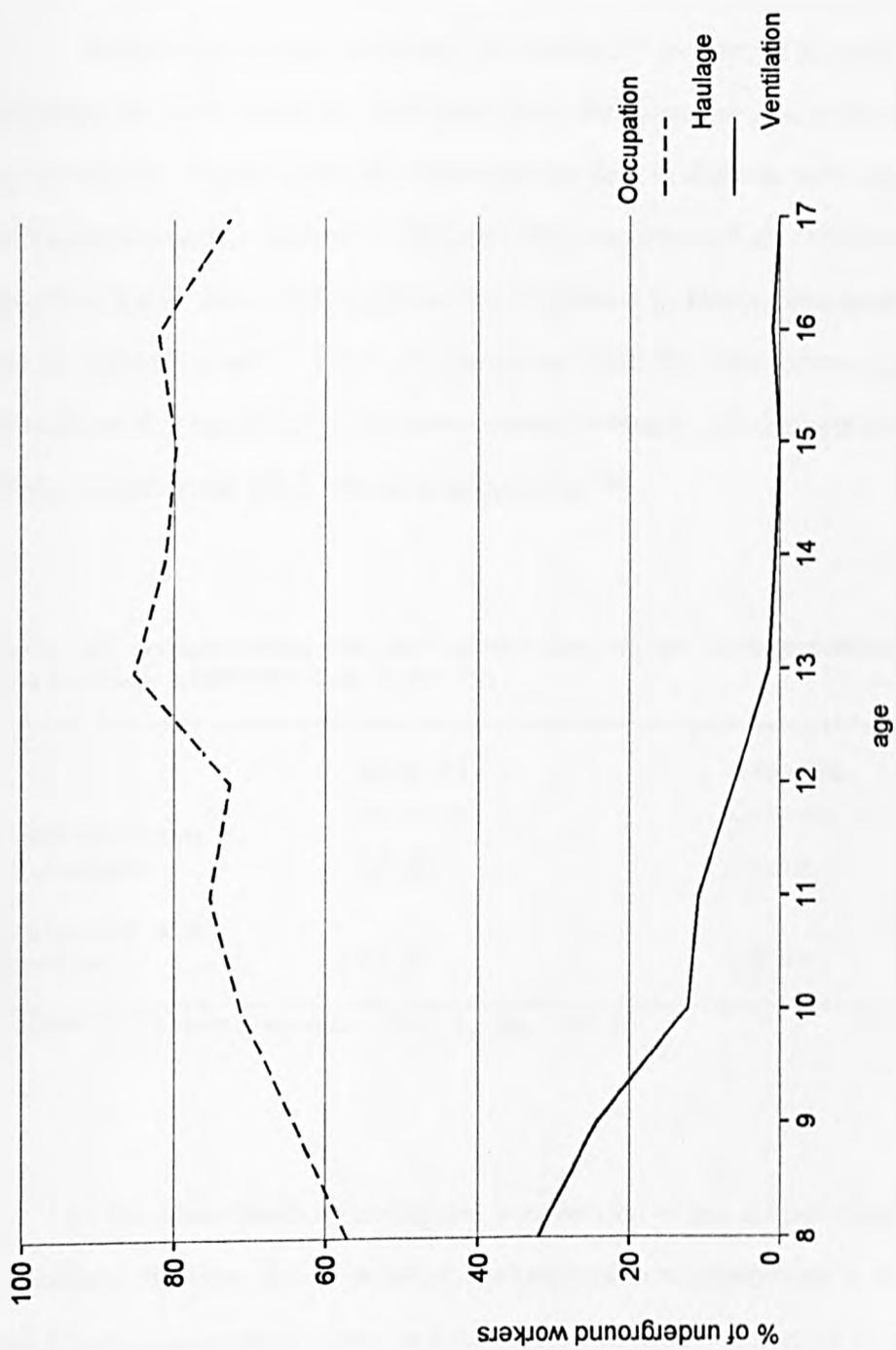
Source: Ages and occupations taken by the Sub-Commissioners, P.P. 1842, XVI., XVII.

Figure 6. Proportions of underground workers in haulage and ventilation by age: north-east coal-district, 1841.



Source: Ages and occupations taken by the Sub-Commissioners, P.P. 1842, XVI., XVII.

Figure 7. Proportions of underground workers in haulage and ventilation by age: all British coal-districts excluding the North East, 1841.



Source: Ages and occupations taken by the Sub-Commissioners, P.P. 1842, XVI., XVII.

Presuming the children below ten (about 28 per cent of all north-east trappers employed in 1841) were excluded after 1843, then their exclusion may have resulted in a decline in specific types of ventilation accident in districts with advanced ventilation systems. Galloway calculated the proportion of all explosions occurring specifically due to an interruption of the ventilation in Northumberland and Durham and in Lancashire and Cheshire for the period 1836-50. His figures, given in table 22 indicate that significant differences existed between coal-districts in the periods before and after the 1842 Act became operable.³⁶⁶

Table 22. Proportions of explosions due to an interruption of ventilation, 1836-43 and 1843-50.

| | 1836-43 | 1843-50 |
|----------------------------|---------|---------|
| Northumberland and Durham: | 23.6% | 12.1% |
| Lancashire and Cheshire: | 17.6% | 18.0% |

Source: Galloway, *Annals*, Vol.2, pp. 40-90.

In the seven years following the introduction of the act permitting the exclusion of the very young children, the proportion of explosions in the North East caused by an interruption of the ventilation fell significantly against those of the previous seven years. In Lancashire and Cheshire, where ventilation systems were less complicated, the proportion remained almost unchanged. Moreover, Galloway

³⁶⁶ The Coal Mines Act became operable on 1 March 1843.

estimated the number of deaths as a result of explosions caused by the 'negligence of a trapper' in the North East at 63 for the period 1836-43, and at three for the period 1843-50.³⁶⁷ The exclusion of the very young trappers probably contributed significantly to the decline in deaths from explosions in north-east collieries. Hair, for example, estimated that this rate fell from 3.1 per thousand employed in 1839-45 to 0.9 in 1851-3.³⁶⁸ The exclusion of the most inefficient and potentially dangerous trappers must have been a consideration for owners and managers of collieries that relied heavily upon complex systems of ventilation.

III

In spite of the widespread disparagement of coal-owners by historians,³⁶⁹ there is much evidence to confirm that many influential mine managers in the North East of England desired the exclusion of very young children from their collieries.³⁷⁰ They strongly supported an age restriction of around ten years. John Buddle and several other viewers had advised '11 years of age for initiating boys in pit-work' in 1842; and a meeting of the United Committee of the Northern Coal Trade resolved that 'the age of 10 years is the proper period at which boys should be taken down the pits'.³⁷¹

In the North East, during the 1830s and 1840s, there was a developing conflict of interest between management and pitmen concerning the traditional

³⁶⁷ Galloway, *Annals*, vol.2, pp. 41-55. Comparable figures for other coal-fields are not available.

³⁶⁸ Hair thinks it 'unlikely that the decline was anywhere as steep as in the North East'. Hair, 'Mortality from violence', pp. 554, 560.

³⁶⁹ The exception to this is Heesom, 'Northern coal-owners', *passim*.

³⁷⁰ See the deprecation of the employment of very young children by many north-east managers in (P.P. 1842, XVI), pp. 123-26.

³⁷¹ Heesom, 'Northern coal-owners', pp. 242, 243.

employment of very young children. As the manager of South Hetton Colliery, Durham, explained:

Of the children in the pits we have none under eight, and only three so young. We are constantly beset by parents coming making application to take children under that age, and they are very anxious, and very dissatisfied if we do not take the children ... there have been cases in times of brisk trade, when the parents have threatened to leave the colliery, and go elsewhere if we did not comply... constant attempts are made to get the boys engaged to a work to which they are not competent from their years.³⁷²

Similarly, the agent for the Pease collieries declared 'if a legislative enactment were passed by which children should not be allowed to go into a coal-mine until they were nine years of age instead of six, it would in many cases be a relief to the coal owner, as it is frequently at considerable loss he has to employ boys of lesser age; but such enactment would materially affect the interests of the workmen, who would consider such interference anything but an act of humanity towards them'.³⁷³ The Sub-Commissioner for Durham agreed: 'looking at the necessities of poor parents with large families, and of poor widows, and also of the necessity of obtaining labour, I must give my adhesion to those who consider 10 years of age as the proper time when children should be allowed to go to work in collieries'.³⁷⁴ He stressed that 'it is both contrary to the wishes and interest of the coal-masters that any very young children should go down into the pits, and they will cordially rejoice if it should be totally prohibited'.³⁷⁵

³⁷² (P.P. 1842, XVI), p. 149.

³⁷³ (P.P. 1842, XVI), p. 124.

³⁷⁴ (P.P. 1842, XVI), p. 125.

³⁷⁵ (P.P. 1842, XVI), p. 124.

Managers and owners in backward coal-districts were more equivocal in their attitudes to children's employment. Coal-owners and coal-miners in districts containing thin seams expressed a desire to continue the employment of young children. During the Lords' debate on Ashley's 1842 Bill, Lord Londonderry presented a document produced by a Yorkshire coal-owners' association which stated: 'With respect to the age at which males should be admitted into mines, the members of this association have unanimously agreed to fix it at eight years'.³⁷⁶ The statement also noted: 'In the thin coal mines it is more especially requisite that boys, varying in age from eight to fourteen, should be employed; as the underground roads could not be made of sufficient height for taller persons without incurring an outlay so great as to render the working of such mines unprofitable'.³⁷⁷ This statement accords with Hair's calculation of a mean age at starting work in Yorkshire between 1835 and 1841 of 8.7 years.³⁷⁸ Table 23 confirms this and emphasises, in particular, the much older mean age of starting work in haulage occupations in the advanced north-east collieries. The table indicates the ages of those who claimed in their evidence to the C.E.C. to have begun their working lives in ventilation and haulage occupations in coal mines.

³⁷⁶ *Hansard* (Lords), Vol. LXIV, 24 June 1842, col.545.

³⁷⁷ *Hansard* (Lords), Vol. LXIV, 24 June 1842, cols.545-6. According to Ainsworth, support from the industry for the clause to make children between ten and twelve years work only three days a week came from 'those who worked thick mines; but those who had to work thin mines could not but object to the practice of the boys labouring only three days a week', *Hansard* (Commons), vol. LXIV, 4 July 1842, col.1000.

³⁷⁸ Hair, 'Social history', pp. 164-5.

Table 23. Mean age at starting work in different underground occupations by coal-district (males who had begun work before 1841).

| | VENTILATION | HAULAGE |
|--------------------|-------------|---------|
| EAST SCOTLAND | 8.50 | 8.75 |
| MIDLANDS | 8.10 | 8.44 |
| NORTH EAST ENGLAND | 8.39 | 10.60 |
| NORTH WEST ENGLAND | 6.33 | 7.25 |
| SOUTH WALES | 7.61 | 8.89 |
| YORKSHIRE | 7.67 | 8.23 |

Notes: Calculated from 4108 subjects observed in evidence to the Children's Employment Commission.

Source: Prosopographical dataset (P.P. 1842,XVI,XVII).

Another clue towards attitudes to children's employment lies in the structure of petitioning over the proposal to exclude young children from coal mines. Between May and August 1842, 160 petitions concerning the Bill were presented to the House of Lords: 44 of these were in favour of regulation of children's labour and 116 were against. 105 of the petitions originated in the West Riding of Yorkshire: here, petitions against regulation outnumbered those in favour by more than two to one.³⁷⁹ Most opposition to the restriction of children's employment, therefore, came from coal-districts with low levels of haulage and ventilation technology. However, since the majority of the Lords' coal-owner lobby consisted of the powerful north-east owners, the opinion of the Coal Trade Office and the north-east viewers had most powerful effect upon the negotiations over the age restriction.

³⁷⁹ *House of Lords Journal*, 6 May - 1 Aug. 1842, pp. 189, 367, 388, 401, 403-4, 409, 412-15, 417, 422-3, 425, 430, 432, 436-7, 440-1, 445, 450, 454, 499, 525. See pages 116-18 for a discussion of petitions relating to the Bill of 1842.

IV

The Act of 1842 empowered the Home Secretary to appoint inspectors 'to visit and inspect any Mine or Colliery ... [and] ... to enter and examine such Mine or Colliery'. Coal-owners and agents, moreover, were 'required to furnish the means necessary for such Person or Persons so appointed to visit and inspect such Mines'.³⁸⁰ However, the Act was never effectively implemented. Only one inspector, Hugh Seymour Tremenheere (1804-1893), was appointed to cover all mining districts of Great Britain.³⁸¹

The resources made available to Tremenheere by the Home Department were exceedingly limited. For example, in 1844 the budget for mines inspection amounted to less than 10 per cent of that for factory inspection and by 1849 this proportion stood at only eight per cent; although by 1854, with a total of seven mines inspectors, it had increased to about 41 per cent. Tremenheere's sphere of activity therefore was strictly limited and prosecutions under the Act of 1842 were few. The Act failed to give magistrates the power to summon witnesses. When prosecutions did take place, they resulted almost entirely from evidence collected by watchmen, constables and others whom Tremenheere had instructed to spy on the mouths of pits.³⁸² However, such information was not readily forthcoming: William Peace, colliery agent for the Earl of Balcarres, noted the continuing employment of women in a letter to the Earl in March 1843:

³⁸⁰ Mines Act. 5 & 6 Vict. c.99, p. 836.

³⁸¹ Tremenheere was appointed Commissioner on 14 Dec. 1843. PRO HO87/1. Factory and Mines Entry Books, Manners Sutton to Tremenheere. The inspector received £700 per annum plus travelling expenses. PRO HO45/339/1-3; Bartrip, 'British government inspection', pp. 613-16.

³⁸² 5 & 6 Vict., c.99; Heesom: 'Coal Mines Act', p. 78; *Rep. Comm. on Population in Mining Districts* (P.P. 1846, XXIV), p. 5.

It may appear strange that no Informations have been laid against Proprietors so offending - but the Reason of this is, that all Parties concerned are interested in Keeping the thing as quiet as possible - the Females and their Parents for the sake of the Wages obtained and the Masters for the sake of their services.³⁸³

Tremenheere saw his role not to eradicate infant labour but strongly to discourage it. Considerable opposition to interference, particularly in the more primitive coal-fields, meant that his post was little more than a nominal one. He saw his strategy as one of deterrence: making an example of one or two of the worst examples from each district in the hope of frightening the rest into compliance. The *Colliery Guardian* noted that Tremenheere was 'not invested with coercive powers, except within very narrow limits, and the influence he exercises must be derived mainly by argument and persuasion... He is in a position to show the tendency and force of public opinion'.³⁸⁴ Indeed, from the start of his tenure, he did not seek to keep his activities secret and provided coal-owners and managers with written notices of his visits.

I addressed a circular letter to all the proprietors and managers of works, apprising them of my intention to visit them officially within a short period, for the purpose of ascertaining and reporting to the Secretary of State for the Home Department the manner in which the provisions of the Act were observed. I also ventured to bespeak their co-operation towards giving full effect to a law humanely designed for

³⁸³ Wigan Record Office, DDX/E1/Box 99/2, Letter Book of William Peace, Peace to Earl Balcarres, 4 or 5 Mar. 1843. A letter of 25 Jan. 1844 indicated that the Earl of Balcarres had been sent an anonymous letter accusing him of still employing women. Peace was instructed to investigate.

³⁸⁴ *Colliery Guardian*, 28 Aug. 1858, p. 131.

the protection and benefit of so large a section of the working classes.³⁸⁵

Tremenheere noted: 'The publicity of the inquiries in these instances, have ... it is believed, a good effect for the time, in leading persons who are disposed to violate the Act, or to connive at its violation by their subordinates, to cause the practice to be discontinued; but, as I have frequently had occasion to observe, the absence of any machinery upon the spot, for enforcing the Act, must necessarily afford many opportunities for evasion'.³⁸⁶

Evasions of the Act were widespread in coal-districts containing many small rural pits and in pits where haulage in narrow seams was necessary. Engels noted in 1845 that 'evasion of the law is very easy in the country districts in which the mines are situated'.³⁸⁷ In the West Riding, in 1845, Tremeneere reported 'that in the portions of the district where the thin seams of coal are worked, varying in thickness from 18 to 30 inches only, considerable laxity prevailed as to the employment of boys under age'.³⁸⁸ In these marginal districts the threat of poverty resulting from the exclusion of children induced both miners and owners to turn a blind eye to the possibility of detection.

Apart from simple evasion, employers and workers sometimes found ingenious ways of offsetting the costs of prosecution. As Peace noted:

It is a well known fact that at many Collieries in the immediate Neighbourhood of Wigan young Girls under 18 years of Age, have, in Despite of the Act of Parliament prohibiting it, been regularly

³⁸⁵ (P.P. 1844, XVI), pp. 1-2; PRO HO87/1. *Factory and Mines Entry Book, 1836-46*, p. 290-2.

Note of circular letter to Wigan coal-owners, (P.P. 1845, XXVII), p. 5.

³⁸⁶ (P.P. 1854, XIX), p. 49.

³⁸⁷ Engels, *The condition of the working class in England*, p. 255.

³⁸⁸ (P.P. 1845, XXVII), p. 19.

employed underground up to the present time, and although the entire Exclusion of Females from mines is enjoined from the 1st Inst. [March 1843] yet they are openly employed in many Cases and I have heard it reported that the Proprietors of one Colliery were deducting from the wages of Women so employed the sum of 4d per Week to raise a Fund out of which they might pay any Fines inflicted upon them for Breaches of the Act.³⁸⁹

Precisely who was to be held legally responsible for the unlawful employment of children was not clear from the legislation. In early 1846, acting under instructions from Tremenheere, Charles Barstow, a Halifax solicitor, obtained summonses against Edward Waterhouse, a colliery proprietor, for allegedly employing a boy 'not ten years of age', the information having been obtained by an informer named Kennersley, who had been employed by Barstow to watch a pit. However, the opinion of the bench was that Waterhouse could not be held responsible for a breach of the law, 'but nevertheless', the bench stated, 'it was his moral duty (and that of every employer) to use extra precautions against the employment of children under age'.³⁹⁰ The case failed. However, Barstow subsequently pursued a successful prosecution against Benjamin Brook, the colliery's 'bottom-steward' (after

³⁸⁹ Wigan Record Office, DDX/E1/Box 99/2, Letter Book of William Peace. Peace to Earl Balcarres, 4 or 5 Mar. 1843; Peace was a close associate of the Manchester geologist and campaigner against child and female labour, Edward Binney, whom he had first met in 1836. Both became vice-presidents of the Manchester Geological Society. *Transactions of the Manchester Geological Society*, 1860-61, No.4.

³⁹⁰ *Halifax Guardian*, 17 Jan. 1846, p. 7.

Copy of the summons of Benjamin Brook

(Summons)
 To Benjamin Brook Constable of the
 Township of Elleringham in the West
 Riding of the County of York.

Whereas Information and Complaint have been made unto Justice of Her Majesty's Justices of the Peace for the said Riding, by Charles Barstow
 THAT Information and Complaint were on the third day of January last made before John Rhodes Justice of the Peace for the said Riding, in and for the said Riding by the said Charles Barstow of the Township of Elleringham in the Riding aforesaid, Coal Merchant on the third day of December last instant, at the Township of Elleringham in the Riding aforesaid, in then and there the owner of a certain Colliery called Alnby pit did then and there permit one Benjamin Farrer, a child born then being under the age of ten years, to wit of the age of seven years, to be in the said Colliery for the purpose of working therein, the said Benjamin Farrer not having attained the age of nine years at the time of the passing of an Act made and passed in the fourth and fifth year of the reign of Her present Majesty, intituled, "An Act to prohibit the employment of women and girls in mines and Collieries and to regulate the employment of boys, and to make other provisions relating to persons working therein," and not having been at or before the passing of the said Act, employed in such Colliery, contrary to the provision of the Statute in such case made and provided; whereupon the said John Rhodes Justice of the Peace did issue thereunto a Warrant as the former Justice, as such Justice, as aforesaid, did issue thereunto bearing date the said third day of January last, requiring the said Edward Waterhouse to appear before two of Her Majesty's Justices of the Peace for the said Riding, at the Magistrates' Office in Halifax in the said Riding, on the fourth day of January last, to answer the said Complaint and Information; and that the said Edward Waterhouse having on the said fourth day of January last appeared before two of Her Majesty's Justices of the Peace for the said Riding in pursuance of the said Warrant, it was made to appear to the satisfaction of us the said Justices that the said offence had been committed by and under the authority of Benjamin Brook of Elleringham aforesaid, Sotom Steward, who at the time of the commission of the said offence, was servant of the said Edward Waterhouse at the said Colliery, without the personal consent, concurrence or knowledge of the said Waterhouse; therefore the said Benjamin Brook hath proved just cause for his absence and that the said Benjamin Brook as such servant as aforesaid may be summoned to answer for the same contrary to the form of the Statute in such case made and provided: the said offence according to the directions of the said recited Act.

THESE are therefore to require you forthwith to summon the said Benjamin Brook to appear before two of Her Majesty's Justices of the Peace for the said Riding, at the Magistrates' Office, Ward's End, in Halifax, in the said Riding, on the fourth day of February last at the Hour of Eleven in the Forenoon of the same day, to answer the said Complaint and Information, and to be further dealt with according to Law: and be you then there to certify what you shall have done in the premises. Herein fail you not.

Given under my Hand and Seal the third part of February 1866.

| | |
|------------------------|---|
| Summons | 1 |
| Witness Subpoena | 2 |
| Witness | 3 |
| Complaint | 6 |
| Constable | 6 |
| Penalty | |
| Conviction | |

W. Waterhouse
Robt Waterhouse
Feb 7th 1866

an attempt by the defence to shift the blame to the workmen employing the boy had failed). The bottom-steward was held by the bench to be responsible and was fined the sum of five pounds, after which the magistrates stated that, 'they wished it to be generally known that they would fix the responsibility upon bottom-stewards'.³⁹¹

The principle of not holding proprietors responsible for employing children was again applied the following year in a case in which the manager of a pit owned by a Mr Hargreaves, at Coppull, Lancashire, was convicted, but where, 'the magistrates of the Chorley bench held Mr. Hargreaves excused, under the 13th section of the Act; the offence having taken place, according to their judgement, without his "personal consent, concurrence, or knowledge"'.³⁹² An explosion, which occurred some four years later in the same pit, however, brought to light the fact 'that one of the boys killed was only 9, and another only 7 years old'.³⁹³ As late as 1858, Tremenheere noted that women in the neighbourhood of Nantyglo, south Wales, would 'from time to time disguise themselves, and avail themselves of the peculiar facilities which some of the mines and collieries there afford'.³⁹⁴ The *Colliery Guardian* observed that the legislation was 'violated in thousands of instances'.³⁹⁵

³⁹¹ 'There was a similar case against Joshua Bean, but as the man was very poor, and it was for employing his own child, Mr. Barstow did not press for a penalty, agreeing to let him off on paying 11s. the expenses only'. *Halifax Guardian*, 14 Feb. 1846; (P.P. 1846, XXIV), p. 6; PRO HO87/1. 'Home Office factory and mines entry book', (out-letters) 1836-46, 24 Nov. 1845, p. 411.

³⁹² (P.P. 1847, XXVI), p. 36.

³⁹³ (P.P. 1851, XXIII), p. 44.

³⁹⁴ (P.P. 1857-8, XXXII), p. 6.

³⁹⁵ 'Social progress in the mining districts. Mr. Tremenheere's Report', *Colliery Guardian*, 28 Aug. 1858, p. 131; Tremenheere Family Papers, Packet 44.

Tremenheere was forced to admit the severe limitations of the legislation: 'When boys apparently under the legal age are seen going to, or returning from work underground, the person employed to obtain evidence ... has great difficulty in doing so, and sufficient evidence is seldom obtained to justify prosecutions'.³⁹⁶ Indeed, the difficulty in fixing responsibility under the legislation led to a reluctance among some later mines inspectors to enforce the law. As late as 1866, the Inspector for Lancashire stated that he would only enforce the 1842 Act when owners knowingly employed underage children or when an underage child had been killed underground.³⁹⁷ However, as the inspector pointed out, because most Lancashire children were employed by a member of their own families, the penalty of between five and ten pounds would 'fall perhaps not upon the colliery owner, but upon the father or the guardian of the boy'.³⁹⁸

In addition to these difficulties, a general opposition to interference with property made underground inspection practically impossible and often unsafe. Londonderry declared that he would say to any inspector: 'You may go down the pit how you can, and when you are down you may remain there'.³⁹⁹ Ashley noted that underground inspection was 'altogether impossible, and, indeed, if it were possible it would not be safe... at the present time, I, for one, should be very loth to go down the shaft for the purpose of doing some act that was likely to be distasteful to the

³⁹⁶ (P.P. 1854, XIX), p. 6.

³⁹⁷ *Sel. Comm. on Mines* (P.P. 1866, XIV), p. 227.

³⁹⁸ (P.P. 1866, XIV), p. 224. The penalty was not more than £10 or less than £5. 5 & 6 Vict. c.99; Boyd, *Coal pits and pitmen*, pp. 73-4.

³⁹⁹ *Hansard* (Lords), Vol. LXV, 1 Aug. 1842, col.891; Boyd, *Coal pits and pitmen*, p. 73; Londonderry's outburst backfired when Wharncliffe introduced an amendment to compel the owners of collieries to provide the necessary means of inspection. *Hansard* (Lords), Vol. LXV, 1 Aug. 1842, cols.892-3.

colliers below'.⁴⁰⁰ As Galloway pointed out, the Act 'did not contemplate subterranean inspection of mines'.⁴⁰¹ Indeed, disguising oneself appears to have been the only reasonable and safe means of gaining entry to many coal mines. Edward Binney noted that, during a visit which he had made to a Lancashire coal mine: 'Your petitioner was dressed as a miner, and went down into the pit in such a manner as to see the workings such as they are generally carried on, and without the colliers or their employers being aware of his character as a visitor'.⁴⁰² Serious physical consequences could befall would-be inspectors. In his report of 1854, Tremenheere declared:

I have never sanctioned their sending [inspectors] under ground for that purpose, inasmuch as where every one would be hostile to such a search, the person attempting it would be inevitably misled; and in two instances where persons attempted it of their own accord, they were maltreated, and very nearly lost their lives.⁴⁰³

Colliers, therefore, were as active as any in their opposition to inspection. Many wished to continue the employment of children because they feared the effect upon the family income of the loss of the child's labour-input. The traditional common interest in child employment between employer and collier had begun to diverge.⁴⁰⁴ Ainsworth, on presenting a petition to the Commons against the exclusion

⁴⁰⁰ Quoted in Boyd, *Coal pits and pitmen*, p. 66.

⁴⁰¹ Galloway, *History of coal mining*, p. 230.

⁴⁰² Binney, 'Copy of ... The Humble Petition of Edward William Binney ... Gentleman', p. 142.

⁴⁰³ (P.P. 1854, XIX), p. 6.

⁴⁰⁴ At one Stirlingshire colliery the men struck when an owner attempted to exclude children below twelve from underground employment (this occurred before 1841). (P.P. 1842, XVI), p. 485. Quoted in Hair, 'Social history', p. 180.

of women, stated his opinion on the outlook for mining families if Ashley's proposal succeeded:

The noble Lord was also determined to remove boys of nine years of age, and to prevent those of ten, eleven, and twelve years old from working more than three days in the week. If the bill passed in that shape, hundreds of families would be driven into workhouses.⁴⁰⁵

One Wigan coal-owner was convicted twice in the space of one week for allowing females to work underground in his pits.⁴⁰⁶ However, women still continued to work in the pits after such cases. In May and July 1844, inquests were held on the bodies of two females who had been killed in Wigan pits.⁴⁰⁷ In Huddersfield, a coal-owner was convicted of employing females in disguise: a local constable 'saw the girls come out with coals; they were dressed like boys'.⁴⁰⁸ It was

⁴⁰⁵ Petition of 'Male and Female Workers', *House of Lords Journal*, 4 July 1842, p. 388; *Hansard* (Commons), 4 July 1842, Vol. LXIV, col.999.

⁴⁰⁶ Wigan Record Office, Wigan Borough Quarter Sessions, WQS/166, 19 Jan. 1844. A colliery company at Crompton, Lancashire, was convicted of allowing two boys under ten to work in their mines in which case it was stated that, 'their heads bore marks of the nature of the employ they had been put to, that of pushing wagons'. *Mining Journal*, 3 Feb. 1844; WQS/167, 21 Jan. 1844; *Mining Journal*, 10 Feb. 1844; *Mining Journal*, 30 Mar. 1844.

⁴⁰⁷ Wigan Record Office, Wigan Borough Quarter Sessions, WQS/168, Coroner's Expenses, 22 July 1844. Inquests on the bodies of Ann Lawson (6 May) and Jane Gore (10 July). Evidence of inquests, even from as late as 1850, is notoriously scarce and inaccurate. Tremenheere wrote from Wales in 1850, 'I have been stopped a couple of days here by the expectation of a summons to attend the inquest of those poor people who were killed the other day by a colliery explosion at Oldham to watch the evidence and see all fair. I had instructions yesterday about it from the Home Office, but as I have not heard from the Coroner today I suspect he has shuffled over the affair, as usual with them'. Tremenheere Family Papers, Packet 43, 'Letters of Interest', to Mrs Parker, 17 Oct. 1850.

⁴⁰⁸ *Mining Journal*, 6 Jan. 1844, Vol.XIV, p. 5.

alleged by Winter that other females were not as covert in their work practices. It was reported of a Wigan woman:

One such woman we have seen, now *landlord* of a public-house, who used to work down the pits, and who, when the law interfered with her rights, bade defiance to it, and, changing her bonnet for her husband's cap, and his place down the pit for her place at top, she would get out double as much coal as he could.⁴⁰⁹

However, the right of females to work underground was challenged by many moralists. A contributor to the *Mining Journal*, in 1844, remarked upon the continuing employment of Lancashire women underground and at pit-brows: 'It is the glory of Christian philanthropy to rescue the female character from degradation', he wrote, 'but its beautiful light seems not to have yet reached the more than Egyptian darkness of the coal mine'.⁴¹⁰

Nearly thirty years after the prohibition of women and young children, however, Binney, previously one of the most vehement opponents of women and children in coal mines, had grown doubtful about the benefits accruing from the legislation.

Though I was partly instrumental in getting the employment of women in this degrading fashion put an end to, the measure caused a great deal of trouble and I must admit, was accompanied by much individual hardship. Some of the women earned excellent wages, and when the Act came into operation the deprivation of employment caused them much suffering. A good many continued long afterwards to work on the sly. Three or four years after the Act had been passed I was going one day from Ince to Wigan, when I met a woman who had just got out of a pit. I said to her "I thought they did not allow you to work in

⁴⁰⁹ Winter, *The busy hives around us*, p. 77. The veracity of this folk-legend of a 'female Stakhanov' is doubtful, but the account is colourful nonetheless.

⁴¹⁰ *Mining Journal*, 17 Feb. 1844, Vol.XIV, p. 55.

the pit now?" and she said "No, they donnot; but one gets down on the sly. I cannot see that I am not so well employed there as anywhere else. I cannot see why women should not conduct themselves in pits as well as in factories. I have an old woman at home to support; I wish those chaps that got women taken out of the pits would pay me the 3s a week less wages which I get now". She had been used to getting 11s a week before but after the Act was passed, as she could only work 'on the sly' her wages were reduced to 8s a week. It was a pity to take them out of the pits so suddenly.'⁴¹¹

In common with most early factory legislation, therefore, the Mines Act did little for the working conditions of the majority of children and the restrictions placed upon women's work in some coal-districts impoverished many families.

In contrast to the more backward coal-districts, many of the large north-eastern enterprises applied the age restriction rigorously. Here, ironically, fewer openings for children and strong competition among parents to get boys employed as early as possible ensured very few violations of the Act. At the Londonderry collieries, for example, documentary proof of a boy's age was 'not needed often, as the parents all know the ages of each other's children, and if one were admitted under the legal age, all the rest would want to be. They come and tell us, if a boy gets in before 10 years old'.⁴¹² A similar practice existed at collieries owned by the Earl of Durham whose underviewer explained that the 'parents of others complain, if we by accident admit any boy under age'.⁴¹³ Lord Ashley, the most vociferous opponent of children's employment, admitted that: 'in justice to the great coal-owners of the

⁴¹¹ Greenwell, 'Underground conveyance of coals', p. 60. There was a general local opposition to the exclusion of women. An overlooker told Arthur Munby that the 1842 Act had been 'the worst thing that could be for both masters & workers. Can't get the work done, hardly, now, even with profuse wages: has thrown many a poor family out of work - parents don't know what to do with their girls, now.

Work was not too hard for the women - *they* never disliked it'. Hudson, *Munby*, p. 75.

⁴¹² (P.P. 1846, XXIV), p. 15.

⁴¹³ (P.P. 1846, XXIV), p. 63.

North, I must say, that if they had been the only parties with whom we had to deal, the necessity for this Bill would perhaps not have existed: they have exhibited, in many respects, care and kindness towards their people'.⁴¹⁴ The exclusion of children under ten was, moreover, easiest to implement in the North East where, uniquely among British coal-fields, the vast majority of children in ventilation and haulage were employed and paid directly by the owners.⁴¹⁵

The inability of inspectors to enter and inspect pits ensured regular evasion of the legislation among those who had not interest in excluding children. As Bartrip has suggested: 'It was one thing for an inspecting act to appear on the statute book - quite another for the inspector himself to appear on the shop-floor or at the coalface'.⁴¹⁶

Indeed, it is doubtful whether the Mines Commissioner ever entered a coal mine. Seven years after the Mines Act, Tremenheere was examined by the Lords' Committee on Accidents in Coal Mines at which the following exchange took place:

You are Inspector of Mines under the 5th and 6th Victoria, chapter 99, commonly called "Lord Ashley's Act" ? - Yes.

In the discharge of your duties in that capacity, it is your business to visit mines for the purpose of examining the condition of the population principally? - To visit them externally.

It is not your business to examine them underground? - Not at all.

Have you ever had charge of a mine? - No, I have never been in a mine at all.⁴¹⁷

⁴¹⁴ Cooper, *Speeches of the Earl of Shaftesbury*, 7 June 1842, p. 33.

⁴¹⁵ It is arguable that in the North East, the miners' strike of April 1844 may, in part, have been a response to the falling real value of mining families' incomes resulting from the exclusion of boys under ten years.

⁴¹⁶ Bartrip, 'British government inspection', p. 626.

⁴¹⁷ *Report from the Select Committee of the House of Lords Appointed to Inquire into the best Means of preventing the Occurrence of Dangerous Accidents in Coal Mines* (P.P. 1849, VII), pp. 24, 32., QQ.194-6, 261; Tremenheere later noted his objection to the appellation Inspector of Mines: 'I never

Even following the appointment of four inspectors after the Mines Act of 1850, any hope of effectively inspecting all pits was out of the question. In 1853, when the number of inspectors had risen to six, a return of the Mines Inspectors showed that the number of British collieries per inspector was in the region of 384.⁴¹⁸

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The Mines Act of 1842 was, to all intents and purposes, permissive legislation: only operable where it served a particular interest. As was pointed out at the time, the abuses of child labour complained of by the Children's Employment Commissioners were 'little likely to be removed by Acts of Parliament alone, and never if Acts of Parliament find none but official hands to aid in enforcing them'.⁴¹⁹ Implementation was practically impossible: while the *Quarterly Review* called indignantly for a 'mining police', Ainsworth sardonically asked the Commons, 'how could they prevent a man from taking his own children into a pit? They must have a policeman at every spot'.⁴²⁰

Underlying the contemporary emphasis upon legislation were the continuing increases in competition and demand brought about by an expanding rail network.

discharged the duties that the name implies'. *The Times*, 25 Aug. 1871; Tremeneere Family Papers, Packet 120. The Home Secretary, Graham, certainly regarded Tremeneere as an 'Inspector of Mines and Collieries', PRO HO45/339/1, Home Office to Treasury Office, 23 Nov. 1843.

⁴¹⁸ PRO HO45, O.S. 1490. Cited in Bartrip, 'British Government Inspection', p. 614. Since a colliery usually comprised more than one pit, the number of pits per inspector was even greater.

⁴¹⁹ Ferguson, 'Colliers and collieries', p. 160.

⁴²⁰ Ferguson, 'Colliers and collieries', p. 188; *Hansard (Commons)*, vol. LXIV, 5 July 1842., col.1002.

These further reduced the profitability of marginal producers (who employed most children) by bringing them into closer competition with more efficient sectors of the industry. The deeper and more productive west Yorkshire coal-seams (or 'Barnsley coal'), for example, were not worked until 1859.⁴²¹ Primitive coal mines, however, continued to operate despite the attrition of their number as the national market developed (and in spite of the Mines Act). As has been pointed out, many harsh and rudimentary haulage techniques survived until well into the twentieth century.

A number of conclusions therefore emerge. First, as a result of increasing innovation in underground haulage, there was a decline in the proportion of very young children employed in most coal-mining districts in the first half of the nineteenth century. Secondly, because of the chronic problem of losses incurred through explosions, the possibility of an age restriction of ten years, offered by the Mines Act, permitted owners and managers in advanced collieries with extensive ventilation systems the opportunity to exclude an increasingly inefficient and dangerous sector of its labour force. This was an opportunity that the most powerful and efficient enterprises were anxious to embrace. Such an exclusion would have been particularly easy to effect in the North East, where, uniquely among British coal-fields, all child workers were employed directly by the coal-owners. Thirdly, the backward coal-districts were afforded virtual immunity from inspection or prosecution under the Act.

Finally, it is clear that technological change in the mining industry, as much as humanitarianism, was behind the Act of 1842. Despite the clear trend toward a later age of recruitment in coal mining, the aims of the reformers reveal a profound misunderstanding of the workings of the industry. Ashley's original proposal to

⁴²¹ Buchanan, *Industrial archaeology in Britain*, p. 73.

exclude all boys below thirteen, for example (had such a reform been achievable), would probably have put a halt to a great deal of British coal production.

By the time the legislation was passed children were increasingly being excluded from the most efficient mining enterprises. As Tremenheere reflected in 1858, 'the tendency of the more scientific working of the collieries, which was becoming more general even before the Act passed ... is to make the labour of very young boys far less necessary underground than it used to be'.⁴²² The Mines Act was passed during an unprecedented period of decline in the usefulness of child labour to the coal-mining industry. Although humanitarians attempted to force the pace of child-labour reform, it proceeded at a rate determined largely by technological advances and in the interests of the owners of the most highly capitalised and efficient coal mines.⁴²³

⁴²² *Rep. Comm. on Population in Mining Districts* (P.P. 1857-8, XXXII), p. 8.

⁴²³ The reform was largely a result of a mutually fortuitous alignment between what the *Edinburgh Review* called a 'vast amount of floating philanthropy' (a reference to the wide variety of reforming groups of the period) and the economic interests of the most powerful coal-owners. Greg, 'Juvenile and female labour', p. 130.

Chapter six. The physical stature of coal-mining children as an indicator of welfare

Historians and biologists increasingly accept that studies of the welfare of historical populations require a consideration of physical development. Variation in human stature is now regarded as a major indicator of the nutritional status, and, implicitly, the welfare, of historical populations; moreover, records of historical heights remain among the most abundantly surviving anthropometric evidence. This chapter examines influences upon the stature of nineteenth-century mining children.

The historical relationship between nutrition and height has been examined by Floud and others who have produced important findings from records of military recruits.⁴²⁴ Their research identified changes in the heights of a large sample of the British population over the last two centuries and sought to ascribe these changes to variations in nutritional status (conventionally defined as gross nutritional intake minus deleterious environmental and genetic influences). The work of Floud and others indicated a secular increase in the historical heights of British people over the last two centuries; however, they identified a temporary decline in the average stature of those born in the second quarter of the nineteenth century. They further suggested that this decline resulted largely from poor nutritional status. Moreover, modern studies of nutritionally deprived persons in economically underdeveloped regions largely support these findings, and have firmly established a relationship between short stature and poor nutritional status.

⁴²⁴ See Floud, Wachter and Gregory, *Height, health and history*; Komlos, 'Secular trend'; Floud, Wachter and Gregory, 'Measuring historical heights'; Komlos, 'Further thoughts'; Floud, Wachter and Gregory, 'Further thoughts'; Nicholas and Steckel, 'Heights and living standards'; Nicholas and Oxley, 'Living standards of women'.

Analysis of historical heights clearly vies with orthodox scrutiny of real incomes as a method of measuring the welfare history of working-class populations. Floud and others have drawn an important distinction between evidence of wages and records of heights for the period 1825-1850. In their view, 'even if there were substantial gains in real incomes or in real wages for the working class in the second quarter of the nineteenth century, these were more than outweighed by other features of the environment - urbanisation, disease, diet and possibly work intensity'.⁴²⁵ Economic historians' estimates of variations in levels of income differ widely but it might be said that there is an underlying orthodoxy that accepts the primacy of real incomes in the quantification of historical welfare. There is, moreover, a general acceptance that levels of real income were rising throughout the period 1825 to 1850.⁴²⁶ It is this orthodoxy that is implicitly challenged by the increasing weight given to anthropometric evidence. Floud and others have gone so far as to suggest that conventional economic indices have 'misled scholars concerned with the impact of industrialisation and economic development on the British people'.⁴²⁷

The relationship between nutrition and height, therefore, proves valuable to economic and social historians because of the possibility that the heights of past populations can be used as an index of their welfare. Indeed, in the ensuing methodological debate, Komlos has firmly linked the study of historical stature to welfare and has referred to a 'biological standard of living'. This view is shared by biologists. In a recent edition of his book on human growth, the auxologist James Tanner has suggested that 'It does look ... as though height can indeed be used as a

⁴²⁵ Floud, Wachter and Gregory, *Height, health and history*, p. 305.

⁴²⁶ Crafts, 'Real Wages'; Nicholas and Steckel, 'Heights and Living Standards', p. 937.

⁴²⁷ Floud, Wachter and Gregory, *Height, health and history*, p. 154; Komlos, 'Secular trend', p. 144.

proxy for health ... height is a useful - perhaps the most useful - measure of healthiness'.⁴²⁸

Floud and others have been careful to define nutritional status as a broad indicator of environmental and genetic factors as well as a measurement of the quantity and quality of food intake. Indeed, an emphasis upon conventional definitions, such as food intake, might divert attention away from specific environmental or occupational influences upon stature. Some scholars have addressed the broad effects of environment upon stature. Nicholas and Steckel, for example, have drawn a broad distinction between transportees from urban and rural environments. They concluded that people from agricultural districts had a small height advantage over urban persons; but they did not isolate specific occupations. Nicholas and Oxley have argued that occupations may have had an influence upon stature. Although Floud and others have compared the stature of broad socio-economic groups, the effects of specific occupations upon historical heights have not been discussed.⁴²⁹ There has been no comparison between the stature of workers in different occupations. This omission, presumably, results from difficulties involved in comparing the heights of a sufficiently large sample of individual occupations drawn from the transportation or recruitment data: yet it might be thought vital to take account of occupational factors affecting historical stature if such influences can be shown to have existed. Phyllis Eveleth, for example, has highlighted the importance of genetic controls upon growth:

⁴²⁸ Komlos, 'Secular trend', p. 115; Tanner, *Foetus into man*, p. 163.

⁴²⁹ Nicholas and Steckel, 'Heights and living standards', pp. 941, 944-50; Nicholas and Oxley, 'Living standards of women', p. 741; The occupation groups of the military recruits were 'subdivided according to sectors of the economy'. Floud, Wachter and Gregory, *Height, health and history*, p. 217; Floud, *Long-term changes in nutrition, welfare and productivity in Britain*.

Nutrition does play a most important part in growth; however, not all differences among populations are the result of poor nutrition. If such were the case, by supplying all peoples with adequate nutrition, we could eliminate population differences. This thinking ignores the very real effect of the genes.⁴³⁰

The Commissioners of 1840-42 were interested in the physical condition and development of coal-mining children. The Sub-Commissioners were asked to report: 'Whether in *stature*, there is an appreciable difference at any age, and what age, and in either sex, between Children early and constantly employed in the description of labour in question, and Children of the same age and station in the same neighbourhood not put to any such labour; and whether the physical deterioration of the Child employed in such labour is, in any case which you have an opportunity of examining, still visible in the adult'.⁴³¹ The reports of the Sub-Commissioners contained many detailed references to both the physical condition and the diet of adult coal miners and their children.

This chapter examines the anthropometric evidence that was collected and asks whether discrete environmental factors, or height selection by occupation, could have affected the heights of this single occupational group. It presents evidence of widespread short stature among coal-mining children, together with comparative cross-sectional measurements of the heights of children in different occupations who were born between 1823 and 1835. The chapter concludes that occupational environment, and not poor nutritional intake, was the major contributory factor to the comparative short stature of coal miners in the second quarter of the nineteenth century.

⁴³⁰ Eveleth, 'Population differences in growth', p. 373.

⁴³¹ 'Instructions from the Central Board of the Children's Employment Commission to the Sub-Commissioners' (emphasis in original), Appendix (P.P. 1842, XV), p. 265.

I

Nineteenth-century coal miners and their children were of shorter stature than people in other occupations. The Children's Employment Commissioners concluded:

employment in these mines commonly produces in the first instance an extraordinary degree of muscular development accompanied by a corresponding degree of muscular strength; this preternatural development and strength being acquired at the expense of the other organs, as is shown by the general stunted growth of the body.⁴³²

John Leifchild described the comparative stature of colliers on the Tyne: 'In collieries located in the vicinity of a nautical population, the variation in stature between pit boys and the neighbouring youths was not so apparent as in pits surrounded by a large number of agricultural labourers'.⁴³³ Indeed, the Sub-Commissioners of 1842 were unanimous in their descriptions of the short, or stunted, stature of coal miners. A report from the Forest of Dean coal-field noted that 'colliers who have been habituated, from childhood, to work in pits where the veins of coal are thin, and the workings consequently contracted, have certainly a remarkably stunted appearance, and the boys are commonly of low stature for their respective ages'.⁴³⁴ From the thin coal-seams of south Gloucestershire, a Sub-Commissioner reported that underground work was performed 'by young lads, whose size is suited to the contracted space... The same stunted character of growth, is remarkable in those employed at the "low

⁴³² Conclusion 25 (P.P. 1842, XV), p. 258.

⁴³³ (P.P. 1842, XVI), p.525.

⁴³⁴ (P.P. 1842, XVII), p. 5.

delf^m or narrow seam, collieries'.⁴³⁵ In Lancashire, it was remarked that colliers were 'considerably shorter in stature than the agricultural labourers, though much the same in that respect as other artisans working in towns'. A Wigan surgeon observed that coal-mining children were 'smaller, and have a stunted appearance'.⁴³⁶ In Yorkshire, coal miners were 'notoriously a diminutive race of men'.⁴³⁷ Their children, nevertheless, were said to be 'healthy, robust, and, excepting in stature, well formed'. A Yorkshire Sub-Commissioner reported: 'In *stature* there is an appreciable difference, from about the age at which the children begin to work, between children employed in mines and children of the same age and station in the same neighbourhood not so employed; and this shortness of stature is generally, though to a less degree, visible in the adult'.⁴³⁸

Little evidence exists, however, to suggest that colliers were grossly under-nourished: on the contrary, there is much evidence to indicate that they enjoyed an above average food intake by nineteenth-century working-class standards. Their wages, moreover, were consistently higher than those of agricultural workers and general labourers for the whole of the nineteenth century.⁴³⁹ Leifchild did not, for example, suggest that agriculturists enjoyed a more nutritious diet than the colliers and he described the food intake of an average Northumbrian colliery family as satisfactory.⁴⁴⁰ Even in the marginal coal-district of south Gloucestershire it was

⁴³⁵ (P.P. 1842, XVII), pp. 31, 38.

⁴³⁶ (P.P. 1842, XVII), p. 188.

⁴³⁷ (P.P. 1842, XVII), p. 66.

⁴³⁸ (P.P. 1842, XVII), H.7 (emphasis in original).

⁴³⁹ Mitchell, *British historical statistics*, p. 153.

⁴⁴⁰ An average pit family enjoyed a diet containing mutton, flour, maslin (a mixture of different sorts of grain), bacon, potatoes, oatmeal, butter, coffee, tea, sugar, pepper, salt, mustard, and beer. Average 'from several instances' of pit families at Urpeth, Durham. (P.P.1842, XVI), p. 536.

reported by a Sub-Commissioner: 'the colliers, as a class, are considered better off than the agricultural labourers'.⁴⁴¹ As a north-east colliery physician pointed out, the larders of collier families 'abound in potatoes, bacon, fresh meat, sugar, tea, and coffee, of which good things the children as abundantly partake as the parents'.⁴⁴² The diet of colliers at Stalybridge contained 'potatoes and bacon, and sometimes beef or mutton' and a Lancashire colliery underlooker noted that 'colliers live very well: a collier gets his breakfast of bread and butter, and coffee without milk ... Before he goes down at six in the morning he takes a piece of bread and cheese with him'.⁴⁴³ Engels described the standard of living of coal miners in general as 'fairly good' and their wages as 'high in comparison with those of the agricultural labourers surrounding them'.⁴⁴⁴ In Yorkshire a contrast was drawn 'between the broad stalwart frame of the swarthy collier ... and the puny, pallid, starveling little weaver, with his dirty-white apron and feminine look'. A Yorkshire weaver thought that 'collier children are stronger, better fed, and healthier ... take 100 collier-boys and 100 weaver-boys, and the collier boys will be the strongest and healthiest'.⁴⁴⁵

⁴⁴¹ (P.P. 1842, XVII), p. 34.

⁴⁴² (P.P. 1842, XVI), p. 662.

⁴⁴³ (P.P. 1842, XVII), p. 203. Another underlooker noted, 'It is general practice among colliers to breakfast before they go to the pit, and to take their substantial meal after they return home. The meal taken in the pit is (in at least five cases out of six) a luncheon consisting of bread, and sometimes of bread and meat, or bread and cheese. They have oatmeal porridge and milk for breakfast, and sometimes onion porridge. They have generally meat and potatoes for dinner when they come out of the pit - a small portion of meat and a good deal of Yorkshire pudding with it'. (P.P. 1842, XVI), p. 170.

⁴⁴⁴ Engels, *Condition of the working class*, p. 250.

⁴⁴⁵ A Yorkshire Sub-Commissioner noted: 'There cannot be a stronger proof that it is not muscular exertion which hurts a man. Barnsley is a capital place for comparison between weavers and colliers. The weaver sits pottering over his work for 15 hours, and spends a third of his time in wishing it done.'

Miners were widely reported to have been physically well developed. Sub-Commissioner James Mitchell thought that 'the colliers, as a race of men, in most districts, and in Durham amongst the rest, are not of large stature, but they always appear strong and vigorous'.⁴⁴⁶ Similarly, the muscles of the Lancashire children were 'developed to a degree amounting to deformity ... the muscles of the back and loins stood from the body and appeared almost like a rope passing under the skin'.⁴⁴⁷ The muscles of west Yorkshire 'hurriers' were said to be 'extra-ordinarily firm and prominent, especially those of the shoulders, arms, and legs'.⁴⁴⁸ Thomas Tancred, reporting for the Midland Mining Commission in 1843, ascribed to the miners of West Bromwich 'a development of the muscles of the chest, back, and arms, which could not have been surpassed in the athletæ who won the laurel-wreaths at the Grecian games'.⁴⁴⁹ The source of their favourable physical development was generally put down to a good diet. Jelinger Symons thought 'that the strength and robustness of the children is owing, first, to their ample and nourishing food; secondly, to their work, hurrying in the pits being a healthful gymnastic exercise, where not carried to great excess'.⁴⁵⁰ A colliery surgeon ascribed the superior health of adult north-east miners to the 'ample means which they generally possess of providing sufficient supplies of wholesome food for their families'.⁴⁵¹ The surgeon

The collier generally ... strips and sets to work as if ... the hardest work while there was the shortest way out'. (P.P. 1842, XVI), pp. 193, 265.

⁴⁴⁶ (P.P. 1842, XVI), p. 143.

⁴⁴⁷ (P.P. 1842, XVII), p. 188.

⁴⁴⁸ (P.P. 1842, XVII), p. 65.

⁴⁴⁹ (P.P. 1843, XIII), p. 26.

⁴⁵⁰ (P.P. 1842, XVI), p. 193.

⁴⁵¹ (P.P. 1842, XVI), p. 666.

to Killingworth, Gosforth and Coxlodge Collieries, Northumberland, noted that pitmen 'are shortened in stature' but 'are still muscular'.⁴⁵²

In the advanced north-east coalfield, where seam heights averaged from four to five feet, miners were also said to be shorter than neighbouring populations. In all other respects, however, they were described as physically well developed. Sub-Commissioner James Mitchell thought that 'the colliers, as a race of men, in most districts, and in Durham amongst the rest, are not of large stature, but they always appear strong and vigorous'.⁴⁵³ His report on the south Durham coal-district suggested that, 'medical evidence in this as in every other district, describes the colliers as a strong healthy race... The collier children always look well, and the medical evidence abundantly proves their general good health'.⁴⁵⁴

Moreover, an ordinal survey conducted by one of the Sub-Commissioners on the physical development of children in different occupations offers striking comparisons. The children were classified 'under the order of "very muscular," "muscular," "at par," and "below par."' The first including those whose fibres were extremely prominent and well-defined, and the last as being lax, slender, and feeble; the proportion of the latter [among colliers] being only 10 in 229, the circumference of the former increasing with their diminished height: whilst in the potteries, where children labour as mould-runners in excessive heat, the proportion of the same class

⁴⁵² (P.P. 1842, XVI), p. 665.

⁴⁵³ (P.P. 1842, XVI), p. 143.

⁴⁵⁴ (P.P. 1842, XVI), p. 143. Lack of proper nutrition as a cause of diminished stature was mentioned only in the south Wales coal district, where it was suggested that mining children were 'half starved below, as they never get their meals like other people, and *they never grow like other children*' (emphasis in original). (P.P. 1842, XVII), p. 485.

is shown to be 106 in 150, with their heights and circumferences directly reversed; the farm labourers far out-measuring both'.⁴⁵⁵

Analysis of evidence to the C.E.C. indicates that, of 86 surgeons connected with collieries, 22 made a specific reference to the short stature of coal miners and none mentioned tall stature. Of the same number, 16 said that the diet of the miners was good, and only one described it as poor (two described their diet as irregular).⁴⁵⁶ Anecdotal evidence, therefore, depicts early nineteenth-century coal miners as predominantly short, or stunted, but nevertheless well fed and muscular.

The broad body of anecdotal evidence presented to the C.E.C., like that contained in the other great Victorian royal commissions, should not, of course, be accepted uncritically. Nevertheless, the view that colliery children were 'stunted' but well-fed was widely held. Moreover, no particular biases in respect of stature and nutrition can be deduced from the 1842 evidence: while apologists for mine owners would not seek to draw attention to stunted growth, those opposed to child labour would be unlikely to have emphasised the generally healthy appearance of the children.

II

Anthropometric evidence collected by the commission in 1841 supports the large number of anecdotal accounts of short stature among coal miners. Two Sub-Commissioners recorded the heights of 857 children born between 1823 and 1835 who were employed in collieries, worsted mills, potteries and on farms together with

⁴⁵⁵ (P.P. 1842, XVII), pp. 65-6. See figures 12 and 13.

⁴⁵⁶ Based upon observations of 4108 individuals in evidence to the C.E.C. (P.P. 1842, XVI, XVII).

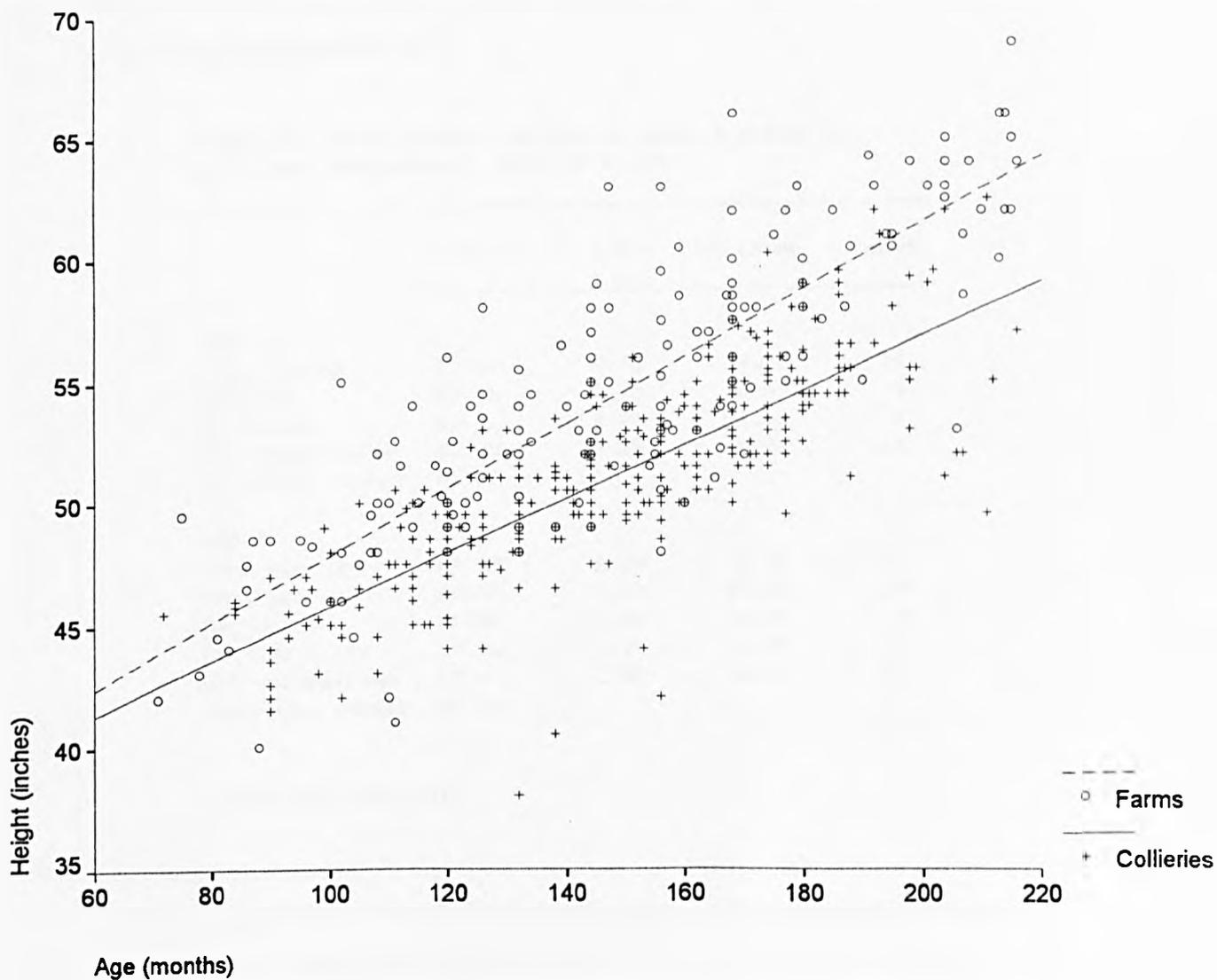
the chest circumferences of 791 of the children.⁴⁵⁷ These records contain valuable comparative data on the physical dimensions of children in different occupations. They have, however, been overlooked by the principal investigators of historical stature.⁴⁵⁸

The scatterplan and regression lines in figure 8, drawn from the C.E.C. measurements, show that boys employed on farms had a considerable height advantage over those employed in coal mines. The heaping on the age axis at the year and half-year indicates a tolerable level of 'rounding' of ages and the absence of heaping on the height axis suggests some accuracy in measurement. The results clearly show colliery boys to have been substantially shorter than those in other occupations.

⁴⁵⁷ (P.P. 1842, XVI), App.C. pp. 212-14. The Sub-Commissioner recorded 'the measurement in height, and in girth round the breast, immediately under the arms, of fifty collier boys and fifty collier girls'. App.D, p. 215., App.E, p. 216; (P.P. 1842, XVII), p. 65. 'I measured round the chest, and from head to foot'. App. A, pp. 77-86, tables 1-5. Measurements of north-east colliery children were made, but not included in the report. Leifchild noted: 'The average of such measurements ... would be superfluous'. (P.P. 1842, XVI), p. 525. The data are in machine-readable form in Kirby, *Anthropometric data relating to working-class children, 1841*.

⁴⁵⁸ Jordan identified one of the two sets of data recorded in 1841 but claimed that the Sub-Commissioner merely 'reported summed observations' thus overlooking the tabulated appendices containing the measurements of individual children. Jordan, 'Social change, height, and body mass', p. 177.

Figure 8. Stature of males by age and occupation (collieries and farms), 1841. Scatter and linear regression.



Source: P.P. 1842, XVI, App.C. pp. 212-14., App.D, p. 215., App.E, p. 216; P.P. 1842, XVII, App. A, pp. 77-86, tables 1-5.

Table 24 shows the mean, S.D. and variance of the heights of 587 males in four occupations. In a few cases, the breakdown of occupation by age has resulted in small and unreliable samples, but the trend toward short stature among coal-mining children is clear.⁴⁵⁹ Figures on stature taken from Leonard Horner's survey of 8,469 boys from towns in the north of England in 1837 are incorporated to provide an urban group for comparison.⁴⁶⁰

Table 24. Age-specific heights of male children in different occupations, 1841 (N = 587).

| | Mean | S.D. | Variance | Cases |
|------------------|-------|------|----------|-------|
| Age 8 | | | | |
| Coal mining | 45.81 | 2.05 | 4.20 | 16 |
| Farming | 47.88 | 3.73 | 13.89 | 6 |
| Potteries | 43.81 | 4.05 | 16.43 | 4 |
| All occupations | 45.98 | 2.98 | 8.90 | 26 |
| (northern towns) | 45.94 | | | |
| Age 9 | | | | |
| Coal mining | 47.26 | 2.00 | 3.98 | 30 |
| Farming | 48.45 | 4.15 | 17.25 | 10 |
| Potteries | 48.50 | 2.22 | 4.93 | 8 |
| Worsted mills | 47.50 | 1.41 | 2.00 | 2 |
| All occupations | 47.71 | 2.57 | 6.61 | 50 |
| (northern towns) | 47.75 | | | |

[continued overleaf]

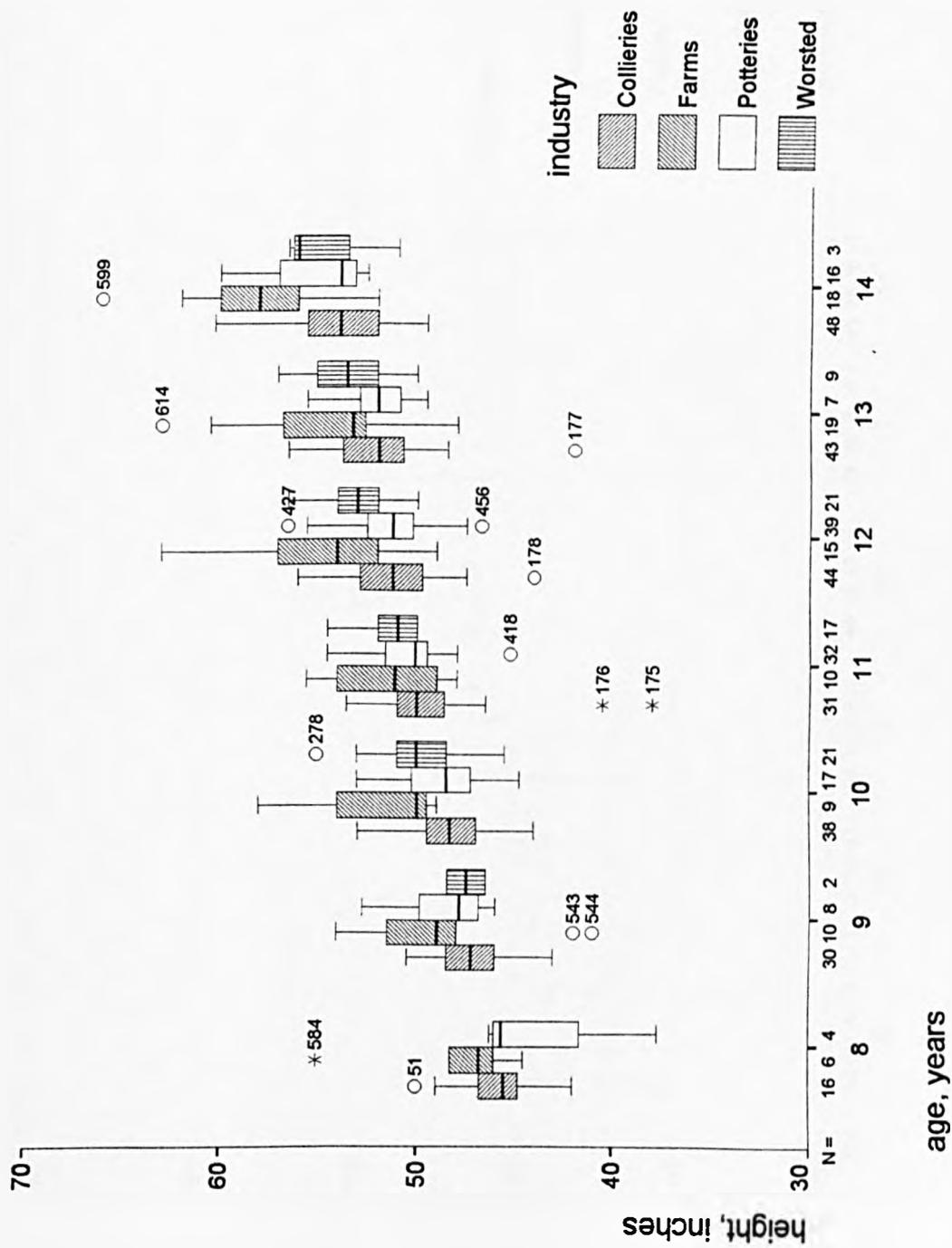
⁴⁵⁹ The potteries children were measured during July 1841 by J.B. Davis, surgeon, of Shelton, Staffordshire. Davis noted: 'I am surprised to find my own little boy taller than any one of the 100, considering his age. He is 9 years and 10 months old; his height is 4 feet 6¼ inches, and circumference 1 foot 11½ inches'. Davis to Scriven, 24 July 1841. (P.P. 1842, XVII), p. 100.

⁴⁶⁰ Horner hoped to arrive at an index of children's heights against which the ages of those applying for factory work might be judged. The children were from Manchester, Bolton, Stockport, Preston, Leeds, Halifax, Rochdale, Huddersfield, Skipton and neighbouring districts. Horner, 'Practical application', pp. 270-2.

| | | | | |
|------------------|------------|------|-------|-----|
| Age 10 | | | | |
| Coal mining | 48.34 | 2.19 | 4.80 | 38 |
| Farming | 51.86 | 3.33 | 11.08 | 9 |
| Potteries | 48.84 | 2.16 | 4.68 | 17 |
| Worsted mills | 49.86 | 2.03 | 4.13 | 21 |
| All occupations | 49.19 | 2.50 | 6.27 | 85 |
| (northern towns) | 49.38 | | | |
| Age 11 | | | | |
| Coal mining | 49.24 | 3.08 | 9.47 | 31 |
| Farming | 51.53 | 2.63 | 6.92 | 10 |
| Potteries | 50.56 | 1.99 | 3.96 | 32 |
| Worsted mills | 51.47 | 1.47 | 2.17 | 17 |
| All occupations | 50.39 | 2.55 | 6.50 | 90 |
| (northern towns) | 50.69 | | | |
| Age 12 | | | | |
| Coal mining | 51.31 | 2.34 | 5.47 | 44 |
| Farming | 54.73 | 3.64 | 13.25 | 15 |
| Potteries | 51.33 | 2.16 | 4.68 | 39 |
| Worsted mills | 52.93 | 1.74 | 3.03 | 21 |
| All occupations | 52.04 | 2.65 | 7.01 | 119 |
| (northern towns) | 52.19 | | | |
| Age 13 | | | | |
| Coal mining | 52.09 | 2.41 | 5.83 | 43 |
| Farming | 54.59 | 3.86 | 14.93 | 19 |
| Potteries | 52.07 | 1.97 | 3.89 | 7 |
| Worsted mills | 53.44 | 2.52 | 6.34 | 9 |
| All occupations | 52.86 | 2.97 | 8.80 | 78 |
| (northern towns) | 53.82 | | | |
| Age 14 | | | | |
| Coal mining | 54.02 | 2.28 | 5.18 | 48 |
| Farming | 58.17 | 3.33 | 11.12 | 18 |
| Potteries | 55.11 | 2.65 | 7.04 | 16 |
| Worsted mills | 54.50 | 3.04 | 9.25 | 3 |
| All occupations | 55.12 | 3.05 | 9.33 | 85 |
| (northern towns) | 55.88 | | | |
| Age 15 | | | | |
| Coal mining | 55.61 | 1.93 | 3.71 | 32 |
| Farming | 58.29 | 2.36 | 5.57 | 7 |
| Potteries | 59.44 | 3.16 | 9.97 | 12 |
| Worsted mills | 54.17 | 2.36 | 5.58 | 3 |
| All occupations | 56.73 | 2.86 | 8.19 | 54 |
| (northern towns) | no figures | | | |

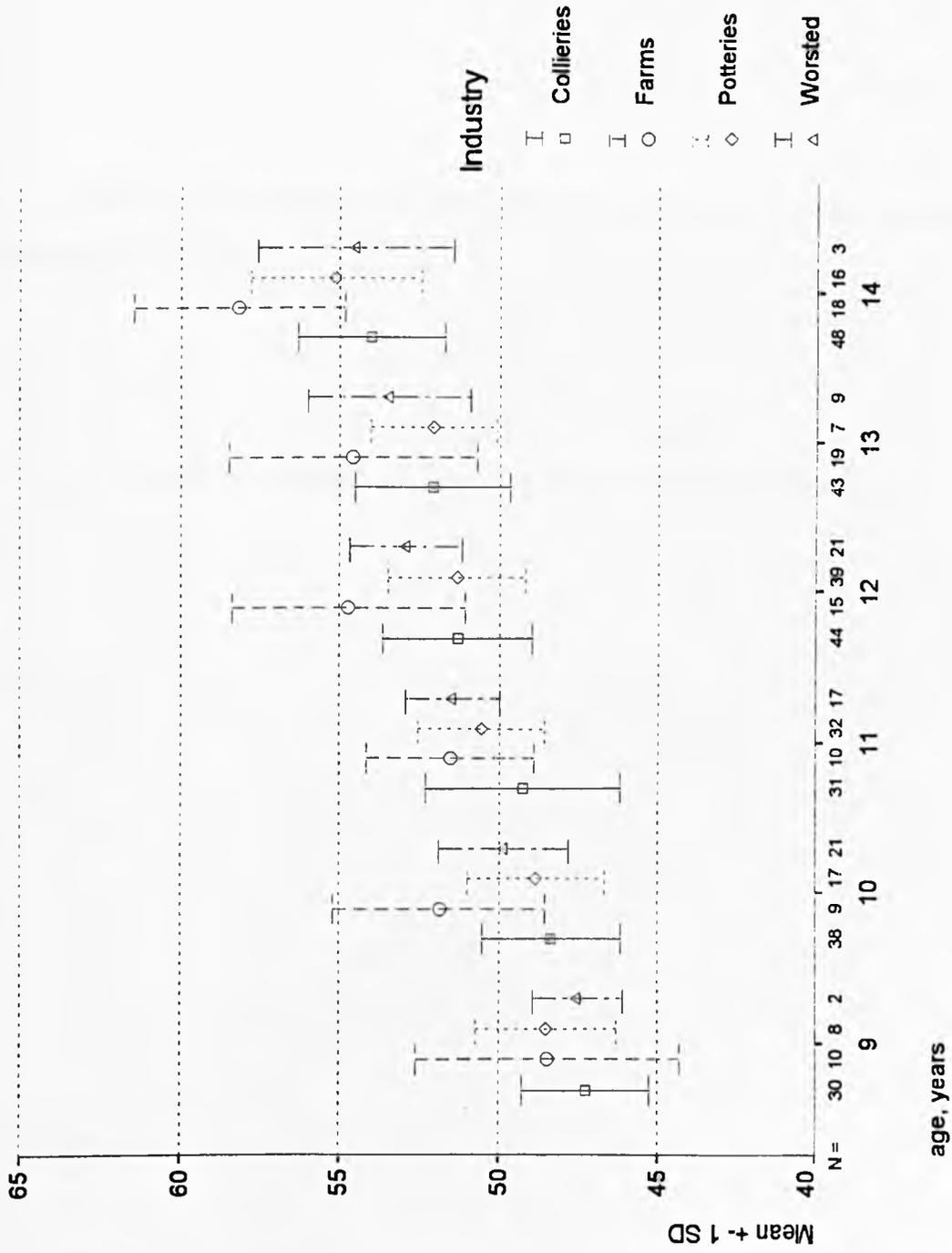
Sources: C.E.C. (P.P. 1842, XVI), App.C. pp. 212-14., App.D, p. 215., App.E, p. 216; C.E.C. (P.P. 1842, XVII), p. 65., App. A, pp. 77-86, tables 1-5; Horner, 'Practical application', p. 271

Figure 9. Boxplots of height distributions by occupation: males, 1841.



Source: P.P. 1842, XVI, App.C. pp. 212-14., App.D, p. 215., App.E, p. 216; P.P. 1842, XVII, App. A, pp. 77-86, tables 1-5.

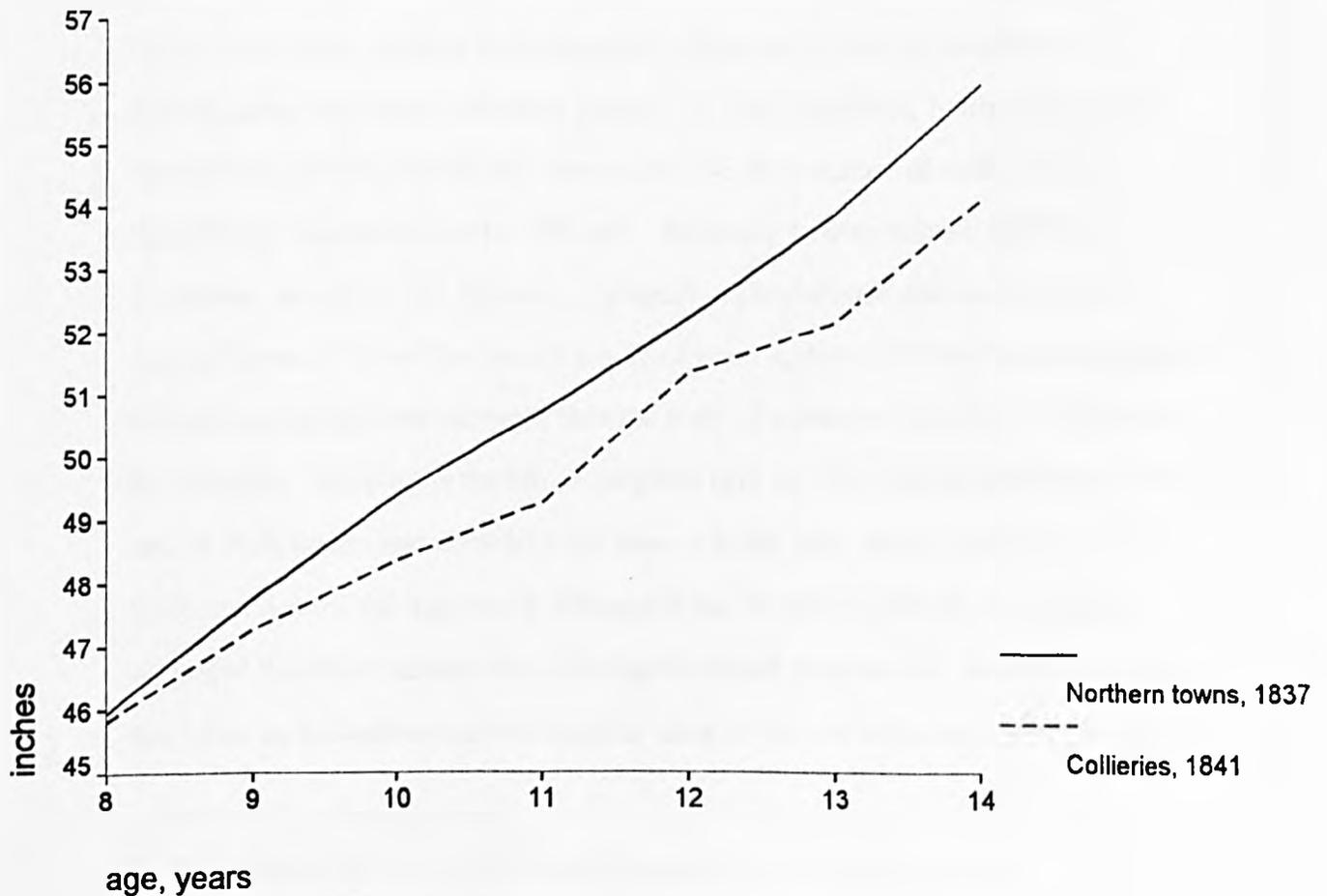
Figure 10. Age-specific SD of stature by age and occupation: males, 1841.



Source: P.P. 1842, XVI, App.C. pp. 212-14., App.D, p. 215., App.E, p. 216; P.P. 1842, XVII, App. A, pp. 77-86, tables 1-5.

The difference in stature between collier boys and those from northern towns is best seen in figure 11.

Figure 11. Stature of boys: northern towns and collieries



Source: Homer, 'Practical application', p. 271; P.P. 1842, XVI, pp. 212-16; P.P. 1842, XVII, pp. 77-80.

Coal miners and their children were comparatively shorter than other occupation groups but, paradoxically, they appear to have been better nourished. In the absence of a poor nutritional intake, therefore, the shorter stature of miners may have resulted from occupational or environmental factors.

III

One possible cause of short stature among coal-mining children is that a relationship existed between the heights of coal-seams and the stature of coal miners. Coal miners traditionally lived in physical or cultural isolation from wider society. In 1808, for example, Robert Bald described colliers as a 'distinct community, intermingling very little with other classes'.⁴⁶¹ John Leifchild, in his report to the Commission of 1842 was of the opinion that the short stature of colliers was 'hereditarily transmitted to the children'. Referring to underground working conditions, he noted 'The hewers ... generally rather stunted and curvilinear, are quite at home. A form like that of a note of interrogation could not be better adapted to these narrow and low passages than the body of a practised hewer'.⁴⁶² Elsewhere, he remarked, 'stooping is the law of progress here as, alas, too frequently elsewhere: men of little bodies and short legs are most at home here, hence come that dorsal curve and bow of the legs which distinguish the hereditary pitman'.⁴⁶³ Leifchild suggested that short stature was an intergenerational phenomenon and that evidence of this 'must be looked for and estimated in some of the old collieries where the labour

⁴⁶¹ Bald, *General view of the coal trade*, p. 72, cited in Hair, 'Social history', p. 25.

⁴⁶² (P.P. 1842, XVI), p. 525; Leifchild, 'Life, enterprise and peril', pp. 341-2.

⁴⁶³ Leifchild, 'Life and Labour in the Coal Fields', p. 348. Rachitic causes of short stature are discussed below.

has been the uninterrupted occupation of generations. Conclusions deduced, for example, from the appearance of the work people in the newer collieries ... would be partially fallacious'.⁴⁶⁴ A contributor to the *Penny Magazine* observed in 1835 that 'the unions which they form [are] almost exclusively confined to families whose pursuit is similar to their own ... In these respects they are quite a distinct race from the neighbouring peasantry ... The colliers who work in mines where the seam of coal is of sufficient thickness to permit the free use of muscular action, are erect and of good figure; while in others where the seam is of smaller dimensions, the miners have the spine permanently curved, and the legs frequently bowed'.⁴⁶⁵ A Lancashire Sub-Commissioner observed in 1841 'that the colliers intermarry very much, and some portion of the deterioration in respect to their stature and physical condition is probably congenital'.⁴⁶⁶ In 1861, after twenty years' experience of north-eastern pit life, Leifchild wrote in similar terms:

in the north, where the race has so long continued isolated, the pitman born and bred differs in his configuration from any other operative. His stature is rather diminutive, his figure disproportionate, his legs are more or less bowed, his chest protrudes, and his arms are oddly suspended... In all these particulars we note the hereditary features of a class working in darkness and in constrained positions. Other men could not perform the work, and therefore the descendants of genuine pitmen do not look like other men.⁴⁶⁷

⁴⁶⁴ (P.P. 1842, XVI), p. 525.

⁴⁶⁵ Anon., 'The collieries', p. 123.

⁴⁶⁶ (P.P. 1842, XVII), p.188; The term *congenital* might be taken at this period to mean *genetic*, both terms having been conflated before a more scientific distinction was applied in the later nineteenth century.

⁴⁶⁷ Leifchild, 'Life, enterprise and peril', pp. 358-9.

In view of contemporary observations of the physical distinctiveness of miners, it is likely that mining communities were populated by a distinct genotype. Coal miners were a group of physically normal short people who had been selected for their facility of access to narrow coal-seams. The persistence of the short genotype was probably enhanced by a high degree of occupation succession between the members of coal-mining families. Indeed, there is an established positive correlation between parents' heights and the adult heights of their children; shorter adults have also been shown to grow at a slower rate during childhood.⁴⁶⁸ As Roderick has pointed out, 'there is regression between fathers' heights and sons' heights ... short men produce sons who are taller than themselves, but shorter than the average male member of the population'.⁴⁶⁹

Such modern findings were prefigured by mid-nineteenth-century observers of mining communities. The existence of a distinct genetic category in colliery communities was described by Leifchild in 1862: 'Nowhere else in these days can be seen in our country long-isolated communities of working men who have associated chiefly with one another, intermarried in pit families, and thus acquired the transmitted defects and the uninterrupted habits of a distinct order of workpeople'.⁴⁷⁰

Contemporary observers such as Leifchild, however, rather than identifying the selection of a distinct shorter genotype, believed that the mining environment exercised a direct physical effect upon heredity in colliery villages. They tacitly

⁴⁶⁸ Correlation of heights of parents and fully grown children among 125 Belgian families resulted in the following: Parent-child, 0.51; father-son, 0.54; mother-son, 0.53; mother-daughter, 0.47; father-daughter, 0.52, Tanner, *Foetus into Man*, p. 123; The effects of assortative mating might also be taken into account, where there is a reported positive correlation of 0.258. McManus and Mascie-Taylor, 'Human assortative mating for height' pp. 617-23.

⁴⁶⁹ Roderick, *Man and heredity*, p. 155.

⁴⁷⁰ Leifchild, 'Life, enterprise and peril', p. 359.

accepted the prevailing, pre-Mendelian, theory of inheritance which held that environmentally induced effects, or mutilations, could directly influence genetic material and that characteristics acquired by this means could be transmitted to any offspring. Indeed, a recurring theme in descriptions of nineteenth-century coal miners was a relationship between narrow working conditions and their physical shortness. In reference to underground working conditions Leifchild observed, 'stooping is the law of progress ... men of little bodies and short legs are most at home here, hence come that dorsal curve and bow of the legs which distinguish the hereditary pitman'.⁴⁷¹ William Wood, describing the short stature of Yorkshire mining children, thought that the 'perfect healthiness of the children at every other point leads me to think that it does not arise from excess of labour, but merely from the position in which the labour is performed'.⁴⁷² As the mother of a Yorkshire haulage worker explained: 'It hurts a lad like mine, who is going 19, to hurry. He is hurrying [hauling]; but it hurts them that are tall [they need to] bend so much in the thin pits'.⁴⁷³

Despite the speculations of the 1842 Sub-Commissioners, the comparatively short stature of coal miners can not have resulted from the direct inheritance of characteristics acquired from coal mine work. Environment does not directly affect the genetic material of an individual, but rather benefits the genetic type that can best exploit a given environment. It is probable, therefore, that short stature among coal miners resulted from the selection of a shorter genotype of miner. In view of the evidence of short stature among adult and child colliers from all colliery districts (and the virtual absence of evidence of tallness) it is probable that the shortness of colliery

⁴⁷¹ Leifchild, 'Life and labour in the coal fields' p. 348.

⁴⁷² (P.P. 1842, XVII), H.7.

⁴⁷³ (P.P. 1842, XVI), p. 281.

children resulted simply from the genetic shortness of their parents. A genetic explanation for their historical short stature is, therefore, not that coal miners were *stunted*, but that they were *selected* by narrow coal-seams and by constrained working conditions; and, moreover, that high levels of occupation succession ensured that this process remained an intergenerational phenomenon.

Changes in genetic material take thousands of years, but genetic types with specific physical attributes may be selected by a particular environment over a very short period. As Floud and others have made clear, however, 'there is, contrary to popular belief, no single "gene for height"; instead, it is thought that many genes interact with many features of the environment to determine the height of any individual'.⁴⁷⁴ An explanation of the short stature of miners is not 'genetically determined': miners were short not as a result of changes in their genetic material, but by environmental selection of specific short genotype that was best able to exploit the narrow work conditions of coal mining.

IV

If the selection and persistence of a particular genotype resulted in short stature among colliers, then this group of workers might be expected to have inherited other, distinguishing, physical characteristics. Studies of monozygotic twins separated at birth, for example, have shown that, although their adult weights and heights might differ widely in response to varying levels of nutrition, the most

⁴⁷⁴ Floud, Wachter and Gregory, *Height, health and history*, p. 13.

persistent inherited anthropometric characteristic (and that which is least affected by nutritional fluctuations) is *body shape*.⁴⁷⁵

Sub-Commissioner Symons adverted to an unusual body shape among mining children in his 1842 report, claiming that colliers' children suffered 'little malformation, but ... they are somewhat stunted in growth and expanded in width'.⁴⁷⁶ Engels, referring to adult coal miners, asserted in 1845 that 'a miner may be recognised by his shape among a hundred other persons'.⁴⁷⁷ These contemporary descriptions might be usefully compared to the modern findings of Tanner, who has stated: 'Adult size is affected by a less severe level of undernutrition than adult shape... undernutrition in man does not alter shape very much'.⁴⁷⁸ If this analysis is correct, evidence of chest circumferences from the *C.E.C.* strongly implies the existence of a characteristic body shape amongst colliers. Figures 12 and 13 show that coal-mining children had the shortest stature but were among the largest in chest circumference.⁴⁷⁹

⁴⁷⁵ Of particular significance, is a study of monozygotic twins by J. Shields, Department of Psychiatric Genetics, University of London Institute of Psychiatry, cited in Tanner, *Foetus into man*, pp. 121-2. Monozygotic twins develop from a single ovum and share identical genetic material.

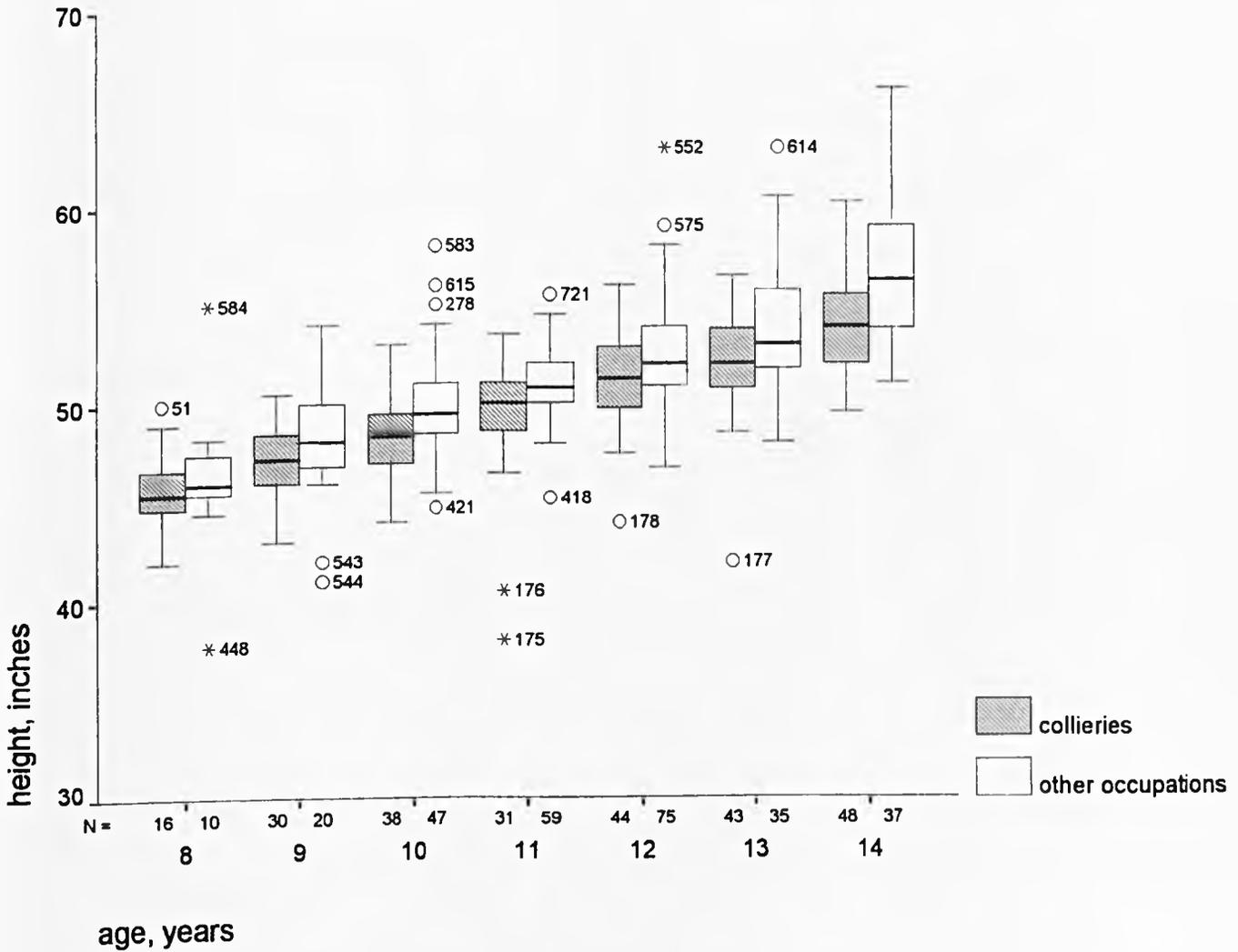
⁴⁷⁶ (P.P. 1842, XVI), p. 193.

⁴⁷⁷ Engels, *Condition of the working class*, p. 251. However, Engels relied heavily upon the C.E.C. report.

⁴⁷⁸ Tanner, *Foetus into man*, pp. 130-1.

⁴⁷⁹ Chest infections can cause 'barrel chest'. A report on Durham and Northumberland coal miners noted: 'The impure air they often unavoidably breathe brings on structural changes in the mucous membrane of the lungs, and the consequent oppressed breathing is a very common ailment'. Wilson, 'On the Coal-Miners of Durham and Northumberland', p. 126. However, there is little evidence to suggest an unusually high level of chest complaints among the children. A 1905 report on deaths from lung diseases suggested that young coal miners were less likely to die of lung diseases than that the average of those employed in all industries but that coal miners in the age-group 55-65 had a higher

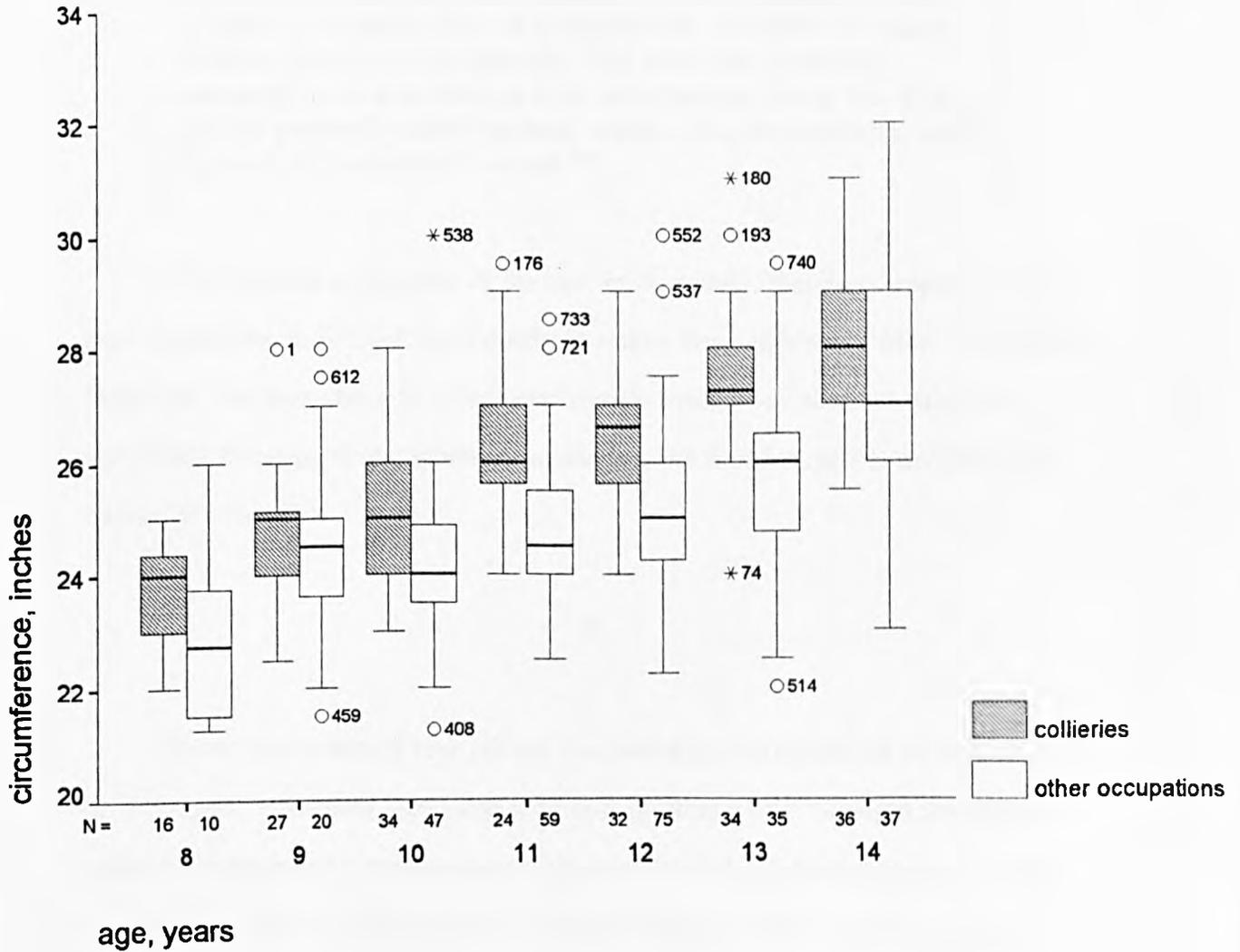
Figure 12. Stature of males in collieries and other occupations



Source: P.P. 1842, XVI, App.C. pp. 212-14., App.D, p. 215., App.E, p. 216; P.P. 1842, XVII, App. A, pp. 77-86, tables 1-5.

chance (30 per cent) of death from lung disease. Ward, 'Improvement of hygienic conditions of industrial occupations', p. 511

Figure 13. Circumference of males in collieries and other occupations



Source: P.P. 1842, XVI, App.C. pp. 212-14., App.D, p. 215., App.E, p. 216; P.P. 1842, XVII, App. A, pp. 77-86, tables 1-5.

Sub-Commissioner Symons noted this important point, remarking that

collier children are decidedly more robust and healthy in their appearance than any manufacturing children; perhaps less so than farm children ... In stature there is an appreciable difference in colliers' children, manifest at all ages after they have been three years constantly in the pits: there is little malformation, but as Mr. Eliss, a surgeon constantly attending them, admits, they are somewhat stunted in growth and expanded in width.⁴⁸⁰

The physical appearance of the coal-mining child, therefore, appears to have been distinctive; it differed significantly in stature from children in other occupations. Moreover, the persistence of a characteristically broad *body shape* sustains the probability that a particular genotype of shorter, but broader, people existed in coal-mining communities.

V

Short stature among coal miners was probably also connected to discrete environmental influences associated with underground work. Sunlight deprivation would have produced a suppressive effect upon the skeletal development of children working in coal mines. The majority of coal-mining children were employed as underground hauliers and were required to work an average of ten to twelve hours per day. This work was, from necessity, performed during daylight hours. In the absence of artificial pit-head lighting at most mines, coal needed to be transported to

⁴⁸⁰ (P.P. 1842, XVI), pp. 192-3.

the surface and landed during daylight.⁴⁸¹ Consequently, coal-mining children were deprived of sunlight for long periods. In 1841, for example, a Sheffield 'hooker-on' explained to the Sub-Commissioner, 'I never see daylight all the week in winter, except I look up the pit-shaft'.⁴⁸² Sunlight deprivation was also a common complaint of the nineteenth-century mining autobiographers. John Wilson, who began work in 1850 at the age of thirteen, recounted in his autobiography: 'In the winter time the boys hardly ever saw daylight except on Sunday'. Moses Horler recalled that in the early 1840s, in Somerset mines, children worked 'not seeing daylight for a whole week in the winter time, as they had to go underground at 4 o'clock in the morning, not coming up again until after dark in the evening'. Another, who began work as a 'trapper' in 1837, aged nine, noted that 'no gleam of daylight nor ray of sunshine illumined their path, save on Sundays, for six months in the year'.⁴⁸³ An 1835 report on north-east colliers pointed out, in particular, the unfamiliarity of miners to sunlight, noting that 'The strong light of day occasions them to experience a somewhat painful sensation'.⁴⁸⁴ In south Gloucestershire, colliery boys were said to have had a less healthy appearance than boys in agricultural labour 'who enjoy the benefit of sunshine and fresh air in their work; although their food is often inferior, both in quantity and quality, to that which the higher wages of the collier enable him

⁴⁸¹ Hair identified an absence of pit-head lighting. 'Social history', pp. 114-15; In the second quarter of the nineteenth-century, illumination of pit-heads was confined to a minority of technologically advanced north-east pits. James Easton, the mining engineer, noted in his evidence: 'In winter the boys go down at 3 o'clock, A.M.; in the spring and in summer at 4 o'clock, A.M.: this is to suit the light'. (P.P. 1842, XVI), p. 600.

⁴⁸² (P.P. 1842, XVI), p. 228.

⁴⁸³ Wilson, *Memories of a labour leader*, p. 69; Horler, *The early recollections of Moses Horler*, p. 14; Parkinson, *True stories of Durham pit-life*, pp. 6-7.

⁴⁸⁴ Anon., 'The collieries', p. 123.

to procure'.⁴⁸⁵ In 1841, a surgeon from Merthyr Tydfil was concerned that collier children were 'deprived of *solar light*, which is as necessary to the proper development of animals as vegetables'.⁴⁸⁶ Dr R. Elliot, a lecturer in the Newcastle School of Medicine, believed that 'so long an exclusion from daylight ... must, if we remember the age at which children are taken down ... affect their general health and growth, and indeed their constitution for life'.⁴⁸⁷ The Sub-Commissioner for the Whitehaven pits noted 'the coal-boy appearance in being of sallow complexion, owing to their exclusion from the sun'.⁴⁸⁸ Leifchild reported that children were deprived of light for a large part of the day and that 'in winter it almost amounts to an exclusion from the entire daylight'. He continued: 'The most remarkable effect of the exclusion [from sunlight] in the mines is the paleness of countenance so generally observable, and so strikingly contrasted with the ruddy visages of those employed at bank'.⁴⁸⁹

Such observations are consistent with modern studies of factors affecting skeletal development. Long periods spent underground must have deprived children of adequate amounts of ultra-violet radiation necessary for the conversion of the pre-

⁴⁸⁵ (P.P. 1842, XVII), p. 38.

⁴⁸⁶ (P.P. 1842, XVII), p. 485.

⁴⁸⁷ (P.P. 1842, XVI), p. 668.

⁴⁸⁸ (P.P. 1842, XVI), p. 877. The idea that supplementing a child's diet with animal fats (milk, butter etc.) will prevent rickets is incorrect as these foods contain very little calciferol, and, more importantly, the calciferol content of these foods drops to virtually nil during the winter when daylight hours are shortest. (This is because, in the low sunlight conditions of north-west European winters, animals are able to synthesise less calciferol.) Rickets is, ironically, most aggravated in well-fed organisms because these organisms grow at a faster rate, presenting larger amounts of softer bone during any period of calciferol deprivation. In the absence of ultra-violet radiation, fish have evolved enzymatic methods of synthesising calciferol. Fish products (such as cod-liver oil) are a very good substitute for the absence of ultra-violet radiation.

⁴⁸⁹ (P.P. 1842, XVI), p. 525

hormone 7-dehydrocholesterol into calciferol, the essential hormone which aids calcification of bone. Moreover, calciferol deficiency results in the growth of soft bone and rickets.⁴⁹⁰ Consequently, children who worked in mines from a very early age were bow-legged. An 1842 Sub-Commissioner thought that 'children who are employed at the pit mouth, or in farmers' service, are straighter on the legs and better looking than those working underground'. He added, 'I have noticed the children who do not work or have not from an early age worked in pits, are well and better formed than those, if even of the same family, who have worked at an earlier age than 12 years'.⁴⁹¹ A surgeon from Derbyshire observed: 'those who have worked very young have their growth stunted, and are very often bow-legged'. The Derbyshire Sub-Commissioner observed that 'of the five children I examined ... three were not only bow-legged, but their arms were bowed in the same way'.⁴⁹² In 1842, Thomas Rayner, a surgeon of 27 years' practice noted: 'Collier children are liable to rickets... The privation from light also tends to prevent the healthy action of the skin'⁴⁹³ Sub-Commissioner Symons ascribed the 'stunting' of colliers chiefly 'to their deprivation of day light, and also to overworking, where it occurs'.⁴⁹⁴ Indeed, the regular stresses resulting from work, probably contributed to retarded bone development among mining children. Most children employed in coal mines worked in underground haulage, where pushing and pulling were the predominant motive forces. Moreover, a modern study of human growth has made the important point

⁴⁹⁰ Loomis, 'Rickets', p. 77. It would be less than fanciful to suggest that, for children who did leave work in daylight, a covering of coal-dust on the skin would further diminish the penetration of ultra-violet radiation.

⁴⁹¹ (P.P. 1842, XVII), p. 256.

⁴⁹² (P.P. 1842, XVII), pp. 328, 254..

⁴⁹³ (P.P. 1842, XVI), p. 292.

⁴⁹⁴ (P.P. 1842, XVI), p. 193.

that 'variation in growth ... especially in height, is essentially an expression of the variation in rates of bone growth'.⁴⁹⁵ It follows, therefore, that factors affecting the development of the human skeleton are primary factors influencing stature.

If short stature among coal-mining children resulted from ultra-violet light deprivation, then areas that evinced high levels of rickets might also have been those in which short stature was evident. In 1889 the Collective Investigation Committee of the British Medical Association commissioned a survey which included a study of the geographical distribution of the disease. The report found that rickets predominated in 'the chief industrial towns and ports ... of the northern coalfield'.⁴⁹⁶ It also reported that 'by far the largest accumulation [of rickets] covers the whole of the manufacturing district belonging to the great coal-field of Lancashire and Yorkshire and its extensions southwards into Cheshire and Staffordshire and into Derbyshire and Notts... The coalfield of the Black Country ... is even more closely set with industrial towns, and here the same thing is observable'. A high incidence of rickets was also noticed in the south Wales coalfield, and it was remarked that 'North Wales, except on its coalfields, is almost free'. It was also found that in 'the mining districts of Somerset and of Cornwall ... there [was] a decided tendency [to rickets]'.⁴⁹⁷

W.F. Loomis, in his 1970 discussion of the ætiology of rickets, argued convincingly that the disease resulted from a deficiency of ultra-violet radiation, and that it predominated amongst populations in northern latitudes; however, he was of the opinion that 'the cause was smoke that obscured sunlight'. He claimed that the disease 'spread through Europe with the Industrial Revolution's pall of coal smoke

⁴⁹⁵ Malcolm, 'Protein-energy malnutrition and growth', p. 367.

⁴⁹⁶ Owen, 'Geographical distribution of rickets' pp. 113-16.

⁴⁹⁷ Owen, 'Geographical distribution of rickets', p. 114.

and the increasing concentration of poor people in the narrow, sunless alleys of factory towns and big-city slums'.⁴⁹⁸

Loomis over-estimated the effects of 'smoke'; and was probably wrong to call rickets 'the earliest air-pollution disease': except for a few conurbations, air pollution can be largely disregarded as a major cause of rickets. He was probably correct, however, to suggest that narrow sunless alleys increased the likelihood of rickets. In city districts at high northern latitudes, many children were probably deprived of ultra-violet radiation by the increasingly enclosed nature of urban housing.⁴⁹⁹

Coal-mining children, especially, though receiving a good diet, were substantially deprived of sunlight from the age at which they began work. This dramatically increased their susceptibility to rickets, suppressing their skeletal development and producing shorter stature. Indeed, a map produced by the B.M.A. in 1889, showing the incidence of rickets by geographical region, almost precisely mirrored the distribution of coal mining districts.⁵⁰⁰ The map also indicated a high concentration of rickets in central Cornwall where, significantly, there was little smoke, no narrow alleys, but many tin mines.

VI

With the important exception of rickets, much of the available evidence points to general good health among older coal-mining children. However, less is known about the health of infants in early nineteenth-century colliery communities. Infant

⁴⁹⁸ Loomis, 'Rickets', p. 77.

⁴⁹⁹ For a discussion of the possible effects of rickets upon child mortality see Hardy, 'Rickets and the rest'.

⁵⁰⁰ Loomis, 'Rickets', p. 79.

diseases played an important contributory role in producing short stature and should be addressed. In this respect, an important 'synergistic' relationship between diet and resistance to infections has been noted by Floud and others and several studies have demonstrated a strong correlation between poor absorption of nutrients as a result of diarrhoeal infections, and retarded growth.⁵⁰¹ High levels of infant diarrhoeal diseases and high infant mortality, therefore, might suggest a cause of short stature among the survivors of such infections. Buchanan has indicated that high infant mortality in late nineteenth-century colliery communities was associated with infantile diarrhoeal infections contracted through artificial feeding methods.⁵⁰² However, in the early decades of the nineteenth century, before the widespread adoption of artificial feeding, diarrhoeal infections were less likely to have caused a comparative shortage of stature among coal miners. In addition, little reliable evidence exists relating to the breast-feeding of infants in colliery communities in the early nineteenth century: whilst diarrhoeal infections almost certainly contributed in some measure toward short stature among the population as a whole, their contribution to the shorter stature of colliers would be very difficult to demonstrate for the early century. In East Lothian, for example, it was said in 1841 that mothers' milk formed 'the chief sustenance of the infant for the first eighteen months or two years of its existence'.⁵⁰³ The picture of infant feeding in early nineteenth-century colliery communities, therefore, is unclear: but there are no grounds for suggesting that infants had poorer nutrition than children in other working-class communities.

⁵⁰¹ Floud, Wachter and Gregory, *Height, health and history*, pp. 245-7.

⁵⁰² Buchanan, 'Infant feeding'.

⁵⁰³ (P.P. 1842, XVI), p. 410.

Nevertheless, short stature may have resulted simply from an unsuitable diet as infants were often fed adult food.⁵⁰⁴ A north-east colliery physician noticed in 1841, 'even the sucking infant, to its prejudice, is loaded with as much of the greasy and well-seasoned viands of the table as it will swallow'.⁵⁰⁵ Yet again, however, dietary unsuitability did not apply solely to the children of coal miners: the *quantity* of food fed to miners' children was generally greater than that of other children.

Earlier marriage and high fertility among coal-mining families may also have affected the heights of miners. The age of mothers is also known to affect the achieved stature of children and earlier marriage is correlated to shorter stature among children. There is, moreover, an increased tendency toward shortness among later-born members of families. Among mining populations, marriages occurred earlier, provided a longer period of fecundity and larger families.⁵⁰⁶ In 1870, it was suggested that 'infant mortality amongst the mining population [in Durham and Northumberland] ... was owing, in a great measure, to early marriages, many of the girls becoming mothers at sixteen or seventeen years of age, and scarcely knowing which end of the baby to take hold of.'⁵⁰⁷

Emotional deprivation resulting from high male parental mortality could also have affected the production of growth-hormone in mining children. Hair has calculated that, in the mid-nineteenth century, miners in Staffordshire and in south Wales were more than six times likely to die as a result of an accident than the average male. Even in the safer coal-districts of Durham and Northumberland, the death-rate from accidents for male coal miners was twice the national average before

⁵⁰⁴ Pinchbeck and Hewitt, *Children in English society*, vol.2, p. 406.

⁵⁰⁵ (P.P. 1842, XVI), p. 662.

⁵⁰⁶ Haines, 'Fertility, nuptiality, and occupation'.

⁵⁰⁷ Scott, 'Education in the mining districts of Durham and Northumberland', p. 351.

the mid-century.⁵⁰⁸ The death of a coal-mining father, moreover, had serious economic consequences for mining households which relied heavily upon the income of male breadwinners.

The influence of sheer physical exertion upon height is more problematical. There is little doubt that severe work conditions can affect stature (and, as has already been suggested, if bones are softer, the effect may have been more pronounced). However, there is no evidence to show that the work of children in coal mines was any more arduous than that of children in other labour-intensive surface occupations such as agriculture.⁵⁰⁹ For a majority of young children in these occupations, moreover, their initial tasks amounted to little more than fetching and carrying.

In addition, although hard labour may have contributed to short stature, the effects of hard labour at an earlier age to that of other children can be ruled out as a contributory factor to shorter stature. As table 25 indicates, the age at which children began to work in coal mines differed little from that of other children.⁵¹⁰

⁵⁰⁸ Hair, 'Mortality from violence in British coal-mines', p. 546.

⁵⁰⁹ William Dodd (the 'factory cripple'), for example, thought that deformity of the bones of the lower bodies of factory workers resulted not from heavy labour but from standing-up for very long periods. Dodd, *The factory system illustrated*, pp. 7-13.

⁵¹⁰ See also table 14.

Table 25. Mean age at starting work in different occupations: males, 1841.

| | Age | Cases |
|-----------------|------|-------|
| Coal mining | 8.61 | 265 |
| Farming | 9.10 | 99 |
| Potteries | 8.88 | 150 |
| Worsted mills | 9.41 | 76 |
| All occupations | 8.86 | 590 |

Source. C.E.C. (P.P. 1842, XVI), App.C. pp. 212-14., App.D, p. 215., App.E, p. 216; C.E.C. (P.P. 1842, XVII), App. A, pp. 77-86, tables 1-5.

Weather conditions might also have exercised an effect upon stature, but coal mines are generally warm places whereas agricultural labourers (an historically tall occupation group) would have been exposed to extremes of weather throughout the year. The conditions of children in coal mines, apart from the obvious problem of arbitrary violence, and accidents, was probably comparable to their contemporaries in some other occupations; and especially to those in the agricultural sector. It is arguable that a warm underground temperature in a dry pit would be preferable to exposure to winter weather conditions at the surface. Samuel Scriven reported that

it has been the practice, and one no less singular than true, for parents unconnected with collieries whose offspring may have been the victims of constitutional disease to send them into the pits for "change of air," a change too that has contributed to the restoration of many, more especially of those suffering from bronchial and pulmonary complaints; and no wonder, since they have been removed from the cold and blighting winds of the moors to a more equal, humid, and genial atmosphere.⁵¹¹

⁵¹¹ (P.P. 1842, XVII), p. 72. The French writer Simonin noted of pit horses: 'they seem to prefer living in the warm and equable atmosphere of the mine to the great roads or fields in sunshine, wind, rain, or frost'. Simonin, *Mines and Miners*, p. 128. Coal-mines also attracted the curiosity of a number of tourists. Leifchild reported: 'the late Emperor Nicholas, when visiting this district in his youth,

Sir George Head commented, following a visit underground, 'it occurred to me that the temperature of a deep coal-pit might be applied to medicinal purposes, as being of all others, to an invalid, the most gentle and equable'.⁵¹² It was reported of a Lancashire drawer aged about fifteen that, 'he likes working at bottom better than in the fields above, there is more pleasure'⁵¹³ Munby noted a St. Helen's 'broo-wench' who stated, after her prohibition from underground work, 'we was warm in't pit ... I only wish I was at it again'.⁵¹⁴

VII

In conclusion, the short stature of coal-mining children can not be wholly ascribed to conventional measures of deficient nutritional status. Low net nutrition was the primary cause of the short stature of historical populations compared with modern standards. Evidence relating to coal-mining children, however, strongly suggests that their shorter stature, relative to other occupation groups, coexisted with adequate, and often above-average, food intake. Occupational selection of shorter genotype parents, maintained by high levels of occupation succession, probably contributed to this paradox in coal-districts containing narrow coal-seams. Moreover,

arranged to descend a shaft ... but upon arriving at its mouth in the morning, and being requested to step into the swinging basket, he hesitated, made further inquiries, and finally retreated'. Leifchild, 'Life, Enterprize, and Peril', p. 341.

⁵¹² Head, *Home tour through the manufacturing districts*, p. 402.

⁵¹³ (P.P. 1842, XVII), p. 814. It must be borne in mind that this was long before the introduction of mechanical coal-cutters and the consequent increase in suspended coal-dust in the underground air.

⁵¹⁴ Hudson, *Munby*, p. 75. Many of these females had been excluded from underground work by the Mines Act of 1842.

discrete non-nutritional factors influenced their comparative shortness. Long periods of exclusion from ultra-violet radiation caused mining children to experience a suppressed skeletal development and to be shorter than their working-class contemporaries. Most importantly, these influences upon height operated independently of food intake.

The short stature of adult coal miners in the early nineteenth century, compared to other occupation groups, therefore, depended upon occupational influences and height selection in childhood, or during early adolescence. Indeed, occupational selection probably continued throughout the nineteenth century. In 1883 a report of the British Association found the mean height of 75 adult agricultural workers in Galloway to be 70.5 inches whereas the mean of 51 Durham coal miners was 66.38 inches (the average for County Durham was 67.70). However, the stature of town dwellers (as shown in table 26 below) was considerably shorter than the national averages for Scotland (68.71 inches) and England (67.36 inches).⁵¹⁵

Table 26. Stature and weight of adult males aged between 23 and 50 years in different occupations and classes, 1883.

| | inches | lbs | cases |
|---|--------|-------|-------|
| Agricultural workers, Galloway | 70.50 | 173.6 | 75 |
| Fishermen, Flamborough | 68.71 | 166.8 | 68 |
| Athletes (running, jumping and walking) | 68.34 | 143.7 | 89 |
| Lead-miners, Wanlockhead | 68.43 | 163.9 | 92 |
| Coal-miners, Durham | 66.38 | 152.4 | 51 |
| Town population, Edinburgh and Glasgow | 66.35 | 137.2 | 32 |
| Lead-miners, Cardigan | 66.30 | 155.2 | 328 |
| Town population, Sheffield | 65.80 | 142.5 | 100 |
| Town population, Bristol | 65.77 | 142.4 | 300 |

Source. Report of the British Association for the Advancement of Science (1883), 'Final report of the anthropometric committee', tab.7, p.271.

⁵¹⁵ B.A.A.S., 'Final report of the anthropometric committee', p. 262, table 7, p. 271.

During the First World War, moreover, coal miners formed a disproportionate number of the 'bantam' regiments of short men. Oddy ascribed the general short stature of the bantam regiments to poor nutritional status.⁵¹⁶ Allinson has written of 'the nine hundred and fifty stunted men who left pit-villages and lace-factories' in Nottinghamshire and Derbyshire. In addition, the 19th (Bantam) Battalion of the Durham Light Infantry contained a large number of coal miners who had earlier been excluded from service on the ground that they were shorter than the required height for recruitment.⁵¹⁷

The effect of environment upon the average heights of English workers must be further complicated by the steady increase in the proportions of employed males in mining occupations. It has been estimated that this proportion rose from 4.3 per cent in 1851 to 8.1 per cent by the end of the nineteenth century.⁵¹⁸ If the comparative short stature of this large occupation group occurred as a result of occupational factors unrelated to conventionally defined measures of welfare, then the attempt to link stature directly to historical living standards necessarily becomes more problematical. If, however, the selection of a genetic type was responsible, we would expect it to have become less pronounced as in-migration to mining communities increased in the mid- to late-century.

Comparisons between the welfare and the stature of those employed in specific occupation groups are, of necessity, based upon age-specific measurements.

⁵¹⁶ Oddy, 'Food, drink and nutrition', p. 276. Oddy cited the *Report upon the Physical Examination of Men ... by National Service Medical Boards* (P.P. 1919, XXVI), pp. 22-3.

⁵¹⁷ Allinson, *The bantams*, pp. 77, 82.

⁵¹⁸ Mitchell, *British historical statistics*, p. 104.

However, both anecdotal and anthropometric evidence of the heights of children in different occupations suggest that the stature of workers depended a great deal upon the requirements of their occupations. This was almost certainly the case among coal miners.

In agriculture, however, a *large body size*, rather than the achievement of a particular age, was the chief criterion for occupational selection: thus in 1843, when asked at what age children began work on his farm, a Somersetshire farmer replied: 'The age at which boys are employed depends on their size a great deal'.⁵¹⁹ In factories, where it has been supposed that the work process stunted the growth of child workers, a similar selection process probably existed. As Hutt asserted: 'If there was a slightly larger proportion of deformity or puniness among the factory children, this might be accounted for by bearing in mind the frequent statement that children who were insufficiently strong for other employments were sent to the cotton factories because of the lightness of the work there'.⁵²⁰

One result of occupational selection for height, therefore, is that comparisons between occupation groups based upon the evidence of age-specific records of stature will be highly unreliable. Such records can not be used to provide an indication of comparative welfare between historical occupation groups. Indeed, in the case of coal miners, it may have been positively advantageous to have been short: their short stature does not indicate a low level of welfare relative to other occupations. It might be concluded that definitions of nutritional status include influences that may not be

⁵¹⁹ (P.P. 1843, XII), p. 29.

⁵²⁰ Hutt, 'The factory system of the early nineteenth century', p. 178. The *Leeds Mercury* noted: 'It has long been a grievance in this Riding that whilst the Factory Act prohibits a class of children from working in Factories... those very children so discharged from factories are ... transferred to the mines of the neighbourhood (to the great annoyance, as well as to the prejudice of the millowners, for whose operations these little workers were best calculated)'. *Leeds Mercury*, 18 June 1842.

associated with conventional aspects of human welfare; or, indeed, the standard of living.⁵²¹ If, as this chapter strongly suggests, height selection for occupation did exist among coal-mining children, then the effects of occupational biases upon other records of historical stature require more serious consideration.

⁵²¹ A solution might lie in a more precise definition of terminology. The concept of nutritional status, which is central to the current debate, is inherently diffuse. It ranges in interpretation from a narrow measurement of food intake to a description of the totality of environmental influences; the former provides a formidable challenge to the historian of consumption; the latter, at least for the present, defies any definitive historical understanding.

Chapter seven. The social and industrial context of ill-treatment

The ill-treatment of children in factories and mines has engendered a variety of historical responses, most of which have been pessimistic. The approaches of a number of historians were examined in chapter one. However, the accounts already discussed have frequently confined themselves merely to brief descriptions of severe ill-treatment which were unrepresentative of the experience of most children. Specific instances of abuse of children in coal mines have usually been recounted without further examination of the social or industrial context of such violence.⁵²² This chapter attempts to examine the relationship between industrial production and the ill-treatment of children.

The majority of citations of violent incidents against coal-mining children have been written by pessimistic historians who have presumed a connection between coal production and ill-treatment. In summarising evidence of ill-treatment contained in evidence to the C.E.C. for example, Dunlop noted that there was 'much intentional cruelty, and the whole atmosphere was degrading and brutalising'. It was suggested that such accounts of ill-treatment were 'barely readable'.⁵²³ Indeed, it is true that coal miners, in common with the majority of the nineteenth-century working class, lived an existence that was punctuated by incidents of often arbitrary violence.⁵²⁴ But can the coal-mining industry of the nineteenth century be held

⁵²² In this chapter, the term 'ill-treatment' does not include injuries sustained as a result of underground accidents. Deaths from accidents were included under the confusing category of 'violence' (i.e. deaths that did not result from disease) in the reports of the Registrar General. For an examination of mining mortality see Hair, 'Mortality from violence in British coal-mines'.

⁵²³ Dunlop, *English apprenticeship*, p. 280.

⁵²⁴ A description of fighting Lancashire colliers stated that, 'they fought quite naked except for their clogs; when one has the other down on the ground he first endeavours to choke him by squeezing his

responsible for physical abuse among children? As was noted in chapter one, it has long been supposed as axiomatic (as a result of the work of the Hammonds and others) that the industrial revolution *per se* was responsible for higher levels of ill-treatment and exploitation among children in industrial occupations. However, this position has always been far from conclusive: specific industrial causes of ill-treatment are very difficult to identify. Moreover, most accounts have created the impression that children in coal mining were exposed to approximately similar levels of ill-treatment and corporal punishment.

There have been few dissentients from the pessimistic view, although some have disputed the idea that the corporal punishment of children was necessarily a bad thing. Nardinelli, for example, has suggested that the practice of beating children was an integral part of the production process and that its effectiveness can be measured by increases in production. The progenitor of this notion founded his proposition upon three assumptions: firstly, that corporal punishment was endemic to children in the coal and textiles industries; secondly, that such beatings increased industrial output; and thirdly, that children and parents endured such conditions since the higher wages resulting from increased production provided, in Nardinelli's words, a 'compensation for the disamenity of being beaten'.⁵²⁵

Discounting the moral implications of such an analysis, there are fundamental flaws in Nardinelli's thesis. In particular, the claim that there was a connection between corporal punishment and increases in production owes its existence to the desire to apply a neo-classical economic analysis to the issue. However, it is clearly

throat, he then kicks him on the head and body with his clogs. Sometimes they are very severely injured'. (P.P. 1842, XVII), p. 201. The brutality of this description, however, may have been designed to deter the Sub-Commissioner from his assigned task.

⁵²⁵ Nardinelli, 'Corporal punishment and children's wages', p. 289.

unprofitable simply to identify that corporal punishment existed and to measure its economic 'consequences' without an attempt to isolate the causes of punishment. If punishments are supposed to have had an effect upon production then it is reasonable to expect them also to have had clear industrial origins. Nardinelli's argument, however, depends entirely upon the crude conflation of all categories of corporal punishment into a single factor of production: i.e. beating in order to force children to work harder. This allows the application of a theoretical model: but the diversity of causes of ill-treatment are flatly ignored.

Attempts at measuring the effectiveness of corporal punishment against increases in production are, at best, speculative since most ill-treatment varied not only in its type and severity, but, most importantly, in its degree of association with production. The effect of corporal punishment upon output, therefore, cannot be presumed uniform. The picture of corporal punishment among coal-mining children was a much more complex and subtle issue than that depicted by Nardinelli.

No thorough examination of ill-treatment among mining children has been embarked upon since the production of the reports of the C.E.C. (the primary source of evidence of ill-treatment for the second quarter of the nineteenth century). This is remarkable since the commission itself owed a large part of its existence to a number of specific cases of ill-treatment of children contained in earlier parliamentary reports.⁵²⁶ This chapter attempts to take the issue further than merely describing corporal punishment and abuse. It is argued that there were a variety of social, as well as industrial, causes of ill-treatment. It is concluded that the most severe examples of abuse discovered by the C.E.C. had least to do with the process of coal production.

⁵²⁶ See chapter three.

I

One of the distinguishing characteristics of centralised industrial labour, in comparison with domestic production, was a tendency toward a general reduction of parental jurisdiction over working children. This predisposed most children employed in industries to greater levels of ill-treatment by peers and by other workers. A variety of forms of abuse were exercised against (and within) the broad constituency of mining children. Corporal punishment against children in coal mines, moreover, was inflicted predominantly by coal miners themselves. Indeed, much of the ill-treatment reported by the C.E.C. was inflicted by boys against each other and amounted to simple bullying. It was observed by several children in Durham, for example:

sometimes the putters rub [beat] and knock about the younger boys. They whiles toss bits of coal at them, or whiles put them in the coal tubs, or nail the door-keepers by the jackets to the doors, so that they cannot fall asleep. These things are mostly done in fun, and not with any intention to hurt them, although they whiles do hurt them. Now and then the little boys may be struck on the nose and made to bleed. Seldom or never is any boy knocked down.⁵²⁷

The overseer of the Oldham Union stated that, during 1841, he had had to summon three cases of severe bullying against apprentices: 'two of [the apprentices] were parish children, and one was the child of a widow, who was a pauper ... [The boys] ... had not brought dinners of their own down the pits, and being hungry, it was supposed they had stolen other boys' dinners which were missing; for this they were punished in the following manner: - one of the biggest of the boys and a young man

⁵²⁷ (P.P. 1842, XVI), p. 659.

got the boy's head between his legs, and each boy in the pit - and there were 18 to 20 of them - inflicted 12 strokes on the boy's rump and loins with a cat ... the flesh of the rump and loins was beaten to a jelly'.⁵²⁸ It is likely that the promiscuous nature of underground workings caused many such cases of bullying to go unseen and undetected.

There is some evidence that a few children were punished by being forced into difficult working conditions. In 1842, a coal-getter from Worsley claimed the existence of two pits to which children were sent as a punishment for bad behaviour: 'When a lad or lass was more mischievous than the rest the master used to send them to the stone-pit or Wardly pit, where the work was hardest'. The experience of one day as a drawer in the 'stone-pit' was noted thus: 'the bottom was all slutch so that the tubs dragged on their bottoms ... It was cruel work'. In Halifax, it was claimed that a young girl had been sent to work for two days in a pit 'because she was a bad un ... she was frightened and cried, and said "she'd be a gude lass if they'd let her out"'.⁵²⁹

Corporal punishment inflicted upon children employed in nineteenth-century coal mining was of two identifiable types: firstly, specific punishments intended to maintain safety discipline and, secondly, a broader category of mainly indiscriminate violence. There was, moreover, an unequal industrial and geographical distribution of these categories. Safety discipline, for example, was most prevalent in the more technologically developed coalfields and the more indiscriminate forms of violence (encompassing the most severe treatment) was spread more evenly between all coalfields. The latter form had a higher incidence in the more backward coal-

⁵²⁸ (P.P. 1842, XV), pp. 43-4; (P.P. 1842, XVII), p. 235.

⁵²⁹ (P.P. 1842, XVII), pp. 215, 107. It is possible that Tufnell used one of these pits in his report for the Factory Commission. (P.P. 1833, XX), D.2, pp. 79-82 (see pages 110-12).

districts, simply because primitive enterprises contained greater numbers of very young children. Indeed, a great deal of general ill-treatment was connected with the desire of colliers and overseers to get young haulage workers to work faster. In the Derbyshire coalfield, for example, young waggoners who were behind with their work would occasionally be 'nipped' by the loaders, or 'corporals' (young overseers): this treatment involved having their ears nipped. Sometimes, the ears of children were actually pierced-through by the finger-nails of their juvenile superiors.⁵³⁰ An adult Derbyshire coal miner noted that 'when he was a boy ... [waggoners] ... were beaten most unmercifully by the corporals, who were complete blackguards; they mostly used the ass-stick, about as thick as your thumb; they often kicked them, and sometimes used the fist; has seen them throttle the boys'.⁵³¹ A Lancashire thrutcher worried that 'if he stopped work he would go to sleep, and then he would have a clout i' the mouth'.⁵³²

As has been noted earlier, the incidence of child-employment was generally higher in coalfields where the seams of coal were narrow, denying haulage access to men and older boys: the thinner the seams, the greater the proportion of children. The *Westminster Review* noted how industrial conditions could vary between coalfields:

the best places of work for the children and young persons are found in the thick-seam mines, in which the roadways are the largest, the ventilation the freest [sic], and the application of capital commonly the most extensive; for in coal mining nothing appears to exercise a more direct influence upon the circumstances of the labour than the

⁵³⁰ (P.P. 1842, XVII), pp. 284-5.

⁵³¹ (P.P. 1842, XVII), p. 274.

⁵³² (P.P. 1842, XVII), p. 828.

scale on which it is carried on; for though large mines may be, and too often are, in a bad state, small mines are almost universally so'.⁵³³

In Lancashire, 'a younger class of children' was employed in the thinner mines.⁵³⁴ One notable exception to this were the thick coal-seams, or 'ten-yard coal', in south Staffordshire in which butties exploited parish apprentices as a source of cheap labour. The general picture, however, was as described by Dunlop: 'A great deal of suffering was entailed by the difficult conditions under which the work was conducted, the narrowness and the lowness of the cuttings, and the primitive methods of transporting the coal'.⁵³⁵ It was not a coincidence, therefore, that the majority of complaints of ill-treatment in early nineteenth-century mining emanated from coal-districts such as Lancashire and West Yorkshire which employed the most primitive technology and most children. One of the most important points to be drawn by the Commission of 1842 was that 'the highest class of employers ... exhibit a less proportion of the younger hands than the average'.⁵³⁶ The Commissioners of 1842 noted that the better employers were also more likely to furnish them with returns of ages (presumably since they were less likely to wish to conceal the numbers of children employed). Many, more primitive, enterprises, employing proportionately larger numbers of children, escaped enumeration and scrutiny by the C.E.C.⁵³⁷ The welfare of children was worst in the small pits in which larger numbers of small children were employed and where small employers struggled with little capital.

⁵³³ Greg, 'Protection of children in mines and collieries', p. 102.

⁵³⁴ (P.P. 1842, XVII), p. 164.

⁵³⁵ Dunlop, *English apprenticeship*, p. 280.

⁵³⁶ (P.P. 1842, XV), p. 38; Hartwell's comment that 'cruelty to children was often the desperate but ineffective remedy of the marginal producer', therefore, is as applicable to coal mining as it was to textiles production. Hartwell, *The Industrial revolution and economic growth*, p. 403.

⁵³⁷ (P.P. 1842, XVII), p. 38; Hair, 'Social history', pp. 166-74.

II

Some forms of corporal punishment served a specific industrial purpose. Safety discipline was essential to the operation of the more advanced coal mines.⁵³⁸ In the north-east coalfield, where children were employed directly by employers, punishment would be meted out by overmen. Often the punishment was inflicted with a 'yard wand': a long thin stick used for measuring the rank of the putting (i.e. the distances over which the coal was hauled from the face to the bottom of the shaft). Indeed, the parents of errant children were often given a choice between corporal punishment and a fine. The ultimate sanction was dismissal. The underviewer at Hetton Colliery noted: 'The parents would prefer that the Children should be thrashed rather than fined, and sometimes propose this'.⁵³⁹ Mitchell reported, 'In all the work done by the younger lads there is in most pits a competition, from their being a greater number desirous of employment than can every day obtain it. It is easy therefore to punish an evil doer by diminishing the number of days which he is allowed to work, or by dismissing him altogether'.⁵⁴⁰ It was said of the trapper that 'he dreads being discharged; and he knows that his discharge would be attended with the loss of wages, and bring upon him the

⁵³⁸ For a discussion of the role of children in ventilation and the importance of this technology to safety see pages 184-97.

⁵³⁹ (P.P. 1842, XV), p. 133.

⁵⁴⁰ (P.P. 1842, XVI), p. 143; Eric Forster erroneously suggested that 'the children of hewers and pit families generally were not sufficient in number to supply the demand and the boys of mechanics and labourers in outlying areas were being sought to fill the gap'. Forster, *The pit children*, p. 28.

indignation of his father, more terrible to endure than the momentary vengeance of the deputy and the putters all taken together.⁵⁴¹

Most of the punishment intended to maintain safety discipline was directed towards the young trappers. The trapper's duty was 'to sit, and be attentive, and pull his string promptly as any one approaches. He may not stir above a dozen of steps with safety from his charge, lest he should be found neglecting his duty, and suffer for the same.'⁵⁴² John Wilson, who began work in 1850 at the age of thirteen, noted that, 'it was considered part of the training of a boy to feel the weight of the overman's yard wand, just as there was the frequent and necessary use of the cane by the schoolmaster'.⁵⁴³

The rationale behind the corporal punishment of the trappers was the fear that, in the warm atmosphere of the mine, a boy might fall asleep and leave his ventilation door open, or that he may wish to leave his position and prop open his door; thus interrupting the ventilation and endangering the lives of everyone in the pit.⁵⁴⁴ The Durham Sub-Commissioner described the process thus:

In this state of sepulchral existence an insidious enemy gains upon him. His eyes are shut, and his ears fail to announce the approach of a tram. A deputy overman comes along, and a smart cut of his yard-wand at once punishes the culprit, and recalls him to his duty; and happy was it for him that he fell into the hands of the deputy overman, rather than one of the putters; for his fist would have inflicted a severer pain. The deputy overman moreover consoles him, by telling him that it was for his good that he punished him; and reminds him of boys well known to both, who when asleep had fallen down, and some

⁵⁴¹ (P.P. 1842, XVI), p. 130.

⁵⁴² (P.P. 1842, XVI), p. 129.

⁵⁴³ Wilson, *Memories of a labour leader*, p. 69.

⁵⁴⁴ Northumberland Record Office, Bell collection, *Coal Trade Office Statement*, 25 May 1842, Bell/9/122.

had been severely wounded, and others killed. The little trapper believes that he is to blame, and makes no complaint.⁵⁴⁵

Indeed, in the developing complex ventilation systems of the north-east mines, in the 1830s and 1840s, regular patrolling and disciplining of the young door-keepers by overmen emerged. In 1835, the Select Committee on Accidents in Coal Mines heard that 'the children ... are continually liable to the check and the reproof of the parties in authority that are passing through the colliery ... the boys are kept under more awe of the men who look after them than the adults would be, and consequently more likely to be attentive.'⁵⁴⁶ George Parkinson, who began work at New Lambton in 1837, aged nine, described his first encounter with an overman, on his first day at work:

Several men passing through my door at various times spoke kindly to the new 'trapper,' and told me to take care and keep in my hole. But one man came through, wearing blue clothes, a leather cap with a peak behind, and carrying a stick in his hand... He looked very sternly at me, as he held up his stick in a threatening way, and said, 'Now mind, ef thoo gans to sleep and dizzent keep that door shut, thou'll get it!' ... I could not help wishing that the 'blue man' might not come through my door again, but that he might get out by some other way.⁵⁴⁷

Thus, in the more advanced pits, punishment was rationalised and regulated. In 1842, the underviewer at Hetton Colliery stated that 'The overman may hit the boys gently with a bat; but nothing more is allowed'. One seventeen year old noted: 'Sometimes the overman hits the boys a few bats, but not to hurt them very much'. A north-east under-viewer claimed that 'they are only corrected when they stand in

⁵⁴⁵ (P.P. 1842, XVI), pp. 129-130.

⁵⁴⁶ (P.P. 1835, V), p. 77, QQ. 1133-4.

⁵⁴⁷ Parkinson, *True stories of Durham pit-life*, pp. 20-1.

need of it. The overman gives them a few strikes with a whip or stick, but not to hurt them at all badly. Boys are not beaten so as to make blood come. The beating is not more than a gentle correction'.⁵⁴⁸ The administration of a belt from a yard-wand was probably an acceptable form of punishment to north-east pitmen where, in 1841, it was claimed that 'boys are not beaten now, though they used to be before the "stick"'.⁵⁴⁹ The stick was also used in other forms of punishment. Edward Rymer, whilst a pony driver, noted that, 'the races, kicking, and different pranks we often had brought me sometimes under the chastisement of Bill Robson's yard wand'.⁵⁵⁰

Where employers employed children directly, therefore, children enjoyed the greatest immunity from arbitrary violence but were more likely to be subjected to safety discipline. The function of this form of punishment improved the safety of the underground labour force.⁵⁵¹ Overmen and managers in the North East, moreover, appear to have drawn a sharp distinction between safety discipline and arbitrary violence: Mitchell discovered that 'if a rare instance of violence occur their rule is to send the matter before a magistrate'.⁵⁵² Indeed, the manager of Clarence Hetton colliery stated that: 'No one is allowed to strike any boy or lad. The overman and deputies to the overman in the pit are not allowed to touch the boys, and the boys are not allowed to strike each other. If they were to do so we should take them to the magistrate. We have done so'.⁵⁵³ At Hetton colliery, in Durham, a fine of five

⁵⁴⁸ (P.P. 1842, XV), p. 133.

⁵⁴⁹ (P.P. 1842, XVI), p. 603.

⁵⁵⁰ Rymer, *Martyrdom*, p. 4; Disraeli described more brutal use, possibly of a yard-wand, in *Sybil* where the 'tommy-shop' keeper at a coal mine 'took up a yard measure, and leaning over the counter, hit right and left. "Oh! you little monster!" exclaimed a woman, "you have put out my babby's eye."' Disraeli, *Sybil*, p. 199.

⁵⁵¹ Hair, 'Social history', p. 189.

⁵⁵² (P.P. 1842, XVI), p. 143.

⁵⁵³ (P.P. 1842, XVI), p. 150.

shillings was imposed for indiscriminate violence.⁵⁵⁴ Punishments intended to maintain safety discipline, therefore, were in general, light, yet they probably had the closest relationship to production.

III

The general level of violence against young workers (or between them) was mostly arbitrary in its inception. But there is a great deal of anecdotal evidence to suggest that children who did not have a family employer, or had no parents at all, suffered from the most serious physical abuse. Cases of severe violence arose overwhelmingly from the cruelty of individuals towards children who were not kin: orphan children suffered the most severe abuse.⁵⁵⁵ Children recruited from workhouses, in particular, were the worst-used. Indeed, the most important factor in ill-treatment among coal-mining children was the absence of a parent: the most severe treatment meted out to orphan children came from their masters and peers.

The binding of pauper children as apprentices to miners was a long-established practice and was never regarded as a happy fate for children. Jonathan Saville of Halifax noted that he had been bound as a coal-mining apprentice in 1766, his mother having died when he was three: 'Until I was seven years old', he recounted in his autobiography, 'I lived partly with my father and grandmother, and partly in Horton Workhouse. I was then bound apprentice to a man... He turned me over to the Colliers in Denholme; on which my father said to him, "I had rather you'd tied a

⁵⁵⁴ (P.P. 1842, XVI), p. 653.

⁵⁵⁵ This major social cause of ill-treatment has often been overlooked by historians of nineteenth-century children who have chiefly looked for 'industrial' determinants. The oversight is surprising since the harsh treatment of orphans was a dominant theme of contemporary novelists such as Charlotte Brontë and Charles Dickens.

stone round his neck and drowned him."⁵⁵⁶ Following the death of their collier father, two of the brothers of Betty Hodson (the 'Lancashire collier girl') of Upholland were said to have been 'bound apprentices by the parish; the two youngest, one three years old, the other an infant, were taken care of in the same way, until they might be sufficiently old to be bound like their brothers'.⁵⁵⁷ In the early 1840s, the binding of pauper children to colliers was most prevalent in south Staffordshire but the practice also existed in parts of Yorkshire, Lancashire and West Scotland.⁵⁵⁸ Pauper children, upon reaching the age of nine or ten, would be made available by workhouses to be apprenticed to local tradesmen.

To speak of 'apprentices' in nineteenth-century coal mining, however, is something of a misnomer: as Dunlop pointed out, 'labour in mines had never been regulated by the guilds, and apprenticeship had never afforded its protection to the young people employed in the trade'.⁵⁵⁹ In reality, coal-mining apprentices found themselves bound to colliers who required haulage workers to assist them but who had insufficient children of their own. Not all apprentices were orphans, or pauper children, but these children were more likely to be pressed into employment earlier.

Indeed, the death, or infirmity, of a main breadwinner in colliery households would almost always force children into early employment in a pit. For example, nearly a third of the females examined by the C.E.C. stated that their fathers or

⁵⁵⁶ West (ed.), *Memoirs of Jonathan Saville*, p. 6.

⁵⁵⁷ Budworth, 'The Lancashire collier-girl; a true story', pp. 197-99; Cheap Repository Tract, *The Lancashire collier girl, a true story to which is added the punishment of covetousness*, p. 6. For a discussion of the production of the account and the involvement in it of Hannah More, see Hair, 'The Lancashire collier girl, 1795'.

⁵⁵⁸ (P.P. 1842, XV), pp. 40-41.

⁵⁵⁹ Dunlop, *English apprenticeship*, p. 264.

husbands were either dead or disabled.⁵⁶⁰ Moreover, Anderson has estimated that, between 1831 and 1861, around 17 per cent of children had lost their fathers before reaching the age of fifteen.⁵⁶¹ The main point about the household income, Booth pointed out, 'will depend upon the entire number who have to be supported by it'.⁵⁶²

we may compare the cases of the textile with the mining industries. In the former we find nearly all the available members of the family, both male and female, in the ranks of the actually employed, whilst in mining the labourers are almost entirely able-bodied males.⁵⁶³

The mining household placed a heavy dependence upon the income of the male head, whose death could have catastrophic effects upon a household. Mortality, from accidents and disease, had a profound effect upon the structure of many mining families. A number of 're-constituted' families existed in which orphans had been taken in by widows. In some instances, this resulted in quite complex sets of economic relationships: As a fourteen year old pit-bank worker stated in her evidence to the C.E.C: 'My mother and father are both on 'em dead. I live with the woman that reared me; I give her my wages, all as I get; she gives me food and clothing ... She is a widow, with one child of her own'.⁵⁶⁴

In strictly economic terms, there was very little difference between this system of mutual support, and the appropriation of a child's income by a biological parent. People coped with higher levels of mortality and the disintegration of biological families. Indeed, reconstituted families were as common amongst the nineteenth-

⁵⁶⁰ Hair, 'Social history', p. 233.

⁵⁶¹ Anderson, 'The social implications of demographic change', tbl. 1.5, p. 48.

⁵⁶² Booth, 'Occupations of the People', p. 315.

⁵⁶³ Booth, 'Occupations of the People', p. 315.

⁵⁶⁴ (P.P. 1842, XVII), p. 133.

century working-class as they are in the late twentieth-century, although for much different reasons.⁵⁶⁵

Grief reactions must also have been common and intimately connected with acute economic deprivation. Dependency upon a male breadwinner was extremely high in mining districts, and the death of a parent could produce severe economic and psychological effects upon households and children. When asked what her father did, for example, one 18 year old Lancashire drawer replied, pathetically: 'He was a collier, but he was killed in a coal-pit. I go past the place where he was killed many a time when I am at work, and sometimes I think I see something'.⁵⁶⁶

Moreover, Poor Law overseers and guardians were continually anxious to remove paupers from their financial dependence upon the poor-rate. In some coal-districts there was a large demand by colliers for such children. It was remarked, by a former poor-law guardian near Birstall in Yorkshire, for example: 'It is a notorious fact in this neighbourhood, that the colliers, when they cannot breed children enough themselves for the hurriers they want, are forced to apply to the Poor Law Guardians for pauper children... They cannot get them elsewhere on account of the severity of

⁵⁶⁵ Leifchild maintained that, 'Families of boys are, amongst pit people, valuable property, on account of their earnings in the pits. A widow with a family of boys is considered a *catch*. I was told that such a widow was accosted by a suitor even at her husband's grave. Her reply was, "You are *too late*: I am engaged. I accepted B— before starting for the funeral!" Leifchild, *Our coal and our coal pits*, p. 197.

⁵⁶⁶ (P.P. 1842, XVII), p. 231. The evidence given by many colliers evince a widespread belief in ghosts. However, very few of those who expressed this belief actually claimed to have experienced a ghost. Thomas has noted: 'In the early industrial period the mining industry generated a host of semi-magical practices, ranging from the belief in the existence of subterranean spirits or "knockers", to a taboo on such actions as whistling underground or working on Good Friday'. Thomas, *Religion and the decline of magic*, p. 796. In 1842, a Lancashire underlooker claimed that, 'there are not so many ghosts as there used to be, the long chimneys have driven them all away'. (P.P. 1842, XVII), p. 205.

the labour and treatment hurriers experience; and which makes parents prefer any other sort of employment for their children'.⁵⁶⁷ Children thus bound would usually gain a home with another family; but any income they earned would be appropriated by the master. In addition, a payment would usually be made by the board to the new master. This payment was nominal: in most cases it amounted to no more than the price of a set of clothes. After this, the child would have little or no contact with the parish authorities. Scriven noted that in west Yorkshire: 'A great number of hurriers are apprenticed by the Boards of Guardians from the age of eight years until *twenty one*, paying with them a sovereign... Many of the colliers take two or three at a time, supporting themselves and families out of their labour'.⁵⁶⁸

Children also found themselves bound to small contractors, or butties, who exploited their labour. A surgeon from Bilston noted: 'In the very small collieries, where a man without capital is endeavouring to get on, and cannot afford the proper means of working his pit, little children are sent into holes in the mines with baskets to get coals to bring to the foot of the shaft, and they drag them along on their hands and knees. Some are apprenticed as early as at nine years of age'.⁵⁶⁹ Apprentices were forced to work much harder and for much longer periods than the children of established colliers. Buxton pointed out an extreme case under the butty system in Derbyshire in which children employed in gangs were kept underground for 36 hours while working double shifts.⁵⁷⁰ The obscurity of the underground workplaces also allowed greater opportunities for the exploitation of apprentice labour. It was said that the butties exploited the apprentices at the expense of the 'free' miners.

⁵⁶⁷ (P.P. 1842, XVI), p. 288.

⁵⁶⁸ (P.P. 1842, XVII), p. 70 (emphasis in the original).

⁵⁶⁹ (P.P. 1842, XVI), p. 62.

⁵⁷⁰ Buxton, *Economic development*, pp. 125-6; Hair cites a number of similar cases. Hair, 'Social history', pp. 217-19.

They like to put youths forward, to make an apprentice do a man's day's work ... butties often make "day-logs" of them, as we call it, because it's more profitable to the butty. He'd get his day's work over, perhaps, in nine hours if he were a pikeman, and that would not suit the butty, because he wants him below to fettle horses, or hang on at the bottom of the shaft.⁵⁷¹

Apprentices were often forced into dangerous working situations underground. A Staffordshire witness to the Children's Employment Commission stated: 'It is the butties' apprentices who are worst used. These lads are made to go where other men will not let their own children go. If they will not do it they take them to the magistrates, who commit them to prison'.⁵⁷² It was said: 'In the thick coal the apprentices dare not deny the butty, and are forced into places that make them run away from their masters ... they are forced to do jobs which other lads would not do without more money and extra pay'.⁵⁷³

The absence of a male protector at work, moreover, would often place children at the mercy of an unscrupulous contractor, or a single collier working on his own account. In his report, Sub-Commissioner Mitchell berated the 'men of Staffordshire, who explore the country far and near to carry off children as apprentices to work in the pits'. He claimed:

Such is the demand for children amongst the butties, that there are almost no boys in the union workhouses at Walsall, Wolverhampton, Dudley, and Stourbridge; and there is no schoolmaster at any of these establishments ... until the age of 21 the unfortunate orphan whom necessity has driven into a workhouse is made to work in the mines for the benefit of another. At the age of 14 he works side by side with

⁵⁷¹ (P.P. 1843, XIII), p. xlii.

⁵⁷² (P.P. 1842, XV), p. 41.

⁵⁷³ (P.P. 1843, XIII), xlii.

other lads who are getting 14s. a-week; at 17 or 18 he is working side by side with freemen who may go wherever they please, and are earning 20s. or 25s. a-week; and year after year must he toil for the benefit of another... here is a slavery in the middle of England as reprehensible as ever was the slavery in the West Indies, which justice and humanity alike demand should not longer be endured'.⁵⁷⁴

It was suggested in south Staffordshire and Yorkshire that it was customary for contractors to take six or seven apprentices.⁵⁷⁵ One Yorkshire coal-pit owner noted: 'If they [pauper parents] go to the Union for relief, the Board says, "you must get a job for your children at [the] coal-pits, and let them work; girls as well as boys."' ⁵⁷⁶

In response to fluctuations in the coal market, parish children were frequently taken on as underground hauliers for short periods. This allowed the legal process of binding to be avoided. In some mining districts, there was almost certainly an unofficial traffic in pauper children going 'on trial' which never resulted in legal binding. Once children had been sent out on trial, moreover, they ceased to be chargeable to the parish. Furthermore, such trial periods could often extend for months. Thomas Rayner, a surgeon from Birstall, explained the workings of the Dewsbury Union, where he served on the Board:

When I first attended the Board meetings, I was surprised to find so many applications from miners for apprentices from the Union Workhouse. The answer was, "Go to the house and select for yourself, and we will bind you the one you select." In some cases children (boys) have been selected at 7 and 8 years of age, because they were strong and healthy. Upon inquiry, I found no question had been asked as to the age; and if in a few months the man found the boy was not strong enough (without reference to his age), he brings him back. One instance occurred only on the 24th December, last Thursday, and the

⁵⁷⁴ (P.P. 1842, XVI), p. 19.

⁵⁷⁵ (P.P. 1842, XVI), p. 19; (P.P. 1842, XVI), p. 274.

⁵⁷⁶ (P.P. 1842, XVI), p. 234.

boy is again in the Union Workhouse, only 7 years of age. I remonstrated with the other guardians on the enormity of binding a boy so young: they told me they had not bound him, nor should they do until he was 9 years of age; but is not this the same as binding? This boy's master had five or six in the same way.⁵⁷⁷

The system of going 'on trial' was explained by the matron of the workhouse at Batley: 'It is the practice of the colliers or masters who want children to go to the Board-room, and they get an order to take a child, after they have picked them out at the workhouse. They inquire what the age is; they are not bound before 10, but they go on trial before that'.⁵⁷⁸ Many poor law guardians and potential employers of parish children, therefore, evaded the legal process of binding.

The administration of official binding, moreover, could be extremely negligent. In a poor law removal examination of 1842, John Maude (whose occupation was given as 'labourer') stated:

when he was about nine years old he was taken to the poorhouse of Elland ... and when he had been there about six weeks he went to live with Valentine Wilkinson of Mirfield Coal Miner [and] when he had been with him about three Months [he] went before the Magistrates at Halifax and ... came away with the understanding that he was bound Apprentice to him. that he served Wilkinson at Mirfield near three years and then he removed to Thornhill and took [him] with him and [he] served Wilkinson there about seven years and slept in his house and Wilkinson found him meat Clothes and Lodgings. that when he ... was twenty years of age he left off working for Wilkinson and worked on his own account ... that he worked with the said Valentine Wilkinson under the impression that he was apprenticed to him but [he] never saw any Indenture nor does he remember signing or putting his mark to any paper at the time they were at Halifax or at any time since.

⁵⁷⁷ (P.P. 1842, XVI), p. 274.

⁵⁷⁸ (P.P. 1842, XVI), p. 275.

The assistant overseer was subsequently examined on the matter of the official papers relating to the binding. Following a search, he admitted: 'I have searched in the Box in which are usually deposited the papers belonging to the Parochial affairs of the said Township and do not find nor is there any notice from the Churchwardens and Overseers of the poor of Elland ... to put out as a parish apprentice John Maude a person chargeable to that Township to Valentine Wilkinson or any person in the said Township of Mirfield'.⁵⁷⁹ In the meantime, however, Wilkinson lost no time in replacing his former 'apprentice': in his evidence to the C.E.C. in 1841, he explained that he had taken another; this time from the Batley workhouse.⁵⁸⁰

Overestimation of the ages of apprentices at binding also appears to have existed in parts of West Yorkshire. In 1831 the father of Ann (?Hannah) Ambler took an apprentice, Hugh Spencer, from the overseers of Elland-cum-Greetland township.⁵⁸¹ Spencer's indenture, dated 15 October 1831, gave his age as nine years and one month. However, the 1841 census schedule gives his age at June 1841 as seventeen. If his census age entry is correct, his age at apprenticeship would have been about seven years and seven months. It is probable, therefore, that the age entered by the overseers of Elland-cum-Greetland township on the indenture was false.⁵⁸²

⁵⁷⁹ Halifax Archives, EG:A/17/83, Elland-cum-Greetland township records. Poor Law removal examinations of Mary Langley, John Maude and William Oates, 4 Apr. 1842.

⁵⁸⁰ (P.P. 1842, XVI), p. 279.

⁵⁸¹ Halifax Archives, Elland-cum-Greetland township records, EG:A/17/86/2. Apprenticeship Indenture of Hugh Spencer, dated 15 Oct. 1831. Ann Ambler was the female depicted being drawn up a pit-shaft in Scriven's report (P.P. 1842, XVII) p. 61. For details of Ambler's family see Appendix C.

⁵⁸² PRO HO107/1299, 1841 Census, Elland-cum-Greetland (it is of course possible that the Amblers would wish to conceal the age of their apprentice from the enumerator).

There is a great deal of anecdotal evidence, therefore, to suggest that, during the 1840s, the customs relating to the binding of apprentices were commonly evaded. This resulted predominantly from the desire of the parish authorities to minimise the poor-rate. Considerable pressure was placed upon father-less families to get children employed early.

In May 1842, in response to complaints of irregularities in the binding of Staffordshire pauper children arising from the reports of the C.E.C., the Secretary to the Poor Law Commission, Edwin Chadwick, sent a circular letter to Poor Law unions in the west midlands. The letter requested returns of the numbers of pauper children bound as apprentices to colliers. The returns showed a surprisingly low level of binding.⁵⁸³ The total of apprenticed pauper children returned for 1840-42 was 58; a low figure given the reports of widespread binding provided by Sub-Commissioner Mitchell in 1840-41.

Following this, in June 1842, another circular letter was sent from the Poor Law Commissioners to the Dewsbury and Halifax Unions requesting details of binding. The return from Dewsbury contained details of a boy who had been 'sent out of the workhouse to a coal miner on trial at five years old'. The clerk to the Dewsbury guardians explained that this had resulted from the failure of the smaller township workhouses to keep an account of the ages of children:

I have to remark, that he, at that time, appeared by the workhouse books to be upwards of seven years of age. The children had been removed, along with other paupers, from one of the township workhouses to the union workhouse; and as the master of the township

⁵⁸³ Circular letter to Poor Law Guardians and Returns, May, 1842. (P.P. 1842, XXXV), p. 21. The unions were Aston, Ashby-de-la-Zouch, Burton-on-Trent, Dudley, Madeley, Seisdon, Stourbridge, Walsall, Wellington, West Bromwich and Wolverhampton; This matter was reported in 'Labour in mines', *Mining Journal*, 25 June 1842, p. 206.

workhouse kept no account of the ages of the inmates, the union officers were obliged to get the ages of the paupers from the paupers themselves and their friends; and in this way [the boy] was put down seven instead of five. As soon as the error was discovered, which was in a few days after the child was sent out of the workhouse, he was sent back to the workhouse.⁵⁸⁴

Of the thirteen children returned as having been sent to work in coal mines from Dewsbury Union during the period 1840–42, seven of them were said to have gone 'on trial'. The Halifax return contained a list of sixteen children who had been bound apprentice by 'Parish Officers' together with their terms of apprenticeship and a note from the union claiming: 'No child has been apprenticed to a Coal Miner by the Guardians'. The return, however, also contained the names of six children who had not been apprenticed, but had nevertheless been sent to work for coal miners (presumably they had gone on trial from township workhouses).⁵⁸⁵ None of the children returned by the Halifax Board was said to have been bound below the age of nine years and only two of the thirteen children returned by the Dewsbury Union were so young.

The continuing interest of the Poor Law Commissioners in the matter of apprenticeships prompted a defensive reply from the clerk of the Blackburn Union; this time the issue was that of the appropriation, by workhouses, of the wages of hired-out pauper children: 'it may happen that some of the young persons may not be discharged the very moment they are earning sufficient to support themselves', he wrote, 'but they are discharged within a short time and are not kept for the purpose

⁵⁸⁴ Letter from Poor Law Commissioners to Guardians of Unions of Dewsbury and Halifax on the Employment of Poor Children in Coal Mines, June 1842 (P.P. 1842, XXXV), p. 1.

⁵⁸⁵ (P.P. 1842, XXXV), p. 1.

of appropriating their wages'.⁵⁸⁶ It was practically impossible, however, for the central administrative body to regulate effectively the administration of the Poor Law or to verify claims of irregularities in binding paupers.

In August 1842, Lord Ashley proposed that the Children's Employment Commissioners be directed to report further upon those employed as apprentices, together with 'the manner of their apprenticeship, whether by regular indentures, or by what other forms of agreement; as to the terms of such indentures or agreements, and as to the manner in which such indentures or agreements are observed or enforced'.⁵⁸⁷ Indeed, one of Ashley's many objects in pressing for legislation to regulate the employment of children in mines had been to ensure 'the entire discontinuance of the system of binding pauper children as apprentices to ignorant and brutal journeymen colliers'. The investigation of 1840-41, however, had not reported adequately on the issue and Ashley's call for a further commission came too late.⁵⁸⁸ The Home Secretary, Sir James Graham, had already shown the government's reluctance to continue with the Commission.⁵⁸⁹

In 1843, the Midland Mining Commission made a limited attempt to take the matter of apprenticeships further.⁵⁹⁰ In his report, centred on the south Staffordshire

⁵⁸⁶ Lancashire Record Office, PUK/10/1. 'Hiring out Paupers from Workhouses', Blackburn Union Letterbook, 28 May 1844.

⁵⁸⁷ Hansard (Commons), Vol. LXV, 4 Aug. 1842, cols. 1051-53.

⁵⁸⁸ *Manchester Guardian*, 11 June 1842.

⁵⁸⁹ See pages 136-37 for Graham's attempt to wind-up the C.E.C.

⁵⁹⁰ *Midland Mining Commission*, First Report (P.P. 1843, XIII), hereafter M.M.C. Thomas Tancred was appointed to the commission in Dec. 1842. Letter to Sir James Graham from Treasury Office. PRO HO45/339/2. Tancred was paid fifty pounds per month plus one pound per day for personal expenses, in addition, he received travelling expenses. The commission was set up primarily to investigate the social conditions of the mining community following a number of serious disturbances which had been the result of Chartist agitation (P.P. 1843, XIII), pp. xl-xliii.

coal-district, Commissioner Thomas Tancred, suggested, from the basis of the Guardians' returns, and other local evidence, that, contrary to the evidence of 1842, the recruitment of pauper children from workhouses in south Staffordshire, was, in fact, small, and that their numbers had been in decline prior to the investigations of the Children's Employment Commission. No separate commission of investigation into the question of binding pauper children to colliers was ever embarked upon for the Halifax and Dewsbury districts, where it is likely that most negligent binding took place.⁵⁹¹

The inconsistency between the reports of 1842 and 1843 may have resulted from the recruitment of children from other parishes or of those who had never been in a workhouse. As a woman witness to the M.M.C. stated: 'We have ... an apprentice, but we don't know his age nor he himself except what we guessen. He came from Manchester; a boatman picked him up upon the canal side and brought him with him to drive his horse, and he could not find his way back ... He bound himself apprentice'.⁵⁹² The chairman of the Bradford union had earlier stated in evidence to the Select Committee on the Poor Law Amendment Act of 1837 that the

⁵⁹¹ Mitchell noted that although no apprentices were employed in the south Durham coal-field, the use of fraudulent indentures was widespread among other occupations in Durham. It was noted by the editor of the *Sunderland Herald* that a custom existed among some employers 'of not entering into a legal indenture with children sent to them in the capacity of apprentices, but of signing a paper *having the appearance* of an indenture, whereby a child is made to agree to become a bound apprentice whenever required so to do by his master... In nine cases out of ten, both the boy and his parents being unaccustomed to legal documents, think they have signed a regular indenture, whereby certain privileges are secured... How extensively this mock apprenticeship prevails may be inferred from the circumstance, that the parchment forms are kept regularly on sale in this town'. Having procured a copy of one of these fraudulent agreements, Mitchell presented it to several local people and found that they could not distinguish it from a legal indenture. It was 'printed on parchment [having] the royal arms at the top, and [was] artfully drawn'. (P.P. 1842, XVI), pp. 145-6.

⁵⁹² (P.P. 1843, XIII), p. xlii.

local trades people took their apprentices 'from the poor people, but not parish apprentices'.⁵⁹³ The C.E.C. concluded that, apart from children employed directly by their parents, the rest appeared to come from 'the poorest population in the neighbourhood ... hired and paid in some districts by the workpeople, but in others by the proprietors or contractors'.⁵⁹⁴ Moreover, there were concrete economic reasons for children to have been apprenticed in this way. It was noted by a poor law official in south Staffordshire, for example: 'We only allow out-door relief up to 9 ... and after that, put them apprentices or take them into the workhouse'.⁵⁹⁵ Widows with children of nine years or above, therefore, came under considerable pressure to get them employed.

Children were sometimes bound by their own parents. A collier in Govan had a boy who was 'not related to him'. It was explained: 'The boy's father is in the iron-works. He has no contract or bargain with the boy's father, but just has the boy for his meat, and he may keep him all his days if he likes it'.⁵⁹⁶ Other orphans simply became a part of the economy of another family. A north-east 'half-marrow', whose father was dead and whose mother was in domestic service, was lodging 'with strangers, and gives his money to them'.⁵⁹⁷ Since such a financial relationship mirrored that of parented children (whose parents also appropriated their wages), this was probably a less exploitative arrangement than might appear at first sight.

Orphans, therefore, faced a greater likelihood of entering employment at an earlier age and were more vulnerable to physical abuse at the hands of fellow

⁵⁹³ *Lords' S.C. on the Operation of the Poor Law Amendment Act*, (P.P. 1837-8, XIX). Minutes of evidence, p. 3.

⁵⁹⁴ (P.P. 1842, XV), p. 255.

⁵⁹⁵ (P.P. 1843, XIII), p. 104. Quoted in Hair, 'Social history', footnote, p. 53.

⁵⁹⁶ (P.P. 1842, XVI), p. 359.

⁵⁹⁷ (P.P. 1842, XVI), p. 605.

workers. Indeed, it was against orphan children that the worst abuses were practised. The most severely treated child in Leifchild's report on Northumberland and north Durham, for example, was a fatherless trap-door keeper.⁵⁹⁸ Without a father, Edward Rymer found fellow workers 'imposing work upon me, which as door-keeper, I had no right to perform'.⁵⁹⁹ Rymer's father abandoned his family before Rymer himself had commenced work at the age of nine or ten. Rymer suffered a fate common to those in similar social circumstances: 'crouching in a dark, damp hole behind a door, or ... kicked and pushed here and there amongst lads and brutal men for 12 or 13 hours'.⁶⁰⁰ When an adult Lancashire coal miner was asked whether or not he had been beaten whilst a drawer in the pit, he stated, 'I never was much thrashed, but I drew for my brother, and I was lucky'.⁶⁰¹ Symons found a nineteen-year-old apprentice at Mirfield, Yorkshire, who had been bound from the age of nine. An examination by a surgeon revealed 'several large abscesses in the thigh from hip-joint disease. The thigh-bone is dislocated from the same cause; the leg is about three inches shorter; the spinal column is curved; two or three of the abscesses are now discharging... I think him quite unfit to follow any occupation, much less the one he now occupies'.⁶⁰² In spite of his very serious physical condition, it was said that the apprentice continued to work for his master.

Not only did parish orphans work without the protecting influence of male kin, but they were also subject to the variable temperament of the masters to whom

⁵⁹⁸ (P.P. 1842, XVI), pp. 654-55.

⁵⁹⁹ He wrote: 'My father left us in this struggle, and nothing remained to us but to face the world and fight for existence'. Rymer, *Martyrdom*, p. 3.

⁶⁰⁰ Rymer, *Martyrdom*, p. 4.

⁶⁰¹ (P.P. 1842, XVII), p. 217.

⁶⁰² (P.P. 1842, XVI), p. 293.

they were bound. It was noted that the relieving officer of Over Darwen district in Blackburn,

had been in the habit of sending children from seven years old to nine from the workhouse to work in the coal-pits, but was obliged to take them back because they were so badly used: this bad usage is general in this district. One ... was sent by him to Bank Moor Colliery, where he stayed 12 months; there he was sadly beaten, &c.; after nine months he was brought back, and the doctor pronounced that he had been so badly used that he was not fit for work... The ill usage is beating them with the pick-handle.⁶⁰³

One master at a small Yorkshire pit informed the Sub-Commissioner that his hurrier 'would only move when he saw blood; and that, by throwing a piece of coal at him for that purpose, he had accomplished his object'.⁶⁰⁴ In Wigan, the Sub-Commissioner found a 'little lad called Andrew ... he is about eight years old, he comes from Liverpool, and lives with his master, and he is half-clammed [starved], and many a time he comes without any dinner or anything to eat'. The M.M.C. heard that: 'Some [parish apprentices] are clammed, and worked very hard and that, and sent into dangerous places. If one person won't go and do it, them's obliged to do it, these apprentices be'.⁶⁰⁵

Not all pauper apprentices suffered interminable cruelty and exploitation. The wide variation in the treatment of bound children is exemplified in the evidence taken from a West Riding orphan:

I don't know how old I am; father is dead; I am [a] chance child;
mother is dead also; I don't know how long she has been dead; 'tis

⁶⁰³ (P.P. 1842, XVII), pp. 803-4.

⁶⁰⁴ (P.P. 1842, XVII), p. 124.

⁶⁰⁵ (P.P. 1842, XVII), p. 223; (P.P. 1843, XIII), p. xlii.

better na three years; I began to hurry when I was nine years old for William Greenwood; I was apprenticed to him until I should be 21; my mother apprenticed me; I lived with Greenwood; I don't know how long it was, but it was a goodish while; he was bound to find me in victuals and drink and clothes; I never had enough; I used to have porridge and treacle water, and sometimes dry cake and coffee; he gave me some old clothes to wear, which he bought at the rag-shop; the overseers gave him a sovereign to buy clothes with, but he never laid it out; the overseers bound me out with mother's consent from the township of Southowram; William Greenwood gave me a bed to lie upon; it was a chaff bed; Henry Grimes slept with me; that was his nephew; his own lad slept with us; we used to lie top o' the tick without anything else, and had an old blanket and ragged sheet to cover us; I used to go to bed sometimes at eight o'clock or nine, and got some porridge, and sometimes coffee and cake; I ran away from him because he lost my indentures, for he served me very bad; he stuck a pick into me twice in my bottom. [Here I made the boy strip, and found a large cicatrix likely to have been occasioned by such an instrument, which must have passed through the glutei muscles and have stopped only short of the hip-joint; there were 20 other wounds, occasioned by hurrying in low workings, upon and around the spinous processes of the vertebrae, from the sacrum upwards.] He used to hit me with the belt and mawl or sledge, and fling coals at me; he served me so bad that I left him, and went about to see if I could get a job; I used to sleep in the cabins upon the pit's bank, and in the old pits that had done working; I laid upon the shale all night; I used to get what I could to eat; I eat [sic] for a long time the candles that I found in the pits that the colliers left over night, I had nothing else to eat; the rest of the hurriers did not know where I was; when I got out in the morning, I looked about for work, and begged of the people a bit; I got to Bradford after a while and had a job there for a month while a collier's lad was poorly; when he came back I was obliged to leave; I work now here for John Cawtherly; he took me into his house and is serving me very well.⁶⁰⁶

⁶⁰⁶ The physical examination was carried-out by the Sub-Commissioner Samuel Scriven (P.P. 1842, XVII), p. 118.

In east Lancashire, however, it was reported that a local getter was 'a wicked old fellow ... once he bit [his drawer] by the thigh, and lifted him to the roof in his mouth'.⁶⁰⁷

Despite the possibly apocryphal nature of such stories, very small mines such as those in north and east Lancashire were often associated with poor treatment. Indeed, Joseph Dickinson, the inspector for the district, noted as late as 1859: 'there are 389 working coal-pits or shafts ... 89 "breast eyes," ... and about 259 ladder and air pits'.⁶⁰⁸ Pits accessed by ladder often employed no more than half a dozen workers and supervision of children would have been very difficult.⁶⁰⁹ In the case of these smaller pits, it was common for the members of one or two families to comprise the entire labour force.⁶¹⁰ In such marginal pits, moreover, child labour remained a viable part of coal production. As was suggested in chapter three, the greatest activity in producing petitions against a restriction of child labour took place in coal-districts containing small pits in which the employment of younger children was often a necessity.

Pauper children working in marginal mining enterprises were often extremely badly treated. The Sub-Commissioner for north Lancashire stated: 'There were two or three boys who went from the workhouse in the Oswaldtwistle district to one of the collieries; they were about nine years of age. The colliers treated them very harshly, and their health was much injured when they returned to the workhouse, one in particular ... had black marks from the threshing he received'.⁶¹¹ A case reported

⁶⁰⁷ (P.P. 1842, XVII), p. 851.

⁶⁰⁸ Report of H.M.I. Joseph Dickinson (P.P. 1859, XXV.183), p. 9.

⁶⁰⁹ In Halifax, for example, the Sub-Commissioner found, 'A small turn-wheel pit, having but one man and two boys at work'. (P.P. 1842, XVII), p. 104.

⁶¹⁰ Ashton and Sykes, *The coal industry of the eighteenth century*, p. 157.

⁶¹¹ (P.P. 1842, XVII), p. 803.

second-hand to Kennedy by a surgeon from Rochdale was exceptionally bad. Again, it concerned an apprentice who had been severely beaten by his master:

His posteriors and loins were beaten to a jelly; his head, which was almost cleared of hair on the scalp, had the marks of many old wounds upon it which had healed up; one of the bones in one arm was broken below the elbow, and, from the appearances, seemed to have been so for some time ... The boy, on being brought before the magistrates, was unable either to sit or stand, and was placed on the floor of the office, laid on his side on a small cradle bed... It appeared from the evidence that the boy's arm had been broken by a blow with an iron rail, and the fracture had never been set, and that he had been kept at work for several weeks with his arm in the condition above described. It further appeared in evidence, and was admitted by [the boy's master] that he had been in the habit of beating the boy with a flat piece of wood, in which a nail was driven and projected about half an inch. The blows had been inflicted with such violence that they had penetrated the skin, and caused the wounds described... The boy had been starved for want of food, and his body presented all the marks of emaciation. This brutal master had kept him at work as a waggoner until he was no longer of use, and then sent him home in a cart to his mother, who was a poor widow, residing in Church-lane, Rochdale.⁶¹²

In such cases, it is probable that the perpetrators of the violence were, if not psychopathic, sadistically inclined.

IV

The treatment of parish apprentices underlines the importance accorded to an economically coherent household in pre-twentieth-century working-class life. Despite the integration of the labour of children into the work process, however, coal miners and owners were in agreement on the issue of apprenticed labour. It was thought that

⁶¹² (P.P. 1842, XVII), p. 182.

their employment was injurious to workers in a number of respects. In some areas, when men were killed, the owners had an established duty to provide money for the widow and family, and, additionally, to provide for funeral expenses. William Peace, agent for the Haigh and Balcarres collieries at Wigan, noted that upon the death of a collier, 'we always provide the coffin and a Subscription is raised amongst the Colliers for the Relatives of the deceased ... We also usually allow the Widow to remain in her house Rent free until she finds some means of procuring a livelihood. The money subscribed is on all occasions spent upon the Funeral'.⁶¹³

Such duties did not apply to mining butties. In south Staffordshire, a district noted for a high level of contractor-employed children, it was felt that butties had less of an interest in ensuring the safety of their employees. The prudential interest of coal-owners over this matter was invoked by one coal-master, who stated:

If a man is killed, it is an universal custom, enforced by the magistrates, that the master has to give the widow and family 6s. a-week, and the men the same, as long as she remains single, and also the funeral expenses; and if a man is injured he has 6s. a week from the men and the same from the master, as long as he is ill. Now this is nothing to the butty, excepting that he pays 3d. a week; so that he has little inducement to be careful of men's lives or limbs, and so that is another way he injures the master.⁶¹⁴

The Mines Act included a restriction upon the time during which boys could be legally bound apprentice. Prior to the Act, there had been no lower age restriction: a period of apprenticeship began at any time between seven and ten years

⁶¹³ Wigan Record Office. Letter-book of William Peace, DDX.E1/ Box99, to Lady Crawford, 20 Oct. 1842; (P.P. 1842, XVII), pp. 234-5. The relieving officer for Wigan stated: 'When death ensues in the pit, by fire-damp or otherwise, the master provides the coffin for the deceased'.

⁶¹⁴ (P.P. 1843, XIII), p. 25.

and ended legally at the age of 21. The Act of 1842 shortened the legal term of binding to between the ages of ten and eighteen years.⁶¹⁵

The employment of parish apprentices, whose earnings would be largely appropriated by the butties, devalued the labour of miners' children and was regarded as a threat to household incomes. The restriction on apprenticeships, therefore, earned the approbation of miners, one of whom thought, following the act: 'One of the best things that ever came out since it's been a government, is letting them go at 18. The colliers without exception praise that, unless it be the butties'.⁶¹⁶ Indeed, there was a general dislike of the system among both reformers and workers. Tufnell explained in his 1837 report on pauper apprentices, 'If the parish premium displaces the labour of the child of an independent labourer, look at the result; the parish congratulates itself upon having got a pauper child into a good place, whilst an independent labourer is disappointed of his just hopes, and perhaps is instantly made a pauper.'⁶¹⁷

The colliers' condemnation of the system resulted from a fear that the employment of parish apprentices devalued the labour of their own children. Any notion, therefore, that miners condemned apprenticeship upon altruistic grounds needs to be measured against their support for the employment of their own children. The only references made to the employment of children by miners' labour organisations in the first half of the nineteenth century were related to the issue of

⁶¹⁵ 5 & 6 Vict., c.99.

⁶¹⁶ (P.P. 1843, XIII), p. 20.

⁶¹⁷ Quoted in (P.P. 1843, XIII), p. xli. Tufnell's argument that the parish premium alone would be an incentive to employ pauper children is extremely weak since this usually amounted to no more than a sovereign, the nominal cost of a set of clothing. (P.P. 1842, XVII), p. 70.

children's hours: they failed entirely to condemn the employment of children on moral grounds.⁶¹⁸

Indeed, the intentions of Ashley and the abolitionists in excluding children from work were greeted with a degree of astonishment by both miners and coal-owners. The miners' labour organisations did not even begin to address the issue until after 1844. Even then it has been suggested that 'their first job must have been to convince many of their own members that the tradition of long hours for children was not a worthy one'.⁶¹⁹ Miners' labour organisations did not think there was anything morally reprehensible about child labour in coal mines. The deprecation by colliers of apprenticeships resulted from the perception that the employers of apprentices gained an unfair advantage in the labour market by availing themselves of cheap labour. The evidence of much higher levels of ill-treatment toward them suggests that the apprentices themselves were devalued as a result.

However, the plight of the badly treated coal-mining children cannot be wholly ascribed to the negligent binding practices of a few poor law officials. As has already been pointed out, many apprentices never actually entered the poor law system. Broader social attitudes to the low esteem of orphans together with the absence of protection from a family worker were probably the primary factors affecting the incidence of abuse. Even at Killingworth (an advanced north-east colliery where no pauper children were apprenticed to pit-men) it was noted: 'Those who have no father are not so well off as others, and do not get so much to eat'.⁶²⁰ All the demonstrably severe cases of ill-treatment reported to the C.E.C. resulted

⁶¹⁸ North-east pitmen complained about the hours of children in 1825 and 1831. Hair, 'Social history', p. 216.

⁶¹⁹ Hair, 'Social history', p. 217.

⁶²⁰ (P.P. 1842, XVI), p. 588.

from the employment of orphans by brutal single colliers or small contractors. There is little evidence, however, that severe abuse took place underground.

V

The most severely abused children in coal-mining communities were orphan apprentices: but it is doubtful whether their ill-treatment can simply be attributed to the fact that they worked underground. It is clear that many social and industrial factors had a bearing upon the type, frequency and severity of corporal punishments against children in coal mining. Corporal punishment was not a uniform phenomenon: it differed between coalfields and according to the social and familial circumstances of the child.

The view that serious abuse against children was related to the industry in which they worked, therefore, is highly misleading. In coal mining, mild abuse, bullying and safety discipline were related to production: but it is likely that the most serious abuse had more to do with the quality of local social welfare provisions: as has been seen, the parish was frequently responsible for negligence in binding children as apprentices. Severe cases of ill-treatment against mining children, therefore, had little to do with the process of coal mining and resulted predominantly from the social esteem in which orphans were held. They were regarded as a threat to the household economy.

Extreme examples of the physical abuse of orphans were remote from the typical treatment of children in mines. As the *Westminster Review* noted, the severe case of abuse from Rochdale, cited above, showed 'the brutality which prevails

among the most barbarous of the men and in the most undisciplined pits'.⁶²¹ The Lancashire Sub-Commissioner was in little doubt about the general picture of corporal punishment among the Lancashire mining children he had interviewed. Having detailed the case of serious abuse from Rochdale, he reported on the general level of violence against children: 'it appears that slight corporal punishment is the usual mode by which the exertions of the children are enforced', he noted, 'but from their own way of answering questions on that subject with a laugh, I am led to conclude that the punishment inflicted is not generally severe ... Cases of gross abuse are, I am persuaded, rare'.⁶²² In Yorkshire, it was reported: 'Considering the ignorance of the men and their entire control over the children, their treatment of the children is highly to their credit. The instances of cruelty and severe beating are very rare'.⁶²³ Lancashire and west Yorkshire, however, were coal-districts in which it has often been claimed that the most severe abuses of children took place.⁶²⁴ It should also be remembered that much of the evidence of ill-treatment contained in the 1842 Report consisted of anecdotes from colliers and local observers. Indeed, not one of the Sub-Commissioners actually claimed to have witnessed abuses. Samuel Scriven found a girl crying after having been beaten by her getter. She explained that she and her sister 'had a very bad mother - she used to go flitting very much, and would not stop with my father'.⁶²⁵ The dissolution of households had as much to do with a predisposition to ill-treatment as did coal production.

⁶²¹ Greg, 'Protection of children in mines and collieries', p.100.

⁶²² (P.P. 1842, XVII), p. 182.

⁶²³ (P.P. 1842, XVI), p. 192.

⁶²⁴ The exclusion of children under nine years from mills after 1833 was said to have been responsible for inducing many more parents in textiles districts to send their very young children into mining. *Leeds Mercury*, 18 June 1842.

⁶²⁵ (P.P. 1842, XVII), p. 123.

self-acting doors were probably more likely to cause explosions than to prevent them before about the mid-1860s. At a West Yorkshire pit, the Sub-Commissioner found 'no less than two doors ajar; one owing to a defect in the hinge, and the other from coal having fallen and blocked the doorway. When I arrived at the bank face, I was not allowed to hold my candle near the roof for fear of an explosion!'³⁶⁴ Increasing efficiency of underground machinery and the introduction of some self-acting doors meant that some of the younger and less reliable workers could be dispensed with.³⁶⁵

Perceptions of economic losses resulting from large explosions cannot be discounted in discussing the interest of the employers in the parliamentary negotiations concerning the age restriction. To have excluded all children below the age of thirteen, as Ashley had wanted, would have removed most of the trappers

prototype automatic door in 1797. Curr, *The coal viewer and engine builders' practical companion*, p. 32.

³⁶⁴ Symons' opinion was categorical: 'It is difficult to devise any other really safe system than that of having a much older, better paid, and responsible class of persons to perform so very important an office'. (P.P. 1842, XVI), p. 175. The viewer Nicholas Wood, however, was of the opinion that: 'Old men are too stupid for door-keeping'. (P.P. 1842, XVI), p. 587.

³⁶⁵ The viewer of Seghill Colliery gave the following description: 'In regard to our self-acting trap-doors, there is little difference in the size and the shape is slightly altered from that of the ordinary trap-door, being a little wider at the bottom than the top... They are made to open either way, and shut again, without the assistance of a trapper-boy. This is done by placing the door-cheek or post on which the door is hung a little out of the perpendicular line towards the centre of the door. In my opinion this description of door answers the purpose very well, and renders the use of boys almost unnecessary; although there are certain localities in mines where the current of air can only be changed in its direction by the means of trap-doors, where it is of so much importance that trapper-boys must be employed to open and shut them. In case a new mine was commenced on a proper plan, and there were a sufficient number of downcast shafts, I think it is quite possible to ventilate without the aid of trapper-boys; but where mines have been extensively worked, and a series of difficulties to contend against, it is impossible. These self-acting doors are now in use at other collieries on the Tyne'. (P.P. 1842, XVI), pp. 612-13.

cause of complaint in regard to the treatment they receive from the persons in authority in the mine, or from the colliers; but that in general the younger Children are roughly used by their older companions'.⁶²⁹ However, bullying and the often arbitrary ill-treatment meted out to orphans and parish apprentices should not be confused with more specific forms of corporal punishment intended to maintain *safety discipline*: the latter had a clear rationale.

If corporal punishment of children in mines can be characterised as a factor of production (as Nardinelli claimed), it is in the administration of safety discipline that a relationship between punishment and production can be most profitably demonstrated. Corporal punishment intended to maintain underground safety may be said to have increased production in so far as it created a safer and less disrupted work environment: but this form of violence was the lightest and most regulated of any in the industry.

VI

Broader social causes of ill-treatment are much more difficult to identify. In longer established coal-districts, such as the North East, occupation succession was high and child miners had a better chance of being supervised by a parent or another family member. A smaller proportion of them, therefore, were placed in positions of vulnerability to ill-treatment. Incomes were generally higher and more stable, and pitmen's combinations were in a better position to restrict recruitment to their male children: work for very young children was in short supply in the north-east coal-district and the social pressure to exclude the children of non-miners was high, even before the further restrictions imposed by the Mines Act of 1842.

⁶²⁹ (P.P. 1842, XV), p.257.

Demographic changes associated with the expanding coal-districts also contributed to household breakdown which exposed children to ill-treatment. Ashton and Sykes suggested that the bad conditions of the 1840s which they described were caused by 'the influx to the coal-mines of a population that had neither the professional traditions nor the technical skill of the colliers of the eighteenth century.'⁶³⁰ This was undoubtedly true of the rapidly expanding coal-fields, but these historians largely failed to differentiate between coalfields. In longer-established districts, there appears to have been little migration of non-miners into mining and this might explain the better aggregate treatment of north-east mining children. Although migrations between collieries can be shown to have been frequent in the North East, these were of a more homogeneous nature from the heterogeneous migration characteristics of the 'boom' coal centres of, for example, south Staffordshire and south Wales. In the North East, migration was primarily from colliery to colliery. The Welsh and Staffordshire mining labour force came predominantly from non-mining areas: often their sheer numbers swamped existing welfare amenities.

In longer-established coal-districts such as Durham, family structure was more stable. The C.E.C. found that, in Durham, the vast majority of children working in coal mines had been born in that county. Fourteen of the schedules returned to the Sub-Commissioner contained the birthplaces of children. The results are shown in table 27.

⁶³⁰ Ashton and Sykes, *The coal industry of the eighteenth century*, pp. 158-9.

Table 27. Birthplaces of 1605 children who were working at 14 collieries in South Durham in 1841.

| | |
|---------------------|------|
| Durham..... | 1353 |
| Northumberland..... | 147 |
| Yorkshire..... | 37 |
| Cumberland..... | 26 |
| Derby..... | 13 |
| Westmorland..... | 7 |
| Nottingham..... | 6 |
| Lancashire..... | 2 |
| Kent..... | 1 |
| Middlesex..... | 1 |
| Wales..... | 1 |
| Scotland..... | 3 |
| Ireland..... | 8 |

Source: (P.P. 1842, XVI), Table, p. 142.

Moreover, very few children in the sample whose birthplaces were outside Durham or Northumberland had migrated from a county which did not contain a major coal-field (only 0.06 per cent of the English-born). Of the total of 1353 enumerated, only 15.7 per cent were born outside Durham and only 6.5 per cent came from outside the north-east coal-district. Therefore, although north-east pitmen have traditionally been regarded as very migratory, the numbers who entered the industry from outside the north-east mining counties was very low. By 1851, however, there is evidence that there had been an increase in the numbers of migrants from outside the north-east mining districts. Even then, however, of the 578 individuals in Anderson's census sample for Hetton, Co. Durham, 82.6 per cent had been born in either Durham (68

per cent) or Northumberland (14.7 per cent).⁶³¹ Therefore, children probably experienced a greater predisposition to ill-treatment of children in coal-districts that sprung quickly into existence and in which a rapidly increasing migrant population outstripped existing social amenities.

Table 28. Increase in population in counties of south Wales, 1801-1841.

| | 1801 | 1841 |
|-----------------|--------|---------|
| Monmouthshire | 45,582 | 134,355 |
| Glamorgan | 71,525 | 171,188 |
| Brecknockshire | 31,633 | 55,603 |
| Carmarthenshire | 67,317 | 106,326 |
| Pembrokeshire | 56,280 | 88,044 |

Source. Morris and Williams, *South Wales coal industry*, note, p. 210.

In newly developing coal-fields, the increasing demand for labour drew a large amount of traditionally non-mining labour into the expanding colliery enterprises. Rapid expansion of production in coal counties such as Glamorgan meant a high degree of labour recruitment from traditionally non-mining families. One consequence of such a rapid re-adjustment would have been a greater number of single colliers and a higher demand for apprenticed labour. This social dislocation probably provided the background for much of the ill-treatment of mining children.

⁶³¹ Anderson, Collins and Stott, *National sample from the 1851 census of Great Britain* [computer file], filename PA5203.DAT, Hetton, Co. Durham.

VII

There is little evidence to prove that coal production was directly responsible for bringing about higher levels of ill-treatment. Conditions for children, moreover, were most favourable in the most capitalised enterprises. Like other trades, such as fishing and forestry, coal mining was frequently dangerous and uncomfortable: but ill-treatment in the form of physical abuse was probably no greater as a result (except, perhaps, in the special case of safety discipline). If there were more parish apprentices and orphans employed, this resulted from local circumstances such as the operation of the Poor Law and increases in the demand for haulage workers: the most severe ill-treatment was inflicted upon orphans.⁶³² Moreover, despite the small number of instances of severe abuse, the Sub-Commissioners elicited no evidence that any children were killed as a result of ill-treatment at work.

⁶³² For an example of ill-treatment of pauper apprentices in textiles factories see Brown (ed.), *Memoir of Robert Blincoe, an orphan boy, passim*.

Conclusion

This work has been an attempt to develop a small number of research areas in the history of children's employment in coal mining. Certain of these approaches, however, have a wider significance and some of the more specific themes may require fuller development.⁶³³

Firstly, the relationship between technology and children's employment is ripe for further research. The age and occupation structures of children's employment in history were highly sensitive to changes in capitalisation and the diffusion of technologies. The orthodox historicist view sees the decline in child employment as a series of acts of parliament leading to the control of capitalist exploitation and a better quality of life for children. That view, it has been suggested here, overestimates the power of central government to effect change. It may be that social legislation such as the factory and mines acts, to a large extent, merely shadowed deeper and more widespread industrial and economic changes. The scope for more detailed work on the meaning and effectiveness of early nineteenth-century social reform is, therefore, still very wide. The history of social policy affecting nineteenth-century children will be richer as a result of such work.

Secondly, the demographic influences upon the employment of children requires further exploration. Perhaps the most profound of these influences, as pointed out in chapter seven, was the absence of parents: but family size and age-structure of siblings must have exercised subtle (but more widespread) influences

⁶³³ The pattern of economic growth in early nineteenth-century Britain is analogous to patterns in economically under-developed states where children often begin working at an early age. In this respect, the historical study of child labour and its decline in economically developed states may offer some assistance to modern investigators of children's employment, particularly concerning their methods of inquiry.

upon the ages at which children were expected to earn their livings. The influence of family structure is very difficult to establish because of the large amounts of data involved in any study of a large population. Quantitative analysis of the ages of children is possible using census schedules. However, as suggested in Appendix C, the enumeration of the occupations of children in the census was too haphazard for a systematic study to be conducted from that single source. The possibility of multiple-source record linkage using census evidence of the ages of children together with sources that list the occupations of children (business records and pay-bills, for example) probably represents the most fertile areas for further developments.⁶³⁴ However, such records have not survived in large numbers and there is only a limited prospect that general conclusions might be drawn from these.

Thirdly, studies of the stature of children, as an indicator of welfare, need to be further developed. The work of a number of scholars on the achieved stature of adults is continuing to grow and this development enhances existing studies of historical welfare. The important caveats indicated at the conclusion of chapter five, however, indicate that sensitive handling of such data is required. The range of influences upon human stature are many: more detailed studies of the physical growth of children may contribute to a better understanding of the nutritional environment in which they lived.

Further studies also require an appraisal of the narrow emphasis placed by nineteenth-century reformers upon the employment conditions of young children. That emphasis was deplored in 1842 by a Welsh collier who admonished the Children's Employment Commissioners in the *Mining Journal*:

⁶³⁴ Multiple-source methods are currently being developed by King. See 'Multiple source record linkage in a rural industrial community', *passim*.

there is another portion of the people employed in the coal and other mines of England, besides the young, that the commissioners did not see - at least, they did not report of their state - I mean the aged miner - why did they not consider his case, worn out with hard labour, broken and dislocated bones, with scarcely a breath to drag himself along to his labour? They have fixed an age when the young are to begin to work - why did they not fix an age when the worn-out collier and miner should cease working? ⁶³⁵

The plight of the poverty-stricken older worker was scarcely mentioned by early nineteenth-century government inquirers.

More work on the functions of children in industry, and within the household economy, may provide further clues to the causes of the decline in child labour and to the fundamental changes in social attitudes towards children and work which developed during the nineteenth century. Understanding of the complex status of 'childhood' in modern societies and economies can only be enriched by further research into its origins.

⁶³⁵ 'A collier', *Mining Journal*, vol. XII, 23 July 1842, p. 237.

Appendix A. Description of prosopography of evidence to the Children's Employment Commission

The two large appendices to the report of the Children's Employment Commission contained a large number of short pieces of biographical evidence such as age, occupation, age at starting work and occupation at starting work, together with the coal-district in which they worked.

These data were abstracted from the evidence and put into a database to provide a basis for the testing of general statements about children employed in coal mines. The data was used to compare ages and occupations between coal-districts.

An example of the types of data that were abstracted, is given below.

612

NORTHUMBERLAND
AND NORTH OF
DURHAM
COLLIERIES.

Evidence
collected by
J. h. Leifchild, Esq.

No. 210.

hour shifts three or four times. Was once wrenched in his hip two years since by putting, and was off about three weeks. A good part of boys has been strained by putting and has been off work. It is nearly level putting here, and it is middling good air. There is part broken at the crane he is at. Reads [well.] Writes his name. Goes to no school now. Seldom goes to chapel. Was at night-school for 2 years.

No. 210.—*James Reid.*

Aged about 18. Has been down pits about 9 years. Down Cowpen Pit about 6 years and has been about 3 years down this pit. Cowpen was worse air than this. Both were rather light putting. Is now putting a tram by himself. There is not much hard putting here. Is part in the broken. While he stood two shifts, of 24 hours, down Cowpen Pit. That is a wet pit and very bad air. They do not wear any back-skins here. Some trappers lie idle in their turns here. Would wish for shorter hours. Could put as much in 10 hours, if kept going, as he now does in 12 hours. Generally puts about 2 score or 2½ score in a day. Is paid 1s. 7d. a score now. Puts 80 yards for 1s. 3d., and 1d. for every 20 yards more. There are tubs and corves here. Is in the corf pit. Corves hold 20 pecks. The tubs [iron] hold 20 pecks. There are very few helpers-up here, and not so much used as at some places. Some men swear down the pit. Can read [fairly]. Writes his name. Goes to no school or chapel now. Went about a year to night-school. Never has worked in a night shift here, but there was always two shifts at Cowpen.

No. 211.

No. 211.—*William Morton.*

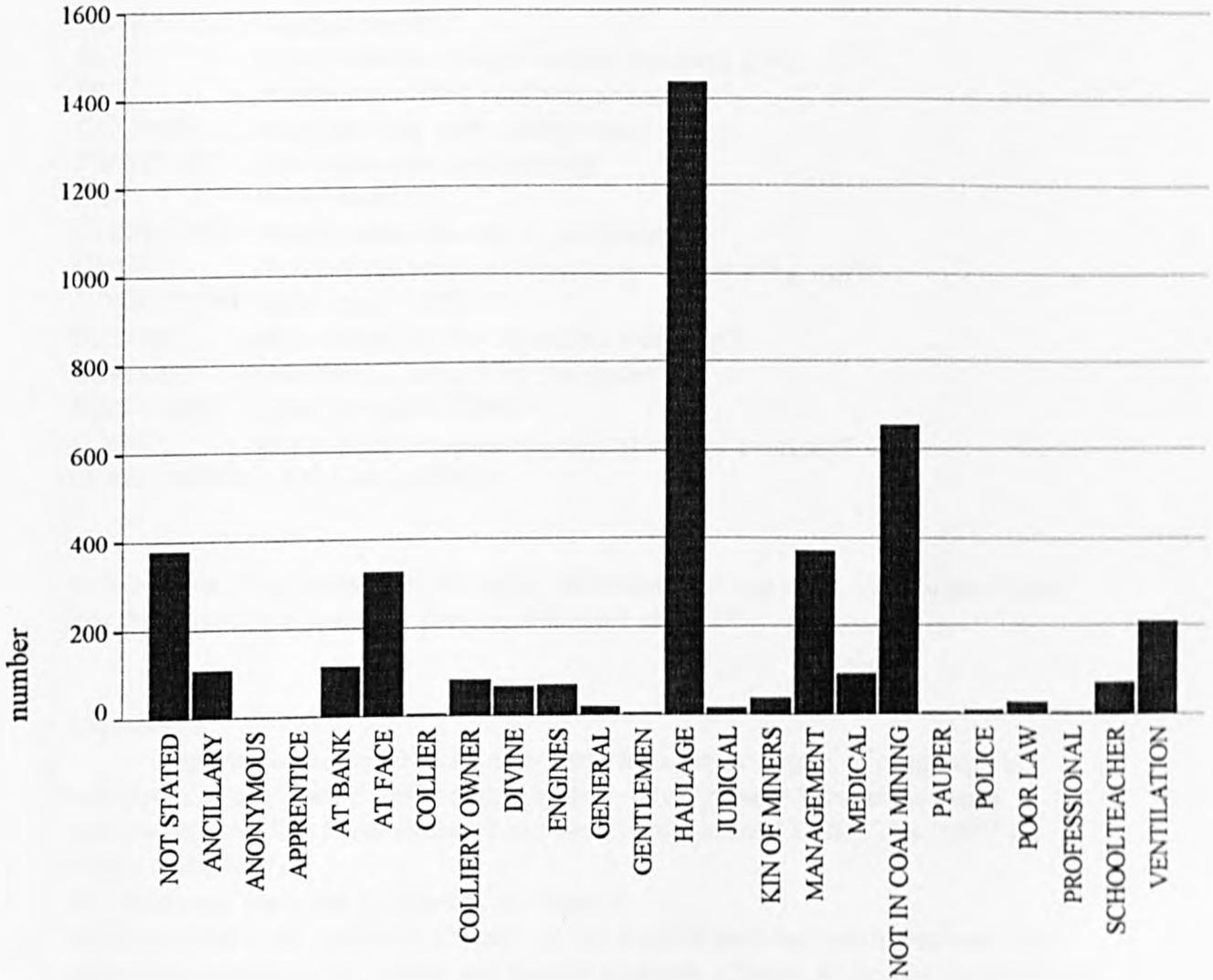
Aged 18. Puts a tram by himself. Has been down pits 6 years. Was one year at Cramlington, and one at Thornley. Has been here 4 years. He strained his feet when he was first putting. Did not like Thornley Pit. Once stood double shift at Cramlington, and once here, going with deputies, and greasing rolleys. Now he makes about 3s. a-day. Reads [fairly]. Writes his name. Goes to no school or place of worship now.

| rep | num | age | ooo | oocage | firstooo | sex | comments | oocd1 | oocd1num | report | district |
|------|-------|-----|--------------------|--------|----------|-----|---------------------|-------|----------|---------------------|------------|
| 1446 | 8 210 | 18 | PUTTER | 9 | | | | | 1 | N.BERLAND AND N.DUR | NORTH EAST |
| 1447 | 8 211 | 18 | PUTTER | 12 | | | | | 1 | N.BERLAND AND N.DUR | NORTH EAST |
| 1448 | 8 212 | 15 | WOOD LEADER | . | AT BANK | | | BANK | 3 | N.BERLAND AND N.DUR | NORTH EAST |
| 1449 | 8 213 | 15 | PUTTER | 10 | AT BANK | | | BANK | 3 | N.BERLAND AND N.DUR | NORTH EAST |
| 1450 | 8 214 | 15 | MINDS A FLAT | 9 | | | | | 1 | N.BERLAND AND N.DUR | NORTH EAST |
| 1451 | 8 215 | 13 | DRIVER | 9 | | | | | 1 | N.BERLAND AND N.DUR | NORTH EAST |
| 1452 | 8 216 | 13 | PUTTER | 7 | | | | | 1 | N.BERLAND AND N.DUR | NORTH EAST |
| 1453 | 8 217 | . | VIEWERCHARLES CAR | . | | | SELF ACTING DOORS/U | | 1 | N.BERLAND AND N.DUR | NORTH EAST |
| 1454 | 8 218 | . | UNDERVIEWER,CRAMUJ | . | | | | | 1 | N.BERLAND AND N.DUR | NORTH EAST |
| 1455 | 8 219 | 20 | PUTTER | . | | | NIGHTSCHOOL/LEARN | | 1 | N.BERLAND AND N.DUR | NORTH EAST |

| | oocd2 | distcode | oocd2num |
|------|------------|----------|----------|
| 1446 | HAULAGE | 4 | 13 |
| 1447 | HAULAGE | 4 | 13 |
| 1448 | ANCILLARY | 4 | 2 |
| 1449 | HAULAGE | 4 | 13 |
| 1450 | HAULAGE | 4 | 13 |
| 1451 | HAULAGE | 4 | 13 |
| 1452 | HAULAGE | 4 | 13 |
| 1453 | MANAGEMENT | 4 | 16 |
| 1454 | MANAGEMENT | 4 | 16 |
| 1455 | HAULAGE | 4 | 13 |

Example of the prosopographical dataset

Figure 14. Occupations of all persons observed in evidence to the C.E.C.



Source: Occupations taken by the Sub-Commissioners, P.P. 1842, XVI., XVII.

Description of the dataset

The dataset comprises 4108 rows and 15 fields.

Summary of fields (* denotes field inserted by the author).

| | |
|----------|--|
| REP | number of report* |
| NUM | evidence number |
| AGE | age of observed subject at date evidence given |
| OCC | occupation at date evidence given |
| OCCAGE | age at starting work underground |
| FIRSTOCC | first occupation underground |
| SEX | sex of subject |
| COMMENTS | miscellaneous comments on evidence* |
| CODE1 | standardised occupation group at commencing work* |
| CODE1NUM | coded from CODE1* |
| REPORT | area covered by the report and evidence* |
| DISTRICT | coal-district comprising the report* |
| DISTCODE | coded from DISTRICT* |
| CODE2 | standardised occupation group at date of evidence* |
| CODE2NUM | coded from CODE2* |

In age fields, if subjects gave two ages, the earlier age was used. If a subject noted that they were 'going-on 15' they were entered as 14.⁶³⁶

Exclusions

Reports dealing solely with ironstone, lead, tin or copper mining were not included in the dataset.⁶³⁷ Where non-colliery workers were interspersed with colliery workers they were included and were coded in field CODE2 as 'NOT IN COAL MINING'.

The following were not included in the dataset.

Evidence from John Leifchild's report on Northumberland and north Durham lead mines, the education of children and benefit societies; Charles Barham's report on the copper and tin mines of Cornwall; Frederick Roper's report on Irish coal mines;

⁶³⁶ The degree of accuracy of age data is, obviously, limited by the accuracy of the evidence given by each individual. A Yorkshire hurrier explained to Scriven, for example: 'I shall be 12 four days before the fair; I cannot tell when that is within two or three months'. (P.P. 1842, XVII), p. 109.

⁶³⁷ The exclusions resulted primarily from a shortage of time. It is hoped that the dataset will be completed at some point during 1995. The dataset and codebook will be deposited at the ESRC Data Archive, University of Essex.

Thomas Martin's report on Irish lead mines; Elijah Waring's evidence on tin-works and iron-works in the Forest of Dean and the whole of James Mitchell's report on lead mines in Durham, Northumberland and Cumberland.⁶³⁸

⁶³⁸ (P.P. 1842, XVI), pp. 686-730, 821-854, 855-874, 881-883. (P.P. 1842, XVII), pp. 14-17, 19-21, 755-772.

Appendix B. Description of a dataset deposited at the ESRC Data Archive.

The below is a description of a dataset deposited at the ESRC Data Archive, University of Essex.

SN: 3108. Kirby, P.T. *Anthropometric data relating to working-class children, 1841* [computer file. SN:3108] Colchester: ESRC Data Archive, 1993.

Anthropometric data relating to working-class children, 1841.

Filenames: HEIGHT1.SAV (SPSS for Windows format) and HEIGHT1.DBF (DBase IV format).

Peter Kirby, Department of History, University of Sheffield.
7 October, 1993

Source and description of the dataset

Parliamentary Papers

The dataset was compiled from the following sources:

Commission for Inquiring into the Employment and Condition of Children in Mines and Manufactories, First Report of the Commissioners (Mines) (P.P.1842, XV);
Appendix to 1st Report of the Commissioners (Mines), Part I (P.P.1842, XVI);
Appendix to 1st Report of the Commissioners (Mines), Part II (P.P.1842, XVII).

Description of the dataset

The data were collected during 1841 by Sub-Commissioners who were seeking evidence for the Children's Employment Commission (hereafter *C.E.C.*). The Commission reported upon the condition of children employed in mining in the British Isles. The final Report and Appendices run to 2,087 pages and comprise reports from all major British mining districts. Anthropometric data appears in the reports of two Yorkshire Sub-Commissioners (examples of the original tabulated data appears as Appendix A to this summary).

Cases

Cases 1- 620 inclusive. *C.E.C. Appendix Pt.2* (P.P.1842, XVII), 'Report by Samuel S. Scriven, Esq., on the Employment of Children and Young Persons in the Collieries of a Part of the West Riding of Yorkshire; and on the State, Condition, and Treatment of such Children and Young Persons', Appendix A, tpls.1-5, pp.77-86.
Cases 621- 857 inclusive. *C.E.C. Appendix Pt.1* (P.P.1842, XVI), 'Report by Jelinger C. Symons, Esq., on the Employment of Children and Young Persons in Mines of the Yorkshire Coal-Field; and on the State, Condition, and Treatment of such Children and Young Persons', Appendices C, D, E., pp.212-16.

Cases 1- 857 contain the heights of children.
 Cases 1-791 (inclusive) also contain circumference measurements.

Dataset fields:

| | |
|----------|---|
| Ind | Industry (see below for codes) |
| Pl | Place or district (see below for codes) |
| Familyna | Family name |
| Firstnam | First name |
| Sex | 1 = Male; 2 = Female * |
| Ay | Age years |
| Am | Age months |
| Hf | Height feet |
| Hi | Height inches |
| Cf | Chest circumference, feet |
| Ci | Chest circumference, inches |
| Cond | Samuel Scriven's subjective assessment of physical condition ** |
| R | Read? Y or N |
| W | Write? Y or N |
| Emp | Type of employment |
| Empy | Years employed |
| Empm | Months employed |
| Where | Where employed (name of pit, farm, factory or works) |
| A | Total age in months * |
| H | Total height in inches * |
| C | Total chest circumference in inches * |

* these fields did not appear in original source data.

** The Sub-Commissioner included a 'condition' column which attempted to describe the physical condition of each child. The subjective categories were *very muscular*, *muscular*, *at par*, *par* and *below par*.

Code table

in **IND** field

| | | |
|----------|---|--------------|
| C | = | colliery |
| P | = | pottery |
| W | = | worsted Mill |
| F | = | farm |

in **PL** field

| | | |
|----------|---|--|
| B | = | Bradford |
| H | = | Halifax |
| S | = | Staffordshire |
| D | = | Dorsetshire |
| Y | = | West Yorkshire collieries, no location given (Symons). |
| T | = | thin seams, (Symons' west Yorkshire collieries). |
| W | = | examination of children in a 'Dewsbury Colliery' (Symons). |
| L | = | examination of children in 'Another Dewsbury Colliery' (Symons). |

A copy of the study entry in the BIRON on-line catalogue, University of Essex.

STUDY NUMBER : 3108

Anthropometric Data Relating to Working-Class Children, 1841

SUBJECT CATEGORY :-

XX\B - Historical studies (-1959) - Population studies and censuses

III - Child development and child rearing

V\D - Historical studies - Economic behaviour

DEPOSITOR :-

Kirby, P.

University of Sheffield. Department of History

PRINCIPAL INVESTIGATOR :-

Kirby, P.

University of Sheffield. Department of History

Purpose of Study.

To examine variations in the heights and circumferences of children in different occupations during 1841.

Kind of data.

Survey data

Data sources.

Parliamentary Papers: *Commission for Inquiring into the Employment and Condition of Children in Mines and Manufactories, First Report of the Commissioners (Mines)* (P.P.1842, XV); *Appendix to 1st Report of the Commissioners (Mines), Part I* (P.P.1842, XVI); *Appendix to 1st Report of the Commissioners (Mines), Part II* (P.P.1842, XVII).

Completeness of transcription.

Complete transcription of data.

Time period

Cross-sectional, 1841.

Geographical coverage

Yorkshire. Bradford, Dewsbury and Halifax.

Staffordshire. Cobridge, Hanley and Shelton.

Dorset.

Units being studied or recorded.

857 children aged 18 and under employed in collieries, worsted mills, potteries and farms in 1841.

Key topics covered.

Variables

Industry employed, place employed, familyname, first name, sex, age years, age months, height feet, height inches, chest circumference feet, chest circumference inches, subjective assessment of physical condition, read, write, occupation, years employed, months employed, where employed (name of pit, farm, factory or works).

Selection of cases for the dataset.

No sampling

Number of target cases.

Target 857

Obtained 857

Method of data collection.

Transcription of existing documents or texts.

Dates of fieldwork or data extraction.

Dataset transcribed, August 1993.

Frequency of data collection.

One-off

Control operations performed on survey data.

None.

Registration under the Data Protection Act

The dataset does not contain the names or information respecting any living individuals.

Technical reports and documentation.

Source and description of the dataset.

Resulting publications.

Kirby, P.T. 'Causes of short stature among coal-mining children', *Economic History Review*, [forthcoming]

Associated publications.

Floud, R. *Long-Term Changes in Nutrition, Welfare and Productivity in Britain* [computer file] Colchester: ESRC Data Archive, 1986.

Floud, R. and Wachter, K., 'Poverty and physical stature: evidence on the standard of living of London boys, 1770-1870', *Social Science History*, 6 (1982), pp. 422-52.

Floud, R., Wachter, K. and Gregory, A., 'Measuring historical heights - short cuts or the long way round: a reply to Komlos', *Economic History Review*, xlv, 1 (1993), pp. 145-54.

Komlos, J., 'The secular trend in the biological standard of living in the United Kingdom, 1730-1860', *Economic History Review*, xlv (1993), pp. 115-44.

Komlos, J. and Kim, J.H., 'Estimating trends in historical heights', *Historical Methods*, 23 (1990), pp. 116-20.

Nicholas, S. and Steckel, R.H., 'Heights and living standards of English workers during the early years of industrialisation, 1770-1815', *Journal of Economic History*, 51 (1991), pp. 937-57.

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Names of Contacts.

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tel.

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APPENDIX

TO

MR. SCRIVEN'S REPORT ON THE COLLIERIES IN THE WEST RIDING OF YORKSHIRE.

APPENDIX A.

No. 1.—TABLE showing the AGE, HEIGHT, and CIRCUMFERENCE, EDUCATIONAL QUALIFICATION, and PHYSICAL CONDITION OF ONE HUNDRED and TWENTY-FOUR HUNTERS Employed in the Low Moor Company's Coal Pits, Bradford.

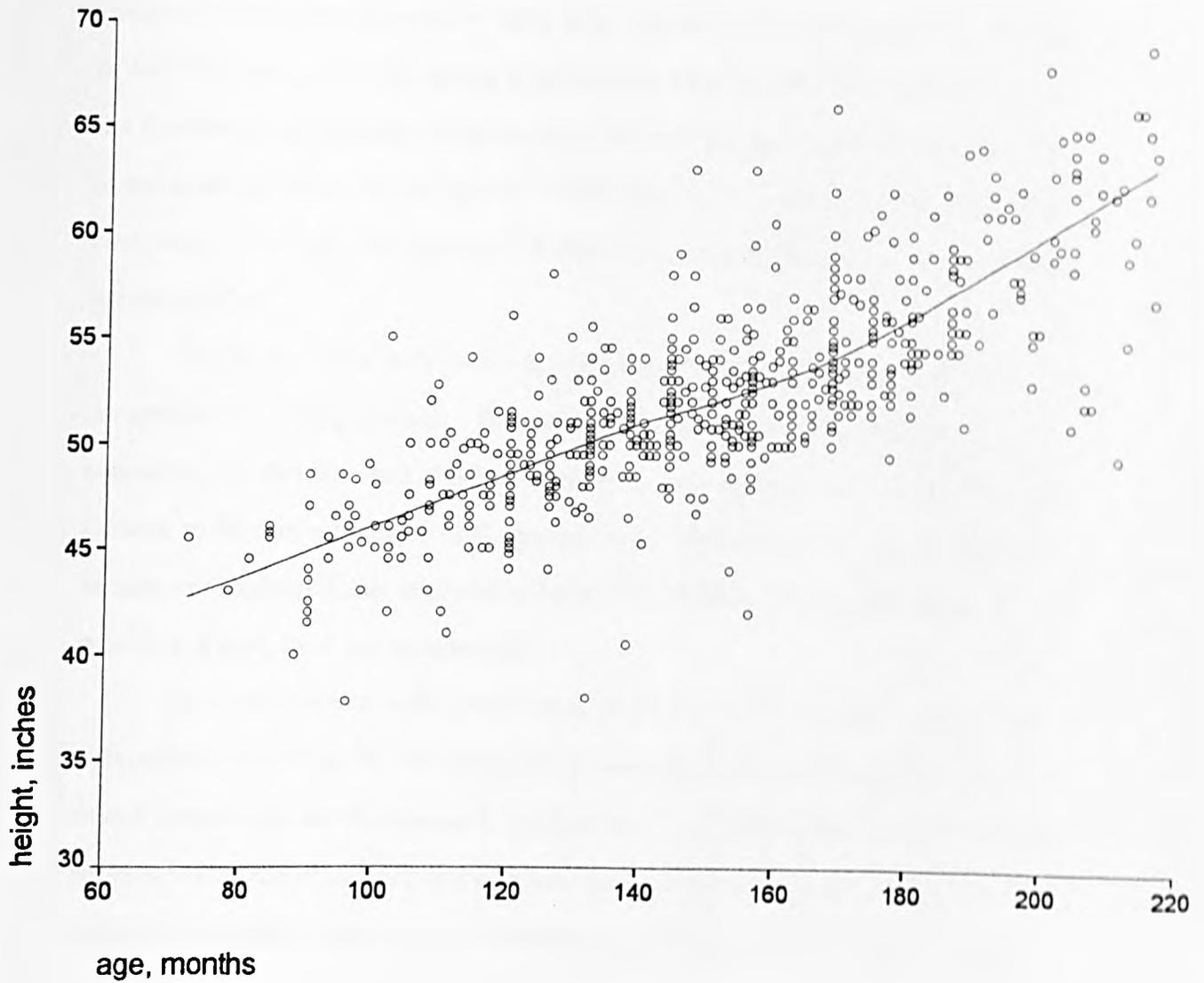
| Name. | Age. | | Height. | | Circumference. | Physical Condition. | Can Read. | Can Write. | How Employed. | Time employed. | Where Employed. |
|-------------------|------|-----|---------|--------|----------------|---------------------|---------------|------------|---------------|----------------|-----------------|
| | Yrs. | Mo. | Ft. | In. | | | | | | | |
| Laycock, John | 9 | 6 | 3 | 10 | 2 | 4 | Muscular | no | no | Hurrier | 1 2 |
| Laycock, William | 12 | 8 | 4 | 1 1/2 | 2 | 2 | " | " | " | " | 2 2 |
| Ellis, Joseph | 9 | 8 | 4 | 2 1/2 | 2 | 1 | " | yes | " | " | 1 1 |
| Hest, William | 11 | 6 | 4 | 2 1/2 | 2 | 2 | At par | no | " | " | 2 0 |
| Burnett, George | 17 | 0 | 5 | 2 | 2 | 8 | Very muscular | " | " | " | 7 0 |
| Sugden, Francis | 17 | 8 | 4 | 7 | 2 | 5 | " | " | " | " | 6 0 |
| Dickenson, Peter | 10 | 0 | 3 | 11 | 2 | 0 | At par | " | " | " | 3 0 |
| Brook, Joseph | 17 | 7 | 4 | 1 1/2 | 2 | 1 | Muscular | " | " | " | 6 0 |
| Emmett, John | 14 | 6 | 4 | 4 | 2 | 1 1/2 | " | " | " | " | 3 0 |
| Toulor, Joseph | 15 | 7 | 4 | 6 1/2 | 2 | 5 | Very muscular | " | " | " | 4 0 |
| Varley, Abraham | 11 | 0 | 4 | 1 1/2 | 2 | 2 1/2 | Muscular | " | " | " | 4 0 |
| Dickenson, Jas. | 12 | 0 | 4 | 2 | 2 | 1 | " | " | " | " | 1 0 |
| Dickenson, Jon. | 9 | 0 | 3 | 7 | 1 | 10 1/2 | " | " | " | " | 1 0 |
| Brank, Robert | 14 | 3 | 4 | 3 1/2 | 2 | 2 | " | " | " | " | 0 0 |
| Whistley, Thos. | 11 | 6 | 4 | 5 1/2 | 2 | 5 | Very muscular | yes | " | " | 1 0 |
| Alderson, William | 9 | 0 | 3 | 8 1/2 | 2 | 1 | " | no | " | " | 2 0 |
| Holdsworth, Wm. | 10 | 0 | 3 | 11 1/2 | 2 | 2 | " | " | " | " | 1 0 |
| Binn, John | 9 | 5 | 3 | 11 1/2 | 1 | 11 | " | " | " | " | 0 0 |
| Murgetroyd, Dan. | 10 | 7 | 3 | 11 1/2 | 2 | 0 | " | yes | yes | " | 0 0 |
| Whitworth, Wm. | 13 | 6 | 4 | 3 | 2 | 4 1/2 | " | no | no | " | 4 0 |
| Barracough, Paul | 15 | 7 | 4 | 7 1/2 | 2 | 3 1/2 | " | " | " | " | 7 0 |
| Binks, John | 14 | 8 | 4 | 8 | 2 | 3 | At par | yes | " | " | 0 0 |
| Wood, John | 13 | 3 | 4 | 4 | 2 | 3 1/2 | Very muscular | no | " | " | 6 0 |
| Wood, William | 9 | 9 | 3 | 11 1/2 | 2 | 1 | At par | " | " | " | 3 0 |
| Hargrave, Jonath. | 17 | 0 | 4 | 3 | 2 | 2 | " | " | " | " | 10 0 |
| Hill, Robert | 14 | 10 | 4 | 7 1/2 | 2 | 5 | Muscular | " | " | " | 3 0 |
| Dawson, John | 10 | 3 | 4 | 1 1/2 | 2 | 2 | " | " | " | " | 3 0 |
| Thomas, John | 10 | 0 | 3 | 9 | 2 | 0 | Very muscular | " | " | " | 3 0 |
| Thomas, James | 7 | 6 | 3 | 7 1/2 | 1 | 10 1/2 | " | " | " | " | 6 0 |
| Sutcliffe, Simon | 13 | 6 | 4 | 4 | 2 | 2 | " | " | " | " | 1 0 |
| Binks, Lot | 12 | 7 | 4 | 6 | 2 | 2 | " | yes | yes | " | 3 0 |
| Coother, Daniel | 8 | 3 | 4 | 1 | 2 | 0 1/2 | " | no | no | " | 7 0 |
| Gledhill, Josiah | 12 | 8 | 4 | 5 | 2 | 4 | " | " | " | " | 5 0 |
| Sutcliffe, John | 11 | 6 | 4 | 0 1/2 | 2 | 2 | Muscular | " | " | " | 3 0 |
| Crowther, Sam. | 10 | 6 | 4 | 1 1/2 | 2 | 2 | Very muscular | " | " | " | 6 0 |
| Laycock, William | 13 | 4 | 4 | 6 1/2 | 2 | 3 | Muscular | " | " | " | 6 0 |
| Ellis, James | 13 | 6 | 4 | 5 | 2 | 3 | Very muscular | " | " | " | 5 0 |
| Ward, William | 15 | 0 | 4 | 6 | 2 | 4 | Muscular | " | " | " | 4 0 |
| Ellis, Mathias | 9 | 0 | 3 | 8 1/2 | 2 | 1 | At par | " | " | " | 2 0 |
| Ellis, Israel | 15 | 6 | 4 | 11 | 2 | 5 1/2 | Muscular | " | " | " | 6 0 |
| Ellis, Jacob | 13 | 8 | 4 | 6 1/2 | 2 | 4 | " | yes | yes | " | 5 0 |
| Laycock, Abraham | 10 | 6 | 4 | 0 1/2 | 2 | 0 1/2 | " | no | no | " | 2 0 |
| Petty, Joseph | 12 | 6 | 4 | 2 | 2 | 1 | Very muscular | " | " | " | 1 0 |
| Ingham, John | 7 | 6 | 3 | 6 1/2 | 1 | 11 | " | " | " | " | 3 0 |
| Holden, Joseph | 14 | 1 | 4 | 3 1/2 | 2 | 2 1/2 | " | " | " | " | 6 0 |
| Clark, Thomas | 9 | 6 | 3 | 11 | 1 | 11 | At par | " | " | " | 2 0 |
| Judge, Patrick | 10 | 6 | 4 | 1 | 2 | 0 1/2 | Muscular | " | " | " | 1 5 |
| Patchett, Isaac | 13 | 6 | 4 | 6 | 2 | 3 | Very muscular | " | " | " | 6 0 |
| Barracough, Jos. | 13 | 6 | 4 | 7 | 2 | 4 1/2 | " | " | " | " | 5 0 |
| Harper, Henry | 15 | 6 | 4 | 6 1/2 | 2 | 6 | Muscular | " | " | " | 6 0 |
| Bywater, Matthew | 8 | 9 | 4 | 2 | 2 | 0 1/2 | Very muscular | " | " | " | 3 0 |
| Barracough, S. | 11 | 7 | 4 | 0 1/2 | 2 | 0 1/2 | " | " | " | " | 4 0 |
| Benn, Henry | 12 | 8 | 4 | 2 1/2 | 2 | 0 | " | " | " | " | 6 0 |

Example of original height data from P.P. 1842

| Ind | pl | familyna | firstnam | sex | ay | am | hf | hl | cf | cl | cond | r | emp | empy | emp |
|-----|----|------------|----------|-----|----|----|----|-------|----|-------|---------------|---|---------|------|-----|
| 1 | C | Laycock | John | 1 | 9 | 6 | 3 | 10.00 | 2 | 4.00 | Muscular | | Hurrier | 1 | 2 |
| 2 | C | Laycock | William | 1 | 12 | 8 | 4 | 1.50 | 2 | 2.00 | Muscular | | Hurrier | 2 | 2 |
| 3 | C | Ellis | Joseph | 1 | 9 | 8 | 4 | 2.50 | 2 | 1.00 | Muscular | Y | Hurrier | 1 | 1 |
| 4 | C | Best | William | 1 | 11 | 6 | 4 | 2.50 | 2 | 2.00 | At Par | | Hurrier | 2 | 0 |
| 5 | C | Burnett | George | 1 | 17 | 0 | 5 | 2.00 | 2 | 8.00 | Very Muscular | | Hurrier | 7 | 0 |
| 6 | C | Sugden | Francis | 1 | 17 | 8 | 4 | 7.00 | 2 | 5.00 | Very Muscular | | Hurrier | 6 | 0 |
| 7 | C | Dickenson | Peter | 1 | 10 | 0 | 3 | 11.00 | 2 | .00 | At Par | | Hurrier | 3 | 0 |
| 8 | C | Brook | Joseph | 1 | 17 | 7 | 4 | 1.50 | 2 | 1.00 | Muscular | | Hurrier | 6 | 0 |
| 9 | C | Emmett | John | 1 | 14 | 6 | 4 | 4.00 | 2 | 1.50 | Muscular | | Hurrier | 3 | 0 |
| 10 | C | Toadorf | Joseph | 1 | 15 | 7 | 4 | 6.50 | 2 | 5.00 | Very Muscular | | Hurrier | 4 | 0 |
| 11 | C | Varley | Abraham | 1 | 11 | 0 | 4 | 1.50 | 2 | 2.50 | Muscular | | Hurrier | 4 | 0 |
| 12 | C | Dickenson | Jas | 1 | 12 | 0 | 4 | 2.00 | 2 | 1.00 | Muscular | | Hurrier | 4 | 0 |
| 13 | C | Dickenson | Jos | 1 | 9 | 0 | 3 | 7.00 | 1 | 10.50 | Muscular | | Hurrier | 4 | 0 |
| 14 | C | Brook | Robert | 1 | 14 | 3 | 4 | 3.50 | 2 | 2.00 | Muscular | | Hurrier | 6 | 0 |
| 15 | C | Wheatley | Thos | 1 | 11 | 6 | 4 | 5.50 | 2 | 5.00 | Very Muscular | Y | Hurrier | 1 | 6 |
| 16 | C | Alkerson | William | 1 | 9 | 0 | 3 | 8.50 | 2 | 1.00 | Very Muscular | | Hurrier | 2 | 0 |
| 17 | C | Holdsworth | W/m | 1 | 10 | 0 | 3 | 11.50 | 2 | 2.00 | Very Muscular | | Hurrier | 2 | 0 |
| 18 | C | Binn | John | 1 | 9 | 5 | 3 | 11.50 | 1 | 11.00 | Very Muscular | | Hurrier | 1 | 0 |
| 19 | C | Murgetroyd | Dan | 1 | 10 | 7 | 3 | 11.50 | 2 | .00 | Very Muscular | Y | Hurrier | 0 | 9 |
| 20 | C | Whitworth | W/m | 1 | 13 | 6 | 4 | 3.00 | 2 | 4.50 | Very Muscular | | Hurrier | 4 | 6 |
| 21 | C | Barracough | Paul | 1 | 15 | 7 | 4 | 7.50 | 2 | 3.50 | Very Muscular | | Hurrier | 7 | 0 |
| 22 | C | Binks | John | 1 | 14 | 8 | 4 | 8.00 | 2 | 3.00 | At Par | Y | Hurrier | 0 | 6 |
| 23 | C | Wood | John | 1 | 13 | 3 | 4 | 4.00 | 2 | 3.50 | Very Muscular | | Hurrier | 6 | 6 |
| 24 | C | Wood | William | 1 | 9 | 9 | 3 | 11.50 | 2 | 1.00 | At Par | | Hurrier | 3 | 0 |
| 25 | C | Hargrave | Jonath | 1 | 17 | 0 | 4 | 3.00 | 2 | 2.00 | At Par | | Hurrier | 12 | 0 |

Example of height dataset

Figure 15. Age and stature of all males in the C.E.C. dataset (scatter and LOWESS)



N=660.

Source: P.P. 1842, XVI, App.C. pp. 212-14., App.D, p. 215., App.E, p. 216; P.P. 1842, XVII, App. A, pp. 77-86, tables 1-5.

Appendix C. Census evidence.

One method of cross-checking the information given in the Report of 1842 (much of which was collected in 1841) is by comparing it to the household schedules of the 1841 census.⁶³⁹ The census data provides valuable additional information on the families of the children chosen by the Sub-Commissioners as their subjects. The exercise can be laborious but fruitful. When the C.E.C. evidence and the census are compared in this way, the omissions of these respective social surveys can sometimes appear striking.

One of the major deficiencies in census schedules is the omission of the occupations of mining children. This did not result primarily from parents concealing the fact that their children worked.⁶⁴⁰ Instructions issued by the Registrar General to the enumerators of 1841 required that, 'The profession &c. of wives, or of sons or daughters living with and assisting their parents but not apprenticed or receiving wages, need not be inserted'.

This omission was sufficient to cause problems to the historian of children's occupations.⁶⁴¹ Of the 10,716 occupation entries contained in Anderson's 1851 census samples for Northumberland, Durham and Cumberland, for example, only 12 persons having the occupation of putter are listed. This is surprising since putters probably constituted about a third of all north-east underground workers.⁶⁴² It was

⁶³⁹ The 1841 census was taken on 6 June 1841. Higgs, *Making sense of the census*, Appendix 1, p. 105.

⁶⁴⁰ This practice occurred much later in the century with the emergence of compulsory education.

⁶⁴¹ Higgs, *Making sense of the census*, p. 81; PRO RG27/1, p. 58.

⁶⁴² Anderson's 1851 census sample SN:1316. Categories found: PUTTER, PUTTER AT PIT, PUTTER DOWN PIT, PUTTER DOWN PITS.

apparent from looking at the data that many putters had been enumerated as 'miner', creating almost intractable problems of differentiation.

The following pages are a brief attempt to use both sources to compare the census and C.E.C. data on the households of three children interviewed by the C.E.C. in West Yorkshire during 1841.

Eli Mitchell

Eli ('they call me Nell') Mitchell aged twelve was interviewed by Samuel Scriven. Scriven noted that, 'I took the above evidence of Nell Mitchell, whose appearance was that of a lad of 14, at the public house close by; whilst doing so his father came into the room quite drunk. I found that out of eight children which he had, five of them worked in the pit'.⁶⁴³ Scriven obtained the following account of the income of family members from the father of Eli Mitchell a month before the census of 1841 was taken.

| | £. | s. | d. |
|---------------------------------------|----|----|----|
| Father, and one son his hurrier | 1 | 0 | 0 |
| One son, a getter | 0 | 10 | 0 |
| Another, ditto | 0 | 13 | 0 |
| Another, hurrier | 0 | 6 | 0 |
| Another | 0 | 2 | 0 |
| | 2 | 11 | 0 |

In his evidence to Scriven, Eli (Nell) noted, 'I got three sisters and *five* brothers; my brothers all hurry and thrust, and get; one of my sisters is a servant, the other two live at home'.⁶⁴⁴ According to his evidence, therefore, the male members,

⁶⁴³ (P.P. 1842, XVII), pp. 101-2.

⁶⁴⁴ (P.P. 1842, XVII), p. 101.

aged 21, 19, 18, 12, and 8, must have worked in pits. The eldest daughter, Lydia, aged 15, evidently worked as a servant as her two sisters were aged 6 years and 1 year.

The census household schedule, however, fails to provide the occupations of any of the members of the household aged below the age of 21 years.⁶⁴⁵

| | | |
|--------------------|----|----------------|
| Ely Mitchell | 46 | Coal Miner |
| Hannah. do. | 41 | (not stated) |
| James. do. | 21 | Coal Miner |
| John. do. | 19 | (not stated) |
| Kerr? do. | 18 | (not stated) |
| Lydia. do. | 15 | (not stated) |
| Ely. do. | 12 | (not stated) |
| William. do. | 8 | (not stated) |
| Mary. do. | 6 | (not stated) |
| Nancy. do. | 1 | (not stated) |
| John Hebblethwaite | 51 | Banksman |
| Thomas Mitchell | 55 | Worsted Weaver |
| Mary do. | 60 | (not stated) |
| Sarah Crowther | 10 | (not stated) |

Susan Pitchforth

A collier always needed one or two hurriers who were traditionally his male children. This not only kept the whole of the income flowing into the household, but also ensured that any son(s) he might have would be likely to progress to become miners themselves. In families that had no boys, the collier's choice was between an apprentice and one or two of his daughters.

The family of Susan Pitchforth indicates this pattern clearly. Pitchforth worked as a thruster in a west Yorkshire pit. In her evidence, the girl told the Sub-

⁶⁴⁵ 1841 Census, Elland-cum-Greetland, PRO HO107/1299. This continued as a common problem in successive censuses.

Commissioner: 'I have one sister going on 14, and she works with me in the pit'.⁶⁴⁶

The census entry makes no mention of this.

| | | |
|------------------|----|------------|
| James Pitchforth | 30 | Coal Miner |
| Mary do. | 30 | - |
| Rose do. | 13 | - |
| Susan do. | 11 | - |
| Mary do. | 4 | - |
| Elizabeth do. | 2 | - |

Ann Ambler

Ann (Hannah?) Ambler⁶⁴⁷ was a central figure in Samuel Scriven's attempt to expose the indecency of underground working conditions in Halifax.⁶⁴⁸

| | | |
|-----------------|------|--------------|
| John Ambler | 35 | Coal Miner |
| Eliz. do. | 41 | (not stated) |
| Han. do. | 14 | (not stated) |
| Issac do. | 10 | (not stated) |
| Ellen do. | 8 | (not stated) |
| Pamela Thornton | 6 | (not stated) |
| Sarah do. | 4 | (not stated) |
| Thos do. | 2 | (not stated) |
| Eliza do. | 6mth | (not stated) |
| Ruth Cleg | 20 | (not stated) |
| Elizabeth do. | 18 | (not stated) |
| Mary Cleg | 16 | (not stated) |
| Hugh Spencer | 17 | App. |

⁶⁴⁶ (P.P. 1842, XVII), p. 103-4; Census 1841, Elland-cum-Greetland, PRO HO107/1299.

⁶⁴⁷ Hannah, daughter of John and Elizabeth Ambler, of Elland, Collier. Elland, St. Mary the Virgin. baptismal register. 27 Dec. 1826, p. 33.

⁶⁴⁸ (P.P. 1842, XVII), pp. 61, 102-3; Census 1841, Elland-cum-Greetland; PRO HO107/1299.

The Census entry for 1841 shows that, of the 11 children living with John and Elizabeth Ambler, only three possessed the name Ambler. Four were called Thornton and were under the age of six and three had the name Cleg (probably those working 'in the spinning-mills': they were aged 20, 18 and 16 years). In the 1842 report, John Ambler noted that, 'I have 11 children; three are my wife's afore I married her, by two or three other men; they live with me and work in the spinning-mills'.⁶⁴⁹ The baptismal register for Elland St Mary's indicates that both John and Elizabeth Ambler were the parents of the four Ambler children which prevents the Thornton children being theirs. The Cleg children were probably those of Elizabeth Ambler by a previous marriage. But what was the status of the four Thornton children, the youngest of which was only 6 months? These children were clearly too young to have been apprenticed, or to have been working at any form of outside labour. The Thornton children had been taken in by John and Elizabeth Ambler for unknown reasons (perhaps they had been the children of a close relative who had died).

⁶⁴⁹ (P.P. 1842, XVII), p. 101.

Appendix D. List of Commissioners and Sub-Commissioners, together with their coal-districts. Children's Employment Commission, 1842.

Commissioners

Horner, Leonard, Esq.

Saunders, Robert John, Esq.

Southwood Smith, Thomas, Esq.

Tooke, Thomas, Esq.

Secretary

Fletcher, Joseph. Esq.

Sub-Commissioners

Austin, Antony, Esq., North Lancashire.

Barham, Charles, Esq., MD. Cornwall and Devonshire.

Fellows, John Michael, Esq., Derbyshire.

Fletcher, Joseph, Esq., Oldham.

Franks, Robert Hugh, Esq., East of Scotland; South Wales and Monmouthshire.

Jones, H. Herbert, Esq., North Wales.

Jones, Rhys William, Esq., South Wales and Monmouthshire.

Kennedy, John L, Esq., Lancashire and Cheshire.

Leifchild, John Roby, Esq., North Durham and Northumberland.

Martin, Thomas, Esq., Cumberland and Ireland.

Mitchell, James, Esq., LLD. South Staffordshire, Shropshire, Warwickshire, Leicestershire and South Durham.

Roper, Frederick, Esq., Ireland.

Scriven, Samuel, Esq., North Staffordshire and Halifax.

Stewart, Leonard, Esq., M.D. North Somersetshire.

Symons, Jelinger C, Esq., West Riding of Yorkshire and Cumberland.

Tancred, Thomas, Esq., West of Scotland.

Waring, Elijah, Esq., Forest of Dean and South Gloucestershire.

Wood, William Rayner, Esq., Bradford and Leeds.

Glossary of mining terms in use in the mid-nineteenth century

| | |
|------------------------|---|
| <i>adit</i> | A horizontal entrance to mine workings (also known as a <i>sough</i> or <i>day-hole</i> . See also <i>drift-mine</i>). |
| <i>after-damp</i> | Carbon dioxide. Accumulations often followed the firing of methane gas, or <i>firedamp</i> below ground (also known as <i>choke-damp</i> or <i>stythe</i>). |
| <i>agate</i> | To be employed. |
| <i>air-door</i> | A trap-door used to direct the flow of ventilation, or <i>coursing</i> , usually attended by a boy (or <i>trapper</i>). |
| <i>bait</i> | Small meal taken below ground. |
| <i>bank</i> | The area about the mouth of a pit. Some of the earth excavated in sinking the pit would often be left behind at the top of a shaft, thus leaving a 'bank'. |
| <i>banksman</i> | Worker at the bank. This term was sometimes used to describe a surface overman. |
| <i>barrow-way</i> | A name for a tramway (used predominantly in coal-districts which had formerly employed wheel-barrows in underground transport) |
| <i>bat</i> | A light blow. Light corporal punishment. |
| <i>blower</i> | A powerful release of <i>fire-damp</i> from the coal in the form of a jet. |
| <i>bord and pillar</i> | Method of mining in which parallel headings are driven forward in the <i>whole-coal</i> leaving pillars to support the roof. The pillars would frequently later be <i>robbed</i> after the extent of the <i>whole-coal</i> had been worked. |
| <i>brattice</i> | A <i>brattice</i> was used to direct the underground ventilation currents or to divide a single-shaft pit into two or three longitudinal sections so that it could carry both <i>upcast</i> and <i>downcast</i> currents. |

| | |
|--------------------|--|
| <i>bray</i> | To beat or flog. |
| <i>broken</i> | To 'work in the broken' described the <i>robbing</i> of the pillars of coal that were left after the <i>whole-coal</i> had been worked in the <i>bord and pillar</i> method of working. |
| <i>broo-wench</i> | A female who worked at the pit 'brow' or 'broo' (or <i>bank</i>) screening the coal as it came up (a Lancashire term). |
| <i>butty</i> | A sub-contractor, employing only a few men or boys and working on a small scale. |
| <i>byats</i> | Ropes or chains used for underground man-haulage of carts, tubs or sledges. Also known as <i>soams</i> . |
| <i>carter</i> | See <i>driver</i> . |
| <i>cavil</i> | The means of sharing out the rank, or distance of putting. |
| <i>chalker-on</i> | One who kept account of the amount of work done (usually a <i>craneman</i> or <i>flatman</i>). |
| <i>choke-damp</i> | Carbon dioxide, often about following an explosion of methane (see after-damp, above). |
| <i>Clanny lamp</i> | A safety-lamp, similar to Davy's, but developed by W.R. Clanny (1776-1850). |
| <i>collier</i> | Coal miners and charcoal burners. It seems that where there was a tradition of charcoal burning, coal miners inherited the name of collier (in the north-east coal miners were known as 'pit-men'. In north Wales a distinction was made between 'colliers' who were coal miners, and 'miners' who mined ironstone [see (P.P. 1842, XVII), p.400]. |
| <i>corf</i> | Usually a strong basket used to transport coal underground. |
| <i>coursing</i> | The process of directing the air-currents around the workings. |

| | |
|-----------------------|---|
| <i>craneman</i> | Operator of a small underground crane (see also <i>flatman</i>). The <i>craneman</i> lifted baskets or <i>corves</i> onto a <i>rolley</i> using a small crane. |
| <i>darg</i> | A system that allowed a miner to claim a greater share of output according to the number of child workers he employed (see also <i>kale</i>). |
| <i>Davy</i> | Davy-lamp. Designed by Sir H. Davy (1778-1829). |
| <i>day-hole</i> | See <i>adit</i> , <i>drift-mine</i> and <i>sough</i> . |
| <i>downcast shaft</i> | The shaft (or portion of a shaft) down which fresh-air is taken to ventilate a pit. |
| <i>dram</i> | Welsh term for a tram or tub. |
| <i>drawer</i> | Drawer of underground carts, tubs or sledges (often by means of a belt and chain or by ropes). |
| <i>drift-mine</i> | Mine driven into the side of a hill (frequently horizontally). A mine without a shaft (see <i>adit</i> , <i>sough</i> and <i>day-hole</i>). |
| <i>driver</i> | A boy employed in the driving of horses or ponies in underground haulage. |
| <i>dyke</i> | A fault in the coal-strata (sometimes called a <i>trouble</i>) |
| <i>eye</i> | The bottom of the pit-shaft. |
| <i>filler</i> | filler of corves or tubs. |
| <i>fire-damp</i> | Explosive underground methane gas. |
| <i>flatman</i> | See <i>craneman</i> . |
| <i>foal</i> | North-east term for the youngest of the putters. A <i>foal</i> would usually assist a <i>headsman</i> or senior putter (see <i>putter</i>). |
| <i>getter</i> | See <i>hewer</i> . |
| <i>goave or goaf</i> | Disused portion of a mine. |

| | |
|------------------------|--|
| <i>guss and hook</i> | Belt and chain used for underground haulage in Somerset mines. |
| <i>half-marrow</i> | Intermediate stage of a youth's life as a putter. Two half-marrows would usually work together to push a tram (see <i>putter</i>). |
| <i>headsman</i> | The most senior putter in the north-east coalfield. Usually assisted by a <i>foal</i> (see <i>putter</i>). |
| <i>helper-up</i> | Boy employed to help putters up difficult inclines. |
| <i>hewer</i> | Face-worker, or hand-cutter of coal (also called a <i>getter</i>) |
| <i>hodd</i> | Belt and chain used for underground haulage in Forest of Dean mines. |
| <i>kale</i> | See <i>darg</i> . |
| <i>low or lowe</i> | a miner's candle. |
| <i>marra or marrow</i> | A north-east expression meaning a miner/workmate. |
| <i>putter</i> | Underground haulage worker (see <i>foal</i> , <i>half-marrow</i> and <i>headsman</i>). |
| <i>renk</i> | A price adjustment for putting depending upon distance. |
| <i>robbing</i> | After the working of the <i>whole-coal</i> using the <i>bord and pillar</i> system, the miners would work backward and <i>rob</i> the pillars left behind. |
| <i>rolley-driver</i> | Driver of a horse-drawn wheeled cart running on rails. |
| <i>screens</i> | Large riddles of differing gauges used for separating the larger coals from the smaller. |
| <i>soams</i> | see <i>byats</i> . |
| <i>sough</i> | See <i>adit</i> . |

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| <i>steel-mill</i> | A machine comprising a grindstone and flint which emitted a stream of sparks. Although it was inefficient, it was widely believed to be safer than a naked flame. Thought to have been invented by the colliery-steward, Carlisle Spedding, c.1730s. |
| <i>stone-leader</i> | Carrier of stone and waste for underground masonry work. |
| <i>stopping</i> | A barrier, usually of waste, meant to divert the ventilation, or to seal off disused or dangerous parts of the mine. |
| <i>stythe</i> | North-east expression for <i>choke-damp</i> . See <i>after-damp</i> . |
| <i>tenter</i> | Alternative name for a <i>trapper</i> (esp. in Lancashire). |
| <i>thrutcher</i> | Lancashire and Yorkshire term for a pusher of tubs (also 'Thruster'). |
| <i>tram</i> | Small cart used by <i>putters</i> . |
| <i>trapper</i> | Trap-door attendant. |
| <i>trouble</i> | See <i>dyke</i> . |
| <i>upcast shaft</i> | A shaft (or portion of a shaft in single-shaft pits) up which the waste air from the ventilation system is expelled from the pit. |
| <i>viewer</i> | The manager, and chief engineer, of a colliery (a term used chiefly in the north-east collieries). |
| <i>water leader</i> | A clearer of water from the underground levels. |
| <i>wood leader</i> | Carrier of timber for props and other joinery. |

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