

The Commercial Crisis of 1847

by

H.M. BOOT

A thesis submitted for the degree of Doctor of Philosophy  
at the University of Hull

February 1979

This thesis is all my own work

1, Feb. '79.

Contents

	Page
Acknowledgements	iv
List of Tables	v
List of Figures	viii
List of Abbreviations	x
Abstract of Thesis	xi
Chapter I.       INTRODUCTION	1
Chapter II.       RAILWAY INVESTMENT AND THE CRISIS OF 1847: THE HISTORY OF AN HYPOTHESIS	18
Chapter III.      THE RAILWAY BOOM	38
Chapter IV.       RAILWAY INVESTMENT, CONSUMPTION AND INCOME, AND THE CRISIS OF 1847	67
Chapter V.        RAILWAY INVESTMENT AND THE RATE OF INTEREST	101
Chapter VI.       THE INDUSTRIAL SECTOR	135
Chapter VII.      MONEY AND BANKING	210
Chapter VIII.     FOREIGN TRADE AND THE BALANCE OF PAYMENTS	288
Chapter IX.       THE COMMERCIAL CRISIS OF 1847: SUMMARY AND CONCLUSIONS	360
Bibliography	378

### Acknowledgements

My principal academic debt is to Professor John Saville who acted as my supervisor throughout the period during which this thesis was being written. I have also benefited greatly from discussions with Professor R.S. Neale of the University of New England and Doctor Colin Forster of the Australian National University. Dr Forster also read and made valuable suggestions on most chapters. A particular debt must be expressed to Professor R.C.O. Matthews who unwittingly has assisted me on innumerable occasions. His *Study in Trade Cycle History* has been a constant source of inspiration, as reference to almost any page in the subsequent work will show. I wish to thank Mr R.A. Woods, Mr Eric Kelly and the Staff of the Archive Section of the Bank of England for the kindness and courtesy they showed me when I was working on the Bank of England records, and for their permission to quote from those records. The staffs of the library of the University of Hull, the Australian National University and the Australian National Library were always willing to help in my sometimes extended enquiries into the holdings of these institutions and for their inter-library loan services. The thesis was ably typed by Mrs Elizabeth Kinloch. Finally, my wife's support has been immeasurable and without it I would have succumbed to despair on several occasions.

List of Tables

		Page
Table 1.	Occupational Distribution of the Population of Great Britain in 1851.	17
Table 2.	Number of Private Acts of Parliament for Railways, with the Mileage and Capital Sanctioned: United Kingdom, 1840-1850.	40
Table 3.	Estimated Annual Gross Expenditure on Railway Capital Formation and miles of line opened in each year between 1840 and 1852.	41
Table 4.	Railway Lines Authorised and Opened: United Kingdom, 1843-1852.	55
Table 5.	Railway Revenues, Dividends, Share Prices and Capital Structure: United Kingdom, 1840-1850.	67
Table 6.	Expenditure Generating Gross National Product at Constant (1900) Prices: United Kingdom, 1845-1849.	82
Table 7.	Estimates of British Gross National Product, 1846 and 1847.	90
Table 8.	Balance of Payments: United Kingdom, 1846-1847.	92
Table 9.	Net Change in Income Derived from Foreign Trade (The 'income balance'): United Kingdom, 1845-1849.	94
Table 10.	Railway Investment and Income Change: United Kingdom, 1845-1849.	99
Table 11.	Railway Investment, the Income Balance and Income Change: United Kingdom, 1845-1849.	100
Table 12.	Railway Investment and the Rate of Interest; Regression Coefficients: Set 1.	114
Table 13.	Monthly Volume of Share and Borrowed Capital Raised by Railway Companies: United Kingdom, 1843 to March 1848.	130
Table 14.	Railway Capital Raised and Interest Rates; Regression Coefficients: Set 2; United Kingdom, 1843 - March 1848.	134

Table 15.	Market Rate of Discount and Yield on Consols; January 1843 to March 1848.	136
Table 16.	Brick Production and the Net Increases in Housing Stock: England and Wales, 1811-1851.	143
Table 17.	Building in London, 1831-1849.	152
Table 18.	Regional Distribution of the Iron Industry: Great Britain, 1840-1852, by output.	155
Table 19.	Railway Demand for Iron Compared with the Output of South Wales and North Eastern England, 1840- 1848.	163
Table 20.	Pig Iron Production and Consumption in the United Kingdom; 1840-1850.	167
Table 21.	Coal Shipments from Various Coalfields in Great Britain: 1842, 1845 and 1850.	175
Table 22.	Production Capacity in the Cotton Industry located in the Factory Inspectorate of Leonard Horner, Feb. 1839 - Sept. 1845.	186
Table 23.	Raw Materials, Output and Prices in the British Cotton Industry; 1840-1850.	201
Table 24.	Textile Factory Employment in the Borough of Manchester: January, 1847 - October 3, 1848.	209
Table 25.	Unemployment in Textile Factories in the Borough of Manchester, 16 November 1847.	210
Table 26.	Employment in Selected Industries in Manchester and Salford at the Census of 1851.	210
Table 27.	Aggregate Value of Inland Bills of Exchange Created, and of Bills Discounted at the Bank of England; 1830-1848.	240
Table 28.	Net Changes in Income Derived from Foreign Trade, and the Net Flow of Bullion into and out of the United Kingdom, 1840-1850.	299
Table 29.	Harvests and Corn Imports: United Kingdom, 1840-1849.	329
Table 30.	The Balance of Merchandise Trade: United Kingdom, 1840-1850.	358
Table 31.	The Balance of Payments: United Kingdom, 1840- 1850.	358

Table 32.	Indices of the Quantity of Net Imports, the Consumption of Imports, and Import Prices: United Kingdom, 1840-1850.	359
Table 33.	Geographic Distribution of United Kingdom Exports, 1840-1850.	360

List of Figures

		Page
Figure 1.	Railway Capital Raised: United Kingdom, 1844 to March 1848.	59
Figure 2.	Import Consumption Index: United Kingdom, 1840-1850.	81
Figure 3.	Interest Rates; January 1844 to March 1848.	111
Figure 4.	Plot of Residuals derived from regressing the Yield on Consols on Capital Borrowed by Railway Companies: United Kingdom, 1843 - March 1848.	117
Figure 5.	Iron Production and Consumption in the United Kingdom, 1840-1850.	156
Figure 6.	Raw Cotton Consumed and Estimated Value of Output of the British Cotton Industry, 1840-1850.	179
Figure 7.	Domestic Consumption and Exports of British Cotton Goods Produced, 1840-1850.	179
Figure 8.	Supply of Raw Cotton to the British Cotton Industry, 1840-1850.	192
Figure 9.	Bank of England: Sept. 1844 - Dec. 1847; Bullion Stock; Notes in the Hands of the Public; Notes in the Banking Department Reserve; the Reserve Ratio of the Banking Department, at the first Friday of Each Month.	228
Figure 10.	Monthly average of Net Increase or Decrease in the Bank of England Deposits, plotted as a Four Monthly Moving Average; Sept. 1844 - Dec. 1847.	246
Figure 11.	The Market Rate of Discount as a Function of the Stock of Bullion held in the Issue Department of the Bank of England, September 1844 - December 1847.	250
Figure 12.	Deviation of Actual Rate of Discount from fitted curve in Figure 11.	251
Figure 13.	Quarterly Aggregate Value of Inland Bills of Exchange Created and Average Quarterly Market Rate of Discount: United Kingdom, 1840-1849.	275
Figure 14.	The Balance of Payments: United Kingdom, 1840-1850.	292



Figure 15.	The Balance of Merchandise Trade: United Kingdom, 1840-1850.	292.
Figure 16.	Import Prices: United Kingdom, 1840-1849.	305
Figure 17.	Indices Designed to Show the Behaviour of Imported Stocks: United Kingdom, 1840-1850.	306
Figure 18.	The Matthew's Hypothesis: "Other" exports, Imports and Imports minus corn: United Kingdom, 1840-1850.	323

List of Abbreviations

- H.C. Report of the Select (Secret) Committee of the House of Commons appointed to inquire into the Causes of the Recent Commercial Distress, and how far it has been affected by the laws for regulating the Issue of Bank Notes Payable on Demand - B.P.P. 1847-1848, VIII, pt.1.
- H.L. Report of the Secret Committee of the House of Lords to inquire into the Causes of the Distress which has for some time prevailed among the Commercial Classes, and how far it has been affected by the laws for regulating the Issue of Bank Notes Payable on Demand. B.P.P. 1847-1848, VIII, pt.111.
- Tooke Thomas Tooke and William Newmarch, *The History of Prices and of the State of the Circulation from 1792 to the Present Time*, (6 Vols, 1838-1857). Roman Numeral following Tooke indicates volume.
- B.P.P. British Parliamentary Paper.

All newspapers, periodicals and books cited are published in London unless otherwise specified.

## ABSTRACT OF THESIS

Title: The Commercial Crisis of 1847

H.M. Boot

This study attempts to provide a descriptive and analytical account of the origins of the British Commercial Crisis of 1847. The approach adopted is as follows: An introductory chapter outlines the main questions to be studied and provides a brief narrative account of the development of the crisis. Subsequent chapters examine the development of the crisis through individual sectors of the economy and by way of certain key economic variables. Chapters II to VI concentrate on aspects of the railway investment boom, aggregate income and consumption, and the experience of four major industries - house-building, coal-mining, and iron and cotton goods manufacture. Chapter VII looks at money and banking aspects of the crisis and deals especially with the role of the Bank of England. It also considers other parts of the banking system as well as some aspects of railway investment not discussed in earlier chapters. Questions of trade and the balance of payments are examined in Chapter VIII. The chapter also considers the immediate causes of failure among mercantile houses during the crisis of 1847. The final chapter summarizes the principal conclusions contained in the preceding chapters.

## CHAPTER I

### INTRODUCTION

#### I

The aim of this study is to describe and to explain the origins of the commercial crisis of 1847. The questions which we will ask are those which concerned most historians of this crisis. These relate, in many instances, to the role played by the Bank of England and the Bank Act of 1844. Did the 'new discount policy' adopted by the Bank of England after the introduction of the Bank Act of 1844 represent a radical departure from the Bank's traditional role as a central banker, and to what extent was the policy responsible for the extended period of cheap money which prevailed in these years and which, it has been said, was responsible ultimately for precipitating the crisis of 1847? It will be necessary to ask; to what extent did the Bank's delay in raising the Bank rate during the bullion drain of 1847 cause the difficulties which appeared in April of that year? And, with regard to the Bank Act itself, a question which has to be answered is; to what extent were restraints imposed on the Bank's note issuing powers responsible for precipitating the final crisis in banking and commercial affairs in October 1847?

Much of the concern will be with sectors of the economy other than money and banking. One sector of particular interest is the railways. In much contemporary and modern literature it is the railway investment boom of the mid-1840s rather than the Bank of England and the Bank Act of 1844 that is held responsible for the crisis of 1847. On this issue one of the most important questions which needs to be answered is whether the heavy railway investment programme of 1846-8 so distorted the financial system of the country that it became incapable of supporting the needs of the commerce

and industry. Conversely, the study will ask whether the railways were responsible, as many have argued, for maintaining the level of aggregate income and employment at a time when forces elsewhere in the economy were tending to depress them? To answer these questions it will be necessary to go far beyond the railways to look at the behaviour of investment and employment in other industries, at the relationship between the demand for railway investment funds and the supply of funds available in the capital market, and at the effect of railway investment expenditures upon aggregate income and demand in the economy.

A third factor prominent in the crisis was the harvest failure of 1845 and 1846 in the United Kingdom - and especially in Ireland - and on the Continent of Europe. Here important questions to answer are: what was the effect of these changes in the harvest on the demand for and cost of imported corn; how did these imports affect the balance of trade and the balance of payments; why were there so many failures in the corn importing trade (and other import trades as well) and what was the relationship of these failures to the onset of the general crisis in economic affairs during the late summer of 1847?

Contemporary observers of the crisis had strong views on most of these questions, and these views have been all too uncritically accepted into the text-books of economic history. One of the major aims of this study is to show that many of these ideas do not match the empirical evidence, and as a result the picture which emerges will frequently diverge from fairly generally accepted views, though in several respects some well know arguments on the crisis will receive added support.

The method of approach adopted in subsequent chapters is one that has been widely used by historians of economic fluctuations; that is, rather than tracing the development of the crisis chronologically across the broad spectrum of the economy, its development is followed through the behaviour of the various sectors of the economy and by way of certain key economic variables. Although this method is more suitable than others which might have been adopted, it has the disadvantage that it tends to produce a rather more fragmented account than might otherwise have been desirable. To overcome this problem a brief introductory account of the development of the crisis along chronological lines is included in this introduction.

Another consequence of the approach adopted here is that several chapters concentrate not so much upon presenting new data relating to the crisis but upon critically examining various hypotheses which historians have used to explain its origins. As a result some of the conclusions drawn tend to be rather more negative than those in other chapters. However, the approach is not without its advantages; by helping to sweep away some of the misconceptions which have surrounded the standard text-book explanations of the crisis the approach will, it is hoped, help to bring the crisis, and the events which preceded it, into sharper focus and thus contribute to a clearer understanding of its origins.

The subsequent chapters fall naturally into two parts: chapters two to six concentrate upon questions of the relationship between the railway investment boom and the crisis, while chapters seven and eight look at its banking and commercial aspects. Chapter two gives an historiographical account of the way in which contemporaries of the crisis attempted to explain its development in terms of the adverse effects which arose from the railway investment boom of the 1840s; it also shows how their views have become absorbed virtually unchanged into the literature of modern economic history. Chapters

three to six look at various aspects of these explanations: chapter three looks at the character of the railway boom itself and to what extent the onset of the crisis affected the course of the investment boom, while chapters four and five look at the effect of railway investment upon the level of domestic income and consumption, and upon the rate of interest. Chapter six examines the behaviour of investment and activity in sectors of the economy other than the railways. One of the main questions which will be asked here deals with the extent to which the demand for, and expenditure of, railway investment funds affected the level of investment and activity in other industries in the economy. This extended examination of the role of railway investment is necessary in view of the considerable emphasis accorded to it by contemporary opinion and by historians of the crisis, though it will become clear that the impact of the railway investment was considerably different from that which many commentators have accorded to it.

Chapter seven makes an extended examination of the role of money and banking in the crisis. It deals especially with the role of the Bank of England, but also considers the role played by other parts of the money and banking system as well as looking at some aspects of the effect of railway investment on the monetary system that were not considered in chapter five. In chapter eight the foreign trade sector of the economy is examined. In many ways this chapter binds together aspects of the economy discussed in earlier chapters dealing with income and consumption and with developments in the monetary sector. The chapter also considers in detail many of the immediate causes of failure among mercantile houses during the crisis of 1847. The final chapter summarises and draws together the principal conclusions from each of the preceding chapters.

## II

For readers unfamiliar with the crisis of 1847 it may be of some help if, at the onset, we give a brief historical narrative of its development and show where it fitted into the general chronology of economic events in the 1840s.<sup>1</sup>

The decade of the 1840s began in depressing circumstances. High food prices, an alarming drain of gold bullion from the Bank of England and a brief but severe financial crisis in 1839 had all marked the closing years of the 1830s and by 1840 the economy was clearly moving into a recession which deepened progressively in 1841 and 1842.

However, even in 1842, the hungriest year of the so called 'hungry forties', some signs of recovery began to appear. Market rates of discount fell steadily throughout the year and by the last quarter were down to 2½ per cent while at the Bank of England the stock of bullion grew from £5.6m. in

---

<sup>1</sup> There are numerous accounts of the commercial crisis of 1847. Among these the most useful are: C.N. Ward-Perkins, "The Commercial Crisis of 1847", *Oxford Economic Papers* II (1950) reprinted in *Essays in Economic History* Vol. II, ed. E.M. Carus-Wilson (1962), pp.263-379, and two contemporary works devoted exclusively to the crisis; D.M. Evans, *The Commercial Crisis of 1847-48* (second ed., 1849, reprinted New York, 1969), and T. Tooke, *The History of Prices*, Vol. IV. Further material relevant to the crisis is to be found in volumes V and VI of *The History of Prices*. The First and Second Reports from the Select (Secret) Committee on Commercial Distress including the Report from the Secret Committee of the House of Lords on Commercial Distress, B.P.P. 1847-48, VIII parts I, II, III are the basis of any discussion on contemporary opinion on the crisis, as well as a great source of factual information. Other more recent discussions of the crisis are to be found in J.H. Clapham, *An Economic History of Modern Britain*, Vol. I, *The Early Railway Age* pp.522-535; Sir J.H. Clapham, *The Bank of England*, Vol. II, 1797-1914 (Cambridge, 1944), pp.186-213; W.T.C. King, *History of the Discount Market* (1939) Chapters IV and V; E.V. Morgan, "Railway Investment, Bank of England Policy and Interest Rates, 1844-48", *Economic History*, Vol. I (1940), pp.329-340; A.D. Gayer, W.W. Rostow and A.J. Schwartz, *The Growth and Fluctuations of the British Economy, 1790-1850* (Oxford, 1953); Chapter VI, pp.304-341. Useful background data, especially upon the Peelite reforms of the 1840s may be found in E. Halévy, *A History of the English People in the Nineteenth Century*, IV, *The Age of Peel and Cobden*, (1947), esp. Chapters I and II.



January to fall m. at the end of December. During the last quarter of the year food prices began to fall; the domestic harvest of 1842 proved to be the best for over ten years and from an average of 60/- per quarter in the first eight months of the year the price of wheat fell to 46/10 at the end of December. In foreign trade some improvements were also evident; export orders showed distinct signs of improvement, and towards the end of the year news of a successful conclusion to the war with China greatly improved expectations of large exports to that quarter. However, all these were very early signs and in most sectors of the economy it was not until 1843 that signs of improvement were clearly visible. For most people 1842 remained the blackest year of the decade.

In a different sphere other important changes had taken place during 1842; rising social and constitutional tensions and an acutely difficult revenue situation had forced Peel into taking the first steps towards free-trade and towards corn-law repeal. It was hoped that tariff reform would increase Government revenues by stimulating the volume of trade and thus increase the yield from the revised duties (though Peel did take the added precaution of introducing an income tax large enough to cover current deficits), while the corn-law reforms would remove some of the worst features of the old sliding scale. Almost immediately it seemed, Peel's anticipations were borne out: even in 1842 exports had begun to improve; in 1843 both imports (excluding corn) and exports moved ahead strongly and by the summer of 1843 recovery was well under way while food prices continued to rule at the low levels established early in the year.<sup>1</sup> Rising demand at home and abroad helped to stimulate industrial production. In Lancashire especially, industry was rapidly increasing its demand for labour and raw materials and

---

<sup>1</sup> Tooke IV p. 52. "From the summer of 1843, forward, the general aspect of commercial affairs was one of decided prosperity."

in several cases had embarked upon large investment programmes. By 1844 the recovery was almost complete: employment, output and consumption were rising everywhere, and the downward trend in prices which had characterised the preceding four years was halted. In the monetary sphere interest rates were low and credit was easy to come by. In the background growing interest in railway promotion schemes was making itself increasingly apparent.

In the middle of the year another of Peel's great reforms was brought forward: on May 6, 1844 Peel gave the first reading of a bill to amend the powers and privileges of the Bank of England in accordance with provisions set out in the Bank Charter Act of 1833.<sup>1</sup> Peel's main proposal was that the functions of the Bank be separated into two departments: one, an issue department, whose powers of issuing bank notes were to be strictly controlled by statute and by the natural operation of the exchanges; the other, a banking department, the administration of which was to be left to the discretion of the Bank Directors who, Peel enjoined, should conduct its affairs on those principles of competition which would be followed by any other commercial bank. In its passage through Parliament the act received virtually no hostile comment; indeed, the *Quarterly Review* was later to remark, "The progress of Sir Robert Peel's Bill through both Houses of Parliament partook in some degree of the character of an ovation."<sup>2</sup> There is not doubt that this ease of passage arose from the belief that the new act would resolve much of the confusion which seemed to have existed in money and banking affairs during the 1830s and which, it was widely believed, had

---

<sup>1</sup> *Hansard*, 3rd series, vol. 74, 1844, pp.720-755.

<sup>2</sup> *Quarterly Review*, June 1847, Vol. LXXXI, p.252.

been responsible for the great crises which had periodically shaken the economy since the resumption of cash payments.

The act was designed, appropriately it seemed, to set a seal on the new prosperity; but almost immediately it became clear that the Bank intended to introduce a number of changes in the conduct of its banking affairs which, later historians have argued, threatened to disturb the stability of the entire monetary system. The day after the act became law, the Bank announced that the minimum rate of discount would be reduced from the traditional level of four per cent to two-and-a-half per cent, and very soon it became clear that the Bank intended to keep its rate competitive with the commercial rates charged in the money market. In the three years following, minimum Bank rate remained consistently within half a percent of market rate, and on several occasions was actually below that charged by the discount houses.

Whether or not the Bank's new policy further prolonged the period of cheap money which had persisted since 1842, and how the supply of money affected the general level of activity in the economy in these years, are among the most important questions to which we will address ourselves in the following pages; at this stage, however, it is sufficient to note that there is little doubt that the Bank Act heralded a period of high prosperity within the economy.

At the centre of this prosperity was the railway boom. During 1843 low interest rates, cheap raw materials and the large dividends then being paid by some of the established lines began to draw much attention to the prospect of further railway promotion. In that year Parliament had sanctioned only twenty-four separate railway acts to build ninety miles of line at a proposed cost of £3.9m. In 1844 the number of acts passed

rose to 49, and the mileage sanctioned increased to 805 miles. By 1845 the boom had moved into full swing: in that year acts for 2,700 miles of line at an estimated cost of £60.5m. received Parliamentary sanction. Meanwhile, railway share values which had improved steadily since November 1841 began to increase rapidly, by 1845 trading in railway shares had taken on, to use Keynes' phrase, all the attributes of a casino. In the feverish climate that existed in these months it became impossible to distinguish genuine from outrightly speculative and fraudulent promotions, and by October 1845 over one thousand separate promotions had registered their intention of going before Parliament for sanction.<sup>1</sup>

A brief check came in October 1845 when railway share prices suddenly began to tumble. The initial fall was probably no more than a technical set-back caused by large scale profit taking, and once prices had been adjusted the boom resumed at nearly full spate. Soon, however, another serious set-back was felt. Under a standing order of Parliament of 1837 it was necessary to deposit ten per cent of the proposed share capital of any new project with the Bank of England before a railway bill could be brought before Parliament.<sup>2</sup> It had been anticipated in November 1845 that this would involve over £40m. in deposits at the Bank, but in the event, only £12m. was required since many of the promotions planned to come forward were either dropped or failed to comply with various standing orders of Parliament. Fortunately, the Bank was able by careful timing to prevent the lodging of these deposits from severely disrupting the money market though there was still a number of difficulties to be overcome and the alarm created helped to dampen enthusiasm for further promotions.

<sup>1</sup> D.M. Evans, *The Commercial Crisis*, p.16.

<sup>2</sup> ~~This had originally stood at ten percent but~~ On advice from Gladstone at the Board of Trade, ~~this~~ had been lowered to 5% in ~~February~~<sup>May</sup> 1844. However, the 10% deposit was resumed in time to cover almost all bills presented for the 1846 session of Parliament.

From about October 1845, activity in several other parts of the economy began to turn down. By 1846 some sections of manufacturing industry began to complain of a decline in orders both for the home market and for exports, while in the cotton industry in particular profit margins began to shrink rapidly. The domestic harvest of 1845 was also poor though large stocks of wheat left over from previous years helped to keep prices low; in parts of Europe and in Ireland, however, bad harvests were already beginning to pose threats of famine and were to force Peel into accepting finally the need for corn law repeal. Only in the field of railway construction was there no sign of any down-turn in activity. By 1846 most of the lines sanctioned in 1844 and 1845 were under construction and the employment and income thus created, as well as the demand for various items of railway building equipment, helped to maintain the aggregate level of income and activity despite depressive influences that were at work elsewhere in the economy.

Towards the end of 1846 it began to look as though the economy was beginning to recover once more, but in the autumn various ominous signs appeared. The American cotton crop, which had been very poor in 1845, failed for a second time. In 1846 cotton imports fell to sixty per cent of the volume imported in 1845, and it was only by drawing heavily upon stocks accumulated in England in previous years that the industry was able to maintain output. By the end of the year, however, stocks of raw cotton were greatly reduced and there was no prospect that imports would be larger than in the previous twelve months; it was inevitable therefore that unemployment in Lancashire would rise steeply in 1847. Almost at the same time news arrived that the harvest in Western Europe had failed for a second consecutive year, and that the Irish potato crop had been destroyed altogether. By December 1846 it was clear that vast imports of corn would be necessary if famine stricken

Ireland was to be fed. Even in the railway world where construction was booming, the railway companies were finding it less and less easy to maintain the rate of calls on shares necessary to support their planned programmes of expenditure and, consequently, were turning more to borrowed capital obtained at high rates of interest.

The need to pay for huge imports of corn began to affect the balance of payments from the beginning of 1847. Between January 2 and April 17, £5.6m. in bullion - which amounted to thirty-eight per cent of the Bank of England's entire reserves - left the Bank for export abroad. The Bank responded in the first instance by twice raising its rate half a per cent during January 1847; thereafter, however, it allowed its reserve to fall unchecked by any increase in the rate until April 8th. On that day it raised its rate once more by one per cent and in the following two weeks introduced further restrictions including a severe rationing of the bills that it would accept for discount.<sup>1</sup> These actions immediately checked the loss of bullion, but only at the expense of intense alarm in the money market. "The effect of this severe contraction of accommodation was to paralyse nearly all transactions on credit throughout the country ... ", wrote Tooke. "Nothing approaching the same degree of intensity, not only of immediate pressure, but of alarm for the future had been experienced since 1825."<sup>2</sup>

As the Bank's reserve began to recover the pressure eased; by the end of May it looked as though the worst had passed and for two months the money market remained in a tranquil state. In the meantime the corn import trades began to take on a more alarming character. For several months British corn merchants had scoured Europe and North America for grain, while

---

<sup>1</sup> Clapham, *The Bank of England*, pp. 201-2.

<sup>2</sup> Tooke IV p.306.

in the domestic market, grain prices had risen almost to famine levels. By the middle of June however, corn prices began to fall. From Europe there came reports that the prospects for the coming harvest were good while the home harvest was also clearly going to be much better than had been anticipated. By August corn prices were falling rapidly and corn merchants began to fail in large numbers. By the end of the month their losses had led to the failure of several financial houses, including the discount firm of Sandersons, associated with the corn trade.

For a time it looked as though the failures would be largely confined to this narrow group but within the first weeks of September it became clear that other trades would not escape. The failure of Sandersons was not only a serious blow to confidence, but their closure, however temporary, was bound to create a large gap in London's financial institutions which could not be filled quickly except, perhaps, by the Bank of England. In September more weaknesses were exposed, this time among firms engaged in the sugar trades and in the East India trade. In the East India trade especially, revelations of the extent of illiquidity and commodity speculation were alarming and did much to heighten apprehension in the commercial world. From the end of September 1847 onwards, commercial houses began to fail in many trades, and even firms hitherto considered as being of impeccable creditworthiness began to experience difficulties as credit became scarce and as commodity prices declined. As the failures spread into new trades and increased in number confidence declined rapidly in the money market, and banks and other financial institutions began to take precautionary measures to safeguard their own reserves by reducing their own lending and discounting activities and by drawing upon the Bank of England whenever they could.

When, in the second and third weeks of October, several country banks failed or were reported as being in great difficulty the pressure

for liquidity became particularly intense. Market discount rates increased sharply, and long dated and accommodation bills became almost impossible to negotiate. Denied their usual credit and discount facilities, firms were forced to turn to the Bank for cash. Under the combined demands of the banks and their customers the Bank of England's own reserves diminished rapidly. By the third week of October it was clear that the Bank's reserves would soon be exhausted and at this point the 'panic' drive for liquidity developed. For a week the Bank attempted to support the market, but by Friday 23rd October the position had deteriorated so alarmingly that the Government decided to intervene.<sup>1</sup>

Early on Monday 26th October the Prime Minister and the Chancellor of the Exchequer officially informed the Bank that the limits set on the note issue by the Act of 1844 could be exceeded but that the Bank should only make the notes available at a minimum rate of eight per cent. It is reported that, when the letter announcing this decision was published at 1 p.m., the market was immediately transformed: demands for assistance began to subside within the hour and many institutions found themselves to be greatly over-liquid.<sup>2</sup> In the months that followed more failures were reported but these were only part of the re-adjustment following the crisis; the crisis itself had passed over and historians were already turning to perform the autopsy.

### III

The chapters that follow consider in detail various attempts that have been made to explain the events which have been outlined above in terms

---

<sup>1</sup> Speech of the Chancellor of the Exchequer, C. Wood, 30th November 1847, *Hansard*, 3rd Series, Vol. 95, 1847, pp.374-413.

<sup>2</sup> Report of the Secret Committee of the House of Lords appointed to inquire into the Causes of the Distress which has for some time prevailed among the Commercial Classes, and how far it has been affected by the laws for regulating the Issue of Bank Notes Payable on Demand. B.P.P. 1847-48, VIII p.12.



of the behaviour of various individual sectors. In order to maintain some perspective of the importance of each sector within the economy as a whole it will be useful to outline briefly some of the principal features of Britain's economic structure during the 1840s.<sup>1</sup>

Although estimates of national income for this period are not sufficiently accurate to allow any detailed analysis either of its structure or of its annual fluctuations, they still offer a useful indicator of the order of magnitude of the various sectoral contributions, and allow us to obtain some idea of the distribution of its expenditure between the consumer, investment and government sectors.

Currently available estimates suggest that, measured either in income or in expenditure terms, national income at current prices was of the order of £525m. during the second half of the 1840s. The various sectoral contributions to income were approximately as follows: agriculture accounted for about £160m. or 20 per cent of national income; mining, manufacturing and building between them accounted for about 34 per cent; trade and transport for 19 per cent and the remaining 27 per cent was contributed by domestic and personal incomes, housing, income from abroad, and government and all other sources. Viewed in expenditure terms, by far the largest proportion of income remained in the hands of consumers - consumer expenditure accounted for approximately 86 per cent of G.N.P. - and a surprisingly small amount, 6 per cent of G.N.P., appears to have been devoted to domestic investment; the rest was distributed between public expenditure (7%) and foreign investment (1%). On the basis of these figures, aggregate exports accounted for about 13 per cent of national income.

---

<sup>1</sup> The following discussion draws heavily upon P. Deane, "New Estimates of Gross National Product for the United Kingdom, 1830-1914", *The Review of Income and Wealth*, series 14, No.2, (1968), pp.95-112.

Although the average amount annually devoted to domestic investment during the 1840s was only about six per cent of G.N.P. this amount could vary quite widely from year to year. Thus in 1843 and 1844 investment into domestic fixed capital formation fell to only 4.1 per cent of G.N.P., but in 1847, the year when railway investment reached its peak, it had advanced to 10.1 per cent or nearly two-and-a-half times the level of 1844.

The main cause of such violent fluctuations during the 1840s was the variations which took place in the amount invested in railways. The distribution of gross fixed capital formation during these years was heavily in favour of investment into transport and communications, and an average of 59 per cent of domestic fixed investment went into this sector compared with 21.2 per cent which went into dwellings and other social capital, 16.1 per cent to industrial capital formation, and 3.7 per cent to government purposes. During the second half of the 1840s the proportion of new investment going to transport and communications must have been very much higher than in the five years preceding or following. According to the Mitchell estimates, an average of £29m. was invested annually into the railways between 1845 and 1849.<sup>1</sup> This was equal to 64 per cent of the average gross fixed capital formation in those years; while in the three peak years of railway investment, 1846, 1847 and 1848, railways absorbed 70 per cent of all gross investment. The dominating importance of railway investment in the entire investment process in the 1840s is thus clearly evident and we return to it as a major theme many times.

The national income figures provided by Phyllis Deane are only a very approximate measure of the importance of various sectors in the economy

---

<sup>1</sup> B.R. Mitchell, "The Coming of the Railway and United Kingdom Economic Growth", *Journal of Economic History*, Vol. XXIV (1964), p.335.

and they have many deficiencies, not the least important being the problem of extracting the Irish element from the figures.<sup>1</sup> An alternative approach to measuring the structure of the economy is through the occupational distribution of the workforce, given in the census of 1851. This is summarised in Table 1 below. As R.C.O. Matthews has pointed out, it would be a mistake to suppose that these figures necessarily represent a measure of the contribution to national income made by each occupational group, since the ratio of land and capital employed per worker employed varied widely between the different industrial groups.<sup>2</sup> They do, however, enable us to obtain some idea of the impact which variations in the level of activity in the different sectors had upon the working population and thereby upon the population as a whole. In the pages that follow little will be said about a great many of these industries including some, like the agriculture and the clothing and retail industries, which included very large numbers of workers. However, as many of these occupational groups were involved in the less capitalistic industries, they contributed proportionately less to general fluctuations in income and their omission is not as serious as their numbers would at first suggest.

---

<sup>1</sup> See below, pp.85-91.

<sup>2</sup> R.C.O. Matthews, *A Study in Trade Cycle History: Economic Fluctuations in Great Britain, 1833-1842*, (Cambridge 1945), pp.3-4.

Table 1  
Occupational Distribution of the Population of  
Great Britain in 1851

	('000s)
Agriculture (Farmers, Graziers, Labourers, Servants)	1,790
Domestic Service (Excluding Farm Service)	1,039
Textile Operatives -	
Cotton	527
Woollen & Worsted	273
Silk, Linen, Hose, Lace, Carpets	376
Tailors, Dressmakers and Milliners	1,176
Builders*	493
Bakers, Butchers, Grocers, Licenced Victuallers, Tavern and Innkeepers, and Inn Servants	459
Mining -	
Coal	353
Iron, Copper, Tin, Lead	219
Boot and Shoemakers	88
Seamen (Merchant), Pilots	274
Labourers (Unspecified)	144
Professional and other educated persons	396
	231
	<hr/>
Total categorised above	6,662
Residual <sup>1</sup>	3,879
	<hr/>
Total of Income-Earning population	10,541
Total Dependents (children, wives, etc.)	10,419
	<hr/>
Total Population	20,960
	<hr/>

\* Builders - viz. Bricklayers, Carpenters, Masons, Glaziers, Plumbers, Plasterers, Slaters and Thatchers.

SOURCES:

1851 Census Returns, B.P.P. 1852-3, LXXXVIII, pt.1 *Occupations of the People*.

J.H. Clapham, *An Economic History of Modern Britain*, Vol. II (1952) p.24. Clapham's groupings have been accepted wherever possible except in the case of builders where there appears to be inexplicable discrepancies between his figure and those derivable from the Census. This is not altogether explained by the inclusion of thatchers in the figures contained in Table 1 above.

<sup>1</sup> Occupational groups included account for the remaining 1,200 or so categories given in the Census Returns. The size of these groups range from 146,096 annuitants, 112,776 blacksmiths and 48,082 engine and machinemakers to 8 bowstring makers, 3 bean and pea splitters and 2 bee dealers.

## CHAPTER II

## RAILWAY INVESTMENT AND THE CRISIS OF 1847: THE HISTORY OF AN HYPOTHESIS

Historians have always paid considerable attention to contemporary views on historical events; the historians of the commercial crisis of 1847 provide no exception to this observation. Indeed, if any criticism can be made of them, it is that they have paid undue attention to contemporary views and have accepted and incorporated them into the literature of economic history too readily and too uncritically. The result is that, with one or two notable exceptions, views of the crisis currently held by historians continue to resemble very closely the views formed at the time of the crisis itself, despite the fact that, as one historian has pointed out, those views reflected strong prejudices arising out of intense social, political and theoretical issues which existed at the time.<sup>1</sup>

Generally, it may be said that attempts made in the 1840s to explain the crisis analysed it in one of two ways: either that excessive investment in railways was responsible, or that there was some malfunctioning of the Bank of England's role in the monetary system arising from the introduction of the Bank Act of 1844. Other factors, such as the exceptionally large imports of corn, the high price of raw cotton, and the bullion drain, were all given a place, but it is to the railways and to the Bank of England that contemporary commentators on the crisis, and historians since, have turned for an explanation of the acute disequilibrium which appeared in the economy in 1847. Only one major exception to this generalisation appeared: this is to be found in the report of Select (Secret) Committee of the House

---

<sup>1</sup> C.N. Ward-Perkins, "The Commercial Crisis of 1847", *Oxford Economic Papers*, II (1950) reprinted in *Essays in Economic History*, Vol. II, (ed.) E.M. Carus-Wilson, (1962), p.263.

of Commons appointed to inquire into the crisis.<sup>1</sup> According to this report the crisis arose out of the harvest failure of 1846 and the need to import corn in large quantities in the first half of 1847. Railway investment, high cotton prices, and "an undue extension of credit, especially in our transactions with the east", were seen as added factors which helped to increase the intensity of the crisis. The House of Lords Committee appointed to inquire into the crisis echoed these conclusions but added that the existence of the Bank Act greatly added to the intensity of the crisis.<sup>2</sup> Historians have usually regarded the House of Commons' report as a very inadequate document and little more than an attempt at white-washing the failures of the Bank Act and of the Bank of England, and have tended to emphasize the attack on the Bank Act contained in the House of Lords Report rather than the fact that it also blamed the harvest failure for the crisis.<sup>3</sup> As a result corn imports have been regarded as a subordinate factor in the crisis, and even when considered important they have never been seen as more than an item which accelerated the coming of the crisis.

Perhaps because of sheer magnitude, but also for fundamental theoretical reasons, railway investment has attracted more attention as well as more controversy over its role in the crisis than any other factor. This chapter analyses the arguments put forward by those writers who have traced the origins of the crisis to over-investment railways, as well as the arguments of those who rejected this view or who have argued, conversely,

---

<sup>1</sup> Report of the Select (Secret) Committee of the House of Commons appointed to inquire into the Causes of the Recent Commercial Distress, and how far it has been affected by the laws for regulating the Issue of Bank Notes payable on Demand. B.P.P. 1847-48, VIII, p.4. Subsequently referred to as H.C.

<sup>2</sup> Report of the Secret Committee of the House of Lords appointed to inquire into the Causes of the Distress which has for some time prevailed among the Commercial Classes, and how far it has been affected by the laws for regulating the Issue of Bank Notes Payable on Demand. B.P.P. 1847-48, VIII, p.3. Subsequently referred to as H.L.

<sup>3</sup> C.N. Ward-Perkins, "The Commercial Crisis of 1847", p.266-7.

that railway investment acted as a stabilizing influence in an economy where other, powerful, destabilizing influences were at work.

Expressed in its simplest form the hypothesis used by contemporary writers who traced the crisis to "over-investment" in railways went as follows: the economy had become unstable because railway investment had been allowed to reach levels at which the conversion of "circulating capital" into "fixed capital" was proceeding at a faster rate than new savings were becoming available with the result that the existing stock of circulating capital had been reduced below the needs of the economy.<sup>1</sup> The subsequent conflict that developed between the various sectors of the economy for the reduced stock of capital - which was further reduced by the drain of bullion abroad to pay for grain imports - raised interest rates to a point where many merchants, manufacturers and railway builders were forced into curtailing activity or into liquidation.

It is the purpose of the rest of this chapter to show how this hypothesis was first developed; how it came to be absorbed into the literature of economic history; and finally to show that, despite the criticism which may have been made of it, historians continue to use it to explain the development of the commercial crisis of 1847.

## I

The first detailed prediction that a crisis in the British economy was imminent appeared in October 1845 when, at the height of the railway promotion boom, James Wilson, editor of *The Economist*, published an article in which he argued that the planned expenditures on railway construction were greatly in excess of the volume of savings becoming available annually, and

---

<sup>1</sup> The terms "circulating" and "fixed" are terms used in the 1840s for which there appear to be no analogous terms in modern economic literature. The meaning of the terms is explained below.

that despite a temporary appearance of prosperity, the inevitable result of such over-investment would be a rise in unemployment and great hardship for the working classes.<sup>1</sup>

Although the terminology which Wilson used to express his arguments remained as part of the economist's vocabulary throughout the nineteenth century, some of it may be unfamiliar to modern economists or may not contain the same meaning that it had for Wilson; for this reason it will be useful to outline the main terms that he used before his hypothesis is examined in more detail.

According to Wilson the *stock of capital* in existence at any one time consists of accumulated labour in the form of goods and equipment available to facilitate future production.<sup>2</sup> The annual increment to this stock is equal to total annual output minus consumption, i.e. total annual savings. The stock of capital may be divided into two parts: *circulating capital*, which consists of those goods which are annually consumed in the process of further production, i.e. they form the wages of labour and consist

---

<sup>1</sup> Similar arguments had appeared in *The Globe* during the first week in August, 1845 (quoted *The Times* 9th August, 1845 6e), and later in *The Times* 4th September, 1845 4e, but Wilson was the first writer to argue in a comprehensive form that railway investment would lead to depression and unemployment. Wilson's essays are to be found in *The Economist* October 4th 1845, and during several issues between January and May 1847. All the articles were later gathered together and appeared in a book form entitled *Capital, Currency and Banking; Being a collection of a series of articles published in The Economist in 1845, on the principles of the Bank Act of 1844 and in 1847, on the recent monetarial crisis; concluding with a plan for a secure and economical currency (1847)*. Wilson's work has been carefully examined in R.G. Link, *English Theories of Economic Fluctuations* (New York, 1959) pp.114-121 and is an invaluable guide to his thought.

<sup>2</sup> Wilson *op. cit.* p.119. This paragraph is a summary of pp.119-129 of Wilson's book. These pages had earlier appeared as an article by Wilson published in *The Economist* 23rd January, 1847. All the definitions used were implied in the 1845 essay.



of food, clothing, etc; and *fixed capital*, which consists of all the plant, equipment, etc. used to assist in this production, but which cannot be so consumed. According to Wilson the essential difference between circulating and fixed capital is that circulating capital is reproduced intact annually as part of the process of production and provides a continuing fund available for the future payment of labour, whereas the stock of fixed capital does not reproduce itself but returns only an interest payment to the capitalist. The stock of fixed capital may be increased only by drawing on part of the stock of circulating capital to pay labour employed in its construction. By definition, such labour does not help to replace the circulating capital that it consumes, and thus the stock of circulating capital is reduced, resulting in a smaller fund available for the payment of labour employed in the following year. However, as the community normally reproduced annually more circulating capital than it consumes (i.e. it saves), some circulating capital may be converted to fixed capital without creating any unemployment. If, on the other hand, the community attempts to convert circulating capital into fixed capital faster than the annual rate of savings allows, the stock of circulating capital available for the payment of labour in the following year will be reduced, and in consequence some labour will be left unemployed and will experience great hardship.<sup>1</sup>

Wilson also expressed his theory in monetary terms. He argued that money is merely the instrument by which circulating capital is transferred from one person to another, and the rate of interest is a function of the

---

<sup>1</sup> The theory has several inconsistencies, the most obvious of which is the implicit assumption that the average wage of labour would not be reduced. If wages could be so reduced there would be no need for an increase in unemployment simply because the aggregate stock of circulating capital had fallen. At a later stage it will also be clear that Wilson was ambiguous about labour supplies. Throughout his work there is an implicit assumption of full employment. His definition of a crisis, however, involves the creation of unemployment.

supply and demand for circulating capital expressed either in monetary or in real terms.<sup>1</sup> When money (circulating capital) is used to finance the creation of fixed capital it is, in effect, consumed since no new circulating capital is produced in the process; all that is returned to the capitalist is an interest payment on its investment.<sup>2</sup> In effect, money is transferred from the hands of savers into the hands of consumers so that in the following period the supply of money savings is diminished. If the demand for funds remains unchanged in the following period the rate of interest must rise. This rise reflects the general reduction in the stock of circulating capital.

When Wilson wrote his essay in 1845 he was concerned with proving that planned railway investment programmes were greater than the capital resources and savings the country could supply. To illustrate his argument Wilson made quantitative estimates of the magnitudes involved in the railway investment programme. He calculated that total annual savings in the United Kingdom equalled approximately 60m., and that railway projects already sanctioned by Parliament involved a commitment of £74m. in new investment over the next five years.<sup>3</sup> Although this sum was still considerably less than the volume of savings becoming available each year, Wilson argued that the calls on these savings by sectors other than the railways were large and were rising rapidly.<sup>4</sup> "So that", said Wilson, "even admitting the annual accumulation of the country to be equal to sixty or seventy million sterling ... it is a most exaggerated view to suppose that such accumulations are wholly, or even in part applicable to the construction of railways or any other public work".

---

<sup>1</sup> Wilson, *Capital, Currency and Banking*, p.140.

<sup>2</sup> *Ibid*, p.42.

<sup>3</sup> *Ibid*, Introduction, pp.v-xi.

<sup>4</sup> *Ibid*, pp.xi-xiv.

The theory, as it is outlined above, was only partially stated in the 1845 essay; Wilson's main aim at that time was to demonstrate that the railway promotion boom then in full swing threatened to commit the community to a programme of excessive conversion of its circulating capital stock to fixed capital. When, in April, 1847, it appeared that his predictions of 1845 were being borne out, Wilson returned to the topic of railway investment to describe more fully the pattern of events that would take place if the community were to attempt to construct railways at a rate faster than savings allowed.<sup>1</sup>

The immediate effects of a large transfer of capital to investment in railways - Wilson supposed that at that time it amounted to £25m., annually - would be as follows: there would be a great increase in the demand for labour, and wages would rise. This would lead immediately to a rise in the demand for consumer goods and a similar increase in demand for those goods used by the railways. Because of the transfer of labour from the production of these goods to employment in railway construction their supply, in the short-run, would be correspondingly reduced. This would result in a rise of prices to which merchants and manufacturers would respond by attempting to increase their output. This would require fresh inputs of capital, both circulating and fixed, with the result that the demand for capital in all sectors of the economy would be greatly increased. At the same time the price rise would also lead to increased imports which, for a time, would not be matched by a corresponding increase in the supply of goods for export. The result of this decline in the visible trade balance would be a balance of payments deficit and circulating capital in the form of bullion would be lost abroad, thus <sup>further</sup> reducing the domestic stock of

---

<sup>1</sup> The essay appeared in *The Economist* on April 10; the pressure of April 1847 may be said to have reached its full height during the third week of the month.

circulating capital available for investment.<sup>1</sup> The resulting conflict between the railways and all other sectors of the economy for the limited stock of circulating capital available would raise its price - i.e., the rate of interest.

In this conflict the railways could always expect to be outbid by the consumer goods industries; interest rates would eventually rise to a point where many railway schemes then under construction would be halted, and large numbers of the working classes would be thrown out of employment.<sup>2</sup> For Wilson the visible evidence that these events were taking place during the early months of 1847 appeared in the adverse exchanges, the high interest rates, and - as he believed - the low level of the stock of goods then in existence.<sup>3</sup> To Wilson, writing in April 1847, it appeared only a matter of time before railway construction was cut back and the working classes began to experience severe and widespread unemployment.

## II

Ever since Wilson's essay appeared the "circulating capital fund theory" has been regarded by many economists and historians as a major explanation of the crisis of 1847. During the 1840s almost all authorities were agreed that excessive investment into railways had played some part - perhaps even the principal role - in events which led up to the crisis, and made the problem of recovery more intractable.

---

<sup>1</sup> Wilson, *Capital, Currency and Banking*, p.148, pp.152-156.

<sup>2</sup> *Ibid*, pp.148, 168-9.

<sup>3</sup> *Ibid*, p.165.



Among the more important authorities who came to this conclusion were several of the witnesses to the Parliamentary Committees of Inquiry into the crisis, Thomas Tooke, James Morrison, and the journalist and historian of the crisis, D.M. Evans. Both Parliamentary Committees included in their lists of causes of the crisis, "the diversion of Capital from its ordinary employment in commercial transactions to the construction of railroads."<sup>1</sup> Tooke argued that at the beginning of 1847 businessmen feared that railway investment would eventually prove too heavy for the economy to bear and that business confidence had been seriously undermined. He went on to argue that later in the year excessive demands for capital by the railways had exacerbated the problems of those firms whose current activities depended upon a ready supply of credit.<sup>2</sup> In a later volume of *The History of Prices* William Newmarch (Tooke's co-author in the last two volumes) was to argue that the main burden of railway investment had fallen on the middle and wealthier classes, and that the efforts of these people to retrench their expenditures accounted for the continued depression in the commodity markets between 1847 and 1850.<sup>3</sup> Similarly, D.M. Evans believed that the demand for circulating capital by the railways was a major factor contributing to the crisis in general, and to the collapse of many firms in London, Liverpool, Manchester and Glasgow.<sup>4</sup> James Wilson had not modified his views when he wrote in *The Economist* in 1848 that the crisis had been the consequence of the railways absorbing £75m.

---

<sup>1</sup> H.C. 1847-8, p.4. H.L. 1847-8 p. 3. Witnesses to the committees who had given evidence in support of this conclusion were the Governor and Deputy Governor of the Bank of England, S.J. Loyd, G.W. Norman, T. Tooke, W.P. Taylor, T. Birkbeck.

<sup>2</sup> Tooke, IV pp. 72 and 76.

<sup>3</sup> Tooke, V pp. 367-70.

<sup>4</sup> D.M. Evans, *The Commercial Crisis of 1847*, p.108, there are numerous references to the adverse effects of railway demands for capital during 1847 in Evan's chapter on 'The Money Panic' pp.53-108.

of circulating capital and converting it to fixed capital, though he added that corn imports had drawn an additional £25m. of capital abroad.<sup>1</sup> These events he said, had given an unexampled disturbance to the credit of the country which had resulted in crisis. But, perhaps the author most completely convinced of the adverse effects of railway building was James Morrison. Morrison's opinion is worth quoting in full as it represents the clearest statement, by a contemporary of the crisis, analysed in Wilson's terms.<sup>2</sup>

"... there is now, indeed, but one opinion among those who from their position are looked up to as authorities in these matters - that the late panic in the money market was chiefly caused by the extravagant expenditures on railways. That other causes, such as the Irish famine, and a deficiency in our own crops, contributed to our difficulties, may be safely admitted; but the funds for payment of our importations of food could have been supplied without materially trenching on the capital required for the wants of commerce and industry. It was the heavy and constantly increasing drains of the railways ... that led to that extraordinary rise in the rate of interest, which commerce was utterly unable to support".

Economists continued to use the circulating capital fund theory as a principal explanation of economic fluctuations for thirty years after Wilson's book had been published.<sup>3</sup> Among the most important of the British economists of the middle decades of the nineteenth century who applied the idea to explain the crisis of 1847 were J.S. Mill, W.S. Jevons and Leone Levi. J.S. Mill accepted Wilson's "circulating capital fund theory" as an

---

<sup>1</sup> *Economist* Feb. 19, 1848, pp.198-9. Wilson, it may be noted, had earlier predicted that although there would be difficulties for investors in railways, there was no possibility of a commercial crisis in the near future.

<sup>2</sup> James Morrison, *The Influence of English Railway Legislation on Trade and Industry* (1848), p.6.

<sup>3</sup> F.A. Hayek, *The Pure Theory of Capital* (2nd impression, 1950), p.425.

important explanation of economic fluctuations in general, and included in *The Principles* perhaps the clearest statement of the theory made in the nineteenth century.<sup>1</sup> His analysis of the crisis of 1847, in particular, was essentially the same as that of James Wilson. The crisis, he said, was the product of "... the continual demand on the circulating capital of the country by railway calls and the loan transactions of the railway companies, for the purpose of being converted into fixed capital and made unavailable for future lending".<sup>2</sup> The simultaneous appearance of these demands along with the development of a heavy balance of payments deficit in 1847 had resulted in a progressive increase in interest rates to a point where less prudent firms had been forced into liquidation. Their failure had involved other firms and the progressive collapse which ensued had developed into the crisis of October 1847. Jevons typified the railway boom of 1843-46 as the most extraordinary example of an investment mania leading to the excessive conversion of circulating capital into fixed capital and resulting in financial crisis, though he made the reservation that the exact cause of a crisis was "a feat of statistical analysis not yet accomplished."<sup>3</sup> Levi, who quotes Wilson's *Capital, Currency and Banking* as his principal source puts no qualifications on Wilson's ideas, though he introduces a moralistic note common to historians of crises in the nineteenth century, namely, that the crisis was a "retribution" brought on by the preceding speculative frenzy.<sup>4</sup>

---

<sup>1</sup> J.S. Mill, *Principles of Political Economy* (Ashley ed., 1915) pp.97-8; 528-9.

<sup>2</sup> *Ibid.* pp.528-9.

<sup>3</sup> W.S. Jevons, *A Serious Fall in the Price of Gold Ascertained and its Social Effect set forth* (1863), reprinted in *Investigations in Currency and Finance* (1884) pp.28-30.

<sup>4</sup> L. Levi, *History of British Commerce and of the Economic Progress of the British Nation 1763-1870* (1872), pp.302-4; 314.

Although economists abandoned Wilson's theories after the 1870s, historians have continued to use his ideas to explain the crisis of 1847. In the twentieth century historians such as W. Cunningham, J.H. Clapham, A.D. Gayer, W.W. Rostow, A.J. Schwartz and S.B. Checkland have all used Wilson's theory to explain the 1847 crisis.<sup>1</sup> Cunningham's treatment of the crisis was little more than a summary of Wilson's ideas which he quoted freely. His conclusion was that the crisis was chiefly due to the fact that the £74m. invested in railways between 1845 and 1847 "... was for a time absolutely sunk; the investment of so much money, in forms that were not immediately productive, had the result of injuring many branches of industry, and depressing commerce".<sup>2</sup>

J.H. Clapham similarly regarded over-investment in the railways as the main cause of the crisis, and although he did not refer directly to Wilson, it is clear from the terminology that he used and the reference that he quoted, that it was Wilson's ideas that he was using.<sup>3</sup> In their two

---

<sup>1</sup> W. Cunningham, *The Growth of British Industry and Commerce in Modern Times* Vol. II *Laissez Faire* (1970) pp.826-8. J.H. Clapham, *An Economic History of Modern Britain*, Vol. I, *The Early Railway Age* (2nd ed., reprinted 1967) p.526-9; and *The Bank of England; A History*, Vol. II, p.199; A.D. Gayer, W.W. Rostow, and A.J. Schwartz, *The Growth and Fluctuations of the British Economy 1790-1850*, pp.331-5; S.G. Checkland, *The Rise of Industrial Society in England 1815-1885* (1964) pp.36-37.

<sup>2</sup> Cunningham, *op. cit.* p.828.

<sup>3</sup> Clapham quotes as his evidence a trade circular of Colman and Stolterfoht published in 1846 and quoted by Evans in *The Commercial Crisis of 1847* p.37. Evans, who was the city correspondent of *The Times* during this period, certainly knew of Wilson's ideas and merely quoted the trade circular as an example of business thinking which was common in 1846. This was almost certainly strongly influenced by Wilson's important *Economist* article written in October, 1845. It is also interesting to note that the conclusions which Colman and Stolterfoht drew were not compatible with Wilson's theory. Colman and Stolterfoht were trying to explain a downturn in the level of general demand and prices in 1846 which they attributed to the adverse effects of railway demands for capital on the general purchasing power of the economy. Wilson's theory, in contrast, predicted increasing activity in industry and commerce, precisely because railway demands would lead to an increase in general demand and prices.



volume study of British trade cycles between 1790 and 1850, A.D. Gayer, W.W. Rostow and A.J. Schwartz use the Wilson theory as a basis for a monetary explanation of the crisis. Their argument is that railway investment acted to promote instability in the economy by a process of progressive conversion of short term funds into long term funds. "The calling up of these required sums progressively impoverished the market, serving largely as the immediate cause of the crisis of 1845 and 1847."<sup>1</sup>

### III

Although Wilson's explanation of the crisis has been widely accepted by historians, its acceptance has not been universal. Several contemporaries of Wilson were sceptical of his ideas, and occasionally economists and historians have rejected the idea that railway investment was the principal cause of the crisis of 1847. Their arguments have usually turned upon three main points: first, that railway investment was in fact counter-cyclical in that it continued to maintain the level of income and employment at a time when activity and investment in other sectors of the economy were declining; second, that railway investment acted to concentrate liquid funds in London banks where they could be utilised more readily than if scattered about the provinces; and third, that there is no evidence that there were any sectors of the economy that experienced shortages of capital either for current or for fixed capital investment purposes. It will be useful to expand briefly these three points.

The argument that railway investment had, in fact, acted to maintain the level of employment at a time when employment opportunities

---

<sup>1</sup> Gayer, Rostow and Schwartz, *Fluctuations in the British Economy* p.305.

elsewhere in the economy were declining was made by several witnesses to the 1848 House of Commons Inquiry into the crisis, and by William Newmarch in the fifth volume of the *History of Prices*.<sup>1</sup> In an elaborate calculation of the numbers directly and indirectly employed on railway construction, or otherwise dependent upon income arising from railway construction, William Newmarch estimated "that it could be safely assumed that in 1847 and 1848 at least 300,000 workmen were dependent upon railway investment and that a further 700,000 were directly dependent upon these wages for their own support."<sup>2</sup> The employment of these people, he argued, was the principal factor mitigating the disastrous effect of the crisis and depression of 1847, 1848 and 1849. Two recent historians of the crisis, E.V. Morgan and C.N. Ward-Perkins have also stressed the anti-cyclical character of railway investment during the 1840s. Morgan claimed that "the rapid expansion of actual railroad building set up reflationary tendencies which helped to produce the boom of 1847 and to mitigate the depression of 1848".<sup>3</sup> Ward-Perkins argued that "During the late 1840s railway construction was the factor that blunted the force of the depression which developed early in 1846 and despite the financial uncertainties of 1847, maintained the level of employment and income".<sup>4</sup> Such investment, he says, also had secondary effects upon employment through subsidiary and cognate industries such as iron, coal, etc. the effects of which were clearly traceable in the various indices of production.<sup>5</sup>

---

<sup>1</sup> H.C. QQ. 1054, 1271-2, 5500, 5920-31; (The witnesses were Muntz, Salt, Birbeck and Taylor) Tooke, V., p.357.

<sup>2</sup> Tooke, V., p.357.

<sup>3</sup> E.V. Morgan, "Railway investment, Bank of England Policy and Interest Rates 1844-48" *Economic History*, IV no.15 Feb. 1940 pp.335-6.

<sup>4</sup> C.N. Ward-Perkins, "The Commercial Crisis of 1847" p.272.

<sup>5</sup> Similar points are also made in P. Mathias, *The First Industrial Nation: An Economic History of Britain 1700-1914* (1969) p.237.

Those witnesses to the Committees of 1848 who were active in the London money market rejected the idea that railway investment had adversely affected the monetary system, though several were prepared to admit that individuals may have become illiquid because of the need to pay railway calls.<sup>1</sup> For example, Samuel Gurney, who was intimately acquainted with the state of the money market in London, argued that, rather than impoverish the market, railway investments "had the effect of concentrating a vast number of small sums, and these large sums came into our market".<sup>2</sup> One implication is, of course, that this benefited the monetary system rather than hindered it.

However, the fact that the railway investment had no noticeably adverse effect on the money market and had actually created employment was not sufficient to convince men like Gurney, Joshua Bates and William Newmarch that the railway boom had not been the main cause of the crisis.<sup>3</sup> Indeed, Gurney and Bates felt that Wilson's analysis was correct, even though they did not believe that railway investment had any significantly adverse effects on the money market.<sup>4</sup> Those who rejected Wilson completely did so on what they considered to be a more fundamental point; they argued that there was no evidence that industry had experienced any shortages of capital during the railway boom. This point had been argued forcefully during 1846 by Hyde Clarke and by George Hudson. Throughout the boom Clarke opposed Wilson's view that the stock of resources currently available would be inadequate

---

<sup>1</sup> H.L. 1847-48. QQ.1060, 1196, 1656. The Witnesses were J.H. Palmer, S. Gurney and G. Carr-Glyn.

<sup>2</sup> S. Gurney H.L. Q.1260. All the Gurney's evidence between Q1245 and Q1260 is relevant to this point.

<sup>3</sup> Similar arguments have also been put forward in C.N. Ward-Perkins, "The Commercial Crisis of 1847" p.273.

<sup>4</sup> Bates H.C. Q.2534, QQ.2542-3. Bates was a partner in Barings Brothers. Gurney H.C. Q.1606. See also the evidence of A. Hodgson H.C. QQ.227-8.

finance railway investment besides all the other calls that were currently being made upon it. "We may safely lay down, as a principle", said Clarke, "that the whole labour of railways might be done by the present means in addition to the usual labour of the country. The general truth of this anyone's observation will teach him".<sup>1</sup> Where additional capital was required, he argued, it would be forthcoming from increased income and from a more efficient use of the existing means of production. In any case much of the supposed investment into railways merely involved a transfer of capital from one person to another (i.e. in payment of legal and Parliamentary fees, and in the purchase of land) and involved no question of fixed investment. Similar views were echoed by George Hudson in a speech in Parliament when he sought to show that there was no danger of excessive quantities of circulating capital being absorbed into the railways.<sup>2</sup> Even after the crisis there were still several witnesses to the Inquiry of 1848 who were prepared to argue that there had been no evidence that railway investment had created any shortages of circulating capital in the country. Such was the opinion of Samuel Gurney, Horsley Palmer, Joseph Pease, and George Carr-Glyn.<sup>3</sup> Others believed that had there been no opportunity for railway investment, capital would have flowed abroad anyway as foreign investment.<sup>4</sup>

Since the 1840s, however, few historians have attempted to criticise Wilson's work or to note the criticisms which his contemporaries had made of

---

<sup>1</sup> Hyde Clarke, *Theory of Railway Investment* (1846), quoted by A.K. Cairncross, "The Victorians and Investment", *Economic Journal* Vol. III No. II, (Feb. 1938) p.285. See also Clarke's articles in the *Railway Register* Vol. I (1844-45) pp.433-38, vol. III (1846) p. 111; *Railway Times* Oct. 10, 1846, p.1466 (all quoted in S. Cleveland-Stevens, *English Railways and their Relation to the State* (1915) pp.158-70).

<sup>2</sup> *Hansard* 3rd. Series, Vol. 84, 1846, pp.1239-1245.

<sup>3</sup> Gurney H.C. Q.1606, H.L. Q.1249: Palmer H.L. Q.685, Q.1066: Pease H.C. Q.4583: Carr-Glyn H.L. Q.1660.

<sup>4</sup> Gurney H.L. Q.1257: Birkbeck H.C. Q.5926: Palmer H.L. Q.1067.

him. Two exceptions to this are E. Cleveland-Stevens and C.N. Ward-Perkins. Both writers draw heavily for their evidence upon the opinions of many of the writers which have already been cited here, and as a result they each produce very similar arguments. Both consider the idea of railways converting circulating capital into fixed capital as irrelevant as there was no solid evidence that there were any real general shortages of capital in the 1840s or that there were any industries that were starved of capital. They argue that it was the abundance of funds which had led to the original boom in railway promotions in 1844 and 1845, and that, in 1847 and 1848, there were other factors acting to relieve the pressure of demand for capital in the economy. At the height of the railway investment period, argues Ward-Perkins, the textile industries already had excess capacity and therefore were not important competitors for capital.<sup>1</sup>

Cleveland-Stevens, quoting the opinion of G. Carr-Glyn, believed that railway investment had the effect of "unlocking" rather than fixing circulating capital. Apart from this, he says, much of the supposed investment was, in effect, no more than a transfer payment to landowners, to the legal profession and to Parliament.<sup>2</sup> Finally, it is the opinion of both Ward-Perkins and Cleveland-Stevens that the fraud and the improvident purchases of shares by people unable to pay the calls on them may have created considerable illiquidity among many persons and institutions which must have added to their difficulties in 1847. "But", says Cleveland-Stevens, "all these evils were excrescences of the body of a sound movement; they were the accidental results of railway promotion, not the essentials of it."<sup>3</sup>

---

<sup>1</sup> Ward-Perkins, "Commercial Crisis of 1847", p.271-3.

<sup>2</sup> E. Cleveland-Stevens, *English Railways: their Development and their Relation to the State* (1915) pp.165-168.

<sup>3</sup> *Ibid*, P.170.

The most recent explanation of the crisis of 1847 which has been made in terms of Wilson's theory of over-investment has attempted to take some account of the objections of its critics. In his study of the role of the railways in British economic growth, G.R. Hawke has argued that whereas railway investment usually acted as a contracyclical force during depressed years in the 1830s and 1840s, in 1847 it was a destabilizing influence which led to the crisis of October of that year.<sup>1</sup> This paradox appeared, he argues, as the result of a development of lags in the railway investment process; firstly, between the use of resources for investment purposes and the appearance of the final output; secondly, between the calling up of funds for investment and their actual expenditure on railway construction. Although, he says, economists today would not use the distinction between fixed and circulating capital they would still accept the essential point of Wilson's argument: "namely, that railway building resulted in such a quantity of resources being used for investment distant in time from final output that the securing of the additional resources to make the initial investment productive necessitated a change in the consumption/investment division (of income)".<sup>2</sup> That such a change did take place, says Hawke, is evidenced in the fall in consumer goods prices which resulted from a contraction of consumption demand among the middle class and rich investors who had constrained their current expenditure in order to finance their calls to the railway companies. Even if resources were not monopolised by the railways the existence of a lag between the calling up of the loans and their expenditure by the railway companies would still have contributed to the crisis. He concludes: "Once the incidence of

---

<sup>1</sup> G.R. Hawke, *Railways and Economic Growth in England and Wales* (1970), pp.364-6.

<sup>2</sup> *Ibid.* p.365, (Words in parenthesis added).

these lags is accepted, it is clearly possible that railways were both contributors to the crisis in 1847 and a source of contracyclical investments in the years after 1847. And this was the actual position. Railway demands for investment resources contributed to the crisis of 1847, but in the following years construction continued and the attendant expenditure was contracyclical."<sup>1</sup>

These, then, are the issues surrounding the railway construction boom and the commercial crisis of 1847. They remain much the same as when Wilson and his contemporaries were attempting to understand the economic forces which were moulding the shape of events around them, and indeed, they are still argued in terms which are much the same as those used in 1847. The issues may be conveniently summarised under three separate questions. Firstly, did railway investment stimulate or retard the level of income and consumption in 1847? Secondly, what was the effect of railway demand for funds upon the London money market; did the funding of railway investment have the effect of raising the rate of interest, or did it, by concentrating a large number of small sums of money into London, enable the London money market to provide cash more readily to the banking system? Thirdly, did the excessive demands of the railways 'starve' other industries of capital, or did the demands set up by the railways, both directly and indirectly, act to maintain the level of activity in various industries which forces elsewhere in the economy were acting to depress? The following four chapters consider these questions.

---

<sup>1</sup> *Ibid.* p.366.

## CHAPTER III

## THE RAILWAY BOOM

This chapter examines the main features of the railway boom: its causes, its magnitude, the factors which brought the boom to a close, and the timing of its various phases. Such an examination allows us at once to account for variations in the level of the least stable and certainly the largest single item of capital investment in the 1840s, as well as to set a more complete background against which to judge the attempts of Wilson and others to explain the crisis.

## I

At the beginning of 1843 there were just under 2000 miles of railway in operation in the United Kingdom. By 1850 there were nearly 6000 miles in operation, while a further 1000 miles of track were under construction.<sup>1</sup> This was the result of the railway boom of the 1840s when, in the words of William Newmarch, Britain passed "... almost at one step ... into the possession of the most complete system of railways possessed by any country ...."<sup>2</sup> During this decade railway building not only became Britain's largest field of investment but it led to gross domestic capital formation achieving temporarily, and for the first time in the United Kingdom history, a ratio of ten per cent of her gross national product.<sup>3</sup> Between

---

<sup>1</sup> B.P.P. 1850 (1249.) XXXI, p.8.

<sup>2</sup> Tooke V, p.389.

<sup>2</sup> P. Deane, "New estimates of Gross National Product for the United Kingdom", *Review of Income and Wealth*, Series 14, No.2, June 1968, p.100 and Tables A and B, pp.104-7. According to the Deane estimates, gross fixed domestic capital formation did not exceed 10% of GNP until the 20th century. More recent estimates by Feinstein *National Income of the United Kingdom, 1855-1965* (Cambridge, 1972) T.4 show that the domestic gross capital formation ratio exceeded 10% in 1876 and 1877 and again between 1899 and 1904. A capital formation ratio of 10% or more was not regularly achieved in the United Kingdom until the mid 1920s.



1843 and the close of 1850 something in the order of £109m. was spent on construction of new railways and in the purchase of rolling stock in Britain while a further £9m. was spent on renewing much of the track and stock constructed in the preceding boom.<sup>1</sup>

The bulk of expenditure on railway construction in the 1840s took place in the three years 1846-48. In these years railway construction absorbed an estimated seventy per cent of gross domestic investment in the United Kingdom, while the number of people engaged in the industry, both on construction and in operation, amounted on average (in 1847 and 1848) to 272,296 persons, or equal to the entire workforce engaged in the manufacture of cotton goods in England.<sup>2</sup> These figures do not, of course, include the large number of workers engaged in related industries such as iron, engineering, and brickmaking whose employment depended in large part directly upon the demands of the railway. According to Newmarch their number was also significant: "... during the two years 1847-48," he said, "the railway expenditure may be safely assumed to have given employment to, at least, 300,000 workmen, on and off the lines; and that, as a general result, hardly less than a million persons (men, women, and children) were dependent, during those two years, on employment flowing from the railway works in progress".<sup>3</sup>

A more detailed picture of the timing and magnitude of the railway boom may be derived from Tables 2 and 3 below. Table 2 shows the number of private acts passed by Parliament for railway construction and related purposes, along with the mileage and capital authorised in each year between 1840 and

---

<sup>1</sup> A.G. Kenwood, "Railway Investment in Britain, 1825-1875", *Economica*, N.S. XXXIII (1965), p.322.

<sup>2</sup> B.P.P. 1847-48 (938.) XXVI, p.333; 1850 (1249.) XXI, p.9; 1847 (294.) XLVI p.610.

<sup>3</sup> Tooke V., p.357.

1850. These figures tell us nothing about how much railway investment actually took place in 1840s; however, they do serve as an indicator of the amount of railway investment *planned* in the decade. The initial planning of a new line was often started long before an Act was actually obtained from Parliament, so that the number of acts passed represents plans at a fairly late stage in the planning process.<sup>1</sup> Nevertheless, as Matthews has shown, the need to conform to the rigorous standing orders of Parliament, as well as the general difficulty and cost of getting an Act through Parliament, means that the use of "private acts obtained" as a measure of investment planned has the advantage of excluding many of the purely speculative projects which appeared in the boom, and which never passed much beyond mere aspiration on the part of their promoters.<sup>2</sup>

---

<sup>1</sup> Besides having to undergo a lengthy Parliamentary scrutiny before an Act was obtained there were several stages which had to be completed before a railway project could even go before Parliament. These stages were as follows: In the first place the promoters of a project would assemble a provisional committee of interested persons whose role was to supervise the project's initial stages of development. Under an act of 1844 the company would then, before doing anything public, seek provisional registration with the Registrar of Joint Stock Companies. Provisional registration allowed the company to publish a prospectus and call for application for shares as well as to make certain contracts in its own name. It was at this point that much dishonesty appeared. Those promoters and subscribers who obtained titles to shares would frequently sell them for whatever premium they would fetch and leave the transferees to become the shareholders. If no premium was forthcoming, the promoters might decide to proceed no further, and not having signed a deed, they were free from any legal obligations. For those who did continue, the next stage was to post a notice in the *London Gazette* that a bill would be brought before Parliament. This stage would usually take place several months before the session began since presentation to Parliament involved establishing detailed plans and estimates of the cost of the line as well as obtaining promises of more than three-quarters of the proposed capital of the line. Under an act of 1842 the companies were also required to deposit one tenth of the capital to be authorised with the Court of Chancery before the bill reached the committee stage of the House of Commons. For several months, between July 1844 and August 1845, the promoters also had to complete the further stage of submitting their proposal to the Railways Committee of the Board of Trade for scrutiny before it was allowed to proceed to Parliament.

<sup>2</sup> Matthews, p.107.

Table 2

Number of Private Acts of Parliament for Railways, with the Mileage and Capital sanctioned: United Kingdom, 1840-1850.

Year	Private Acts of Parliament Granted For Railway Construction			Capital Authorised fm.	Mileage Authorised
	New Lines	Extension and other powers	Total		
1840	2	22	24	2.5	-
1841	2	17	19	3.4	14
1842	6	18	24	5.3	55
1843	10	14	24	3.9	90
1844	37	12	49	20.4	805
1845	94	27	121	60.5	2700
1846	219	53	272	131.7	4538
1847	112	82	194	44.2	1354
1848	37	48	85	15.3	371
1849	11	24	35	3.9	16
1850	5	32	37	4.1	8

Sources: Cols. 1-3 Royal Commission on Railways, B.P.P., 1867 (3844.) XXXVIII, pt.II, app.EK, p.345.  
 Col. 4, G.R. Porter, *Progress of the Nation* (1851) p.327, Tooke, V, p.352.  
 Col. 5, H.G. Lewin, *Early British Railways: a short history of their origin and development 1801-1844*, (1925), p.186, Report of the Railway Department of the Board of Trade, B.P.P., 1851, (1332.) XXX, p.8.

Table 2 shows that after remaining virtually stable between 1840 and 1843 the volume of new railway investments planned began to rise dramatically. Between 1844 and 1846 construction of over 8000 miles of line was authorized, or more than four times the amount actually constructed as a result of the boom of 1830s. Additional investment authorized fell sharply after 1846 until, in 1850, authorization for any further railway construction virtually ceased for the time being. Even so 1754 miles were sanctioned between 1847 and 1850 resulting in construction plans being laid in the decade for nearly 10,000 miles of railway at an aggregate estimated cost of £290m., more than 90 per cent of which had been planned in the four years 1844 and 1847.

Table 3

Estimated Annual Gross Expenditure on Railway Capital Formation and miles of line opened in each year between 1840 and 1852

Year	Estimated Gross Expenditure on Railway Capital Formation excluding land fm.			Miles of line opened each year in the
	United Kingdom*	Great Britain	England and Wales	United Kingdom
1840	8.7	9.01	8.3	
1841	6.0	7.01	6.3	
1842	4.8	5.26	4.9	
1843	4.0	3.64	3.5	
1844	4.2	3.38	3.7	204
1845	13.2	7.94	7.2	296
1846	32.7	19.34	16.7	606
1847	36.8	30.34	24.8	893
1848	26.1	24.85	20.4	1182
1849	17.1	17.70	15.1	867
1850	9.2	10.63	9.6	625
1851	7.4	8.61	7.8	269
1852	8.3	8.24	7.6	446

Sources: Col. 1, B.R. Mitchell, "The Coming of the Railway and United Kingdom Economic Growth", *Journal of Economic History*, Vol. XXIV (1964) p.335.

Col. 2, A.G. Kenwood, "Railway Investment in Britain, 1825-1875", *Economica*, N.S., XXXIII (1965), p.322.

Col. 3, G.R. Hawke, *Railway Investment and United Kingdom Economic Growth*, p. 200.

Col. 4, *Tooke V.*, p.352.

\* The figures given for the United Kingdom cannot be accurately compared with those for Great Britain and for England and Wales since they were calculated from different materials using different methods of estimation. The latter two are, however, comparable. For an analysis of the estimates and methods of construction see G.R. Hawke, *op. cit.* pp.197-204.

Table 3 shows the estimated gross annual expenditure on railway capital formation between 1840 and 1852 as well as the amount of railway mileage opened in each year after 1843. From the table it may be seen that in Britain railway investment expenditure did not increase until 1845. Thereafter,

it grew rapidly to reach a peak in 1847, and then fell rapidly to reach a base in 1852.

Several features in the timing of these fluctuations in railway investment deserve attention. It is important to notice first, that the timing of fluctuations in railway investment contrasts markedly with that followed by income and investment in other parts of the United Kingdom economy.<sup>1</sup> As we saw in Chapter I above, income and investment in most other sectors of the economy began to recover in 1843, reached a cyclical peak in 1845, and then fell to a base in 1848. In other words, the boom in railway investment activity coincided almost perfectly with the onset of depression elsewhere in the economy, while the relative peaks and troughs in either case appeared inversely with those of the other. Although it is not the aim of this chapter to analyse the relationship between fluctuations in railway investment and the level of income and activity in the rest of the economy, the almost perfectly contracyclical character of railway investment is, perhaps, the most significant feature of the railway boom so far as the stability of the British economy as a whole - as distinct from the United Kingdom economy - is concerned. It is a feature which will be considered several times in later chapters.

Another feature of the timing of the railway boom which may be seen from a comparison of Tables 2 and 3 is the system of lags that existed between the decision to build a railway, the building, and the final opening of the line. It may be seen, for example, that whereas new

---

<sup>1</sup> The pattern of fluctuations in income in Great Britain, in contrast to that of the United Kingdom, is discussed at length in Chapter IV below. Fluctuations in investment and activity in the non-railway sector of the British economy are discussed in Chapter VI.

railway planning began to increase in 1844 and reached a peak in 1846, investment in railway construction itself did not begin to rise until 1845 or reach a peak until 1847, while the volume of new mileage opened up does not reach a peak until 1848. In large part it is the existence of these lags, and the fact that the planning boom itself did not get under way until relatively late in the cyclical upswing, which accounts for the development of the anti-cyclical pattern of fluctuations in railway expenditures noticed in the previous paragraph.

While the relatively late onset of the upswing in railway investment planning is considered in later pages, the existence of lags between planning, investment, and the opening up of new railway lines can be explained by the obvious physical and organisational problems associated with getting an act through Parliament and with the construction of a line. The building of a new railway line could not be started until an act granting rights of way and other privileges had been passed by Parliament, and the preparation, as well as the passage of such a bill through all its stages, took many months to complete. Similarly with building; although the bulk of expenditure went towards the creation of satisfactory levels on which to lay the rails, much detailed work still remained to be done before a line could be opened to the public. As will be seen, the long delay between the original decision to build, and the final opening of a railway line, had important consequences for the railway boom as well as for the economy as a whole.

Table 3 also indicates how far actual investment fell short of investment planned. A comparison of tables 2 and 3 shows that even by the end of 1852 - the year generally considered the last in which railway building

was influenced by events which had taken place in the 1840s - only 5240 miles of line had been built of the 9800 miles planned between 1844 and 1850. This failure on the part of the railway companies to complete much more than half of their planned investment programmes had been predicted by Wilson in his 1845 essay and needs to be looked at carefully in the context of the crisis of 1847. Nevertheless, the size of the investment boom is still very striking, and the fact that almost one third of the mileage planned in the 1840s was completed within the three years 1846-1848 attests to the enormous energy of the railway companies and the capital resources of their shareholders.

The rest of this chapter has two aims: the first is to outline the reasons why investment plans were as shown in Table 2; the second is to consider the course of the actual investment to which the plans gave rise, and to consider in detail the factors which brought the investment boom to a premature close so that realized investment fell far short of the levels planned in earlier years.

## II

Interest in promoting new railway lines did not develop until the end of 1843. As a result, very few new lines were sanctioned by Parliament before 1844, by which time most other sectors of the economy had recovered from the deep depression which marks the early years of the 1840s. The reasons for this late recovery are not difficult to find. Even in 1843 most of the 2000 miles of line then in operation had been open for less than two years, and for most of that time the economy had been acutely depressed. The depression had restricted the growth of railway traffic and most companies had experienced some difficulty covering even the variable costs of running their lines. Moreover, until the depression lifted, conditions in the capital

market were such that there was little likelihood of raising capital for new building projects. For these reasons, the railway companies had been less concerned with extending their routes during the early 1840s than with reducing working costs and increasing revenues.<sup>1</sup> With the onset of general recovery in the economy, however, railway traffic began to grow more quickly and, with the fuller train loads that resulted, total revenue increased faster than total costs.<sup>2</sup> The resulting increases in net revenue meant that many railway companies began, for the first time, to pay regular dividends while several of the more prosperous companies paid dividends of five to ten per cent.<sup>3</sup>

While dividends of the existing companies were improving steadily building costs were falling. Interest rates had remained at 2½ per cent or less for over a year by the end of 1843 and were to fall even lower during 1844. The price of all major building materials, as well as wage rates, were considered by contemporaries to ~~be~~ very low.<sup>4</sup> Moreover, it was widely believed that the experienced gained from railway construction in the 1830s would result in

---

<sup>1</sup> G.R. Porter, "An examination of the Returns made by the various Railway Companies of the United Kingdom, with respect of their traffic during the year ending 30 June 1843", *Journal of the London Statistical Society*, Vol. VII, (1844) pp.170-8. H.G. Lewin, *Early British Railways; a short history of their origin and development 1801-1844*, (1925) pp.99, 114, 140.

<sup>2</sup> Figures available relate to England and Wales only. See Table 5, p.67 below.

<sup>3</sup> An index of dividends paid by fourteen railway companies is given below in Table 5. (Some writers in the 1840s pointed out that many of the more prosperous companies were able to inflate their dividends on equity shares by financing a substantial part of their building with capital borrowed at low rates of interest. However, recent work suggests that the importance of such financial restructuring may be easily exaggerated and that the main source of improved dividends was the great increase in traffic carried at a less than proportional increase in working costs, See for example, W.E. Spackman, *An Analysis of the Railway Interest of the United Kingdom* reprinted with emendations from an article in *The Times*, Oct. 17th, 1845. G.R. Hawke, and M.C. Reed, "Railway Capital in the United Kingdom in the Nineteenth Century", *Economic History Review*, 2nd. series, XXII (1969) p.283.)

<sup>4</sup> Tooke IV, p.64. Interest rates quoted here are for the rate of discount charged on first class bills of exchange at Gurney's as given in the Report of the Select Committee, "... on the Bank Acts; Minutes of Evidence, ..." B.P.P. 1857 (220.) Second Session X, pts. i and ii, Q.4876.



considerable savings in the overall cost of building any new lines.

The demand for additional railway facilities is more difficult to assess. A glance at the railway map of Great Britain at the beginning of 1844 shows that, although there were few railway lines in Scotland or Ireland, most regions within England and Wales were connected to a major track route and that the railway building left to be done in the 1840s consisted mainly of feeder lines. Though many of these additions were to become profitable lines in time, it is impossible to know how much of the building planned between 1843 and 1847 was justified at the time in terms of anticipated profit even allowing for low rates of interest and costs of construction ruling in the early 1840s.<sup>1</sup>

Attempts were made to justify particular projects by engaging the services of professional "traffic-takers" who undertook to survey the current and prospective traffic along a particular route; but the techniques used and the great incentives held out for the traffic-takers to exaggerate their estimates quickly brought their reports into disrepute. Similarly, the engineers engaged to form estimates of the cost of constructing the line often had a direct interest in under-estimating the costs of construction, while the primitive accounting procedures and the cupidity of some railway managers made it impossible to separate accurately current from capital costs of running a railway.<sup>2</sup> Together these facts meant that, while there were still profitable avenues for investment in new railway construction,

---

<sup>1</sup> Studies of English Railways, with the exception of G. Channon's study of the Midland Railway's London Extension, either do not consider this question or consider it in an *ex post* fashion, justifying or condemning the building of a line or system in terms of realised, rather than anticipated, profits. (See G. Channon, "A Nineteenth Century Investment Decision; The Midland Railway's London Extension", *Economic History Review*, 2nd series, XXV (1972)).

<sup>2</sup> On the question of establishing profit margins, and of the general difficulties associated with railway accounting in the 1840s, see H. Pollins, "Aspects of Railway Accounting before 1868", in A.C. Littleton and B.S. Yamey (eds.), *Studies in the History of Accounting*, (1956).

very considerable opportunities existed for promoters to exaggerate the prospects of a particular line and to under-estimate the costs of its construction. These conditions, as much as the low construction costs and high dividends paid by the established companies, played a major role in the speculative nature of the promotion boom which developed in 1845.

Such, then, were the factors which led to the revival of interest in railway companies in 1844. By 1845 the boom was in full swing: share prices were rising rapidly; the press - much of it consisting of newly created railway journals - was full of news about profits made by holders of shares of railway companies and stories of new lines being promoted in different parts of the country. It seemed hardly necessary for a new project to appear before it was flooded by applications from persons anxious to acquire its shares.<sup>1</sup>

There is no doubt that the easy money conditions and confidence engendered by the prosperity of 1845 were largely responsible for the share boom and promotion mania of that year. At the same time, however, a number of other factors came together which enormously increased the demand for railway shares for the investment and for speculative purposes. In the first place there was a serious shortage of tradeable securities in Britain by the 1840s. As Killick and Thomas have pointed out, the secular increase in incomes and savings in the first half of the 19th century had produced a rise in demand for securities without a corresponding increase in their supply.<sup>2</sup>

---

<sup>1</sup> Evans, *The Commercial Crisis of 1847*, pp.3-12; J. Francis, *History of the English Railway*, Vol. II (1851), pp.138-150.

<sup>2</sup> J.R. Killick and W.A. Thomas, "The Provincial Stock Exchanges, 1830-1870". *Economic History Review*, 2nd series, XXIII (1970), p.97.

By the mid-1840s the shortage was acute.<sup>1</sup> The loss of American State bonds following the suspension of the Second Bank of the United States in 1839 and the repudiation of the state debts had added to the list of foreign securities out of favour in Britain, while on the domestic market joint stock banking, an area of vigorous promotion activity in the 1830s, was sharply curtailed as an avenue of investment by the Joint Stock Bank Act of 1844 (7 & 8 Vict.c.113).<sup>2</sup> Even railway shares were, in the early stages of the boom, in short supply. In 1844 the stock of railway shares was for the most part limited to those issued by a few companies promoted in the boom of 1830s. Since the normal practice was to reserve the issues of new shares for the holders of existing stock and for a few other 'strategic' interests, outsiders who wished to invest were obliged to pay the very high premiums by the holders of existing shares.<sup>3</sup>

Secondly, the practice of issuing new railway shares on payment of five or ten per cent of the nominal value, leaving the balance to be called up as the company required, meant that, although the purchaser of new shares was

---

<sup>1</sup> Jenk's famous statement that in 1843 there was £25m. east of Temple Bar/<sup>seeking</sup> an acceptable investment opportunity is amply backed up in 1843 and 1844 by numerous complaints in *The Economist* and other periodicals about the lack of investment opportunities. L.H. Jenks, *The Migration of British Capital to 1875* (1929), p.128. See for example, *Economist*, April 13th, 1844, p.674; *Morning Chronicle* Jan. 22nd, 1844 (Quoted in B.C. Hunt, *The Development of the Business Corporation in England, 1800-1867*, (1936), p.103); *Circular to Bankers*, March 17th, 1843, p.348.

<sup>2</sup> L.H. Jenks *op.cit.*, pp.99-108. Some funds went abroad to finance railway building on the Continent during the 1840s but the amount was small compared with that which went to America in the 1830s or with the amounts which flowed there and to other parts of the world in 1850s. Foreign investment in the 1840s is discussed in Chapter VIII below. On joint stock banking investment in the 1830s, see Matthews pp. 192-200; in the 1840s, see W.F. Crick and J.E. Wadsworth, *A Hundred Years of Joint Stock Banking* (1936) pp. 25-7; Clapham, *Bank of England*, p.187.

<sup>3</sup> D.M. Evans, *The Commercial Crisis of 1847*, p.2; H. Pollins, "The Marketing of Railway Shares in the First Half of the Nineteenth Century", *Economic History Review*, 2nd Series, VII (1954-5), pp.235-6.

committed to a large payment in the future, his immediate cash outlay was small in relation to the nominal value of the asset. Thirdly, so long as their value was rising, it was often possible for a shareholder to use the shares as a security on loans used to pay any calls on the outstanding balance on his shares.<sup>1</sup> Indeed, during the boom Exchange Banks were established in Scotland expressly to receive railway shares as a security for loans.<sup>2</sup> At the same time facilities for trading in shares were greatly extended thereby adding to their liquidity and further reducing the risk attendant on holding them. Thus, at the height of the boom, three stock exchanges were opened in Leeds, with others in Birmingham, Bradford, Bristol, Halifax, Huddersfield, Hull, Leicester, Newcastle, Nottingham and Sheffield, in addition to those already established in London, Liverpool and Manchester.<sup>3</sup>

In these conditions, it is not surprising that share prices rose so rapidly during the boom and that many doubtful or purely speculative enterprises were foisted onto the public by unscrupulous promoters whose main aim was to put a tradeable security onto the market. To what extent these projects reflected genuine investment plans rather than purely speculative ventures is difficult to say. Contemporary opinion was that, at its peak, the promotion boom was nothing less than a crusade against the public.<sup>4</sup> The numerous frauds and malpractices exposed during this period and in the months following, as well

---

<sup>1</sup> Although the private banks normally expressed their reluctance to make loans on railway shares, they appear to have done so during the boom of the 1840s. See below p.64.

<sup>2</sup> On the origin and collapse of the 'Exchange Banks' in the 1840s, see Tooke V, pp.365-7 and W. Gilbert, *A Practical Treatise on Banking*, (1849), pp.597-607.

<sup>3</sup> J.R. Killick and W.A. Thomas, "The Provincial Stock Exchanges, 1830-1870", pp.103-4.

<sup>4</sup> D.M. Evans, *op. cit.*, p.14.

as the fact that only 519 of the 1081 projects actually registered in 1845 were presented to Parliament at the start of the session in February 1846, gives ample support to these charges. The fact that the only 272 of the 519 projects presented to Parliament were eventually sanctioned suggests that the amount of genuine investment planning during the mania was a good deal less than had appeared at its height. Nevertheless, the volume of railway investment planned in the mania was extremely large, and it seems fair to say that the greater part of it emerged directly as a result of the share boom or, in Keynes' well worn phrase, as a by-product of the activities of a casino.<sup>1</sup>

The factors which brought the promotion boom to a close can be listed fairly quickly. To some extent the rate at which new promotions appeared was bound to slow down after 1845, if only because the number of potential routes over which lines might pass had been exhausted - at least temporarily - even in the minds of the most sanguine and imaginative promoters. At the same time more positive influences began to operate towards the end of 1845 which led to a reduction of planning activities. Initially, a rise in interest rates in October 1845 brought with it a sharp, but not unexpected downward revaluation in share prices.<sup>2</sup> This was closely followed by publication in *The Times* of an article which purported to show that the volume of railway projects then seeking Parliamentary approval involved an immediate commitment of over £50m. in parliamentary deposits alone, and a further £300m. over the subsequent five years or

---

<sup>1</sup> J.M. Keynes, *The General Theory of Employment, Interest and Money* (1936), p.159.

<sup>2</sup> D.M. Evans, *Commercial Crisis of 1847*, pp.18-25.

so to finance all the construction involved.<sup>1</sup> Together, these two events gave a sharp shock to the confidence of the shareholders about their prospect of making further capital gains. By the end of the year the question of the parliamentary deposits came to dominate the money market. Understanding orders of Parliament railway companies were required to deposit five per cent of the capital proposed in any new bill before the bill could be considered in Parliament and, even though many projects promoted in 1845 had folded, over £12m. was still required for deposit with the Government before February 1846. The prospect of making such a large deposit produced a steady hardening in the money market which developed into near panic in January 1846.<sup>2</sup> In the event, the Bank of England was able to organize the deposits without disturbing the money market, though the payment was not affected without difficulty in some quarters and not without producing a further sharp fall in share prices.

The number of new railway projects promoted in 1846, though much fewer than in 1845, was still large. For the most part, however, lines promoted during 1846 for presentation in Parliament in 1847 consisted of lines which had emerged in the boom of 1845 but which, in the hurly-burly of that year, had

---

<sup>1</sup> *Times*, Oct. 17th 1845, pp.6-7 subsequently reprinted with amendments as *An Analysis of the Railway Interest of the United Kingdom*, by W. Spackman, (1845).

<sup>2</sup> The whole episode is well covered in *The Economist*, August 29th, 1846. See also below Chap. VII, pp.242-3.

failed to meet with parliamentary standing orders.<sup>1</sup>

By 1847 several sectors of the economy were clearly depressed while the menace of famine in Ireland was beginning to dominate everything. The established companies were deep into the problems of constructing lines planned in the early part of the boom, while the enormous increase in capitalization undertaken as a result of amalgamations, purchases and agreements in the mid 1840s as well as the new building began to raise numerous difficulties in maintaining dividends despite rapidly growing revenues. It was not until these later problems had been resolved after many years' growth of net revenues that the great companies were ready to embark once more upon a large scale programme of building activity.

### III

The railway boom of 1844-5 was, above all, a boom in investment planning; actual expenditure on new railway construction did not begin in earnest, as may be seen from Table 3, until 1845. From then until 1847, the amount invested in new railway capital formation and on the maintenance of existing stock increased rapidly. After reaching a peak of £30m. per year in Great Britain for the year 1847, the annual amount spent on railways fell continuously

<sup>1</sup> Lewin *Railway Mania*, pp.283-4. The number of projects kept alive in this way is difficult to estimate accurately but may be roughly judged from the following statistics.

	Railway Companies Provisionally Registered With The Registrar of Joint Stock Companies	Projects Presented to Parliament for Railway Acts at beginning of the Parliamentary Session (Jan/Feb)
1844 (Nov) + Dec only)	80	
1845	1081	220
1846	51	560
1847		329

Source: Col. 1, B.P.P. 1845 (577.) XLVII p.1; 1846 (504.) XLIII p.79; 1847 (293.) LIX p.231.

Col. 2, Lewin, *Railway Mania*, pp.5, 130, 283.

until 1851, the steepest decline being experienced in 1849 and 1850. By 1851 investment into railway construction had fallen to levels similar to those ruling in the early 1840s. From 1852 onwards a mild recovery took place.

Railway building activity appears to have reached its peak about the middle of 1847. At that time the railway companies were raising an average of £4.3m. per month in share capital and in borrowed funds and there were about 6,500 miles of track under construction in different parts of the United Kingdom with 256,509 workers directly engaged in their construction.<sup>1</sup> Nevertheless, even before the mid year, the railway companies were feeling the strain of maintaining their high levels of expenditure. Aggregate expenditure had exceeded the amount raised by the companies since April, though for a time the companies were able to draw upon reserves of cash built up in 1846.<sup>2</sup> By the end of July, however, even these reserves were exhausted, and in the second half of 1847 several major companies announced their intention of reducing building expenditures wherever possible and of proceeding only with lines where traffic could be expected to increase quickly or where the lines were considered essential to the security of the main line.<sup>3</sup> Later, following the crisis of October, 1847 Parliament passed an act specifically intended to reduce investment expenditures on railways by requiring that no new contracts for works be entered into by railway companies for a period of one year from November 1847 unless consented to by three-fifths of the shareholders.<sup>4</sup> By

---

<sup>1</sup> B.P.P. 1847 (579) LXIII, p.175. See also Table 13, p.130 below.

<sup>2</sup> In his evidence to the House of Commons enquiry of 1848 Adam Hodgson remarked that the railway companies had built up large reserves in their banks during 1846 and the first three months of 1847, but that these had all been used up by August, 1847. H.C. 1848 Q.207.

<sup>3</sup> Lewin, *The Railway Mania*, p.286; *Economist*, September 18th, 1847, p.1089, October 23rd, 1847, p.1089.

<sup>4</sup> 11 Vict. c.3. (The Railways, Extension of Time, Act). See also B.P.P. 1849, (1061.) XXVIII, p.7.



1848 the rate of expenditure on railway construction was clearly beginning to fall. From then until the end of 1849, little new construction work was started and any building done in 1848 and 1849 consisted almost entirely of work started before the crisis of 1847.<sup>1</sup>

Table 4 shows aggregate railway mileage opened up between 1843 and 1852 compared with the amount of railway mileage authorised in each year.<sup>2</sup> From the table it may be seen that, although the mileage of track brought into operation continued to increase annually until 1848, the aggregate amount actually constructed by 1852 (the last year in which new track brought into operation may reasonably be regarded as the product of planning in the 1840s) fell very considerably below the amount planned for construction, the balance either being abandoned altogether or being eventually constructed under acts obtained in later years.<sup>3</sup> Moreover, it may be seen that most of the building

---

<sup>1</sup> B.P.P. 1849 (1061.) XXVIII, p.7; 1850 (1249.) XXXI, p.8; 1851 (1332.) XXX, p.9.

<sup>2</sup> Table 4 may be read as follows: In the year 1845 a total of 2700 miles were authorised by Parliament for construction, of which 2102 were opened before December 1852, most being opened in the years 1847 and 1848. Vertically, taking the year 1848 we can see that 1182 miles of line were opened in the year of which the majority were authorised in the years 1844-1846.

<sup>3</sup> Parliamentary approval of a railway project normally carried with it the provision that compulsory purchase powers relating to land should last for three years only, while the line itself should be completed within five (B.P.P. 1851, (1332.) XXX, p.8.). It is true that the act of 1847 allowed companies to extend the time in which these powers were granted for a further two years, though few companies appear to have taken advantage of this, and most of the powers not used by 1852 were allowed either to lapse by default or by acts of Parliament. When the lines were eventually built they were usually constructed under powers gained by acts other than those obtained in the 1840s.

Table 4

Railway Lines Authorized and Opened: United Kingdom, 1843-1852

Mileage Authorized	Previously to Dec. 1843	During 1844	During 1845	During 1846	During 1847	Length of Lines Opened				Total Open Dec. 1852	A Length of line authorized during the year	B Line Officially Abandoned	Net Under-takings A-B	Remaining to be Opened
						During 1848	During 1849	During 1850	During 1851					
Before Dec 1843	2036	204	131	16	2	1				2390		2390		
in 1844			159	366	142	118	3	4		792		805		13
in 1845		6		224	573	604	311	213	65	106	2102	2700	2667	565
in 1846				84	84	403	501	379	122	288	1777	4358	4060	2283
in 1847				2	2	56	45	26	71	10	210	1354	1194	984
in 1848							7		7	16	30	371	366	336
in 1849							2	1			3	16	16	13
in 1850								2	4		6	8	8	2
in 1851										15	15	135	135	129
in 1852										11	11	244	244	233
Total	2036	204	296	606	803	1182	869	625	269	446	7336	12561	11885	4549

Source: B.P.P. 1852-53 (16.) LV. p.9.

done between 1845 and 1852 consisted of lines promoted and sanctioned before the promotion mania of 1845 got underway. Thus, while nearly sixty per cent of all mileage sanctioned in the years 1844 and 1845 was constructed within three years, and seventy-eight per cent within five, there was a very sharp fall in the proportion of lines sanctioned in or after 1846 which were constructed within a similar time. Of those sanctioned in 1846, only one third reached completion by the end of 1851 - i.e. five years after receiving Parliamentary sanction - while of those promoted in 1847 and 1848, only thirteen per cent were completed within five years.

It is to be expected that, even in the most favourable circumstances, some of the investment planned during the promotion boom would not have come to fruition. Many lines planned during the mania were purely speculative and were bound to collapse at the first sign of difficulty, while many of those lines promoted by the established companies purely for defensive purposes would be readily abandoned when the threat of competing promotions no longer existed. However, these factors alone do not account for the very great discrepancy between the amount of railway investment planned in the 1840s and the amount which was actually built; the failure to build many lines was due in part, as had been predicted by James Wilson in 1845, to the increasing difficulty of raising sufficient funds to maintain levels of planned expenditure. How these difficulties developed, and how they forced the railway companies to abandon a large part of their uncompleted building plans during the last three years of the 1840s, is the final aspect of the railway boom to be considered in this chapter.

---

<sup>1</sup> It should be noted that lines promoted during the mania of 1845 were not sanctioned by Parliament until the session of 1846.

## IV

Although it was known by April 1847 that shareholders were finding it increasingly difficult to maintain the large volume of calls then being made by the railway companies, the effect of these difficulties was not publicly admitted by the railway companies until the half yearly meetings of the railway companies in 1847. At these meetings the directors commented on the difficulties of their shareholders and promised to reduce the calls whenever possible.<sup>1</sup> By this time railway building programmes were being maintained only by drawing upon the large reserves which many of the companies had built up during 1846 and the first three months of 1847. However, even these reserves were quickly exhausted and in the second half of the year the companies began turning more frequently to the loan market to make up the difference between capital raised on equity stock and the demands of their expenditure programme. Thus, in July 1847, it was reported that, on the slightest appearance of a relaxation in the money market, several powerful railway companies would come forward and accept money in almost any convenient amount for stipulated periods.<sup>2</sup> However, this offered only temporary relief for the companies and, as monetary affairs began to deteriorate in the economy generally, borrowing in the capital market became an increasingly expensive practice. Thus, *The Economist* reported in August, "The increasing scarcity and high interest of money must add to the difficulty which has lately been experienced in obtaining payment of 'calls'. and even more so in raising 'loans' for railways; for with the market rate of interest above five per cent, a new difficulty presents itself with regard to loans which does not appear to have been anticipated..."<sup>3</sup> This was the problem posed by the fact that loans

---

<sup>1</sup> Lewin, *The Railway Mania*, p.286.

<sup>2</sup> *Economist*, July 31st, 1847, p.877.

<sup>3</sup> *Economist*, August 7th, 1847, p.890.

on the security of a railway line fell within the usury laws applying to loans made on the security of land for which it was illegal to charge more than five per cent. To get around this some companies began creating five per cent debentures and selling them at a discount of five to six per cent, though the cost was generally considered prohibitive by most companies. In September, 1847 a committee of the Liverpool Stock Exchange visited all the principal railway companies in London pointing out the magnitude of the company demands and pressing the companies to find ways of reducing their building expenditure.<sup>1</sup> It was in reply to these representations that G. Carr-Glyn, Chairman of the L.N.W.R. announced his company's intention of delaying as far as possible the start of any new projects.<sup>2</sup>

The increasing difficulty of raising funds from shareholders, and the increasing reliance upon borrowed funds - and subsequently the difficulty in raising money even in this quarter - during 1847, may be followed month by month throughout the year in figure 1 which has been drawn up from a detailed return, contained in the *British Parliamentary Papers*, of capital raised by each railway company in the United Kingdom between 1843 and March 1848.<sup>3</sup> The contents of this return and the difficulties associated with using it are discussed in a later chapter; here, the aim is merely to note the principal changes which took place in the supply of capital to the railway companies between 1843 and March 1848, and in particular to note the increasing proportion of share capital which went unpaid during 1847, as well as the changing volume

<sup>1</sup> *Economist*, September 18th, 1847, p.1089. (Similar expressions of concern were made by groups of Hull and Manchester; Lewin, *The Railway Mania*, p.286).

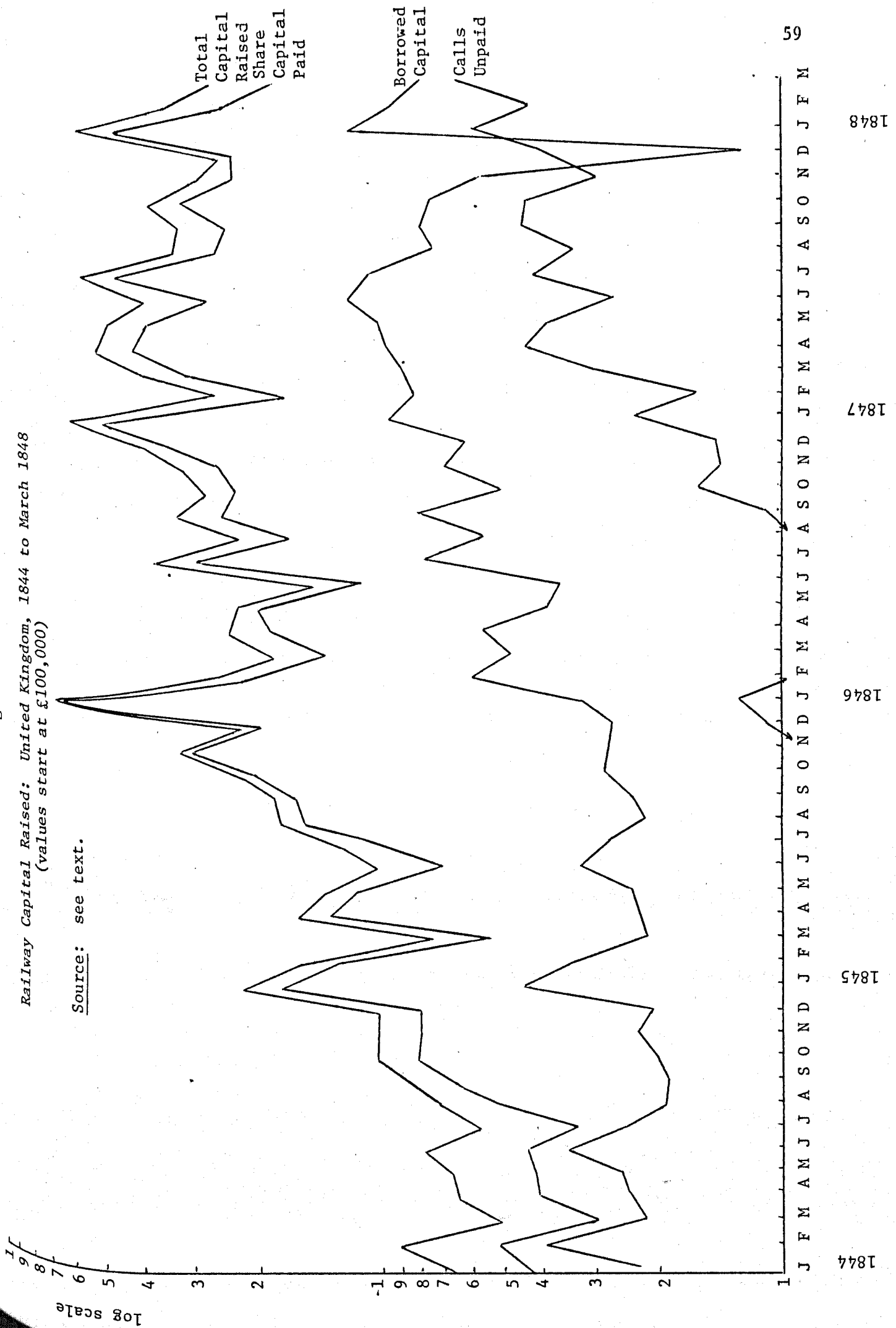
<sup>2</sup> *Economist*, *op. cit.* A later announcement, issued during the crises week ending October 23rd, 1847, started that the L.N.W.R. had postponed indefinitely the construction of work involving £4.2m. in capital (*Economist*, Oct. 23rd, 1847, p.1228).

<sup>3</sup> B.P.P. 1847-8 (731.) LXIII, pp.305-443.

Figure 1

Railway Capital Raised: United Kingdom, 1844 to March 1848  
(values start at £100,000)

Source: see text.



of borrowed capital raised during that year.<sup>1</sup> On these points the return is very instructive and supports in detail the picture of mounting problems of raising capital that may be derived indirectly from other sources.

The aggregate amount of capital raised by the railway companies increased rapidly between 1844 and January 1847; it then remained relatively stable for the next seven months, and fell quite sharply in the last five months. The sharp, though temporary acceleration in the volume of capital raised between October 1845 and January 1846, was associated with the need to raise large sums of money to pay the Parliamentary deposits on the vast number of private bills brought before Parliament in the 1846 session - the session following the promotion mania of 1845. During the entire period between October 1845 and August 1846 there appear to have been no serious problems regarding the availability of share capital. Indeed, the amount of calls on shareholders that was not paid is so small that it cannot be shown on the figure.

The picture changes quite dramatically after August 1846. From then onwards the volume of share capital called up that went unpaid increased rapidly. In aggregate terms unpaid calls increased from less than two per cent of the amount called in the first six months of 1846 to nearly twelve per cent in the last six months of 1847. The changing dependence upon borrowed capital also comes out vividly. It may be seen that in 1844, when interest rates were

---

<sup>1</sup> See below Chap. V and Appendix I to Chap. V.

low, the railway companies raised on average thirty per cent of their aggregate capital funds from this source. As the share boom developed in 1845 and equity capital became much easier to raise, the companies turned increasingly to this source and the amount borrowed fell to only fifteen per cent of total capital raised in the year. In 1846 the increasing demand for capital funds led the railway companies to raise large sums of money both from equity holders and on loan; nevertheless, the amount borrowed still amounted to only eighteen per cent of total capital funds raised. During 1847 reliance on borrowed funds increased sharply and for the year as a whole, twenty-one per cent of capital raised was borrowed capital. However between February and June, when the railway companies were desperately trying to maintain their construction programmes in the face of the increasing difficulty of raising funds from shareholders, the amount borrowed rose to twenty-nine per cent of capital raised, despite the interest rates then being charged. Conversely, in the last six months of the year, when the increase in interest rates made it both difficult and expensive for railway companies to borrow, the amount raised on loan fell to nineteen per cent of the total funds raised.

Short-term problems in 1847 associated with declining activity in several sectors of the economy - particularly in Lancashire where raw material shortages left the cotton industry acutely depressed -, the general tightening of credit, rising interest rates and the onset of the crisis of October 1847, together account for the difficulties of raising finance in 1847 and the consequent reduction in railway building activity during the second half of the year. Except for the problems of the cotton industry these were all difficulties foreseen by Wilson in his 1845 essay; but without anticipating much of what will be said in later chapters regarding the effect of railway investment on income and consumption, on the level of activity in other sectors of the



economy, and on the rate of interest and the supply of funds to the capital market, it is difficult to comment further on his work, except to draw attention to the remarkable accuracy of his predictions in terms of causation and timing.

It would be going too far to say that these factors alone brought the building boom to a premature halt since, even in the absence of the crisis, a major reassessment of planned building activity would probably have occurred. In the first place, company dividends fell sharply after 1846 as increases in net revenues failed to keep pace with the rising capital value of the railway companies. In part this was because the new lines then being opened up required time for new traffic to develop sufficiently to contribute towards the net earnings of the system. More importantly, it was because battles fought during the promotion boom, and the need to borrow heavily in 1847, had left most of the great companies with the capital value of their assets so seriously inflated by fixed payment commitments in the form of guaranteed dividends, preference shares and fixed interest loans that it would have required massive increases in revenues to maintain the dividend at rates paid before 1847. The fact that many of the lines acquired were minor feeder lines, often barely capable of providing enough revenue to pay their running costs, was bound to produce serious problems for the companies in the short run. By 1849, when company dividends were at their lowest, it is estimated that on average only 1.88 per cent was paid to holders of equity capital in railway companies.<sup>1</sup> With such returns it is not surprising that railway investment came under a heavy cloud by the end of the decade.

---

<sup>1</sup> Tooke V., p.353. The average dividend paid by fourteen railway companies as shown in Table 5 below was 2.73%. However, the companies included in this table were among the most prosperous in the United Kingdom.

In 1848 and 1849 new problems plagued the railway companies. Partly in response to falling dividends and share values, and partly from an increasing anxiety over the vague but alarming extent of building commitments still outstanding, a public demand arose for extensive enquiries into the affairs of most railway companies.<sup>1</sup> The subsequent revelations regarding the total disorder of many company accounts and of the malpractices carried out by some company directorates - notably those headed by George Hudson - are now part of the folk-lore of British economic history. Their immediate effect, however, was to further depress the supply of funds to the companies and to ensure that company building activities did not recover once the restrictions of the Railways (Extension of Time) Act of 1847 ceased to operate at the end of November, 1848.

Each of the foregoing factors contributed to the decline in railway share prices which took place almost continuously from September 1845 to the end of 1849 and, just as the readiness of promoters to float new enterprises and of investors to buy shares in them had been strongly determined by the rise in share values, so the fall in railway share values itself contributed directly to the decline in expenditure on railway capital formation and to the abandonment of building plans entered into during the promotion boom. There are several reasons why this should be so. In the first place declining share values sharply depressed the wealth of shareholders. It has been calculated for example, that by December 1849, after an aggregate sum of £230m. had been invested in railways, the aggregate market value of railway shares amounted to

---

<sup>1</sup> *Economist*, October 21st, 1848, pp. 1187-1188; *Tooke V.*, p.361.

only £110m., producing a net loss in the market value of railway shareholders' assets of £120m. Apart from these capital losses most shareholders had acquired new railway shares on a small deposit leaving the balance to be called over an indeterminate period in the future. Many of these shareholders relied on selling some of the shares at a profit and using the proceeds to meet the calls outstanding on the retained portion. With the fall in share values it was impossible to finance calls in this way except at a considerable loss. Even those shareholders who might have financed railway calls from the sale of non-railway securities could rarely avoid making capital losses by such sales, especially in 1847 when interest rates were rising rapidly. It must have been a fine problem for a person whose wealth consisted mainly of securities and whose income depended upon their yield, to work out which parts of his portfolio he should part with in order to ensure the least loss. Indeed, one of the surprises of the boom is not that the volume of unpaid calls should have risen quickly in 1847, but that the shareholders should have managed to pay such a large portion of the amount called.

Finally, the fall in share values affected the readiness of banks to make loans on security of railway shares. Although country banks were traditionally reluctant to grant loans on the security of railway shares and similar assets, the high interest rates that could be charged on them appears to have made them an attractive security in the mid-1840s, and many banks and lending institutions held large parcels of railway shares in the middle and later part of the decade.<sup>2</sup> Growing pressure on bank reserves during 1847

---

<sup>1</sup> Tooke V., p.372. See also *Economist*, October 21st, 1848, pp. 1187-1188.

<sup>2</sup> Evidence of C. Turner, H.C. QQ. 921-7; 990; T. Birkbeck, H.C. QQ5868-71. On the general antipathy of banks to lending on railway shares see J.W. Gilbert, *A Practical Treatise on Banking* (1848) pp. 44 and 214.

must have increased the reluctance of most banks to make loans in this way, while in 1848 the fall in share values so reduced margins of security that banks forced their customers to sell large parcels of railway shares held to repay loans for which the shares had been used as security. It was this factor, more than any other, which *The Economist* considered had glutted the market with railway shares in 1848 and which had so depressed their prices.<sup>1</sup>

## V

The aim of this chapter has been to describe the main features of the railway boom of the 1840s and to account for the timing and wide variations in the volume of planning and investment undertaken as part of the boom. Railway construction was the largest single investment activity in the United Kingdom during the 1840s, and during the crisis year of 1847 it accounted for over seventy per cent of aggregate United Kingdom domestic investment expenditure. For this reason alone contemporaries and historians alike have been right in placing great emphasis upon the importance of railway investment in the analysis of the crisis of 1847. However, the analysis of this chapter has been concerned with the crisis only so far as it affected the rate of railway planning and investment activity. No attempt has been made to consider other questions of the relationship between railway investment and the crisis, such as its effect upon aggregate income and consumption, and upon investment in other parts of the economy: these are questions to be considered in later chapters.

---

<sup>1</sup> *Economist*, Oct. 21st, 1848, pp.1187-8.

With regard to the validity of James Wilson's analysis of the relationship between the railway boom and the crisis of 1847, little can yet be said beyond confirming the accuracy of his prediction that the railway companies would find it increasingly difficult to raise sufficient capital to finance their building programme at rates of construction anticipated in 1845, and that the onset of general economic crisis would coincide with a severe check to the rate of growth of railway investment activity. On both of these points the striking accuracy of his predictions adds much to the appeal of his hypothesis as an explanation of the events which took place in 1847. However, it is impossible to accept Wilson's hypothesis on this point alone since it contains many other aspects which remain to be examined. These and other questions are considered in the next three chapters.

Table 5

## Railway Revenues, Dividends, Share Prices and Capital Structure: United Kingdom, 1840-1850

A	B	C	D	E	F	H	I	J	K
Gross Revenues of Railways £m.	Revenue per mile of track in operation £ 000's	Av. % Dividend of 14 Railway Coys. %	Index of Railway share prices 1843-100	C as a % of D (i.e. Yield of railway shares)	Yield on consols %	Share Capital £000's	Loans and Debentures £000's	Total Capital £000's	I as a % of H
1840		5.3	88.0	6.0	3.4	32108	16048	48157	50.0
1841		6.2	85.3	7.3	3.4	36846	18474	55320	50.1
1842		6.8	91.0	7.5	3.3	40618	21831	62449	53.7
1843	4.3	6.8	100.0	6.8	3.2	42967	24582	67550	57.2
1844	5.1	6.9	122.5	5.6	3.0	47268	26624	73892	56.3
1845	6.3	7.5	151.7	4.9	3.1	61056	26692	87745	43.7
1846	7.6	7.5	142.0	5.3	3.1	92657	33279	125936	35.9
1847	8.5	6.8	119.2	5.7	3.4	123446	41518	164965	33.6
1848	9.9	5.5	96.2	5.7	3.5	155551	43412	198963	27.9
1849	11.8	2.8	78.5	3.6	3.2	174551	54239	228790	31.1
1850	13.2	2.8	70.4	4.0	3.1	186989	52435	239424	28.0

## Sources: Cols. A and B.

H.G. Levin, *The Railway Mania*, p.114. Net revenues may be assessed at 55 per cent of gross receipts (G.R. Hawke, *Railways and Economic Growth*, pp.406-7.)

## Col. C

Calculated from figures given in H.G. Levin, *op.cit.* p.365 and H. Scrivenor, *Railways of the United Kingdom Statistically Considered*, (1849), App. pp.58-9. The fourteen companies included are: Liverpool and Manchester\*; Great Western; York and North Midland; Midland; Lancashire and Yorkshire; York, Newcastle and Berwick; London and South Western; South Eastern; Eastern Counties; Edinburgh and Glasgow; Glasgow, Paisley and Kilmarnock; Newcastle and Carlisle.  
\* London and North Western (prior to 1846 this company consisted of three separate companies).

## Col. D

A.D. Cayer, W.M. Rostow, and A.J. Schwartz, *Fluctuations in the British Economy*, Vol. 1, p.375, corrected to make 1843=100.

## Col. F

B.R. Mitchell and P. Deane, *British Historical Statistics*, p.455.

## Cols. H, I, J.

G.R. Hawke and M.C. Reed, "Railway Capital in the United Kingdom in the Nineteenth Century", *Economic History Review*, 2nd series, XXII (1969), pp.271-2.

## CHAPTER IV

## RAILWAY INVESTMENT

## CONSUMPTION AND INCOME AND THE CRISIS OF 1847

It was argued in Chapter II that historians disagree about the relationship between the railway investment boom, its effects on income and consumption and its role in the crisis of 1847. James Wilson believed that railway investment stimulated consumer demands and by doing so created that "shortage of capital" which, according to him, brought on the crisis of 1847. Other historians have argued that by stimulating income and consumption in 1847 railway investment acted to mitigate the worst effects of the crisis. Recently, G.R. Hawke has argued that the crisis of 1847 was the result of a *contraction* in the level of consumption caused by the excessive demand on current income for railway investment funds.<sup>1</sup>

Clearly, all of these views cannot be correct. Unfortunately, though Hawke considered some evidence on the behaviour of consumer expenditure none of the other writers attempted to trace the movements of income and consumption in ~~the~~ Great Britain during this period or the relationship of these movements to the level of railway investment. It is the aim of this chapter to re-examine the rather meagre evidence relating to income and consumption during 1847 with the view to answering the following questions: what was the behaviour of income and consumption during 1847? and how did railway investment influence that behaviour? In answering these questions opportunity is taken to examine the theoretical and empirical basis of Dr Hawke's hypothesis as this is the most recent and by far the most stimulating analysis so far of the relationship between the variables involved.

---

<sup>1</sup> G.R. Hawke, *Railways and Economic Growth*, pp.364-6.

## I

Hawke's hypothesis is stated as follows: "... railway investment resulted in such a quantity of resources being used for investment distant in time from final output that the securing of the additional resources required to make the initial investment productive necessitated a change in the consumption/investment division".<sup>1</sup> This is the first part of a two part explanation of the crisis; the second part postulates the existence of a series of lags between the calling up of funds and their actual expenditure which was income generating. The two parts considered together allow Hawke to argue that the demand for funds for railway investment reduced consumer expenditures sufficiently to create the crisis of 1847 but in subsequent years their expenditure acted in a contra-cyclical manner by maintaining the level of income and demand.

The evidence Hawke uses to prove that railway investment caused consumption to fall in 1847 is in two parts: the first is his theoretical argument which is based principally on the work of James Wilson, but which he also claims is supported by Hayek and Hicks; the second is his empirical evidence which is drawn from the fifth volume of Tooke and Newmarch's *History of Prices*. A re-examination of this evidence indicates that neither the theory, nor the empirical data can be said to support the view that consumption fell in 1847 because of railway investment.

---

<sup>1</sup> G.R. Hawke, *Railways and Economic Growth*, p.365.



The authors cited by Hawke as the basis of his theoretical argument include three contemporary witnesses of the crisis, James Wilson, C. Rowcroft and G. Carr-Glynn, and two later economic theorists, F.A. Hayek and J.R. Hicks. Basically, the argument of all five are either reproductions of Wilson's work, or attempts to explain it in modern language. It may be said therefore that Hawke's analysis rests in large part upon the correctness of his interpretation of the role attributed to consumption in Wilson's essays.

The essential argument with respect to the role of consumption in Wilson's theory is that a crisis situation will develop in the economy because large expenditures on fixed capital formation - in this case on railways - involve switching labour from producing consumer goods (i.e. circulating capital) to producing capital goods. This at once acts to maintain the level of consumer demand (or may even increase it if wages are forced up by full employment) whilst it reduces the supply of consumer goods (circulating capital). It is this which Wilson has in mind when he wrote of the excessive conversion of circulating to fixed capital. At such times both the prices of consumer goods, and the profits going to their producers, will rise and thus encourage manufacturers of consumer goods to increase their output and to increase their demand for fixed and circulating capital. The ensuing competition between the capital and the consumer goods sectors of the economy for the circulating capital available for investment will drive up its price - that is, the rate of interest. In this competition producers of consumer goods will always be able to bid up the rate of interest beyond levels which the railways can afford because the process of fixed capital investment itself acts to support consumer demand and to encourage consumer goods producers to go on attempting to increase their supply. When the rate

of interest eventually becomes too great for the railways to afford, the railway companies will cut back on their construction programme. It is then, when labour becomes unemployed, that consumer demand will fall bringing with it a general collapse in all prices and widespread unemployment affecting all sectors of the economy. In short, rather than the *reduction* in demand, which Hawke sees as being the source of the crisis, it is the constraint on the supply of consumer goods in the face of *maintained* or even *increased* demand which, in Wilson's theory, fulfills this role.

A reading of the work of Hayek and Hicks, both of whom Hawke claimed in his support, indicates that they would support the latter interpretation of Wilson's theory. The chapter in Hayek's *Pure Theory of Capital* to which Dr Hawke refers was itself written with the aim of clarifying some of the confusion which had appeared among classical and later economists with regard to the consequences of converting circulating to fixed capital.<sup>1</sup> At the beginning of the chapter Hayek points out that although the idea was originally conceived in Ricardo's famous chapter 'On Machinery', it is to James Wilson that credit must be given for its elaboration and wide acceptance in the nineteenth century. Hayek argues that before Wilson's essays had been written the idea was the subject of much confusion mainly because economists confused the stock of circulating capital with the stream of output available for consumption. As the idea came to be used as an explanation of economic crises following the publication of Wilson's *Capital, Currency and Banking*, he says, it described a real phenomenon which occurred during the shift from one position of equilibrium between circulating

---

<sup>1</sup> F.A. Hayek, *The Pure Theory of Capital* (1950), p.424.

and fixed capital to another. Once the new equilibrium was reached the volume of production would return to its previous level or to a higher level. It was during the period of change from one condition of equilibrium to another that the process of converting circulating to fixed capital would lead to a temporary fall in gross output. To avoid a crisis during this period, Hayek argued, *consumption had to fall* (alternatively, savings had to be increased).

"If we could assume that at this stage people voluntarily and spontaneously will reduce their consumption ... no problem arises. But if they do not and continue to spend on consumption goods as much as before, the amount of capital required for the completion of the process will not be forthcoming; that is, there will arise that 'scarcity of capital' discussed in classical theory, which of course means a scarcity of consumer goods and a rise in their prices and profit margins generally, which will make investment in long processes of this kind unprofitable.

This is, in fact, precisely as Wilson analysed the problem in regard to railways and the crisis of 1847 - as Hayek clearly recognized - and the analysis stands opposed to Hawke's hypothesis that the shift in the investment/consumption division of income towards a reduction in consumption acted to produce a fall in prices and to *create* the crisis which followed.

Finally, Dr Hawke refers to a chapter in Hicks' *Critical Essays in Monetary Theory* entitled, 'The Hayek Story'.<sup>2</sup> The essential point

---

<sup>1</sup> Hayek, *Pure Theory of Capital*, p.431.

<sup>2</sup> J.R. Hicks, *Critical Essays in Monetary Theory* (1967), pp.203-215.

which Hicks was anxious to make in the essay was that although Hayek's analysis did not have much relevance to old style crises "... which are surely to be interpreted as disequilibrium phenomena, complicated by price - and wage - rigidities and disequilibrium rates of interest, not here allowed for ... it could have relevance for modern planned economies in which unemployment may appear even while there was inflation".<sup>1</sup> Such a situation is, however, very different from the conditions which existed in the mid-nineteenth century. This is especially the case when, as Hicks shows, to obtain a 'Hayek Crisis' full employment is essential. But of greater importance for our purposes is that in Hicks' view a 'Hayek Crisis', even in a modern conditions, arises because of the inability of a fully employed economy to increase investment and still maintain the supply of consumer goods equal to the level of current demand. The difficulty - and the producer of the 'crisis' - is still the constraint upon supply, not the fact that demand has fallen; indeed, if consumers could be induced to increase their savings - i.e. if consumer expenditures fall - 'Hayek Crisis' is avoided.

In short all major sources of theory quoted by Hawke as support for his hypothesis argue along lines which produce conclusions opposite to those produced by his own analysis. However, Dr Hawke's argument does not depend upon theory alone, he offers also, 'detailed evidence' of an empirical kind to show that middle class consumption expenditures were retrenched in order to finance railway investment.<sup>2</sup> This evidence is taken from the fifth volume of *The History of Prices* and may be summarized as follows:<sup>3</sup>

---

<sup>1</sup> *Ibid*, p.212.

<sup>2</sup> Hawke, *op. cit.*, p.365.

<sup>3</sup> Tooke, V. pp.367-371.

After pointing out that satisfactory statistical evidence to adduce a retrenchment of consumption among the middle classes is difficult to find, the writers offer the following indicators based on the returns of assessed taxes:

1. Number of persons assessed for duty on one male servant;  
1844 = 49,000; 1846 = 49,100; thereafter it fell progressively to 47,700 in 1851.
2. Licences to kill game; 1846 = 35,200; 1851 = 30,200
3. Wine entered for consumption: 1846 = 6.7m gallons;  
average for 1847-1850 = 6.2m gallons.
4. There was a pause, and to some extent a diminution in the amount insured against fire.
5. "It is probable, also, that in some degree the large retrenchments of the expenditure of the middle classes contributed to the low range of general prices which prevailed during the latter years of the railway expenditure."<sup>1</sup>

Several points may be made with regard to this evidence. Firstly, it hardly bears the description 'detailed evidence' of falling consumption which Hawke gave to it: indeed, it falls very short, as Newmarch recognized,

---

<sup>1</sup> Tooke, V. p.370.

of any such claim, and was offered by him only as an indication of the retrenchment which the middle classes might possibly have undergone.<sup>1</sup> Secondly, it is evident from Newmarch's argument in the pages which immediately preceded this evidence that he believed the retrenchments had acted in the form of a transfer payment from the middle to the working classes employed in railway construction, and that he regarded this as the principal means by which the incomes and consumption of one million persons had been maintained during 1847 and 1848. The conclusion of his argument is contained in three brief statements:

"The general result, therefore, was (1) that during the five heaviest years of railway expenditure, a considerable body of the working classes were employed by means of funds furnished by the retrenchments, or increased exertions, of the holders of railway property; (2) that these retrenchments ... more than counterbalanced the effects of so large a distribution of extra wages ..., and (3) that to a very considerable extent, the distribution of these extra wages mitigated the disastrous effects, on the working classes, of the commercial and political convulsions of 1847, '48 and '49."<sup>2</sup>

Thus, although Newmarch believed that the effects of retrenchment and increased exertions (additional output?) by the middle classes balanced

---

<sup>1</sup> William Newmarch was a joint author with Tooke in the fifth and sixth volumes of the *History of Prices*. The pages in Tooke referred to in the foregoing paragraph were written by Newmarch.

<sup>2</sup> Tooke, V. p.369.

the additional consumption of the working classes, the basis of his argument is that the railway investment acted to stabilise economic relationships, rather than to destabilise them as Hawke suggests.

However, even if we accept that the Newmarch evidence does indicate a net reduction in aggregate consumption and that this magnitude was sufficient to lead to instability in the economy, it is by no means clear from Newmarch's work that he believed this to be the result of an excessive diversion of resources into railway building; rather, it appears that he believed it arose principally, though not entirely, from the effects which the reduction in the market values of railway stock and shares had upon the wealth of the middle classes. Thus, for example, although in the first instance he argues that the need to pay railway calls reduced the portion of current income which could be devoted to middle class consumption expenditures - "... railway calls acted in the same manner as an extra percentage added to the income tax ..." <sup>1</sup> - several pages later in the book he argues that variations in the aggregate value of railway stock between 1843 and 1849 had been the principal determinant of variations in the wealth and thus in the propensity to consume among the middle classes. He points out, for example, that in December 1845, the aggregate market value of railway shares was £160m., though only £100m. had actually been invested by shareholders producing a market gain for railway assets of £60m. Between the close of 1845 and December 1849 the market value of shares had fallen to £110m., but in the meantime an additional £130m. had been paid up in the form of calls and deposits to construct additional lines. In short, between 1845 and 1849 railway assets or the *wealth* of railway shareholders had been reduced to the extent of £180m. "We scarcely need further evidence of the strong incentives

---

<sup>1</sup> Tooke, V. p.369.

to extravagance at the one period", observed Newmarch, "and the powerful retrenchment and exertion at the other".<sup>1</sup> Newmarch was, in fact, demonstrating empirically one of the ideas which was later to be put forward by Keynes, namely the 'wealth effect' of windfall changes in capital value of assets which Keynes said, "should be classified amongst the major factors capable of causing short-period changes in the propensity to consume".<sup>2</sup>

Nor is it particularly surprising that the 'wealth effect' should greatly exceed the 'income effect' in importance when the probable effect of these factors on the current income and wealth of the middle classes is considered. On the basis of Newmarch's estimates of the values of shares the average loss in *wealth* in each year between December 1845 and December 1849 was £36m. Compared to this, the loss in consuming power among railway investors arising from the need to finance new investment was much smaller. Hawke's own estimates of the net cost of railway investment in England and Wales - i.e., total expenditure on railway capital formation minus net earnings - between 1845 and 1849 indicate that total net outgoings did not exceed £60m. or less than £12m. per year.<sup>3</sup> If the value of Hawke's estimate of the 'social saving' attributable to railways is also included, the total net loss of resources to the community for railway capital formation between December 1845 and December 1849 amounted to only £15.6m or a mere £3.1m per year. Such a small reduction, amounting to less than one per cent of aggregate

---

<sup>1</sup> *Ibid*, p.372.

<sup>2</sup> J.M. Keynes, *The General Theory of Employment, Interest and Money*, pp.92-3.

<sup>3</sup> G.R. Hawke, *op. cit.*, p.406. Unfortunately, no comparable estimates exist for Scotland and Ireland, but it is unlikely that the exclusion of these two countries would significantly alter the total aggregates involved in the passage and thus change its conclusions.



consumer expenditure in the United Kingdom<sup>1</sup> appears unlikely to have been responsible for the violent commercial convulsions which appeared during the third and fourth quarters of 1847.

Finally, it should be noticed that Newmarch's evidence on middle class consumption expenditure conflicts with other evidence on consumer demand in 1847 and in the years surrounding.

For example, the weekly reports contained in *The Economist* newspaper relating to the state of demand for various commodities in London and the provinces suggest that demand for most consumer goods was well maintained right up to the time of the crisis itself and fell only when the onset of the crisis began to disrupt commercial affairs and to force a reduction in the level of railway investment expenditures. Thus at the beginning of the year *The Economist* was noting that the large arrivals of colonial goods of all types were without precedent.<sup>2</sup> "We must own", said *The Economist*, "it is extremely difficult to reconcile the brisk state of the London markets, and the immense amount of business which has recently been done with the unquestionable depression which exists in the manufacturing districts ... The only interests which form a striking exception are those immediately connected with the construction of railways, and the preparation of rails and other materials, and those connected with the shipping interest."<sup>3</sup>

---

<sup>1</sup> This estimate is based upon estimates contained in P. Deane, "New Estimates of Gross National Product for the United Kingdom 1830-1914", *The Review of Income and Wealth*, Series 14, No. 2, June 1968, pp.95-112.

<sup>2</sup> *Economist*, Feb. 6th, 1847, p.158; Feb. 20th, 1847 p.213. It should be noted that *The Economist* reports referred to England and Wales, and not to Ireland or Scotland unless otherwise stated.

<sup>3</sup> *Economist*, Feb. 20th, 1847, p.213.

Throughout the first half of the year *The Economist* continued to express great difficulty in explaining the coincidence of extensive consumption of imported goods side by side with the dépression in large parts of the manufacturing sector, and referred again and again to the continued heavy railway expenditures as the only reason for the sustained consumer expenditure.<sup>1</sup> Right until the eve of the crisis *The Economist* continued to report that domestic consumer demand was well maintained. By this time however, food prices had fallen rapidly and *The Economist* found no difficulty in explaining the problem. "In the iron and mining districts, in the purely agriculture districts, and in those neighbourhoods where extensive railways are being carried out the consumption of all articles of produce is rather increased than diminished, owing to the lower price of food, while full employment is still enjoyed by the labouring classes, without any abatement of wages. In the manufacturing districts, but especially in Lancashire, on the other hand, the condition of the labouring classes is becoming much worse, and the consumption of all articles of produce is visibly less."<sup>2</sup>

During the last quarter of the year, reports appeared of sustained reductions in the wholesale demand for consumer goods. Partly, this was to be explained by the difficulty of obtaining credit during the crisis weeks; but when the demand for consumer goods failed to revive once these problems had receded, *The Economist* noted "The large numbers of workmen who have recently been discharged from railway works, and the increasing numbers deprived of employment in the manufacturing trades, readily account for such a result."<sup>3</sup>

---

<sup>1</sup> *Economist*, June 25th, 1847, pp.638-9.

<sup>2</sup> *Economist*, October 14th, 1847, pp.1203-4.

<sup>3</sup> *Economist*, Nov. 13th, 1847, p.1315.

An altogether different indicator of the possible movement of domestic consumption in the 1840s is the import consumption index considered in more detail below in Chapter VIII. This index, originally developed by Matthews for his study of the trade cycle in the 1830s, but which can be easily extended to cover the 1840s, is constructed from the return of 'goods taken out of bond' given annually in the *Trade and Navigation Accounts* contained in the *British Parliamentary Papers*.<sup>1</sup> The index is a weighted arithmetic index containing six items - figures in brackets denote weighting: sugar (4); timber (3); tallow (2); tea (2); tobacco (1); coffee (1).<sup>2</sup> These six items account for about 40 per cent of United Kingdom net imports after excluding corn and cotton, and include several items which were sensitive to income and consumption changes.<sup>3</sup>

The index is shown in Figure 2 below. Its most striking feature is that, after climbing sharply during the general cyclical upswing between 1843 and the close of 1845, the volume of imports consumed remained at the high level achieved during the peak of 1845, rather than receding with the cyclical downswing. Even during the crisis year of 1847, the volume of imported consumer goods taken into consumption contracted only slightly. If grain imports are included, the volume of imports going into consumption greatly increases during 1847.

---

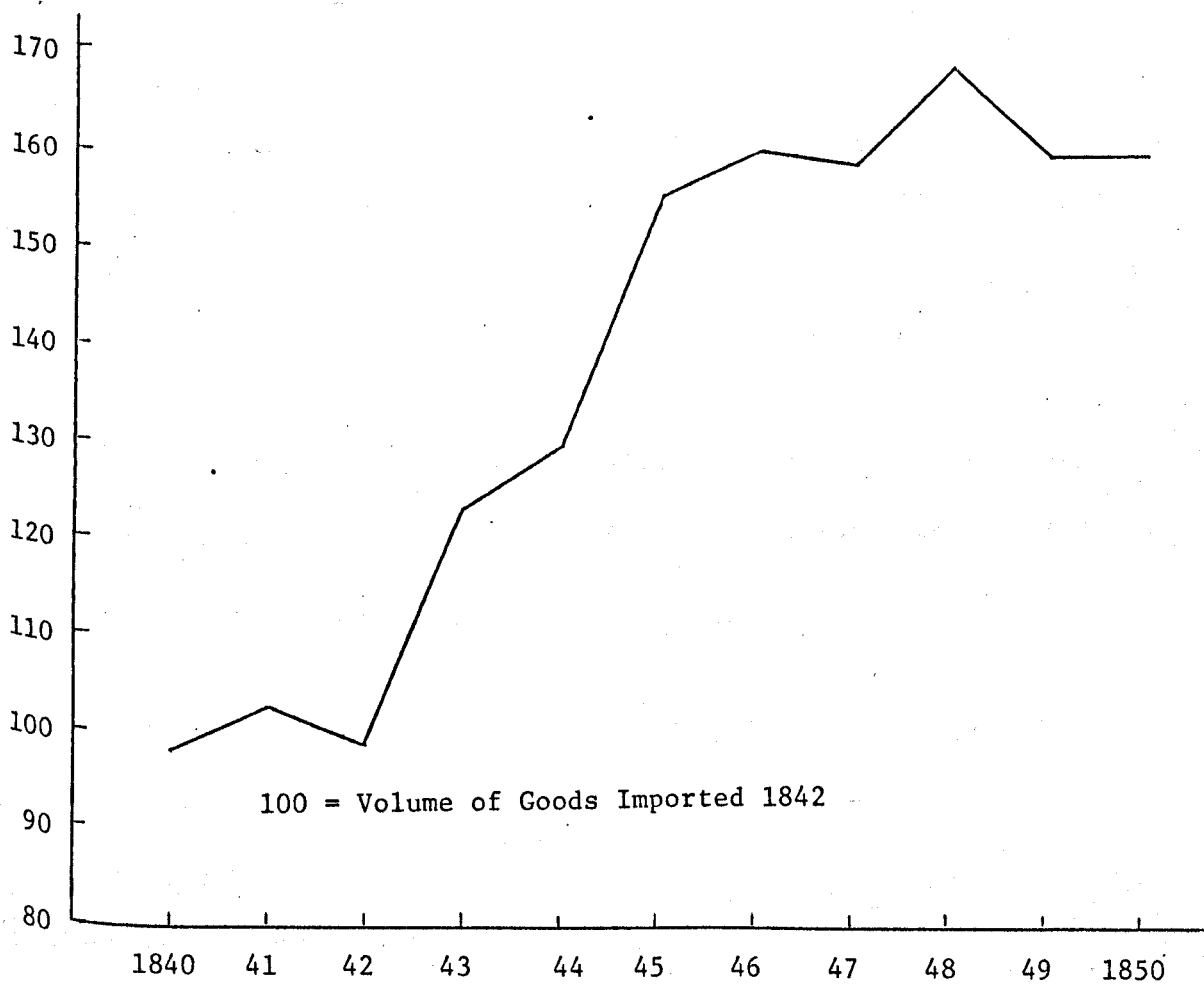
<sup>1</sup> Matthews, pp.11-13.

<sup>2</sup> For further uses of this and related indices see below pp.302-307.

<sup>3</sup> This estimate is based on estimates of the current value of all imports for 1840 contained in B.P.P. 1863, (469.) LXVI, pp.1-41.

Figure 2

Import Consumption Index:  
United Kingdom, 1840-1850



Source: Table 32 p.359 below.

## II

While neither *The Economist's* reports nor the import consumption index offers conclusive proof that aggregate consumer demand was reasonably well maintained in 1847, they do act as a further counter-weight to any view based on the evidence offered by Newmarch. There is, however, one major piece of quantitative evidence not considered by Hawke, but which does appear to lend support to his conclusion that consumption fell during 1847 because of the demands by the railways for investment resources. This is the series of revised estimates produced by Phyllis Deane of United Kingdom gross national product. These estimates for the period 1845 to 1849, shown in Table 6 below, indicate that in 1847 aggregate consumer expenditure in the United Kingdom fell<sup>1</sup> while expenditure on domestic capital formation - mainly

Table 6

Expenditure Generating Gross National Product At Constant (1900)  
Prices

United Kingdom, 1845-1849  
fm.

	Consumer Expenditure	Gross Fixed Domestic Capital Formation	Net Foreign Investment	Net balance of Public Expenditure minus Indirect Taxes	GNP at Factor Cost
1845	516.0	35.7	7.1	-13.6	545.3
1846	532.0	49.7	7.5	- 7.9	581.4
1847	526.0	61.8	3.4	- 6.7	584.5
1848	540.0	55.3	1.3	- 4.6	592.1
1849	552.0	51.7	5.7	- 7.8	601.6

Source: P. Deane, "New Estimates of Gross National Product", p.106.

<sup>1</sup> Though only by 1.13 per cent.

railways - rose substantially. As both net foreign investment and the surplus on government revenues fell in that year, consumer expenditure can only have fallen because of the increased share of income going to domestic investment.

In her commentary on the estimates Miss Deane states "... the proportion of nation's resources which were put into domestic investment in the 19th century was surprisingly low. It rose at the expense of consumers' expenditure in the 1840s when the railway construction boom was at its height, fell back in favour of a slight increase in public expenditure and a larger increase in foreign investment in the 1850s ...".<sup>1</sup>

Unfortunately, it is not clear from Miss Deane's work exactly how aggregate investment rose at the expense of consumer expenditure. Two possibilities could have occurred: first, that in 1847 there was an autonomous increase in the level of investment which took place at the expense of current consumption; second, that at the peak of the railway investment boom income growth in the United Kingdom was restricted for various reasons unconnected with railway investment, but that railway investment programmes could not, temporarily, be curtailed. In both cases it is implied that aggregate income increased by an amount less than the amount devoted to investment: in the first case, however, the implication is that some factor within the act of investment caused consumption to fall; in the second, consumption fell because income stagnated, whilst the amount which had been committed to investment by earlier decisions increased, and could only do so at the expense of consumption.

---

<sup>1</sup> Deane, *op.cit.*, p.100.

The two propositions imply considerable differences in the economic forces at work during 1846 and 1847. If traditional Keynesian concepts of income determination are accepted the first hypothesis leads to difficulties which are not present in the second. In Keynesian theory it is normally assumed that changes in the aggregate level of investment determine changes in the aggregate level of income; that the aggregate level of income is the principal determinant of the level of consumption; and that, in the short term, the division of income between savings and consumption - i.e. the propensity to consume - remains stable. In 1847, according to Deane's figures, aggregate investment in the United Kingdom increased sharply and, on the foregoing assumptions, both income and consumption would be induced to grow accordingly. For consumption to have contracted, or even to have stagnated would imply that one, or all, of three possible events occurred: that the propensity to consume had changed markedly - this not only violates an important Keynesian assumption but, as indicated earlier was unlikely to have occurred in fact-; that there was a lag in the response of income to the growth of investment; or that the multiplier relationship between investment and income was less than one. The lagged hypothesis - which was used by Hawke - offers the best explanation, though the fact that the *rate* of increase in investment in 1846 was higher than that in 1847 would result, under a one year lagged hypothesis, in the *rate* of increase in income and consumption in 1847 being higher than in 1846. The third possibility, that the multiplier was less than one, does, of course, involve the very unlikely proposition that income earners reduced their consumption expenditures by an amount greater than they increased in their incomes.

The alternative hypothesis, that income growth was restricted for various reasons despite the rise in investment expenditure, incurs none of the objections mentioned above. Under this hypothesis it is quite possible that aggregate investment continued to rise and to have expansionary effects

both upon income and consumption whilst aggregate income and consumption were falling because of the existence of depressive factors operating elsewhere in the economy. In evaluating such a situation the only problem is to establish the factors at work in the economy which were acting to depress aggregate income.

Three major factors which may have contributed to a stagnation of income in the United Kingdom in 1847 are: the famine in Ireland; the loss in income due to a deficit in foreign trade; and the depression which developed in many parts of the manufacturing sector during 1847. These three factors were interrelated, and their treatment as separate causal factors is somewhat unreal. However, for the purposes of analysis they may be treated separately.

a) The Irish Famine

One of the unfortunate aspects of Phyllis Deane's estimates is that they do not show separately the Irish or British components of the United Kingdom gross national product. This is a problem of which she is very conscious, especially as the Irish component developed differently from the rest of the United Kingdom during the nineteenth century. Thus, until independent estimates of the Irish gross national product became available, it is impossible to gauge accurately the effects which the Great Famine had upon the Irish income and consumption. There is no doubt, however, that the economic effects were disastrous and Miss Deane's own estimates of the impact of the famine years let her conclude that Irish



gross national product fell between 1840 and 1850.<sup>1</sup> This conclusion is important for two reasons. First, as Miss Deane points out, it leads to the further conclusion that realised rate of growth of British, as opposed to United Kingdom, gross national product is increased by 33 per cent over the decade. Second, since the greater part of the fall in Irish G.N.P. experienced in the forties was experienced during the second half of the decade, and particularly during the last quarter of 1846 and in 1847 it follows that British G.N.P. must have increased substantially in these years in order to have maintained the growth of United Kingdom G.N.P. If these conclusions are correct then the inclusion of the Irish element in the United Kingdom figures, although not necessarily giving an incorrect measure of gross national product, gives a misleading impression of the behaviour of G.N.P. in Great Britain. Unfortunately, Miss Deane provides no information upon which to begin disaggregating the Irish component from the rest of the United Kingdom gross national product, so that in the absence of any formal basis upon which to calculate the behaviour of Irish G.N.P. in 1846 and 1847 it is possible to rely only upon indirect and impressionistic measures of the impact of the famine.<sup>2</sup>

---

<sup>1</sup> Deane, *op. cit.*, p.98. Many of the problems associated with the inclusion of the Irish component of the United Kingdom GNP are dealt with in N.G. Butlin, "A New Plea for the Separation of Ireland", *Journal of Economic History*, XXVIII, (1968), pp.274-291, esp. pp.282-91.

<sup>2</sup> Numerous works have been written on the famine. Among the most useful are: G. O'Brien, *The Economic History of Ireland from the Union to the Famine*, (1921), especially Ch. VII; R.N. Salaman, *The History and Social Influence of the Potato*, (Cambridge, 1949), Chs XV-XVIII; R.D. Edwards and T.D. Williams, *The Great Famine: Studies in Irish History, 1845-1852*, (New York, 1957), Ch. II; C. Woodham-Smith, *The Great Hunger: Ireland 1845-1849*, (1962); among contemporary writers may be noted Sir Charles Trevelyan, "Irish Crisis", *Edinburgh Review*, Vol. CLXV, 1848. Trevelyan became the dominant figure in the British Government's relief efforts in Ireland during the famine.

The main cause of any fall which may have occurred in Irish G.N.P. during 1846 and 1847 was the loss of the potato harvest. Official statistics of Irish agricultural output were collected successfully in 1847, but not in value terms until the twentieth century. In the absence of any official statistics the following statement by Salaman probably offers the most accurate available indication of the size of the potato harvest.<sup>1</sup>

"The acreage under potatoes in 1846 was 1,237,441 acres.

Prior to that date it has been held to have been in the neighbourhood of 2,000,000 acres. In 1847 it fell to little more than one-eighth of this amount, viz. 284,116 acres; this was but temporary, and due to the fact that there was little or no seed from the 1846 crop in the country ... In 1848 the acreage jumped to 742,899 acres and from then on it increased gradually till in 1859 it reached 1,200,247 acres ..."

Directly associated with potato production was pig and poultry production. Returns of livestock available for 1841 and 1847 show that the numbers of both had been reduced drastically. Compared with 1,413,000 pigs and 8,459,000 head of poultry in Ireland in 1841 there were only 622,000 and 5,691,000 respectively in 1847. The reduction in the stock of pigs is partly reflected in the exports of pigs to Great Britain.<sup>2</sup> In 1825, the last date

---

<sup>1</sup> R.N. Salaman, *op. cit.*, pp.321-2. Official returns of the acreage of potatoes planted in Ireland given by Mitchell and Deane, *op. cit.*, p.80 are: 1847 - 284,000 acres; 1849 - 719,000; 1859 - 1,200,000.

<sup>2</sup> For an important part of our period exports from Ireland to Great Britain are indistinguishable from the rest of British coastal trade. On the statistical problems associated with the trade between Ireland and Great Britain see G.R. Porter, *Progress of the Nation* (1847 ed), pp.344-347.

for which separate and complete returns are available, the number imported into Great Britain from Ireland was 65,919; in 1832 the number imported into Bristol and Liverpool was 234,709, and in 1837 the number arriving in Liverpool alone was 595,422.<sup>1</sup> In 1846, the year in which the famine commenced, and the first year in which complete returns again became available, the total number of pigs imported into Britain from Ireland had diminished slightly to 480,827 and in 1847, the year of famine, the number fell to 106,407.<sup>2</sup>

It is impossible to establish the extent to which the famine affected other industries in Ireland. In this part of the nineteenth century most Irish industries other than agriculture were suffering extreme decay, and the survivors would, even without the harvest failure, have experienced an industrial depression similar to that which was experienced in Britain between 1846 and 1848. One industry which does appear to have been severely affected by the famine was the fishing industry. The local circumstances of agriculture were an important determinant of the prosperity of the fishing industry, and it was reported that in 1847 "no industry had suffered so severely through the famine as the fishery, partly because there was a prejudice among the country people against the use of fish unless they could obtain potatoes to use with it, and partly because the fishermen had been compelled to pawn or sell their tackle to meet their immediate needs."<sup>3</sup>

Less directly, though more eloquently, the *Reports of Census of Ireland* for 1851 described the consequences of the famine in its human

---

<sup>1</sup> *Ibid*, p.345

<sup>2</sup> B.P.P. (423) 1840 LII, p.229.

<sup>3</sup> O'Brien, *op.cit.*, p.293.

terms.<sup>1</sup> In the *Reports* it is shown that emigration from Ireland increased from just over 61,000 between June 31st, 1844 and December 31st, 1845 to almost 250,000 in 1847; that the incidence of blindness and insanity had risen sharply to become the highest recorded in Western Europe; that the death rate had risen from 64 per thousand in 1845 to 185 per thousand in 1847; and the Irish population which, on previous trends, should have grown to 9,010,798 by 1851, in fact was only 6,552,385, a deficiency of nearly 2½ million, independent of losses due to emigration.<sup>2</sup>

Although such information supports the general opinion that Irish G.N.P. and aggregate consumption fell sharply as a result of the famine, they give no real indication of the extent of the fall, nor of its effect upon the United Kingdom G.N.P. A crude, but hopefully, still useful approach to the problem adopted here is to get a series of hypothetical values for Irish G.N.P. in 1846, and then to reduce them by a range of percentages to give a value for 1847. This value is abstracted from the estimates of United Kingdom G.N.P. to give a figure for British G.N.P. It must be added immediately that these figures are purely hypothetical figures, and their significance is *not* whether they give reliable values for British G.N.P. in 1846 and 1847 but that they are capable of indicating the possible effect which the inclusion of Irish component has upon the United Kingdom figures. On this point the results are illuminating.

---

<sup>1</sup> The Census of Ireland for the year 1851; Report on the Tables of Deaths, B.P.P. 1856 (2087-I.) XXIX, pp.509-530.

<sup>2</sup> *Ibid*, 'Recorded' deaths due to starvation were 1841 - 117; 1845 - 516; 1846 - 2,041; 1847 - 6,058; 1849 and 50 together - 9,396; deaths due to fevers following the famine were put at 250,000.

Table 7  
Estimates of British Gross National Product  
1846 and 1847  
 (Values in fm. at constant, 1900, prices)

1846		1847		
Line	After assuming Irish G.N.P. equal to -	After assuming a percentage reduction in <sup>Irish</sup> G.N.P. in 1847 of -		
		1 33%	2 25%	3 10%
A	33% of U.K. G.N.P. in 1840 414.7	473.4	459.5	434.5
B	25% " " " 458.9	512.8	502.6	474.2
C	20% " " " 481.4	517.9	509.5	494.5
United Kingdom G.N.P.		1840 500.2	1846 581.4	1847 584.5

Sources and methods: The construction of Table 7 involved the following assumptions: a) that Irish G.N.P. was approximately the same in 1846 as it had been in 1840; b) that Irish G.N.P. in 1846 was successively (A) one third (B) one quarter (C) one fifth of the United Kingdom G.N.P. in 1840; that the Irish G.N.P. was successively reduced in 1847 by (1) one third (2) one quarter (3) one tenth below the level of 1846 as a result of the loss of the potato harvest. The resulting series of values for Irish G.N.P. were then subtracted from the Deane estimates of United Kingdom G.N.P., the difference, being hypothetical values of British G.N.P. in 1846 and 1847, is shown in Table 7.

Taking the upper limits of the assumptions regarding the proportion of G.N.P. of the United Kingdom derived in Ireland (line A) - this, in fact, implies that Irish G.N.P. in 1846 was only 29 per cent of United Kingdom

G.N.P. - the range of resulting *increases* in British G.N.P. between 1846 and 1847 stretches from an upper limit of £58.7m. (14.2 per cent) to a lower limit of £19.8m. (4.8 per cent). Alternatively, if it is assumed that Irish G.N.P. was a very small proportion of the total United Kingdom aggregate, and that the effect of the famine on G.N.P. was slight (line C, Column 1), the resulting change in British G.N.P. would still have been £13.1m. or about 3 per cent *increase* over the previous year.<sup>1</sup> Again, continuing in line C and assuming that the effect of the famine was to reduce Irish income by only five per cent - though such a small reduction is highly unlikely-; this would still result in a net improvement of British G.N.P. in 1847 of £9m. over the previous year, an amount almost equal to the net outgoing on English railways in that year.<sup>2</sup> In short, given almost any downward adjustment of Miss Deane's figures to take into account the effect of the famine on the United Kingdom G.N.P., the net effect is to markedly add to British G.N.P. and thus to the amount available for consumption or for investment in railways.

#### b. Income from Foreign Trade

Besides the direct effect on income of the United Kingdom, the famine in Ireland - and an indifferent grain harvest in Britain - further reduced income through its effect on the United Kingdom balance of trade.<sup>3</sup> The loss of the potato crop and the reduced supply of domestic grain available towards the end of 1846 forced a massive increase in imports of corn in 1847.

<sup>1</sup> The figures in line C imply that in 1846 the Irish element accounted for only one sixth of United Kingdom G.N.P., an improbably small amount.

<sup>2</sup> G.R. Hawke, *Railways and Economic Growth*, p.406.

<sup>3</sup> Tooke, IV, p.27. Aspects of corn imports and the balance of trade and payments, as well as income from trade, are discussed more fully in Chap. VIII below.

Estimates of the aggregate value of grain imported into the United Kingdom made by Tooke and Newmarch show that corn imports increased from £8.6m. in 1846 to £29.0m. in 1847, taking the total value of net imports into the United Kingdom from £78.1m. in 1846 to £100.4m. in 1847.<sup>1</sup> This increase in imports was not met by a corresponding increase either in the value of merchandise exports or of invisible earnings, and consequently the balance of trade and the balance of payments on current account of the United Kingdom fell sharply, as can be seen in Table 8.

Table 8

Balance of Payments: United Kingdom, 1846-7  
fm.

+ = excess in receipts: - = excess of payments

	Net Imports	Exports	Balance	Overseas Investment Earnings	All other Invisible Trade	Bullion and Specie*	Overall Balance on Current Account
1846	78.1	57.8	-20.3	+10.2	+19.5	-1.4	+8.0
1847	100.4	58.8	-41.6	+10.6	+24.6	+5.3	-1.1

Source: A.H. Imlah, *Economic Elements of the Pax Britannica*, p.71.

\*In the Bullion and Specie Account the signs are reversed by Imlah so that "export balances are indicated by a plus sign and import balances by a minus sign". (Imlah, p.46.)

Such a reduction in the balance of trade and balance of payments would result in a fall in the level of income through two effects; the 'direct effect', and the 'monetary effect'.<sup>2</sup> We are concerned here with the

<sup>1</sup> Tooke, V. p.181.

<sup>2</sup> The theoretical basis of the following discussion is drawn from R.C.O. Matthews, *A Study in Trade Cycle History* Chaps. II and VII. No special significance is attached to the terms 'direct' or 'monetary' effect. The terms are used for convenience and do not signify any particular characteristics of directness or of indirectness.

direct effect upon the level of income resulting from foreign trade; the 'monetary effects' arising from the outflow of bullion are examined in Chapter VII.

The 'direct effect' of changes in the balance of payments on the level of income is measured by the net movement of those items in the balance of payments which contribute to the direct or foreign trade multiplier effect.<sup>1</sup> This net movement is termed the 'income balance', and may be defined basically as the difference between the aggregate value of net imports - both visible and invisible - which act to deflate domestic income, and exports - both visible and invisible - which act to inflate domestic income. A change in income balance has the same effect on aggregate income as a movement in any other sector of income. Depending on whether the economy is otherwise expanding or contracting, the income effect may act to stabilise the movement of aggregate income, or may intensify its degree of movement.

The statistical problems associated with measuring the income balance during this period prevent it from being anything but a rough approximation of the effect of foreign trade upon domestic income. More importantly, the concept involves important problems of interpretation. These arise mainly from the fact that changes in the level of merchandise imports and exports may be induced or may be autonomous. For example, a rise in domestic income will produce a corresponding rise in imports and perhaps a fall in the level of exports as more goods are transferred to the domestic market, thus resulting in a fall in the income balance. Such a fall cannot be said to be a *cause* of movements in the level of income, though it would undoubtedly have a

---

<sup>1</sup> These questions and others considered in this paragraph are dealt with in detail in Chapter VIII below; the discussion here serves to summarise the relevant parts of that chapter.



deflationary effect upon income. On the other hand, autonomous increases in imports, for example, such as might occur as a result of increased corn imports following a poor domestic harvest or a fall in exports due to a reduction in foreign demand for British goods, may initiate a change in the level of income. Fortunately, in our case, the problems of interpretation are not serious. Table 9 shows that the principal reason for the fall in the income balance in 1847 was the massive increase in expenditures on imported corn, an increase which followed from the famine in Ireland and the indifferent harvest in Britain. The slight loss on other imports was largely offset by the slight gain from exports which took place in 1847.

Table 9

Net change in Income derived from Foreign Trade

(The 'income balance')

United Kingdom, 1845-1849

fm.

Date	<u>Net decrease (-) or increase (+) in income due to</u>				Net favourable (+) or unfavourable (-) change in the income balance
	Expenditures on imports of corn	Expenditures on other imports	Earnings from exports	Earnings from invisible items	
	A	B	C	D	
1845	+ 2.0	-10.2	+ 1.5	+ 3.6	- 3.1
1846	- 6.1	+ 7.1	- 2.3	+ 0.4	- 0.8
1847	-20.4	- 1.9	+ 1.0	+ 5.5	-15.8
1848	+16.5	+ 4.1	- 6.0	- 7.2	+ 7.4
1849	- 4.5	- 5.0	+10.8	+ 1.6	+ 2.8

Sources: Col. A, Tooke, V, p.181; Cols. B, C, D, calculated from B.R. Mitchell and P. Deane, *Abstract of British Historical Statistics*, pp. 283 and 333.

The item 'earnings from invisible items' shows quite a substantial increase, part of which was derived from increased shipping earnings arising out of the corn import boom.<sup>1</sup> However, such improvements were small compared with the great increase in corn expenditures, so that the net fall in income due to foreign trade - the income balance - was equal to nearly £16m., or almost three per cent of G.N.P. In the following year, 1848, the sharp reduction in expenditure on corn and other imports more than offset the decline in earnings from exports and from invisible items, so that the income balance showed a very favourable improvement of £7.4m. This improvement must have gone a considerable way towards softening the effect of the general industrial depression which existed during most of 1848.

Although these estimates of the income balance are crude and probably include a wide margin of error, the considerable fluctuations between 1846 and 1848 cannot be mistaken. The depressive influence of large corn imports in 1847, and the expansionary effect of the reduction in corn imports in the following years is clearly apparent. It is not surprising, in view of their size, that the increase in corn imports of 1847 should have been regarded by several contemporaries as the main reason for the reduction in the demand for some manufactured goods and the immediate cause of the crisis of that year.<sup>2</sup>

### c. Depression in Manufacturing

The experience of industrial activity and investment during 1847 is discussed elsewhere in this study; here it is sufficient to note that

---

<sup>1</sup> A.H. Imlah, *Economic Elements of the Pax Britannica*, (Cambridge, Mass. 1958) Table 8, pp.70-5.

<sup>2</sup> The adverse effects of corn imports on monetary affairs are considered in chapter VII below.

activity in many parts of the manufacturing sector was depressed during 1847 adding to the downward pressures on income and consumption within the economy. Several well known indices of general industrial activity which cover the 1840s indicate this decline in activity, the best known being the Hoffmann index of industrial production and the Shannon brick index. The Hoffmann index shows a slight fall in industrial production in 1847, though when the index is divided into two separate indices - one for capital goods industries and one for consumer goods industries - the fall may be seen to have taken place in the consumer goods sector only. In the capital goods industries included in Hoffmann's index activity shows a distinct improvement.<sup>1</sup> The brick index, an index generally regarded as a reliable reflector of activity in the capital goods industries, shows a similar improvement in 1847.<sup>2</sup>

There is no difficulty in explaining the difference in the behaviour between the two sectors of manufacturing industry. The weighting in Hoffmann's capital goods index towards iron, coal and railway goods,<sup>3</sup> and the extensive use of bricks in railway building, both reflect the influence of railway investment on these industries. On the other hand the

<sup>1</sup> W.G. Hoffmann, *British Industry 1700-1950*, (English Edition, Oxford, 1955) Table 54 facing p.330. The relevant figures given by Hoffmann are:

	Index of Total Industrial Production exc. building	Index of Capital Goods Production	Index of Consumer Goods Production
1846	21.6	13.5	31.0
1847	21.0	15.2	27.7
1848	23.0	16.3	30.9

<sup>2</sup> H.A. Shannon, "Bricks - A Trade Index 1785-1849", *Economica* (1934), reprinted in *Essays in Economic History*, Vol. III, E.M. Carus-Wilson (ed.), (1962), p.188. The relevant values for the index are 1846, 2039.7; 1847, 2193.8; 1848, 1461.0.

<sup>3</sup> These three items constitute 20.2 out of a total weight of 27.62 points in the index between 1846 and 1848.

heavy weighting in Hoffmann's consumer goods index towards textiles makes it almost an index of textile production.<sup>1</sup> That there was widespread depression in the textile industries is well documented in numerous reports in contemporary journals and newspapers, and by the reports of the Factory Inspectors.<sup>2</sup> Depression and unemployment in the textile industry, especially in cotton textiles, were widespread throughout 1847. It was the depression in this sector which provided most of the basis for concern expressed by importers of consumption goods about the demand for their products. The depression in output in these industries was also accompanied by a marked reduction in the level of new investment. However, it is impossible yet to establish the net effect on aggregate income of the high level of activity in some parts of the capital goods sector and the greatly reduced activity within the textile industries. On balance, comparing their relative contributions to gross national product and to employment, it seems that the depression in textile production would perhaps have outweighed the prosperity in the iron and other capital goods industries (excluding railways). Nevertheless, the net loss is uncertain and the difference can only be regarded as an additional factor helping to depress the general level of income and demand in the economy.

#### d. Railway Investment

Given the factors working to reduce aggregate output and income in the United Kingdom mentioned in the three preceding subsections, the surprise

---

<sup>1</sup> Textiles and leather goods constitute 31.0 out of a total weight of 42.01 points in the consumer goods index between 1846 and 1848.

<sup>2</sup> The rest of this paragraph is based upon the evidence and arguments contained in Chapter VI below.

is not that United Kingdom G.N.P. stagnated and that consumer expenditures may have fallen in 1847, but that G.N.P. did not fall absolutely and that consumer expenditures did not fall severely. The only apparent reason why there was not a general depression and why income and consumption should have been maintained above the levels which might otherwise have been expected, given the depressed conditions of large parts of the economy, is that railway investment and activity in related industries were maintained at high levels.

How far railway investment and activity in related industries determined the level of aggregate income is not known and, because of the statistical problems involved in its calculation, is unlikely ever to be known. However, using a series of assumptions about the value of the multiplier effect of changes in railway investment on income, and about the duration of lags between the act of investment and the response by income, the following tables were constructed to show the likely *direction* of change of income and the relative magnitudes of change which could be expected to arise from railway investment. As with the estimates made of the effect of the famine on the United Kingdom gross national product it is not claimed that these figures are an accurate representation of the behaviour of income; but for the purpose of indicating the direction of change of income they are revealing.

Table 10

Railway Investment and Income Change: United Kingdom,1844-1849

£m.

Year	U.K. Gross Expenditure on Railway Capital Formation excl. Land	Net Change in Railway Investment ( $y_2 - y_1$ )	Net Changes in Income Assuming Multiplier	
			= 1	= 2
1844	4.3	-	-	-
1845	13.2	+ 8.7	+ 8.7	+17.4
1846	32.7	+19.5	+19.5	+39.0
1847	36.8	+ 4.1	+ 4.1	+ 8.2
1848	26.1	-10.7	-10.7	-21.4
1849	17.1	- 9.0	- 9.0	-18.0

Source: Col. 1, B.R. Mitchell, "The Coming of the Railway and United Kingdom Economic Growth", p.335. Other columns derived from Column 1.

If no lags existed between the act of investment and the response in income, as assumed in Table 10, the strongest expansionary influences of railway investment on income appear in 1846, a fairly early stage in the railway building boom. In 1847 the growth of railway investment slowed down considerably and income growth would have slowed down correspondingly. In 1848, when investment programmes were being curtailed, the fall in railway investment would result in falling income. Given this pattern of behaviour, railway investment would have had a largely insignificant offsetting effect on the downward pressures which existed elsewhere in the economy in 1847 and would have added to the depressive forces at work in 1848. However, if lags existed between the act of investment and the corresponding change in income - as is

strongly and convincingly argued by G.R. Hawke<sup>1</sup> - the effect of railway investment upon income in 1846, 1847 and 1848 would have been significantly different. As can be seen from Table 11 below where a lag of one year is assumed, railway investment would have had its strongest expansionary influence upon income in 1847, and to have continued as an expansionary force until 1848.

Table 11

Railway Investment, the Income Balance and Income Change:

United Kingdom, 1844-1849

£m.

Year	Net Change in Railway Investment	Net Change in Income Due to Railway Investment		Net Change in Income Due to Railway Investment + the Income Balance	
		M = 1	M = 2		
1844	0.3				
1845	8.7	0.3	0.6	- 2.8	- 2.5
1846	19.5	8.7	17.4	+ 7.9	+16.6
1847	4.1	19.5	39.0	+ 3.7	+23.2
1848	-10.7	4.1	8.2	+11.5	+15.6
1849		-10.7	-21.4	- 6.9	-18.6

Source: Tables 9 and 10 above.

If these hypothetical movements in income are added to variations in the income balance shown in Table 9 an interesting point emerges; namely, in most years between 1845 and 1849 the expansionary influence of railway investment tended to more than offset any contractory influences emerging from the decline

<sup>1</sup> G.R. Hawke, *Railways and Economic Growth*, p.366.

in the income balance arising out of foreign trade. In consequence, during the three years 1846, 1847 and 1848 the net effect of fluctuations in railway investment and the income balance on aggregate income was expansionary. Only in 1849, when the gain derived from the income balance was small and when railway investment had been contracting for some time, is the net effect upon income seen to be adverse.

The point being made here is again not that the figures in Table 11 are an accurate portrayal of the behaviour of income and of its relationship to railway investment, but that given almost any assumption regarding the value of the multiplier, and reasonable assumptions about lags between railway investment and the corresponding response by income, the railway investment boom of 1846, 47 and 48 acted to maintain income when factors elsewhere in the economy were acting to depress it. Furthermore, as the level of income is the principal determinant of consumer expenditure, it would be reasonable to assume that in these years railway investment acted to sustain the level of aggregate consumer demand. Had railway investment not been sustained at a high level, both income and consumption would have been depressed much more severely.

One further point may be made. Dr Hawke argues convincingly that lags existed between investment and the resulting effects upon income. On the basis of this he argues that railway investment could have been a destabilizing influence during 1847, but acted in a contra-cyclical manner in the years following. Tables 10 and 11, which amount to a simple but direct test of this hypothesis, yield revealing results. If a lag hypothesis is accepted, the rate of growth of income is greatest in those years following the early years of the building boom; namely, 1846 and 1847. During 1848



income may have continued to rise as a result of past investment, but by that time the rise had slowed down considerably following a slowing down in the rate of growth of railway investment during 1847. After 1848, railway companies steadily reduced their expenditure and, with or without lags, a corresponding reduction in income and consumption would, other things being equal, have appeared.

## CHAPTER V

## RAILWAY INVESTMENT AND THE RATE OF INTEREST

When, in 1845, James Wilson predicted an imminent economic crisis he did so in the belief that the railways would not be able to obtain enough funds to complete the investment programme which they were just embarking upon. This belief was based upon the proposition that the volume of savings available each year for new investment was not large enough to satisfy all the outstanding claims upon it together with those of the railways. The competition between the railways and other sectors for the available savings would drive up interest rates. When, in 1847, interest rates began to rise steeply it seemed self-evident, not only to Wilson but also to many of his contemporaries, that one should look to the enormous demands then being made by the railway companies for an explanation.

Although Wilson's analysis has been criticised at various times, neither supporters of Wilson nor his critics, with the exception of E.V. Morgan, have attempted to show in statistical terms whether or not any relationship existed between interest rates charged in London and the demand for railway investment funds. Morgan's examination of movements in the monthly incidence of railway calls and the rate of discount charged on first class bills of exchange at Gurney's led him to conclude that there was no correlation between movements in the two series, and therefore that railway demands for capital had no significant effect upon the rate of discount charged in London.<sup>1</sup>

---

<sup>1</sup> E.V. Morgan, "Railway Investment, Bank of England Policy and Interest Rates, 1844-48", *Economic History*, Vol. IV, No. 15, (Feb. 1940), pp.331-333.

In this chapter the aim is twofold: first, using new data on railway investment, to reconsider Morgan's conclusion that there was no correlation between movements in interest rates and variations in the demand for railway capital; second, to answer the question, does any resulting correlation indicate the existence of relationships that were similar to those predicted by James Wilson? Railway demand for capital represents only one item in the total demand for money and capital in the 1840s and it may be unwise to dissociate the effect of movements in one item in that demand from the effect of movements in many others. Nevertheless, the demand for funds for investment in railways was a large and highly volatile item: it is also one item whose movements can be traced more accurately than any other. But perhaps most importantly, it is this item which virtually all writers on the crisis of 1847 have identified as the major unstable factor on the demand side of the capital market. For these reasons, and because new data make it possible to go beyond the work of Morgan, it will be useful to reexamine the relationship between changes in the demand for railway investment funds and changes in the rate of interest charged in the capital market.

## I

Wilson's hypothesis regarding the relationship between railway investment and the rate of interest may be tested in a number of ways, the simplest and most direct way being to compare movements in the volume of capital raised by the railway companies against the rate of discount charged in the discount market. This was the method adopted by E.V. Morgan who compared the monthly incidence of railway calls on share capital between January, 1847 and September, 1848 as recorded in the *Bankers Magazine* with the rate of discount

charged at Gurney's on first class bills of exchange.<sup>1</sup> As already noted, Morgan's conclusion was that there was no apparent relationship between movements in the two series. It is not clear whether Morgan formally regressed the two series against each other, or whether he took into account the possibility that movements in the rate of interest may have lagged behind variations in the amount of capital raised. However, when formal tests along these lines were made using Morgan's data his conclusions were soundly verified by the resulting coefficients obtained.<sup>2</sup> Similar results were obtained when Morgan's series were extended to December 1849, and when adjustments were made to take into account the possible existence of a lagged relationship.<sup>3</sup> On the basis of those results Morgan's conclusion that there was no observable statistical relationship between railway calls and the rate of interest charged in the money market appears to be correct.

However, there are several reasons why Morgan's results should not be considered an adequate test of the hypothesis that the volume of capital raised by railways affected the rate of interest charged in London. First, the volume of *calls* made by railway companies is not an accurate

---

<sup>1</sup> E.V. Morgan, *op. cit.*, pp.331-333.

<sup>2</sup> When the monthly incidence of railway calls was regressed against the rate of discount charged at Gurney's for the period January 1847 to September 1848 the resulting value for  $r^2$  was 0.02. With 19 degrees of freedom the result was not significant.

<sup>3</sup> Data on railway calls after September 1848 were collected from data published monthly in *The Economist*. For the sources of other data see tables in the text and appendices at the end of this chapter. The resulting  $r^2$  value obtained when monthly calls were regressed against the rate of discount was  $r^2 = 0.14$  (this value was not significant at 90% degree of accuracy). The lagged relationship offering the best fit between monthly calls and the rate of discount, appeared when the rate was lagged one period behind calls. In this case  $r^2 = 0.27$  (with 33 degrees of freedom this value is not significant at 90% degree of accuracy).

guide to the volume of capital *raised* by the railway companies. Between January 1847 and December 1849 share capital accounted for four-fifths of total railway capital raised in Great Britain, the other fifth being raised on loans and debenture stock.<sup>1</sup> Second, throughout 1847 and the first three months of 1848,<sup>2</sup> the railway companies found that shareholders were increasingly reluctant to pay the calls which the companies were making upon them. Consequently, the amount called on railway shares exceeded the amount paid by an increasing margin. For this reason the companies began to increase their volume of borrowing on the capital market.

Third, Morgan's method of comparing absolute levels of capital raised with the absolute level of interest rates may introduce a bias into the results which is misleading. We are, in fact, only partly interested in the absolute levels involved; more interesting questions relate to the degree to which changes in capital raised caused further changes in interest rates. It is, therefore, useful to compare the change in capital raised from one month to the next with the monthly change in interest rates, rather than the absolute amounts raised and the rate of interest charged.

Finally, and most importantly, by testing only the period from January 1847 to September 1848 Morgan was examining a very limited part of the period and of the processes which Wilson was attempting to explain. It is an important part of the Wilson hypothesis that the relationship between

---

<sup>1</sup> G.R. Hawke and M.C. Reed, "Railway Capital in the United Kingdom in the Nineteenth Century", *Economic History Review*, XXII (1969), p.271.

<sup>2</sup> Monthly data on the amount of share and borrowed capital actually raised ~~are~~ available only up to March, 1848.

the amount of capital raised and the rate of interest charged would change at the crisis point. According to him, *increases* in capital raised would produce further increases in interest rates up to the crisis; after the crisis, further rises in interest rates lead to larger *falls* in capital raised for railway investment. If such a change did occur it is quite possible by examining such a limited period that Morgan missed the change. Even an extension of Morgan's data to the end of 1849 does not preclude the possibility that such a change was missed since the changes could have occurred in the early months of 1847 rather than after the crisis of October, 1847.

For all these reasons, it is necessary to reconsider the question in more detail and with data other than that used by Morgan. It will also be useful to examine the statistical relationship between the volume of capital raised and the yield on consols since it is possible that the demand for funds would have affected all interest rates if it affected any.

## II

When E.V. Morgan examined the relationship between the volume of share capital called up for railway investment and interest rates charged in the money market, his most immediate problem was the inadequacy of the statistical data available to him. Although he had satisfactory data on interest rates charged in the money market he had to rely on newspaper returns of share capital called as his index of capital actually raised by the railway companies. Reliable statistics on annual basis of the amount raised by the railway companies as share and borrowed capital have recently

became available to historians<sup>1</sup> but so far monthly data on capital actually raised on shares and borrowed by the railway companies have not been available to historians.

One source of such data which has not been fully exploited is a return contained in *British Parliamentary Papers* for 1847-8 purporting to show the volume of share and borrowed capital raised by every railway company in the United Kingdom up to May, 1848.<sup>2</sup> This return distinguishes for most companies the month in which the individual companies called up capital; how much of the call was paid and how much went unpaid; the month in which the individual companies borrowed capital and how much they borrowed. The return includes some company accounts relating to sums raised in the 1820s and 1830s, but in view of the retrospective nature of these accounts and of the severe short-comings of railway accounting procedures during the whole of this period, it is impossible to rely upon the return for any period before 1843. The return has certain other drawbacks which prevent it from being a perfectly accurate record of capital raised and borrowed. In particular, as G.R. Hawke and M.C. Reed have pointed out, it does not strictly distinguish between funds raised as share capital and funds raised as borrowed capital.<sup>3</sup> For present purposes a more important problem relates to the fact that some railway companies failed to distinguish accurately the month in which calls on capital were made or when sums were borrowed. Consequently, to calculate the monthly value of capital raised various

---

<sup>1</sup> G.R. Hawke and M.C. Reed, "Railway Capital in the United Kingdom in the Nineteenth Century", pp.269-286.

<sup>2</sup> B.P.P. 1847-8 (731.) LXIII, pp.306-443.

<sup>3</sup> G.R. Hawke and M.C. Reed, "Railway Capital in the United Kingdom in the Nineteenth Century", p.274.

assumptions have to be made in order to distribute those sums not attributed to any particular month over the most appropriate months of the year. The assumptions used, and the estimated sums called, paid, borrowed, and left unpaid, along with the total amounts raised in each month are set out in appendix I at the end of this chapter. On the basis of these calculations Figure 1 page 59 above was drawn up showing total capital raised, capital raised on shares, capital borrowed, and the volume of calls on share capital remaining unpaid in each month between January 1843 and March 1848.

Monthly data on interest rates ruling in London in this period are available from two sources: a) the rate of discount charged on first class bills of exchange at Gurney's; and b) the price of consols as reported by Tooke and Newmarch and from which may be calculated the yield on consols.

The data relating to discount rates charged on first class bills of exchange at Gurney's are already well-known and requires little introduction. It should be noted that these are average rates for the month and that it was possible for rates to fluctuate sharply within the month. Accordingly, during particularly unstable periods in monetary affairs the rates reported by Gurney's have to be regarded cautiously. Nevertheless, for most purposes the average rates charged can be taken to reflect the direction and the magnitude of movements in the rate of discount charged in the London money market.

Data relating to the yield on consols as calculated from consol prices reported by Tooke and Newmarch require a more careful introduction. For several reasons the series is less reliable as an indicator of average rates ruling over the month than the rate of discount charged at Gurney's.

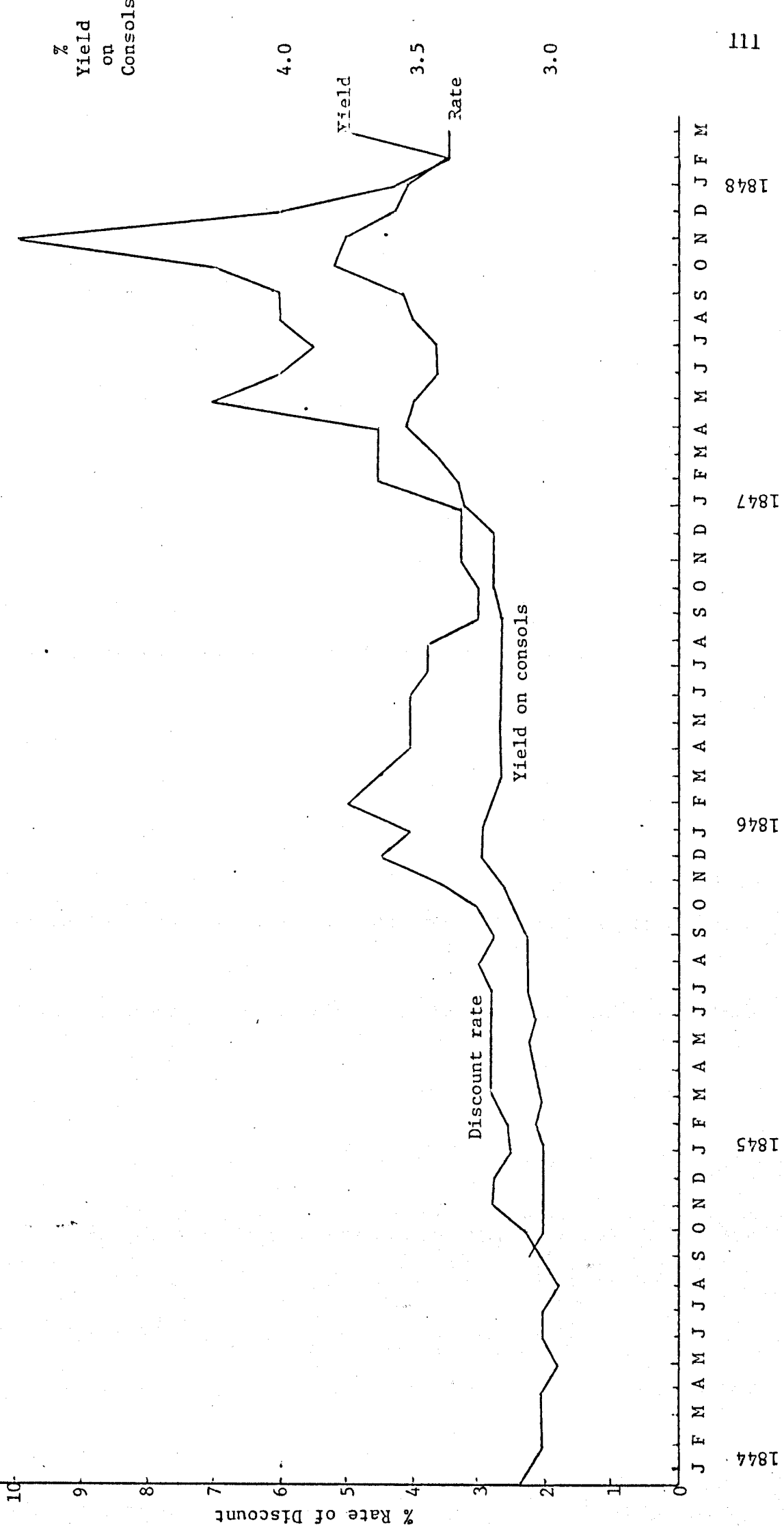


Firstly, Tooke and Newmarch did not report their consol prices as an average for the month, but gave a high and low price in order to show the range over which consol prices fluctuated. Unfortunately, it is impossible to distinguish from their work for how long in each month any price ruled, or the extent to which the prices recorded deviated from the average. The data are, furthermore, very sensitive to manipulation so that slight changes in the assumptions made about the ruling prices of consols result in substantial changes in the calculated yield and the conclusions which can be drawn about the effects of railway calls on the long-term capital market during 1847. Therefore, to obtain as accurate a picture of movements in the yield as possible, the rates reported in Tooke and Newmarch were compared with rates reported in the *Economist* between January 1847 and March 1848 (the period in which the most serious difficulties exist) and the rate which most nearly reflected the average movements in the month was selected.

Data compiled on capital raised are presented in Figure 1 above and Table 13 below while data on interest rates are presented in Figure 3 and Table 15 below. The overall picture shown in Figure 1 is of a period in which two distinct cycles of capital raising activity were experienced by the railway companies. The first reached its peak during January 1846; the second, began in the second quarter of 1846 and reached its peak during the first half of 1847. The sharp peak during the first cycle was caused mainly by the large sums of capital raised to pay Parliamentary deposits on the enormous number of private railway bills brought before Parliament in the 1846 session, i.e., the session following the promotion mania of 1845. The second cycle started when the companies began raising capital to build lines promoted during the preceding promotion boom. During the second cycle four features stand out for immediate notice: 1) after rising steeply in 1846,

Figure 3

Interest Rates; January 1844 to March 1848



Source: Table 15, p.136.

the volume of capital raised on shares reached a peak in January 1847; ii) during 1847 the volume of unpaid calls increased considerably over previous years; iii) during 1847, the railway companies came to rely more heavily upon borrowed capital than they had done in the previous two years; iv) during the last five months of 1847 both the amount of capital raised on shares and capital borrowed fell significantly below the average sum raised on each of the seven preceding months.

Movements in interest rates in Figure 3 show a broad conformity with the principal movements in railway capital raised, but without greatly anticipating what will be said in later parts of this chapter, it is difficult to draw any close comparisons between the two sets of series. However, one striking feature does come out clearly; namely, that interest rates show two peaks in the period corresponding roughly with the peaks of railway capital raised. The first appears between October 1845 and February 1846 when the large demands for railway calls to pay Parliamentary deposits severely disrupted the money market. The second appears in 1847 when both railway capital raised and interest rates reached a peak for the decade. On first appearance, it seems that Wilson's general hypothesis, that interest rates moved in accordance with changes in the demand for railway capital, does contain some truth despite what Morgan has to say.

### III

Using the data described in section II above it is the aim of this section to test more thoroughly the hypothesis that between January 1843 and March 1848 variations in the level of interest rates were related to changes in the demand for railway capital. This period is at once much

longer than that covered by Morgan's work, and also covers the entire period during which Wilson attempted to explain the behaviour of interest rates in terms of the demand for railway capital. Furthermore, by distinguishing funds *called* from those actually *paid* or *borrowed* and the total amount of capital raised, it should be possible to obtain a more accurate test of the hypothesis than has hitherto been made.

If the Wilson hypothesis is correct and means - as Morgan interpreted it to mean - simply that the rate of interest varied with changes in the demand for railway investment funds, then one would expect fairly high  $r^2$  values to emerge when rates of interest were regressed against funds raised on shares and borrowed capita. Accordingly, the *yield* on consols and the *rate* of discount were each regressed separately against the volume of funds raised in each month on shares, against borrowed capital and against total capital raised during the whole period from September, 1844 to March, 1848.<sup>1</sup> Set 1 below shows the  $r^2$  results obtained which proved most favourable to the Wilson hypothesis.

These results indicate that although a significant statistical relationship did exist between the stock of capital funds raised and the rate of interest the relationship was never very strong. Superficially, the results support Morgan's conclusion that the level of interest rates charged in any one month did not depend upon the volume of railway capital called in that month and that Wilson was, therefore, mistaken in his diagnosis of the

---

<sup>1</sup> Because the total number of regressions carried out for this section was large and because most of the results were not significant, they have been omitted from the main text in order to maintain the flow of the argument. Those values which were significant are either introduced into the text or are reproduced in Appendix II below.

cause of movements in interest rates. It may also be added that the results were obtained despite the presence of a strong trend within both series which acted to bias the results in favour of the original hypothesis. After correcting for this bias by regressing the first differences in the series, that is by regressing the *change* in funds raised against the *change* in the rate rather than the *absolute levels* in each series, the  $r^2$  values fall to levels which are hardly distinguishable from zero. On such results it is impossible to conclude that, so far as the *changes* in the series are concerned, there was an apparent statistical relationship.

Table 12

Railway Capital Raised and Interest Rates

Regression Coefficients: Set 1

Variables involved

Interest Rate/Capital	$r^2$	t value
Yield/Borrowed	0.41	5.3074
Yield/Share	0.26	3.8096
Yield/Total	0.33	4.462
Rate/Borrowed	0.37	6.016
Rate/Share	0.36	5.859
Rate/Total	0.39	6.2636

Source: See Text.

It is possible that changes in the rate of interest lagged at least a month or more behind variations in the volume of capital raised by the railway companies. If such lags had existed they would perhaps reduce any coefficient obtained by a simple regression of rates of interest on capital raised. To test for this, changes in interest rates were lagged up to six periods behind changes in the volume of capital funds raised.

The results which emerged showed that if *changes* in interest rates were lagged by two or three months behind *changes* in capital funds raised there was a significant improvement in the value of the regression coefficient, but even so the resulting  $r^2$  values were still very low. No improvement was gained by introducing lagged relationships when absolute amounts were used.

#### IV

An alternative reading of Wilson's work suggests that he never intended to imply that the relationship which existed between railway demands for capital funds and the rate of interest was a stable one. In fact, Wilson's writing suggests he believed that if excessive amounts of capital were demanded a *change* in the relationship between the volume of capital raised and the variations in the rate of interest would occur marking an hiatus in the ability of the railways to raise capital funds. According to Wilson, up to this point increases in the stock of capital raised acted to increase interest rates, after that point - in his terms, the crisis point - the volume of capital raised itself became dependent upon the level of interest rates. In other words, at the crisis the old relationship whereby a rise in the volume of capital had acted to increase interest rates no longer existed; indeed, it may have been reversed so that variations in the level of interest rates came to determine the volume of capital raised. If, as a result of this change, the lag structure involved in the relationship altered, or if the railway companies began to refrain from making calls during period of high interest rates instead of attempting to bid up the rate of interest, any regression coefficient which related to the whole period between January, 1843 and March, 1848 would be of little value in revealing the character of the relationships involved. It is important, therefore, to know whether a change occurred during our period and how it may have affected the original regressions.

One way of demonstrating that a change might have occurred is to plot the differences between the behaviour of the predicted values in a regression and the behaviour of the actual variable as a time series. When such a check is made - an example is shown in figure 4 - the results indicate that a marked shift, shock, or some other event which effected the relationships in the series appears to have occurred about the beginning of 1847.<sup>1</sup> Before that date the residuals are small and fairly regular; after that date their size increases markedly, and begins to move much more irregularly. It will be recalled that it was during the early part of 1847 that the railways reached the peak of their capital raising activities, and that after January, 1847 the volume of capital raised fluctuated sharply. At the same time the volume of calls remaining unpaid began to mount quickly, and that there was a marked increase in the readiness of companies to rely upon borrowed capital. In short, it is probable that a change in behaviour of the kind predicted by Wilson *did* occur at the beginning of 1847 and that it was this change which accounts for the low  $r^2$  values in the first regressions.

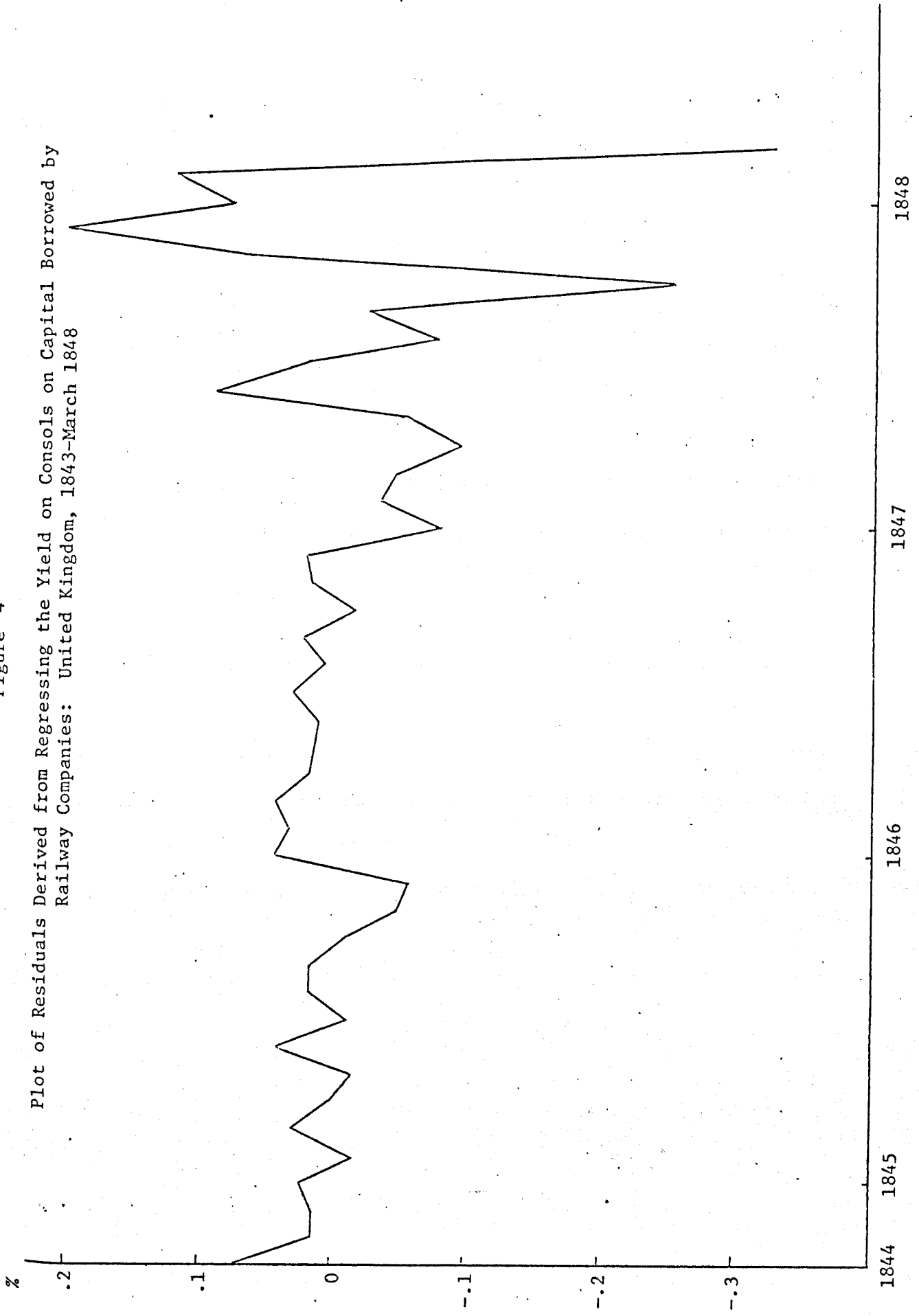
If the data are separated into two periods with the dividing point set at the end of December 1846, and the regressions are repeated to take account of the change some interesting results appear; the most important one being that, up to the close of December, 1846 the regression coefficients remain roughly the same as, or only slightly improved upon, those obtained from the previous tests, but after that date the coefficients improve dramatically. In other words, up to December 1846 any relationship which existed between capital raised and interest rates paid was slight; but after

---

<sup>1</sup> The data used in figure 4 were derived by regressing the yield on consols against the amount raised as borrowed capital in the period between September 1844 and March 1848. Similar patterns of behaviour of residuals may be derived from any of the other regressions using data for the entire period between 1844 and 1848 (or between 1843 and 1848 where rates of discount are used).

Figure 4

Plot of Residuals Derived from Regressing the Yield on Consols on Capital Borrowed by  
Railway Companies: United Kingdom, 1843-March 1848





that date a distinct improvement appears in the relationship between capital funds raised and the rate of discount charged in the London money market. This is a conclusion markedly at variance with that of Morgan and one which accords much more readily with Wilson's own predictions.

The regression coefficients obtained from each of these tests are given in Appendix II below, but it will be useful here to draw attention to the most significant results. In the period January 1843 to December 1846 no  $r^2$  value exceeds 0.56 for any regression in which absolute values were used even if the most favourable lags are introduced; if the values are reduced to first differences  $r^2$  values never exceed 0.27. Between January 1847 and March 1848 the best results appear when regressions are carried out using first differences and when lags of two or three months are introduced. In that period  $r^2$  values of 0.77 ( $t = 5.4983$ ) are obtained by regressing the amount paid on share capital against the rate of discount; when the total amount raised as share and borrowed capital is regressed against the yield on consols a coefficient of 0.48 ( $t = 2.8636$ ) is obtained. Such results support the conclusion that changes in the amount of share capital raised between January 1847 and March 1848 had a significant effect, in statistical terms, on the rate of discount charged, and to a lesser, though still significant extent, on the yield on consols. To this extent it may be said that in 1847, if not in the preceding four years, the demand for railway funds distinctly influenced changes in the rate of interest.

V

It now remains to explain how variations in the volume of capital raised may have influenced the rate of discount charged in London and why this relationship appeared in 1847 but not in earlier years. Why significantly

lower regression coefficients appear when the yield on consols rather than the rate of discount is regressed on the amount of capital funds raised by the railway companies is a question considered in the following section.

The links between changes in interest rates and changes in the volume of capital funds raised by the railway companies can only be established on a speculative basis. However, the evidence suggests that they were formed partly by the ways railway investors financed calls upon their shares and partly by the general supply and demand conditions prevailing in different parts of the capital market in 1847.

When a shareholder received a call on his railway shares he could raise cash in a number of ways: current consumption could be reduced; he could draw upon his accumulated savings held in the banks; he might borrow from a variety of sources; or he could sell various other assets which he held. At the height of the railway building boom shareholders probably used most or all of these methods to raise cash and it is, therefore, impossible to distinguish confidently which response most determined the behaviour of interest rates. However, the possible consequences of different responses may be analysed ~~and~~ <sup>to</sup> see how these accord with evidence of the period.

In the first instance calls would probably be financed out of current income and accumulated savings. Where calls were financed from current income, the money market would be relatively unaffected except perhaps indirectly if the fall in consumption so reduced activity in other sectors that the demand for capital for investment purposes in sectors other than the railways fell. If payments out of current income were so great that they significantly reduced total consumer demand, as suggested by Tooke and Newmarch,<sup>1</sup> the consequent decline in the demand for cash for trans-

---

<sup>1</sup> Tooke, V. pp.367-370. The question of the effects of railway investment on income and consumption are considered more fully in Chapter III above.

actions purposes and the decline in investment and activity in sectors other than railways might even act to reduce interest rates.

It is unlikely that many shareholders financed their calls wholly from current income and most would have had to turn at some time to other sources of investment funds. Initially, an investor could draw upon his accumulated savings held at the banks. That investors did so is confirmed by evidence given to the *Parliamentary Inquiry of 1848* where several witnesses associated with provincial banking houses noted that deposits in their banks had fallen sharply during 1846 and 1847 as a result, they believed, of railway demands for funds.<sup>1</sup>

Many investors obtained money from the banks by borrowing on the security of their railway shares. Traditionally the country banks were reluctant to lend money on this type of security, but the high interest rates which could be charged on such loans appears to have made them an attractive security during the railway boom and many banks and other lending institutions held large parcels of railway shares in the middle and later 1840s.<sup>2</sup> Large scale selling of these shares by the banks in 1848 was a principal reason for the severe fall in share prices in that year.<sup>3</sup> But even if a bank refused to make loans for the payment of calls in this way the investor could often obtain what amounted to an indirect loan by simply substituting payments by bill of exchange for cash payments in his day to day transactions and use his own cash to pay railway calls. It was widely believed among contemporaries that this practice was widespread at the height of the railway building boom, and in a letter to the Bank of England written by the Bank's Liverpool agent it

---

<sup>1</sup> S.J. Lloyd, H.C.QQ. 5171-76 and A. Hodgson, H.C. QQ. 208-209, Gardner, H.C. Q. 4888.

<sup>2</sup> Evidence of C. Turner, H.C. QQ. 921-927; 990; T. Birkbeck, H.C. QQ. 5868-71. On the general antipathy of banks to lending on railway shares see J.W. Gilbert, *A Practical Treatise on Banking* (1849) pp.44 and 214.

<sup>3</sup> *Economist*, October 14th, 1848 p.1172; October 21st, 1848, pp.1187-8.

was estimated that more than half of the working capital of Liverpool was engaged in this way.<sup>1</sup>

The immediate effect of financing calls on shares by these means was passed to London in two principal ways. Where bank loans and deposit withdrawals lowered the reserves of the provincial banks below acceptable levels it was the normal practice of the banks to call upon reserves which they held at their corresponding bank in London. By calling upon these reserves the provincial banks would reduce the stock of reserve cash held in London. The consequent contraction in the supply of money there would produce a rise in interest rates charged in the London money market. Where the method of financing resulted in an increased stock of bills of exchange in circulation the same result would follow. A large proportion of provincial bills quickly found their way onto the London discount market where they were in turn discounted. This would result in a rise in the demand for cash in the money market and, unless the supply of money could be correspondingly increased, there would be an automatic increase in interest rates.

In these ways variations in the demand for share capital were passed onto the London money market where they were reflected in corresponding variations in the rate of discount charged during 1847 and the early months of 1848.

Why were similar variations in demand for railway capital during the years immediately preceding 1847 not similarly reflected in the discount rate? One possibility is that before 1847 shareholders were able to finance

---

<sup>1</sup> Letter Books of the Bank of England. Liverpool Letter Book No. 6 p.273. The letter is undated but appears in the letter book immediately after a letter dated 18th May, 1847. For other towns in which commercial capital appears to have been heavily committed in this way see Bank of England Letter Books of Leicester, 25th May, 1847, and 2nd June, 1847; Hull, 22nd May, 1847; Leeds, 22nd May, 1847; Manchester, 25th May, 1847. See also Evidence of A. Hodgson H.C. QQ. 467, 438; W. Cotton H.C. Q. 4539.

a greater proportion of their calls in ways which did not affect the London Market. Thus, for example, if calls were paid out of current income or if money was withdrawn as deposit withdrawals or by borrowing from provincial banks who were themselves prepared to accept a fall in reserves without drawing upon their London correspondents, the effect would hardly be felt by the central system. More importantly, money called up by the railways was usually deposited by the companies in London banks where it might be held for several months before it was used to finance investment. So long as this money remained in London it would increase the supply of money there at the expense of the provinces and discourage any increase in interest rates.<sup>1</sup> Such behaviour helps to explain a phenomenon which contemporary witnesses commented upon and which E.V. Morgan attempted to explain; namely, that for many months in 1846 the provinces experienced what one contemporary journal described as "the extraordinary spectacle of a superabundance of money offering itself for the discount of first class paper, and a degree of pressure and discredit in every other part of the mercantile body".<sup>2</sup>

In 1847 these conditions changed markedly. In that year the railway companies found themselves increasingly under pressure to reduce their calls whilst at the same time their expenditure programmes were reaching a peak. The result was that the large railway deposits held in the banks melted away and were no longer available to the money market as they had been in 1846.<sup>3</sup> At the same time a decline in economic activity in several sectors of the economy probably made it increasingly difficult for shareholders to finance calls from current income, while the country banks, themselves becoming

---

<sup>1</sup> These arrangements are discussed more fully in Chapter VII below.

<sup>2</sup> *Banker's Magazine*, October, 1846, (quoted in E.V. Morgan, "Railway Investment and Bank of England Policy", p.335).

<sup>3</sup> H.C. Q. 207.

increasingly anxious to protect their own reserves, resorted to issuing bills rather than cash and to drawing upon their London agents for reserve money. Thus, at once, the London banks found their position *vis-a-vis* railway capital and the provinces to have changed from one of abundant funds to one of increasing shortage. In these conditions any additional demands made upon them for funds were bound to produce sharp increases in interest rates.

A second factor which accounts for the difference in interest rate behaviour between 1847 and earlier years is the change in conditions affecting the supply of reserve money to the central system.<sup>1</sup> Between 1843 and the beginning of 1847 the Bank of England held large stocks of bullion which, under the policy adopted by the Bank following the introduction of the Bank Act of 1844, ensured that the London money system would remain very liquid. Consequently, any increases in the demand for money in London which may have arisen from increasing demands for railway investment were readily met by drawing upon the stock of reserve cash at the Bank of England. Together with railway company deposits built up in 1845 and 1846, this large stock of liquidity in London meant that the London market showed no signs of being adversely affected by demands for railway capital despite the growing demands being made upon it. Only on one occasion before 1847 did these demands have a significant effect on the market. This occurred during the so-called railway deposits crisis which developed between October 1845 and February 1846. On that occasion an enormous number of railway bills were due to go before Parliament for the session of 1846, and the anxiety created among businessmen over the extraordinary demand for funds required to fulfil Parliamentary Standing Orders before February 1846 caused a temporary but heavy demand for funds in the London money market which was reflected in sharply increasing interest rates.<sup>2</sup>

---

<sup>1</sup> Points in this and the following paragraph are discussed more fully in Chap. VII.

<sup>2</sup> The whole episode is fully described in the *Economist* during January and February, 1846 and August 29th, 1846, pp.1137-8.

During 1847 the need to import vast quantities of food to relieve the famine in Ireland pushed the balance of payments sharply against Britain and the Bank experienced a long and serious decline in its bullion reserves forcing it to restrict increasingly the stock of reserve money which it was prepared to make available to the market. Thus, in place of the abundance of funds between 1843 and 1846, the London money market was faced with a growing shortage. At the same time the decline in railway company deposits in the London banks between January and July 1847 forced them to reduce their own lending activities. In this situation large variations in the demand for railway capital would automatically produce sharp changes in discount rates.

In short the difference in the responsiveness of discount rates to variations in the demand for railway funds in the period between January 1844 and January 1847, compared with 1847 itself, is explained partly in terms of the railway companies' own readiness to accumulate funds in London, and partly in terms of the general conditions of money supply in London. These conditions themselves depended upon events elsewhere, but in the immediate analysis it was these factors which determined the appearance or non-appearance of the relationships described in this chapter.

## VI

Finally, it needs to be asked why variations in the volume of capital raised were less highly correlated to the yield on consols in 1847 than were variations in capital raised and the rate of discount.

Several reasons may be given why variations in the yield might be expected to conform with variations in the demand for railway capital. In the first place, if Wilson was correct in his argument that the growth

of railway investment would generate a general increase in the demand for new investment in other sectors of the economy, it would be reasonable to expect this general growth in demand for investment funds to produce a fall in the demand for Consolidated and other stock and thereby a rise in their yield. Indeed, even if the rise in investment were confined to the railways alone increases in the demand for funds in that sector might be expected to produce a corresponding rise in the yield on consols. This expectation arises out of the fact that Consolidated stock, East India and Bank stocks, not only formed an alternative asset to railway shares, but the system by which railway shares were sold on a five or ten per cent deposit with the balance remaining to be called as building progressed meant that persons intending to transfer assets from other stocks to railway shares needed to part with only a small proportion of their original assets until additional calls were made on their railway shares. Only when the companies began to make their calls would the shareholder need to sell his other stock. Where railway calls were financed in this way we would expect that variations in the quantity of capital raised would be reflected in the yield on consols since variations in the quantity of consolidated stock offered for sale are quickly reflected in the price and thus in the yield. Where railway companies sought to borrow capital similar effects would occur. In this case the sale of consols by persons who wished to take up railway loans would have the effect of lowering consol prices and raising the yield.

On first consideration the results obtained from the regression analysis imply that in the crisis year, if not before, these mechanisms began to affect consol prices; however, the fact that they formed weaker relationships than those which existed between the volume of capital raised and the rate of discount suggests they were less commonly used than others. On the other hand, it is possible that movements in the volume of capital raised were related to



changes in the yield merely because of the links which normally exist between the discount rate and the yield on consols. Normally, we would expect that a rise or fall in rates charged in the short-term market would be followed by corresponding movements in the long-term rate. Various factors might interfere with this process, but the basic behaviour of the two series may be expected to follow similar paths. Movements in the yield would thus correspond to movements in capital raised, simply because the rate of discount linked the two series together, and not because there were direct casual relationships of the type analysed above. The poorer fit, and the longer lag involved in the regressions involving the yield than in those between capital raised and the rate, lends support to this idea.

The poorer fit and the longer lag may be explained in other ways. If the supply of capital funds to the long-term market was more flexible than in the short-term market in 1847, or if investors only turned to selling other securities as a last resort when raising railway capital, the fit between capital raised and changes in the yield would be poorer, and the lags involved longer, than those between capital raised and changes in the rate. The fact that rising yields would involve sellers of long-dated stock in large capital losses supports the presumption that investors might have behaved in this way during 1847. This may also help to explain the poorer fit in another way; namely, that during periods of high yields, the prospect of making a large capital loss upon sale of consolidated stock may have influenced investors not to sell, or to put off paying calls to a time when it was more convenient to sell their other assets.

The difficulties mentioned above, and the speculative nature of the discussion, at once make it impossible to accept or to reject the idea that variations in the yield were determined by changes in the demand for railway capital. It may be concluded, therefore, that changes in the

volume of capital raised did produce an adverse effect on the long-term capital market during 1847, but it is by no means certain that it did so in a direct manner. The possibility that the relationship is a manufactured one arising out of the links between the short and long term markets cannot be ruled out.

## VI

Two general conclusions may be drawn from the foregoing discussion: the first relates to the existence of a statistical relationship between the demand for railway capital and the rate of interest ruling in London; the second relates to the causal relationships that linked the two series together and in particular to James Wilson's explanation of that relationship.

As part IV of this chapter argues, E.V. Morgan's view that there was no statistical relationship between interest rates charged in London and the demand for railway capital in 1847 is no longer tenable. Clearly, there was a close relationship both statistically and causally, even though in the years immediately preceding no such relationship is apparent. Inadequate data probably explains why Morgan did not discover the relationship analysed in this chapter. His use of 'share capital called' rather than the amount actually paid was a major source of difficulty given that the amount paid up fell increasingly short of the amount called. But in addition, the fact that his data start only in January 1847, explains why he failed to recognize the important change in the relationship between railway capital raising activities and interest rates.

The second conclusion relates both to the causal links between capital raised and interest rates charged and to Wilson's explanation of these links. At an early stage in the argument the Wilson hypothesis failed

to give a satisfactory explanation of the relationship between capital raised and the behaviour of interest rates either before or during 1847. This does not mean that the hypothesis need be altogether abandoned, though if historians are to continue using it, it requires some modification. Its main weakness arises from its assumption that the supply of funds for investment purposes was strictly limited throughout the entire period under consideration. Where it is possible to make a similar assumption - as for example in the short-term capital market during 1847 - the hypothesis bears quite severe testing. In that year short-term variations in the rate of discount were, to a large extent, influenced directly by variations in the demand for railway funds. To this extent the London money market, and thereby, the rest of the economy, may have been adversely affected during periods when the railway companies made exceptionally heavy demands for funds. However, it would be wrong to lay blame entirely upon the railways for the difficulties experienced in the money market in 1847. Much of the responsibility must lie with the conditions which determined the supply of funds to the market, and until these have been considered it is impossible to account fully for the behaviour of interest rates.

When we turn to explain the behaviour of the long term rate of interest - i.e. the yield on consols - the inadequacy of Wilson's hypothesis is more apparent. Even under the most favourable circumstances it is difficult to demonstrate that a clear link existed between railway capital raising activities and changes in the yield. Low regression values, the possibility that the results could have arisen through the agency of a third factor - i.e. the rate of discount - and lack of knowledge at this stage regarding demand for long term funds in sectors other than the railways in 1847, make it difficult, if not impossible, to draw any firm conclusions regarding the effect of railway demands on the market for long term capital.

## Appendix I

Statistics of Railway Capital Funds Raised; January 1843 to March 1848

In the British Parliamentary Papers for 1847-8 there is a detailed return of the capital funds raised by each railway company up to May 1848 showing, for most companies, the month and year during which the funds were raised.<sup>1</sup> Some of the problems associated with this return have been set out in the main body of the preceding chapter; this appendix outlines the assumptions used to identify and distribute the amounts raised by the companies to each month between January 1843, and March 1848. The return gives figures for capital raised before 1843, and for the two months April and May, 1848. However, because of the retrospective nature of the former, and the very incomplete recording of sums collected in the later period, the figures given have been ignored.

The principal difficulty with the return is that several companies do not specify accurately the month in which calls were made for share capital, or in which sums were borrowed on the capital market. In particular, some companies would merely state a year or part of a year in which the sums were raised or borrowed. On some occasions it was fairly easy to identify in which month they were raised, but in others this was impossible. In the former groups the most obvious examples appeared with the first call for capital. Usually, such a call was made in the year the company applied to Parliament for a private act to construct the line. Where this was so, it was assumed that the call was made in the first month of the year for the purposes of paying the Parliamentary deposit which, under Parliamentary Standing Orders, had to be paid before the session of Parliament began.

---

<sup>1</sup> B.P.P. 1847-8, (731.) LXIII, pp. 306-443.

This usually meant that the call had to be paid before February, accordingly all such calls were attributed to January in the year that they were made except where bills were obtained in the year following the one in which the call was made. In these cases it was assumed that the calls were made during the last three months of the year and were accordingly distributed evenly over October, November and December of the year in which they were called. The amount involved in this latter sample was very small. The other major group where it was impossible to identify the month in which calls were made or sums borrowed included those giving only the year or part of a year as the date of call. When this occurred it was possible only to divide the amounts called equally over each month included in the period.

The same assumptions were applied to calls left unpaid.

After identifying the month in which calls were made, sums borrowed, and calls left unpaid, they were summed to give the total amount raised in each month. For comparison the monthly aggregate of calls made by the railway companies as recorded by the *Banker's Magazine*, between January 1847 and March 1848 are also given in Table 13.

Table 13

Monthly Volume of Share and Borrowed Capital Raised by Railway Companies:  
United Kingdom, 1843 to March 1848  
 £000.

	Total Called	Total Paid	Unpaid	Total Borrowed	Total Capital Raised	Total Called ( <i>Banker's Magazine</i> )
<u>1843</u>						
Jan.	814	803	11	236	1040	
Feb.	166	166		77	243	
March	138	138		90	228	
April	181	181		158	339	
May	143	143	1	76	219	

	Total Called	Total Paid	Unpaid	Total Borrowed	Total Capital Raised	Total Called (Banker's Magazine)
<u>1843 (Cont'd)</u>						
June	293	292		101	393	
July	145	145	1	73	218	
Aug.	289	288		17	305	
Sept.	113	113	1	45	157	
Oct.	210	210		39	248	
Nov.	317	316		65	382	
Dec.	259	259		53	312	
<u>1844</u>						
Jan.	441	438	3	235	673	
Feb.	531	529	2	399	927	
March	286	286		220	505	
April	409	409		241	650	
May	420	418	2	251	669	
June	440	440		345	784	
July	326	326		248	575	
Aug.	527	520	7	192	712	
Sept.	671	670	1	192	863	
Oct.	833	825	8	207	1032	
Nov.	808	806	2	231	1037	
Dec.	815	802	14	211	1013	
<u>1845</u>						
Jan.	1871	1841	30	447	2288	
Feb.	1329	1316	13	336	1651	
March	536	536		219	755	
April	1415	1398	17	228	1626	
May	1183	1177	6	237	1414	
June	717	703	14	319	1022	
July	1045	1044	1	275	1318	
Aug.	1606	1595	11	222	1817	
Sept.	1744	1648	96	240	1888	
Oct.	2074	2043	30	280	2324	
Nov.	3073	3001	73	275	3276	
Dec.	2107	1992	115	268	2260	
<u>1846</u>						
Jan.	6526	6398	128	320	6717	
Feb.	2350	2284	66	595	2879	
March	1406	1393	13	478	1871	
April	1907	1888	19	565	2453	
May	2160	2069	91	382	2452	
June	1123	1101	22	357	1457	
July	3050	2978	71	809	3787	
Aug.	1780	1717	63	550	2267	
Sept.	2624	2514	111	821	3335	
Oct.	2497	2333	165	501	2834	
Nov.	2683	2539	144	708	3247	
Dec.	3626	3479	147	621	4100	

	Total Called	Total Paid	Unpaid	Total Borrowed	Total Capital Raised	Total Called ( <i>Banker's Magazine</i> )
<u>1847</u>						
Jan.	5330	5099	230	973	6072	4546
Feb.	1880	1717	163	834	2551	1393
March	3399	3109	290	893	4002	3042
April	4697	4255	441	975	5231	4215
May	4291	3902	389	1013	4915	3038
June	2953	2688	265	1213	3902	2463
July	4992	4569	423	1082	5651	4334
Aug.	2935	2604	331	740	3344	2225
Sept.	2927	2478	449	807	3285	3361
Oct.	3578	3140	438	768	3907	3342
Nov.	2658	2367	291	577	2944	1896
Dec.	2806	2415	391	126	2542	2423
<u>1848</u>						
Jan.	5299	4709	590	1215	5924	4639
Feb.	3003	2579	424	944	3523	2141
March	2541	1883	657	806	2689	1849

Sources: Cols 1, 2, 3, 4, 5, derived from B.P.P. 1847-8 (731.) LXIII, pp.306-443.

Col. 6, *Banker's Magazine*, October 1848. Quoted in E.V. Morgan, "Railway Investment, Bank of England Policy and Interest Rates, 1844-8", *Economic History*, Vol. IV, No. 15, Feb. 1940, p. 332.

## Appendix II

Railway Capital Raised and Interest Rates: List of  
Regression Coefficients Reported in Chapter V

The following table gives the values of the coefficients for regressions reported and discussed in part II of Chapter V. Altogether about 400 regressions were carried out; this table reports only those  $r^2$  values greater than 0.25 and with significance levels of 95% or greater. Where a particular sub-set of coefficients did not exceed these values, the highest value in the subset is reported. The results are presented as follows:

1. The first set of values relates to the entire period covered by the data; that is, where the variables involved include the rate of discount charged in London they cover the entire period from January, 1843 to March 1848; where they include the yield on consols, they cover the period from September 1844 to March 1848.
2. The second set relates to the sub-periods ending in December 1846.
3. The third set relates to the sub-period starting in January 1847 and ending March 1848.

The variables involved in each equation, the form of the regression and the number of lagged periods introduced may be identified as follows:

<p>a) <u>Borrowed Capital</u></p> <p style="padding-left: 20px;">Total Borrowed = 1</p> <p>b) <u>Share Capital</u></p> <p style="padding-left: 20px;">Total Called = 2</p> <p style="padding-left: 20px;">Total Paid = 3</p> <p style="padding-left: 20px;">Total Unpaid = 4</p> <p>c) <u>Total Capital Raised</u> (share and borrowed) = 5</p>	<p>d) <u>Interest Rates</u></p> <p style="padding-left: 20px;">Rate of Discount Charged in London = 6</p> <p style="padding-left: 20px;">Yield on Consols = 7</p> <p><u>Form of Regression</u></p> <p>S.R. = Simple regression</p> <p>D.R. = Simple regression of First differences</p> <p><u>Lags</u></p> <p><math>L_{1,2,3}</math> = No. of lagged periods (months) introduced.</p>
---	---



Table 14

Railway Capital Raised and Interest Rates:  
Regression Coefficients; Set 2:

United Kingdom; 1843 - March 1848

1. Full Perioda) Jan. 1843 to March 1848

Variables Involved	Form of Regression	$r^2$	Student's t	Significance if 99% or less
1; 6	SR	.37	6.016	
	DR, L <sub>2</sub>	.2	3.8034	
2; 6	SR	.39	6.2842	
	DR, L <sub>2</sub>	.16	3.4487	
3; 6	SR	.36	5.859	
	DR, L <sub>2</sub>	.16	3.3313	
4; 6	SR	.45	7.0909	
	DR, L <sub>3</sub>	.26	-4.4999	
5; 6	SR	.39	6.2636	
	DR, L <sub>2</sub>	.2	3.7809	

b) Sept. 1844 to March 1848

1; 7	SR	.41	5.3074	
	DR, L <sub>3</sub>	.24	3.3808	
2; 7	SR	.35	4.6614	
3; 7	SR	.26	3.8096	
4; 7	SR	.83	14.0503	
5; 7	SR	.33	4.462	

2. Sub-Period 1a) Jan. 1843 to Dec. 1846

1; 6	SR	.35	4.9682	
2; 6	SR	.46	6.2253	
	DR	.23	-3.6894	
3; 6	SR	.46	6.2015	
	DR	.23	-3.6966	
5; 6	SR	.48	6.5658	
	DR	.22	-3.6008	
4; 6	SR	.34	4.8601	
	DR, L <sub>4</sub>	.13	2.4901	

Variables Involved	Form of Regression	$r^2$	Student's t	Significance if 99% or less
b) <u>Sept. 1844 to Dec. 1846</u>				
1; 7	SR	.35	3.7085	
2; 7	SR	.49	5.0028	
3; 7	SR	.48	4.8515	
4; 7	SR	.56	5.8029	
	DR, L <sub>3</sub>	.27	2.8184	
5; 7	SR	.53	5.4322	
3. <u>Sub-period 2</u>				
<u>Jan. 1847 to March 1848</u>				
1; 6	DR, L <sub>2</sub>	.29	-2.1305	95%
2; 6	DR, L <sub>2</sub>	.75	5.4983	
3; 6	DR, L <sub>2</sub>	.77	5.8592	
1; 7	DR, L <sub>3</sub>	.42	2.5295	97.5%
2; 7	DR, L <sub>3</sub>	.36	2.2322	97.5%
3; 7	DR, L <sub>3</sub>	.41	2.4763	97.5%
4; 7	SR	.3	2.3806	97.5%
	DR, L <sub>1</sub>	.24	-1.8476	95%
5; 7	DR, L <sub>3</sub>	.48	2.8636	99%

Table 15

Market Rate of Discount and Yield on Consols;  
January 1843 to March 1848

Date	Rate of Discount	Yield on Consols	Date	Rate of Discount	Yield on Consols
1843	%	%	1846	%	%
Jan.	2.50		Jan.	4.00	3.23
Feb.	2.25		Feb.	5.00	3.19
Mar.	2.00		Mar.	4.50	3.16
Apr.	2.00		Apr.	4.00	3.16
May	2.00		May	4.00	3.16
June	2.25		June	4.00	3.16
July	2.50		July	3.75	3.16
Aug.	2.00		Aug.	3.75	3.16
Sept.	2.25		Sept.	3.00	3.16
Oct.	2.25		Oct.	3.00	3.19
Nov.	2.25		Nov.	3.25	3.19
Dec.	2.50		Dec.	3.25	3.19
1844			1847		
Jan.	2.25		Jan.	3.25	3.30
Feb.	2.00		Feb.	4.50	3.33
Mar.	2.00		Mar.	4.50	3.41
Apr.	2.00		Apr.	4.50	3.53
May	1.75		May	7.00	3.49
June	2.00		June	6.00	3.41
July	2.00		July	5.50	3.41
Aug.	1.75		Aug.	6.00	3.49
Sept.	2.00	3.06	Sept.	6.00	3.53
Oct.	2.25	3.00	Oct.	7.00	3.80
Nov.	2.75	3.00	Nov.	10.00	3.75
Dec.	2.75	3.00	Dec.	6.00	3.57
1845			1848		
Jan.	2.50	3.00	Jan.	4.25	3.53
Feb.	2.50	3.03	Feb.	3.50	3.41
Mar.	2.75	3.01	Mar.	3.50	3.75
Apr.	2.75	3.03			
May	2.75	3.06			
June	2.75	3.03			
July	2.75	3.06			
Aug.	3.00	3.06			
Sept.	2.75	3.06			
Oct.	3.00	3.09			
Nov.	3.50	3.16			
Dec.	4.50	3.23			

Sources: Rate of Discount: B.P.P. 1857, Second session, (220-I) X, Q.4876.  
Yield on Consols: See Text.

## CHAPTER VI

THE INDUSTRIAL SECTOR

Any attempt to explain the crisis of 1847 must take into account the effect of railway investment on activity and investment in the manufacturing sector of the economy. Historians have generally recognized this, though they are far from agreement about those effects. Some argue that excessive demands by the railways 'starved' the industry of the capital necessary to support its activities; others argue that there is no evidence of industry suffering from shortages of capital during this period - except perhaps during the crisis itself. Instead, they argue, that many industries clearly benefited directly from the large demand for building materials and other equipment which came with the railway boom, while other industries benefited from the general expansionary influence on income and consumption generated by railway investment expenditure.

In the debate the original ideas put forward by James Wilson have become blurred, not because they are wrong, but because they have been mis-interpreted by both sides. In its original form the Wilson hypothesis had argued that by increasing directly and indirectly the demand for industrial goods, railway investment would act to stimulate activity and investment in all parts of the economy. The efforts of industries to obtain funds necessary to increase output in response to this increased demand would lead them to compete with the railways for capital. This would drive up interest rates to levels the railways could not pay. At this point a crisis would occur, railway investment would be suspended, the demand for industrial goods would fall, and there would be extensive unemployment in the economy.

Most of Wilson's contemporaries failed to follow this argument right through: they merely used his arguments to bolster their own belief that because railways were taking funds from industry this section of the economy had become depressed during 1846. When historians came to criticise the Wilson hypothesis it was this second, 'modified', version rather than his original ideas which they attacked. It is to this 'modified' version of Wilson's hypothesis that Ward-Perkins addressed his comments when he criticised the view that the industrial depression of 1846-8 was the result of railways starving industry of capital. But in arguing that railway investment actually stimulated activity in industry, Ward-Perkins was, in fact, arguing along lines that Wilson himself would not have disagreed with even though the original intention was to discredit the floating capital conversion theory developed by Wilson himself.

Unfortunately, the confusion surrounding the relationship between railway investment and industrial activity does not end here: there still remains the question of how the state of industrial activity was related to the crisis of 1847. According to Wilson, it was because railway investment stimulated industrial activity that excess demand for capital (and labour) resources developed in 1847 and eventually produced the crisis. The argument clearly involves the assumption that resources in the economy were *normally* fully employed: had industrial activity been depressed for any reason, or had there been some spare capacity available, it is hard to see, following Wilson's argument, how excessive demand for capital and labour resources could have developed. Thus, to achieve a crisis of the type envisaged in the Wilson hypothesis it is necessary to prove that industry was already fully employed, at least for part of the time immediately prior to the crisis.

The position taken by the other two views involves no corresponding assumption. Those who hold that railway investment created, or at least

exacerbated, the crisis by starving the rest of industry of resources, clearly imply that the expansion of railway investment helped to increase the unemployment in manufacturing industry between 1846 and 1848. Ward-Perkins' argument is that such unemployment already existed before the railway boom got underway, and was not a consequence of the railway investment boom. On the contrary, his view is that by maintaining aggregate income and investment, railway construction acted to support industrial activity and thus to mitigate the effect of the depression in the rest of the economy. In his mind the link between railway investment and the level of industrial activity was one involving the pervasiveness of the depression and the crisis of 1847 and not, as had been the case for Wilson, one involving its origins. Had industrial activity been at a lower ebb, there is no doubt in Ward-Perkins' mind that the effect of the crisis would have been much more severe than it was; equally, had James Wilson thought in terms other than full employment, it is difficult to see how he could have logically conceived of a 'crisis' situation developing as the result of the railway boom.

It is not the aim of this chapter to resolve all the questions suggested by the foregoing discussion: in particular, the more general question of the relationship between the level of industrial activity and the origins of the crisis is one which cannot be considered until we have looked at all aspects of economic activity in the period. This chapter looks more narrowly at the experience of four British industries, house-building, iron manufacturing, coal-mining and cotton textiles to see how their experience reflects some of the points made in the paragraphs above.

The four industries were chosen partly because they are more fully documented than most other industries of the period, but more importantly for their size and for the fact that each one reflects a particular feature of the

relationship discussed above. House-building, with its heavy dependence upon low interest rates and ready supplies of cheap credit, and its dependence upon mortgages as the main source of long term finance, was more open than most other industries to the competition for funds from the railways. Conversely, iron and coal are industries which few historians of the 1840s would deny were favourably affected by the boom in railway building. Both industries were involved in the production of the basic construction and engineering materials employed in railway building, whilst the provision of cheap transport facilities was an important pre-condition for their prosperity. The cotton industry provides an example of one industry where the level of activity throughout 1847 was clearly determined by factors other than railway investment. Here, a severe shortage of raw-material forced the industry to reduce output throughout the crisis year. At the same time, however, it was to the cotton industry that critics of railway investment most often turned for an example of an industry weakened to the point of crisis by demand for railway capital. As these writers see it the raw-material shortage merely emphasized the weakness of the industry, it did not cause it.

The four industries are chosen in the belief that their experience reflects the state of industrial activity in the period leading up to the crisis. It is expected that the picture will not be modified in any important way by the examination of any other sector not already considered.

## I

### House-Building

The first industry to be considered is the house-building industry. For the decade of the 1840s this industry is better supplied with statistical data than most others: one of the best known indicators of economic activity,

the annual return of brick duty paid, consists of an accurate record of one of its principal raw materials; another, the returns of the number of houses occupied and unoccupied at each census date, gives a record of the size of the housing stock at the beginning of each decade.<sup>1</sup> An additional advantage of both series is that they may be used to show regional differences in house-building: in the case of brick duty paid, returns are available for the entire period of the 1840s showing the duty paid at each of the fifty or so collection centres scattered throughout England and Wales, whilst the census data gives records of the number of houses in each census district. There are good records of several other raw materials used in house-building such as tiles, mahogany and lathwood; and for the cities of London and Liverpool, there are records of the number of houses built in most years of the 1840s.<sup>2</sup>

Each series has its own well-known drawbacks. The brick index has always provided historians with a major problem of interpretation since bricks were used for building factories, docks and numerous other public buildings, in the extensive brickwork involved in railway construction as well as for building houses. Accordingly historians have been careful not to regard the index as an accurate indicator of house-building in particular

---

<sup>1</sup> For brick duty returns see H.A. Shannon, "Bricks - a trade index", *Economica* (1934) pp.300-318; reprinted in E.M. Carus-Wilson (ed.), *Essays in Economic History*, Vol. III (1966), pp.188-201. For detailed returns of brick duty paid at each collection centre see B.P.P. 1846, (82) XXV; 1847-8, (168.) XXXIX; 1849, (218.) XXX and 1850, (112.) XXXIII. For returns of inhabited and uninhabited houses at the census of 1841 and 1851 see B.P.P. 1851 (1399.) XLIII, p.102.

<sup>2</sup> Many of these series are summarized in E.W. Cooney, "Long Waves in Building in the British Economy of the 19th Century", *Economic History Review*, 2nd series, XIII (1960-61), pp.257-69; and in A.K. Cairncross and B. Weber, "Fluctuations in Building in Great Britain, 1785-1849", *Economic History Review* 2nd series, IX (1956), reprinted in *Essays in Economic History*, *op.cit.*, pp.325-9. For the number of houses built in London between 1845 and December 1849, see B.P.P. 1847 (735.) LVII, p.79; 1851 (83.) XLVIII, p.31.



but merely as a general guide to building activity as a whole.<sup>1</sup> The census returns of houses occupied and unoccupied admit to rather different problems. Here the principal difficulties arise from the fact that until 1851 there was no commonly accepted definition of a house among the census takers, and from the fact that the returns take no account of demolitions or conversions between the census dates. Together these mean that the returns show only imperfectly the net change in housing stocks taking place between the census dates.<sup>2</sup> Finally, the returns of the number of houses built in London are deficient in several ways: until 1842 they omit some of the smaller districts of inner London, and for the years 1843 and 1844 they are not available. However, when the new Metropolitan Buildings Act came into force in 1845, the returns were collected very carefully and may be regarded as an accurate record of building done in London.

Despite their deficiencies each of the foregoing series provides interesting insights into house-building in England and Wales. The picture of aggregate house-building activity in England and Wales in the 1840s revealed is, on first inspection, complicated by only one factor; namely, the apparent lack of correlation between the volume of bricks produced between 1840 and 1849 and the net increase in housing stocks between the two census dates. This is demonstrated in table 16 below taken from Cairncross and Weber's study of house-building before 1850.<sup>3</sup> There it will be seen that, whereas in previous decades both series moved in broad conformity with each other, in the 1840s the volume of bricks produced increased markedly over previous decades, whilst the net increase in housing stocks actually fell quite sharply. Though it is

<sup>1</sup> J. Parry Lewis, *Building Cycles and Britain's Economic Growth*, (New York, 1965) p.81. A.K. Cairncross and B. Weber, *op.cit.* pp.322-3. This article also includes excellent discussions on the difficulties associated with the use of various other minor indicators of building activity in the 1840s.

<sup>2</sup> This problem does not appear to have resulted in any serious anomalies occurring in the returns except in parts of North Eastern England, where, in the 1841 census, flats or stories were returned as "houses" in some districts. [B.P.P. 1851 (1399).  
<sup>3</sup> Cairncross and Weber, *op.cit.*, p.322. x6111. p.103].

possible that the greater volume of demolitions which accompanied the railway-building boom of the 1840s resulted in the number of houses recorded at the census of 1851 not reflecting the number of actually built, it is unlikely that the difference involved was as large as the brick production figures suggest. It is thus difficult to see, as Cairncross and Weber point out, how the volume of house-building could have approached levels achieved in the 1820s and 1830s. The 1840s was therefore a relatively depressed period in house-building history while the large volume of bricks produced in the decade appeared mainly in response to the demands of other building activities such as railway construction.

Table 16

Brick Production and the Net Increases in Housing Stock:  
England and Wales, 1811-1851

	<u>1811-21</u>	<u>1821-31</u>	<u>1831-41</u>	<u>1841-51</u>
Average brick output (millions) (a)	859.0	1230.9	1336.8	1583.7 (b)
Percentage increase		+43.4	+8.6	+18.5
Net increase in housing stock (000)	309.3	443.5	515.7	314.5
Percentage increase over previous decade.		+43.4	+16.3	-39.0

(a) Averages for each decade. (b) Average for 1841-9

Source: A.K. Cairncross and B. Weber, "Fluctuations in Building in Great Britain", p.322.

Cairncross and Weber have shown, however, that the depression in house-building was not universal throughout England and Wales. Their examination of the returns of brick duty paid in the London region and in Liverpool and of the number of houses built in these two towns in the 1830s and 1840s, shows that house-building entered a substantial boom in London and Liverpool during the 1840s despite the depression that rules elsewhere in the country.

Table 17 below, which includes returns of houses built in London after 1844, confirms this impression. The year to year fluctuation experienced in London and Liverpool is also interesting because it may give some guide to the year to year fluctuation in house-building activity in England and Wales which cannot be reliably obtained from the brick index, and because of the extraordinary sharp peak in building activity in London in 1846. For the moment this point is left to one side in order to discuss those factors responsible for the overall depression which marked house-building in England and Wales during this decade.

On first appearance the low level of building activity in the 1840s may be taken to reflect the effect of a squeeze executed by railway demands on the supply of capital funds and credit available to house-builders. Such an explanation not only accords with opinion expressed during the 1840s and with views held by some historians, but is also one which *a priori* might be called upon, given the well-known responsiveness of the building industry to changes in the supply of funds and interest rates. The long gestation which normally occurs between the start and completion of the building of a house has traditionally caused builders to commit themselves to projects whose value is many times greater than their own assets. Inevitably, this required nineteenth century builders to rely more heavily upon the supply of cheap credit and mortgage finance than most other industries if they were to function properly. A sharp rise in interest rates or a reduction in the supply of credit and mortgage finance would, in these circumstances, severely affect the industry and, in the event of a financial crisis of the type experienced in 1847, the entire industry could be brought to a standstill.<sup>1</sup> Given this dependence upon favourable financial conditions, heavy demands by

---

<sup>1</sup> See for example Marx's description of the organization and financing of speculative building activities during the 1850s. K. Marx, *Capital*, (Moscow, 1957) Vol. II, pp.233-4.

the railways for capital and other resources could have interfered seriously with the supply of funds and credit to builders in a number of ways that would have led to the depression of house-building generally.

Firstly, investment into railways provided an obvious alternative to investing in mortgages. Since mortgages were the principal method of financing house-building, any squeeze on the supply of funds through this channel could well have had a severely depressing effect upon the house-building industry. Railway demands might have reduced the supply of credit to builders in other ways. Faced by the voracious demands of the railway builders the suppliers of important building materials would have been less ready to offer generous credit terms to their builder customers. In the field of bank credit the experience of the provincial banks in 1846 and 1847 is important to notice. Several provincial bankers complained that their deposits had fallen when the expansion of railway investment caused their depositors to draw out their savings to pay calls on railway shares.<sup>1</sup> A contraction of this kind, if it were sufficiently widespread in its effects, would have had a significant impact upon the supply of credit to builders. Each of these pressures would naturally lead to a rise in the cost of credit to builders and depress their activities. Taken together such a series of pressures on the supply of finance and credit to builders could well have been the cause of the lower level of house-building activity in the 1840s.

Although such an hypothesis has several attractive features it is one that has been rejected by Cairncross and Weber: in its place they have put forward an alternative hypothesis which explains the existence of a general depression in building activity side by side with the building boom in London in terms of the long-term trends in the demand and supply of houses in London and the provinces. These writers argue that a comparison of the

---

<sup>1</sup> These points are discussed in detail in Chapter VII below.

growth of net housing stocks with the growth of population indicates that the demand for and supply of housing space moved more or less parallel with each other in each decade between 1801 and 1851, and that the lower level of house-building in the 1840s appeared in response to the slower growth in population experienced in that decade.<sup>1</sup> They also argue that in London, variations in population growth rates and in the net increase in housing stocks fell out of step with corresponding movements in the rest of England and Wales after the 1820s. Thus, whilst population and housing stocks grew rapidly in the rest of the country in the 1830s, in Middlesex they grew more slowly; in the following decade the positions were reversed so that the slower rates of growth experienced in the rest of England and Wales met with much higher rates of population and housing growth in Middlesex.

An important factor which Cairncross and Weber also take into account is the effect which the stock of empty houses at the beginning of each decade had upon house-building in the following ten years. They argue that part of the reason for the sharp fall in provincial house-building in the 1840s was that by 1841 the proportion of empty houses in the total housing stock of England and Wales (excluding Middlesex) had become abnormally large. This alone would have produced some check to house-building in the following decade, but when taken in conjunction with the slower rate of growth of population it was bound to produce a sharp fall in the rate of growth of demand for additional housing space. In London, on the other hand, the supply of houses had grown much more slowly than population in the 1830s. By 1841 stocks of empty houses were low by the standards of the rest of the country. Thus, in the following ten years, when the rate of population growth in that city increased sharply, the increase in demand for additional housing space was high and house-building in the city benefited accordingly.

---

<sup>1</sup> Cairncross and Weber, *op.cit.*, pp.329-331.

An examination of the growth of Liverpool's population and housing stocks suggests that similar factors account for the prosperity of building in that city during the 1840s. During the previous decade house-building in Liverpool lagged behind the growth of its population and by 1841 the stock of empty houses amounted to only 3.2 per cent of the total stock, compared with an average of over seven per cent for the rest of Lancashire.<sup>1</sup> In the ten years following the rate of growth of population in the district increased sharply (largely, no doubt, as a result of the Irish immigration) with the result that there was a sharp increase in the rate of house-building in the city.

A detailed examination of local experience in England and Wales during the 1840s<sup>2</sup> reveals that there were numerous factors such as the level of industrial activity in the region, or the passage of new building bye-laws, that could have a marked influence on house-building in any given town or region. Nevertheless, it is still clear that forces analysed by Cairncross and Weber determined the overall level of house-building during our decade. The level of economic activity generally had a wider impact than at the merely local level and, so far as year to year changes in the level of building activity is concerned, it was probably this factor more than any other that determined how prosperous or how depressed the industry was, given the broad framework set by population growth and existing housing stocks. This point has been made strongly by Lewis, and given the check to industrial activity at the end of 1845, and the financial difficulties of

---

<sup>1</sup> Based on returns contained in the Census of 1851, as quoted above. In this chapter Liverpool is taken to include the surrounding district of West Derby.

<sup>2</sup> Of the type made by J. Parry Lewis in his book, *Building Cycles and Britain's Economic Growth*, (New York, 1965); especially Chapter IV.

of 1847, it is not too much to suppose that house-building fell sharply in these two years as the experience of Liverpool suggests.<sup>1</sup>

The pressures discussed in the foregoing pages account for most of the major features in house-building activity during the 1840s, and the need to call upon the effects of railway building to account for them is slight. Nevertheless, it is still possible that the problems of funding railway investment at the peak of the building boom had a larger impact upon the industry than Cairncross and Weber or Lewis have allowed. It is difficult not to believe, for example, that many potential mortgage investors were attracted to buying railway shares during the share boom of 1844-5. When these people were called upon to pay calls on their shares during 1846 and 1847, the supply of funds for mortgages would have been correspondingly reduced. During these years there was also a rise in the cost of building materials brought on, no doubt, by the sharp increase in demand due to railway construction.<sup>2</sup> These developments could only reinforce the depressive tendencies on house-building that were developing in these years.

The main effect of railway investment on house-building, however, was probably felt in a way which historians have not yet recognized but which may be seen in the difference between London's experience and that of Liverpool in the years 1846 and 1847. It has already noticed how house-building in London moved to an extraordinary high peak during 1846 whilst the level of house-building in Liverpool fell in accordance with the recession which appeared

---

<sup>1</sup> Lewis, *op.cit.*, Chapter 4. See also appendix 10 in which Lewis reproduces a study by Bernard Weber of the relationship between house-building and the level of industrial activity in England and Wales. In this study Weber shows that between 1831 and 1860 annual variations in the level of house-building activity were highly correlated with changes in the level of industrial activity.

<sup>2</sup> K. Maywald, "An Index of Building Costs in the United Kingdom, 1845-1938", *Economic History Review*, 2nd series, VII, (1954), p.192.

in parts of the economy in that year. It is the argument here that this difference is explained, in large part, by forces set up in the banking system by processes involved in financing the railway investment boom.

In a later chapter it is argued that one of the most important roles played by railway investment in financial affairs between the last quarter of 1845 and the first quarter of 1847 was to transfer large cash balances from the provinces to London.<sup>1</sup> During that period the railway companies called in capital from their shareholders in advance of their expenditure building up large deposits in the hands of their London bankers. At the same time the effect was to reduce the volume of deposits held in provincial bank accounts. It was the loss of these deposits that the provincial banks complained so loudly about in 1846. The transfer had a twofold effect on the supply of money and credit: in London it helped to create a condition of easy money which lasted throughout most of 1846; in the provinces it caused a restriction in some forms of banking facilities. It is the spilling over of these conditions into the market for builder's credit and capital that may help to account for the extraordinary peak in London's building activity in 1846, and which may give added reason for the depression in Liverpool's house-building in the same year.

The links in this process may only be guessed at as yet, but they do seem to be fairly clear. In the provinces the effect of a decline in bank deposits would have been to tighten the supply of funds and credit to builders from all sides and to reinforce the depressive conditions which prevailed fairly widely in that year. In London, on the other hand, credit conditions eased considerably once the railway deposits crisis of January 1846 had passed. For the rest of the year London banks and other lending institutions were generally full of money which they were anxious to make

---

<sup>1</sup> See Chapter VII below esp. pp.281-287.



available to borrowers. Even if banks did not lend directly to builders, the easy credit conditions which the railway deposits were creating in the capital must have found many ways to the house-building sector. In the climate of demand for housing in London, with its huge influx of people and limited stock of empty houses, such an easing of credit was highly suited to boom conditions. It is not surprising, therefore, that house-building in 1846 should have been the highest recorded since the middle 1820s.

In the following year a severe balance of payments deficit caused by the massive imports of corn set in train a general contraction of credit and a rise in interest rates which reached its peak during the crisis of October 1847. Such developments were bound to adversely affect building in all parts of the economy, but in London they were reinforced by the outflow of railway funds from the London Banks. Unable to maintain an inflow of investment funds equal to current expenditure, the railway companies were forced to draw upon reserves built up over the previous year. By August, 1847 these were virtually exhausted with the result that the London banks themselves were forced to contract their lending facilities even more severely than might normally have been expected. It is not difficult to believe that it was this shift in credit facilities which brought London's building boom to a sharp halt in 1847 and that the number of houses built should have fallen from nearly 7600 in 1846 to only 4664 a year later.

That it was monetary factors rather than anything else which brought London's boom to a halt at the end of 1846 is confirmed in a rather different way. In 1841 the average number of persons per inhabited house in England and Wales excluding London was 5.2 and, though no individual county exceeded more than 5.8 persons per inhabited house, in London the rate was 7.4 persons. Even in overcrowded Liverpool the rate was only 6.6

persons. By 1851, however, London's position *vis-a-vis* the rest of England and Wales had actually deteriorated to 7.7 persons per inhabited house compared with an average in the rest of the country of 5.2. In short, despite the boom in house-building experienced during the 1840s, London was still more overcrowded than any other major city in England and Wales and was, moreover, in a worse position than at the start of the decade. It is difficult to interpret this result in any other way than to say that the contraction in credit supplies, and rising interest rates in 1847 had brought London's boom to a premature halt. In the provinces, where the growth of population was slower, and where the decade had started with a much larger stock of empty houses, the development of credit restrictions in the second half of the decade did not have such an adverse effect upon the housing supplies.

In conclusion it may be asked how the experience of house-building described in this section accords with the general hypothesis advanced earlier in the chapter, namely that the low level of house-building experienced in the 1840s reflects a squeeze executed by railway investment on the supply of capital funds. Such an hypothesis in the light of the foregoing discussion, does not seem very plausible. The major factors determining the volume of house-building done in the decade, both in London and the provinces, were the growth of population and to a lesser though still important extent, the stock of empty houses at the beginning of the decade; while in its timing building activity was determined, in the main, by the level of income and activity in the rest of the economy. Within the boundaries set by these factors, however, there was still room for variations in the supply of capital and credit to influence the level of construction in any year. It is the extent to which railway investment affected these that allows us to say the demand for railway capital affected the house-building industry.

Table 17

Building in London, 1831-1849

Year	New Houses	Other Buildings	Surveyors Fees Paid on new houses £'s
1831	991	1014	
1832	614	1026	
1833	623	814	
1834	646	901	
1835	604	994	
1836	657	877	
1837	870	863	
1838	966	1083	
1839	1166	1066	
1840	1252	1125	
1841	1594	939	
1842	1603	1042	
1843	n.a.	n.a.	
1844	n.a.	n.a.	
1845	2144	1405	4674
1846	7393	2097	15625
1847	4664	1523	9413
1848	3292	1166	6564
1849	3834	1483	7680

Sources: B.P.P. 1847 (735.) LVII, p.79; 1851 (83.) XLVIII, p.31.

A.K. Cairncross and B. Weber, "Fluctuations in Building in Great Britain, 1785-1849", p.329.

In London, if not elsewhere, the effect appears to have been substantial; the flow of railway investment funds into and out of London banks does appear to have stimulated, and then retarded the level of house-building activity. Whether, on balance the net effect was to the detriment of house-building in the city is, as yet, impossible to say.

## II

### The Iron Industry

House-building is an industry in which some evidence of the adverse effects of railway investment might reasonably have been expected to be found; this and the next section examines two industries, iron manufacture and coal mining, both of which had a markedly different experience from that of house-building. In both industries growth was rapid throughout the decade, and until very recently, there was little controversy about the main sources of this growth; most historians accepted that it was the demand for iron for the railways which led directly to the expansion of the iron industry, and indirectly, to the growth of the coal industry. Even though recent work has caused the more exaggerated claims of these benefits to be modified, it is still generally accepted that any contribution which the railway boom of the 1840s may have made to the growth of British industry was felt more strongly by these two industries than by any others, and that the benefits obtained appeared to a greater extent in the 1840s than any other decade. Accordingly, any attempt to assess the role of railway construction in the crisis of 1847 must take into account the beneficial influences which the boom may have put upon these industries, and the extent to which it mitigated the effect and pervasiveness of the crisis on industrial affairs.

First to be considered is the iron industry. The outstanding feature in the history of the iron industry during the 1840s is the rapidity

of its growth. In the ten years from 1840 to 1849 the output of iron grew more rapidly than in any other decade of the century (barring the 1860s) and a good deal more rapidly than the average rate of growth experienced by the economy as a whole.<sup>1</sup> Over the decade as a whole total output in the industry expressed in terms of pig iron equivalent almost doubled, while in value terms it rose from an average of £19m per year in the first five years of the decade to about £34m per year between 1845 and 1849.

As may be seen from Figure 5 and Table 18 below this growth was not spread uniformly over the decade nor was it divided evenly over the different regional centres of the industry. Figure 5 shows that most growth took place in the first half of the decade, and that the years 1846-8 were years of depressed conditions. So far as the regional distribution of the growth was concerned it may be seen that although three centres, Scotland, South Wales and South Staffordshire accounted for between 70 and 80 per cent of total output in most years, the share did not always remain the same. In Scotland, where growth was more sustained and more rapid than in the other major centres, the share of output increased from 17 per cent in 1840 to 27 per cent in 1847 and 29 per cent in 1852. In the Midlands, where growth was confined to the period after 1847, the relevant proportions were: 1840, 28 per cent; 1847, 16 per cent; and 1852, 27 per cent.<sup>2</sup> In South Wales, a region very much affected by railway demands, growth was confined to the middle years of the decade while the closing years were years of depression and falling output. Here, despite the rapid growth of the railway

---

<sup>1</sup> All estimates in this paragraph are taken from P. Deane and W.A. Cole, *British Economic Growth*, pp.244-6.

<sup>2</sup> Estimates of output exist for South Staffordshire and Worcestershire for the year 1846. In that year output in the region reached 500,760 tons. (A. Birch, *The Economic History of the British Iron and Steel Industry, 1794-1897* (1967), p.133).

years, the proportion total British output produced fell fairly continuously from 36 per cent in 1840 to 30 per cent in 1847 and down to 25 per cent in 1852. Finally, the North-East, though still a minor centre of iron production, was by far the most rapidly growing centre of the iron industry and was already showing promise of the spectacular expansion to be achieved in the 1850s and 1860s. Here, as in South Wales, the most rapid growth appeared in the middle years of the decade.

Table 18

Regional Distribution of the Iron Industry: Great Britain,  
1840-1852, by Output. (in '000s tons)

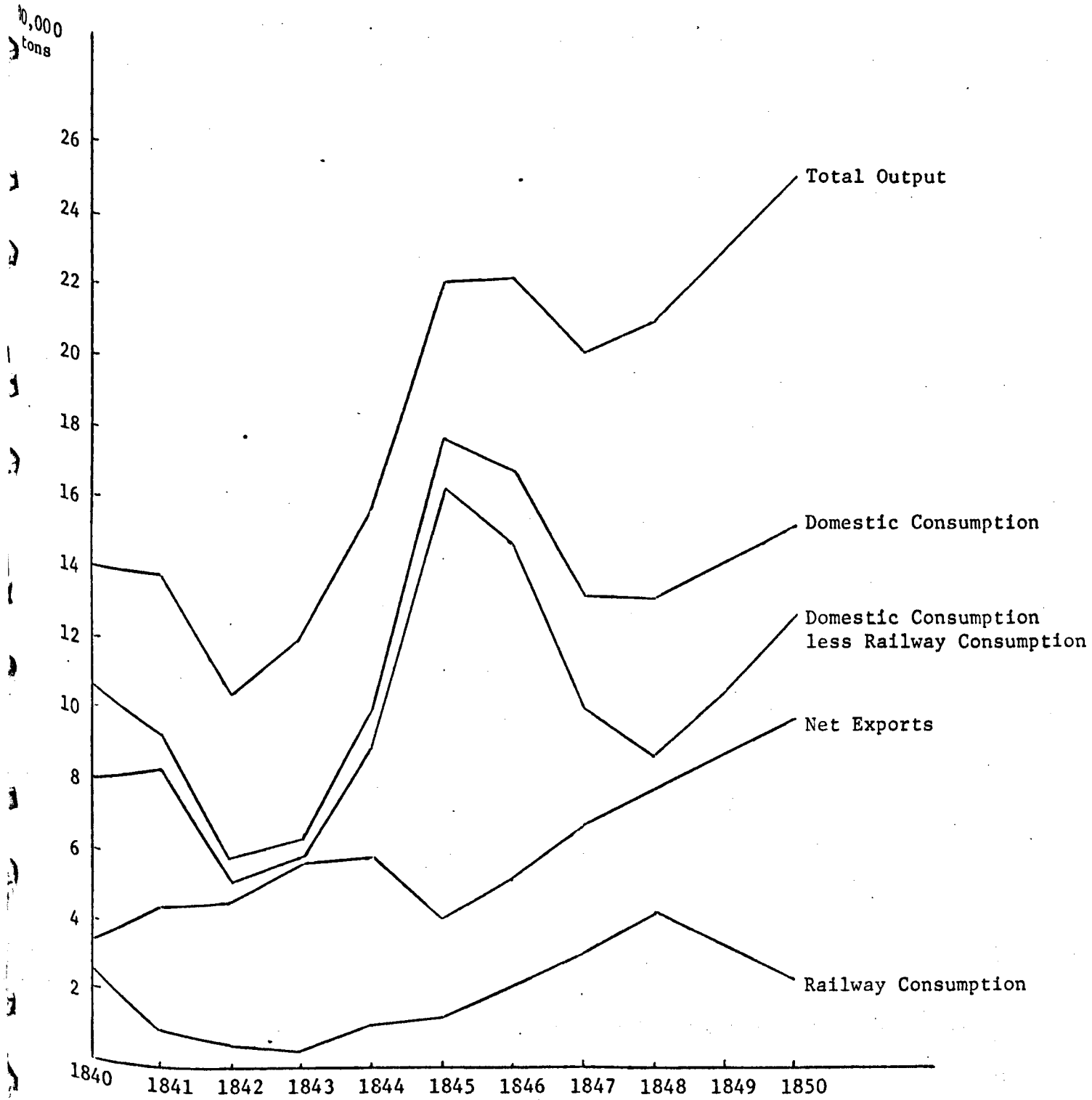
District	1840	1843	1847	1848	1852
Forest of Dean	16	8	-	-	-
South Wales	505	457	707	631	666
North Wales	26	20	16	22	30
North East	11	26	100	94	145
Yorkshire	56	42	68	60	150)
Derbyshire	31	26	95	78	
North Staffs	21	22	66	67	90
South Staffs	407	300	320	466	725
Shropshire	83	76	88	111	120
Scotland	241	239	540	564	775
TOTAL	<u>1397</u>	<u>1216</u>	<u>2000</u>	<u>2094</u>	<u>2701</u>

Sources: G.R. Porter, *Progress of the Nation*, (1851 ed.), p.269.  
R. Meade, *Coal and Iron Industries of the United Kingdom*,  
(1882), pp.836-7.

Figure 5

Iron Production and Consumption in the United Kingdom  
1840-1850

(Expressed in Pig Iron Equivalents)



Sources: Table 20 below, p.167.

Unlike the previous decade, growth in the iron industry was not achieved by any striking advance in technique. Though some advances were made in blast furnace technique during the 1840s, there was nothing to compare with the introduction of the hot-blast which revolutionized the Scottish industry in the 1830s, or with the growth in the size of individual blast-furnace capacity which was to have such a striking effect in the North-East during the 1850s and 1860s. Most of the gains that were made were confined to the extension of the hot blast to areas like the Midlands which had hitherto ignored it, and to some small, but still important advances in the size of furnaces.<sup>1</sup>

. In the absence of advances from the supply side of the industry most of the growth achieved in the 1840s came in response to developments in demand. As may be seen from Figure 5, the most significant advances appeared in export markets and not, as has often been suggested, from the growth of railway demand in the domestic market. Thus, between 1840 and 1850 exports increased from 330,000 to 979,000 tons, an overall increase of 190 per cent. Compared with this the fifty per cent rise in domestic consumption, including that going to railways, looks quite sedate.

The increase in the volume of iron exported is remarkably steady throughout the decade and in only one year, 1845, did the absolute volume of iron exports fall. In that year large demands on the domestic market, coupled with a speculative increase in iron stocks, appears to have resulted in iron which would normally have gone to exports being diverted onto the home market. Despite the growth of export volumes the *proportion* of total iron supplies going to exports fluctuated a great deal. In some years it accounted for only nineteen per cent of total output, while in others it

---

<sup>1</sup> C.K. Hyde, *Technical Change and the Development of the British Iron Industry* (Ph.D Thesis, University of Wisconsin, 1971), (University Microfilms, Ann Arbor, 1972), pp.210-222.



amounted to as much as forty-seven per cent. The reason for this is not far to seek. On the domestic market the most striking feature of iron consumption is the magnitude of its fluctuations with the total volume of iron consumed varying as much as 78 per cent from one year to another. In the face of variations of this kind, the proportion of total output going to export was bound to fluctuate widely even though the amount exported increased steadily. The important point of this is that by maintaining their steady expansion exports not only led the overall growth of the industry, but they also provided a stable function in that growth. Without this the iron industry would have experienced much more severe fluctuations in its prosperity than were, in fact, experienced.

As a rule historians have considered that the main source of fluctuation in the domestic demand for iron during the 1840s appeared in the market for railway iron.<sup>1</sup> Clapham, for example, argued that "The railway demand, direct and indirect, dominated the home market ... Fluctuations in home consumption, so far as they can be ascertained, coincide closely enough with the flow and ebb of railway construction".<sup>2</sup> More recently B.R. Mitchell has argued that railways occupied "a truly dominant position" in the domestic market for iron between 1845 and 1847, and that "... by far the greater part (of output) was absorbed in the permanent way in Britain ...".<sup>3</sup> A glance at figure 5, indicates that even the more carefully worded claims of Mitchell have to be accepted cautiously.

---

<sup>1</sup> See for example H. Scrivenor, *History of the Iron Trade* (new ed. 1854) p. 295; Sir Lowthian Bell, *The Iron Trade of the United Kingdom*, (1886) pp.7-9; J.A. Clapham, *An Economic History of Modern Britain*, Vol. I, p.427; A.D. Gayer, W.W. Rostow and A.J. Schwartz, *Growth and Fluctuations of the British Economy, 1790-1850*, Vol. I, p.305; A Birch, *The Economic History of the British Iron and Steel Industry*, pp.218-24.

<sup>2</sup> Clapham, *op.cit.*, p.427.

<sup>3</sup> B.R. Mitchell, "The Coming of the Railway and United Kingdom Economic Growth", pp.326-7. (Words in parenthesis added).

Considered within the narrower context of the domestic market, it is probably true to say that the railways were the largest single domestic consumer of iron between 1846 and 1848, even though this sector never accounted for more than a third of total domestic consumption. Considered in the wider context of the total demand for the industry's products, domestic railway consumption never appears to have accounted for more than about one fifth of total output, and only on one occasion (in 1840) did it come to equal in importance net exports of iron. Indeed, in the years when railway demands are alleged to have reached the peak of their importance - i.e. 1846-1848 - domestic railway consumption of iron was equal to only half the net volume of iron exported.

Besides being considerably less important than foreign demand, it may also be seen from Figure 5 that variations in the level of domestic railway demand were not responsible for fluctuations in the aggregate domestic demand for iron, but that their main role was an anti-cyclical one, with variations in railway demand offsetting fluctuations elsewhere in the domestic market for iron. Thus, in 1840 and again between 1846 and 1848, when domestic demand for iron was otherwise depressed, the appearance of large railway orders did much to maintain aggregate domestic consumption. In playing this role the needs of the railway companies served to reinforce the supportive role played by exports in maintaining stability within the industry.

Apart from its anti-cyclical role, railway demand does not appear to have made any significant difference to the rate of growth of the industry *over the decade as a whole*. On the domestic market the consumption of iron, including the share going to railways, shows an average rate of growth of 3.37 per cent per year between 1840 and 1850. After excluding railway consumption of iron the rate actually rises to 4.31 per cent. Considered

within the context of the total demand for British iron, the effect upon average growth rates resulting from excluding iron consumed by railways in Great Britain is to emphasize even more the relative unimportance of this market to the growth of the industry as a whole over the decade.

Nor do railway demands figure prominently in the years of most rapid expansion in the industry during the 1840s. The two years of most rapid growth, 1844 and 1845 were years in which railway demands showed hardly any increase at all. On the other hand, demand for the traditional products of the iron industry grew rapidly. In these years industry generally was expanding vigorously and investment into new plant and machinery was high. If Birch's estimate that the cotton industry alone normally consumed about one-sixth of the output of the iron industry is even remotely correct, the cyclical recovery experienced in the textile industries between 1843 and 1845 must have formed an important source of increased demand for iron.<sup>1</sup> Investment and the growth of income in other sectors would have added strongly to this demand. Even in house-building, where activity was generally at a low level in the 1840s, it was still in these years that the bulk of any new building done in the decade was completed. With such building came a demand for numerous articles that went into the ordinary house; the kitchen range, fire-backs, locks, nails, pots and pans and the host of other metal products traditionally produced in the Midlands sector of the industry. As the towns grew the demand for iron for use in gas and water pipes, and in other utilities, as well as in the many public buildings that went up at this time, all increased.<sup>2</sup> It was the recovery of demand

---

<sup>1</sup> A. Birch, *op.cit.*, p.222.

<sup>2</sup> For example, the city of Liverpool alone ordered 30,000 tons of cast-iron water pipes in 1848 (R.H. Campbell, "Developments in the Scottish Pig Iron Trade, 1844-1848", *Journal of Economic History*, Vol. XV (1955) p.223).

for these goods, rather than the more spectacular demands of the railways, that brought prosperity to the iron industry during the middle years of the decade. Similarly, in 1849 and 1850 it was the general recovery of domestic industry's demand, coupled with rising foreign demand, which brought a renewed surge of growth to the industry despite the fact that domestic railway consumption was falling rapidly.

Nothing said so far attempts to deny the fact that railway demand was important to the prosperity of the iron industry; indeed, the anti-cyclical function of railway demand had, as we have seen, an important part to play in maintaining prosperity during the years surrounding the crisis of 1847. Besides railway demands had a number of other significant effects upon the iron industry. In 1845, for example, it was widely believed that the railways would want over a million tons of iron per year at the peak of the building boom and that severe shortages of all types of iron were likely to occur in consequence.<sup>1</sup> The speculation engendered pushed up prices to record levels and in the Scottish sector it sparked off a boom in blast furnace construction which resulted in the construction of twenty new furnaces before the end of the year.<sup>2</sup>

The most striking effect of railway demand for iron was, however, felt in South Wales and the North East. In his study of railways and economic growth in England and Wales, G.R. Hawke carefully traced a

---

<sup>1</sup> Lowthian Bell, *op.cit.*, p.7. Bell wrote, "In reality, I believe there never was during this period any actual scarcity of iron, for of Scottish pig along there was at the end of 1845 a quarter of a million tons in stock. These high prices were almost exclusively due to speculation fostered by interested parties, who persuaded the world, and perhaps persuaded themselves that the future demand for iron could not possibly be met and high rates were given for deferred deliveries of iron".

<sup>2</sup> R.H. Campbell, "Developments in the Scottish Pig Iron Trade, 1844-48", p.216; *Economist*, Dec. 20th 1845, p.1296.

large number of individual purchases of iron rails by each of the major railway companies from the 1830s to the 1860s.<sup>1</sup> His results clearly show that by the early 1840s the South Wales sector of the iron industry dominated the market for iron rails and that only in the North-East of England was this domination effectively challenged by a local industry. It is true that the demand for other types of railway iron - the castings for chairs for example - were placed indiscriminately among local iron producers, that locomotives and rolling stock were manufactured in other parts of the country, and that in the North-East all types of railway iron including structural iron for bridges formed an important part of local output; however, all of these items together account for only a small part of the total quantity of iron produced for the railways. It was the demand for rails which formed the bulk of company purchases, and in the 1840s these purchases were made almost exclusively in South Wales or in the North-East.

The size of this demand compared with the combined output of South Wales and North East may be gauged from Table 19 below. There it may be seen that, at its peak, the demand for rails was equal to sixty-seven per cent of the combined output of the two regions. This does not mean that this proportion of capacity was tied up with railway work alone. In the North-East it may have been larger if all types of iron such as structural iron for railway bridges is included while in South Wales bar iron, once the traditional product of the region, was still important. However, there is no doubt that variations in the demand for iron rails for Britain's railways, and subsequently for railways all over the world, held the key to the prosperity of the South Wales iron industry. Nor is it particularly surprising that this sector should have come to rely so heavily upon railway demands. During the 1820s and 1830s the South Wales section of the industry

---

<sup>1</sup> G.R. Hawke, *Railways and Economic Growth*, Chap. VIII.

had not only produced the cheapest wrought iron of a quality well suited to making rails, but at an early stage in Britain's railway history, the region had gained a technological lead in the manufacture of rails which enabled them to capture the market entirely by the mid 1840s.<sup>1</sup>

Table 19

Railway demand for iron compared with the output of  
South Wales and North-Eastern England, 1840-1848

(expressed in pig iron equivalent)

Year	Production of Pig Iron in South Wales & N.E. England ( '000 tons)	Railway demand for rails as a % of Col. 1	Blast Furnaces in South Wales	
			Total	Working
1840	516	13.6	163	132
1843	483	17.8	-	-
1847	807	67.0	196	151
1848	726	54.0	196	139

Sources: Cols. 1 and 2: Calculated from figures given in Tables 17 and 19.  
Col. 3: A Birch, *The Economic History of Iron and Steel*, pp.130; 135.  
G.R. Porter, *Progress of the Nation*, (1851 ed.), p.269.

Apart from South Wales and the North East the rest of the iron industry appears, at best, to have been only indirectly affected by railway demands. In Scotland the industry depended for its prosperity on the growth of its export markets, while the readiness of the Scottish iron masters and merchants to store increasingly large stocks of iron during the periods of depressed demand was the main prop to rising output.<sup>2</sup> Railway demand accounted for a minute portion of Scotland's output except insofar as Scottish pig iron

<sup>1</sup> C.K. Hyde, *Technical Change and the Development of the British Iron Industry: 1700-1870*, p.202; M. Elsas, *Iron in the Making, Dowlais Iron Company Letters, 1782-1860* (1960), pp.XVIII-XIX, 115, 171-84; G.R. Hawke, *Railways and Britain's Economic Growth*, pp.215-217.

<sup>2</sup> R.H. Campbell, "Fluctuations in Stocks; a Nineteenth Century Case Study", *Oxford Economic Papers*, N.S. Vol. 9, (1957), pp.41-55.

was imported into South Wales for conversion into rails.<sup>1</sup> Exactly what proportion of iron was consumed in this way is not clear, though at times it may have been substantial even though South Wales produced considerably more of her own iron than she used for making rails. To this extent it may be said that railway demand did affect the industry, though it is difficult to detect this from the figures of Scottish output in table 18 above.

On one occasion, already alluded to in this section, railway demand does appear to have had an indirect effect on the Scottish industry. During 1845 exaggerated expectation of the future demand for railway iron acted to drive iron prices to record levels. Misled by these prices several Scottish iron masters were induced to invest into new blast furnaces.<sup>2</sup> The boom did not last the year out, but before it collapsed the construction of twenty new furnaces had been started. Apart from this, the railway building boom itself appears hardly to have affected the industry. The collapse in pig iron prices which had started at the end of 1845 continued for the rest of the decade heralding a period of mounting difficulties which were to continue well into the 1850s.<sup>3</sup>

In the Midlands experience was different again. Following a period of severe depression in the early years of the decade, output expanded rapidly between 1844 and 1846. In 1847 it slumped to levels ruling in 1840 and large numbers of furnaces were left standing idle. From the spring of 1848, however, output began to expand rapidly and from this time onwards the region entered

---

<sup>1</sup> Wray Vamplew, "Railways and the Iron Industry: A Study of their Relationship in Scotland", in *Railways in the Victorian Economy: Studies in Finance and Economic Growth* (ed.) M.C. Reed, (Newton Abbot, 1969), pp.52-54.

<sup>2</sup> R.H. Campbell, "Developments in the Scottish Pig Iron Trade 1844-48", p.216.

<sup>3</sup> *Ibid.*, pp.219-224.

a period of prosperity which lasted until the early 1860s. The boom in output between 1843 and 1846 brought with it no corresponding increase in investment in the region - such investment done in the 1840s was confined to the last two years of the decade - the increase in output between 1843 and 1846 being obtained merely by bringing into operation a large volume of out-dated equipment.

The timing of these fluctuations alone suggests the Midlands iron industry did not depend upon demand from the railways for its prosperity. The region was not, however, wholly unaffected by railway demands. During the speculation which had affected all types of iron in 1845 the Midlands industry benefited from the great improvement in iron prices, and in the following year when the demand for iron elsewhere was weakening, railway demand helped to maintain wrought iron prices at a fairly high level. In 1847, however, the region suffered a sharp depression even though railway demand for iron was then at its peak. By this time the fall of demand for the region's products in other markets was severe and, with the increasing difficulties in financial affairs, there occurred sharp fall in output in the region.<sup>1</sup> In South Staffordshire alone output fell from 500,706 tons in 1846 to only 320,000 tons in 1847, while the number of furnaces out of blast at the end of the year was the largest recorded since 1839.<sup>2</sup>

The burst of growth and prosperity which appeared in the Midlands after 1847 is a further pointer to the unimportance of railway demands in the prosperity of the region's iron industry. The causes of this recovery are not hard to find. For several years preceeding the mid fourties, the Midlands iron industry had been in difficulties. Partly fearing that it would reduce

---

<sup>1</sup> *Economist*, May 8th, 1847, p.537; Nov. 27th, p.1381. Trade Circular of M.S. Mahoney, quoted *Economist*, Jan 8th, 1848, p.35.

<sup>2</sup> A. Birch, *op.cit.*, p.133.



the quality of their product and partly because of innate conservatism, local iron masters had shunned the use of the hot blast and various other advances in iron making as a result the region had fallen behind other centres in technical ability. At the same time the region had increasing difficulty obtaining sufficient supplies of raw materials. Until the late 1830s this had been confined to iron ore, but by the early 1840s coal supplies also began to run out. The problem reached a crisis point in 1845, when, for several weeks during the height of the boom, a severe shortage of both raw materials forced large sections of the industry to a standstill and for a time it was feared that the industry would be forced to migrate from the region.<sup>1</sup> It is not surprising, therefore, that investment into the region's iron industry virtually stagnated during the first seven years of the 1840s. The surge of investment which took place after 1847 reflects the removal of these restraints. Once the immediate effects of the crisis had passed demand for the region's products grew rapidly. Indeed, so quickly did the industry recover from depression that the proportion of total blast furnace capacity actually in use rose from sixty-three per cent in 1847 to eighty-one per cent in 1848. At the same time the region began to feel the benefits of the railway system as new lines promoted and built during the boom came into operation and at last ensured a cheap and steady supply of raw materials for the region. Now, no longer dependent upon dwindling local supplies, the industry was free to expand and to update its blast-furnaces. Over the next four years average productivity of blast-furnaces in the region rose by over forty per cent, and the number of furnaces in existence increased by twenty-seven, more than twice the number built in the previous eight years.

In conclusion it may be said that railway demand for iron cannot be regarded as a major factor affecting the growth of fluctuations in the

---

<sup>1</sup> Scrivenor, *History of the Iron Trade*, p.300; Birch, *op.cit.*, pp.154-5.

Pig Iron Production and Consumption in the United Kingdom; 1840 - 1850(000's ton pig iron equivalent)

<u>Date</u>	1. <u>Output</u>	2. <u>Domestic Consumption</u>	3. <u>Exports- Imports</u>	4. <u>Railway Consumption</u>	5. <u>Domestic Consumption excluding railway consumption</u>
1840	1396	1058	338	259	799
1841	1388	941	447	104	837
1842	1046	587	459	62	525
1843	1215	641	574	49	592
1844	1575	996	579	126	870
1845	2200	1774	426	135	1639
1846	2214	1686	528	215	1471
1847	2000	1321	679	312	1009
1848	2094	1315	779	438	877
1849	2300*	1416	884	363	1053
1850	2500	1521	979	249	1272

\* My estimate based upon the simple average of the years 1848 and 1850.

Sources and Methods:

Col. 1 A. Birch, *The Economic History of the British Iron and Steel Industry*, p.124 (except year 1849).

Col. 2 Col. 1 minus col. 3.

Col. 3 Derived by multiplying exports of iron, steel and hardwares by a factor of 1.25 to convert to pig iron equivalents, and subtracting imports of iron and steel similarly multiplied. Imports and exports of iron and steel taken from B.R. Mitchell and P. Deane, *British Historical Statistics*, with exports corrected by the inclusion of hardwares wherever they were recorded by weight in the *Trade and Navigation Accounts*. The results probably underestimate exports relative to imports since a greater proportion of exports went in more highly manufactured forms than were imported and would therefore have had a higher pig iron equivalent. The error is probably not very large and does not affect the general argument in the chapter.

Col. 4 G.R. Hawke, *Railways and Economic Growth*, pp.258 - 9.

Col. 5 Col. 2 minus Col. 4.

iron industry of the 1840s. As a stimulant to growth, the effect of railway demand was limited largely to that section of the industry located in South Wales and in the North-East. As far as the rest of the industry is concerned, the demand for railway iron was, at most, only a marginal factor in their prosperity. Neither Scotland nor the Midlands produced significant quantities of railway iron, and in neither case did variations in the level of activity in these regions conform closely with changes in the demand for railway iron. In these two regions growth appeared largely as a result of their own individual response to specific sets of circumstances. Finally, railway demand has been seen not to have been responsible for cyclical fluctuations in the industry except in South Wales. Indeed, the evidence has been quite to the contrary: railway demand for iron moved anti-cyclically and thus helped to maintain overall demand in the industry when domestic demand in most other sectors was quite severely depressed.

### III

#### The Coal Industry

As in the iron industry output from the coal-mines enjoyed substantial growth during the 1840s, though the lack of adequate data precludes an exact statement of the rate of growth achieved in these years.<sup>1</sup> However, the figures produced by Deane and Cole suggest that output expanded somewhat more rapidly during the first half of the decade than in the second,

---

<sup>1</sup> Several estimates of coal output exist for the 1840s but these vary so widely and are built upon such precarious foundations that it is impossible to accept any of them with real confidence. The following estimates of coal production in the 1840s have been given by different writers: R.L. Galloway, *Annals of Coal Mining and the Coal Trade*, (1898), p.369, 1850, 34m. tons; J.R. McCulloch, *Statistical Account of the British Empire*, (1847), Vol. I, p.599, 1846, 38m. tons; J.H. Clapham, *An Economic History of Modern Britain*, Vol. I, p.43, 1844, 44m. tons; J.R.T. Hughes, *Fluctuations in Trade, Industry and Finance*, p.151, 1850, 51m. tons; P. Deane and W.A. Cole, *British Economic Growth*, p.216, 1840, 33.7m. tons; 1845, 45.9m. tons; 1850, 49.4m. tons.

and that over the period as a whole output increased by about forty per cent, or about half the rate experienced by the iron industry, coal's principal industrial consumer.

This lack of accurate statistical data precludes any discussion of the regional distribution of output since, with the single exception of the North-Eastern coal-field, little is known about the output of the other coal-fields around Britain. Even for the North-Eastern region evidence concerning output is still very patchy and rests mainly upon records of coal transported by sea from the coal-field. Although these account for a large part of the region's output they omit a substantial amount which left the region as land-sale coal, while a growing volume was consumed within the region itself. However, because the history of the North-Eastern field is more fully documented than that of any other field, a large part of attention here is concerned with its fortunes.

The most important event in the history of the North-Eastern Coal-field in the 1840s is the destruction, in May 1845, of the Vend, a cartel organisation of Tyne and Wear coal-owners, which had controlled the shipment of coal between Newcastle and London since the sixteenth century.<sup>1</sup> The immediate cause of the collapse was a quarrel which developed within the organization when its members gathered to correct their individual production quotas following the disruption created by the Great Miners Strike of 1844. Its real causes, however, were more deeply seated and an examination of these and of the consequences which followed the break-up will help to show a good deal of the history of coal production in this region during the 1840s.

---

<sup>1</sup> P.M. Sweezy, *Monopoly and Competition in the English Coal Trade, 1550-1850*, (Cambridge, Mass. 1938). Much of the following discussion draws freely from this work.

During the late 1830s the construction of several railway lines in the region led to a sharp reduction in the cost of operating coal mines and in transporting coal between the mine-head and the nearest port. As a result the area of the coal-field suitable for exploitation was vastly increased and a large number of new coal mines were sunk in the region.<sup>1</sup> To prevent coal from these new mines flooding their markets the original members of the Vend were forced to admit the new owners into the organisation, and to do so existing members were forced to accept severe reductions in their own quotas. The result was that by the early 1840s there was a vast amount of under-utilised capacity within the region. On the eve of the Vend breaking up the stock of capital equipment in the region was estimated to be capable of raising fifteen million tons of coal per year though the total supply of manpower available was probably incapable of producing much more than ten million tons in an average working year.<sup>2</sup> Of this total capacity, the aggregate amount controlled by members of the vend was about 8.5m. tons. At this time, however, members were limited to a quota of 44 per cent of their capacity for sale through the Vend, effectively limiting output in the region to between five and six million tons per year, including production of "land-sale" coals and coal used for local consumption. These conditions contrasted strongly with that which had prevailed only a few years earlier when, in 1837, the Vend's quota had been fixed at eighty per cent of the capacity of individual collieries and when coal prices were considerably higher than those ruling in 1844.<sup>3</sup> It is not surprising, in the conditions which prevailed in 1844, to

<sup>1</sup> For the history of investment into mining in the region during the 1830s see R.C.O. Matthews, *A Study in Trade Cycle History*, pp.156-7 and A.G. Kenwood, *Capital Investment and Economic Growth in North Eastern England*, (Unpublished Ph.D. Thesis, London, 1965), pp.84-8.

<sup>2</sup> These and the following estimates are obtained from Sweezy, *op.cit.* p.110; M. Dunn, *A View of the Coal Trade in the North of England*, (Newcastle, 1844), p.229; T.J. Taylor, *Observation Addressed to the Coal Owners of Northumberland and Durham on the Coal Trade of those Counties*, (Newcastle, 1846), pp.20-2.

<sup>3</sup> Dunn, *op.cit.*, p.229.

find many collieries which had previously been highly profitable operating at a considerable loss while holding large stocks of unused capacity.

Further tensions were created by the mistrust felt among the mass of small colliery owners against the managers of the Vend who, it was believed, were operating the organisation on behalf of the great mine-owners.<sup>1</sup> Such mistrust might have been overcome in time but with more than half of the capacity of the region standing idle it was only a matter of time before the Vend broke up.

The tensions were eventually exposed by the confusion which followed the Great Miners' Strike of 1844.<sup>2</sup> The strike had lasted nineteen weeks and had brought the owners together in a united effort to defeat the workmen, but once it was over all semblance of unity among the owners was lost. In May, 1845 the members of the Vend met together to adjust the "over" and "short" accounts of coal shipments from the various coal mines; and though most mines were short of their full vend, some owners, the most important of whom as Lord Londonderry, had clearly exceeded their allotted quota. When Lord Londonderry refused to correct his own position a bitter argument broke out and the Vend immediately collapsed. *The Economist*, itself strongly opposed to the Vend, wrote with undisguised satisfaction that the North-Eastern coal trade

"... will be settled by fair and honourable competition instead of, as heretofore, arbitrarily, and with only vague reference to the great laws of supply and demand. The coal owners will no longer be obliged to keep their machinery idle for ten days out of every other fortnight, and their pitmen ... will never think of striking if they get abundant employment, and even moderate wages. It is idleness, whether enforced or voluntary, which is the great father of mischief. We are glad, therefore, to find that for the present time there is to be an end of it in the coal trade."<sup>3</sup>

<sup>1</sup> M. Dunn, *A Treatise on the Winning and Working of Collieries*, (Newcastle, 2nd ed., 1852), pp.323-5.

<sup>2</sup> On the strike see F. Engels, *The Condition of the Working Class in England in 1844*, (English edition, 1892), pp.253-8.

<sup>3</sup> *Economist*, 17th May, 1845, p.455. The writer was James Wilson.

The collapse of the Vend allowed the enormous latent capacity of the industry to be utilised, and in the two or three years following output expanded rapidly. But the increase brought no improvement in profitability to most of the producers of coal in the region. Indeed, prices of most types of coal fell more severely than had been anticipated, and even the most efficient collieries producing best household coals experienced losses.<sup>1</sup> Attempts were made to reconstruct the Vend, but the difficulties were too great to overcome, and in any case the basis of the Vend, the almost complete monopoly of the London and East Coastal coal trade, was about to dissolve under the impact of the railways.

Surprisingly, these new conditions did not bring investment into coal-mining in the region to a complete halt. Indeed, it has been estimated that the total sum invested into coal-mining in the region between 1844 and 1854 amounted to between three and four million pounds compared with the five millions invested between 1835 and 1842.<sup>2</sup> However, most investment went into mines in South Durham and not into those areas producing household coal, the traditional product of the North East.<sup>3</sup> Investment in these years went mainly into the exploitation of "small" coals suitable for coking, gas making, steam and other industrial coal, all of which had a rapidly growing national and local demand. It was the growth of this trade, in which the

---

<sup>1</sup> M. Dunn, *A Treatise on Collieries*, p.326. Sweezy, *op.cit.*, pp.127-8.

<sup>2</sup> Kenwood, *op.cit.*, pp.91-2.

<sup>3</sup> R.L. Galloway, *op.cit.*, pp.9-17; Kenwood, *op.cit.*, p.81. Of the development of the coking trade in the 1840s Dunn wrote, "The extraordinary increase of the coke trade from the county of Durham deserves special attention, inasmuch as many large collieries in the Tanfield, Brancepeth and Crook districts are being worked for making coke for the home trade and foreign consumption; and it is no unusual thing for a single colliery to possess 300 or 400 (coking) ovens." (M. Dunn, *A Treatise on Collieries*, p.327.)

North-East quickly became the principal centre of production, that prevented the coal industry in the region from becoming altogether depressed in the middle and late 1840s and which enabled many small mines to retain their place after the Vend had collapsed. As it was, the sight of these mines producing low quality, easily worked coal profitability and even attracting new investment, while mines producing best household coals were operating at a loss was a bitter thing for many coal owners to swallow.<sup>1</sup>

Elsewhere in the industry the production of coal appears to have grown fairly quickly, though the lack of statistical evidence as to the degree and pattern of this growth greatly limits what can be said on these points. In South Wales investment into mining, and the growth of output appears, as in the iron industry, to have expanded rapidly during the mid 1840s and Galloway reports that ten new coal mines were opened up in the region by 1846 and 1847.<sup>2</sup> Other indicators tell a similar story. The volume of coal carried on the Taff Vale Railway between Merthyr and Cardiff increased from 41,669 tons in 1841 to 594,222 tons in 1850, whilst coal exported and sent coastwise from collieries in South Wales (including Monmouth) grew from 1.4m. tons in 1840 to 2.1m. tons in 1851.<sup>3</sup> Consumption within the region must also have grown rapidly. Here the demands of the local iron industry were very large. In 1840 the industry consumed between two and two-and-a-half million tons of coals, while at the height of the railway boom in 1846 the production of pig iron alone would have absorbed something in the region of 2.1m. tons, with a similar amount being used to convert pig iron to rails

---

<sup>1</sup> Galloway, *op.cit.*, pp.362-3.

<sup>2</sup> *Ibid*, p.18.

<sup>3</sup> J.H. Harris and L.J. Williams, *The South Wales Coal Industry; 1841-1945*, (Cardiff, 1958) p.32.



and other wrought iron products.<sup>1</sup> Thus, at the height of the railway boom between four and five million tons of coal were used in the production of iron alone besides all the coal used in copper smelting and various other local domestic and industrial uses, and that which was exported from the region.<sup>2</sup>

Evidence relating to coal production in other regions is relatively scarce compared with that available for the North East or South Wales. Table 21 summarises this evidence. These figures suggest considerable expansion of output during the 1840s except in the case of Scotland. In Scotland, however, local consumption by the iron industry absorbed the bulk of coal produced in the region, in which case it may be reasonably estimated that the industry consumed between 800,000 and 850,000 tons of coal in 1840, and about 2,200,000 tons by 1850 for pig iron production alone. On this basis expansion of output during the decade and its attendant rise in investment into coal mining must have been considerable. Similar experience must have been met with by the coal industry in most of the smaller coal-fields where local demand for iron production provided the bulk of demand. So far as this demand was growing, the coal industry itself would have grown accordingly. To attempt more than this in the absence of better statistical data would be unwise.

---

<sup>1</sup> *Ibid*, p.7. Estimates of local consumption by iron producers in 1847 are calculated on the basis of figures given in Table 18 and on the assumption that 3.5 tons of coal were used to produce one ton of iron. This estimate can be found in a number of contemporary sources.

<sup>2</sup> Harris and Williams, *op.cit.* estimate that in 1840 the total demand for coal for local uses outside of the iron industry amounted to about one million tons. Although some growth in these areas must certainly have taken place between 1840 and 1847 it seems unlikely that it was anything like that experienced in the iron industry. On this basis, and taking into account coal shipped out of the region, the total output of the industry in 1847 would have amounted to between 7.5m. and 8m. tons, compared with between 4m. and 4.5m. tons in 1840.

Table 21

Coal Shipments from various Coalfields in Great Britain: 1842, 1845 and 1850  
(000 tons) .

<u>Date</u>	<u>Lancashire</u>	<u>Derbyshire</u>	<u>By Rail</u>	<u>Scotland</u>
	<u>Exported and Shipped</u> <u>Coastwise</u>	<u>Shipments down the</u> <u>Erewash Canal</u>		<u>Exported and Shipped</u> <u>Coastwise</u>
1842	291	410		880*
1845	291	334		1096
1850	544	335	251	800

\* (1840)

Source: R. Meade, *The Coal and Iron Industries of the United Kingdom*, (1882), pp.84, 105 and 275.

To summarise: the production of coal appears to have grown fairly rapidly in the 1840s, and though it is difficult to give any precise idea of the timing and extent of that growth, the evidence suggests that output may have grown somewhat faster in the first half of the decade than in the second. At the same time investment into coal mining probably grew at a slower pace than did output. While the evidence is still far from conclusive, two principal factors appear to account for this. First, the expansion of capacity in the North-East during the 1830s, and the subsequent collapse of the Vend which allowed that capacity to be used, resulted in a sharp expansion of output in the mid 1840s without requiring a proportionate increase in investment. Second, the growth in the demand for coal by industries such as the iron industry was confined mainly to the years 1843 to 1845 when those industries were expanding most rapidly. After 1845 a cyclical downswing in the economy began to affect many industries and, together with the slower rate of growth experienced in the iron industry, must have acted to depress the rate of growth of the demand for coal. Until industrial recovery returned in 1849, the loss of demand would have checked to some extent further growth in coal production.

Finally, there are a number of resemblances between the coal and iron industries in these years which deserve notice. In both industries the period of most rapid growth appeared in the first six or seven years of the 1840s. Similarly, in both industries there were distinct regional differences in behaviour derived from the effects of local factors. In neither case, except perhaps in parts of the North-Eastern coal-field, were the industries unduly depressed between 1846 and 1848: nor do there appear to have been any serious difficulties in obtaining funds for investment whenever they were needed. Where investment did lag in the coal industry, as it did in parts of the North-East, it did so for reasons that were specific to that region and not because funds were difficult to obtain. The fact that investment went ahead without difficulty in those parts of the coal-field where small coals and steam coals were produced is a good indication of this.

#### IV

#### The Cotton Industry

The last major industry to be considered is the cotton industry. This was by far the largest of Britain's manufacturing industries in terms of numbers of workers employed, contribution to G.N.P. and in terms of its contribution to imports and exports. The industry was also probably the largest single customer of the engineering industry, as well as being an important consumer of the products of the iron and building industries. For these reasons activity in the cotton industry played a vital part in the stability and prosperity of the entire economy and it is not surprising that the severe depression into which the industry fell in the crisis year of 1847 should have occupied a prominent position in contemporary analysis of the origins of the crisis.

By the mid 1840s the cotton industry had already taken on more or less all of its late nineteenth century characteristics.<sup>1</sup> It had already established a pattern of location that was to remain unchanged, except in minor ways, to the present day. In all major respects cheap coal and ready access to Liverpool and Manchester were the major determinants of location and it is not surprising to find that over eighty per cent of the industry's capacity was located on the Lancashire coalfield. However, the modern characteristic of regional specialisation by process was still in its developmental stages. The greater proportion of the industry's output came from a minority of large mills which combined spinning and weaving. These mills had grown rapidly in number since 1825, and though in all districts they remained in the minority they were, on average, about three times larger than those firms engaged solely in spinning or weaving. Even so, the tendency towards the regional specialization that was to become such a feature of the industry in later years was never wholly obscured and even during the 1840s, when the combined mills reached the peak of their importance, tendencies towards regional specialisation can still be detected. Thus weaving tended to be more concentrated in the towns north of Rossendale, while spinning predominated in the south, and especially in the towns of Bolton, Rochdale and Wigan. Nevertheless, at the beginning of the decade the region of greatest concentration of power-looms was in the area south of Manchester in Stockport, Hyde and Staleybridge where the combined mills contained large numbers of power-looms. In the following ten years however, the centre of powered-weaving began to shift northwards and it is this decade that saw the beginning of the development of specialist weaving firms in the north.

---

<sup>1</sup> The subsequent discussion on structure and location is based upon H.G. Rogers, "The Lancashire Cotton Industry in 1840", *Transactions of the Institute of British Geographers*, XXVIII (1960), pp.135-53; A.J. Taylor, "Concentration and Specialisation in the Lancashire Cotton Industry, 1825-1850", *Economic History Review*, 2nd Series, Vol. I (1948-9) pp.144.

Technically, the industry was the most advanced of the textile industries as well as the most completely mechanized of Britain's manufacturing industries at the beginning of the 1840s. While the spinning and finishing processes were carried on entirely within the factory, steam power and mechanized weaving were about to complete the destruction of hand-loom weaving. Although the number of hand-loom weavers probably reached a peak in some areas like Rossendale in the early 1840s, the long depression and intense competition from powered looms during the depression of 1838-42 was critical for the bulk of handloom weavers, and from the 225,000 believed to be working in the mid-1830s their numbers had fallen to only 60,000 by the mid-1840s.<sup>1</sup> All the coarser types of cloth had been abandoned to power-looms by the late 1830s, and it was only in the finer, fancy cloths that the hand-looms could compete with the power-looms by the 1840s. Even here the hand-loom weavers were under constant pressure to accept lower wages, and by the end of the decade the hand-loom weaver was a comparative rarity in the Lancashire industry.

Figure 6 shows the rate of consumption of raw cotton, and the estimated value of cotton goods produced in each year between 1840 and 1850. Together, these may be taken as fair indicators of the level of activity in the industry, though because manufacturers could and did switch between finer and coarser grades of yarn and cloth according to the state of the market and the cost of raw materials, the rate of consumption of cotton and the value of goods produced could change substantially without there being any marked change in the level of activity or the number of hours worked in the industry.<sup>2</sup>

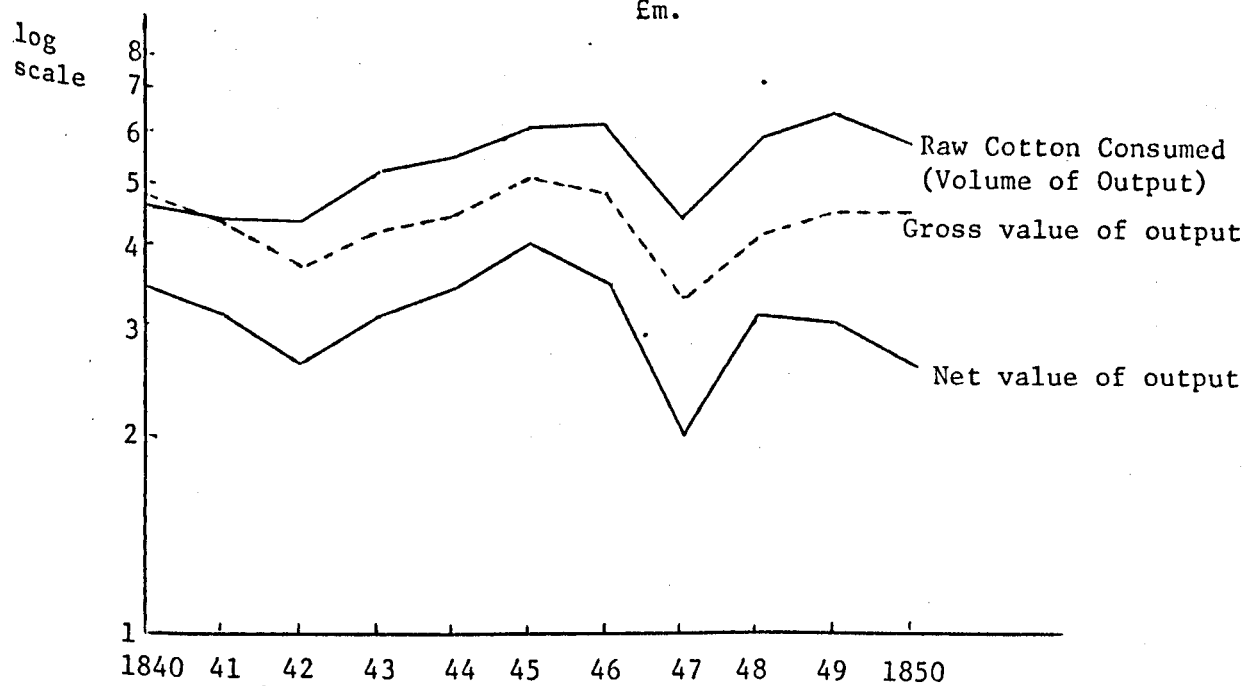
---

<sup>1</sup> For a more detailed account on the decline of the handloom weavers in the late 1830s and early 1840s see D. Bythell, *The Handloom Weavers: A Study in the English Cotton Industry During the Industrial Revolution*, (Cambridge, 1969), Chapter II.

<sup>2</sup> J.A. Mann, *The Cotton Trade of Great Britain, its Rise, Progress and Present Extent*, (1860), p.89.

Figure 6

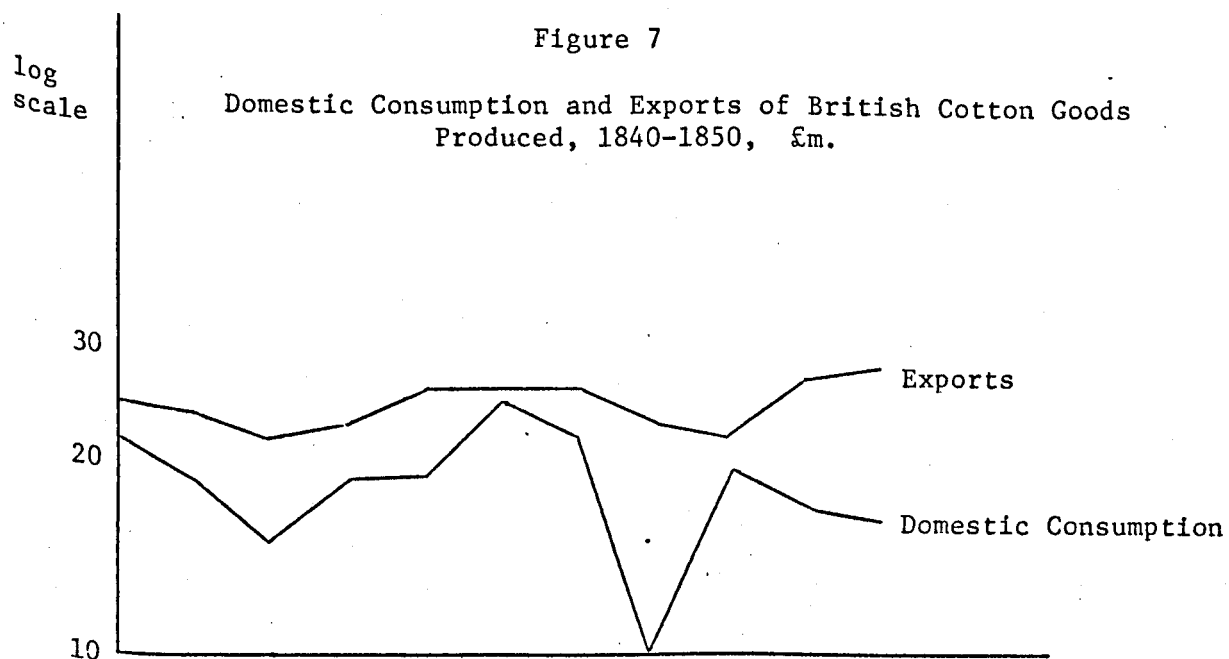
Raw Cotton Consumed and Estimated Value of Output of the British Cotton Industry, 1840-1850  
£m.



Source: Table 23 below.

Figure 7

Domestic Consumption and Exports of British Cotton Goods Produced, 1840-1850, £m.



Source: Table 23 below.

Nevertheless, these figures are probably a more accurate guide to activity than is available for most other industries in the decade and for this purpose they tell a straightforward story. Following the depression of the early 1840s output began to increase in volume and value in 1843 and reached a peak in 1845-6. In 1846-7 output fell steeply - output in value terms falling in the former year, volume in the latter - to a point where the net value of output was below that achieved during the depression of 1842 while the volume produced only just exceeded that level. Following a sharp recovery in 1848 both the volume and gross value output began to stagnate so that neither series regained the preceding peak of 1845-6 until 1851 and 1852 respectively. The aggregate net value of output, after a rather less successful recovery in 1848, entered a fresh decline and did not regain its former peak until 1853.<sup>1</sup>

Considered in the context of the long run growth of the cotton industry the growth of output in the 1840s was poor with the decade experiencing the lowest average annual rate of growth for any ten year period in the forty-five years between 1815 and 1860. As may be judged from figure 6 responsibility for this must lie firmly with the failure of output to make any significant recovery from the depression of 1847 until the 1850s. In contrast, during the first half of the decade the industry experienced a growth performance barely distinguishable from that established since the 1820s. In view of what some critics of the railways have said about the retarding effects of railway investment activity on other parts of the economy, the poor output performance of the cotton industry after 1845 is striking. Whether the growth of cotton goods production was adversely affected railway demand for investment funds in the later 1840s is a question to be considered later in this section.

---

<sup>1</sup> M. Blaug, "The Productivity of Capital in the Lancashire Cotton Industry during the Nineteenth Century", *Economic History Review*, 2nd Series, XIII, (1960-61), p.376.

The distribution of output between the domestic and export markets is shown in figure 7. There it may be seen that although both series moved more or less together - at least until the closing years of the decade - fluctuations in domestic consumption of cotton goods were of a much greater amplitude than those experienced by exports. This conforms with the iron industry's experience where the state of demand in the domestic market, rather than the demand for exported goods, was the principal determinant of year to year fluctuations in aggregate demand for the industry's products. Thus, for example, the recovery of domestic demand in 1843 was the main source of increased aggregate demand following the depression of 1841-2. Similarly, when the economy began to drift into depression in 1846, and when demand for cotton goods collapsed in 1847, it was on the domestic market that the severest part of the fall was felt. Exports, on the other hand, performed a stabilising function just as they had done for the iron industry. Thus, at the height of the boom in 1845 exports remained unchanged, while any additional goods produced went to the home market. Conversely, during the last four years of the decade, when domestic demand for cotton goods remained more or less chronically depressed, it was the buoyancy of exports which prevented aggregate demand for cotton goods from falling steeply. In 1847, the crisis year, it was only because exports were reasonably well maintained that the industry was able to avoid a complete collapse in demand for its goods. Although the distribution of sales between the domestic market and exports described above suggests that producers found it relatively easy to switch between the two markets if either sector was especially depressed, the weakness of domestic demand after 1846 continued to be a major source of difficulty for the industry until the 1850s.

Before looking in detail at the experience of the cotton industry during the crisis year of 1847 it will be useful to examine briefly the



behaviour of investment and general prosperity during the more prosperous years between 1843 and 1846 as events in these years help to explain much about the depression which followed.

The period 1843 to the last quarter of 1845 was one of unqualified prosperity for the cotton industry. Recovery from the depression of 1841-2 came earlier to the cotton industry than most other industries and as early as the second half of 1842 there were signs that a recovery was under way.<sup>1</sup> These signs were premature however, and the appearance of political disturbances and strikes in the summer of 1842 was enough to halt the improvement until 1843. By the spring of 1843 the signs of improvement were unmistakable; demand for cotton goods began to improve both in the domestic market and overseas, output increased, unemployment began to fall quickly, and profits began to rise.

Although some contemporaries emphasised the improvements in foreign demand in 1843 following the end of war in China and North India, figures for goods sold on the home and foreign markets clearly show that it was the improvement in domestic demand which provided the main source of increased demand in 1843.<sup>2</sup> In that year demand for most industrial goods improved on the domestic market following the sharp fall in food prices at the close of 1842 and cotton goods, as might be expected, benefitted strongly from this improvement. In 1844 further growth of demand for cotton goods was based almost entirely on the growth of exports - especially to the Far East - while the domestic market, by this time probably somewhat over-stocked by large orders made in 1843, tended to stagnate.<sup>3</sup> Finally, in 1845 there

---

<sup>1</sup> T. Ellison, "Great Crises in the History of the Cotton Trade", *The Exchange*, Vol. II 1863, p.48; *Circular to Bankers*, 6th Jan. 1843, p.250.

<sup>2</sup> *Circular to Bankers*, 6th Jan. 1843, pp.250-252.  
By the end of the year the *Circular to Bankers* came to recognize that the growth of demand on the domestic market had been far more important than export demand in the recovery of 1843, e.g. Nov., 3rd, 1843, pp.147-8.

<sup>3</sup> *Economist*, August 31, 1844, p.1167.

was a further expansion of demand for cotton goods in the domestic market as general demand moved ahead strongly. Exports, on the other hand, stagnated. In some of the more important markets like China and India there were complaints of overstocking and falling prices, and by the second half of the year exports to many countries began to decline.<sup>1</sup> Nevertheless, vigorous growth in the home market ensured that the industry remained prosperous.

Along with increasing demand and rising output, the cotton industry began to experience a steady improvement in profit margins. Almost from the beginning of 1843 large sections of the industry were described as prosperous and profitable.<sup>2</sup> In 1844 profit margins increased further, and 1845 was regarded on all sides as one of the most profitable years in the history of the trade: Manchester, it was said, was in a state of 'prolific prosperity', and even the hand-loom weavers who still existed felt some improvement.<sup>3</sup>

The increased prosperity of these years can in part be explained by the improved demand and the increase in output. Increased demand helped to stem the fall in finished goods prices that had developed in 1841 and 1842 and even allowed a small increase to take place - especially in cotton yarn. At the same time, the increase in output itself led to improved profitability by allowing firms to return to full production and thus to spread the large burden of fixed overheads carried by the average cotton factory over a large output. But by far the most important factor affecting the overall profitability

---

<sup>1</sup> *Economist*, 1845, April 5th, pp.323-4, June 7th, p.539, August 23rd, p.801.

<sup>2</sup> *Circular to Bankers*, 1843, July 7th, p.2; Dec. 29, p.228; *Economist*, 1843, Sept. 23rd, p.58; Sept. 30th, p.93.

<sup>3</sup> T. Ellison, "The Relative Prices of Raw Cotton and Yarn", *The Exchange*, Vol. I, (1862), p.118. T. Ellison, "Great Crises in the History of the Cotton Trade", *The Exchange*, Vol. II, 1863, p.48. Reports of Factory Inspectors, B.P.P. 1844, (583.) XXVIII, p.576; 1846, (681.) XX, p.572.

of the industry was the fact that the main item in variable costs - the cost of raw cotton - fell sharply in these years. From an annual average price of 6½d per pound in 1841, the price of American Uplands cotton - the principal type used by the industry - fell almost continuously to 4½d per pound in January 1845.<sup>1</sup> From then on, until March 1846, the price of raw cotton remained virtually unchanged, providing the most prolonged period of low prices to be experienced by the industry before the 1890s. Numerous references in *The Economist* and other contemporary sources confirm that it was this decline in the price of raw cotton that was the major source of the high profits gained in these years.<sup>2</sup>

The cause of the decline in cotton prices was the flood of raw cotton from the United States of America which followed on from the land boom experienced in the Southern states during the middle and later 1830s.<sup>3</sup> So far as the British cotton industry was concerned the result was that, despite rapidly increasing consumption between 1843 and 1845, the volume of raw cotton imported consistently exceeded current needs by a large margin leaving millions of pounds of cotton to be added to existing stocks at the end of each year. Thus, from a stock of 242.3m. lbs at the end of 1842, total stocks of raw cotton increased to a peak of 453.5m. lbs at the close of 1845, a stock that was not again exceeded before 1884, and calculated at the time to be equal to 39 weeks' needs at current rates of consumption.<sup>4</sup>

---

<sup>1</sup> Monthly raw cotton prices are taken from Ellison, "The Relative Prices of Raw Cotton and Yarn", figure facing p.48. Annual prices are given in Table 23 below. There was a short period of rising cotton prices between August 1843 and February 1844 brought on by intense speculative activity in Liverpool. However, large imports from America and the presence of large stocks of cotton in Britain broke the speculation causing many cotton brokers to fail with large losses. The whole episode is discussed in detail in *The Economist*, 24th August, 1844, p.1142.

<sup>2</sup> See for example, *Circular to Bankers*, Dec. 29th, 1843, p.228; *Economist*, August 23rd, 1844, p.1070; Reports of Factory Inspectors, B.P.P. 1846, (681.) XX, p.577.

<sup>3</sup> Matthews, pp.49-55.

<sup>4</sup> T. Ellison, *The Cotton Trade of Great Britain* (1886), p.90 and Table No. 1.

With demand for cotton goods high, the volume of goods produced rising steadily and raw material costs the lowest they had ever been, it is not surprising to find that 1845, the peak year of the boom, was considered to be one of the three most profitable years in the history of the trade before 1860.<sup>1</sup>

The total volume of new investment stimulated by these improved conditions was probably very considerable, though because there are no figures for the industry as a whole, comment has to be confined here to the region covered by the inspectorate of Leonard Horner.<sup>2</sup> As Table 22 shows, over 10,000 horse-power and nearly 560 new mills were added in this region between 1839 and September, 1845 giving employment to an additional 38,000 people. From other data collected by Horner it is possible to trace the rate at which new horse-power was added during this period. Unfortunately, the data are not always capable of being summarized on an annual basis; nevertheless, it is still possible to see from the following figures that the volume of horse-power added between 1839 and 1846 moved closely in accordance with movements in the level of output and profitability described above. Thus, the amount of horse-power added between 1839 and October 1846 was as follows: 1839, 641; 1840, 1,513; 1841, 1,172; 1842, --; 1843, 1,709; Jan., 1844 -

---

<sup>1</sup> Ellison, "The Relative Prices of Raw Cotton", p.118.

<sup>2</sup> Horner's district included Lancashire and parts of Yorkshire, Cheshire, Derbyshire, and Cumberland. This region included all the major cotton producing centres of England and Wales and accounted for about 80 per cent of the industry's total capacity in the United Kingdom, and probably more than 80 per cent of new capacity added during the 1840s.

Table 22

Production Capacity in the Cotton Industry  
located in the Factory Inspectorate of Leonard  
Horner, Feb. 1839 - Sept. 1845

	Mills	Horse-power		Total	Persons Employed
		Steam	Water		
Feb. 1839	1266	31099	4089	35,188	159050
Sept. 1845	1724	41183	3969	45,152	197460

Sources: B.P.P. 1839, (41.) XLII, pp.16-17.

B.P.P. 1846, (681.) XX, p.578.

April, 1845, 4,500; May, 1845 - Sept., 1845, 3,750; Oct., 1845 - Oct., 1846, 3,315.<sup>1</sup>

Despite the large volume of horse-power added between 1843 and 1846, total horse-power capacity increased by less than thirty per cent compared with an increase of fifty per cent added during the boom years from January 1835 to July 1838. The reason for this seems fairly clear: during the mid 1830s horse power capacity was added considerably faster than other types of machinery, leaving the rest to be added in later years; during the mid forties additional horse-power appears to have been added at more or less at the same pace as additional looms and spindles. At least this is the impression which one gains from an examination of the detailed returns of machinery added given by Horner.<sup>2</sup> Certainly, the slower rate at which

<sup>1</sup> B.P.P. 1842, (31.), XXII, p.414; 1843, (503.), XXVII, pp.347-8; 1844, (524.), pp.547-8; 1845, (639.), XXV, pp.248, 253-6; 1846, (681.), XX, p.567; 1847, (779.), XV, p.450. The amount shown for May-September 1845 is not given separately by Horner as are the other figures; however, the amount shown here can be fairly inferred from Horner's reports. According to these a total of 10,000 h.p. was added between 1843 and September 1845 (B.P.P. 1846, (681.), XX, p.467). Given the amounts of horse-power added in the rest of the period, something in the region of 3750 horse-power must have been added between May and September 1845. This period experienced the peak of prosperity in the industry and such an amount accords well with amounts added in the rest of the period.

<sup>2</sup> See especially Horner's returns for 1845 in B.P.P. 1845, (639.) XXV, pp. 253-6.

extra horse-power was added did not hinder the volume growth of output which increased at 11.33 per cent per annum between 1842 and 1846 compared with a rate of 11.59 per cent between 1834 and 1838.<sup>1</sup> Since the level of activity in both periods was almost identical, the figures suggest rates of growth of total capacity that were almost the same.

Prosperity in the cotton industry began to wane in some parts of the weaving sector as early as the second half of 1845; by the end of that year the recession spread further and some firms began to consider working short-time.<sup>2</sup> In 1846 output continued to increase although it was generally agreed that profits had fallen in all sections of the industry. By 1847 few if any firms were making a profit, while many firms must have been making substantial losses. Conditions remained acutely depressed throughout 1847 with output lower than any year of the decade. Although output recovered in the first half of 1848 in all other respects the industry remained very depressed. However, during the second half of 1848 the industry began to show signs of recovery, though even in 1849 and 1850 there were numerous complaints about the unprofitability of the industry, and Ellison, the nineteenth century historian of cotton manufacturing, reports that it was not until 1851-2 that prosperity was renewed in the industry.<sup>3</sup>

The acuteness of the depression in 1847 reveals itself in almost every indicator of activity in the industry. In that year output - measured in terms of value or volume - fell steeply, as did demand on the domestic

---

<sup>1</sup> As indicated by the volume of raw cotton consumed.

<sup>2</sup> *Economist*, 1845, Oct. 25th, pp.1039-40, 1061-2; Nov. 29th, p.1190. Reports of the Factory Inspectors, B.P.P. 1846, (681.), XX, p.577.

<sup>3</sup> Ellison, "Great Crises", pp.50-1.

market. Only in the export market were conditions reasonably favourable to the industry. Even here favourable conditions only prevailed selectively. Thus, while demand in the United States market and some Mediterranean markets actually improved, exports to most other markets fell and in some cases, such as North Western Europe, the decline was quite sharp. However, the most striking indicator of the depth of the depression is the level of unemployment in the industry. Figures contained in an appendix at the end of this chapter show that, of the 40,000 people employed in textile factories in Manchester during March 1847, only 21,000 were in full time employment, the rest were either on short term, or were unemployed.<sup>1</sup> Unemployment began to fall during the spring and summer months, but as the crisis of October approached unemployment soared. In November, just after the crisis had passed only 14,861 persons were shown as working full time in textile production in Manchester, the other 26,000 were either unemployed or were working short time. From then on conditions began to recover slowly but until July 1848 rarely less than twenty-five per cent of the work-force remained either on short-time work or was unemployed. Whether these figures reflect experience in other centres of the industry is not clear, but they do help to indicate the order to magnitude of unemployment that could occur in one of Britain's major cities during a financial crisis.

As might be expected, investment in the years 1846 to 1850 was carried out at a much lower level than in the preceding boom. In aggregate, figures collected by Leonard Horner show that in his district there was an increase of 6,946 horse-power between October 1845 and December 1849, giving an annual increase of 1,736 horse-power compared with an average increase of 2,238 horse-power between 1843 and October 1845.<sup>2</sup> Comparison of these two

<sup>1</sup> As may be seen from Table 25 below, about 70 per cent of the work-force in Manchester textile factories were engaged in cotton spinning and weaving in 1847.

<sup>2</sup> Reports of the Factory Inspectors, B.P.P. 1846, (681.) XX, p.567; 1847, (779.) XV, p.450; 1850, (1239.) XXIII, pp.279-80.

periods is somewhat misleading since much of the investment carried out in 1846 must have occurred as a result of decisions made during the preceding boom. Taking this into account and comparing the volume of new horse-power added after 1846 with that added between 1843 and 1846 the difference becomes much clearer. Thus, in the earlier period the average volume of horse-power added per year was 3,329 compared with only 1,231 horse-power added in each year from October 1846 to December 1849.

As in the previous periods examined there is a distinct correlation between the amount of investment undertaken in any one year and the level of profitability in the industry during the year, as may be seen from the following figures for the amount of horse-power added: October 1845 - October 1846, 3,315; October 1846 - May 1847, 470; May 1847 - December 1847, nil; 1848, 1,364; 1849, 1,857. The figures show how severe the fall in investment was once the depression set in at the end of 1846, and how far further additions to capacity were retarded by the slow recovery of 1848 and 1849. However, it is important not to exaggerate the lowness of the investment after 1847. Diminished profit margins in these years made manufacturers more conscious of their costs and forced them to direct their attention towards investment projects which reduced costs rather than those which merely increased the volume of capacity in the industry. In a long article attached to Horner's report for 1852, James Nasmyth described how new and existing steam engines had been adapted since the later 1840s to cope with greater speeds and higher steam pressures to produce 'a much greater amount of duty or work performed by identical engines ... at a very considerable reduction in the expenditure of fuel'.<sup>1</sup> How far these advances render nominal horse-power added a misleading index of the real volume of new capacity added is uncertain, but it seems likely that the volume of *real*

---

<sup>1</sup> Reports of the Factory Inspectors, B.P.P. 1852-3, (1580.) XL, p.484.



horse-power capacity added to the industry was higher than that indicated by the nominal amounts given by Horner, though it was always much less than the amount added during the boom years of 1843-6.

When contemporaries came to account for the depression in the cotton industry which lasted more or less throughout the second half of the 1840s two factors were singled out as deserving special attention: the first was the raw cotton shortages which followed from poor cotton harvests in the United States in 1845 and 1846 but which were never satisfactorily overcome before the decade ended; the second was the adverse effect which, it was supposed, had flowed from excessive investment into railways. Almost every writer examined at the two Inquiries of 1848 listed the deficiency in raw cotton supplies as the reason for the depression in the cotton industry in 1847 as well as being an important contributing factor to the general economic crisis of 1847, while *The Economist* continued to blame the inadequate supply of raw cotton for the depression in profits which lasted throughout the second half of the decade.<sup>1</sup> On the other hand, those writers who blamed the crisis of 1847 on the railways, considered that the experience of the cotton industry was the clearest example of an industry adversely affected by excessive demands for railway capital. This industry, they argued, had begun to show signs of depression many months before the effect of the raw cotton shortages had set in, and was, in fact, merely reflecting the general weakness in industry caused by the loss of circulating capital to the railways. Thus weakened, it was argued, the industry was unable to cope with the severe raw material shortages of 1847 and the result was intense distress in Lancashire; while in the three succeeding years, the pressure to complete the railways continually added to the difficulties of the industry during its period of low profits.

---

<sup>1</sup> *Economist*, 1849, June 2nd, pp.600-1; Dec. 15th, p.1384. See also Reports of Factory Inspectors, B.P.P. 1850 (1239.) XXIII, pp.275-6.

The historian most convinced of the former view is C.N. Ward-Perkins. His opinion is that the raw cotton shortages alone are enough to account for all the difficulties experienced by the industry in 1847.<sup>1</sup> A brief glance at figure 8 is enough to demonstrate the force of his argument. After rising fairly steeply from 1841 to 1845, net imports of raw cotton suddenly plummeted in 1846 and remained very low in the following year. Throughout most of 1846 the industry was able to draw upon large domestically held stocks of raw cotton built up in earlier years so that, despite the fall in imports, the volume of raw cotton consumed in the year actually increased. By the end of 1846 the stock of raw cotton was greatly reduced and when, in 1847, imports once more fell well below normal requirements the industry was forced to reduce its level of activity drastically. In 1848 and 1849 imports of raw cotton improved sufficiently to allow the industry to return to full production, though imports were never large enough to allow any major rebuilding of stocks to take place. Accordingly, when in the second half of 1849 it became clear that raw cotton supplies would be inadequate for the industry in the event of another poor harvest, cotton prices began to rise rapidly once more.

On the face of it these movements suggest that Ward-Perkin's hypothesis is more than sufficient to explain the sharp fall in output in 1847 and the severe losses experienced in the industry in that year, while it was generally agreed by all sides that the shortages and high price of raw cotton was the most important factor affecting profitability in 1849 and 1850. There is, nevertheless, some doubt whether this factor alone was entirely responsible for all the problems faced by the industry in 1847 or that it would *not* have been depressed even if raw materials had continued to be well supplied to the industry. It has already been seen that

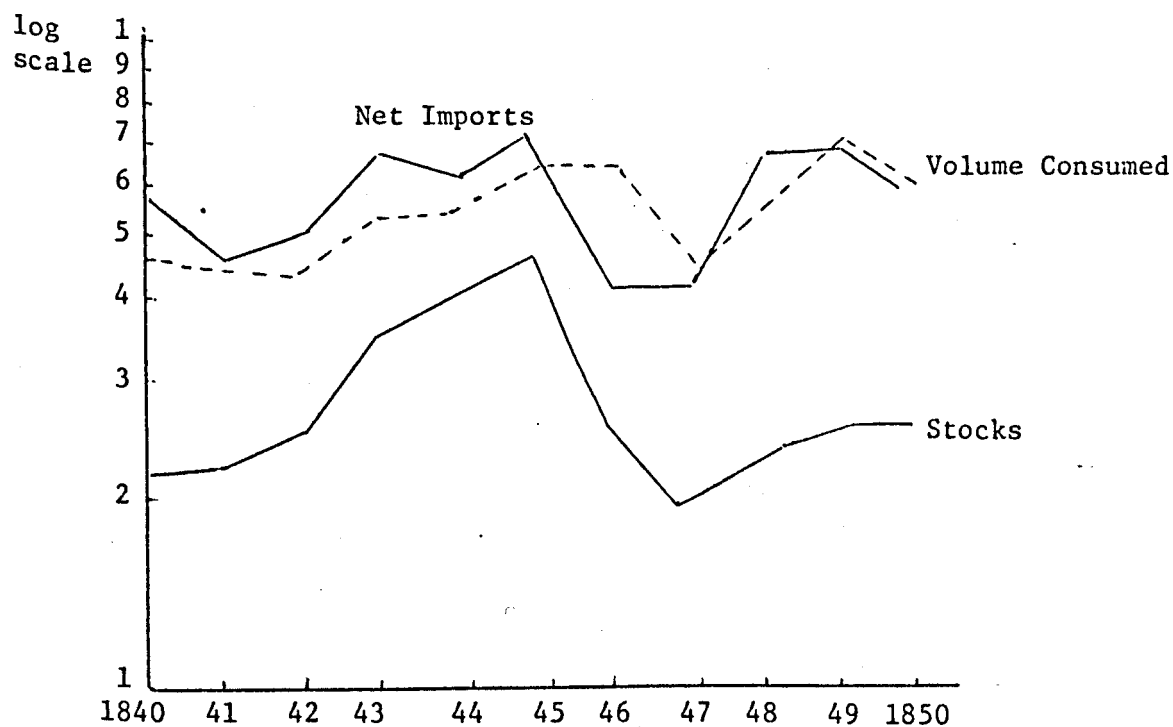
---

<sup>1</sup> C.N. Ward-Perkins, "The Commercial Crisis of 1847", p.271.

Figure 8

Supply of Raw Cotton in the British Cotton  
Industry, 1840-1850.

00m. lb



Source: Table 23 below.

some parts of the industry had begun to experience depressed conditions as early as the end of 1845. During 1846 these difficulties spread to all parts of the industry even though there were no immediate problems with raw material supplies until the very end of the year. In that year profit margins fell sharply from the record levels of 1845, and though reports in *The Economist* indicate that full employment was maintained in the cotton factories until the second half of 1846, weavers took the opportunity of passing the effect of lower demand onto the hand-loom weavers working outside the factory.<sup>1</sup> Similarly, investment into new plant and machinery fell sharply during the second half of 1846.

Each of these developments occurred before raw material shortages began to adversely affect the industry. Even in 1847 there is reason to believe that raw material shortages alone were not the only factor responsible for the severe depression in the industry in that year. The industry could, for example, have consumed considerably more cotton than it did. In 1847 re-exports of raw cotton actually increased over the previous year, while domestic stocks suffered a less severe reduction than might have been expected. Reports in *The Economist* show that the rate of decline in stocks slowed down sharply in the second half of 1847, and that by the end of the year stocks were equal to five months work at current rates of consumption.<sup>2</sup> During this period raw cotton prices also began to fall steadily indicating that supply problems were no longer as serious as they had been at the beginning of the year.<sup>3</sup> In short, had the industry been prepared to pay more for its raw materials than it did, it could have obtained more; the

---

<sup>1</sup> *Economist*, 1846, 10th January, p.46; 11th April, p.480; 6th June, p.741. Reports of short-time and unemployment in factories appear on 1st August, p.1002; 26th Sept., p.1266; 17th Oct., p.1368; 24th Oct., p.1408.

<sup>2</sup> *Economist*, 6th November, 1847, p.1289. See also T. Ellison, "Great Crises in the Cotton Trade", *The Exchange*, Vol. II, (1863); p.49.

<sup>3</sup> T. Ellison, "The Relative Prices of Raw Cotton and Yarn", *The Exchange*, Vol. I, (1862), facing p.118.

fact that it continued to restrict its consumption severely during the second half of the year suggests that the raw material problem alone was not the only factor affecting the state of the activity in the cotton industry in 1847.

One factor other than raw material shortages to which contemporaries turned to explain the severity of the depression in the cotton industry in 1847, and the continued depression in profits in the years immediately following, was railway investment. As with other industries it was argued that excessive demands for liquid capital had been responsible for the general difficulties of the years 1846 to the close of 1849, and for the problems of 1847 in particular. Unfortunately, as with other industries which are examined in this chapter, it is almost impossible to find any direct evidence in support of this hypothesis beyond the fact that the timing of the onset of depression in the cotton industry coincided more or less with the onset of the boom in railway investment.

It is possible that railway demand for capital may have adversely affected the industry indirectly. It is well known, for example, that Liverpool merchants participated in railway investment to a very much greater extent than did any similar group in Great Britain, and it is possible that this may have interfered with their normal business activities. According to the local agent of the Bank of England, more than half of the mercantile capital of Liverpool was committed to railway investment with many merchants relying upon selling their railway shares to raise enough money to maintain their other activities.<sup>1</sup> If cotton merchants were engaged in railway investment in much the same way, it may account for the fact that the normally highly speculative market in raw cotton remained very quiet

---

<sup>1</sup> Bank of England Letter Books, Liverpool Letter Book No. 8, p.167, no G.L. number given; letter dated 25 May 1847.

throughout the first three quarters of 1846, even though it was known that raw cotton stocks were being drawn upon more heavily than for many years. Such is the view of *The Economist* which argued that the large calls on railway shares were causing a shortage of funds among the cotton merchants and was thereby depressing the market.<sup>1</sup> It would be wrong to attach too much importance to this point, however, since as soon as it became known in September 1846 that the cotton harvest had failed for a second time intense speculation immediately developed on the Liverpool cotton market and prices rose very quickly indeed.

Beyond the immediate problems of the Liverpool merchants there is little evidence to show that activity in the industry was curtailed during 1846 or 1847 because of lack of funds caused by cotton manufacturers becoming over-committed to railway investment.<sup>2</sup> Similarly, except during the immediate crisis week of October 1847, there are no reports of cotton manufacturers having difficulty obtaining credit, or getting their bills discounted. Indeed, when in May 1847 railway demands for capital were at a peak, a letter written to the Bank of England by William Fletcher, its Manchester Agent, reported that even though large sums had been invested into the railways by men of the town it was not a cause of embarrassment among local manufacturers: their problems, he said, were not principally financial, but sprang from the fact that there was no prospect of selling their products profitably.<sup>3</sup> Once the

<sup>1</sup> *Economist*, 1846, 4th July, p.871; 19th September, p.1236.

<sup>2</sup> The earliest complaint appearing in *The Economist* about the adverse effect of over-commitment to railway investment among cotton manufacturers appears in September 1847 when it reported that for several days rumours had been freely circulating in Manchester predicting heavy failures among manufacturers caused by losses on railway speculation. Some wealthy houses, it was noted, had been obliged to reduce their establishments. According to D.M. Evans' list of failures, 13 firms can be identified either listed as "manufacturers" in Manchester or as employed in some aspect of cotton manufacturing in England and Wales, a tiny fraction of the 1753 firms listed in the Factory Inspector's Report for 1850 (B.P.P. 1850 (1239.) XXIII, pp.279-82.)

<sup>3</sup> Bank of England Letter Books, Manchester Letter Book No. 6, G.L. 6001, letter dated 25 May, 1847.

markets began to improve, and the problems of raw material supply had been resolved he could see no reason why local manufacturers would not have the requisite means to resume full-time working.

In drawing attention to the low level of demand for cotton goods in 1847 Fletcher was only reporting a fact that had been a growing concern in the industry since the middle of 1845, which lay at the heart of the industry's problems in 1846, and which left it unable to handle the problem of raw material shortages in 1847; namely, fall in demand for cotton goods at home and abroad. The first signs of this had appeared as early as April 1845. In that month reports began to arrive in England of rising stocks and falling prices of cotton goods in the Far Eastern markets.<sup>1</sup> By the end of May it was clear that foreign demand for cotton goods had passed its peak and thereafter aggregate demand for the products of the cotton industry was maintained because of continued growth in the domestic market.<sup>2</sup> During the last quarter of the year even the home market began to show signs of weakening, and only full order books left over from earlier months prevented the industry from feeling the effects of slackening trade.<sup>3</sup> Even so, by the end of the year some parts of the weaving sector reported that power looms were falling idle; and amongst the hand-loom weavers there was very little work to do at all.<sup>4</sup>

In 1846 and 1847 the demand for cloth continued to decline, the decline being particularly severe in the domestic market in 1847 where the high price of food had a marked effect on purchases of manufactured articles in general. With the loss of demand the depression spread steadily out to all

---

<sup>1</sup> *Economist*, 5th April, 1845, p.324.

<sup>2</sup> *Economist*, 5th October, 1845, pp.1061-2.

<sup>3</sup> *Ibid*, p.1073.

<sup>4</sup> *Economist*, 29th November, 1845, p.1190.

parts of the weaving sector. For the spinners, however, demand was well maintained during 1846 and it was not until raw cotton prices began to rise after August 1846 that this sector of the industry began to consider short-time working.<sup>1</sup> Fortunately, in the last months of the year demand for cotton yarn increased sharply among exporters to Germany who were anxious to export the yarn before the imposition of a new Zollverein tariff in January 1847, and most spinners were able to put off the decision to go on to short-time working until the end of the year.<sup>2</sup> By 1847, however, even this market was lost and from then on the demand for all types of cotton goods remained well below levels of previous years.

The poor demand for cotton goods in 1846 is explained by the fact that large sales in 1845 left all markets overstocked at the beginning of 1846; however, the extent of the decline in domestic demand for cotton goods in 1847 is much more difficult to explain since it does not appear to have been shared by the other textile industries to anywhere near the

---

<sup>1</sup> *Economist*, 17th October, 1846, p.1368. The present writer is aware that a large part of cotton production was carried out in mills that combined spinning and weaving in one establishment; it is still useful, however, to distinguish between the spinning and weaving sectors of the industry.

<sup>2</sup> *Economist*, 7th November, 1846, p.1466.



same extent.<sup>1</sup> There are few comments from contemporaries which throw light onto this problem, though it was well known at the time that changes in food prices had a marked effect on the domestic demand for cotton goods.<sup>2</sup> On the whole it is probably this factor combined with the higher prices of cotton goods in that year and the redistributive effects upon income of the high food prices and railway investment which explains why the domestic demand for cotton goods fell so sharply even though aggregate income and consumption in the British economy was well maintained in 1847.

The poor state of the markets in 1847 was particularly harmful to the spinners. In the past they had been able to offset any temporary decline in demand in the domestic market by increasing the volume of yarn exported. However, this had been achieved at the cost of lower prices, the loss in profits incurred being less than that which would have resulted from working short-time or by stopping production. In 1847 this was no longer possible: not only had foreign markets for yarn contracted sharply but the

---

<sup>1</sup> On the experience of the woollen industry in 1847 see F.J. Glover, "Dewsbury Mills, A History of Messers, Wormalds and Walker Ltd., Blanket Manufacturers; With an Economic Survey of the Yorkshire Woollen Cloth Industry in the 19th Century", (Unpublished Ph.D. Dissertation, University of Leeds, 1959), pp. 239-40, 637; *Economist*, 29th January, 1848, p.120. On silk see Reports of the Factory Inspectors, B.P.P. 1847-48, (900.) XXVI, p.134. The worsted trade appears to have been the most severely depressed of the Yorkshire textile industries, but this is an industry which used cotton yarn extensively and which had greatly expanded capacity during the preceding boom. Excess capacity and loss of exports rather than loss of home demand appears to have been the major problem facing this industry in 1847. (Reports of Factory Inspectors, B.P.P. 1849, (1084.) XXII, p.324.) The high price of food also appears to have been a major factor affecting the domestic demand for worsted textiles. (J. James, *History of the Worsted Manufacture in England* (1857), p.499). Depression in the linen industry in 1847 appears not to have been caused in any important way by domestic events (W.G. Rimmer, *Marshalls of Leeds, Flax Spinners, 1788-1886*, (Cambridge, 1960), pp.210-11; 228. The mixed character of the depression during 1847 in textiles other than cotton may be best judged from the reports of Factory Inspectors, T.J. Howell and R.J. Saunders in B.P.P. 1847-8, (900.) XXVI, pp.117-136. As comments in the final reference indicate, all textile trades experienced acute depression following the crisis of October 1847 when it became temporarily almost impossible to negotiate bills of exchange.

<sup>2</sup> *Economist*, 1845, Nov. 29, p.190; 1847, Jan. 23, p.102.

price of raw material was so high and the value of the yarn so low as to make impossible the sorts of price reductions necessary in order to sell the yarn.

Although the weaving sector was faced with an equally diminished domestic market, exports of coloured and printed cloths increased in 1847 due to a sharp improvement in demand in the United States and the Eastern Mediterranean. Manufacturers of these cloths were thus able to maintain their prices more successfully than other parts of the industry. At the same time weavers were, paradoxically, in a better position with regard to their costs than were the spinners. In the first place, those firms which employed hand-loom weavers were able to reduce output at no expense to their average costs by passing on the incidence of depression to their employees outside of the factory. Secondly, they were in a better position than spinners with regard to raw materials. Whereas spinners were forced to buy raw cotton in a seller's market, and to sell their yarn in markets where buyers were few and where prices were falling, the weavers bought their yarn in a buyer's market and were able to maintain and even improve some of their own selling prices and thus increase their gross margins. These advantages were not spread evenly throughout the industry but accrued more readily to the producers of the better quality cloths required in the American and Mediterranean market. The producers of coarse grey cloth, the type exported to the Far East, were in most cases unable to benefit; not only were these goods almost universally produced in factories on power looms, but markets for this type of cloth had been among the most depressed since 1845. The only relief gained here came from the low price of cotton yarn otherwise this sector was just as depressed as the spinners.

Taken in summary then, it may be said that while there is no doubt that the shortage of raw cotton in 1847 acted as an absolute constraint

upon the level of activity which could be achieved by the cotton industry, several other factors existed which would have depressed the industry in 1847 even if raw cotton supplies had been abundant. Thus, although Ward-Perkins is correct in emphasising the importance of the raw cotton shortage in 1847, it would be untrue to say, as he does, that this factor alone can explain all of the difficulties faced by the industry in the crisis year.

Similarly, there is little reason to suppose that new investment would have continued at a high level had supplies of raw cotton been enough to allow full production to continue. Investment had already begun to fall off in 1846 several months before the raw material problems had developed, the fall in investment itself being closely associated with a decline in profitability in the industry and a check to the growth of demand for its products. At the same time it is difficult to find any link, direct or indirect, between the demand for railway investment funds and depression in the cotton industry beyond the possibility that overcommitment to railway investment may have constrained the activities of some Liverpool cotton merchants in 1846. In 1847, any relationship, if it existed was probably in the reverse direction: namely, that the depression and low profits earned from the cotton trade reduced the ability of the Lancashire investors to go on paying calls on their railway shares.

The same points need to be made in regard to the two years immediately following the crisis. The low profits, the slow rate of growth of output and the low rate of capital accumulation were not due to the large calls for railway capital in these years; they were due, in the main, to the continued problems of raw material supplies. Under this constraint profitability remained low for the rest of the decade, and until the way seemed more clear, it is to be expected that the industry would have taken a more cautious attitude to expanding its capacity.

Raw Materials, Output and Prices in the British Cotton Industry;  
1840-1850

1	2		3		4		5		6		7		8		9		10
	Net Imports	Consumed	Raw Cotton	Stocks in Port and With Spinners 31 Dec.	Gross Output	Net Output	Domestic Consumption	Exports	Raw Cotton	Yarn	Cloth	Prices*					
mil. lb	mil. lb	mil. lb	mil. lb	£m.	£m.	£m.	£m.	£m.	£m.	£m.	£m.	£m.	£m.	£m.	£m.	£m.	£m.
1840	553	459	207	47	34	22	25	6	12½	7.3	6	12½	7.3	6½	11½	7.3	6½
1841	450	438	217	43	31	19	24	6¼	11½	6.0½	6¼	11½	7.3	5½	10¼	6.0½	5½
1842	487	435	242	37	26	15	22	5½	10¼	6.2½	4½	11¼	6.2½	4½	11¼	6.2½	4½
1843	653	518	342	42	31	19	23	4½	11¼	6.3	4½	10	6.3	4½	10	6.3	4½
1844	599	544	390	45	34	19	26	4½	10¾	5.11½	4½	10¾	5.11½	4½	10¾	5.11½	4½
1845	679	607	454	51	40	25	26	4½	10¾	5.6	4½	11¼	5.6	4½	11¼	5.6	4½
1846	402	614	245	48	35	22	26	4½	10¾	5.8½	4½	9	5.8½	4½	9	5.8½	4½
1847	400	441	184	33	20	10	23	4½	7½	4.9½	4½	7½	4.9½	4½	7½	4.9½	4½
1848	639	577	220	41	31	19	22	5½	8½	5.4½	4½	8½	5.4½	4½	8½	5.4½	4½
1849	656	630	240	44	30	17	27	7¼	10½	6.0½	4½	10½	6.0½	4½	10½	6.0½	4½
1850	562	588	232	44	26	16	28	7¼	10½	6.0½	4½	10½	6.0½	4½	10½	6.0½	4½

\* Prices: Upland Cotton in pence per lb. No. 40s Mule Yarn in pence per lb. 27 in/72 Reed Printing Cloth in Shillings and pence per piece.

Sources:

Cols. 1, 2, B.R. Mitchell and P. Deane, *British Historical Statistics*, pp.179-180.  
 Cols. 3, 8, 9, J. Mann, *Cotton Trade of Great Britain*, pp.96; 104-6.  
 Cols. 4, 5, 6, 7, taken or calculated from M. Blaug, "Productivity of Capital in the Lancashire Cotton Industry", *Economic History Review*, 2nd Series, XXIII, (1960), p.376.  
 Col. 10, Ald. Nield, "An Account of the Prices of Printing Cloth and Upland Cotton from 1812 to 1860", *Journal of the London Statistical Society*, Vol. XXIV (1861), p.496.

## V

Summary and Conclusions

The discussion on activity in the cotton industry ends this examination of activity and investment in the industrial sector. The pattern which has emerged is a complex one and fits no simple mould of the type required for it to conform with the Wilson hypothesis. However, some common factors do stand out which generally confirm the view of C.N. Ward-Perkins and others who have rejected the view that railway investment led to a depression in the industrial sector. The most important perhaps is the fact that industrial output, with one or two notable exceptions, reached a peak during 1845 and then began to move slowly into a depression which deepened after the crisis of 1848 and lasted until the second half of 1848. The striking exception to this is the iron industry, and to a limited extent coal production. Here prosperity was generally maintained well into 1846 and in some sectors of iron production, such as South Wales, it lasted throughout 1847 and only began to decline when railway demands fell away. Associated with the decline in industrial output was the decline in capital investment and in the rising unemployment which, in the case of the cotton industry, reached a peak during the first and last quarters of 1847.

Though these movements conform chronologically with the expansion of demand for railway investment funds, with the important exceptions of house-building in London and iron manufacture in South Wales and the North-East, very little evidence has been found to associate one set of developments with the other. In house-building the transfer of capital funds from the provinces to London, which occurred as part of the railway investment process, may help to account for the sudden check to house-building in Liverpool (and probably in other provincial centres) in 1846 and for the sharp peak in London's house-building during the same year. In 1847, the loss of these funds by the

London banks imposed a similar check to building in London and may, on balance, help to account for the continued shortage of houses in that city. Similarly, in South Wales and to a lesser extent in the North-East, the prosperity of iron manufacture was intimately bound up with railway construction.

Outside of these two centres, it is hard to distinguish any direct link between railway investment activity and the state of prosperity in the manufacturing sector. Certainly, it is difficult to detect any evidence that manufacturing and construction had suffered that "starvation of capital" which figures so often in the analyses of contemporary witnesses. There is no evidence, except for the points already alluded to, that this impaired activity in the building industry, an industry which, more than any, one would expect to have suffered had any shortage of capital existed. Examination of the history of this industry showed that though house-building was relatively depressed in the 1840s, this depression was the result of "real" causes associated with changes in the growth and migration of the British population and with relative changes in the levels of housing stocks and movements in income and activity in the economy rather than with problems in the capital market.

Similar conclusions can be drawn with regard to the coal industry and the iron industry outside of South Wales. In both industries, despite the links which might be assumed between their prosperity and the rate of railway construction, it is difficult to detect any clear relationship with railway construction either positively through its demand for their products, or negatively through the supply of investment funds. Similar points may be made with regard to the cotton industry. In all three cases it was the prosperity of their traditional markets rather than the spectacular demands of the

railways which determined their prosperity. In the cotton industry the supply of raw cotton was an added factor which sets it aside in almost every way from any influence which the railways might have had on industrial activity in 1847.

Finally, the low rates of investment experienced in manufacturing during the crisis year can be attributed to a wide range of factors which were unrelated to the demand for railway funds. Among these the most important were: a) the cyclical decline in demand for manufactured goods at home and overseas which appeared after 1845; b) the fact that investment during the boom years of 1843-6 had already increased capacity beyond, and in some cases well beyond, existing requirements; and c) the steady rise in some raw material prices. In this picture, railway investment, with its demand for the products of manufacturing, and with its positive effects on income and therefore on the level of aggregate demand in 1847, can only be fitted into the picture of industrial activity as a stabilizing influence.

## Appendix III

Employment in the Textile Factories in the Borough of Manchester1847 - October 3rd, 1848<sup>1</sup>

During the depression years of 1847-48 there is a unique set of statistics showing the state of employment in textile factories in the Borough of Manchester which do not yet appear to have been used by historians. The origin of these statistics is obscure. They first appear in the *Manchester Guardian* on April 24, 1847 where they are referred to as "official returns".<sup>2</sup> In subsequent issues it was reported that they were organized and collected by a Captain Willis. For what purposes the returns were collected is equally obscure. Certainly, they do not appear to have been collected for the Factory Inspectorate since Horner, whose district covered Manchester and who was assiduous in reporting such returns, used them only to show employment in Manchester during one week in 1847 and referred to the *Manchester Guardian* as his source.<sup>3</sup> At the same time, however, their collection was clearly well organized and thorough. Indeed, the thoroughness of their coverage was the main reason why they were eventually discontinued, as the following statement from the *Manchester Guardian* of October 4, 1848 shows:

"These returns are to be discontinued after the present, it being considered unnecessary to take them regularly every week at present, as they have lately varied so little, and as objections have been made in some quarters to the trouble given to mill owners in furnishing the information".

---

<sup>1</sup> For the period January to October 1848 the figures also include foundries.

<sup>2</sup> The returns appear irregularly in the *Manchester Guardian* between April and September 1847: from October 1847 they were also reproduced weekly in *The Economist*.

<sup>3</sup> B.P.P. 1847 (828.) XV, p.495; T.J. Howell, another factory inspector refers to the returns in *The Manchester Guardian* as "Authentic Returns", (B.P.P. 1847-8 (900.) XXVI, p.117.).



The returns are reported as showing "the state of employment of the WHOLE of the operative classes within the Borough of Manchester who are employed in the various description of mills and works specified."<sup>1</sup> The distribution of employment in the returns for November 16, 1847 is shown in Table 25 below: for comparison the returns of employment in corresponding groups in the Borough of Manchester at the Census of 1851 is also shown. The apparent jump between December 1847 and January 1848 in the figures contained in Table 24 is explained by the inclusion of foundaries after December 1847, and their exclusion before that date.

The pattern of employment between January 1847 and October 1848 as revealed by the figures shows that in Manchester unemployment began to rise rapidly between January and March 1847. Thereafter never less than 14 per cent of the textile factory labour force was unemployed, and at the bottom of the depression 28 per cent were totally unemployed.<sup>2</sup> The extent of unemployment is not the most useful figure to quote in this case as for much of the period short-time was only one step removed from unemployment. Taking the "fully employed" alone, the figures reveal that after February 1847 at best only 84 per cent of the textile factory work-force was fully employed: at the worst point, immediately following the crisis of 1847 when high interest rates were crippling the industry, only 33 per cent were in full employment. (The distribution of the impact of the crisis between the different industries in Manchester may be judged from Table 25.) However, even these figures probably understate the impact of the crisis on the Manchester labour force as the "full employment" at this time referred to only six days at eight hours per day, or "during the hours of day-light".

---

<sup>1</sup> *Manchester Guardian*, Oct. 4, 1848, p.4.

<sup>2</sup> On the vagueness of the concept of "unemployment" in the textile industries during the mid 19th century see Matthews, p.147.

Within the overall picture of high unemployment in this period, there were several short-term fluctuations. Thus unemployment and the number of mills stopped increased rapidly in the first six months of 1847; conditions then remained fairly stable until September; thereafter, until November, unemployment and the number of mills stopped increased sharply. November appears to have seen the worst of the unemployment in the city, and during this month the reports of general privation among the textile workers are easily the worst for the whole period.<sup>1</sup> By February, 1848 employment and the number of mills working full time were clearly increasing. For a time - between March and June 1848 - unemployment actually increased once more but during the second half of the year it was clear that the depression was over and that there was a steady return to full time working.

As interesting as the month to month fluctuations in unemployment is the distribution between mills working part-time and mills wholly stopped. Thus in the first six months of 1847 a much larger proportion of mills were attempting to work part-time than in the second half of the year (that is until November 1847). On the other hand, the number of mills attempting to work full-time was distinctly higher after June 1847 than before that date. There is a subsequent return to large-scale part-time working after October 1847. Despite these movements the number of wholly unemployed workers remained largely unchanged - except for short periods - from March 1847 to July 1848. The implication is, of course, that during the months June to October 1847, mill owners either opted to return, so far as possible, to full time work or else stopped work altogether, and that some of those who stopped work must have been large mills. Why they should have made such a decision is well known: the burden of fixed costs in textile

---

<sup>1</sup> *Manchester Guardian*, November 1847, *passim*.

factories was such that firms avoided curtailing output wherever possible preferring to take the lower losses obtained at full production than the higher losses which prevailed during short-time working.<sup>1</sup> The great proportion of firms opting to work short-time in 1848 is probably explained by the fact that the sharp reduction in raw material prices and wage rates in that year reduced the losses due to short-time work, whilst the increase in demand was not sufficient to enable all firms to return to full production.

Finally, the movements in unemployment demonstrate the depressive effect of one additional factor to those noticed earlier; namely, the effect of interest rate changes. From Table 24 it may be seen that the two periods of sharply increased unemployment in 1847, March to May and September to November, were both periods when money market rates increased sharply. It is well known that merchants invariably paid by bill of exchange when interest rates fell below five per cent, and resorted to cash when they exceeded that rate. During 1847, however, the cash position of merchants must have been seriously eroded by the long period of depressed sales and by the heavy demand of the railways for calls. At the same time the manufacturers would have found the high rates of interest demanded impossible to bear given the low profits that had ruled since 1846 and the months of restricted output of 1847. Moreover, following the onset of the crisis of October, bills of exchange themselves became extremely difficult to negotiate at almost any rate of interest so that merchants had little option but to use cash for their purchases, or not buy at all.<sup>2</sup> Together, these factors could only force manufacturers, at least temporarily, to halt production.

---

<sup>1</sup> Matthews, p.142.

<sup>2</sup> *The Economist* and other journals and newspapers are full of complaints of the difficulty of making purchases because of the problems of negotiating bills of exchange between October and December 1847.

Table 24

Textile Factory Employment in the Borough of Manchester:  
January, 1847 - October 3, 1848

Date	Mills in Manchester	Working Full time	Working Short time	Stopped	Total Work force	Full Time	Short Time	Un-employed
1847								
Jan. 9	175	113	52	10	38389	25847	11851	1691
Feb. 16	175	92	68	19	40702	21692	13404	5600
March 3	179	93	65	19	40212	21018	14706	4488
April 8	177	100	51	26	40303	21764	12441	6098
May 1	177	96	54	25	40333	21971	10843	7519
June 1	174	100	30	35	40560	21765	6628	12167
July 6	175	128	37	20	40910	29399	3221	8290
Sept. 7	175	135	17	23	40009	28468	4697	7844
Oct. 5	175	123	26	24	41109	24317	7956	8736
Nov. 2	175	78	63	34	41055	14861	14578	11616
Dec. 7	174	102	53	20	41070	24071	7864	9135
1848								
Jan. 1	203	121	56	26	44183	27469	6394	10320
Feb. 5	205	149	43	13	44581	33400	4459	6722
March 4	208	152	41	15	44581	32637	4473	7421
April 1	209	146	44	19	44539	30317	6009	8313
May 6	209	141	47	21	44719	29314	6775	8630
June 3	209	140	49	20	44763	29390	7229	8144
July 1	204	148	35	21	44447	31382	5272	7793
Aug. 5	210	172	19	9	40220	36916	3304	-
Sept. 2	218	182	17	9	41949	38625	2924	-
Oct. 3	217	186	14	7	41066	38033	3033	-

Source: See Text.

Table 25

Unemployment in Textile Factories in the Borough  
of Manchester, 16 November, 1847

INDUSTRY	Mills				Operatives (in 000)			
	Total	Fully Employed	Part Employed	Stopped	Total	Fully Employed	Part Employed	Unemployed
Cotton	91	38	34	19	28	13.4	7.2	7.4
Silk	8	2	6	0	3	0.6	2.1	0.3
Small ware	18	11	6	1	2	1.6	0.2	0.1
Worsted	2	2	0	0	0.2	0.2	-	-
Dyeworks	20	5	15	0	2	0.6	0.7	0.4
Hat Manufs.	2	0	2	0	0.1	0.01	0.04	0.05
Machinists	32	5	24	3	6	2.8	1.6	1.6
TOTAL	173	63	87	23	41.3	19.1	12.1	9.8

Source: *Economist*, 27th Nov., 1847, p.1380.

Table 26

Employment in Selected Industries in Manchester and  
Salford at the Census of 1851

OCCUPATION	Workers aged 20 years and upwards			All Workers	
	Manchester	Salford	Total	Manchester (City)	Salford (Borough)
Cotton Manufacture	19252	4954	24206		43742
Silk Manufacture	3915	1192	5107		7336
Worsted Manufacture	53	57	110		160
Dyers and Printers	2161	105	2266		5066
Hatters	459	186	645		751
Enginemakers, Wheel wrights) Mill wrights, Boilermakers )	2606	1365	3971		6583

Source: Census of Great Britain, 1851, (Occupations of the People)  
B.P.P. 1852-3 (1691.) LXXXVIII. pp.637-653.

## Chapter VII

MONEY AND BANKINGIntroduction

The previous chapters have each been concerned with examining a series of hypotheses which purport to show aspects of the relationship between the railway building boom of the 1840s and the commercial crisis of 1847. In this chapter attention is turned to a different set of explanations of the crisis; namely, those which attempt to explain it in terms of problems arising in the sphere of money and banking.

The plan of this chapter is as follows. It begins by looking at the Bank of England and the Bank Act of 1844. Both contemporary and historical opinion has generally been that the conduct of the Bank's affairs after the adoption of the Bank Act was one of the principal causes of the crisis of 1847, and it will be necessary to pay special attention to this aspect of banking activity. Much of the controversy surrounding the Bank's conduct and the Bank Act since 1847 was foreshadowed in the debates which preceded the passage of the Act in 1844; accordingly, it is necessary to look first at the principal arguments put forward in these debates both in defence of the principles which came to be embodied in the Act, and in criticism of them. Part II then goes on to examine the way in which the Bank itself came to understand these principles and how it attempted to put them into practice. Since much of the criticism which surrounds the Bank's conduct between September, 1844 and December, 1847 depends upon how historians interpret the Bank's own understanding of its role under the Bank Act and how the principles embodied in the act were supposed to work, it will be necessary to look in some detail at this question. The basis of the Bank's banking

department policy after 1844 was the so-called "new discount policy". Many writers considered that the vigorous pursuit of this policy was responsible for the low rates of interest and high levels of speculative activity ruling between 1844 and 1846 and led directly to the crisis of 1847. The importance of these questions means that they need to be considered in detail. Accordingly, the whole of section IV is devoted to the question of the "New Discount Policy" and of its effect on interest rates charged in London. Section V examines the Bank of England's activities during the two periods of crisis in 1847.

After showing that the Bank's conduct deserves less censure than it has received, section VI argues that much of the responsibility for the difficulties in monetary affairs which developed during 1847 lies with the traditional responses of the rest of the banking system to changes in interest rates brought about by factors outside the Bank's control. Finally, section VII looks at a particular problem of finance - the financing of railway investment - to show how this factor influenced the supply of money and credit both in London and in the provinces in a way that reinforced the effect of the response of banking circles to periods of rising interest rates.

## I

From September 1844 onwards the conduct of affairs at the Bank of England was governed by the Bank Act of 1844. In theory this Act merely determined the volume of notes which the Bank might issue: in practice, between September 1844 and December 1847, it came to influence the entire approach of the Bank to the conduct of its central banking functions. Since

much of the controversy surrounding the Bank's role in the crisis stems from the theories of central bank administration put forward in the long debate which preceded the drafting of the new Act, and since the Bank's own conduct of affairs depended to a large extent upon its own interpretation of the way those theories should be put into practice, it is necessary to look at the principal aspects of central banking theory as they were raised at the time the act was put into operation. This ground has been trodden over many times by historians and this discussion will treat it as briefly as possible.<sup>1</sup>

The question which stood uppermost in the minds of contemporaries when they turned to the question of the Bank of England's role in monetary affairs was how to protect the bullion reserve of the Bank of England during periods of adverse foreign exchanges and a bullion drain whilst at the same time ensuring the minimum necessary interference with domestic monetary affairs. In the debate which surrounded this question two schools of thought predominated: the Currency School and the Banking School. It was out of the ideas of these two groups that emerged the principles which became embodied in the Bank Act, and most of the criticisms which have been made of the Bank's conduct under it. The debate between the two schools was part of a continuous examination of money and banking affairs which had gone on since the resumption of cash payments in 1819. However, towards the end of the 1830s the debate took on a new significance following the apparent failure of the Bank of England to

---

<sup>1</sup> There are innumerable books which deal with the monetary controversies of the 1840s; among the most useful are E. Wood, *English Theories of Central Banking Control, 1819-1858*, Harvard Economic Studies, Vol. LXIV (Cambridge, Mass., 1939); J. Viner, *Studies in the Theory of International Trade* (New York, 1937) esp. Chap. V, pp.218-289; T.E. Gregory, *Select Statutes, Documents and Reports Relating to British Banking, 1832-1928*, Vol. I, 1832-1844 (Oxford, 1928, reprinted, 1964) (see especially the editor's introduction); F.W. Fetter, *Development of British Monetary Orthodoxy, 1797-1875* (Cambridge, Mass., 1965); Sir John Clapham, *The Bank of England: A History* (Cambridge, 1944); R.C.O. Matthews, *A Study in Trade Cycle History*, Chap. XI; W.T.C. King, *History of the London Discount Market* (1936).



conduct its affairs satisfactorily during the latter part of that decade. It was widely held at the time that, as a result of the Bank's mismanagement, the monetary system had been seriously endangered during 1836 and again in 1839 when bullion drains threatened to exhaust its entire reserve. The controversy which followed centred on the need to state explicitly the principles upon which the Bank should act in times when a bullion drain threatened to deplete the reserve seriously.

The main spokesmen of the Currency School were S.J. Loyd, G.W. Norman and R. Torrens. The essential aim of their principle was to render the Bank a neutral factor in the monetary situation and thereby allow what they termed the "natural laws" of currency to operate with regard to maintaining international equilibrium. By the natural laws of currency the Currency School was referring to the Ricardian principle that, in a world of free trade in gold and where no paper currency existed, the precious metals would be distributed between the nations in proportions necessary to meet the needs of trade in each country and to keep the value of money stable. If these conditions prevailed, they assumed, any loss of bullion to foreign countries would automatically lead to a decline in the volume of the domestic gold circulation and thus to a corresponding increase in its domestic value. This would immediately set off a chain of events working through the domestic price and credit structure causing prices to fall and interest rates to rise. This would not only act to halt the bullion drain, but would cause it to be reversed well before the domestic stock of gold neared exhaustion. In event of an inflow of bullion, the process would be reversed and the inflow halted. In this way equilibrium would be restored without any severe dislocation of domestic supplies of money and credit.

It was purely for the sake of convenience, argued the Currency School, that countries preferred to use a mixed currency (i.e. paper and coin)

rather than gold for domestic transactions, and to satisfy this convenience banks of issue had come into existence to exchange notes for gold. With the introduction of paper currency, however, and in the absence of proper regulation of the note issue, banks (and here they had in mind the Bank of England) had, at times, issued paper money greatly in excess of the volume of currency which would have circulated had the currency been purely metallic. This had led to the destruction of the self-correcting mechanism which existed under a purely metallic currency and had rendered the economy subject to violent fluctuations in its domestic monetary affairs and price structure which, on several occasions since 1815, had resulted in the bullion reserve of the entire country falling in danger of complete exhaustion.

The aim of the Currency School was to restore the self-correcting mechanism of a purely metallic currency to the 'mixed currency' (i.e. paper and coin) circulating in England. To this end they recommended the division of the Bank into two separate departments consisting of an issue department to be responsible for the note issue, and a banking department to manage all other activities of the Bank. According to the Currency School it had been precisely because the Bank had carried on both sets of activities in the same department that it had confused its note issuing functions with its normal banking activities. It was this confusion which had led to the over issue of Bank notes and inevitably to the crises of 1836 and 1839. By separating the functions of the two departments, and by setting strict limits on the Bank's power to issue notes, it was felt that the note issue could be made to fluctuate precisely with changes in the stock of bullion at the Bank. Organised in this way, they argued, the Bank would be powerless to interfere with the note issue which would be left to fluctuate with changes in the level of bullion held in the Bank precisely as if it were purely metallic; at the same time the internal price and credit adjustments required to protect the reserve during a bullion

drain would take place automatically and with the minimum adverse effect on internal monetary affairs.

The most severe criticism of Currency School ideas came from members of the Banking School led by T. Tooke, J. Fullarton and J.W. Gilbert. This group was never as homogeneous as the Currency School, but they did agree on certain basic principles. They never admitted, for example, that the Bank should be separated into two departments. Their position was always that the separation of departments would reduce the Bank's ability to withstand bullion drains and would produce greater and more abrupt changes in the domestic supply of money and credit than under a system where the reserves of the two departments were unified.<sup>1</sup> Their reason for taking this line derived directly from their general approach to money questions. They denied that prices were governed mainly by the volume of money in circulation, or that the banks could issue an excessive quantity of notes so long as they were compelled to make their notes fully convertible into gold. They also denied that bullion drains would continue unchecked unless met by a corresponding fall in domestic prices and rising interest rates. According to them, excessive bullion flows were the result of exceptional circumstances - such as the need to import food during a harvest failure - and that such drains were themselves self-terminating. So long as the Bank held an adequate reserve to cover such periods, it was unnecessary to interfere with domestic price and interest rates to halt the direction of a bullion flow. For all of these reasons they saw no reason for the Bank to force the domestic note issue to fluctuate with changes in the bullion stock: indeed, to attempt to do so, they argued, was to impose upon domestic affairs a system of expensive and altogether unnecessary interruptions to commercial affairs.

---

<sup>1</sup> The following discussion draws extensively upon T. Tooke, *An Inquiry into the Currency Principle; the Connection of Currency with Prices; and the Expediency of a Separation of Issue from Banking* (2nd ed., 1844). Reprinted, London School of Economics and Political Science, Series of Reprints of Scarce Works on Political Economy, No. 15 (1959).

They did, however, propose certain guidelines for the Bank if it was to ensure the adequate protection of its reserve. The correct policy, they said, was that during periods of bullion inflow the Bank should maintain its rate of discount above the market rate and thus progressively reduce the volume of bills which it held under discount while at the same time it should not allow any increase in its other investments. In this way the stock of bullion held at the Bank would continue to rise while the rest of the money system would remain unaffected by the inflow. The Bank should then permit its bullion stock to rise to ten or even fifteen million pounds at which point it should endeavour to hold the reserve stable. In the event of an outflow of the bullion arising from adverse foreign exchanges the Bank should allow bullion to drain freely out of the Bank, the large reserve allowing it to do so without having to raise its discount rates or sell its other securities. The outflow would act to satisfy the adverse balance of payments while the domestic price and credit system would be only lightly affected. In this way, they argued, "The money market would be less likely to be disturbed ... The utmost alteration of the rate of discount to which the Bank might have occasion to resort would probably not exceed 1 per cent; the occasions for an alteration even to that extent would probably be rare. A system like this would be less restrictive, that is, the principle of limitations would operate less rigidly under a regulation of bullion, consistently with a blending ... of the issue and deposit departments, in the Bank of England, than with their total separation."<sup>1</sup>

Finally, the two schools differed with regard to the position the Bank should take to what the Banking School described as "internal" bullion drains in contrast to the "external" drains associated with adverse foreign exchanges. Internal drains, said the Banking School, were the product of a loss of confidence within the economy which could only be corrected by the

---

<sup>1</sup> *Ibid.*, pp.116-7.

continued issue of notes. At such times the Bank should issue notes without limit until confidence was restored and the drain halted. Since the links between prices, interest rates and the money supply were far more tenuous than the Currency School allowed, such unlimited issue would produce no danger to Britain's external position, but would have the effect of restoring confidence in the banking system. The Currency School differed completely and said that the Bank should not attempt to distinguish between different types of drain; to do so, they argued, was bound to lead the Bank into serious errors and to endanger the money and banking system further than ever.

These then, were the positions of the two main schools of monetary theorists on the eve of the Bank Act coming into force. When the new act appeared before Parliament all of its main provisions were seen to have been derived entirely from the principles of the Currency School, though some of the detailed provisions are known to have been derived from other sources.<sup>1</sup> There were twenty five clauses in the act but its main provisions were contained in three early clauses. In clause one the Bank was divided into two separate departments - one for issue and one for banking. Clauses two and five dealt with the establishment of Bank's note issue. These set the size of its fiduciary issue to fourteen million pounds and set down the conditions under which it might be increased; beyond this amount the Bank was limited to issuing notes only to the amount of bullion in its coffers. Other clauses set the maximum amount of silver bullion against which notes could be issued to one quarter of the bullion stock at the Bank, and the conditions under which the country banks could issue their own notes. Finally, there was a miscellaneous

---

<sup>1</sup> J.K. Horsefield, "The Origins of the Bank Charter Act, 1844", *Economica*, (November, 1944), reprinted in *Papers in English Monetary History* (ed.) T.S. Ashton and R.S. Sayers (Oxford, 1953) pp.116-25. The Bank Act, 1844 (7 and 8 Vict. c.32) is reprinted in *Select Statutes, Documents and Reports Relating to British Banking*, Vol. I, 1832-1844, (ed.) T.E. Gregory (New Impression, Reprinted 1964), pp.129-147.

set of clauses establishing the weekly publication of the Bank's accounts, confirming the privileges of the Bank of England, and containing definitions of bank notes.

So far as the Currency School was concerned, now that the aggregate volume of notes issued by the issue department would vary automatically with variations in the stock of bullion held in the Bank, the act made currency control simple, automatic and outside the control of the Bank of England's directors. The administration of the banking department, on the other hand, was left entirely in the hands of the Bank. According to Sir Robert Peel, who merely echoed the opinion of the Currency School, Bank of England activities other than the issue of paper currency should be subject to the general laws of competition which ruled all other banks, and "the function of banking, as regards the Bank of England should be carried on by the directors precisely in the same way as the functions of banking are carried on by any of the large houses in Lombard Street".<sup>1</sup>

## II

It has been alleged that the Bank took its new position to heart, and finding itself relieved of any direct responsibility for the control of note issues, felt itself free from the other responsibilities attached to central bank control.<sup>2</sup> This, however, is too simple a view of the attitude adopted by the Bank and takes little cognizance of the problems of administering the Bank as they appeared to the directors. For them, the problem was not merely how to conduct its banking department affairs in such a way as to protect its banking department reserve while earning a profit for its share-

---

<sup>1</sup> Hansard, 3rd Series, Vol. 74, 1844, p.742.

<sup>2</sup> J. Viner, *Studies in the Theory of International Trade*, p.255.

holders, but how to do so *whilst ensuring at the same time those activities did not interfere with the proper working of the currency principle*. A failure on the part of historians to emphasize this latter point has led to much misunderstanding of the policies pursued by the Bank between September 1844 and the close of 1847, and it is worth dwelling upon it a little longer.

Under the Bank Act of 1844 the aggregate volume of notes issued by the Issue Department had been tied to the level of bullion stocks held in the vaults of the Bank of England. A portion of the notes so issued went into public circulation, while the balance formed the reserve of the Bank's banking department. During the 1840s there was much disagreement over whether the Currency Principle operated through the aggregate issue or through the volume of notes circulating outside of the Bank. This disagreement was the source of important differences of opinion between the Bank and the Currency School over the correct administration of the Bank. A failure by some historians to appreciate this point has led to much mistaken criticism of the Bank.

According to William Morris, Governor of the Bank during the crisis of 1847, the proper working of the Currency Principle depended upon the volume of notes circulating *outside* the Bank fluctuating in accordance with changes in the stock of bullion in the issue department.<sup>1</sup> However, since it was also possible that fluctuations in the bullion stock could be met by changes in the volume of notes in the Bank of England's banking department leaving notes in the hands of the public unchanged, it was possible that the entire working of the Currency Principle could be destroyed. This concern was never expressed by the Currency School, and was derived on the Bank's part from its understanding of the relationship

---

<sup>1</sup> H.C. QQ. 3009; 3335; 3528-31.

between the note issue and the Currency Principle. Whenever Loyd had referred to the note issue he did so only in terms of the *aggregate volume* of notes issued by the issue department; it was through this value, he believed, that the Currency Principle worked.<sup>1</sup> Morris and the other Bank directors, on the other hand, disregarded this concept in favour of the more widely held belief that it was the volume of notes circulating in the hands of the public - which they termed the "*active*" issue - upon which the Currency Principle worked, while notes held in the banking department reserve, which formed the balance of the aggregate issue of Bank notes, played no part in determining the rate of interest or the level of prices (these notes were variously referred to as the "reserved", "dormant", "potential", "passive" or "redundant" circulation).<sup>2</sup> Accordingly, the Bank considered it necessary to ensure that movements in the bullion stock should be matched by corresponding changes in the volume of notes circulating in the hands of the public.

In part, the failure of the Currency School to express concern over this point can be explained by the fact that they believed the Bank could and should always employ its deposits - like any commercial bank - close to the limits set by the requirements of liquidity, in which case fluctuations in the aggregate volume of notes would always be transferred to notes circulating with the public. Considered in this way there was no difference between the Bank's understanding of the mechanism of the Currency Principle and that of the Currency School. Indeed, the similarity of under-

---

<sup>1</sup> The Report of the House of Lords Committee in fact mis-stated Loyd's position when it declared, "The Act appears to assume that one fixed amount of notes out of the custody of the Bank, *and in the hands of the public*, will at all times produce the same effect, and be governed by the same laws ... It seems to have been on this principle alone that the ... evidence of Mr. S.J. Loyd has been given". H.L. Report, p.18 (*italics mine*). Compare this statement with Loyd's own evidence to the Committee, H.L. QQ. 1422-3; 1435-9; 1454-5.

<sup>2</sup> Tooke V., p.541.



standing was even closer than this. Early in the debates over the Bank reform, the Currency School had assumed that the actual circulation outside of the Bank would vary with the stock of bullion.<sup>1</sup> However, Loyd's insistence on defining the 'issue' to include both the notes in the hands of the public and in the banking department reserve almost completely obscured this point. Later, at the *Inquiry of 1848*, Loyd showed that he had expected that notes circulating outside of the Bank *would* fluctuate with changes in the bullion stock, and that such fluctuations would have automatically produced the required changes in interest rates and prices.<sup>2</sup> Unfortunately, though Loyd must have realised that the Bank's banking department affairs had to be conducted within a narrowly specified way in order to achieve this objective, he never publicly admitted this; to have done so would have greatly impaired the appeal of Currency School ideas.

Once the Bank concluded that the Currency Principle depended upon the 'active', rather than the 'aggregate' issue fluctuating in accordance with changes in the stock of bullion, the problem became one of how to pass the effect of movements in the bullion stock onto the volume of notes circulating outside of the Bank. In theory this was not a difficult problem and required only that the Bank hold its reserve at a fixed ratio of the deposits

---

<sup>1</sup> S.J. Loyd, *Remarks on the Management of the Circulation*, reprinted in S.J. Loyd (Baron Overstone), *Tracts and Other Publications on Metallic and Paper Currency* (1858), (referred to hereafter as *Tracts*) pp.70-73; and S.J. Loyd, *Second Letter to J.B. Smith* (1844), in *Tracts*, pp.198-9.

<sup>2</sup> H.C.Q. 5127. Loyd was not alone in expecting that notes in the hands of the public would fluctuate with the stock of bullion. The fact that they did not, left many people in confusion. The confusion was perhaps most clearly expressed by Francis Baring who, when describing events which took place in the first quarter of 1847, said, "... it certainly never entered into the contemplation of anyone then considering the subject (i.e. at the 1840 Committee on Banks of Issue), that 7,000,000 in gold should run off, and yet notes in the hands of the public would rather increase than diminish". *Hansard*, 3rd series, Vol. XIV, 1847, pp.615-6, Quoted, Tooke IV pp.307-8. (Words in parenthesis added.)

or, in Currency School terms, that the Bank employ its deposits as close to the limits set by the requirements of liquidity as normal banking prudence would allow.<sup>1</sup>

When the Bank came to consider the practical problems of controlling its banking department reserves as closely as its view of the Currency Principle required it could find no guidance in any of the debates which had preceded the passage of the Act through Parliament since the significance of the banking department reserve had received virtually no attention from any quarter.<sup>2</sup> The Currency School had merely argued that so long as the volume of notes issued by the issue department fluctuated with the stock of bullion in the Bank all other aspects of the Bank would function correctly.<sup>3</sup> So far as the conduct of banking department affairs were concerned the Currency School believed that they should be conducted in the same manner as by any other bank; that is, the Bank should govern its liquidity position by reference to the volume of notes in circulation (i.e. the volume issued by the issue department) and the state of its deposits. A contraction of the note circulation, they argued, was a sign that the exchanges were moving against Britain and that the Bank should rebuild its reserves, whilst at the same time raising its rate to discourage further deposit withdrawals.

---

<sup>1</sup> More precisely, the Bank should have held its reserve at a fixed absolute value so that all the effect of bullion changes would be passed on to the notes held outside of the Bank. For obvious reasons this would be impractical. In addition, the Bank argued that even under a purely metallic currency the Bank's reserve would be continually fluctuating in its absolute level, though the *ratio* of bullion held to deposits would remain largely constant (H.J. Prescott, H.C. Q. 3555). Viner has argued that during this period discussion on the proper criterion of the adequacy of reserves was generally conducted in terms of absolute amounts rather than in terms of ratios. (Viner, *op.cit.*, p.268.) However, several references contained in the *Inquiry of 1848* show clearly that the Bank considered a one third cash ratio the most desirable level at which the reserve should be held.

<sup>2</sup> Sir J.H. Clapham, *Bank of England*, Vol. II, p.194.

<sup>3</sup> R. Torrens, *A Letter to Thomas Tooke, Esq. in Reply to his Objections Against the Separation of the Bank into a Department of Issue and a Department of Deposit and Discount* (1840), pp.10-11.

Though such rules might be adequate to protect a commercial bank they were clearly inadequate to deal with the problem of administering the Bank's own banking department.<sup>1</sup> This required a technique whereby the banking department reserve could be quickly and smoothly adjusted to changes in the deposits so that it remained more or less at a fixed ratio of the deposits. Past experience had taught the Bank that with existing techniques of security control it would not be able to do this satisfactorily. As early as 1840, when the Bank first began to anticipate a separation of the departments, it had begun privately to distinguish between the accounts relating to its issue and those relating to its banking affairs to see, said James Morris, what effect separation of the department would have upon the reserve of the banking department.<sup>2</sup> This experience must have emphasized the inadequacy of the Bank's traditional policy of adjusting its reserve position by way of periodic purchase and sale of Government securities while holding its discount rate fixed at the traditional rate of four per cent.<sup>3</sup> For a long time this technique had been regarded as clumsy, inconvenient and expensive both to the Bank and to the money market; it now came to be recognised as incapable of fulfilling the requirements of the banking department if the Bank was to ensure the proper working of the Currency Principle. According to Clapham it was this latter consideration which led the Bank, in the middle of 1844, to appoint a *Committee of the Court* to enquire into the state of the Discount Department

<sup>1</sup> They would have left the Bank facing conflicting paths, as, for example, during the railway deposits crisis in January 1846. At that time bullion was flowing out of the Bank whilst at the same time a large increase in railway deposits was taking place. Had the Bank raised its rate and sold securities to halt the drain as Currency School rules required, it would have imposed very severe problems of liquidity on the rest of the banking system. As it was the Bank raised its rate slightly but also increased the volume of securities held.

<sup>2</sup> J. Morris, H.C. QQ 3690-4; H.L. Q. 32.

<sup>3</sup> The problems associated with this technique of reserve control are examined in detail in E. Wood, *English Theories of Central Banking*, Chaps. VIII and XIII.

of the Bank with the view to employing a larger proportion of its deposits in the discount of bills of exchange.<sup>1</sup>

The Committee reported on the eve of the Bank Act coming into force, and its main conclusion was that by employing more funds in the discount of bills of exchange the Bank would be able to control its reserves more closely with less interference to the market, and with greater profit to the Bank than had been the case under the previous system.<sup>2</sup> Accordingly, the Bank revised its policies in regard to the purchase and sale of securities, and adopted the much more flexible policy of adjusting its reserves by way of adjusting the volume of bills under discount. To control the number of bills discounted, the Bank turned to the most effective control weapon available, a variable Bank rate. It was in this way, and for these reasons that the Bank came to adopt the 'new discount policy' which has since occupied a central part in the literature on Bank of England policy between 1844 and 1848.<sup>3</sup>

The attractiveness of the new policy lay in its simplicity: the administration of the banking department now resolved itself into the problem of fixing the appropriate rate of discount, and the careful selection of bills from those offered at Bank Rate.<sup>4</sup> Establishing the correct rate was not too difficult; the principles were laid down by the committee appointed to examine the discount department, and required only that the Bank refer to the state of its own reserve and, from time to time, to the rate being charged

---

<sup>1</sup> Clapham, *Bank of England*, Vol. II, p.189.

<sup>2</sup> H.C. Q. 2641; H.L. QQ. 488-493.

<sup>3</sup> For an alternative interpretation of the origins of the "new discount policy", and one that is significantly unsympathetic to the Bank's reasons for adopting the policy, see W.T.C. King, *A History of the Discount Market* (1936), pp.106-9.

<sup>4</sup> On the various attempts by the Bank to find simple solutions to the problem of monetary and banking control between 1815 and 1844, see J.K. Horsefield, "The Origins of the Bank Charter Act", pp.111-116.

out of doors. As to the selection of bills for discount, the Bank already had long experience so that this would not prove a difficult problem.<sup>1</sup> The solution conflicted in no way with the principles which any private bank would have adopted for the conduct of its ordinary day to day management of affairs; moreover, it not only resolved the perennial problem faced by all bankers as well as the Bank of England, namely, how to balance the desire to employ its deposits profitably whilst ensuring its liquidity, but at the same time it appeared to ensure that the Bank's own activities would not interfere with the correct working of the Currency Principle. Thus, in its need to find a way of overcoming the problems of banking department management the Bank, intuitively or otherwise, adopted the Bank rate as the principal weapon of controlling the demand for its reserve funds, and thus took an important step in its development as a central bank.

### III

So much for the principles of administration; what of their execution? Criticism of the Bank has been levelled not only at the theory on which it came to administer its affairs, but also at the way in which it was put into practice.

Among the criticisms that were made against the Bank at the *Inquiry of 1848* there was only one which the Bank, albeit reluctantly, was willing to accept as being founded in fact; that was that the 'active' issue had not fluctuated with changes in the bullion stock.<sup>2</sup> Such an admission was, in fact, tantamount to an admission by the Bank that it had failed to put into

---

<sup>1</sup> Clapham, *Bank of England*, Vol. II, pp.189-90; H.L. QQ. 488-493.

<sup>2</sup> H.C. QQ. 3527-3565.

effect the cornerstone of its banking department policy; namely, the maintenance of a closely controlled and relatively stable banking reserve ratio.

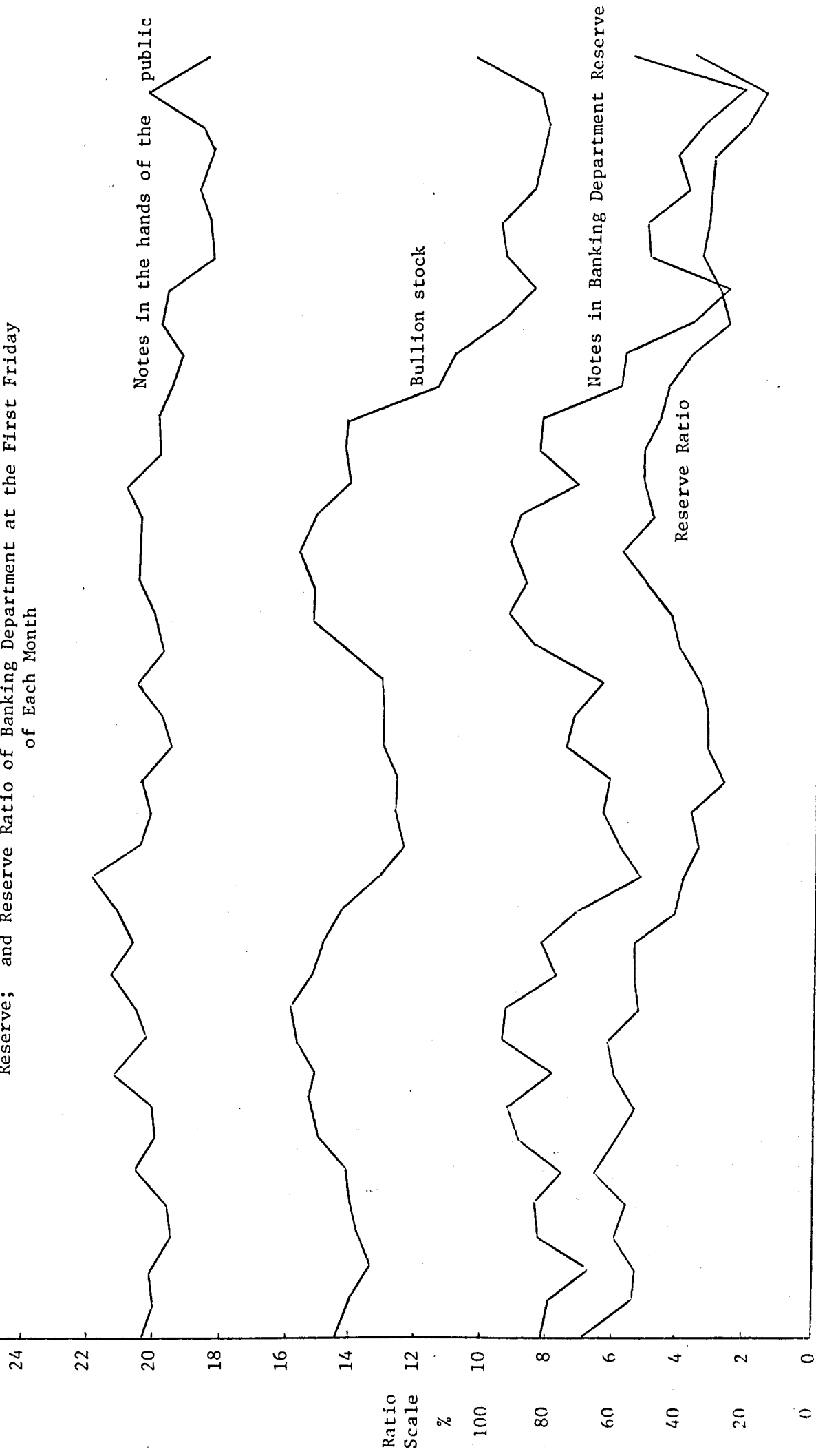
A glance at figure 9 immediately demonstrates the extent of this failure: there it may be seen that the Bank rarely managed to hold the reserve at the one third ratio of deposits considered desirable. Instead, almost all of the effects of any variation in the bullion stock fell upon the stock of notes held in the banking department reserve, while the stock of notes in the hands of the public remained virtually stable throughout the entire period. If, as the Bank considered, the maintenance of a stable reserve ratio and the transfer of the effects of bullion fluctuations onto the stock of notes outside of the Bank was to be the cornerstone of its policy, it can only be concluded that the Bank's conduct of its own affairs between September 1844 and December 1847 was a distinct failure.

The extent of this failure is quite outstanding and was due, as the Banking School frequently pointed out, to the fact that the demand for notes by the public was determined in the main by the state of trade and not by the stock of bullion at the Bank.<sup>1</sup> Only so far as the flow of bullion coincided with changes in the level of business activity would the volume of notes in active circulation tend to increase or decrease with changes in the stock of bullion at the Bank. If the public did not require additional notes during a period of bullion inflow, any attempt by the Bank to force notes into circulation by purchasing securities would be frustrated by the public returning the notes to the Bank either in the form of additional deposits, or by various other means. Conversely, during periods of bullion drain or when notes were otherwise needed in the market, the public was usually able to obtain notes from the banking department to replace those

---

<sup>1</sup> T. Tooke, *Inquiry into the Currency Principal*, pp.60-66; Tooke IV, pp. 183-91. J. Gilbert, *A Practical Treatise on Banking*, p.164.

Bank of England: Sept. 1844 - Dec. 1847.  
Bullion Stock; Notes in Hands of the Public; Notes in Banking Department Reserve; and Reserve Ratio of Banking Department at the First Friday of Each Month



taken out of circulation by the issue department. In these ways, any movement in the Bank's bullion stock up or down was usually met by changes in the banking reserve, rather than by changes in the public circulation.

Two reasons explain the apparent ease with which the public could obtain cash from the Bank during periods of a bullion drain. The first represents a real conflict which appeared in the Bank's principles of administration and one which the Bank did not resolve before the crisis of 1847: namely, what should it do at a time of adverse exchanges when bullion was flowing abroad, but when its own banking reserve was large? The second represents a failure by the Bank to recognize the public's ability to use the Treasury deposits held in the Bank and the quarterly dividend payments as an avenue through which to obtain notes from the Bank's reserve.

The first may be seen operating between August and November 1845 and again between September 1846 and May 1847. On both occasions when the drain started the Bank's reserve was very large (the reserve ratio exceeded 50 per cent of the deposits) and on both occasions the Bank allowed the public to obtain notes from the reserve by way of discounting bills or by obtaining loans thereby allowing part, if not all, of the outflow of bullion to fall in its own reserve rather than on notes with the public. On the second occasion the Bank's actions were severely criticised as being a cause of the monetary difficulties of April 1847. There were good reasons why the Bank should have allowed its reserve to fall in this way at the beginning of a drain. In the first place, had the Bank attempted to restrain the monetary system by forcing notes with the public to decline with the stock of bullion while its own reserves exceeded 50 per cent of its deposits it would have faced bitter criticism from the rest of the money



market. This is especially true of the drain which developed towards the end of 1846. As witnesses to the *Inquiry of 1848* observed, the rise in interest rates occasioned by such an action would have greatly added to the cost of importing food during the famine of 1846/7.<sup>1</sup> The action would, furthermore, have amounted to requiring that the Bank hold a 50 per cent reserve, rather than the 33 1/3 per cent reserve regarded by the Bank as adequate.<sup>2</sup> A further reason, and one which both contemporaries and historians appear to have ignored, is the fact that during the 1840s it was only during periods of bullion drain that the Bank was able to reduce its reserve from the excessively high levels that prevailed for most of our period. The Bank was constantly troubled between 1844 and 1847 by its excessive reserve, and many of its actions during this period were concerned with reducing it. However determined in its efforts to force its notes into circulation, the reserve, for the most part, remained stubbornly in excess of forty per cent of the deposits. In these circumstances, periods of bullion drain offered the Bank a rare opportunity to reduce its reserve to more desirable levels.

But even if the Bank had tried to keep its reserves stable in the face of a drain by not allowing further loans and discounts, the market could usually obtain some reserve money from the Bank by a second avenue - the Treasury deposits.<sup>3</sup> These were deposits built up at the Bank from revenues collected by various government departments and used by the Government to pay its accounts, the largest being the quarterly dividend paid on Government stock. To overcome the normal seasonal imbalance between the inflow of funds to the Treasury and the regular dividend payments Treasury

---

<sup>1</sup> For example H.L. Q. 848.

<sup>2</sup> The question of who should bear the cost of holding large reserves was one which attracted much attention at this time and is fully discussed in J. Viner, *Studies in International Trade*, pp.264-70.

<sup>3</sup> This paragraph draws upon a more extensive treatment of the topic in E. Wood, *English Theories of Central Banking*, Chaps. V and VIII.

bills were sold on the money market, and were repurchased later when the government revenues were paid. This practice left open a route whereby the money market, whenever it found itself short of funds could refuse to purchase Treasury bills and thus compel the Treasury to draw upon the Bank for deficiency loans in order to pay the dividends.<sup>1</sup> In this way the payment of the dividends had the same effect as if the Bank had issued notes from its own reserve by purchasing securities; a net transfer of cash from the Bank's reserve into the hands of the public took place.

It is clear that the Bank itself imperfectly understood the importance of this avenue to its reserves and in answers to a long series of questions put at the *Inquiry of 1848*, James Morris argued strongly that it made no difference to the availability of notes with the public whether the dividends were paid from the Government deposits, or whether they were paid from deficiency loans supplied by the Bank.<sup>2</sup> This was to some extent beside the point. What mattered was whether the payments involved a net transfer of cash from the Bank reserve into the hands of the public. If the Treasury was unable to raise sufficient funds publicly it would call upon the Bank who then had to turn to its own reserves to make up the dividends. This would act to reduce the Bank's reserve and, unless it could call money in from the public in other ways, the volume of cash outside the Bank would correspondingly increase.

On at least one important occasion during our period the public obtained notes in this way. During the first quarter of 1847 large imports of corn had resulted in a severely adverse balance of payments and for several

---

<sup>1</sup> By raising the Exchequer Bill rate the Treasury could usually resist such tendencies in the market, but this again depended upon the size of the reserves in the London Banks, and upon their ability to obtain reserve cash from the Bank of England.

<sup>2</sup> H.C. QQ. 2934-64.

months bullion flowed abroad in large quantities. For a time the Bank succeeded in passing part of this effect onto the market where it had resulted in a progressive tightening of the terms of credit and by April 1847 the market was experiencing an acute shortage of reserve cash. Accordingly, when the Treasury made its usual offer of Treasury bills to the money market in preparation for the April dividends, a large portion was refused by the public and the Treasury was compelled to turn to the Bank for deficiency funds to the extent of about £3.5m. When, on April 8, the dividend was paid the effect was the same as if the Bank had released the same volume of notes by way of additional loans and discounts. A large transfer of funds from the Bank's reserves took place and the public was able to acquire the reserve cash which the Bank had been otherwise refusing to it through normal channels.

Because of these factors, then, the Bank found it impossible either to control its banking reserve as closely as it had expected, or to ensure that the volume of notes in 'active' issue fluctuated with changes in the stock of bullion at the Bank. Nevertheless, the Bank was always conscious of the need to attain this end, and its attempts on the one hand to force notes into circulation whenever its reserves were large and on the other, its failure to pass the effects of bullion drains onto the circulation drew constant criticism over the three years between September 1844 and December 1847. An examination of these criticisms and of the Bank's attempts to answer them is the subject of the next two sections of this chapter.

The criticism most often levelled at the Bank's administration of affairs in the three years following the introduction of the Bank Act of 1844 was that it abandoned its central bank responsibilities and embarked upon a policy of competitive discounting.<sup>1</sup> The immediate effect of the new policy, the argument goes, was to greatly increase the supply of reserve money available to the money market and to arrest a rise in interest rates which would otherwise have taken place towards the end of 1844. Certainly it is true that one of the most prominent features of monetary affairs during the 1840s is the prolonged period of low interest rates which lasted from June 1842 until the close of 1846. Throughout this period the market rate of discount rarely exceeded 3½ per cent and for most of the time it hovered between 2 and 3 per cent. Although rates had fallen to these levels on previous occasions, the length of time over which they remained so low was unprecedented.<sup>2</sup>

The Bank always vigorously rejected the idea that it could influence discount rates to any significant extent or that it was responsible for the low interest rates of 1842-1846.<sup>3</sup> Nevertheless, the view that the Bank's adoption of what came to be called the New Discount Policy marked a significant change in its attitude to its central bank responsibilities, and that the way in which it was administered by the Bank did act to depress interest rates, has an impressive list of supporters both among nineteenth century observers

---

<sup>1</sup> This criticism appears in most works dealing with the history of the Bank of England in this period, but is most fully and forcibly expressed in W.T.C. King, *History of the Discount Market*, Ch. IV, esp. pp.102-9.

<sup>2</sup> Rates quoted as market rates are those charged on first class bills at Gurney's as given in the Report of the Select Committee on Bank Acts; together with the Proceedings of the Committee, Minutes of Evidence, Appendix and Index 1857 Second Session, X, Q.4876.. .

<sup>3</sup> H.C. Q. 3420; H.L.QQ. 3213-19, Loyd held a similar view. See H.L. QQ. 1634-48.

and modern historians.<sup>1</sup> These views have rarely been challenged though E.V. Morgan has argued that the Bank never abandoned its traditional powers and responsibilities as a central bank by entering into competition for discounts; nor, he argues, can the Bank be fairly accused of playing any important part in the reduction of the market rate of discount between 1843 and the close of 1846.<sup>2</sup> The dispute is still clearly far from settled and since it has been regarded as central to the Bank's whole role in the origins of the crisis of 1847, it will be worthwhile to reconsider the question in some detail.

The idea that the new discount policy represented a radical change in the Bank's relationship to the rest of the money market arises from the fact that before 1844 it had been the policy of the Bank to remain aloof from the discount market, and to accept discounts only during periods of severe credit stringency. This had been the basis of the policy announced in 1832 by H.J. Palmer who believed that if the Bank were to act otherwise it would prove objectionable to the private bankers, and might result in an excessive issue of Bank notes.<sup>3</sup> Under the Palmer policy the Bank had maintained its

<sup>1</sup> See, for example, Tooke IV pp.294-6; J.W. Gilbart, *A Practical Treatise on Banking* (1852) pp.165-66; A.E. Feavearyear, *The Pound Sterling; A History of English Money* (Oxford, 1931) pp.258-61; J. Viner, *Studies in the Theory of International Trade*, p.229; *Select Statutes and Documents Relating to British Banking*, Vol. I (ed.) T.E. Gregory, Editor's introduction, pp.XXV-XXVI; A.D. Gayer, W.W. Rostow and A.J. Schwarz, *Growth and Fluctuation, 1790-1850*, pp.329-331. J.H. Clapham, *Economic History of Modern Britain*, Vol. I, p.525, C.N. Ward-Perkins, "The Commercial Crisis of 1847", *Essays in Economic History*, Vol. II (ed.) E.M. Carus-Wilson p.264; F.W. Fetter, *The Development of British Monetary Orthodoxy 1797-1875*, (Cambridge, Mass. 1965) pp.201-3.

<sup>2</sup> E.V. Morgan, "Railway Investment, Bank of England Policy and Interest Rates", pp.336-9. For similar arguments see E. Wood, *English Theories of Central Banking Control*, pp.135-148.

<sup>3</sup> Evidence of J.H. Palmer before the Committee of Secrecy on the Bank of England Charter, B.P.P. 1831-2 VI, QQ. 477, 558-563. Reprinted in T.E. Gregory, *Select Statutes, Documents and Reports*, Vol. I, pp.14; 17-18.

discount rate steadily at four per cent regardless of how far the market rate fell but, on those occasions when the market rate had threatened to exceed Bank rate, the rate had been raised and in addition the Bank had sometimes attempted to ration discounts and loans directly.<sup>1</sup> It is not surprising with this history, that historians should regard the sudden reduction of Bank rate from 4 to 2½ per cent - a rate at least 1½ per cent below any rate previously fixed by the Bank - as an important watershed in the Bank's relationship with the money market.<sup>2</sup>

An additional change introduced by the Bank in 1845 which, though not strictly part of the new discount policy, may still be considered with it, was the form of advertising "temporary advances". It had been the Bank's practice since 1829 to offer these advances on a fairly strict range of securities, and with a fixed date - usually 10 days before the dividend date - after which fresh advances would not be made. From January 15, 1845 onwards, these advances were offered "until further notice", and upon a considerably extended range of securities. This change has been regarded as additional evidence of the Bank's new attitude to its role in the monetary system and of its determination to compete for business against other bankers.<sup>3</sup>

To what extent can it be claimed that these changes marked a significant break in the Bank's traditional relationship to the rest of the money market? The answer, it must be said, is that it was much less of a break than most historians have supposed. So far as the Bank's new policy placed a greater emphasis on control of its securities and reserve position

<sup>1</sup> Between 1815 and 1844 the Bank raised its rate above four per cent on three occasions: (a) during the crisis of 1825/6; (b) at the crisis of 1836/7; (c) in 1839.

<sup>2</sup> See for example, W.T.C. King, *op.cit.*, p.102.

<sup>3</sup> *Ibid.*, p.131.

by investing in bills of exchange, and so far as it placed greater emphasis on the role of Bank rate to control the demand for discounts than had previously been the case, it may be said that the new discount policy was a significant change in the Bank's relationship with the money market. But King and others have gone further than this: they have argued that the Bank's new policy changed its *role* in the money market, and in particular, enabled the market to obtain reserve money much more readily (and thus expand money and credit supplies more easily) than had previously been possible. It was this, they argue, which acted to depress market discount rates for such a long period during the 1840s.

There are several reasons for believing that this may be a mistaken view of the new policies. In the first place, it mistakes the role which discounting came to play under the Bank's changed policies. Before 1844 the various institutions in the money market had been able to adjust their reserve positions at the Bank in a variety of ways including the purchase of Government securities by the Bank, regular temporary advances, special advances, discounting at the Bank's London office, discounting at the Bank's provincial branches, and by way of the Treasury accounts.<sup>1</sup> Through these avenues the market had generally been able to take from the Bank what it needed, or to leave with the Bank what it did not require. The reason why the market had not regularly resorted to discounting at the London office was simply that the other methods available to it were normally much cheaper than discounting. It was only when these channels became inadequate that the market resorted to discounting at the Bank. However, on those occasions when the market had resorted to the Bank for discounts, it did so on a very large scale as any

---

<sup>1</sup> Each of these avenues to obtaining reserve cash from the Bank are very fully described in Wood, *English Theories of Central Banking*, especially chapters V, VII and VIII.

brief reference to the Bank's accounts in the 1820s and 1830s will show. Indeed, the volume of discounts obtained at the Bank in 1836 and 1837, and again in 1839, was only slightly lower than at the peak of the Bank's so-called reckless discounting period in 1846. In fact, what the new discount policy did was to substitute discounting at the Bank as the *normal* method whereby the market came to adjust its reserves of cash in place of the cumbersome and indirect methods which existed before 1844. Considered from this view it is a mistake to put too much emphasis upon the fact that the market came to obtain cash by way of discounts after September 1844.

There are other reasons for considering that the changes were less revolutionary than has usually been supposed. First, Bank rate under the new policy was a MINIMUM rate offered only on the very best bills. Under the Bank's previous policy, Bank rate had been a flat rate charged on any bill which was found acceptable. Additionally, under the new policy, rates charged at the Bank's provincial offices were set at a minimum of half a per cent higher than its London rate whereas previously the Bank's provincial and London rates had been the same. Secondly, as we have already seen, the reason for the changes in the Bank's policies was not that the Bank considered itself free to compete as strongly as it could, but that it was conscious of the importance of obtaining a greater degree of control over its reserves and its securities than had hitherto existed. Under the previous system the policy of adjusting the reserves through the purchase or sale of government securities had been expensive, inefficient and inconvenient both to the Bank and to the market while the policy of remaining aloof from the discount market, except in times of crisis, had resulted in violent fluctuations in the demand for discounts which had been extremely inconvenient to the Bank.<sup>1</sup> Under the new system these

---

<sup>1</sup> Clapham, *Bank of England*, Vol. II, p.189; King, *History of the Discount Market*, p.107; Morris, H.C. Q. 2641.



problems were removed. Furthermore, the Bank had in the Bank Rate a weapon of considerable flexibility and power to control the demand for discounts, and, by judicious use of Bank rate, it was able to adjust its own reserve position without causing undue interference in the money market.<sup>1</sup>

In the light of these points the new discount policy itself cannot be regarded as establishing a radically new relationship between the Bank and the money market. The new policy merely encouraged the market to adjust its reserve position through the Bank by way of discounting bills of exchange rather than by the less satisfactory methods which had previously operated. At the same time the new policy gave to the Bank a much closer control over its securities, and therefore a greater though a more discreet influence, over the market than it had previously held. Considered in these terms, the changes were only a small, though significant step in the Bank's evolution as a central bank.

So far as the origins of the crisis of 1847 is concerned a much more important problem is the effect which the new discount policy had upon the money supply and the market rate of discount. The criticism most generally made of the Bank between the adoption of the Bank Act and the crisis of 1847, is that in competing for discounts by holding the Bank rate at an artificially low level the Bank prevented market rates of interest from rising with the rise in economic activity and that this overstimulated credit and speculative activities. The aim here is to test the validity of the first part of this hypothesis; namely, that by holding Bank rate down and discounting heavily the Bank prevented market interest rates from rising.

---

<sup>1</sup> See King *op.cit.*, p.111-2. Although attacking the Bank for its adoption of the new policy, King recognises the considerable benefits to the Bank and to the money market which arose from the replacement of the old policy towards Bank rate and discounting by the new policy.

It is useful for purposes of examination, to divide the hypothesis into two parts: (a) that under the new policy the Bank discounted a greater proportion of the volume of bills in circulation than it would have done had it maintained its pre-1844 attitude towards discounting; and (b) that by making reserve cash more easily available to the money market the new policy acted to depress rates below levels that would have existed had the Bank continued to operate under its pre-1844 rules.

(a) The Volume of Discounts

Whether or not the new discount policy resulted in the Bank discounting a greater proportion of the bills in circulation than it had done under the pre-1844 policy is a question of simple arithmetic. By simply comparing the proportion of inland bills created in any one year that was discounted by the Bank between January, 1845 and December 1847, against the proportion discounted by the Bank between 1830 and December 1844 we can see the extent to which the Bank increased its share of bills discounted under the new policy.

Table 27 below shows a series of estimates made by William Newmarch of the total value of inland bills created in each year between 1830 and 1848, and the value of discounts made by the Bank of England over the same period.<sup>1</sup>

---

<sup>1</sup> Newmarch's estimates first appeared in the *Journal of the London Statistical Society*, Vol. XIV, (1849) pp.143-92. The estimates were reprinted and extended with a full explanation of the data and methods used in *Tooke VI*, pp.584-608. Returns of the aggregate value of bills discounted by the Bank of England between 1830 and 1848 are taken from Bank of England, Reports of the Special Discount Committee, Books No. 3 and 4. There are slight discrepancies between these returns and those given in various Parliamentary Papers. The differences are too small to affect the final results.

Table 27

Aggregate value of inland bills of exchange created  
and of bills discounted at the Bank of England; 1830-1848

Values in £m.

Year	A	B	A as a % of B	Year	A	B	A as a % of B
1830	10.01	197.27	5.1	1840	30.84	299.01	10.3
1831	20.45	207.34	9.9	1841	33.84	276.46	12.2
1832	16.24	194.06	8.4	1842	24.96	249.44	10.0
1833	9.56	218.89	4.4	1843	16.80	230.64	7.3
1834	14.22	211.63	6.7	1844	17.42	246.05	7.1
1835	20.04	224.55	8.9	1845	34.83	283.27	12.3
1836	36.42	280.29	13.0	1846	55.57	293.95	18.9
1837	35.54	258.74	13.0	1847	63.56	293.58	21.7
1838	19.18	266.36	7.2	1848	23.47	224.65	10.6
1839	41.71	303.57	13.7				

A = Bills discounted by the Bank of England.

B = Total value of inland bills created.

Source: See text.

By taking an average of the annual aggregate value of bills discounted by the Bank between 1830 and 1844, and between 1845 and 1848 it can be seen that in the first period the Bank of England discounted 9.1 per cent of the total value of all inland bills created; in the second period, the Bank discounted 15.9 per cent, an overall increase of seventy-five per cent. This is clearly a very substantial increase in the Bank's share of total discounts. However, it is useful to look at the figures in other ways. If, for example, the aggregate value of bills discounted by the Bank is compared in like years in each of the two periods (as indicated by the aggregate value of bills in circulation), the difference becomes less marked. Thus in the years 1836 and 1839-41 the proportion was 13.5 per cent compared with 17.6 per cent for the years 1845 to 1847, an increase of 30.4 per cent. Such a comparison produces in this way a much smaller increase than first appears, though it is

still clear that after 1844 the Bank took a considerably larger share of the bills created than it had done before 1844.

The question which now arises is, would the Bank have discounted fewer bills by value over the same period under the policy which prevailed before September 1844? It has already been argued that under the old policy, so long as market rate was below four per cent, the market preferred to obtain money from the Bank by indirect methods; only when the market rate rose to, or exceeded, this level were bills usually offered to the Bank for discount in significant quantities. If we take a four per cent Bank rate as the benchmark of when, under pre-1844 policy, the market would have been applying heavily to the Bank for discounts and apply it to the post-1844 period, it will be seen that throughout 1847, when discounts were at their highest, this condition prevailed. Thus, it would appear that even without any change in policy discounts would have been very heavy in 1847. The position was different in 1845 and 1846; in neither of these years did Bank rate exceed  $3\frac{1}{2}$  per cent: does this mean, therefore, as King and others have argued, that during these two years the Bank's low rate was the significant factor attracting a heavier volume of discounts to the Bank than it would otherwise have obtained?

Such a charge has to be considered carefully before it can be laid against the Bank since during the whole of the period between September 1844 to the close of 1846 there were various factors at work which would have caused the market to seek reserve cash from the Bank in some way or other even under pre-1844 conditions: these included (1) a great improvement in the cash position of the Treasury accounts held at the Bank between 1843 and 1846; (2) the bullion drain of 1845; (3) the railway deposits crisis of 1845/6. Let us look at each one separately.

1. Between 1843 and 1846, and particularly in 1844 and 1845, the Treasury accounts at the Bank moved strongly into surplus as a result of Peel's tax reforms and the improving conditions of trade. The effect of this improvement, so far as the supply of Bank money is concerned, was strongly deflationary and would, even under pre-1844 conditions, have increased the market's dependence upon the Bank for reserve cash. This reserve cash was, after September 1844, obtained by way of discounting bills at the Bank.
2. During the second half of 1845 the Bank's bullion stock fell by £3.5m. when the Scottish and Irish banks began withdrawing bullion in preparation for new legislation covering themselves which was similar to that introduced for the Bank of England in 1844.<sup>1</sup> The immediate effect of this outflow from the Bank would have been to tighten money supplies in London and therefore to make the market more dependent upon the Bank of England.
3. The great increase in discounts which began towards the very end of 1845, and lasted throughout the first half of 1846 was mainly the product of the railway deposits crisis. The history of the crisis is well known and need only be summarised here.<sup>2</sup> At the height of the railway promotion boom Parliament amended its standing orders to require that, before any railway bill could be considered by Parliament, ten per cent of the proposed capital should be lodged with the Bank of England prior to the

---

<sup>1</sup> H.L. QQ. 4011, 4015.

<sup>2</sup> Useful contemporary accounts can be found in D.M. Evans, *The Commercial Crisis of 1847-1848* (1849) esp. Chapter I; *Economist*, 29 August, 1846, p.1137.

commencement of the Parliamentary session. In preparation for the 1846 session of Parliament the various banks acting for the railway companies began hoarding cash, or at best, lending it out on securities which fell due before February 1846. As a result there was strong competition for bills which fell due before the railway deposits were paid, but the holders of bills falling due after that date (and this section grew steadily as the deposit date drew nearer) found it increasingly difficult to get them discounted except at very high rates. In addition the banks themselves began to hold extra cash reserves on the grounds that it was not known how much would be required for deposits at the Bank, or how the Bank would make cash available to the market during the period that the deposits were in its hands. Finally, on the eve of the deposits payment several banks found that they had invested funds into securities not acceptable to the Bank and which did not mature until after the deposit date. All these factors meant that the market was forced increasingly to turn to the Bank for cash not only during the crisis but throughout the entire period lasting to the end of August 1846 that the railway deposits lay in the Bank.

Together all three factors acted at times to reduce the stock of cash outside of the Bank and thus forced the market into the Bank to acquire reserve cash: had the Bank not made cash available - especially during the railway deposits crisis - a severe, and totally unnecessary period of monetary deflation would have been imposed upon the economy. Given these circumstances and given the fact that the Bank wished to make cash available by way of discounting bills of exchange whenever it was required rather than allow the market to acquire it by other means, it is not surprising that the volume of bills under discount at the Bank should have been substantially higher than it would have been under pre-1844 conditions.

(b) The rate of discount

For each of the reasons given above it might reasonably be expected that the aggregate volume of bills under discount at the Bank would show a significant increase over previous years; nevertheless, as King and others have argued, it is still possible that the Bank did make money too freely available to the market and so prevented interest rates from rising as they might otherwise have done.

This hypothesis had already been examined by E.V. Morgan and been found wanting.<sup>1</sup> He argued that if the Bank had followed a perfectly passive policy - the demand for money for other purposes, for public deposits at the Bank, and at the Bank's branches being unchanged - funds available to the discount market could vary only in accordance with changes in the bullion stock at the Bank. On the other hand, if the Bank actively passed its notes into circulation by increasing its loans and discounts this money would quickly reappear as increases in the private deposits of the Bank. By comparing changes in the level of private deposits at the Bank against changes in the banking department reserve, he was able to show, in broad terms, the extent to which the Bank had passed funds onto the market, and therefore the extent to which it had depressed interest rates.

When Morgan made his calculations his aim was to compare the effect of Bank activities in the years before and after the introduction of the new discount policy, and accordingly he converted all the accounts to the style of presentation used before the Bank Act of 1844. This meant that his results were based on quarterly averages rather than the weekly returns which were available after September 1844. A further difficulty with his figures is that

---

<sup>1</sup> Morgan *op cit.*, pp.337-9.

he failed to exclude the influence of the railway deposits. The results are, consequently, rather cruder than is required for our purposes. Accordingly, the figures were recalculated as monthly averages using the weekly returns published by the Bank for the period September 1844 to December 1848. The results are shown in figure 10 below. The difference between changes in the banking department reserve and the private deposits at the Bank is shown as line A. The same calculation, with the effect of the railway deposits removed is shown as line B. In both cases the figures have been converted to a four period moving average in order to smooth out the effect of the quarterly dividend payments. For the reader's convenience it may be noted that a rise on the graph indicates an expansion of the money supply available to the market; a decline indicates a contraction.<sup>1</sup>

The results which emerge from these calculations agree closely with the conclusions of Morgan; namely, that except for certain specified periods, the Bank did not act in such a way as to force money onto the market or to depress interest rates. Indeed, the figure indicates that the supply of money available to the money market was actually *deflated* at certain times in our period and that on some occasions the deflation was quite severe.

The two periods when the Bank did act to expand the money supply are clearly seen in the figure; they appear (a) during the last quarter of 1845 and the first quarter of 1846, and (b) between November 1846 and May 1847. In each of these periods special circumstances were affecting the market to deprive it of funds. In the first period, as we have seen, the improved cash position of the Treasury, a bullion drain, and large railway deposits were

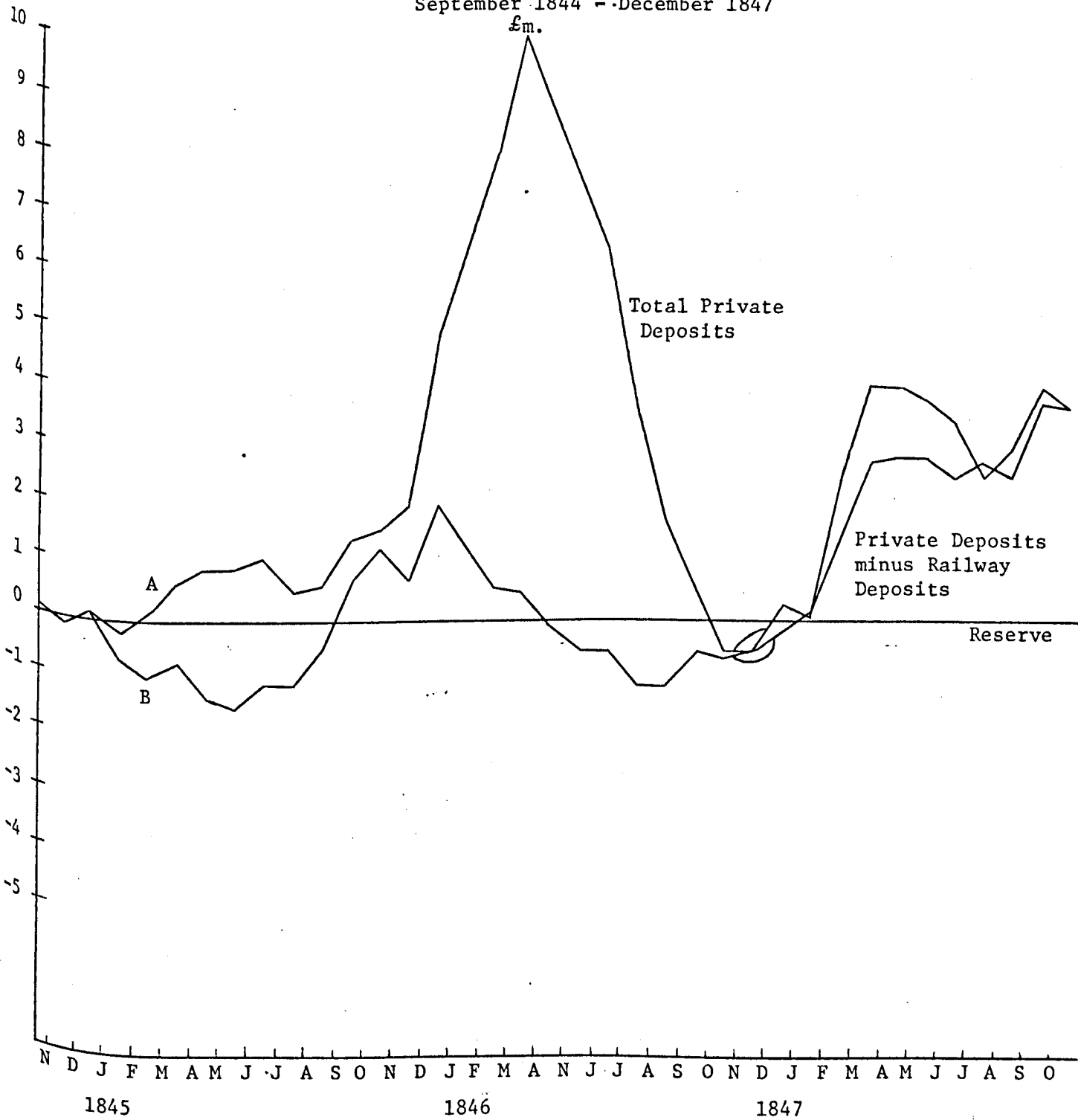
---

<sup>1</sup> To avoid confusion all references are to the behaviour of Series A in figure 10 throughout the discussion; if, however, the reader refers to series B it will be seen that after abstracting the railway deposits, the Bank actually kept the supply of money slightly depressed except in times of bullion drain.



Figure 10

Monthly average of net increase or decrease in Bank of England deposits, plotted as a four monthly moving average  
September 1844 - December 1847



Source: Calculated from figures provided in H.C. Appendix 8, pp. 31-149.

all acting to withdraw money from the market, and so to force the market into the Bank for reserve cash. Indeed, the enormous impact of the railway deposits can be gauged by comparing the two series in the figure. Once the effect of the railway deposits is removed, it can be seen that, although the Bank did act to inflate the money supply slightly during this period, the expansion is nowhere near so serious as it first appears. In the second period, the inflation of the money supply by the Bank was associated almost entirely with the bullion drain which commenced late in 1846. During this period the Bank made money available to the monetary system by allowing its reserves to decline and, in effect, acted to inflate the supply above the levels which would otherwise have existed had the Bank been entirely passive. On this occasion it did probably act to steady the rise in interest rates, but given the very unusual circumstances which existed at the time - the food crisis in Ireland and depression in many parts of the economy - the Bank's action was probably much more than justifiable.<sup>1</sup>

As interesting as the periods when the Bank allowed the money supply to inflate are those periods when it showed remarkable ability either to leave the supply of money unaffected, or when it actually deflated the supply. These appear between September 1844 and September 1845, between May and November 1846, and from May to December 1847. The interesting point about the second of these three periods is that it is precisely at this time that the Bank is most severely criticised for competing for discounts, and inflating the money supply.<sup>2</sup> It has already been shown that the large volume of discounts made during these periods appeared as the natural result of adopting

---

<sup>1</sup> The question of the Bank's conduct of affairs between November 1846 and April 1847 is considered in more detail below.

<sup>2</sup> Clapham, *Bank of England*, p.191.

the convenience of discounting in place of other, less convenient, procedures as the method whereby money was made available to the market; but, as may now be seen, because the method of obtaining reserve money was made more convenient, it does not mean that the Bank allowed, or was able to make, the market take more than it required.

The argument so far leads to the conclusion that in adopting the new discount policy the Bank did not act to stimulate the supply of money much beyond the level to which it would have moved had it pursued a perfectly passive policy with regard to note issue. It may therefore be safely concluded that the Bank did not act to depress the market rate of interest, or to prevent it from moving as it would otherwise have done except during the last quarter of 1845, and during the first quarter of 1847. In both periods, according to the Bank's understanding of the working of the Currency Principle, the bullion drains should have been met by a corresponding reduction in the volume of notes circulating outside of the Bank. In both periods, however, as we saw earlier, the market was able, for various reasons, to draw upon the Bank's reserve and so maintain the supply of notes in active circulation. In this way the Bank may have acted to prevent interest rates from rising somewhat more rapidly than they otherwise did. The question as to why the Bank allowed this to happen is one that will be considered in a moment.

One final question may now be considered; namely, if it was not the Bank's policy which resulted in the prolonged period of low interest rates during the middle 1840s, what factor was responsible? R.C.O. Matthews has shown in his study of the trade cycle in the 1830s that the market rate of interest was largely determined by the state of the foreign exchanges, and

the consequent inflow and outflow of bullion.<sup>1</sup> That this continued to be the case after introduction of the Bank Act of 1844 may be seen from the scatter diagram in figure 11 below. The figure shows the actual average monthly market rate of discount paid for any given average monthly stock of bullion held in the issue department of the Bank of England. The closeness of the actual rates to the fitted curve is striking confirmation that the relationship between market rates of discount and the state of the exchanges observed for the 1830s continued throughout the 1840s.<sup>2</sup> It is also striking confirmation of the fact that the low interest rates of the mid-1840s were a product of the large inflows of bullion which took place between 1843 and August 1846, and not of any action on the part of the Bank of England.

One other striking feature of the correlation is the regular pattern of deviation of the actual rate of discount paid from the predicted rate.<sup>3</sup> In part, the existence of such a pattern might be expected if the Bank had had no influence upon the supply of money simply because the level of activity at different stages of the trade cycle would result in different quantities of money being required for transaction purposes. This factor almost certainly explains much of the upward trend in the pattern of deviations between September 1844 and the third quarter of 1846, and the downward trend during the latter part of 1846. In the first of these periods the trade

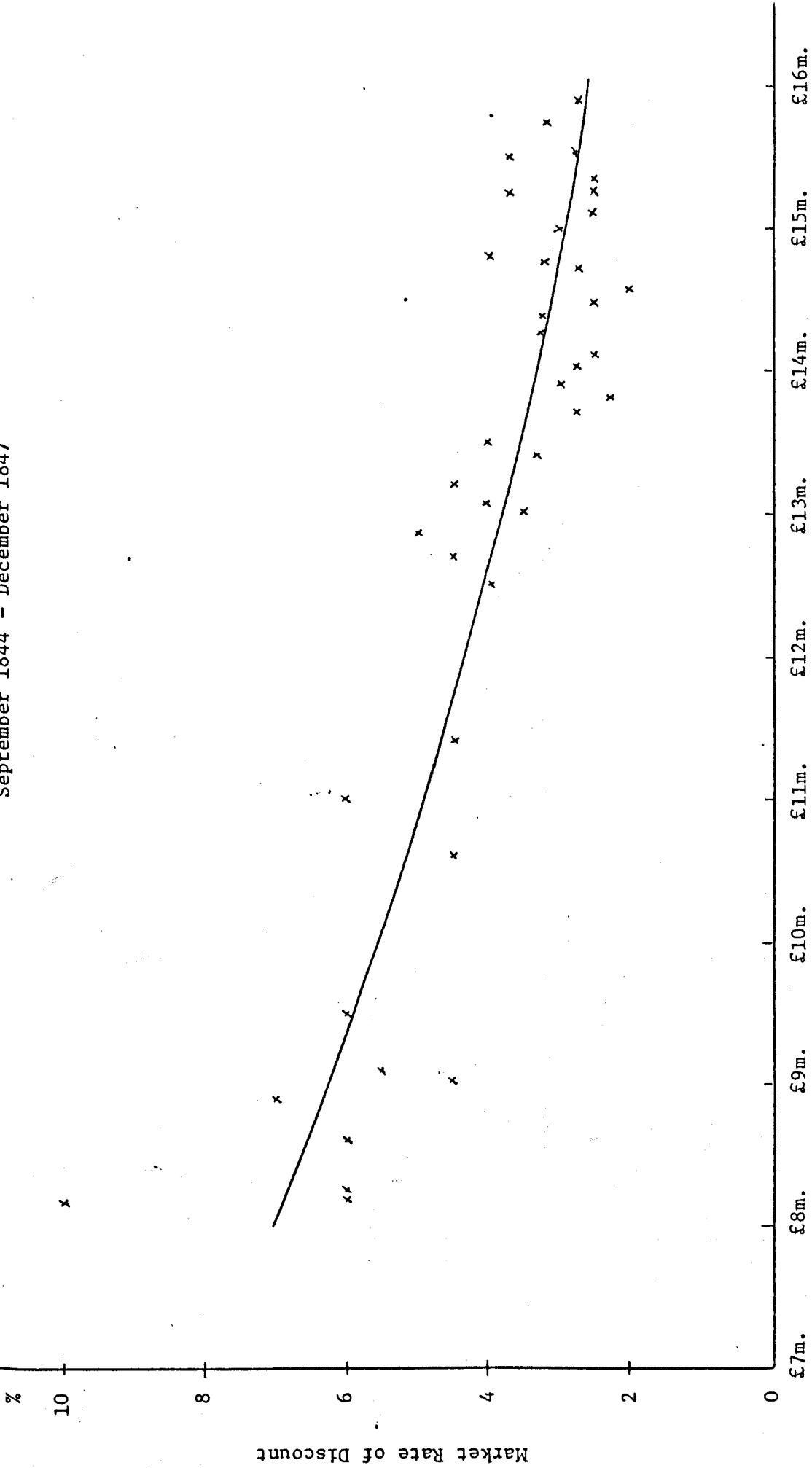
---

<sup>1</sup> R.C.O. Matthews, *A Study in Trade Cycle History*, p.175.

<sup>2</sup> The regression curve is fitted as the quadratic function  $Y_t = a + bX + cX^2$  for which  $Y_t = 15.68 - .0013x + 3.10^{-8}x^2$ . The correlation coefficient of the two series is -0.72.

<sup>3</sup> This paragraph draws readily upon Matthews' discussion of the behaviour of the market rate in the 1830s. The contrast in the experience between the two decades on this aspect is noticeable, and may be judged by brief reference to Matthews work cited above.

The Market Rate of Discount as a Function of The Stock of Bullion Held in the Issue Department of the Bank of England September 1844 - December 1847

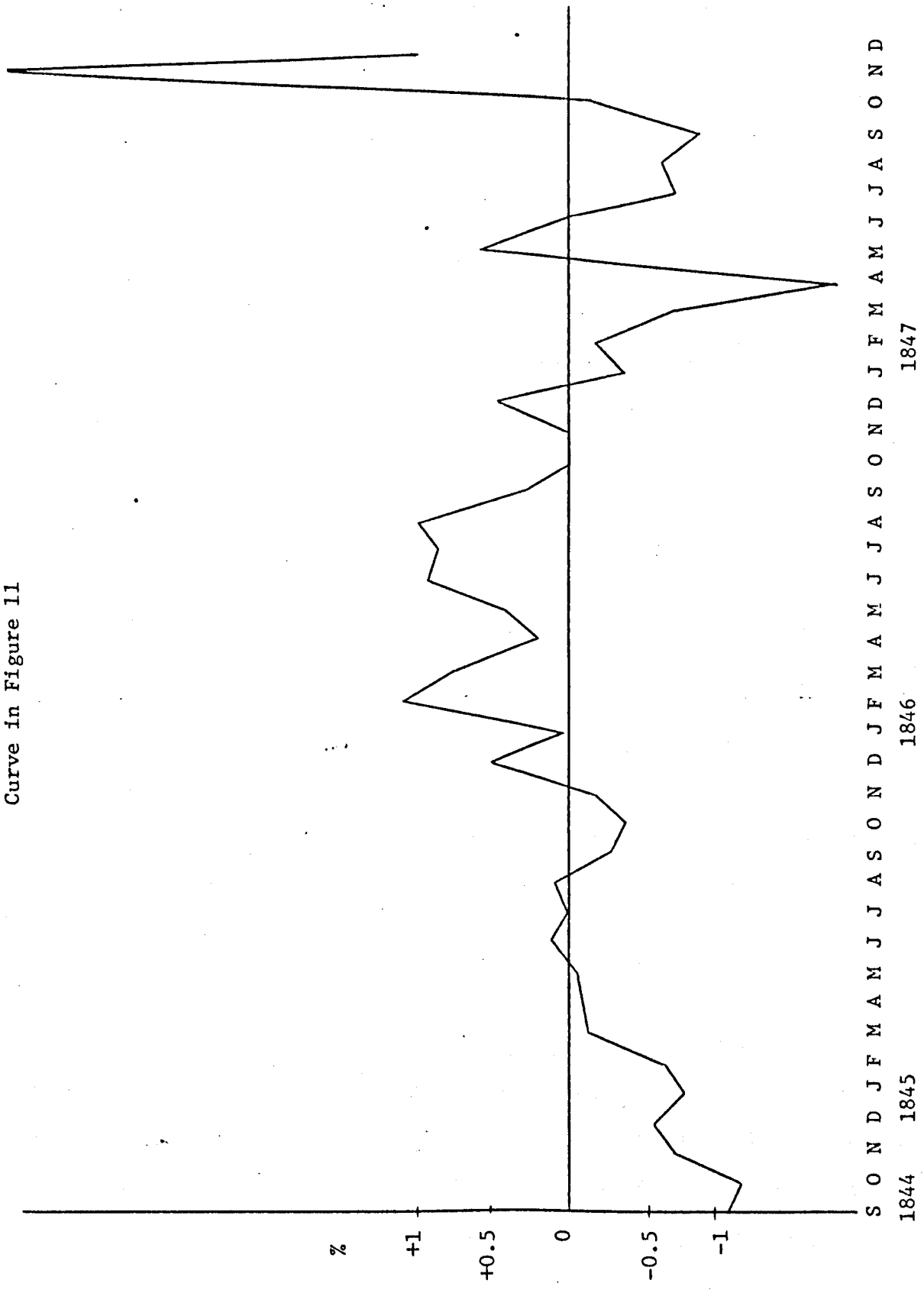


Bullion Stock in the Issue Department of the Bank of England

Sources: Market Rate of Discount. Select Committee on Bank Acts, 1857. Q.4876  
 Bullion Stock in the Issue Department of the Bank of England H.C. Appendix 5,  
 Vol. II, pp.16-21.

Figure 12

Deviations of Actual Rate of Discount From Fitted Curve in Figure 11



cycle was in its expansionary phase, and in the latter it was contracting; the volume of transactions would thus be rising at one stage, and falling in the other. However, the fact that the upward movement is sustained well beyond the usual dating of the onset of the downswing of the cycle (i.e. the last quarter of 1845), suggests that factors other than the demand for money for transaction purposes were keeping the cost of money high throughout the first six months or so of 1846. The argument and conclusions of the foregoing pages supports the idea that it was in large part the activities of the Bank of England and the large railway deposits held there which introduced this additional deflationary factor into the money supply during this period, *and thus acted to push market interest rates upwards rather than to hold them down* as critics of the Bank have invariably argued.

The violently fluctuating character of the deviations in 1847 suggests that during that year there were a number of factors other than just the state of the exchanges and the flow of bullion stocks acting to destabilize monetary affairs. It has already been argued in another chapter that one of these factors was variations in the demand for money for railway investment purposes. The rest of this chapter examines in detail various other factors which acted to destabilize money and banking affairs in 1847. The next section goes on to examine the Bank's activities in 1847 to see how they affected monetary affairs in that year. Section VI examines the responsiveness of the provincial banks to monetary affairs in London, and section VII argues that the movement of railway investment funds around the country added to the instability of money supplies and interest rates in 1847. At this point it remains only to note that up to 1847 the general level of interest rates conformed closely to movements in the state of the exchanges as they were reflected in the stock of bullion at the Bank with the modification that they generally rose above or fell below the average for any given stock of bullion

according to the state of activity in the economy. It follows also that the Bank, contrary to what its critics have said, played a relatively neutral role in monetary affairs between 1844 and the close of 1846.

## V

During 1847 there were two periods of severe financial disturbance, the first appeared in April 1847, the second, the so-called 'crisis' of 1847, appeared in October. On both occasions the Bank was closely involved and its actions have received extensive criticism both at the time of the crisis and from historians since. On both occasions the Bank defended its actions strongly and argued that it had merely responded to occasions rather than created them. An examination of the criticisms made of the Bank and its answers to them gives much insight into the relationship of its conduct and the state of monetary affairs during 1847.

The principal events which preceded the difficulties of April 1847 have already been described and need only be briefly outlined here. During the first four months of 1847 large quantities of bullion were exported from Great Britain in payment for corn imports. In monetary terms the effect of this drain, over the period as a whole, fell mainly upon the reserve of the Banking department rather than upon notes held in the hands of the public. Thus, between January 2 and April 10, 1847, the Banking department reserve fell by £6.2m. taking the reserve ratio from fifty three per cent of the deposits in January to twenty per cent on April 10. For most of this period the Bank continued to hold its discount rate unchanged at four per cent while the rate in the market climbed steadily. Then, on April 8 the Bank raised its rate to five per cent and proceeded to restrict severely the range of bills



it would accept for discount.<sup>1</sup> According to both Tooke and Loyd, it was this sudden reversal of discounting policy on the part of the Bank, involving the total rejection of many first class bills of exchange, which precipitated the difficulties of April, 1847.<sup>2</sup>

Although both Loyd and Tooke believed that the Bank's management of affairs during April had precipitated the difficulties, Loyd was very much more critical of the Bank than was Tooke. Indeed, Tooke all but exonerated the Bank and placed the blame upon the Bank Act of 1844 and the division of the Bank into two separate departments.<sup>3</sup> Loyd, on the other hand, was critical of the entire conduct of the Bank's affairs between January and April, 1847. In a letter to *The Times* published on 15 April 1847, and again at the *Inquiry of 1848*, he argued that the Bank had acted in a manner contrary to all the ordinary rules of prudence and good banking.<sup>4</sup> The Bank, he said, had continuously expanded its securities in the face of a serious bullion drain with the result that the volume of notes held in the hands of the public had increased rather than diminished. The result had been, he said, that the changes in interest rates and prices necessary to correct the exchanges and to

---

<sup>1</sup> Bank rate was raised to five per cent on April 8; it was not known publicly until April 10 that the reserves had fallen to 20 per cent of the deposits.

<sup>2</sup> Tooke IV, pp.73-74, 302-7; Loyd, H.C. QQ. 5129-5133; H.L. QQ. 1353-6. S.J. Loyd, *The Petition of the Merchants, Bankers and Traders of London, against the Bank Charter Act; with Comments on each Clause* (1847). Reprinted in *Tracts* p.294. See also the Report of the House of Lords Inquiry of 1848, pp.38-9.

<sup>3</sup> Tooke IV, pp.303-4.

<sup>4</sup> H.L. QQ. 1353, 1360-62; H.C. Q. 5133; *The Times*, 15 April 1847. This letter was signed 'Mercator' a pseudonym adopted by Loyd. It is not clear to what extent historians of banking have recognized that Loyd did, in fact, write this letter. Certainly, Tooke, who reprinted it in part in the *History of Prices* (Tooke IV, pp.309-11), gives no indication that he knew that Loyd had written it, otherwise he would have taken the opportunity of pointing out the inconsistencies between the letter and other statements by Loyd. Confirmation that Loyd wrote the letter is to be found in *The Correspondence of Lord Overstone*, (ed.) D.P. O'Brien (Cambridge, 1971) Vol. 1, p.384.

halt the drain had not taken place. A more appropriate course, he argued in his letter to *The Times*, would have been for the Bank to allow the drain to fall partly upon its own reserves, and partly upon the notes held in the hands of the public. "Had it done so", he said "a pressure upon the money market and upon credit would have been produced, commencing simultaneously with the drain of bullion, acting steadily and equally, and necessarily increasing in power as the drain of bullion progressed". This would have corrected the exchanges and halted the drain, without any violent action or alarm on the part of the general public.

When Loyd attempted to account for the Bank's actions he supposed that it had taken the action it did in the mistaken belief that it could keep the circulation up and allow the drain to exhaust itself without there being any contractionary effects felt by the general public.<sup>1</sup> In short, he was accusing the Bank of adopting a course of action recommended by Tooke and the Banking School. More recently W.T.C. King and J.H. Clapham have suggested other, less charitable, explanations: King held that the Bank behaved as it did because it did not consider itself responsible for the state of the monetary system and wished only to increase its own profitability, while Clapham suggested that its failure to take restrictive action may have had something to do with the fact that the Governor's own private firm was at the time in difficulties.<sup>2</sup>

---

<sup>1</sup> H.C. Q. 5267.

<sup>2</sup> W.C.T. King, *History of the Discount Market*, p.136-7: Clapham, *Bank of England*, pp.200-201. Clapham's supposition is repeated by F.W. Fetter, *The Development of British Monetary Orthodoxy*, p.205.

The Bank's own explanation of its behaviour was somewhat different. They argued that in November 1846, when the bullion drain commenced, the reserve of the banking department had been very large and that there had been no need therefore to raise the Bank rate.<sup>1</sup> In January, 1847 when the bullion drain began to affect the reserves quite markedly, the Bank had twice raised its rate by half of one per cent (January 16 and January 23); thereafter, it had taken no further action to reduce the pressure of demand upon its reserves until April 8 when Bank rate was raised to 5 per cent. However, according to William Cotton, one of its principal directors, the Bank had made arrangements to reduce its stock of securities and raise its rate during March but had withheld from doing so as a matter of courtesy to the Government which at the time was engaged in calling for a large loan to purchase food for Ireland.<sup>2</sup> During the last week of March and the first week of April, the reserve of the Bank fell suddenly, partly because of the dividend payment, and partly because of a sudden increase in the demand for bullion for export.<sup>3</sup> But because the public was still inexperienced with the working of the Bank Act the publication of the Bank's Accounts showing such a low reserve caused great alarm; this alarm was then further increased when the Bank raised its rate and began progressively to restrict the bills that it would accept for discount. These two factors together, said the Bank, produced the pressure of April 1847.

---

<sup>1</sup> H.L. Q. 2692. Both Morris and Prescott admitted however, that it might have been more prudent to have raised the rate, than to have waited until January 1847 to do it.

<sup>2</sup> H.C. Q. 3975; H.C. QQ. 2665, 3001-2; 3067-9. See also J. Gilbert, *A Practical Treatise on Banking*, pp.171-2.

<sup>3</sup> H.C. Q. 2877; 2909-10.

Clearly, there is a wide difference of opinion between the Bank directors and their critics as to what may be considered responsible action in the face of a bullion drain. Loyd's belief, for example, was that the Bank's actions demonstrated its lack of responsibility throughout the period from January to April 1847: the Bank, on the other hand considered that it acted responsibly, and that although it was wrong in not raising its rate two or three weeks earlier than it did, its reasons for doing so (i.e. because it did not wish to adversely affect the Government's Irish loan) did not reflect its irresponsibility as a central bank but upon the fact that its responsibilities often came into conflict with one another.

If Loyd's criticism was made within the framework of the Currency Principle, how do we account for the Bank's apparently genuine belief that it had acted in a responsible manner if, as was argued earlier in the chapter, the Bank itself accepted and had actively set out to put the Currency Principle into effect?

The answer is simply that until the two weeks or so before Bank Rate was increased on April 8, there is no evidence that the Bank allowed its reserve to fall in an uncontrolled manner as Loyd, King and others have argued. For several months prior to August 1846 bullion had been flowing into the Bank while at the same time its own stock of securities had been declining as fewer applications for discounts were made. As a result, the reserve of the banking department had risen steadily, and by August it exceeded fifty per cent of the deposits. To discourage any further inflow of bullion, and to reduce its own reserve the Bank had reduced its rate to 3 per cent on August 27, 1846 and also began purchasing railway securities.<sup>1</sup> Despite these

---

<sup>1</sup> Morris, H.L. QQ. 398; 501-3; 597.

actions, the reserve remained persistently above 50 per cent until the end of the year. It is this factor which led the Bank to withhold from raising its rate as soon as it was known that the harvest failures would necessitate large imports of corn.<sup>1</sup>

Towards the end of 1846 the large purchases of corn, assisted by high cotton prices, were acting to turn foreign exchange rates against Britain, and by January, 1847 bullion began to flow out of the Bank in large amounts. In that month £2m. in bullion left the Bank causing the reserve ratio of the banking department to fall to 45.6 per cent by 30 January, 1847. In response the Bank had twice taken the precaution of raising its rate by one half of one per cent; both increases being welcomed by the money market as timely measures.<sup>2</sup>

At this point the Bank could have taken stringent measures to halt the decline in its reserve and thus have ensured that any further reduction in the bullion stock fell upon notes held in the hands of the public. Considering the size of the reserve at the time (it was more than forty-five per cent of the deposits) this, as Loyd admitted, would have imposed a more sudden and severe money pressure than was necessary, so the Bank allowed part of the drain to fall upon its own reserves.<sup>3</sup> During the eight weeks following the increase of Bank rate to four per cent (January 21) bullion continued to

---

<sup>1</sup> H.L. Q. 2692. The Bank was criticised in some quarters for not raising its rate sooner than January 1847 - see, for example, Tooke, H.L. Q. 3051 and James Morris, H.C. QQ.2660-1. There was clearly some division of opinion within the Bank on the wisdom of this decision. See Clapham, *Bank of England*, p.200.

<sup>2</sup> *Economist*, Jan. 1847, pp.71 and 101.

<sup>3</sup> *The Times*, 15 April 1847.

drain abroad, but an examination of the Bank's accounts shows that the effect of this drain was made to fall considerably more heavily upon notes outside the Bank, than upon notes held in the reserve.<sup>1</sup> In short, until March 20, the Bank followed precisely the path that Loyd in his letter to *The Times* had described as being the most desirable for the Bank to follow.

By March 20 the reserve had fallen to 35.5 per cent of the deposits, a level safely above the 33 1/3 per cent considered by the Bank as a desirable level to maintain. At this point, however, the outflow of bullion suddenly increased sharply.<sup>2</sup> Had the Bank then taken the steps to correct its own position, as *The Economist* was demanding,<sup>3</sup> and as Cotton had claimed that it had prepared itself to take, the drain of bullion abroad might have been restrained, the reserve might have been maintained at a one third margin and the Bank could have smoothly passed the full impact of the bullion drain onto the notes in circulation. In fact, the Bank's decision to delay raising its rate until the Government had raised its Irish loan meant that in a few days it lost the position which it had so carefully prepared for itself.

There is sufficient evidence to show that the Bank had not expected the situation to change as dramatically as it did in the two or three weeks between 20 March and 8 April. Before that period the Bank's control of its

---

<sup>1</sup> The relevant figures are that bullion decreased by £2.2m., the reserve by £0.7m. and notes in the hands of the public by £1.5m.

<sup>2</sup> On the causes of the sudden drain of bullion abroad see Chap. VIII below, pp. 346-349.

<sup>3</sup> *Economist*, 1847, 13 March, p.308.

own reserve position had been secure, and although *The Economist* had been calling for a rise in Bank rate, it had done so only because it believed that such a rise was required as a precautionary, rather than as a distinctly defensive measure. As the Chancellor of the Exchequer was later to say, "Even so late as February or March, no one anticipated the severity of the pressure that has since taken place ...".<sup>1</sup>

However, one factor that does not appear to have been thoroughly anticipated by the Bank or by the Government was the possibility that the Treasury might require large deficiency payments in order to pay the dividends. In this case the lack of anticipation was disastrous.<sup>2</sup> We have seen earlier how, if for any reason the market was short of funds, either because of a bullion drain or because the Bank was restricting its purchases of securities, the public might refuse a portion of the Treasury bills and that by doing so it could force the Bank to release extra funds from its reserve. Such an event occurred during the first two weeks of April, 1847. Up to that time the Bank had effectively pressed the greater part of the bullion drain onto the public circulation, and had thus progressively tightened credit outside of the Bank. When the Treasury came to issue its bills a large portion of them was not taken up and the Government was forced to turn to the Bank for about £3.5m. in deficiency funds. It would have been possible for the Treasury to have forced bills on to the market by raising the bill rate, though this would also have required the Bank to raise its own rate in protection. However, since the Treasury was also engaged in raising its Irish loan at the time it must have been reluctant to take this course and consequently preferred to

---

<sup>1</sup> Quoted Tooke, IV, p.303.

<sup>2</sup> It is not clear why Treasury deposits were seriously deficient at this time, though the depression in industry, the lower level of imports other than corn, and the pressure on money supplies due to the bullion drain may all have acted to decrease the public revenue, and to slow down the rate of its collection.

rely upon the Bank to make the deficiencies good. In doing so, however, it effectively depleted the Bank of a large part of its reserve at the most inconvenient time possible.

To the extent that the Bank failed to anticipate fully the consequences of delaying raising its rate and of the dividend payments upon its reserve, it may be considered as having contributed directly to the April crisis. However, if the Bank had raised its own rate, the public would still have obtained cash from the Bank by taking fewer Treasury bonds. The only way of avoiding the problem was by joint agreement between the Government and the Bank to raise both rates. This would have protected the Bank's position, and, perhaps, have halted the drain, but only at the expense of greatly interfering with the raising of the Irish loan. The problem must have been a delicate one for the Bank, and one which it could not have solved unilaterally. Perhaps its successful conduct of affairs in the previous few months may have led it to err towards the needs of the Government. Certainly, the fact that only two weeks delay in raising the rate was sufficient to transform the accounts dramatically, indicates not a lack of caution on the part of the Bank, nor any irresponsibility, but the speed at which events temporarily overtook it. Because of its unfortunate delay the Bank was forced to take more severe action to protect its reserves than might otherwise have been necessary had it acted a few weeks earlier. The severity of these actions, plus fear in the money market that the Bank Act would limit the Bank's ability to make reserve money available, created a temporary but severe credit contraction that might otherwise have been avoided.

The pressure of April, 1847 was severe but short lived, and during May and June the money market began to recover its buoyancy. Throughout the following months until September the Bank kept its reserve ratio fairly stable and succeeded in passing most of the effect of movements in the bullion stock



onto notes circulating with the public. Since the bullion stock declined slightly during this period, the net effect was to contract the cash base of the monetary system and thus produce a progressive tightening of the general terms of credit.<sup>1</sup> At the beginning of September the Bank offered its usual temporary loans to the market repayable before dividend date - October 14 - at five per cent, i.e. half-a-per cent below Bank Rate. For a time these loans eased the market, but following an unusually sharp demand on its reserves at the end of September the Bank imposed more restrictive measures on its own lending by raising the minimum rate on one month bills from 5 to 5½ per cent, and 6 per cent or more on all others. It also announced that no further advances would be made for the time being on stock or Exchequer Bills.

According to D.M. Evans, a contemporary observer, "This total revision in the terms of money accommodation granted by the great national establishment, forthwith gave birth to universal panic".<sup>2</sup> There was a flood of selling on the Stock Exchange as banks and other institutions attempted to increase their reserves, though the fact that the Bank had indicated that bills would still be accepted for discount prevented the panic from spreading into the discount houses. Several provincial banks were soon in trouble however, and on October 13 came the first important bank failure - the Abingdon Old Bank (Knapp & Co.) - followed a few days later by the Royal Bank of Liverpool and several other banks.<sup>3</sup> These failures and the increasingly restricted supply of reserve cash led to the failure of many commercial houses and thereby

---

<sup>1</sup> On two brief occasions notes in the hands of the public and bullion moved in opposite directions. Between May 8 and June 19 the Bank was engaged in rebuilding its reserves after the April crisis. Accordingly, although bullion stocks were rising, notes in the hands of the public fell sharply. Between July 3 and 17, the payment of the dividends led to an expansion of notes with the public, but over the same period bullion stocks fell slightly.

<sup>2</sup> Evans, *op. cit.*, p.76; see also *Economist*, 1847 October 2, p.1141; October 9, 1847, pp.1158, 1171; King, *History of the Discount Market*, p.144-5; Clapham, *Bank of England*, Vol. II, p.205.

<sup>3</sup> King, *op.cit.*, p.145.

to the collapse of others whose debts they carried. In the meantime all banks began to increase their reserves thus creating intense demands on the London money market.

Throughout the week ending Friday 22nd October almost the whole weight of demand for accommodation fell on the Bank of England, and the list of occasions where it gave special assistance, as well as the volume of bills it discounted during that week is impressive.<sup>1</sup> However, this assistance did little to relieve anxiety while the Bank's own reserve position deteriorated rapidly. By Friday the reserve stood at £2,376,000 of which only £1,600,000 was in London. The Bank believed that it could carry on though it could no longer continue to offer generous assistance, even so it thought it wise to defer to the Government on the question of whether the Bank Act should be suspended.

The rest of the story is well known. On Monday October 25th the Government issued the famous Treasury Letter recommending that the directors of the Bank enlarge the amount of their discounts and advances on approved security but at a minimum rate of eight per cent. "If this course should lead to any infringement of the Law", the letter went on, "Her Majesty's Government will propose to Parliament, on its meeting, a bill of indemnity".<sup>2</sup> The text of the letter was not made known publicly until the afternoon of October 25th, but as soon as it was the money market was transformed. the extreme anxiety of the previous few days began to evaporate and Gurney, who had earlier in the day pressed the Bank to discount £200,000 in bills, returned to say that he would require £100,000 only. Even this was soon found not to

---

<sup>1</sup> Morris, H.C. Q. 2645.

<sup>2</sup> H.L. Report, p.10.

be needed and within a week he was pressing the Bank to accept the money back. The Bank's own rate continued at eight per cent for four weeks though market rates immediately began to decline. By December the crisis had passed so far as the Bank was concerned. Its rate was lowered successively to six per cent on December 2; five per cent on December 25; and four per cent on January 4, 1848, while its banking reserve, which had fallen at one time to only £1,194,000, increased to £8.4m. by the end of December.<sup>1</sup>

When contemporaries came to examine the role which the Bank had played in the October crisis they found it less easy to apportion blame than had been the case during April. Tooke, Gurney, Palmer and others directed their main criticism at the Bank Act rather than at the Bank.<sup>2</sup> It was the existence of the Act, they said, which had greatly aggravated, if not actually created the crisis. By separating the departments and setting a limit upon the volume of notes that the Bank could issue it had greatly weakened its power to grant accommodation to the public. It had been this absolute limitation on the power of the Bank to give assistance which had created the crisis in public confidence once the smallness of the Bank's reserve had become publicly known.

In reply to these criticisms Loyd said that he found no fault either with the Bank or with the Act.<sup>3</sup> The crisis, he said, was due to factors outside the Bank's control, such as the loss of capital due to over-investment into railways, and the large imports of corn which had not been matched by a corresponding increase in exports.<sup>4</sup> The Bank agreed, adding that the insolvency

<sup>1</sup> The figure of £1,194,000 is given by W.T.C. King, *History of the Discount Market*, p.147, but official figures for weeks ending October 23 and October 30, 1847 show a reserve of £1.9m. and £1.5m. respectively.

<sup>2</sup> Tooke, IV, p.328-9; Tooke H.L. QQ. 2994-5; Gurney H.C.Q. 1608-12; Palmer H.C. QQ. 2055-6.

<sup>3</sup> Loyd H.C. QQ. 5131-2; 5116.

<sup>4</sup> Loyd H.C. Q. 5113.

of the corn speculators and the suspension of an eminent billbroker with connexions in that trade had exacerbated the situation.<sup>1</sup> According to the Bank, the Bank Act had "kept things very much in their natural and legitimate course", and had helped to mitigate the severity of the crisis.<sup>2</sup>

In regard to the defence put up by Loyd and the Bank, it is difficult to know exactly what is meant when they say that the Act "kept things in their natural and legitimate course", unless they meant that the stock of notes in circulation was made to fluctuate in accordance with changes in the stock of bullion held at the Bank. On this point the Bank was correct; the months between the end of May and the beginning of October was one of the few periods in which it succeeded in making notes in the hands of the public fluctuate in accordance with movements in its bullion stock. In their view, the fact that the contraction in the bullion stock had been met by a progressive reduction in notes outside of the Bank, and that the high interest rates had halted the bullion outflow long before the bullion stock had been exhausted, was proof that the Currency Principle had worked. As a result, they said, the soundness of the currency had never been questioned. It was on this point - the fact that throughout the crisis there had never been any question of the danger of suspension of cash payments - that the Bank and the Currency School claimed success for the Act.

Critics of the Act considered this point hardly worth contesting: the question at issue during the crisis, they believed, was never whether cash payments would be suspended, but whether the Bank would be prevented by the Act from issuing sufficient notes to support commerce. They emphasized that, at the time of the crisis, the exchanges were already in Britain's

---

<sup>1</sup> Morris H.C. Q. 2675.

<sup>2</sup> Norman H.L. QQ. 2681-5; Morris H.C. QQ. 2676-7; Cotton H.C. QQ.3952.

favour, and that gold was actually flowing into the Bank. The decline in the banking department's reserves, they said, was due to an internal drain caused by a lack of confidence, not by any external drain caused by adverse exchanges. In these circumstances, they argued, it would not only have been entirely safe to allow the Bank to increase the note issue, but that it was absolutely necessary for it to do so in order to restore confidence and halt the drain on the banking department reserve. The Act, however, took no cognizance of these circumstances and applied the same rule over note issues whether the exchanges were favourable or not.<sup>1</sup> It was this knowledge, the knowledge that the banking department had no power to make additional notes available once its legal reserve was depleted, which had actually precipitated the panic in the money market and the crisis in the banking system.

The truth of this final observation is not deniable. During October 1847 the state of the Bank's reserve came to dominate all other considerations in the money market. Indeed, much of the borrowing done during the last few days preceding the suspension of the Act was done in anticipation of the Bank's suspending any further discounting or lending facilities, and was itself largely responsible for the precipitate decline in the reserve during the week ending October 23. On the other hand, as the Bank itself argued, there was never any question of the Bank actually running out of notes unless the private depositors decided '*en masse*' to withdraw their deposits.<sup>2</sup> The Bank pointed out that it had large quantities of bills falling due daily with which it could have replenished its reserve, in addition to which it could

---

<sup>1</sup> This point is discussed at length in the Report of the House of Lords Inquiry into the Crisis of 1848 (Sections IV and V, pp.22-23.).

<sup>2</sup> H.L. QQ. 204-6; H.C. Q. 2881.

have sold consols and other stock had it fallen under extreme pressure.<sup>1</sup>

But even allowing for the Bank's own defence, many critics still believed that the Bank held a large part of the responsibility for the crisis. *The Economist*, for example, argued that the low reserve and the high demand for cash derived partly, at least, from the Bank's decision to reduce its rates on temporary loans at the beginning of September.<sup>2</sup> The Bank's reply to this criticism is worth elaborating because it brings out some of the critical judgements which it had to make during the period preceding the crisis. It argued that, while the cash base of the monetary system had been contracting for some time as small amounts of bullion continued to flow abroad, the demand for reserve cash had been rising as the increasing number of commercial failures had caused all firms to reconsider their own liquidity positions. Against this background the Bank had found itself with mounting balances in the Exchequer Accounts and was therefore in a position to offer some assistance to the market.<sup>3</sup> At the same time, it was conscious of the need to ensure that the Exchequer balances were available at the dividend date if it was to avoid repeating the disastrous episode of April, 1847. As a precaution the Bank offered slightly more attractive terms on short term loans repayable before October 14, than on 60 or 90 day bills which fell due at least 18 days later.<sup>4</sup>

<sup>1</sup> H.L. Q. 38; H.C. QQ. 2881, 4509-4511. The question as to whether the Bank could have sold large quantities of consols was disputed by several witnesses, e.g., Tooke, H.C. QQ. 5479-80; Palmer, H.C. QQ. 2127-31.

<sup>2</sup> *Economist*, Oct. 9, 1847, p.1158.

<sup>3</sup> Morris H.C. Q. 2642.

<sup>4</sup> *Ibid.* It may be noted that loans offered at 5½ per cent (the minimum rate then currently ruling) are marginally more expensive than discounts offered at 5½ per cent - i.e. £100 loaned at 5½ per cent costs £5.10s per annum; £100 discounted at 5½ per cent costs £5.4s. When it is considered that the Bank offered its temporary loans at 5 per cent, the difference between this and the current minimum Bank rate of 5½ per cent is very much smaller than the strength of criticism against the Bank would lead us to expect. In fact it amounted to only 0.2 per cent per annum.

At the time the Bank's decision was probably correct. In the five weeks following September 2, requests for loans did not exceed the amount which had entered the Exchequer account during each week, and for a time the aggregate sum under discount actually fell slightly. As a result the Bank's reserve improved slightly. However, during the two last weeks of September the volume of bills discounted rose steeply, producing a very sharp fall in the reserve at the Bank. Indeed, the fall in the reserve in these weeks was almost as great as the fall which had precipitated the crisis of April, 1847; and, as on the previous occasion, the Bank's accounts were transformed from a position of relative security to one of extreme weakness. As in the former situation, it was again the sudden fall in the reserve which forced the Bank to impose severe constraints on lending and discounting, and which first gave alarm to the market over the size of the reserve. In these circumstances the Bank was clearly at fault in not raising its rate in the middle of September when the demand for discounts began to rise, even though it might have been excused for lowering the rate on short term loans at the beginning of the month.

The Bank's decision to lower its loan rate at the beginning of September was not the only aspect of its affairs that attracted criticism: at the *Inquiry of 1848* Tooke argued that the Bank had helped to create the crisis because it had attempted to conduct its affairs upon too small a reserve.<sup>1</sup> He had made a similar criticism of the Bank's conduct in the 1830's in his evidence to the *Inquiry on Banks of Issue in 1840*, and in the fourth volume of the *History of Prices* he returned to the same point while discussing

---

<sup>1</sup> H.L. Q. 3045.

the causes of the crisis of 1847.<sup>1</sup> There he argued that, had the Bank built up larger reserves by holding its discount rate at 4% throughout the period 1844-46, or had it been free to use as part of its banking reserve the bullion held in the issue department, it could have allowed the drain of 1847 to take place without involving commercial affairs in violent changes in interest rates and the supply of credit. Up to nine million in bullion - two million more than were in fact lost - could have flowed out of the Bank without the Bank having to take severely restricting measures. The most that would have been required, said Tooke, would have been for the Bank to raise its rate by one or two per cent before the drain had exhausted itself. Meanwhile, people would have been certain of obtaining accommodation at any time and none of the panic of April or October 1847 would have occurred.

Here Tooke was striking directly at the heart of the Bank's policy since the passage of the Act of 1844. That policy had been to hold the reserve stable at about one third of the deposits in order to ensure that the effect of fluctuations in the bullion stock were transferred to notes with the public. Such a policy implied that the Bank did not expect to be called upon, as a lender at last resort, to give massive support to the monetary system in times of crisis.<sup>2</sup> Indeed, had this not been the case, the idea of holding the reserve ratio stable would have been meaningless. Unfortunately, the rest of the money-market did not share this view of the Bank's role: they regarded the Bank as the final source of reserve cash, and expected to be able to call upon it for notes in the event of a liquidity shortage. When, in October 1847, the market acted upon this assumption it quickly became clear that under the Bank Act the Bank's notes reserves were finite and were very small. It was at this point that the crisis in monetary affairs came to a head.

---

<sup>1</sup> Report from the Select Committee on Banks of Issue; with Minutes of Evidence, Appendix, and Index B.P.P. 1840 (602.) IV, QQ.3742; 3745. See also Tooke IV pp.375-7; 378-393.

<sup>2</sup> H.C. QQ. 2642, 3348; H.L. Q. 2746.



In several ways, however, Tooke's criticism of the Bank was unfair. Given that the Bank did not have access to the bullion held in the issue department, it is difficult to see how it could have held a larger reserve than it did at the onset of the crisis. Most of the large reserve that had been held at the beginning of the year had been dissipated during the spring bullion drain very much along the lines that Tooke's ideas recommended. Had the Bank wished to rebuild its reserves to a larger extent than it did in the months following the April crisis, it could only have done so by imposing even more severe deflation than was in fact imposed between May and September. The imposition of more severe deflation merely to rebuild the reserves above one third ratio of deposits that was achieved would, in the conditions which existed among commercial affairs for most of this period, have been keenly resented in monetary and trading circles. In this circumstance it is difficult to see what alternative courses were available to the Bank, except perhaps that at the beginning of September it could have chosen to maintain or even increase its lending rates, rather than to have eased them. One of the many question marks which litter this period is whether alternative action of this kind would have been sufficient to retain the Bank's reserve at a level high enough to have maintained the confidence of the market, or whether the additional constraint that a more rigorous credit policy would have imposed upon the market during September would, itself, have been enough to drive up market interest rates to crisis levels?

## VI

This examination of money and banking aspects of the crisis of 1847 has so far centred on questions relating to the Bank of England. Since this aspect has tended to dominate the attention of historians of banking in the 1840s such concern is not unreasonable; however, not all aspects of financial affairs in these years can be considered in reference to this question alone. In particular, there are two features of financial affairs which contemporary observers and historians alike have commented upon and which deserve special attention, they are: firstly, the monetary ease which existed in London side by side with financial difficulties in the country at large during 1846; and secondly, the fact that the provincial centres - with the notable exception of Liverpool - on the whole passed through the crisis of October 1847 relatively unscathed whereas in London monetary and commercial affairs were severely dislocated. In the rest of this chapter it will be argued that these conditions can be explained partly in terms of the response of the rest of the banking system to changes in the rate of interest charged in London, and partly by special problems associated with the financing of the railway construction boom.

It was argued earlier that the rate of discount charged in the London money market was closely related to changes in the state of the foreign exchanges as measured by movements in the stock of bullion at the Bank of England; it is now time to look at the effect of these changes in the rate of discount on the rest of the banking system.

In his study of the trade cycle in the 1830s R.C.O. Matthews showed that increases in the rate of discount paid in London helped to maintain equilibrium in the monetary system by stimulating an increase in the supply of

cash and cash substitutes, rather than by restricting the demand for funds.<sup>1</sup> Since these responses are unlikely to have changed much within the next ten years it is useful to look at his argument in detail.

Matthew's argument went as follows: Where an outflow of bullion abroad was the result of an increase in the number of foreign bills discounted in London, the greater part of the impact would be felt by London rather than by country bankers. One result would be that London bankers and bill brokers would find their reserves dwindling and would take steps to reduce their purchases of bills of exchange with the result that market rates of discount would rise. Any rise in the market rates would result in a larger proportion of bills going to the Bank of England for discount, and the Bank itself would then be forced, eventually, to raise its own rate. These increases of rates at the monetary centre then had repercussions throughout the entire monetary system.

These repercussions were of three kinds:

1. The immediate consequence of a rise in the rate of discount would be to mobilize idle balances held in London, and to encourage provincial banks and others with idle cash balances to send their cash to London where higher rates could be obtained. At the same time merchants and others, who normally sent bills to London for discount when rates were low, would prefer to discount their bills locally because provincial rates generally moved more slowly than those charged in London. In these ways the gap created at the monetary centre by the export of bullion was filled partly by the mobilization

---

<sup>1</sup> R.C.O. Matthews *op.cit.*, pp.180-187. For a criticism of this hypothesis see A.B. Cramp, *Opinion on Bank Rate, 1822-1860* (1961), pp.62-74. For an appraisal of Cramp's criticism of Matthews see J.R.T. Hughes' review of Cramps' book in *Economic History Review*, 2nd Series, XVI (1963-4), p.169.

of idle balances, and partly by arbitrage between London and the provinces.

2. The provincial banks in their turn were able to satisfy both sets of demands partly because they were willing to vary (reduce) their own reserve ratios - a willingness which arose because of the higher profits which could be obtained by sending cash to London - and partly because they were willing to increase the total circulation of bills of exchange which they regarded as an asset that was almost as good as cash. These bills would then circulate locally where they acted as cash substitutes.

The basis of this second response requires some explanation. Besides resting upon the great liquidity of bills of exchange, the ability of the banks to use them to replace cash in this way rested partly upon conventions in the mercantile world and partly upon the conventions of bankers themselves. Among merchants it was conventional to pay accounts either in cash or by bills issued at three months. Cash payments usually received a discount of five per cent and if interest rates rose above five per cent it became more profitable for a merchant to issue a bill in payment of account and to hold his cash until the bill fell due. Among provincial bankers it was also a common convention during periods of monetary shortage, not to discount local bills of exchange for cash, but to accept them in exchange for one of their own bills and then to charge a commission for their services. The bank's own bill could then be left to circulate in the district until maturity, or could be sent to London for discount; meanwhile, the bills received in exchange were transferred by way of its London agent to other districts where they in turn might be re-issued as banker's bills in exchange for other bills brought in by merchants. In this way the bill of exchange came to replace cash sent up to London, and thus allowed the supply of the means of payment to expand substantially.

3. Finally, Matthews noted that if the rate of interest rose to a point where a panic threatened to develop, bankers responded by increasing the size of their reserves; the London banks doing so by calling in money from the discount houses, and the provincial banks by calling in money from their London correspondents. At such times all types of bills would be increasingly difficult to negotiate and the volume created would fall accordingly. At the same time the Bank of England would find itself called upon to discount bills in large quantities by all institutions as they sought to rebuild their reserve position.

The relationships which Matthews analysed for the 1830s attained their clearest manifestation in the behaviour of the bill of exchange. As Matthews shows, the aggregate value of inland bills of exchange created varied closely in accordance with the rate of discount charged in the London money market, until such time as the rate of discount rose to a crisis point. At this point the volume of bills created fell sharply despite further rises in discount rates.

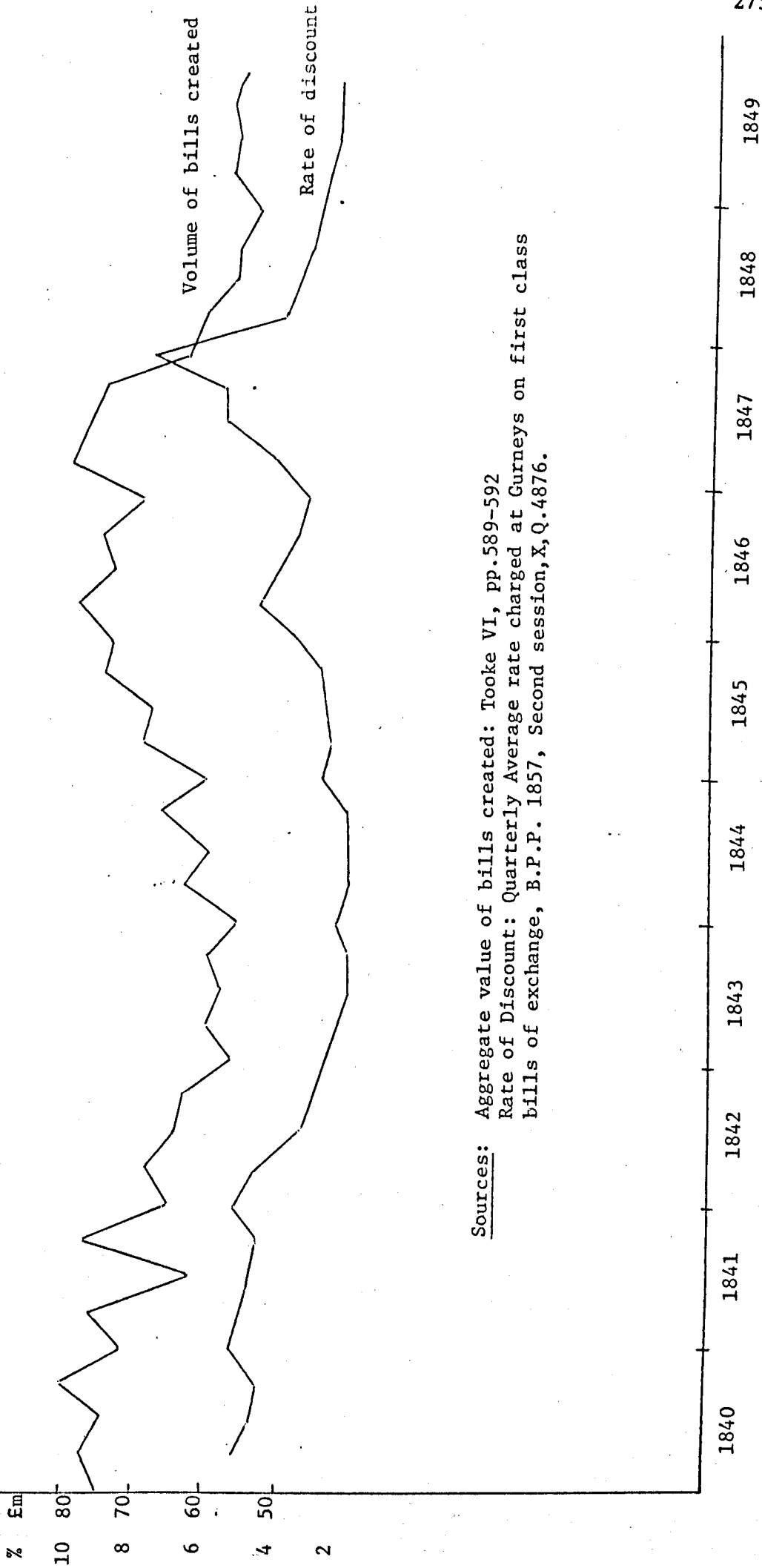
During the 1840s, the volume of bills created behaved very much along lines described by Matthews for the 1830s. When movements in the quarterly average market rate of discount and the aggregate value of inland bills created each quarter are compared as in figure 13 below, the relationship between the two series, if not being perfect, is still close.<sup>1</sup> Even in the short run it may be seen that during the first quarter of 1846 the volume of

---

<sup>1</sup> As Matthews also recognized, the rate of discount was not the only factor governing the volume of bills created; it was also influenced by the state of trade and as shown earlier, by the effect of railway financing. Regressed against the average rate of discount charged over the three months ending 31st March, 30th June, 30th Sept., 31st Dec., the total value of inland bills of exchange drawn or created in England and Wales in each corresponding quarter for the period 1840-1849 shows  $r = 0.5808$  which is significant at 1% given 38 degrees of freedom.

Figure 13

Quarterly Aggregate Value of Inland Bills of Exchange Created and Average Quarterly Market Rate of Discount: United Kingdom, 1840-1849



Sources: Aggregate value of bills created: Tooke VI, pp.589-592  
Rate of Discount: Quarterly Average rate charged at Gurneys on first class bills of exchange, B.P.P. 1857, Second session, X, Q.4876.

bills created moved up sharply despite the fact that at that time the railway deposits crisis had just administered a sharp check to the economy. Similarly, after a sharp increase during the first quarter of 1847, the number of bills created remained high for two further quarters despite the very evident depression which existed in substantial parts of the industrial sector of the economy. In both of these periods interest rates were either rising sharply or were high; but during the intervening period when interest rates fell, the volume of bills created also fell. With one very notable exception, this pattern of behaviour appears to have held good throughout the 1840s. The exception appears in the last quarter of 1847, the quarter in which the crisis of 1847 occurred and when all holders of bills found their securities extremely difficult to negotiate in any way. As the readiness to create new bills depended to a very large extent upon their negotiability it is not surprising that the number of bills created in this quarter should have fallen very sharply.

With regard to the behaviour of banks during the crisis year itself, reports contained in *The Economist*, and evidence presented to the *Inquiry of 1848* supports the view that during 1847 bankers and other holders of cash balances behaved along the lines indicated by Matthews. *The Economist's* reports show that the bullion drain developed when large numbers of foreign bills arrived for discount in London. These bills began to flow into Britain in large quantities towards the close of 1846, and by April 1847, when the bullion outflow reached its peak, bills from the United States in particular were flooding into Britain.<sup>1</sup> Despite the sharp contraction in the monetary base consequent on the export of a large quantity of bullion, *The Economist's*

---

<sup>1</sup> *Economist*, April 10th, 1847, p.421. See also below pp.347-349.

reports indicate that the London money market was surprisingly well supplied with cash.<sup>1</sup> It reported that the London banks and discount houses held larger balances than they had ever held before and that even during April 1847, when the money market found itself in great difficulties because of the actions of the Bank of England, there was never any serious shortage of reserve cash. At this time most of the difficulty in the money market was due to the lack of confidence created by the Bank, rather than of any shortage of money.<sup>2</sup>

Over the same period reports from provincial centres show that outside of London cash was difficult to obtain, and that merchants were increasingly paying in bills rather than by cash.<sup>3</sup> At the *Inquiry of 1848* Adam Hodgson, director of the Bank of Liverpool, said that his bank had noted that the change towards bill payment in preference to payment by cash had taken place at the beginning of 1847 and had very much increased since that date.<sup>4</sup>

The apparent paradox of abundant supplies of cash in London existing side by side with extensive bill circulation and cash shortages in the provinces during the first quarter of 1847, it is argued here, is explained in large part by the fact that provincial funds were being sent to London mainly (though not entirely) in the manner described by Matthews, while in the provinces bills of exchange were being used to circulate as cash. The London money market continued to be well supplied with funds in this way throughout the nine months preceding the crisis of October 1847. As late as the middle

---

<sup>1</sup> *Economist*, January 23rd, 1847, p.101; January 30th p.128; May 1st p.507.

<sup>2</sup> *Economist*, May 1st, 1847, p.507.

<sup>3</sup> *Economist*, May 1st, 1847, p.511.

<sup>4</sup> H.C. QQ. 16-34; 194-5. See also C. Turner H.C. QQ. 901-13; J. Pease H.C. Q. 4633-36.



of September the discount houses were reported as being full of money, though since August rising anxiety over the large numbers of commercial failures had left them reluctant to part with it.<sup>1</sup> Indeed, Gurney's were so well stocked with money that they offered to deposit a large sum with the Bank of England on the understanding that it could be recalled if needed.<sup>2</sup> In the provincial centres, however, the pressure to pay by bill was very strong and "Promiscuous bills" issued by merchants and endorsed by provincial bankers or merely issued by the bankers on their London agents circulated extensively as currency.<sup>3</sup>

In these ways, from the onset of the bullion drain at the close of 1846 almost to the end of September 1847, the gap created by the export of bullion was filled partly by mobilizing idle balances and concentrating them into London, and partly by an increase in the creation of bills of exchange which then circulated as an alternative means of payment in the provinces. Together these factors help to explain why, during the pressure of April 1847, the monetary system retained the elements essential to its stability and why it was able to recover so quickly afterwards despite the deflationary pressures which the Bank imposed upon the rest of the monetary system.

The crisis in monetary affairs which occurred in October, on the other hand, arose in large part from the fact that monetary institutions ceased to respond to further increases in interest rates in the way that they had done earlier in the year: instead, rising interest rates were met by a reduction of cash supplies at the monetary centre. The process appears to

---

<sup>1</sup> *Economist*, August 14, 1847, p.939; August 21, 1847, p.967; September 11, p.1060.

<sup>2</sup> W.T.C. King, *History of the Discount Market*, p.145.

<sup>3</sup> H.C. QQ. 16-26; 194-5.

have worked in the following way. Towards the end of September various factors, such as falling Bank of England reserves and large numbers of commercial failures, began to alarm both country and London banks. At the beginning of October the sudden tightening of the Bank's terms of lending and the subsequent fall in its reserves further added to this alarm. Together, these factors expressed themselves in the form of rising liquidity preferences and increasing market interest rates. However, rather than causing the banks and other institutions to further reduce their idle balances, the effect was to make them increase their own reserve positions - that is, to *increase* the stock of idle balances in the monetary system.

From that time onwards both the London banks and the provincial banks began to recall money which they had previously been lent out, and to rebuild their reserves. Gurney and the other bill brokers found themselves called upon to return the cash which they held on call and loan, and country bankers requested Gurneys, whenever they could, to send them additional cash.<sup>1</sup> As the drive to liquidity intensified, London and country banks began to sell large quantities of Government bonds for cash on the Stock Exchange, the cash received being added to their reserves.<sup>2</sup> Exactly how much cash was hoarded in this way is not clear, though Thomas Birkbeck, a country banker, gave evidence at the *Inquiry of 1848* to the effect that on average he and other country bankers had held between 75 and 100 per cent more in cash than they had usually held.<sup>3</sup> The fear of leaving themselves illiquid also caused

---

<sup>1</sup> Gurney H.C. QQ. 1653-4.

<sup>2</sup> *Economist*, October 9, 1847, pp.1158 and 1171.

<sup>3</sup> H.C. QQ. 5753, 5771-3. According to Joseph Pease, bankers hoarded as much as they could get, and discounted only by offering their own bills on London. See evidence of J. Pease H.C. QQ. 4635-6.

country banks to withhold from further discounting activities with the result that the supply of alternative forms of money - i.e. bills of exchange - dropped sharply. Thus, at once, both the supply of cash and cash substitutes were reduced very severely.

In these circumstances the Bank of England's own reserve became the only source of cash available. As the private bankers increased their reserves, borrowers and those seeking to discount bills were forced to turn to the Bank of England as the only source of available cash. In consequence, the Bank's own reserves came under extreme pressure and fell sharply. This in turn served only to increase the feeling among the banks that they should add further to their own reserves. Under such circumstances no matter how high the rate of discount moved, it was unlikely to encourage holders of cash to part with their money.<sup>1</sup> It was only after the Government suspended clause II of the Bank Act and allowed the Bank to issue notes to an unlimited quantity that the situation was brought under control. The Government's action effectively convinced the money market that the Bank's reserve was inexhaustible. Once convinced of this, private institutions recognised themselves to be highly over-liquid and within a few days money was readily offered on the money market. By the end of November the market rates of discount had fallen to six per cent and there were complaints of difficulty in employing money.<sup>2</sup>

---

<sup>1</sup> The high rates offered in October 1847 did, in fact, stimulate an inflow of funds from abroad, much of which found its way into the country banks where it added further to their reserves. See *Economist*, November 6, 1847, pp.1284, 1285; November 13, pp.1312, 1313.

<sup>2</sup> *Economist*, December 4, 1847, p.1400, December 18, p.1461; December 25, p.1488.

## VII

It has already been argued in an earlier chapter that variations in the demand for railway investment funds affected the rate of interest charged in the London money market during 1847. This section looks at how the transfer of railway funds between the provincial banks and those in London affected the supply side of the monetary system. In regard to this it has been argued by Morgan that the large scale transfer of funds during 1846 from private deposits in the provincial banks to the deposit accounts of the railway companies held in the London banks reduced the supply of bank credit to provincial firms thereby forcing them to contract their advances for normal commercial and industrial activities.<sup>1</sup> At the same time the concentration of railway funds into London, allied to the effect of large bullion inflows, made conditions in the London money market very easy during 1846.

Although this explanation appears to accord with many of the known facts of the period there are several reasons for supposing that the real effect of the transfer of funds between provincial bank deposits and those held in London had a less dramatic effect on provincial affairs during 1846 than Morgan has made it appear.

In the first place, Morgan's hypothesis over-emphasises the effect of the decline in provincial bank deposits on provincial economic activity during 1846. With regard to this, one point may be cleared up quickly; the discussion of investment and industrial activity in chapter VI suggests that the difficulties faced by provincial merchants and industrialists during the last quarter of 1845 and throughout 1846 rarely stemmed from

---

<sup>1</sup> E.V. Morgan, "Railway Investment, Bank of England Policy and Interest Rates, 1844-8", pp.333-6.

difficulties in raising adequate bank credit. Only in the provincial house-building trades does any evidence appear which might suggest that shortages of bank credit interfered with normal activity. Even in this case the evidence is far from complete and relates, in the main, to the experience of Liverpool. Elsewhere, the main problems faced by industry were problems of demand; the check to investment which appeared in most sectors at the time was largely the consequence of these problems rather than of anything associated with affairs of money and credit.

More importantly, Morgan's analysis fails to take account of the responses which the country banks could take to maintain the supply of banking facilities to their provincial customers in the face of contracting deposits, given the presence of abundant funds which, Morgan agrees, existed in London in 1846. It is well known, for example, that the country banks were ready to vary their cash reserves quite widely and that it was not always easy to reduce or to call in long term loans already made.<sup>1</sup> If a country bank found its deposits falling and could not call in its loans quickly, it could allow its reserves to fall and continue to offer the same credit facilities. Given that very large reserves existed in most banks at the beginning of the railway boom, this almost certainly would have been the policy adopted by the country banks, at least, until their surplus reserves had been absorbed.

There are other reasons why withdrawals from country bank deposits for investment into railways need not necessarily have restricted the activities of country banks. These arise from the fact that the country banks generally

---

<sup>1</sup> R.C.O. Matthews, *op.cit.*, p.184, E. Wood, *op.cit.* Chapter 1 especially pp.18-21 and 23-25. G. Rae, *The Country Banker*, (1899), Chapter IX, pp.59-63. Rae was writing from his experience as manager of the North and South Wales Bank during the crisis of 1847, when his bank had difficulty in recalling loans from various harbour development projects in Birkenhead.

kept the bulk of their reserves in London where they were used to balance out country bank transactions, the great bulk of which were payable in London.<sup>1</sup> It was only when local demand for notes and coin increased that the country banks found it necessary to call upon these reserves. On such occasions, if country banks found their cash reserves falling below levels which they considered safe, they could easily have drawn upon their London agents for cash. Indeed, it was a recognised function of the London agent that he would supply reserve cash on occasions when the country banks were short.<sup>2</sup> Funds could also be obtained by rediscounting bills at one of the Bank of England's provincial branches. In these ways any shortage of cash in the provinces caused by the withdrawal of deposits for railway calls could be passed on, at least in part, to London.

Besides being prepared to vary their reserve positions substantially and draw upon their London agents and the Bank of England, the method by which country banks made loans available was such that, so long as bills of exchange could be readily discounted in London, restraint upon the lending activities of the country banks was slight. Matthews has shown that a large volume of the loans made to industry by the country banks during the 1830s were made by way of bills of exchange discountable in London.<sup>3</sup> When such loans were made the manufacturer obtained the bill from his bank, and rediscounted it in London. When the bill fell due a second one was issued, and this continued until the loan was eventually repaid. Similarly, tradesmen who brought in bills for discount were often presented with one of the

---

<sup>1</sup> E. Wood, *English Theories of Central Banking*, pp.3-4.

<sup>2</sup> L.S. Pressnell, *Country Banking in the Industrial Revolution*, (Oxford 1956), p.76 and Chapter 4.

<sup>3</sup> This paragraph draws extensively upon Matthews, *op.cit.*, pp.180-87 and E. Wood, *op.cit.* pp.13-27.

bank's own bills which then either circulated in the district as cash until payment, or was rediscounted in London. In this way the bulk of claims on country banks came to be liquidated in London. So long as bills could be easily discounted in London, the pressure for a country bank to reduce its activities, even in the face of substantial reductions in deposits, was not great. It was only when the ability to obtain discounts in London became restricted that country banks were compelled to restrict their own activities.

Given that large railway deposits were held in London during 1845, 1846 and for part of 1847, their effect would have been to add to the supply of funds available to the discount market, and thus to ease discounting there. It is not surprising therefore that the volume of bills in circulation should have remained very high from the last quarter of 1845 until April 1847, despite the decline in trade throughout most of the period. On the one hand individuals found their own capital being reduced by railway calls, but on the other hand, they found that bills of exchange could be readily and cheaply discounted in London. The logical response to such a situation would be for manufacturers and traders to finance an increasing proportion of their activities through bills of exchange rather than their own cash. Responses such as these could only act to magnify the sorts of pressures which were acting to increase the size of the bill circulation in these years and which we examined in the previous section. It also helps to explain why the London banking system was able to overcome the April crisis in 1847 comparatively quickly and without any serious failures in the commercial world.

Finally, Morgan's analysis fails to bring out some of the destabilising influences of the movements in railway deposits in 1847. Just as the concentration of railway funds into London acted to increase the stock of money held there during 1846 and the first quarter of 1847, so the reduction in railway company deposits held in London after April 1847 acted to reduce funds available to the London money market. We have seen in Chapter III that from the second quarter of 1847 until the end of that year the railway companies found themselves increasingly under pressure to draw upon their accumulated reserves in the London banks to maintain their building activities.

Accordingly, those banks which acted for the railway companies reported that during the latter half of 1847 the deposits of these companies fell very considerably and that consequently their ability to give assistance to their banking friends had been correspondingly reduced.<sup>1</sup> At the same time, however, once the railways used their reserves for expenditure purposes a large part of the cash involved would automatically be restored to the provinces through the payment of wages and in the purchase of raw materials and equipment. As a large part of railway building costs incurred involved the payment of wages to vast gangs of workmen who then had to be supplied with stores locally, the process of building further redistributed funds around the country-side and thus back into the provincial banks as tradesmen's deposits. In addition, large quantities of raw materials such as bricks, stone and some timber and iron were almost certainly purchased locally if sufficient quantities of the right quality were available. All these payments would help to swell country bank deposits at the expense of the London banks.

Clearly, it was possible for the provincial banks then to return the deposits to London to be held in reserve or loaned out to the money market. The discussion in the previous section suggests that they almost certainly did this; however, the redistribution of deposits from London to the provincial banks did have an important consequence. Once the provincial banks

---

<sup>1</sup> H.C. Q. 207.



regained command over these funds after April 1847 they were able to distribute them at their convenience, and to use them to increase their own locally held reserves when necessary. Thus, when the panic developed during September and October 1847 and the country banks felt the need to increase reserves, they were able to use these new deposits to strengthen their positions. The London banks and money market, on the other hand, felt the loss of the railway deposits strongly and it must be considered that their loss during the second half of 1847 was an important factor helping to account for the greater difficulties experienced by the London money market during October 1847 than in the previous crisis of April. On the other hand it helps to explain why the country banks were able to command such large sums of reserve cash in October, 1847 and why most provincial centres were able to escape the crisis without much harm.

One final point may be added. According to Broadbridge, a disproportionate volume of funds raised in the provinces for investment into railways was raised in Lancashire and particularly in Liverpool.<sup>1</sup> If this was so it may help to account for some of the difficulties experienced by the Liverpool banks during the crisis of 1847. Thus, while the payment of railway calls would have been felt disproportionately by the Liverpool banks in 1845 and 1846, the expenditure of these funds in 1847 would not have led to their repatriation to Liverpool or Lancashire in proportionate terms since railway investment expenditure was spread widely over the countryside. Although this process may not have interfered unduly with activity in 1846 - though the collapse of Liverpool's house-building activities in that year suggests that it might have done so - it would have prevented the Liverpool

---

<sup>1</sup> S.A. Broadbridge, "The Early Capital Market; the Lancashire and Yorkshire Railway", *Economic History Review*, 2nd Series, VIII (1955-56). S.A. Broadbridge, *Studies in Railway Expansion and the Capital Market in England, 1825-1873*, (1970) pp.161-165.

banks from enjoying the benefits of the redistribution of funds in 1847 to the same extent as other provincial centres. However, it is perhaps going too far to suggest that this accounts even in significant part for the greater problems experienced by the Liverpool banks in 1847. These difficulties stemmed from the commercial problems of the city which are dealt with in the next chapter.

### Conclusions

The following paragraphs summarise briefly the main arguments of this chapter. A more comprehensive summary of the major conclusions is left to chapter IX below.

Two principal arguments have been made. The first is that, contrary to widespread belief, the Bank of England never abandoned its traditional responsibilities as a central bank following the introduction of the Bank Act. Indeed, the Bank was more acutely aware than most of the need to administer its banking affairs carefully if it was not to interfere with the proper functioning of the Currency Principle. On the whole, the Bank achieved this aim successfully in the period to December 1846. In particular the Bank's discounting activities, though resulting in a larger volume of bills being discounted than at any time in the 1830s, were not such as to adversely influence the market rate of discount: this continued to be determined, as it had in the 1830s, by the state of the foreign exchanges and to a much lesser extent the level of activity in Britain. If these arguments are correct, it follows that the Bank cannot be blamed for the prolonged period of low interest rates which prevailed between 1842 and 1846, and out of which so many historians have traced the crisis of 1847. Responsibility for this must be with the strong balance of payments surplus of these years and the consequent inflow of bullion from abroad.

The second argument attempted to show that, although there is much evidence to support the Bank's own defence of its conduct during 1847, it was still guilty of error's of judgement which on two occasions in 1847 resulted in its reserves falling to dangerously low levels. Since it was the low level of the reserves which on both occasions sparked off a crisis of confidence in the money market, the Bank may be held to bear a large measure of responsibility for the difficulties which followed. However, the Bank was never wholly to blame. Traditional responses by the provincial banks to movements in interest rates in London could, at times, act to stabilise events as they did in April, but they could also act to intensify monetary problems in London by withdrawing funds to strengthen their own reserve position as they did in October 1847. The fact that the concentration of large railway deposits in London in April, and their subsequent dispersal around the provinces in the following months reinforced the effect of provincial bank behaviour helps to explain why the London system was able to overcome the problems of April 1847 so easily, but increased the problem of it doing so in October. They also help to explain why the provinces, with the possible exception of Liverpool, were able to escape relatively unscathed from both the April and October crisis.

## Chapter VIII

FOREIGN TRADE AND THE BALANCE OF PAYMENTS

In chapter III, and again in chapter VII several references were made to the effect of changes in the balance of trade and the balance of payments upon the level of aggregate income and on the supply of money and credit in Great Britain during the 1840s: in chapter III it was argued that the net loss of income arising from adverse movements in the balance of trade in 1847 was an important factor acting to depress aggregate income in that year; while in chapter VII it was argued that variations in the balance of payments, as reflected in the level of bullion stocks at the Bank of England, was the principal factor determining the general level of interest rates charged in the London money market between 1844 and 1847. In these chapters both the net change in income earned from foreign trade, and the level of bullion stocks held in the Bank of England, were regarded as given and little attempt was made to account for their movements; it is the aim of this chapter to remedy this omission by examining the main causes of variations in the balance of trade and balance of payments, and thus to complete this examination of the factors involved in the crisis of 1847.

## I

The overall pattern of fluctuations in each of the main items included in the balance of payments, shown in Figures 14 and 15 below, may be summarized fairly briefly. By far the most striking features are (a) the steady improvement on the balance of payments between 1840 and 1843 followed

by a deterioration which reaches a low point in 1847; and (b) the crucial importance of the merchandise account in the general balance of payments. As may be seen from the Figure 14 movements on merchandise account determine both the direction of movements in the balance of trade as a whole, and the general state of the balance of payments. Thus for example, between 1840 and 1843, the improvement on merchandise account not only provided the main source of the general improvement on the balance of trade but it also more than offset a sharp increase in the export of capital in those years with the result that Britain's overall balance of payments improved steadily and large quantities of bullion flowed into the country. Conversely, the marked deterioration on merchandise account between 1844 and 1847 brought with it a sharp increase in the overall deficit on the balance of trade and, eventually, a large deficit on balance of payments. The overall ability of movements on merchandise account to determine the general state of the balance of payments is seen at its best, perhaps, during the crisis year of 1847. In that year the deficit on merchandise account more than doubled and, despite a sharp rise in invisible earnings and substantial imports of capital, there was still a large deficit on the balance of payments and large outflows of bullion.

The most striking feature on the merchandise account is the enormous impact by imports of corn. This is best seen by comparing the behaviour of total net imports before and after excluding corn. After reaching a cyclical base in 1843, total net imports grew almost continuously until 1847; however, if corn imports are excluded from the import bill, it can be seen that the value of other imports reached a peak in 1845, and then fell to a cyclical base in 1848. Since fluctuations in the value of exports were

relatively slight between 1843 and 1848, variations in the total value of corn imported came to have a considerable influence upon the balance of merchandise trade as a whole. Thus, whereas the deficit on all visible items increased very sharply after 1843, with the exclusion of corn imports the deficit fell considerably from the peak reached in 1845. The influence of corn imports on the balance of trade and of payments is a factor to which this chapter will return frequently.

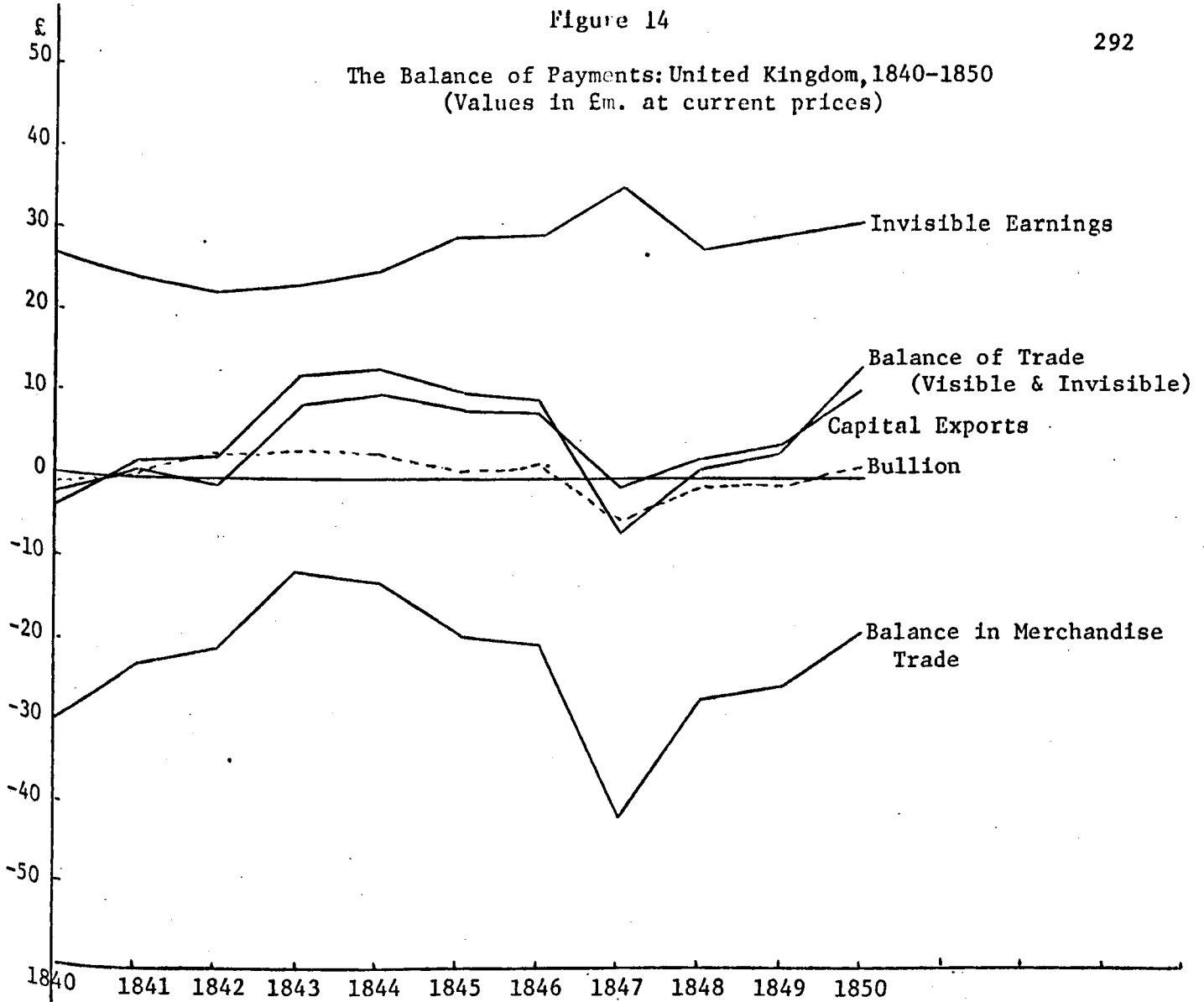
A more detailed consideration of the behaviour of each of the major items contained in the balance of payments may be conveniently set aside until later. However, one other feature of the behaviour of the balance of trade deserves more attention at this stage since it is one that is not easily detected from a cursory glance at figures 14 and 15 below; this is the tendency of the balance of trade, which became reflected in the balance of payments, to move in an anti-cyclical manner so that each cyclical up-swing or down-swing in aggregate income and activity was met by a converse movement in the balance of trade and the balance of payments.

The tendency of the balance of trade in theory to behave in this way is one that is well known to economists, and is one that economic historians have found to underlie much of the experience of Britain's foreign trade in the nineteenth and twentieth centuries.<sup>1</sup> The theoretical

---

<sup>1</sup> R.C.O. Matthews, *A Study in Trade Cycle History*, pp.95-7. H.W. Richardson, *Economic Recovery in Britain, 1932-9*, (1967), pp.45-56. P.M. Chaudhuri, *Foreign Trade and Economic Growth; the balance of payments as a factor limiting economic expansion in the British economy during the years 1819-1875* (Unpublished M.Sc. Thesis, University of Cambridge, 1963). The discussion contained in the rest of this section draws freely upon the work of Matthews and of Chaudhuri.

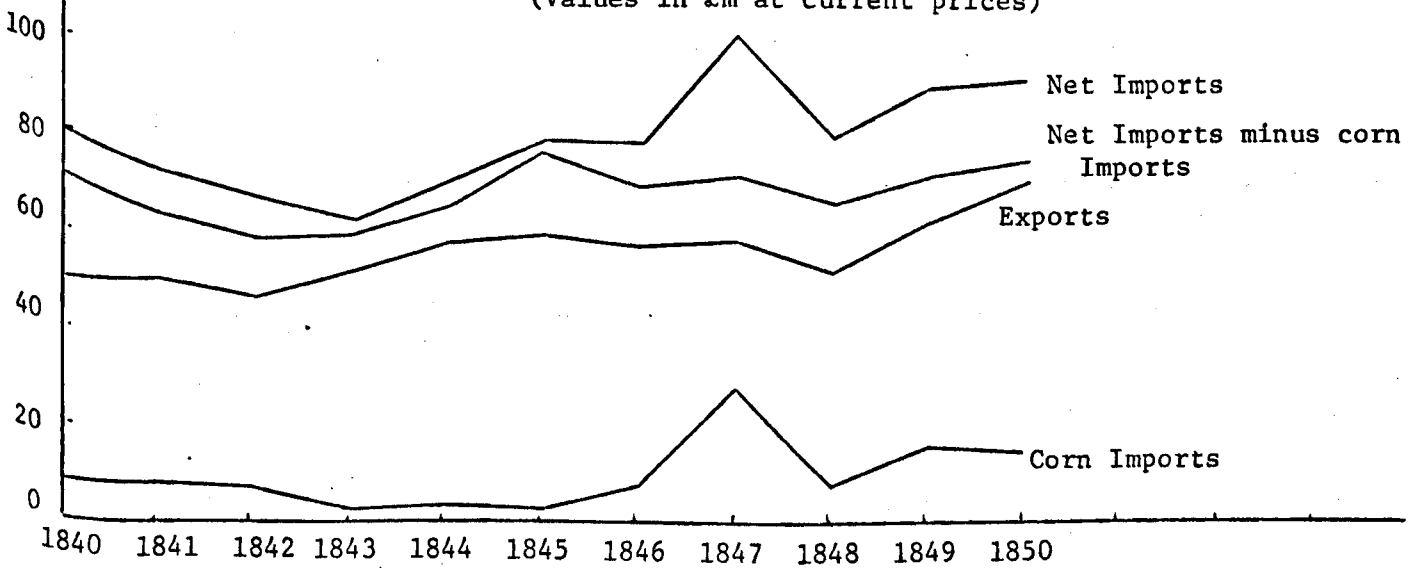
The Balance of Payments: United Kingdom, 1840-1850  
(Values in £m. at current prices)



Source: Table 31 below.

Figure 15

The Balance of Merchandise Trade: United Kingdom; 1840-1850  
(Values in £m at current prices)



Source: Table 30 below.

basis for expecting such a relationship to exist is straightforward: during a cyclical upswing or downswing in income and activity - the argument is symmetrical in both directions - part of the increased demand for finished goods and raw materials will go to imports, while at the same time increased demand in the home market will serve to retard the growth of exports. Together, these forces act to produce a deterioration on merchandise account during periods of rising prosperity. The extent of the deterioration depends upon a number of factors, but in an economy like that of mid-nineteenth century Britain, where a substantial proportion of her industrial raw materials and several important consumer items were imported, the propensity to import during a boom would be quite high. Similarly, if the boom came to display inflationary tendencies, the declining competitiveness of exports would further increase the pressure to divert goods from exports onto the domestic market. During the cyclical downswing these conditions would be reversed; the fall in demand on the home market would not only cause imports to fall but would force producers and merchants to turn to exports for markets; at the same time a fall in prices would add to the competitiveness of exports. In this way the balance of trade, in principle, would tend to move anti-cyclically and to act as a stabilizing force upon the economy.

Although the balance of payments might similarly be expected to move in an anti-cyclical manner, there are several reasons why the behaviour described above may not necessarily transfer itself to the balance of payments. In the first place, although the balance on merchandise trade formed the largest and most unstable item in the balance of payments during the 1840's its movements could be offset, as has been shown, by movements in various other items. Thus, for example, the deterioration in merchandise



account experienced between 1844 and 1847 was largely offset by an improvement in invisible earnings and a decline in the export of capital. Exogenous factors could also intervene to cause the balance on merchandise trade to behave in a non-cyclical fashion.<sup>1</sup> Here, the most obvious examples in the 1840's are the effect of poor domestic harvests on the demand for imported corn, and the fall in cotton imports in 1846 and 1847 due to the cotton harvest failure in the United States. Since neither of these events was determined by cyclical factors, it does not come as a surprise that the balance on merchandise account did not always move along lines predicted by the original hypothesis.

Taken in aggregate, however, net imports do show a distinct tendency to vary with changes in aggregate income and activity along lines predicted by the foregoing hypothesis. In the years of deepening depression during the early 1840's imports did fall quite sharply and then began to rise with the onset of cyclical expansion in 1843. The check to the growth of income in 1848 also clearly affected imports, though that of 1846 hardly appears to have done so; however, the enormous demand for food imports in 1847 obscures the fact that although income in Great Britain probably did show a cyclical rise in that year, the main peak in cyclical activity in the British economy appeared in 1845, and not, as imports imply, in 1847. On the other hand, if corn is excluded from the import bill, an almost perfect conformity of imports to variations in domestic income and activity becomes immediately apparent. Indeed, the conformity of net imports (excluding corn) to movements in income

---

<sup>1</sup> The term 'exogenous factor' is used to denote factors affecting the balance of trade which were not the consequence of domestic changes in income.

and activity is so close that one is forced to conclude that in the short-run this factor, more than any other, was the one which determined the flow of imports into Great Britain.

The behaviour of exports is more difficult to assess. Movements in aggregate exports are relatively small compared with those of imports. Indeed, exports taken at constant (1880) prices show virtually no cyclical movement whatsoever between 1844 and 1848.<sup>1</sup> However, such stability itself suggests that the forces outlined above may have been operating more or less effectively during the cycle. Thus, for example, during the depression of 1840-42 exports showed virtually no tendency to fall (in volume terms they actually increased), despite the very evident decline in industrial output in these years, implying that in these years manufacturers and merchants increased their dependence upon foreign markets, and that the price reductions made at the time increased British competitiveness abroad.<sup>2</sup> Similarly, after a brief expansion during the early stages of the boom, aggregate exports ceased to grow despite rising industrial output in 1844 and 1845, the rise in export prices and the high level of demand in the domestic market in these years encouraging merchants to divert goods from exports onto the home market.<sup>3</sup> Again in 1846 and 1847, exports remained virtually unchanged despite the obvious decline in industrial output in several parts of the economy. In short, throughout the 1840s there was a tendency on the part of aggregate exports to move conversely to movements in domestic income which manifested itself in the proportion of total industrial output going abroad, rather than in the quantity, and that considered in these terms exports did tend to fluctuate along anti-cyclical lines.

<sup>1</sup> A.H. Imlah, *Economic Elements of the Pax Britannica*, pp.95-6.

<sup>2</sup> Matthews, *A Study in Trade Cycle History*, p.71.

<sup>3</sup> On export prices see Imlah, *Economic Elements of the Pax Britannica*, pp.95-6.

Taken together these movements in net imports and exports resulted in the balance on merchandise trade (excluding corn) moving almost perfectly inversely with the movement of income and activity in the British economy between 1840 and 1850. The inclusion of corn imports, which themselves were not subject to the forces outlined in the foregoing analysis, distorts this pattern, and though the distortion is not severe it was sufficient in some years to prevent an easy detection of the basic pattern.

Compared with the balance on merchandise account, the balance of payments, as reflected in the flow of bullion into and out of Britain, was much less strongly affected by anti-cyclical tendencies. The reasons for this are fairly clear. The two largest non-merchandise items in the balance of payments - invisible exports and capital exports - both behaved in a cyclical fashion and thus tended to counteract movements on merchandise account. On the invisible earnings account the largest and most unstable items were earnings from shipping, insurance and mercantile services, all of which rose and fell in accordance with the total volume of trade passing through British ports. Since the volume of trade rose and fell in accordance with the level of domestic income and activity, total invisible earnings tended to fluctuate in a cyclical manner. However, these movements were not large and the net effect was merely to soften slightly the larger variations on the balance of trade arising out of the merchandise account. As might be expected, foreign investment rose and fell with the state of domestic activity (and confidence). Thus in the cyclical upswing between 1843 and 1845, foreign investment increased, while in the early 1840s and again between 1846 and 1849 when investors' confidence was generally less buoyant, foreign investment was very much reduced. Together these movements in invisible trade and in foreign

investment did much to offset the anti-cyclical tendencies in trade and to stabilize the final balance of payments position. Nevertheless, as may be seen from figure 14 the overall balance of payments and foreign exchange position, as reflected in the flow of bullion to and from Great Britain, continued to reflect - though in a very muted form - the basic anti-cyclical behaviour established in the balance of merchandise account.

Finally, before leaving these general considerations to discuss other factors affecting trade and payments, it will be useful to see how the relationships described above affected the level of aggregate income in the rest of the economy. Movements in the balance of trade and the balance of payments are likely to influence effective demand in the economy in two ways: these are (a) by the direct impact of movements in the balance of trade upon income; and (b) through the 'monetary effect' arising out of fluctuations in the balance of payments. It was argued in chapter IV that the direct, or 'income' effect, is measured by the amount of income injected into, or taken from, the circular flow of incomes as a result of variations in the balance of trade; the monetary effects which were considered in chapter VII arise because, under the gold standard mechanism operating in Great Britain in the 1840s, any change in the domestic bullion stock (as reflected by the bullion stock of the Bank of England) brought with it corresponding changes in the supply of money and credit which in their turn influenced the level of activity and effective demand in the economy.

The importance of the distinction being made here lies not in the fact that one influence was more recondite or less important than the other, but in the fact that they each arose out of the behaviour of different items in the balance of payments and could therefore have operated in different

directions at the same time. Thus, for example, it was quite possible, as this account implies, for a decline in the balance of trade to produce a net loss of income, while at the same time a positive balance of payments continued to produce a steady inflow of bullion. At such times the two influences would have a conflicting impact upon the economy as, for example, occurred in 1845. On the other hand, since both the balance of trade and the balance of payments did tend to move in similar directions, the resulting income and monetary effects tended to complement each other and thus magnify the impact of trade upon the economy. This occurred on two important occasions in the 1840s. In 1843, both trade and payments improved strongly and gave a sharp boost to income and to money supplies which did much to help cyclical recovery in that year. Again, in 1847, when both the balance of trade and balance of payments moved strongly against Britain, the loss in income and the severe decrease in money supplies were crucial factors in the economic difficulties of that year.

Table 28 below compares movements in income gained from trade (the income effect) and net movements of bullion (the monetary effect) in each year of the 1840s. It can be seen that the income and monetary effects tended to complement each other in most years, though in some they moved in opposite directions. One feature of their behaviour is, as would be expected from the earlier discussion, the tendency of both series to move anti-cyclically. Thus, while the rest of the economy was enjoying a general expansion in activity in 1844 and 1845, movements in trade and payments were already acting to put a brake upon the expansion. The table also emphasizes the importance of variations in the demand for imported corn. As may be judged from the table, it is this item more than any other which influenced the major changes in income gained from trade, and movements in bullion. Without the loss of income and bullion arising from the need to import corn

Net Changes in Income Derived from Foreign Trade, and the Net Flow of Bullion into and out of the United Kingdom, 1840-1850

Date	Net decrease (-) or increase (+) in income due to			Net favourable (+) or unfavourable (-) change in income		Net movements of bullion (+) inwards (-) outwards
	Expenditure on corn imports	Expenditure on other imports	Earnings from exports	Earnings from invisible items		
1840						- 0.9
1841	+ 0.4	+ 6.8	+ 0.2	- 2.1	+ 5.3	+ 1.0
1842	+ 0.5	+ 5.5	- 4.2	- 1.6	+ 0.2	+ 2.9
1843	+ 5.5	- 0.7	+ 5.1	+ 0.9	+10.6	+ 3.6
1844	- 1.5	- 6.2	+ 4.3	+ 1.9	+ 0.5	+ 3.0
1845	+ 2.0	-10.2	+ 2.3	+ 3.6	- 2.1	+ 1.0
1846	- 5.1	+ 6.1	- 2.3	+ 0.4	- 0.9	+ 1.4
1847	-20.4	- 1.9	+ 1.0	+ 5.5	-15.8	- 5.3
1848	+16.5	+ 4.0	- 5.9	- 7.2	+ 6.4	- 1.0
1849	- 4.5	- 5.0	+10.8	+ 0.6	+ 1.9	- 1.0
1950	+ 1.1	- 2.8	+ 7.8	+ 2.6	+ 8.7	+ 1.0

Source: Calculated from tables 30 and 31 below.

in 1847, the overall impact of changes in the balance of trade and of payments would have had no more than a marginal effect upon the economy.

## II

It has been argued above that variations in the balance on merchandise account were the major cause of movements in both the balance of trade and the balance of payments and that, in general, the balance on merchandise account was itself strongly influenced by changes in the level of domestic income and activity. Movements in this factor alone, however, do not account for all shifts in imports and exports between 1840 and 1850 and this section examines those other factors which came to influence the balance of merchandise trade.

Because changes in the demand for corn imports were the result of rather special factors, the behaviour of corn imports is left to a later section and attention is confined here to imports other than corn and to exports.

### Imports other than corn

It is hardly surprising that the value of imports other than corn should have moved in accordance with changes in the level of income and activity in Great Britain. Over half of Britain's imports in the 1840s consisted of raw materials and semi-manufactured goods for use in her industries, while a further one fifth or so consisted of certain key foods such as sugar and tea, the demand for which was highly responsive to changes

in price and income.<sup>1</sup> The volume of goods imported was not, however, entirely dependent upon this factor alone; changes in conditions at the source of supply could have a marked impact upon imports of a commodity. This occurred in the case of raw cotton when poor harvests in America led to a sharp fall in imports in 1846 and 1847. Though such events did have an important effect on imports they were, on the whole, uncommon occurrences and it has generally been argued that the supply of most of Britain's major imports was considerably more elastic than contemporaries and historians have imagined.<sup>2</sup>

Two other factors which had an important influence on the aggregate value of imports were the effect of speculative buying, and the volume of imported stocks already held in Great Britain. Since these two factors were closely linked it is useful to consider them together.

<sup>1</sup> Based upon a contemporary calculation of imports at current prices for 1840 (B.P.P. 1863 (469.) LXVI, pp.1-41). The relevant proportions according to the above account were:

Raw materials	51%
Sugar and Tea	14%
Semi-manufactured	
goods	6%
Other foods	16%
Corn	10%
Manufactured	
goods	<u>3%</u>
TOTAL	<u>100%</u>

On the responsiveness of the demand for sugar to changes in price and income see G.R. Porter, *Progress of the Nation*, (1851 ed.), pp.542-3.

<sup>2</sup> P.K. Chaudhuri, *Foreign Trade and Economic Growth*, p.125. Although the reduction of raw cotton imports in 1846 must be classed as a factor which acted to improve the balance of trade and thus acted as a stimulant to income, its influence was felt much more strongly through the depressive effect which the reduction in supplies had upon output and employment in the cotton industry in 1847. Taken on balance, the loss to income experienced in this way greatly exceeds any beneficial effects felt by the reduction in imports experienced during the preceding year.



The relationship between stocks and imports is fairly easy to demonstrate in principle, though its behaviour in practice is more difficult to show. In principle, a rise in the level of stocks above the levels desired by merchants will lead them to reduce their stocks either by reducing prices or by reducing the volume of goods imported in the following year (or by both means); conversely, if stocks fall below desired levels, other things being equal, imports will increase and so, perhaps, will prices.

Unfortunately, no accurate indicator of the level of imported stocks in Great Britain as yet exists for this period though it is still possible, using rather crude techniques, to demonstrate that, so far as a number of very important commodities was concerned, the forces described above did have a marked influence upon the volume of imports and upon the level of import prices. The technique used is one developed by R.C.O. Matthews for his study of imports in the 1830s. There he created two indices based upon the volume of selected commodities that were imported into Great Britain and subject to import duty: these consisted of an annual index of net imports, and an index of the same commodities taken out of bond for consumption.<sup>1</sup> By assuming that stocks held out of bond at any one time were a small proportion of the total stocks held in Great Britain, he was able to show from a comparison of the two series, how the size of stocks of imported goods varied from one year end to the next. Following these principles two sets of indices (weighted according to the scales set by Matthews) were constructed for the years 1840-1849: the first consisted of seven commodities (figures in parenthesis indicate weighting); cotton (6), tea (2), sugar (4), timber (3), tallow (2) coffee (1), and tobacco (1): the second (denoted by the letter B) consisted of the same commodities, but raw cotton was excluded in order to account for

---

<sup>1</sup> R.C.O. Matthews, *A Study in Trade Cycle History*, pp.11-13.

the overwhelming effect of that item on the indices.<sup>1</sup> Two sets of price indices were also constructed from quarterly price data contained in Tooke's *History of Prices*<sup>2</sup> to complement the above series. The Silberling index of wholesale commodity prices is also shown since this index may be regarded as a useful indicator of imported prices.<sup>3</sup> The close conformity of the various series to the Silberling index confirms the usefulness of the indices.

As may be seen from the two sets of indices in figure 17 the volume of goods imported moved more or less in accord with the volume of goods consumed so that the volume of stocks remained more or less constant. However, when a marked change in the level of stocks did take place, this was immediately followed by a change in the volume of goods imported and/or by a change in prices. The behaviour of import price index A, while not conforming exactly with the behaviour of stocks and imports predicted in the model, still conforms in a general way that suggests the expected influences were present and were operating strongly. One of the main reasons for the lack of conformity in the 'A' set of indices is the heavy weighting given to raw cotton. This comes out clearly if we consider the behaviour of the same

---

<sup>1</sup> In 1840 these seven items accounted in aggregate for fifty-two per cent of total non-corn imports; Calculated from B.P.P. 1863 (469.) LXVI, pp.1-41. Matthews also included imports of raw wool in his index. However, since duty was removed from this item in 1842 it is impossible to trace movements in stock after that date. Wool imports were accordingly dropped from the indices.

Raw cotton was not subject to duty after 1842 but records of stocks held are available in J. Mann, *The Cotton Trade of Great Britain*, p.96. On the reliability of the indices and of the various assumptions made, see Matthews, *loc.cit.*

<sup>2</sup> Tooke IV, pp.426-434; Tooke VI, pp.493-513. The prices used were as follows: Coffee, St. Domingo; Cotton, Bowed Georgia; Sugar, Muscovados (gazette average); Tallow, Russian candle; Tea, Congau; Timber, Danzig and Memel fir; Tobacco, Virginian.

<sup>3</sup> Two-thirds of the Silberling index consists of imported commodities.

indices after excluding raw cotton, i.e. series 'B'. During the first three years of the 1840s most businessmen found difficulty in adjusting to an increasing depression in the domestic market. Thus an over-adjustment to high stocks at the end of 1840 resulted in stocks being very much reduced by December 1841, and checked the fall in prices which had gone on since September 1840. In the following year, 1842, imports increased and for most of the year prices remained stable despite the very considerable depression in general demand during that year. By the last quarter of the year, however, prices began to fall steeply; as the index shows it is clear that by December, stocks had again increased considerably.

Once income and consumption began to recover during the period between 1843 and 1845, businessmen found it hard to keep up with growing demand and towards the peak of the boom prices of most imported goods, apart from cotton, began to rise. The year 1845 marks the peak of the trade cycle upswing and in that year the consumption of imported goods rose very sharply. A rise in stocks in 1844, however, seems to have produced some caution among businessmen so that imports failed to rise as quickly as consumption and consequently stocks fell while import prices rose sharply.<sup>1</sup>

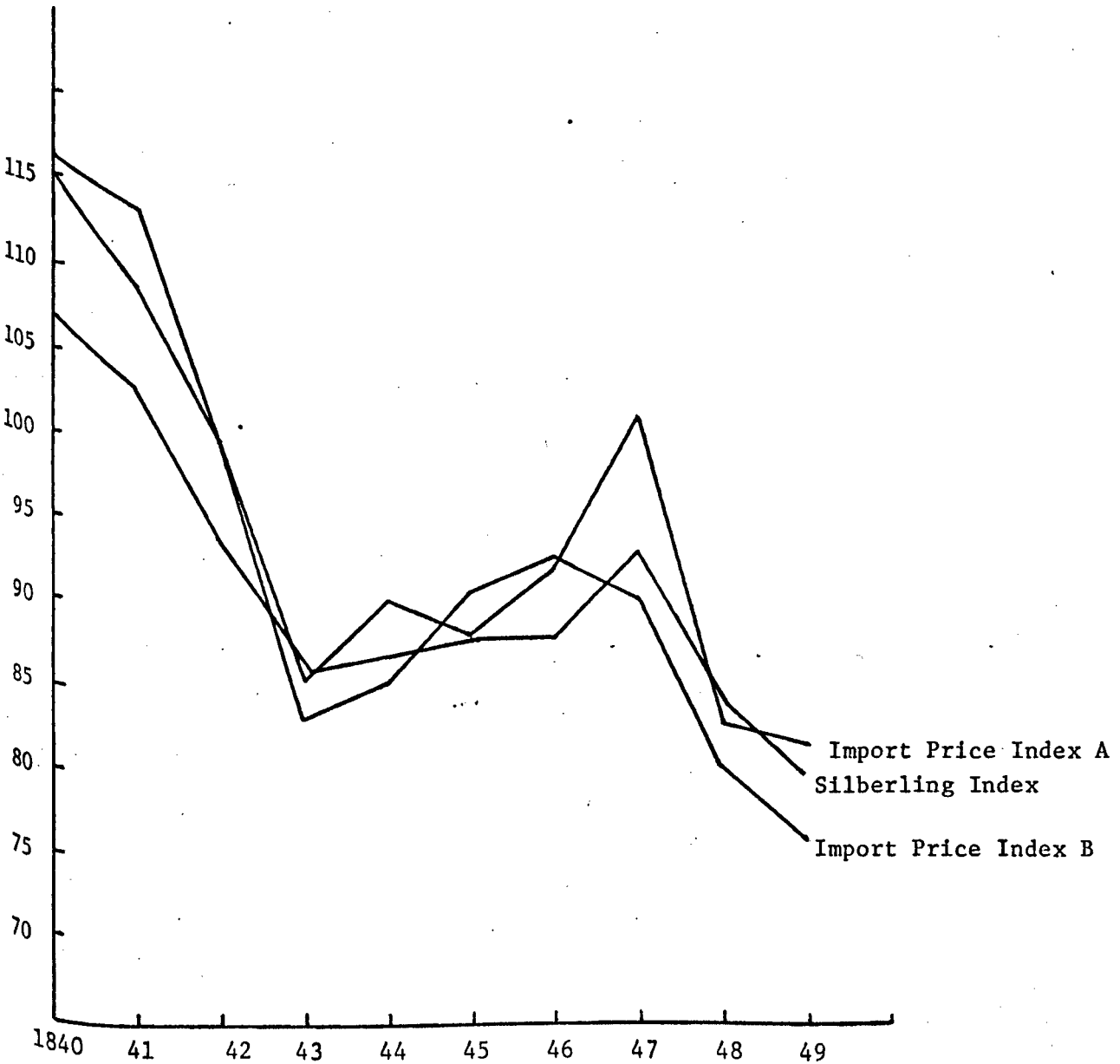
The decline in stocks and rising prices of 1845 maintained importers expectations of future demand, though the high rate of increase in net imports that had been established in the previous three years was not maintained. Here it is possible that financial difficulties in London, associated with the railway deposits crisis in January 1846, may have induced some caution among importers. The caution was well placed; the check to income growth

---

<sup>1</sup> Import price index A shows a slight fall due to the influence of cotton prices. It will be recalled that in 1845 raw cotton stocks reached a peak for the 1840s.

Figure 16

Import Prices: United Kingdom, 1840-49

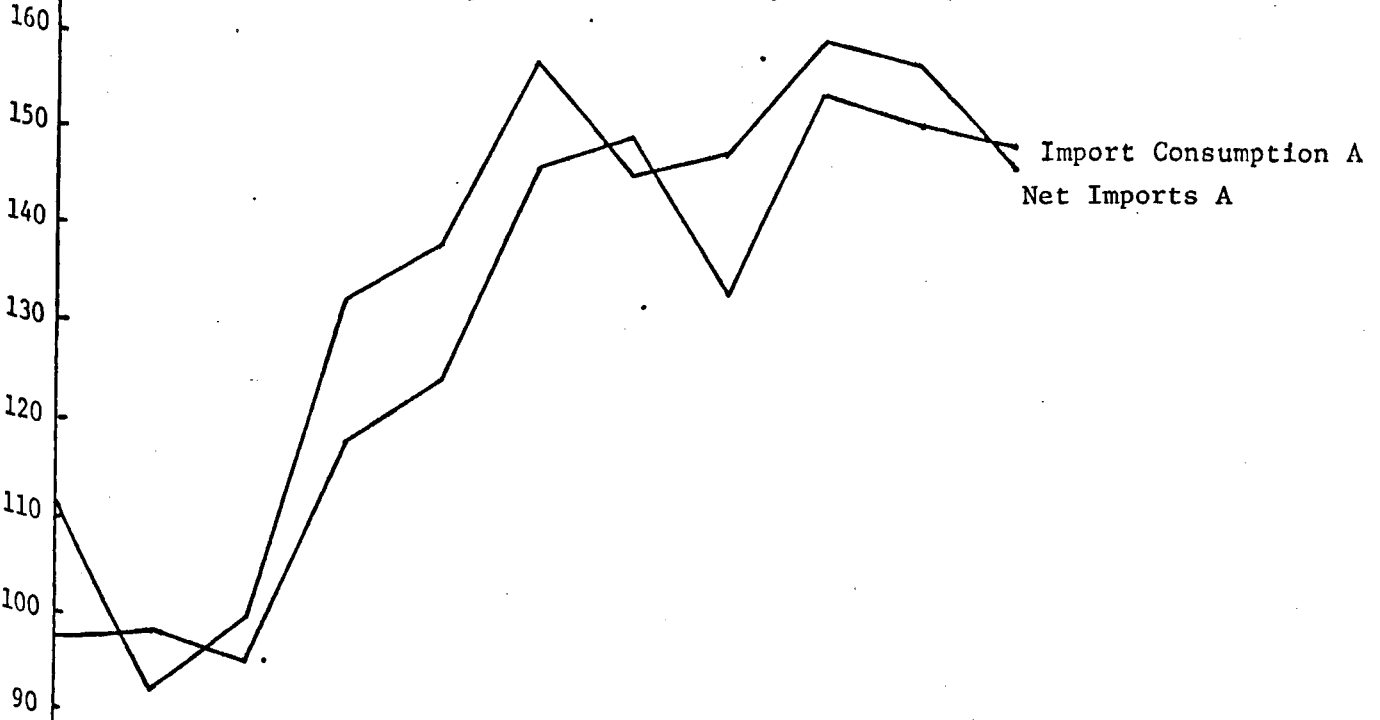


Sources: Table 32 below.

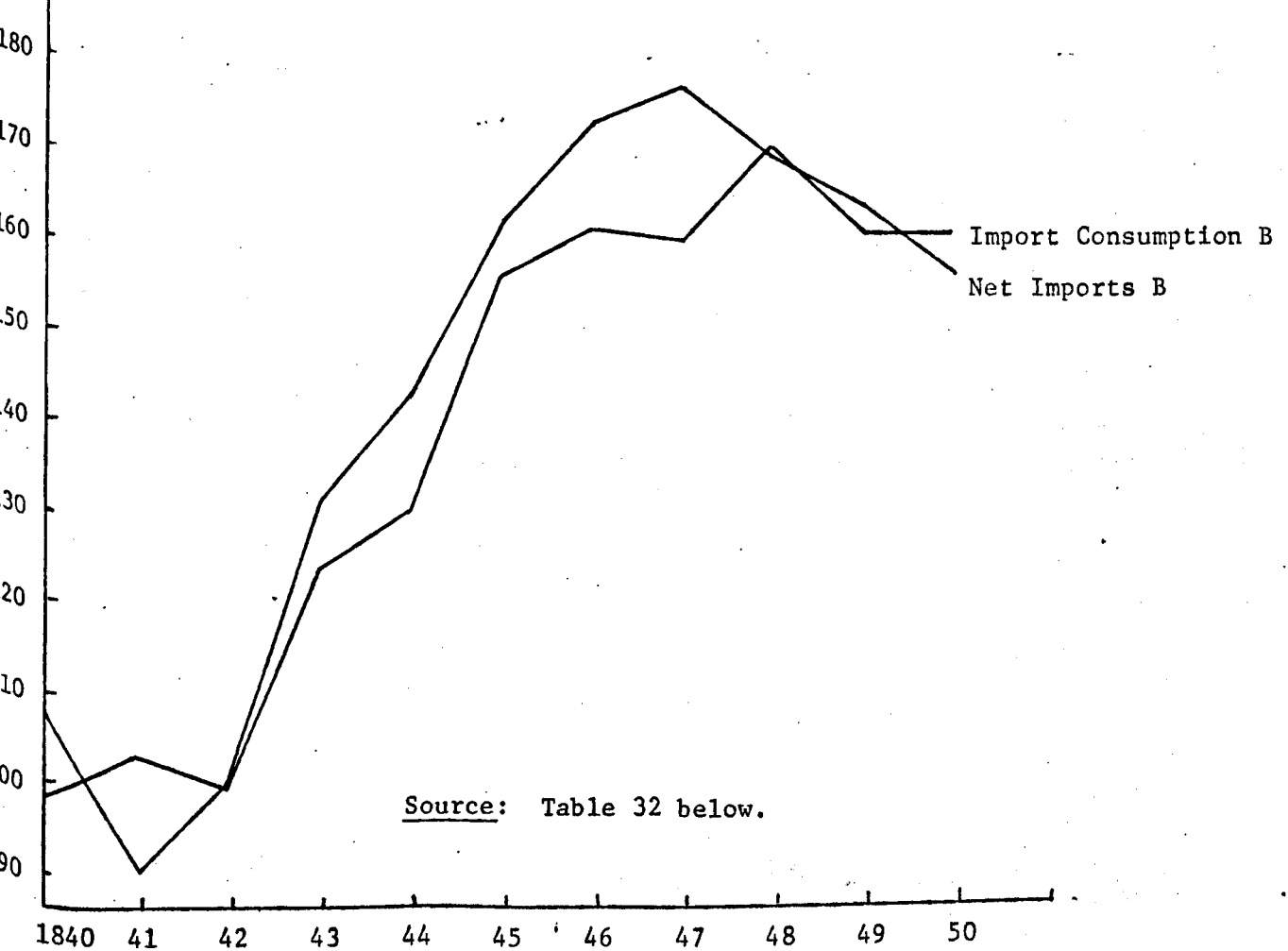
N.J. Silberling, "British Prices and Business Cycles, 1790-1850",  
*Review of Economic Studies*, Vol. V, (1923), p.233.

Indices designed to show the Behaviour of Imported Stocks; United Kingdom, 1840-1850

Net Import Index A and Import Consumption Index A



Net Import Index B and Import Consumption Index B



Source: Table 32 below.

which occurred in 1846 slowed down the growth of consumption quite sharply and in the middle quarter of 1846 prices (B) began to fall. By December 1846 stocks of many commodities were large, though some shortages existed in tallow and cotton and these led to increased prices towards the end of the year which are reflected in both indices.<sup>1</sup> In the following year, 1847, net imports, index B, shows a further rise due to a sharp increase in sugar imports; however, all other items contained in the index declined.<sup>2</sup> By the end of the year stocks in hand still appear to have exceeded requirements and the volume imported continued to fall until the end of the decade. Meanwhile, prices, which were well maintained during the first half of the year by buoyant demand, fell steeply during the financial crisis in the third and fourth quarters of 1847.<sup>3</sup> It was not until falling imports had further reduced stocks in 1848 and 1849 that prices began to rise. By 1850 demand was once again improving and the new decade began with rising prices and a feeling of optimism among businessmen.<sup>4</sup>

Apart from illuminating the factors affecting the readiness of merchants to import, these indices also reveal something of the part played by speculative activities in the import trades between 1844 and 1847. According to W.T.C. King, speculative activities in the import trade reached excessive proportions under the stimulus of cheap credit created by the Bank of England's new discount policy.<sup>5</sup> If such excesses did exist it would be

---

<sup>1</sup> See also Tooke IV, pp.69-72 for an account of the behaviour of prices in 1846.

<sup>2</sup> Net imports of coffee were unchanged.

<sup>3</sup> Tooke IV, pp.76-80.

<sup>4</sup> Tooke V, p.242-9; 256-8.

<sup>5</sup> W.T.C. King, *A History of the London Discount Market*, pp.134-8.

reasonable to expect them to be reflected in increasingly erratic movements in stocks and prices. It is clear, however, that except for 1846 and 1847 imports of most major items in the 1840s (excluding the very special case of cotton) moved closely in accordance with changes in demand. Merchants who were operating in these years were, in fact, remarkably successful at anticipating the state of demand, and appear to have kept stocks at fairly satisfactory levels. Even in 1846, when importers did miscalculate the movement of demand, they do not appear to have gone seriously wrong. Moreover, their miscalculation can be easily understood: for three years they had found difficulty in keeping pace with the rise in demand, and though at the beginning of 1846 there were signs indicating a slow down in the rate of increase in activity in the economy there was little else to convince importers that demand would not continue to rise as in past years, at least until the very end of the year.<sup>1</sup> In these circumstances only the most cautious and pessimistic would have curtailed their activities enough to prevent stocks from increasing in 1846.

The increase in stocks that is indicated by our (B) indices for 1847 is, in fact, partly illusory: if sugar is excluded from the index of imports the index actually shows a fall that is somewhat larger than that experienced by consumption. The fact that most stocks were being so reduced in 1847 is a further indication that commodity speculation was not as rife as some historians have believed. Indeed, this was the view of several well informed contemporary observers. James Wilson, for example, wrote at the beginning of the year that stocks of most commodities were low and that prices would thus be well maintained. This boded well for commerce, he said, since it showed that neither over-trading nor speculation existed to any significant

---

<sup>1</sup> Tooke IV, p.70.

extent.<sup>1</sup> Though he was somewhat in error regarding the size of stocks, his general analysis seems to have been correct; and until the crisis intervened in August-November 1847, demand and prices in the commodity markets were generally well maintained.<sup>2</sup>

Nevertheless, stocks of some commodities were still large by the last quarter of 1847 and this had serious consequences for firms involved in their importation. Under normal circumstances the excess of stocks would have led to some price reductions, but in the last quarter of 1847 the reported collapse of prices was far more serious than the size of stocks justified, and according to Tooke, "the state of prices during that period cannot be regarded as otherwise than exceptional".<sup>3</sup> The causes of this collapse can be traced in part to the excess in supply but more importantly they arose as a by-product of the system of financing the long distance trades. Several of the commodities included in the (B) indices were imported from distant countries where it was the usual practice for British merchants to grant very long credits to the exporting country. In their turn, British merchants depended upon getting regular accommodation credit in England to bridge the long time gap which occurred between the purchase of imports and their eventual sale in Great Britain. If such credits were not forthcoming, as for example during the financial difficulties of August-October 1847, the merchants could find themselves in an extremely illiquid position and be forced to sell off produce at ruinously low prices in order to meet their payments. According to J.H. Palmer and Thomas Tooke, both of whom were intimately acquainted with the organization of long distance trade, it was this factor,

---

<sup>1</sup> James Wilson, *Capital Currency and Banking*, p.165.

<sup>2</sup> Tooke IV, p.76. The discussion contained in chapter III on income and consumption also supports this conclusion.

<sup>3</sup> Tooke IV, p.78.



not large stocks or excess speculation, which had forced into liquidation many firms that were otherwise quite solvent.<sup>1</sup> The fact that in some cases large stocks were held in 1847 increased the magnitude of their problems. Once firms began to unload these stocks onto the market prices were bound to fall quickly and the value of their assets to decline accordingly. When this occurred the problem of getting credit or of holding stocks on credit were magnified enormously and failures were bound to appear in the trades. As soon as the failures began the "forced" sales of stock to pay creditors pushed prices even lower, while the loss of confidence thus created only made the problem of obtaining normal accommodation credit even more difficult than ever. In these circumstances only the most cautious and strongest of firms would survive, and it is to problems of this kind, rather than to exaggerated claims of excessive speculation, that we may turn for an explanation of the collapse in prices and of the many difficulties experienced in commercial affairs during 1847.

The problems described above were magnified many times in the East Indian trade and it is here, where the largest stocks were held, that claims of speculative activities are justified. As was well known among contemporaries, the finance of the East Indian trade was subject to extensive abuse. According to an article published in the *Manchester Guardian* on 24th November 1847, the East India trade was "one huge system of credit" in which merchants speculated and dealt in long dated paper more as a means of making money than as a means of transmitting real goods to and from the Far East.<sup>2</sup> Though there seems to be no doubt that the financing of this trade was subject to

---

<sup>1</sup> Palmer, H.L. Q. 897; Tooke IV, pp.79 and 328-9.

<sup>2</sup> *Manchester Guardian*, 24th November 1847 (quoted in Tooke IV, p.327, pp.123-6).

more abuse than most others and therefore became more unstable, there is also little doubt that there were additional factors, the product of quite legitimate activities, which contributed to the difficulties of the trade in 1847.

In the first place, the reduction in the sugar duties during the previous four years and the need to collect on bad debts had induced many firms to enter directly into the ownership of sugar plantations. Though such activities were quite legitimate, they often left firms in a severely illiquid position if they were called upon to realize their assets quickly.<sup>1</sup> Another reason was the large stocks of sugar which most merchants had on hand in 1847. These had come about for two main reasons: first, in the East Indian trade there was always a problem of finding a useful means of transmitting home the earnings from exported goods. Sugar was one of the most acceptable of commodities performing this function and when in 1847, firms were anxious to get their returns home as quickly as possible, sugar was one of the main items to which they turned. Second, the high prices of grain during the early part of 1847 gave an added boost to the demand for sugar. For a time it appeared that the distilleries would have to use sugar rather than grain, if prices continued to rise. Without doubt this was an important factor in the minds of sugar importers.<sup>2</sup> Unfortunately this demand failed to materialize and many importers were left with massive stocks of sugar which they could not sell.<sup>3</sup> The abuses in the financing of East Indian trading activities, the excessively large stocks of sugar held in 1847, and the illiquidity among holders of plantations, all account for the

---

<sup>1</sup> A brief glance at the balance sheets of many of the larger East Indian firms that failed in 1847 shows that they had become extensively engaged in such activities in recent years and that this was a source of embarrassment to them. For the balance sheets see D.M. Evans, *The Commercial Crisis of 1847*, Appendix pp.1-xxviii. See also evidence of C. Turner H.C. QQ. 931; 938.

<sup>2</sup> *Economist*, 8th January 1848, p.36.

<sup>3</sup> *Ibid.*

large numbers of failures in that trade (and to a lesser extent the West Indian trade) during the crisis of 1847. But the fact that problems of these trades stemmed partly from speculative activities does not mean, as some writers have suggested, that the mercantile system as a whole or even the East Indian trade in particular was the creature of unscrupulous speculators: such examples that appeared were merely excrescences in the body of a sound commercial system. The fact that this system was upset by the exigencies of the domestic money and banking system does not indicate that it was being excessively abused, but reflects the delicacy of its operation and of the close interrelatedness of its parts.

Although the foregoing paragraphs add some important qualifications to the original hypothesis regarding the behaviour of non-corn imports, it still remains that the level of domestic income and activity was the principal determinant of the volume of goods imported during the 1840s: the degree of influence exerted on exports by factors other than those directly related to the domestic income was however, much greater and it is to a consideration of these that we now turn.

### Exports

The broad commodity structure of British exports in the 1840s may be inferred from the following statistics of trade in 1845. Textiles clearly dominate, accounting (in total) for two-thirds of aggregate exports, with cotton goods alone accounting for forty-two per cent and woollens and worsteds for a further fourteen per cent. The two largest non-textile items, iron and steel, and hardwares together accounted for just over nine per cent of exports, while all other items jointly accounted for twenty-five per cent of the total.

However, though such a narrow range of commodities dominated British exports, it is still more useful to consider exports in terms of the markets to which they were sent rather than to deal with them as individual commodities. Accordingly, this note begins by looking at the demand for British goods in the United States; then, after looking briefly at the state of demand in Europe, it turns to consider exports to the rest of the world. Since the forces which affected the state of demand in this large sector has recently become a subject of controversy among historians, it will be necessary to dwell at greater length on this region.

(a) Exports to the United States of America

Although the American market was not the largest of Britain's foreign markets - it accounted on average for about fourteen per cent of Britain's exports in the 1840s - it was among the most unstable and it has been argued elsewhere that variations in the demand for British goods in this market was the main factor of uncertainty in the total demand for British goods abroad during the 1830s and 1850s.<sup>1</sup> A glance at Table 33 shows that, although the American market retained its unstable character during the 1840s, exports to the United States did not dominate the behaviour of exports as they had done in the 1830s, and that they were, on the whole, much less volatile. Some reasons for the relative quiescence of exports to America in the 1840s will be given later; for the moment it is useful to look at the timing and direction of the fluctuations rather than at their amplitude.

---

<sup>1</sup> Matthews, pp.43-5; J.R.T. Hughes, *Fluctuations in Trade, Industry and Finance, 1850-1860* (Oxford, 1960), pp.40-2.

That the level of domestic income and activity in the United States was the principal determinant of her demand for British exports may be readily discerned by comparing the behaviour of her domestic economy with the volume of British exports going to the United States.<sup>1</sup> Following the depression of the early 1840s, the United States began to show signs of recovery in 1843, though in several of the Southern states the depression lasted until 1845. By 1844 there were many signs of increasing prosperity in the North; railway shareprices were climbing steeply, interest rates were low, and in the industrial sphere prices were rising and much investment was taking place. In 1845, further increases in prosperity were confined mainly to the industrial areas of the North-East; in the agricultural regions of the North excellent harvests seriously depressed prices at the end of the year, and in 1846 caused severe financial problems among commodity speculators in the East. 1847 was a prosperous year for the United States in general. Thorp's *Business Annals* reported, "Rapid improvement begins, January; great activity; full employment; high commodity prices ..."<sup>2</sup> The prosperity of 1847 affected all regions of the country and was based upon the high demand for food in Europe, high cotton prices, extensive investment in domestic railways and large government expenditure for the war with Mexico. The year was not without its troubles however; in October 1847, the commercial crisis in England and the movement of domestic exchange rates against the Eastern States in favour of the South and West, caused an outflow of bullion from the Eastern banks to the West and to Europe.<sup>3</sup> The resulting pressure on monetary

<sup>1</sup> The following discussion draws heavily upon W.A. Smith and A.H. Cole, *Fluctuations in American Business 1790-1860* (Harvard, 1935) especially Section III chapters 15-20, and W. Thorp, *Business Annals* (New York, 1926), pp.123-5.

<sup>2</sup> Thorp, *op.cit.*, p.124.

<sup>3</sup> *De Bow's Review*, vol. V, 1848 (Reprinted, New York, 1967), pp.77-9.

affairs checked any further expansion in that year and it was not until 1849 that the economy regained its full bouyancy.

As may be seen from Table 33, British exports to the United States closely reflected shifts in American domestic activity. Exports expanded in 1843 and 1844 but then fell again in 1845-1846.<sup>1</sup> After a brief but strong recovery in 1847 they fell again in 1848. In 1849 and 1850 they recovered and began to grow strongly.

Although the level of aggregate demand in the United States was determined mainly by domestic factors foreign influences, particularly those emanating from Britain herself, still played an important part in American development and activity, and thus affected the demand for British exports.<sup>2</sup> There were two principal ways by which British activity could have influenced the state of activity in the United States: through British demand for American exports; and through the readiness of Britain to export capital to the United States. That British demand for American exports was an important source of income to the United States is undoubted; Britain not only absorbed on average, about half the total exports of America, but also took by far the largest share of her main export commodity, raw cotton. For this reason, the growth of British demand and its stability were important

---

<sup>1</sup> American import statistics, which in this period end on June 30th of each year, indicate that imports from Great Britain increased during the year ended 30th June 1845, were stable in the following year and increased again in the year ended 30th June 1847 suggesting, when compared with British statistics, that any reduction in British exports in 1845 appeared during the latter part of the year.

<sup>2</sup> The view that trade cycle fluctuations in the American economy were determined in the main by external factors, and particularly by British influences, has been put forward by W.B. Smith and A.H. Cole, *Fluctuations in American Business, 1790-1860*, pp.41-2; 91-2. For a criticism of some of Smith and Cole's views see J.R.T. Hughes and N. Rosenberg, "The United States Business Cycle before 1840: some problems of interpretation", *Economic History Review*, 2nd Series XV, (1962-3), pp.481-2.

factors in the expansion of the American economy during the first half of the nineteenth century. In individual years also, any large variation in British demand for American goods had a significant impact upon the state of activity in the United States. The high level of demand for food in 1847, for example, was an important contributory factor towards prosperity in America in that year. On the whole, however, it is probably very easy to overstate the effect of such changes in the short run. We have seen elsewhere that the supply of American cotton in the short run was determined, in the main, by the state of the American harvest itself rather than by the state of British demand during these years. For this reason it is better in the short run considerations of this essay, to consider that variations in the value of cotton exports, and thus of American exports generally were determined, in the main, by factors that were largely outside of Britain's influence.<sup>1</sup>

---

<sup>1</sup> This does of course accept that for long run considerations the growth of demand in Great Britain and the rest of the world for American produce was a crucial factor in American economic growth and in the determination of the long swing variations in activity that are such a well know feature of that growth. The whole question of the interrelatedness of British and American long swings is now the subject of an extensive literature. It was not considered part of this essay to enter into this aspect of the economic history of the two countries, though the current discussion is conducted with the consciousness of the existence of these forces, and of their relevance to the whole question of the quiescence of the American economy in the 1840s. On this question perhaps the most relevant material can be found in P.E. Cootner, "The Role of Railroads in United States Economic Growth", *Journal of Economic History*, Vol. XXIII, (1963), pp.477-521. J.G. Williamson, *American Economic Growth and the Balance of Payments 1820-1913 - A study of the long swing* (Chapel Hill, North Carolina, 1964); J.G. Williamson, "The Long Swing - Comparisons and Interactions between British and American Balance of Payments, 1820-1913", *Journal of Economic History*, Vol. XXII, (1962), pp.21-46.

British willingness to export capital to the United States was, perhaps, a more influential factor. It has been argued, for example, that variations in the rate of flow of capital to America in the 1830s was a major destabilizing factor in the American economy; while the diversion of British capital exports from America following the repudiation of states debts in 1841-2 accounted in large part for the relative economic quiescence of that decade compared with the 1830s.<sup>1</sup> In turning away from America, British investors probably influenced American economic affairs in two principal ways: firstly, through the balance of payments; and secondly, by way of the American banking system. During the 1830s the inflow of British capital was a crucial factor in allowing the United States to maintain a large import surplus during the burgeoning growth of that decade without seriously disturbing her balance of payments.<sup>2</sup> In the years 1840-1844 when the debt repudiation brought the supply of capital to a halt, the United States was forced to re-adjust her balance of payments position accordingly and did so by way of reducing her import burden. The effect on British trade during both of these periods was striking. In 1837 exports fell steeply when British capital exports came to a temporary halt, and only recovered after the resumption of foreign lending in 1838. Again after 1839 commodity exports to America slumped. In the later period however, the export of capital to America was not resumed for nearly a decade, British exports accordingly languished and it was not until the beginning of the 1850s that the volume of goods exported to America from Britain reached levels achieved in the mid-thirties. Meanwhile, with the American demand for imports depending upon what she herself could export, variations in the volume of British exports to America were much less violent than in the previous decade.

---

<sup>1</sup> P. Temin, "The Anglo-American Business Cycle, 1820-1860", *Economic History Review*, 2nd series XXVII (1974), pp.207-21. R.C.O. Matthews pp.54-5 and 69f. P. Temin, *The Jacksonian Economy* (New York, 1969), pp.151-5; 164-5; 171.

<sup>2</sup> Matthews, p.55.



The withdrawal of British capital also appears to have adversely affected American banking and finance. In the 1830s British capital had played an important part in the explosive growth of the American banking system which played such a significant role in the boom of that decade.<sup>1</sup> During the depression of the 1840s the withdrawal of British capital gave American banking a severe set-back from which it did not recover for almost a decade. According to Smith and Cole, "... the sluggishness of the banking growth in the late forties is traceable ultimately to the failure of foreign loans to flow into the country in the volume which had obtained prior to 1840 and again after the restoration of British confidence, in the fifties ..."<sup>2</sup>

In both cases it is difficult not to believe that the quieter period in British exports to America during the 1840s resulted largely from the effects of the withdrawal of British capital. It is however, important not to over-emphasize this point too much: the flow of capital to America can, at most, be seen only as a permissive factor in American growth and its withdrawal took place only after the boom of the 1830s was over. The real forces affecting stability in the economy were domestically induced, and must therefore be considered as exogenous factors in the determination of British exports to America.

(b) Exports to Europe

Exports to Europe are exceptional only for their stability.<sup>3</sup> Between 1840 and 1846, aggregate exports to this region rose slowly but steadily exhibiting nothing that may be accurately described as cyclical

---

<sup>1</sup> *Ibid*, p.54. Williamson, *American Economic Growth*, p.101.

<sup>2</sup> W.B. Smith and A.H. Cole, *Fluctuations in American Business*, p.118.

<sup>3</sup> Europe here excludes the Mediterranean countries.

fluctuations. In 1847, however, exports to Europe fell steeply; the fall virtually accounting for the entire decline in aggregate British exports in that year. After reaching a base in 1848 exports to Europe began to recover, but by 1850 they were still below levels achieved in the mid years of the decade. The pattern exhibited here reflects, on the whole, the agricultural basis of the European market and indicates that, despite parts of Europe being more highly developed than most of Britain's foreign markets, the state of the harvest there was still the major determinant of income.

This point does not of course deny the fact that during the mid 1840s, the state of industrial activity and railway investment in France, Belgium and parts of Germany, did much to raise the level of income there, while the check to railway building brought on by the withdrawal of British capital after 1846, the industrial depression 1846-48 and the revolutions of 1848, all brought much unemployment and distress. However, even on these occasions the state of the harvest still remained at the heart of Europe's economic troubles. As is well known the harvests of 1845, 1846 and 1847 were all very poor in North-Western Europe and by the end of 1846 near famine conditions existed in large areas of the continent.<sup>1</sup> By this time most of the North-West European countries were, like Britain, engaged in an extensive search for food imports. The loss of income occasioned by the reduced harvests, and the switch of expenditures from imports of manufactured goods to food imports is clearly reflected in the decline in demand for British goods in 1847. To the food crisis was added industrial depression and the collapse of the railway building boom in France; and when in 1848 revolution broke out in several European capitals, normal economic affairs became more

---

<sup>1</sup> S.E. Fairley, *The Anglo-Russian Corn Trade, 1815-1861*, (Unpublished Ph.D. thesis, University of London, 1959), pp.93-4.

acutely disturbed than ever. It is thus not surprising that British exports to Europe should have continued to fall in 1848. During 1849 many of these problems were resolved and British exports began to recover once more.

(c) Exports to all other regions

Exports to America and Europe accounted for between forty-five and fifty per cent of total British exports during the 1840s; the rest, described here as 'other exports', were divided among three major regions: the Mediterranean countries, which absorbed about ten per cent of exports; the Far East, with between fourteen and twenty per cent; and Central and South America, which together took about twenty-five per cent of British exports. Clearly, a variety of factors came to influence the demand for British exports in each of these regions. However, it has been argued that there was a common element determining the volume of British exports which they consumed: according to R.C.O. Matthews, the demand for British exports to markets other than Western Europe and the United States was generally regulated by Britain's own readiness to accept imports from them.<sup>1</sup> By importing the products of these countries, he argues, Britain not only added directly to the level of their income, but more importantly, made available to them the sterling balances necessary to pay for goods imported from Great Britain. "As a rule", says Matthews, "the difficulty was to obtain means of remitting back the proceeds derived from our exports rather than to find exports with which to pay for imports - a natural consequence of the rapid growth of productivity in British export industries".<sup>2</sup> For this reason the volume of exports going to these markets fluctuated in accordance with changes in the demand for imports by Great Britain - a factor that was itself dependent upon the level of

<sup>1</sup> Matthews, pp.75-8. The same views have also been put forward by Imlah, *Elements of the Pax Britannica*, p.128; P.K. Chaudhuri, *Foreign Trade and Economic Growth*, p.51, and P. Deane and W.A. Cole, *British Economic Growth 1688-1959*, p.82-9.

<sup>2</sup> Matthews, pp.77-8.

income and activity at home. Matthews, and those who have followed him, admit that the other factors need to be taken into consideration before a full explanation of Britain's exports to these regions can be given; however, they all believe that it was mainly through merchandise trade that sterling became available to Britain's export markets in the underdeveloped world.<sup>1</sup>

Recently Matthew's hypothesis has been under quite severe criticism from three writers - G.N. Von Tunzelmann, F. Capie and K.M. Tucker - all of whom argue that the experience of New Zealand in the 1840s indicates that underdeveloped countries could have obtained the necessary sterling balances with which to finance large and extended balance of trade deficits by a number of means other than through bilateral trade with Great Britain; they include: capital exports, unrecorded migrant funds, British Government grants and expenditures, and multi-lateral mechanisms.<sup>2</sup> In substance these criticisms do not affect the overall validity of the Matthews hypothesis as seriously as these writers seem to suggest.<sup>3</sup> However, one further criticism by Von Tunzelmann is important. Matthews had found that movements in "other" exports conformed more closely to movements in imports excluding corn than to movements in total imports. He explained this by pointing out that corn

---

<sup>1</sup> Matthews, for example, accepted that some countries could maintain quite large long term balance of payments deficits with Great Britain if merchants trading with them were prepared to bridge the gap out of their own resources, or by borrowing on accommodation credit and other means, and that multi-lateral settlements in the Far East involving the United States, as well as the export of capital, could all affect the ability of under-developed nations to import from Britain. Similarly, Imlah and Chaudhuri believed that the export of capital was an important source of sterling balances abroad.

<sup>2</sup> G.N. Von Tunzelmann, "On a Thesis by Matthews", *Economic History Review*, 2nd series XX(1967), pp.548-554. F. Capie and K.A. Tucker, "British and New Zealand Trading Relationships, 1841-52", *Economic History Review*, 2nd series XXV(1972), pp.293-301.

<sup>3</sup> That is if we take into account the qualifications put to it by Matthews himself, and by Imlah and Chaudhuri.

was predominantly imported from northern Europe and that the sterling thus earned did not affect - except indirectly - the availability of sterling used to pay for Britain's 'other exports'. After pointing out that Matthews had made these comparisons with Imlah's preliminary estimates of imports which had since been modified in several respects, Von Tunzelmann went on to show that by substituting Imlah's revised estimates of imports for the original data used by Matthews, a better 'fit' was obtained for the 1830s and for the entire period between 1815 and 1850, if total imports including corn were regressed against "other exports". This led him to conclude that the case for excluding corn imports in the Matthews hypothesis was weak; though, he argued, even after including this item, it was still necessary to take account of other sources of sterling to under-developed countries before an adequate explanation of their demand for British exports could be obtained.

In his original work Matthews argued that the relationships which he discovered in the 1830s data persisted into the next decade, and it is a simple matter, therefore, to apply both his original hypothesis (though using the revised figures of Imlah) and the modified one suggested by Von Tunzelmann, to the 1840s data and to compare the results obtained.<sup>1</sup> The comparison may be carried out by visual inspection of figure 18; or by means of simple regression analysis. A brief glance at the figures indicates that during the 1840s, despite Von Tunzelmann's objections, fluctuations in "other exports" do conform much more closely to the level of imports excluding corn than to total imports; and that at least so far as the 1840s are concerned, it is the first rather than the second of these values which offers the best

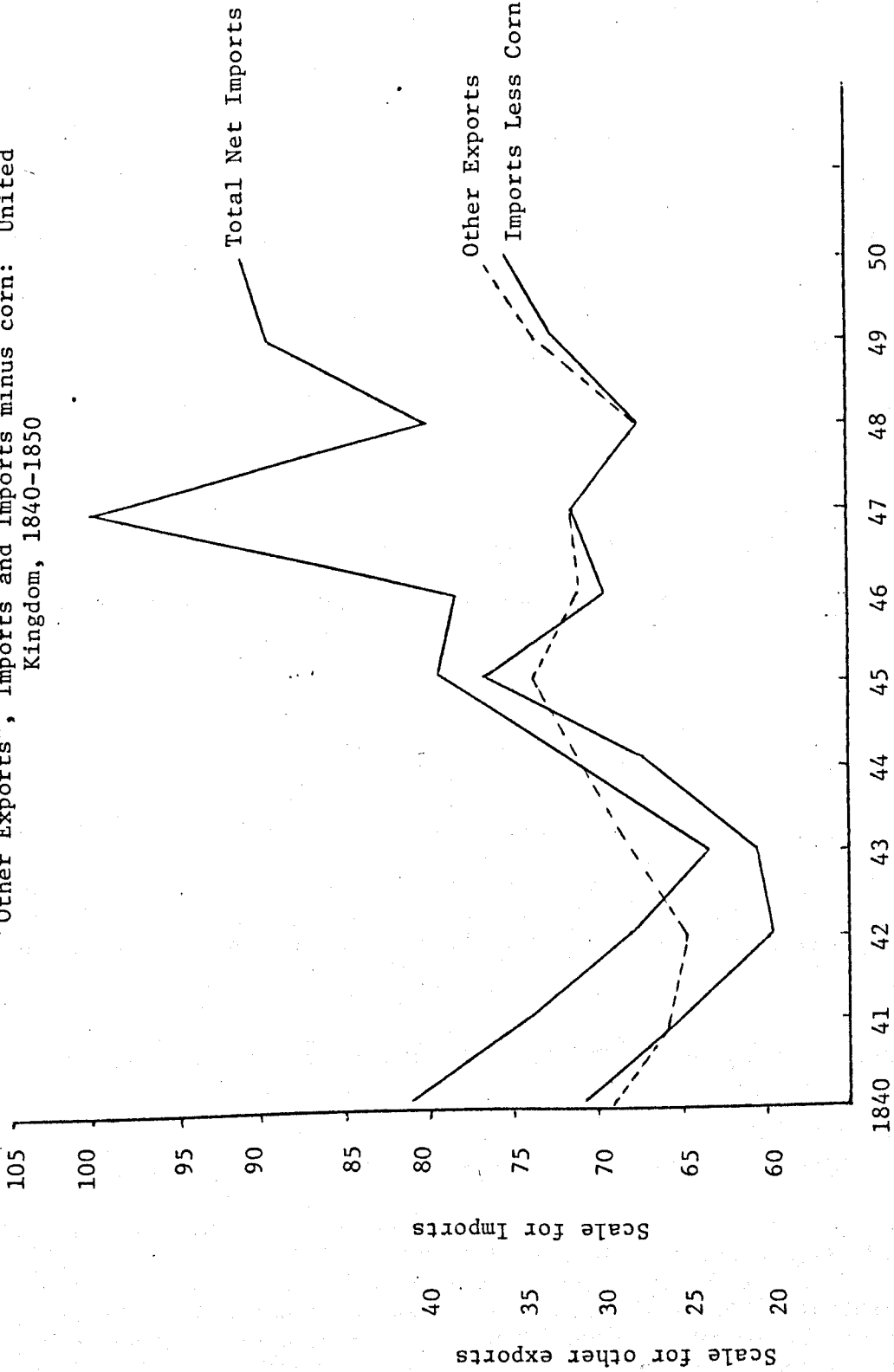
---

<sup>1</sup> In the following discussion "other exports" is slightly narrower than that used by Matthews in that exports to Spain, Portugal and their immediate island dependencies including Gibraltar, is regarded as part of Europe and not, as in Matthew's case, as extra Northern Europe.

Figure 18

THE MATTHEWS HYPOTHESIS

"Other Exports", Imports and Imports minus corn: United Kingdom, 1840-1850



Source: Tables 30 and 33 below.

explanation of variations in the demand for "other exports".<sup>1</sup>

If these results tend to confirm the Matthews decision to exclude corn from imports, at least for the 1840s, the regression coefficient obtained from our test still indicates that there is much in the behaviour of "other exports" that is not explained by the behaviour of imports excluding corn, and therefore that the relationship between the two series was more complex than had been implied by the original Matthews hypothesis. On this point there seems to be little reason to doubt the belief shared by Von Tunzelmann, Capie and Tucker, that the under-developed countries could obtain the sterling necessary to buy British goods in a number of ways other than by direct bilateral trade relationships. Nevertheless, the results obtained confirm very clearly that in the 1840s Britain's readiness to import goods was the major determinant of her ability to sell goods to a large part of the world.

Exactly why "other exports" should be more responsive to variations in imports excluding corn, than to total imports is difficult to say, though some reasons may be suggested. By far the most important is the fact that until the later forties the major sources of corn imports were among the North European countries; moreover, as was well known among contemporaries, the corn exporting countries were notoriously poor buyers of British goods. Money that was earned from corn exports in these countries usually went inland to landowners who either hoarded it or, as a result of their consumption habits, used it to purchase the sorts of goods not normally produced by Britain. Though such expenditure might eventually have led to an increase

---

<sup>1</sup> The conclusion is amply confirmed when one formally regresses "other exports" against total imports and against total imports excluding corn. In the first case  $r = 0.623$ , while in the second,  $r = 0.838$ , a much better result. Moreover, in the first case the test for significance ( $t = 2.016$ ) indicates that the results were significant only at 0.1 per cent degree accuracy with nine degrees of freedom; while in the second the degree of significance is very much higher ( $t = 4.621$ ) indicating that the results were significant at 0.01 per cent degree of accuracy, again a distinctly better result.

in the demand for British goods, the time lag involved would have been long;<sup>1</sup> in the meantime the demand for British goods following a boom in corn imports could have proved to be quite inelastic in the short run. The result was that in periods of exceptional demand, as in 1847, Britain had to pay for her corn imports in specie and bonds, and not by exporting her own produce.

To summarize: the aim of this discussion on exports and non-corn imports has been to distinguish between those movements which were related to changes in the level of income, and those which arose out of factors outside the influence of the domestic economy. The pattern which emerges is a fairly complex one, but it is one that is important for an understanding of the movement of income and activity both during the build-up period before the crisis and during the crisis year, 1847. Aggregate expenditures on imports were, if not exclusively determined by changes in domestic income or by factors directly related to such changes, determined in all important aspects by the state of domestic activity, and as such they rose and fell with every rise, or anticipated rise, and fall in income. On occasions when merchants failed to anticipate fully the direction or amplitude of a particular movement in income, the resulting changes in stocks and prices quickly caused them to correct their position. In only one important product, raw cotton, do we find that exogenous factors played an important part in influencing the volume of goods imported. On that occasion poor cotton harvests in the United States led to a fall in imports, and although the net

---

<sup>1</sup> Significant increases in expenditure on British goods by the Mediterranean countries can be traced in years following increases in British imports of corn. On the multi-lateral relationships involved here, see S.E. Fairley, *The Anglo-Russian Corn Trade*, pp.379-82. It is significant that the Mediterranean region fits very poorly into the general hypothesis presented in the foregoing pages. In this region, there is little doubt that the growth of British expenditures on corn from the late 1830s onwards had an important influence upon their expenditure on British exports.



effect was to produce a gain to income obtained from trade in 1846, more important effects upon income must be looked for in the year following when shortages of raw materials led to a large reduction of output and employment in the cotton industry.

The net result of these movements was that imports were generally counter-cyclical in their effect on income, producing a drain on aggregate income during booms and reducing the loss to income during depressions. At the same time, however, any rise in the demand for goods produced in the under-developed world tended to produce a corresponding increase in the demand for British exports. The result was that a large section of British exports tended to move in a manner that compensated aggregate income for the changes that arose out of fluctuations in imports. To the extent that these factors cancelled each other out, the balance on merchandise account tended to be stabilized during booms and slumps.

Not all exports were determined in this manner, however; in Europe and in the United States, the demand for British goods was largely a function of domestically determined variations in income, and it is to this extent that changes in the level of British exports was dependent upon exogenous factors. Taken in aggregate, exports to these markets moved remarkably closely with changes in the level of British income, and though this must be regarded largely as a fortuitous occurrence, it does help to explain why the considerable variations in non-corn imports did not result in larger variations on the merchandise account (excluding corn) during the 1840s. It also draws attention once again to the significance of variations in the corn import bill. Without this item the balance on merchandise account during the crucial years of 1846-7 would not have deteriorated so badly; as it was, the large imports of corn in these years turned a reasonably mild deficit into one that produced a serious loss to income in 1846 and 1847. It is with this in mind that we now turn to consider corn imports.

## III

It has been argued that variations in the aggregate value of corn imported into Great Britain had a very marked impact on the balance of trade and the balance of payments during the 1840s and that during 1847 in particular almost all of the decline in the balance of trade and the balance of payments was due to the large imports of corn. The earlier discussion on imports expressly excluded corn on the grounds that fluctuations in the demand for this item depended upon factors that were quite different from those which affected other imported goods; it is now time to consider those factors and so complete this discussion on movements in merchandise trade.

The demand for imported corn and the price paid depended, in the final analysis, upon the domestic demand for wheat and upon the state of the domestic harvest. In long run terms this meant that the expansion of the British population progressively increased the aggregate volume of wheat required for domestic consumption, while the supply position depended upon long run forces affecting the state of British agriculture. The character of the latter is well known. Following the enormous expansion of capacity during the Napoleonic Wars, the rising trend of demand had been met throughout the twenties and early thirties without any overall increase in prices. By the late 1830s these conditions had begun to change: after 1837 domestic demand began to exceed supply in all but the very best harvest years, and from that date rarely less than one million quarters of wheat and wheat flour were imported and entered for consumption in Britain to supplement the domestic supply. In the short run, however, the demand for wheat was notoriously inelastic while the domestic supply varied considerably according to the state of the harvest and the volume of stocks carried over from the previous year.

The result was that in the short run, both the domestic price of wheat and the demand for additional supplies from abroad could fluctuate widely from year to year.

There are, unfortunately, no reliable estimates of the size of each year's harvest during this period, though it is abundantly clear from contemporary reports that it could vary quite widely from year to year. Of the factors that could affect its size - the yield, acreage sown, weather, prices in previous years and so on - only one, according to contemporary belief, was fairly constant; this was the acreage sown to wheat. Tooke's opinion was that this rarely varied by more than ten per cent from year to year depending upon the weather at the time of sowing, though it could be influenced more severely in years following marked changes in wheat prices.<sup>1</sup> That variations in the yield per acre and the quality of the wheat were sufficiently large to produce marked fluctuations in total output was well known to contemporaries, and led to several important attempts to assess variations in the yield at the time of harvest.<sup>2</sup> Regular comments on the

---

<sup>1</sup> Tooke V, pp.51-2. On the effect of wheat prices on the area of land sown see also James Wilson, *Influence of the Corn Laws as Affecting all Classes of the Community and Particularly the Landed Interests*, (1839). Wilson's theories on wheat prices, harvest fluctuations and general economic fluctuations are discussed fully in R.G. Link, *English Theories of Economic Fluctuations*, pp.104-107.

<sup>2</sup> The best known example is that regularly made by the firm of Cropper, Benson and Company between 1815 and 1833 and subsequently continued by Joseph Sandars to 1856. They are subsequently known as the *Liverpool Surveys* which are discussed at length in Tooke V, pp.118-133. The original data used by Tooke was later discovered in the library of the Royal Statistical Society, and has been analysed fully in H.J.R. Healy and E.L. Jones, "Wheat Yields in England, 1815-59", *Journal of the Royal Statistical Society*, ser. A, CXXV, part 4 (1962), pp.574-9. The Liverpool surveys did not extend north of Yorkshire, but according to Tooke, the total produce of wheat north of that county forms so small a part of the total output of the country as to make no appreciable difference to the final results. (Tooke V, pp.54-5).

Table 29

## Harvests and Corn Imports; United Kingdom, 1840-49

Year	Average yield of wheat per acre in England qtrs.	Volume of wheat and wheat flour imported 000'qtrs	Volume of wheat flour and wheat imported and entered for consumption 000'qtrs	Annual average Gazette price of wheat per qtr. (s.d.)	Total value of all grain and flour imported for home consumption £m.	Tooke's harvest commentary
1840	43.1	2432	2390	66/4	9.4	Inferior
1841	38.5	2770	2620	64/4	9.0	bad
1842	51.4	3040	2977	57/3	8.5	very good
1843	51.0	1065	982	50/1	3.0	good
1844	51.5	1379	1022	51/3	4.5	good
1845	44.1	1142	313	50/10	2.5	inferior
1846	41.8	3344	2944	54/8	8.6	indifferent
1847	43.7	4464	4612	69/9	29.0	middling
1848	39.3	3082	2194	50/6	12.5	bad
1849	54.2	4835	5634	44/3	17.0	good

Sources: Col. 1, Tooke V, p.128  
 Col. 2, Tooke VI, p.453  
 Col. 3, G.R. Porter, *Progress of the Nation*, (1851 ed.), p.140.  
 Cols. 4, 5, 6, Tooke V, p.181.

quality of the wheat produced appear in Tooke's *History of Prices*. If we combine this information with Tooke's reports on the state of the weather at the time of sowing and reaping - the periods when the weather was most likely to affect the size of the harvest - we can obtain a fairly accurate idea of the likely variations in the size of the domestic harvest from year to year, and of its adequacy for domestic needs.<sup>1</sup>

Table 29 summarizes the data relating to the yield per acre and compares it against the average annual domestic price of wheat and the aggregate volume and value of wheat imports during each year of the 1840s. Tooke's brief commentary on the condition of each harvest is also shown.

Briefly, the results of this evidence are as follows: in 1840 the area of land sown was reduced due to the extremely wet weather at the time of sowing and, though the yield per acre at the harvest was good, the total amount produced was much below that of 1839. In 1841 the area sown probably reached average levels, but the poor yield prevented final output from rising much above that of the previous year. The years 1842 to 1844 brought successively good weather conditions and there seems to be little doubt that on each occasion the aggregate yield of the harvest was well above average for the previous seven to ten years. Indeed, the harvest of 1844 was described by Tooke as having "... exceeded the widest computation; and a considerable

---

<sup>1</sup> According to Tooke the weather conditions at sowing and harvest time were as follows: 1840, extremely wet at sowing, but favourable at harvest; 1841, favourable, poor; 1842, poor, good; 1843, favourable, good; 1844, good, good; 1845, favourable, poor; 1846, mild, good; 1847, favourable, good; 1848, favourable, poor; 1849, favourable, good. Tooke VI, pp.482-487.

surplus from it went towards covering the deficiency of that of 1845".<sup>1</sup> All three harvests, he said, were more abundant than any since 1834.<sup>2</sup> During the next four years until 1849, the yield per acre fell considerably below the average of 1842-4. Fortunately, the weather at the time of sowing appears to have been generally favourable so that there is no reason to believe that the acreage sown was adversely affected.<sup>3</sup> Nevertheless, the fall in yield per acre meant that the aggregate volume of wheat produced in each of these years (with the exception of 1847) fell considerably below that produced between 1842 and 1844. The last year of the decade shows a return to the higher yields of the middle forties, and it was generally considered that in aggregate terms the harvest even exceeded those between 1842 and 1844.<sup>4</sup>

From table 29 it may be seen that the domestic price of wheat and the volume and value of wheat and wheat flour imports moved inversely (though not perfectly) to the state of the harvest. From this it may be inferred, as a first approximation, that the state of the domestic harvest was the principal determinant of year to year variations in both wheat prices and in the demand for imported corn, and therefore of some of the larger variations in the balance of trade and the balance of payments experienced during these years.

Two other factors which were important in the determination of the domestic price of wheat and the demand for imported corn were, (a) the level of domestic stocks left over from previous harvests; and (b) the operation of the corn laws. We can look at each separately.

---

<sup>1</sup> Tooke VI, p.21.

<sup>2</sup> Tooke V, p.12.

<sup>3</sup> The acreage sown for the 1847 harvest was considerably above average due to the high prices ruling during the winter and spring of 1846/7. (Tooke IV, p.33).

<sup>4</sup> Tooke V, p.12.

No records of stocks of corn exist apart from those of imported stocks held in the bonded warehouses; however, it is possible to build up a reasonable picture of fluctuations in domestic stocks during these years from various comments made by Thomas Tooke. His reports indicate that the harvest of 1841 was the last in a series of poor harvests that left nothing to be contributed to stock at the end of the harvest year. The harvest of 1842 was excellent and was considered to be extremely large. In the same year large imports of wheat and flour took place, mainly it appears, in anticipation of a continuation of the poor harvest of preceding years.<sup>1</sup> Together these must have produced an aggregate supply that considerably exceeded current needs - a fact indicated by the rapid fall in wheat prices during the last quarter of the year.<sup>2</sup> In the following two years further additions were made to stock from the large harvests and by the importation of 1.3 million quarters of wheat more than were taken out of bond for consumption. The result was that by the end of the 1844 harvest year stocks of wheat in Britain were larger than at any time since 1837 and were to act as an important source upon which to draw after the poor harvests of 1845 and 1846. Three out of the four harvests following that of 1844 were poor. Only that of 1847 can be said to have been nearly equal to current needs; the others fell by various degrees below this amount, while that of 1845 fell seriously below it. As a result, except perhaps for 1847, no additions were made to stocks from the domestic harvest until the end of 1849. Once the stocks that had been accumulated between 1842 and 1844 were used, any shortages that occurred had to be made up entirely from imports.

<sup>1</sup> Tooke IV, pp.10-13. Matthews has also suggested that the large imports of 1841 and 1842 may have been partly the result of attempts to rebuild depleted domestic stocks. Matthews, pp.39-41.

<sup>2</sup> Weekly prices of wheat are taken from official returns collected at the Inspected Markets by the Inspector of Corn Returns, quoted in Tooke IV, pp.410-13.

The existence of the corn laws is overshadowed throughout the early 1840s by the prospect of repeal. Growing political, social and economic pressures during the late 1830s had forced Peel in 1842 to replace the old sliding scale of 1828 by one that reduced the minimum price at which imports could take place from 66/- to 56/-, and replaced the highly unsatisfactory sliding scale which moved in jumps of 2/- and 4/- by one in which every 1/- increase in the domestic price of wheat above 56/- was met by a corresponding reduction in duty of one shilling to a maximum of eighteen shillings.<sup>1</sup> At this point, when the domestic price of corn stood at 72/-, foreign wheat and wheat flour was allowed to enter at the nominal duty of one shilling per quarter. Four years later, in 1846, the law was again changed; a new act specified that from the date of passage, to February 1849, a small variable duty would be paid on imported corn according to the domestic price and thereafter there should be a uniform registration duty of one shilling per quarter on all imported corn and flour. In the event, even these duties lasted only a few months since in February, 1847 they were waived during the food crisis and were never replaced.<sup>2</sup>

While the corn laws existed they had an important effect on the demand for wheat imports and operated in much the same way as they had in the middle 1830s. In those years good harvests and large stocks had prevented the official price of wheat from rising to levels at which even the maximum rates of duty were payable, and consequently, the volume of corn imported for consumption had remained very low.<sup>3</sup> When similar conditions prevailed between 1843 and 1845, imports accordingly fell to a quarter of that imported

<sup>1</sup> C.R. Fay, *The Corn Laws and Social England*, (Cambridge, 1932), pp.93-4.

<sup>2</sup> The one shilling registration duty was, however, maintained.

<sup>3</sup> Matthews, pp.35-8.



between 1839 and 1842. It is worth noticing in passing, however, that the volume of corn imported in these years was still very much in excess of that imported between 1832 and 1837 when, on average, the price of wheat in both periods was much the same, a fact which reflects the considerable reduction in protection concealed in Peel's sliding scale of 1842. Nevertheless, the outstanding feature of corn imports in these years is still the small quantity of foreign corn that was actually imported and consumed, and it is clear that in these years, probably for the last time in Britain's history, the domestic harvest was capable of providing practically all of Britain's domestic needs.

Peel's decision to abandon the corn laws in 1846 has itself been the subject of very extensive literature, and it is sufficient here to say that repeal was the product of complex social, economic and political influences which came to a head in the middle 1840s. The immediate cause however, was the prospect that if the potato harvest in Ireland failed again in 1846, as it had done in 1845, there would be widespread starvation unless the corn laws were abandoned. Convinced of this, Peel undertook to repeal the corn laws and repeal was achieved in June 1846.<sup>1</sup> With repeal, the British market for corn became more closely integrated with that of Europe, and from 1846 onwards the general supply and demand conditions prevailing in the European grain markets came to assume a much greater role in the determination of Britain's own domestic wheat prices, and of the total volume and value of her corn imports.

---

<sup>1</sup> S.E. Fairlie, "The Nineteenth Century Corn Law Reconsidered", *Economic History Review*, 2nd series, XVIII, (1965), pp.571-2.

Fortunately or otherwise, repeal coincided with the onset of a severe grain deficiency on the continent. Such deficiencies had for some time become increasingly common in parts of Western Europe, and was part of the same process that had led to the development in Britain's own grain deficiency toward the end of the 1830s. As early as 1838 France became a net importer of grain for her own consumption and between 1839 and 1841 the shortages extended to several other countries and even included parts of Eastern Germany and Poland.<sup>1</sup> Later, when the better harvest of 1842-44 resulted in most countries, including Britain, substantially reducing their corn imports, France and the Zollverein states continued to experience shortages and to import bread grains.<sup>2</sup> It has been forcefully argued that it was the prospect of such a collective deficiency reappearing in Western Europe at a time when Britain's own harvest failed that had finally forced Peel into accepting the need for corn law repeal in 1846.<sup>3</sup>

At the same time, however, the close integration of the British with the European market following repeal meant that in years when Western Europe did have a grain surplus, British prices would be kept down whether or not her own domestic harvest was adequate. Thus, when Tooke came to account for the large imports and low prices of corn which occurred between 1848 and 1853, he did so on two grounds. The corn imports, he said, would not have been so large as they were, nor the prices so low, had it not been for the excellent crops accompanied by low prices in France and Germany.<sup>4</sup> He argued,

---

<sup>1</sup> Fairlie, *The Anglo-Russian Corn Trade*, pp.87-93.

<sup>2</sup> *Ibid*, p.92.

<sup>3</sup> S.E. Fairlie, "The Nineteenth Century Corn Law Reconsidered", *Economic History Review*, 2nd series, XVIII (1965), pp.571-2. For other factors affecting the decision to repeal the Corn Laws see G.S.R. Kitson-Clarke, "The Repeal of the Corn Laws and the Politics of the 1840s", *Economic History Review*, 2nd series, IV, (1951).

<sup>4</sup> Tooke V, pp.55-56; see also Fay, *The Corn Laws and Social England*, pp.118-9.

that, had the corn laws existed in the season 1848-9, domestic prices would have been inevitably higher and imports of corn smaller than were, in fact, experienced. The removal of the corn laws had prevented this; but at the same time, the appearance of excellent crops in Europe had ensured that abundant supplies were available when the domestic crop was poor. The result was, he said, "That under a repealed Corn Law we have got more corn and paid much less for it than we should have done under the former system ..."<sup>1</sup>

Though repeal did keep down prices when the home supply was scarce and foreign supplies good, it could not prevent them from rising when both the domestic and foreign supplies were deficient; a point which was brought home strongly during the harvest year of 1846/7.<sup>2</sup> This particular harvest began quietly; on first appearance the harvest looked better than that of 1845 and its arrival at a slightly earlier time than usual helped to confirm this belief. Such a view was, however, misleadingly based upon the English wheat crop alone; elsewhere, in the United Kingdom grain crops were very poor, while in Scotland and Ireland the potato crop had been all but wiped out by disease. On the continent also, grain and potato crops were very poor and only in Russia, parts of Poland and in the United States were there grain crops of good quality. "These facts were not so well established as to produce much influence upon the markets till about the month of November", commented *The Economist*, "when large purchases by the French government began to excite general attention to them".<sup>3</sup> By then the authorities in England

---

<sup>1</sup> Tooke V, p.65.

<sup>2</sup> The harvest year for practical purposes began in August when wheat prices began to be affected by the state of the new harvest. See Tooke IV, pp.5-6..

<sup>3</sup> *Economist*, February 24th 1849, p.197.

began to realize that the domestic harvest was much poorer than had been believed, and that the Irish situation demanded urgent attention from the Government. Even so, after rising quickly to 62/- a quarter, the price of wheat settled at sixty shillings for November and December, indicating that there was no serious alarm felt for food supplies before the end of the year.

Had wheat prices depended merely upon the deficiency of the English wheat crop, it is doubtful whether the price could have advanced much beyond this point, but by the end of the year, the real condition of the European harvest became known in England.<sup>1</sup> The serious shortages there altered the situation altogether and, as Peel had feared, threatened Britain's prospects of obtaining an adequate supply of corn for her own needs in the coming year. When Tooke came to explain why prices had risen so steeply during the winter of 1846/7, it was to this factor that he turned stating that, "though caused chiefly by the estimated deficiency of the home supply in proportion to probable demand, it was undoubtedly accelerated by the state of corn markets on the continent ..."<sup>2</sup>

Once the initial flood of orders had been satisfied the increase in wheat prices was arrested in England by reports of the large supplies available in the corn exporting countries, notably in the United States.<sup>3</sup> In March large imports of corn began to arrive in England and prices began to weaken, while in some places there were reports that the market was overstocked and that some wheat was being exported to the continent.<sup>4</sup> The

---

<sup>1</sup> Tooke V, p.145-6.

<sup>2</sup> Tooke IV, p.30.

<sup>3</sup> Liverpool agent of the Bank of England in a letter to the Bank located in Liverpool Letter Book 1847, G.L.5761, 16th February and GL.5764, 19th February.

<sup>4</sup> Bank of England, Liverpool Letter Book 1847, GL.5785, 16th March, and GL.5793, 26th March. See also *Edinburgh Review*, Jan. 1848, p.261.

movement was temporary, however, and towards the end of April the market experienced a fresh burst of activity; prices began to rise, and merchants who had previously cancelled orders for corn, began requesting that their orders be fulfilled. This further burst of excitement, reported Tooke, arose when the late spring of 1847 appeared to threaten both the domestic crop and the crops of most other European countries.<sup>1</sup> Indeed, reports from the continent took on a very alarming character both in relation to the current supply of food and the state of the growing crops, and for a time the large orders arriving in England from the continent caused the domestic price of wheat to rise even further. Although corn prices had passed their peak before the end of May, reports that the potato blight had reappeared gave another lift to the market in June and kept speculation at a fever pitch.<sup>2</sup> Throughout this period, reported *The Economist*, "Speculation was stimulated to an extraordinary degree, and measures were taken to import grain of all kinds from the United States and the east of Europe to an extent limited only by the possibility of what could be obtained at these prices."<sup>3</sup>

It is difficult not to believe that the second wave of speculative buying which took place between April and June 1847 contained a new element. It is true that the British harvests did not look promising in the spring of 1847, but at this time Britain was better supplied with corn than almost any other country in Europe. Moreover, it was well known that large quantities of corn were available in the United States and Russia and that it was only a matter of weeks before they would become available. Nevertheless, panic buying pushed prices to famine levels during May, the month in which some of the largest orders for imported corn were made.<sup>4</sup> The quantities ordered and

<sup>1</sup> Tooke V, p.146.

<sup>2</sup> Bank of England, Liverpool Letter Book 1847, May 28th GL.5846; 8th June GL.5855.

<sup>3</sup> *Economist*, February 24th, 1849 pp.197-8; Tooke V, pp.93-4; Tooke IV, pp.31-2.

<sup>4</sup> *Economist*, February 24th, 1849, p.198.

the prices paid at this time were greatly in excess of anything that prevailed during the worst part of the winter, so that unless corn importers had believed that the Government would continue to purchase large quantities of corn for Ireland, it is difficult to know where they expected to sell at these prices, except perhaps to continental countries. Given that the reports which were emanating from the continent at this time created some alarm regarding the prospect of the future of imported supplies for the British market, it is not difficult to believe that the prospect of making large speculative profits by re-exporting wheat to the continent played an important part in the calculations of many speculators and accounts largely for the enormous orders for corn when high prices ruled in April and May 1847.

The subsequent collapse of the boom may be quickly told. Corn began to arrive in large quantities in June. From then onwards, until the end of the year, arrivals came at the rate of more than a million quarters a month. Almost immediately reports of difficulties in the corn market began to appear. At the same time it emerged that Britain's harvest and that of the continent promised to be much larger than expected. Corn prices at once began to weaken and, when in July they began to fall rapidly, the first failures were reported among corn merchants. The signal for collapse came on August 2nd when the Bank of England raised its rate of discount from five per cent generally to five per cent on one month bills, five and a half per cent on two months bills and six per cent on others. By this time the corn market was in a state of near panic. It had been known for some time that several houses were in difficulties and that for some weeks the Bank of England had been refusing to discount the bills of corn dealers.<sup>1</sup> Thus, when

---

<sup>1</sup> H.L. Q. 2138.

the Bank raised its discount rate, any further extension of credit to the corn trade was out of the question. Caught with vast stocks of corn bought largely on credit at high prices between April and June, faced with the prospect of a good harvest at home as well as on the continent but with little demand from Ireland, with no prospect of obtaining credit to carry their stocks, merchants were forced to unload the corn onto the market at ruinous prices in order to meet their obligations. It was in these circumstances that the first failures of the crisis of 1847 appeared.

All that remains now is to look at the response of foreign supplies to the changing demand for corn imports and at the effect of those imports upon the balance of merchandise trade. From table 29 above it is clear that the good harvest of 1842 had little effect upon the total cost of corn imports in that year; most of the corn imported for consumption had entered before the harvest had been gathered and before domestic wheat prices fell. However, in the three subsequent years, excellent harvests, rising stocks and the operation of the corn laws prevented all but a very small amount of corn from entering. So far as the effect upon the balance of merchandise trade is concerned, the major benefit of the improved harvests appeared in 1843; the reduction in corn imports in that year did much to improve the balance on merchandise trade, and coming as it did in a year when exports were expanding rapidly, it contributed greatly to the marked improvement in the income balance experienced in that year.

The sharp increase in corn imports and prices in 1846, and again in 1847, was the product of serious domestic food shortages appearing in the United Kingdom along with serious shortages on the continent. Although the food shortages at home were alone enough to stimulate increases in prices and in imports that year, the simultaneous appearance of food shortages on the continent greatly added to the cost of purchasing corn, and in 1847 forced the

aggregate value of corn imports to a level where they amounted to fifty per cent of merchandise exports. On reflection, there seems little doubt that had the harvests in Western Europe not been so generally bad in 1847 the expenditure on corn by Britain would have been considerably lower than it was in these years. The truth of this statement is born out, as was argued, by the experience of the years 1848-53. In these years, the annual volume of corn imported into Great Britain exceeded, and on some occasions greatly exceeded, the volume imported in 1847, but on no occasion did the total expenditure on corn exceed £17m. compared with the £29m. expended in 1847. The difference between the two periods was that in the later years poor harvests in Britain appeared at the same time as good harvests on the continent, while in 1847 food shortages appeared both in the United Kingdom and on the continent. In the first case import prices were kept down; in the second they inevitably rose with disastrous effects for the nation's balance of trade and balance of payments.

#### IV

It was argued in part I of this chapter that changes in foreign trade could affect the level of income and activity in the economy through the "direct" or "income" effect and through the "monetary" effect. The distinction drawn depended not only upon the way by which they affected the level of income and activity, but more importantly, upon the fact that they depended upon the behaviour of different items in the balance of payments. The "direct" effect arose out of those items which were included in the balance of trade and excluded, for example, movements on capital account; the "monetary" effect was a function of all items included in the balance of payments. As



explained in that section, this difference resulted in the two effects not always working in the same direction or with similar magnitudes, even though for most of the time movements in the balance of payments closely reflected the basic pattern of behaviour established by the balance on merchandise account. This section examines in more detail the behaviour of those other items which went to make up the balance of payments but which were not included in imports and exports. It then goes on to show how movements in the balance of payments as a whole were reflected in fluctuations in the Bank of England's bullion stock, the principal agent through which the "monetary" effect came to influence the economy. Finally, in passing, it should be noticed that although it would be more correct to consider the behaviour of invisible exports with the rest of the balance of trade, for convenience, they are included in this section. This point needs to be born in mind when the final conclusions are drawn.

The major difficulty in discussing non-merchandise aspects of the balance of payments is the lack of adequate statistical data. Statistical information on most non-merchandise items is very unsatisfactory and though Imlah's estimates form the basis of any discussion, it needs to be remembered they they are not designed for intensive short period studies such as this, and that estimates of certain items which they include have been quite severely criticized in some quarters.<sup>1</sup> Fortunately, knowledge of the behaviour of certain

---

<sup>1</sup> A.H. Imlah, *Economic Elements of the Pax Britannica*, pp.42-3. For criticism of Imlah's estimates of shipping earnings see D.C. North and A. Heston, "The Estimation of Shipping Earnings in Historical Studies of the Balance of Payments", *Canadian Journal of Economics and Political Science*, Vol. XXXVI, No. 2, (1960), pp.256-76.

key items in foreign investment does not depend on Imlah alone; L.H. Jenks' study of foreign investment provides much useful qualitative and quantitative data on the export of capital in the 1840s, while evidence relating to short term movements of capital can be gleaned fairly readily from various contemporary sources.<sup>1</sup>

(a) Invisible Earnings

Throughout the 1840s the balance on merchandise account was always in deficit and though the size of the deficit varied from year to year it was never less than £11m. Despite this, Great Britain rarely experienced an overall deficit on its balance of payments and in most years a net inflow of bullion took place; even in 1847, when massive imports of corn pushed the deficit on merchandise account to £41m., the net outflow of bullion, according to Imlah, amounted to only £5m.

The ability of Britain to run such a consistently large deficit on merchandise account as well as undertake a substantial amount of foreign investment without any adverse effect on her balance of payments was due, in the main, to the large balances earned from shipping, insurance and the commercial services, as well as from her growing income from foreign investments. The balance on invisible trade also acted as a kind of built-in stabilizer to the balance of payments. Any large increase in the volume of imports or exports automatically increased the size of invisible earnings from shipping, insurance and other mercantile services. Thus, even though an expansion of domestic

---

<sup>1</sup> L.H. Jenks, *The Migration of British Capital to 1875*, (2nd ed. 1963), chapters IV and V.

activity or a poor harvest might lead to an increase in the volume of merchandise imports, the fact that such an increase produced additional earnings for Britain's shipping and commercial services did much to ease the immediate pressure on the balance of trade and the balance of payments. In years like 1847, however, when exceptionally large imports created a marked increase in the size of such deficits even the great increase in invisible earnings that was generated was not enough to make up the difference. On these occasions it became necessary for Britain to cease her foreign investment activities and even to repatriate some of her assets to make up the loss. Even then it required substantial exports from Britain's bullion stock to make up the difference.

It would be misleading to give the impression that movements in the trading accounts alone were responsible for all the variations in balance of payments and bullion flows which took place during the 1840s. Movements in capital items were rarely as passive as the foregoing paragraphs might imply and it is the aim of the rest of this section to outline the main factors which influenced the movements of long and short term capital during the period leading to the crisis of 1847.

(b) Capital movements on long and short term accounts

Compared with the massive sums invested into domestic railways, the amount invested abroad between 1840 and 1849 was small.<sup>1</sup> Most of the sums

---

<sup>1</sup> According to Imlah the net balance available for foreign investment between 1840 and 1849 was £39.9m. or equal to about 22 per cent of the gross investment into railways in the United Kingdom over the same period. (Calculated on the basis of figures given in B.R. Mitchell, "The Coming of the Railway and United Kingdom Economic Growth", *Journal of Economic History*, XXIV, (1964), p.335.) A useful brief summary of British capital exports in the 1840s may be found in P.L. Cottrell, *British Overseas Investment in the Nineteenth Century*, (1975), pp.19-21.

invested abroad during this period went into continental railway building projects, and particularly to France where it played an important role in the early formation of the French railway system.

So far as foreign investment was concerned the 1840s had begun inauspiciously; in 1840 and 1841 most of the individual states of the United States of America had repudiated their state debts when the boom of the 1830s collapsed, and investors in Britain found themselves holding vast amounts of worthless stocks. Though this checked for a short time all foreign investment by British capitalists (private investment into the United States was not resumed for nearly a decade or more) the boom in domestic railways soon led several British investors to look abroad for opportunities to invest into foreign railway lines. Early in the decade much attention was attracted to the Paris-Rouen railway which was opened up in 1842, and to the Rouen-Havre line opened in 1843. Both lines were spectacular successes for the British interests involved and, when the French government began to call for tenders for other lines, several powerful groups of British investors began competing for further concessions.<sup>1</sup>

The first concessions were granted in 1843 and British capital began at once to flow into France. In the following four years or so something in the region of £12.5m. left Britain for France in addition to the £3m. floated jointly on the Paris-Rouen and Rouen-Havre lines. On the whole however, the amount sent out at any one time does not appear to have been

---

1 Jenks, *The Migration of British Capital*, p.142 wrote, "Not more than three or four hundred thousand pounds had been employed at any one time in building the Paris-Rouen railway, and it was believed that the promoters realised a profit of two millions". For an account of the French Government plans, its relation with the British investors and the concessions see Jenks *op.cit.*, pp.140-50, and D. Lardner, *Railway Economy*, (1850), pp.437-459.

large since much of the stock was paid for either by exporting various French securities back to France where they were sold (the proceeds then being used to buy railway shares), or by selling existing railway shares at a profit to continental interests and then re-investing into new ones.<sup>1</sup> The flow of funds to France did, however, depend very much on the ability of British investors to sell their French securities at favourable prices on the continent and upon the belief that larger profits could be made on French lines than on British lines without commensurate increase in risk. When, toward the end of 1846, neither of these things were certain, the amount sent abroad dwindled quickly. In 1847 it halted altogether and for a time Britain herself effectively became net importer of capital from Europe.

During 1847 movements of long term capital became inextricably inter-mixed with short-term movements of speculative funds motivated, in the main, by short-term interest differentials in London and various European financial capitals, and in America. For this reason it will be necessary to treat the two sets of movements together.

Regular short-term movements in capital between London and the Continent were already a well established feature of the European capital markets, and knowledge of them and of their relationship to interest rate differentials between countries had become an integral part of English theories of central bank control by the late 1830s.<sup>2</sup> During the 1830s such movements had involved large sums of money and were an important factor affecting the stability of the balance of payments.<sup>3</sup> Once these disturbances

---

<sup>1</sup> Jenks, *op.cit.*, pp.148-9.

<sup>2</sup> E. Wood, *English Theories of Central Banking Control, 1819-1858*, pp.107-9.

<sup>3</sup> Matthews, pp.90-91.

had settled down no more large movements of short term funds appear to have taken place until the crisis year of 1847. In that year the sums involved were again large, and their movement to and from London had an important effect upon bullion movements and the state of the balance of payments.

The year began, in fact, with large exports of short-term funds to France. Vast purchases of corn had led to a severe outflow of bullion from the Bank of France and, in an attempt to protect itself, that bank arranged a loan of about one million pounds in silver from the Bank of England and had raised its rate to five per cent for the first time in twenty-seven years.<sup>1</sup> Apart from having an immediate effect upon the Bank of England's own bullion stocks, the high interest rates ruling in France also attracted much private capital from England, and there was a considerable private flow of funds onto the continent.<sup>2</sup> It was in an attempt to halt this that the Bank raised its own rates from three to four per cent in January 1847.

At the same time a quite different, though still related, set of events was taking place. In both Russia and the United States the volume of trade bills on London began to build up rapidly as British orders for corn (and in America's case, high priced cotton) began to rise. Normally, these bills would have been purchased in St. Petersburg or New York where they would have been used to remit home money earned from goods and services exported

---

<sup>1</sup> According to S.E. Fairlie, nine million francs in five franc pieces were sent directly from France to Odessa in 1847. (Fairlie, *The Anglo-Russian Corn Trade*, p.389). D.M. Evans, *The Commercial Crisis of 1847*, pp.54-5; Tooke IV, pp.72-3. Clapham, *Economic History of Modern Britain*, Vol. 1, p.530.

<sup>2</sup> Evans, *loc. cit.*

from England, or the interest and dividends due to British capitalists.<sup>1</sup> Any surplus bills were usually remitted, when they fell due, back to England where they were exchanged for gold bullion which was then shipped back to New York or St. Petersburg. During the first quarter of 1847 the volume of bills arriving in London for this purpose, especially from New York, was enormous and alone would have resulted in large outflows of bullion.<sup>2</sup> However, a new factor entered the situation: during the latter part of March and the early part of April it became profitable to speculate in bills on London on the basis of interest rate differences between London and New York. This arose in the following way. The rapid expansion of activity in New York produced a large demand for bullion to pay local import duties and thus kept the stock of bullion in the New York banks below the rising needs of commercial activity despite the large inflows which were taking place. The result was that both interest rates and the demand for bullion rose sharply in the town. Meanwhile, as we have seen, the Bank of England repeatedly had put off raising its own rate for various reasons and thus increased the size of the differential between its own discount rates and those ruling in New York. As this differential increased towards the end of March it became profitable for speculators in New York to purchase bills on London as soon as they arrived and ship them back to London. On arrival they were taken straight to the Bank or some other agency, discounted, and the proceeds changed to gold which was shipped back to New York before the bill fell due for payment. According to *The Economist*

---

<sup>1</sup> This account is based upon an account in *De Bow's Review*, Vol. V, 1848 (reprinted, New York, 1967) pp.78-9; and S.E. Fairlie, *The Anglo-Russian Corn Trade*, pp.366-405.

<sup>2</sup> The freezing of the Russian ports appears to have interfered with this process in the winter of 1847 so that the export of bullion to St. Petersburg was delayed until April. By then, however, high rates of interest in England and the appearance of other credits available in Russia checked the flow of bullion in that direction. See also *Economist*, April 10, 1847, p.421.

it was on the basis of processes of this kind that much of the vast quantity of bullion was shipped to America during the weeks leading up to the April crisis, and it was in order to stop this that *The Economist* had urged during April, 1847 the Bank to raise its own rate.<sup>1</sup> When the Bank eventually did raise its rate on April 8, the process was immediately stopped and the export of bullion to America fell rapidly. As the season progressed and American imports from Great Britain increased, the demand for bills on London improved considerably, and the export of specie to America was finally halted.

Rising interest rates in England also helped to stop the outflow of bullion in other ways. The use of bullion to make remittances always involved merchants in considerable insurance costs and whenever possible they would prefer to purchase foreign or other securities as a cheaper form of remittance. For some time since the beginning of the year rising interest rates had induced merchants to turn increasingly to exporting bonds in preference to bullion and, when in April interest rates increased sharply, the attraction of this method as compared with exporting gold greatly increased. Whenever suitable foreign bonds became available merchants and bankers would buy them up and send them back to the continent or to America for sale.<sup>2</sup>

---

<sup>1</sup> *Economist*, 1847, April 3rd, p.393; April 10, p.421; April 17, pp.436-9; April 24, p.479.

<sup>2</sup> This process of remitting had led to large amounts of Russian stock being sent back to Russia during the early months of 1847; and when in April the Russian government decided to purchase £3m. of securities held in England it was reported that, as there were few if any Russian stocks available in England, the whole amount would have to go into British consols (*Economist*, May 1, 1847 p.507). The fact that many states in America had resumed their debts by 1846, while several cotton producing states in the South had compelled their banks to accept state bonds in payment of debts, meant that many hitherto worthless securities in Britain were suitable for repatriation in payment of debts. It has been estimated that about £1m. in American securities were returned in this way in 1847. Jenks, *op.cit.*, p.107, *Economist*, 1848, 18th March, p.323; Evidence of James Morris H.C. Q.3502.



As these events were taking place it became known in London that, under an Imperial edict of February 1847, the Russian Government was to purchase about £4.75m. worth of domestic and foreign securities. Some of this was used to purchase British securities directly, while £1.5m. was set aside to purchase French Rentes held in the Bank of France. In this case however, the British loan to the Bank of France was about to fall due so that almost all of the benefit of the purchase accrued directly to Britain herself.<sup>1</sup> This, plus the further £3m. spent on consols and other securities held in England created large British credits in St. Petersburg and helped to prevent any further outflow of bullion in that direction.

The process of using foreign securities rather than bullion to remit payments to America and Europe continued for most of the year, though for a short time small amounts of bullion did continue to flow out to America. At the same time the higher interest rates in England began to attract short-term capital from the continent.<sup>2</sup> However, such inflows were not large until the latter months of the year when, during the crisis of 1847, reports in *The Economist* show that high interest rates ruling in London attracted large amounts of funds from abroad.<sup>3</sup> From the middle of October high interest rates in England were prompting French investors to sell Rentes and use the funds for purchasing British consols. By the end of the month over one million pounds had been sent from Russia since the increase in Bank Rate, while in

---

<sup>1</sup> Tooke IV, p.73-4f.

<sup>2</sup> *Economist*, April 10th 1847, p.422; April 24th, p.479.

<sup>3</sup> There seems to be little doubt that the possibility of this occurring exercised an important hold on the mind of the Bank and was a major consideration in setting the rate at 8% after 23rd October 1847. See the evidence of Morris H.C. QQ. 2746, 2816, 2840-1; Cotton H.L. Q Q. 3237-41; Palmer H.C. Q Q. 2034, 2109-11. See also the evidence of Tooke H.C. Q Q. 5449-50; H.L. Q. 3107.

Amsterdam there was a large demand for money to be sent to England.<sup>1</sup> In America also, the high interest rates ruling in England and the mounting concern over the stability of various English houses caused firms there to avoid purchasing bills on London for remittance purposes or to purchase only those of unquestionable houses, with the result that it became more preferable to send bullion to London rather than to remit through normal channels.<sup>2</sup>

According to Imlah's tables these movements on capital account, on balance, resulted in Britain benefitting by about one million pounds on her balance of payments in 1847. Contemporary witnesses, however believed that a much larger volume of foreign and British stock went abroad during the year. In a much quoted statement *The Circular to Bankers* wrote on 19th November 1847 that, due to the large imports of corn, the "balance of accounts" against Britain in the year had been about twenty-four million pounds, of which ten million went in bullion, six million in securities sold to Europe, one million in securities sent to the United States, four million in bullion due to Great Britain from old balances, and three million in defalcations and unpaid debts.<sup>3</sup> Whether or not the *Circular to Bankers* intended this to be understood as a net balance on each item is unclear, but in the House of Commons' Enquiry it was stated that large amounts of securities were returned to the United States in payment for food in 1847, while *The Economist* reported, "There never was a period, at least for many years past, when so little English money was invested in continental securities and credits; the events of the last eight months having led to a realizing of one and the contracting of the other".<sup>4</sup>

<sup>1</sup> *Economist*, Nov. 6th 1847, pp.1284-5.

<sup>2</sup> *De Bow's Review*, Vol. V, 1848 p.78. De Bow reports that a total of \$2,393,000 dollars in bullion left America in this way during November 1847.

<sup>3</sup> Quoted in Jenks, *Migration of British Capital*, p.380.

<sup>4</sup> *Economist*, March 18th, 1848, p.323. H.C. Q. 3502. See Clapham's statement on the *Economist's* views in *History of Modern Britain*, Vol. 1, p.494, f4.

Together these all indicate the scale of foreign security sales in 1847.

(c) Bullion Flows

The movements which took place in the bullion account are difficult to follow accurately since there are no accurate statistics of total bullion movements in the 1840s. While the estimates provided by Imlah are a useful guide to the general direction of movement, they show only the net balance over the year as a whole and therefore are of limited interest to us. In this study, interest lies not so much in annual movements in the bullion stock as in the short-term movements which, though at times quite large, usually lasted for no more than a few months. Similarly, it is less interested in the aggregate flow into and out of Britain than with the net effect which these flows had upon the bullion stock of the Bank of England, for it is through the latter that the 'monetary' effect of balance of payments variations made its impact felt upon the economy. For these reasons this account of bullion movements and the balance of payments is expressed in terms of their effect upon the Bank's bullion stock rather than in terms of aggregate bullion flows.

The ability of the Bank of England's reserve to reflect accurately short-term movements in the state of the balance of payments seems to be reasonably good. Simple questions of security and convenience ensured that most of the bullion entering or leaving Great Britain passed through the Bank of England. Thus, when the exchanges were in Britain's favour, bullion at the Bank would tend to increase; conversely, at times of adverse exchanges, it was to the Bank that merchants and bankers would turn for bullion for export. It is true that not all movements in the Bank's bullion stock were the result of exchange rate fluctuations; nevertheless, contemporaries were usually aware

whenever bullion was flowing abroad or when it was leaving the Bank for domestic purposes, and on these occasions there are usually clear indications of the cause and direction of the movement.

The movement of bullion into and out of Great Britain between 1842 and December 1847 as indicated by the Bank of England's accounts falls into three distinct periods: from January 1842 until March 1844 there was a steady and quite rapid inflow of bullion; between March 1844 and August 1846, the inflow of bullion slowed down sharply though there was still a small net inflow into Great Britain; finally, between August 1846 and December 1847 bullion flows became very erratic with the first half of the period showing a severe net outflow, and the second half showing a minor inflow. Each of these periods is now briefly related to the behaviour of the rest of the balance of payments.

Between January 1842 and March 1844 the stock of bullion at the Bank of England grew continuously and rapidly from £5.6m. to £16.3m., a level not again exceeded (except briefly in 1845) until December 1849. This inflow of bullion and the favourable exchange rate which accompanied it, reflects the rapidly improving balance of payments of these years. As shown earlier, this improvement derived almost entirely from the declining deficit in merchandise account which took place between 1842 and 1844 resulting from the normal cyclical response on the part of the exports and imports to movements in domestic income, and from the fall in corn imports in 1843. It was the large inflow of bullion which took place in these years which caused the Bank's bullion stock to increase and which led to the steady decline in interest rates between 1842 and 1844.

The bullion inflow slowed down sharply after the middle of 1844 and from then on the stock of bullion at the Bank of England fluctuated in a wave-like motion with the shallow troughs coinciding with the last quarters of 1844 and 1845 and with peaks appearing at the end of the second quarter of 1845 and 1846. In neither period when bullion left the Bank does the outflow appear to have been caused by adverse exchange rates; rather, it was probably the result of domestic factors associated with the seasonal increase in demand for gold currency which appeared during each harvest period.<sup>1</sup> On the second occasion (i.e., in the second half of 1845), the outflow was more serious and arose, explained William Cotton, because of the withdrawal of £3.8m. in sovereigns and half-sovereigns by the Scottish and Irish banks from the Bank of England in order that their accounts might comply with the requirements of the Bank Acts of 1845.<sup>2</sup> The fact that this amount was larger than the net outflow of bullion from the Bank suggests that there was still a slight net inflow of bullion from abroad throughout this period. Nevertheless, it is still clear that the large balance of payments surplus of the earlier forties had come to an end.

By 1845 the balance on merchandise account began moving strongly against Britain. Throughout this year and as a result of the high level of domestic demand, the demand for imports increased steadily whilst British exports began to stagnate. It was only the large balance on invisible account and the absence of any large demand for imported corn which enabled Britain to maintain her exports of capital without pushing the exchange rates against

---

<sup>1</sup> On the regular seasonal fluctuation in the Bank's bullion stock associated with variations in the domestic demand for gold coin see W.S. Jevons, *Investigations into Currency and Finance*, (1884), pp.160-181.

<sup>2</sup> H.L.Q. 4015.

herself. As it was, a small amount of bullion continued to flow into Britain and helped to maintain the easy money and credit conditions which persisted throughout the year despite the undoubted rise in the demand for money brought on by the boom in domestic activity.

The difficulties experienced by Britain's balance of payments in 1847 were hardly foreshadowed in 1846. It is true that in November 1846 concern was expressed in some quarters, including that of the Bank, over the possibility that the poor harvest would result in large imports of corn and that this would lead to a large export of bullion. However, the stock of bullion in the Bank was large and there appeared to be no legitimate reason for taking steps to protect it. In the first four months of 1847, however, these conditions changed dramatically; during that period orders for corn poured out of England, and with them went the larger part of the Bank's stock of bullion. Nor is there any doubt that it was the demand for corn which led to most of this loss. The balance on all other accounts was very favourable, and it is only with Russia and the United States - the major suppliers of corn imports in 1847 - that exchange rates moved adversely.<sup>1</sup>

Nevertheless, the Bank itself still bears some of the blame for the loss of bullion during the first half of the year. It seems reasonable to believe that less bullion would have gone abroad had the Bank raised its rate early in March 1847 rather than waiting until the middle of April. As we have seen, there is plenty of evidence to show that during the four or

---

<sup>1</sup> European exchange rates quoted here are taken from H.C. App. 32, Vol. II, pp.211-217. Anglo-American exchange rates are taken from J.R.T. Hughes and N. Rosenberg, "A Dollar-Sterling Exchange, 1803-1896", *Economic History Review*, 2nd series XIII, (1960-1), pp.61; 73. Large imports of silver from the Far East and South America during 1847 suggest that exchanges in these regions were in Britain's favour.

five weeks in question the low discount rates charged by the Bank did encourage speculative exports of bullion to America. Had the rate been raised earlier the amount which was exported for speculative purposes would have been much less, whilst at the same time, the higher interest rates would have encouraged more "legitimate" exporters of bullion, to turn other forms of remittance more quickly to the benefit of the domestic monetary system. Faced with other pressures however, the Bank chose not to raise its rate and thus adopted a course of action that was fated within a very short time to bring its own reserve to a crisis.

Once interest rates in England had been raised the outflow of bullion ceased. Those with accounts to remit abroad turned to various types of domestic and foreign security, while some small amounts of bullion came from the continent to England for the purchasing of securities. Between June and August 1847 a further small amount of bullion went to the United States, but by this time large exports of merchandise and high interest rates in England prevented the exchanges from falling too far. Indeed, during the second half of the year, and especially after August, interest rates in England were so high that bullion began to flow in fairly steadily, though the collapse in confidence at home and the consequent drain of bullion from the Bank to provincial banking hoards prevented the Bank's own bullion reserve from benefitting from the inflow. When the final crisis did occur, and market rates were pushed well in excess of ten per cent, the inflow of speculative capital from abroad led to a rapid inflow of bullion. At the same time panic sales of British goods in America and the rest of the world by those anxious to remit to their parent firms in England helped to swell the funds arriving in England, and by the end of the year bullion was once more flowing rapidly into the coffers of the Bank of England.

The general conclusions to be drawn from the foregoing discussion of the balance of trade and the balance of payments will appear in better perspective in chapter IX where the various domestic influences bearing on the crisis are viewed together. The main conclusions reached in this chapter suggest that had it not been for corn imports the balance of trade and the balance of payments would have moved more or less countercyclically throughout the 1840s whilst remaining generally favourable to Great Britain. The inclusion of corn imports, however, alters the picture significantly, especially during the second half of the decade, and had it not been for this item the movements in the balance of payments would have permitted the economy to pass through the depression 1846-48 relatively easily. However, the need to import vast quantities of corn not only produced a sharp loss of income abroad, but also caused a large outflow of bullion from Great Britain. The fact that Britain had arbitrarily imposed upon herself a monetary system that tied the domestic supply of credit to the stock of bullion at the Bank of England, meant that the entire economy became a victim to the harvest failure. Apart from these effects, the commercial losses sustained by those importing corn were enormous, and it was because of these that there appeared in the corn trade the large numbers of failures which mark the initial onset of the crisis of 1847.



Table 30

The Balance of Merchandise Trade; United Kingdom,  
1840-1850  
(Values in £m. at current prices)

Date	Net Imports	Corn Imports	Imports less corn	Exports
1840	81.2	9.4	71.8	51.4
1841	74.0	9.0	65.0	51.6
1842	68.0	8.5	59.5	47.4
1843	63.2	3.0	60.2	52.3
1844	70.9	4.5	66.4	58.6
1845	79.1	2.5	76.6	60.1
1846	78.1	8.6	69.5	57.8
1847	100.4	29.0	71.4	58.8
1848	79.8	12.5	67.3	52.9
1849	89.3	17.0	72.3	63.6
1850	91.0	15.9	75.1	71.4

Source: Cols. 1 and 4, A.H. Imlah, *Economic Elements of the Pax Britannica*, p.38.  
Col. 2, Tooke V, pp.181-2.  
Col. 3, Col. 1 minus Col. 2.

Table 31

The Balance of Payments; United Kingdom, 1840-1850  
(Values in £m. at current prices)

Year	Balance on visible merchandise account	Balance on invisible earnings	Balance of visible over invisible items	Balance on current A/c available for foreign investment	Net Movement of bullion + inwards - outwards*
1840	-29.8	26.6	-3.2	-2.3	-0.9
1841	-22.4	24.5	2.1	1.1	1.0
1842	-20.6	22.9	2.3	-0.6	2.9
1843	-10.9	23.8	12.9	9.3	3.6
1844	-12.3	25.7	13.4	10.4	3.0
1845	-19.0	29.3	10.3	9.3	1.0
1846	-20.3	29.7	9.4	8.0	1.4
1847	-41.6	35.2	-6.4	-1.1	-5.3
1848	-26.9	28.0	1.1	2.1	-1.0
1849	-25.7	28.6	2.9	3.9	-1.0
1850	-19.6	31.2	11.6	10.6	1.0

Source: A.H. Imlah, *Economic Elements of the Pax Britannica*, p.71

\* On bullion account the signs are reversed by Imlah so that "export balances are indicated by a plus sign and import balances by a minus sign." (Imlah, p.46). Here they are not reversed so that the net flow of bullion may be more easily read.

Table 32

Indices of the Quantity of Net Imports, the Consumption of Imports and Import Prices;  
United Kingdom, 1840-1850

	Net Import Index A <sup>1</sup>	Import Consumption Index A <sup>1</sup>	Net Import Index B <sup>1</sup>	Import Consumption Index B <sup>1</sup>	Import Price Index A	Import Price Index B
1840	111.1	96.9	107.6	98.1	115.8	115.1
1841	92.3	98.6	90.4	102.7	113.6	109.0
1842	100.0	95.7	100.0	98.6	100.0	100.0
1843	132.3	117.7	130.7	122.9	85.7	83.2
1844	137.9	124.0	142.3	129.6	90.2	85.4
1845	156.6	145.5	161.7	155.2	88.2	90.8
1846	145.0	148.7	172.1	160.0	92.3	92.7
1847	147.3	132.1	175.8	158.6	101.2	90.2
1848	158.3	152.8	168.1	168.6	82.7	80.1
1849	155.8	149.8	162.8	159.2	81.5	76.0
1850	144.5	147.3	155.7	159.5	—	—

<sup>1</sup> Base: 1842 = 100 for net import index A and B  
 All other indices use the same base

Sources: See text.

Table 33

Geographic Distribution of United Kingdom Exports,  
1840-1850

	Total Exports	United States	Europe	Mediterranean	Far East	All Others
1840	51406	5283	17189	4440	7222	17272
1841	51635	7099	18677	4887	6828	14144
1842	47381	3528	19353	4996	6491	13013
1843	52280	5014	19327	5976	8232	13731
1844	58584	7938	19831	6210	10471	14136
1845	60111	7143	20031	6206	9730	17801
1846	57788	6830	19903	6769	8676	15610
1847	58842	10974	16692	6483	7436	17257
1848	52848	9565	15753	7208	7005	13117
1849	63596	11971	18196	7983	8804	16642
1850	71368	14892	19747	7871	10299	18559

Source: G.R. Porter, *Progress of the Nation*, (1851 ed.), pp.364-7.  
Trade and Navigation Returns B.P.P. 1851 (21.) L111.

## Chapter IX

THE COMMERCIAL CRISIS OF 1847 - SUMMARY AND CONCLUSIONS

This study of the crisis of 1847 began with a brief outline of the questions traditionally asked by historians of the crisis. These related to the operation of the Bank of England under the Bank Act of 1844 and to the effect of those operations on the rest of the monetary system; to the effect of the vast railway expenditures of 1846 to 1849 on activity in other sectors of the economy as well as upon the economy as a whole; and to the impact of the Irish famine on the United Kingdom balance of payments during the crisis year. These questions and others have been examined in chapters II-VIII, an attempt is now made to draw together the main conclusions.

## I

The "cause" of the crisis most commonly cited both among 19th and 20th century writers was the extraordinary high levels of investment into railway building undertaken in the middle and later 1840s. Several of the foregoing chapters have been concerned with aspects of this relationship. Since the arguments contained in those chapters frequently produced conclusions that were negative in character - in the sense that they sought to nullify hypotheses suggested by earlier writers about the relationship between the railway boom and the onset of the crisis - it will be useful to begin with this aspect of the crisis.

The principal conclusion drawn in this study regarding the relationship between the railway building boom and the crisis of 1847 is that, rather than acting to increase instability to the point at which an economic crisis

became inevitable, railway investment was the main counter-cyclical agent in the second half of the 1840s helping to maintain the level of income and activity within particular industries and in the economy as a whole when events elsewhere might otherwise have produced a sharp depression. Thus, for example, the maintenance of a high level of activity in parts of the iron industry between 1846 and 1849 was due in large part to the high level of railway demand. Without that demand it is hard to see, given the depressed state of demand for iron goods in most other markets, how a serious depression in the industry could have been avoided. More generally, chapters IV and VI argue that between January 1846 and December 1848 a number of factors including the Irish famine, an adverse balance of payments and deepening depression in several important areas of manufacturing and building were acting strongly to depress the economy. Despite this, income and consumption appear to have been remarkably well maintained. Indeed, in Great Britain, in contrast to the United Kingdom as a whole, income levels probably increased substantially in 1847. Given events occurring elsewhere in the economy, this could only be attributed to the maintenance of high levels of railway investment during that and the preceding year.

The stabilizing effect of railway investment was felt in a number of other ways. The concentration of railway investment funds into the London banks during 1846 and the first half of 1847 was particularly important in this regard. It was the easy money conditions which the presence of these funds in London created in 1846 that was responsible for maintaining the high level of Metropolitan house building in that year despite the recession in house building in other regions. More important was the role emphasized in Chapter VII. There it was argued that by concentrating at the monetary centre many small sums invested by provincial railway investors, railway investment acted to stabilize the economy in two major ways: first, by facilitating

discounting in London at a time when provincial credit supplies were contracting; second, by helping to maintain the level of deposits and liquidity among the London banks during the bullion drain and related Bank of England difficulties in the Spring of 1847.

The introduction of these two roles into the analysis of the events leading up to the crisis of October 1847 is one of the more important aspects of this study. This is not only because it highlights elements of the story hitherto generally ignored by historians but at the same time it helps to explain a number of events more satisfactorily. In particular, it helps to explain a problem which many contemporaries found puzzling in 1846; namely, why monetary ease existed in London side by side with a contraction of credit in the provinces and why these conditions did not restrict commercial activities in the provinces. Indeed, when combined with the direct (non-monetary) expansion of demand arising from railway investment expenditure, such monetary influences must have had a highly stimulating influence upon economic activity and help to explain the general recovery of activity which occurred during the second half of 1846 and which was commented upon by most writers of the period. Similarly, the concentration of large railway deposits in the London banks in April 1847 helps to explain the extraordinary ability of the London banking system to accommodate the problems created in the Spring of 1847 by the bullion drain and the mistakes of the Bank of England.

The importance of these funds as a source of economic stability during the first half of 1847 contrasts with the destabilizing effect on the London banks arising from their loss during the second half of that year. After April 1847 the railway companies steadily drew upon their accumulated reserves in the London banks to maintain a level of building activity well above the inflow of new investment funds. While this did not produce immediate

problems in London because the provincial banks automatically returned surplus funds to London where interest rates were high, it did give the provincial banks command over the funds at the expense of the London banks. Thus, when in October 1847 the provincial banks wished to raise their own liquidity levels they were able to draw upon these funds at the cost of intensifying liquidity problems in London. Indeed, if one factor was to be called upon to explain the apparent ease with which the provinces emerged from the crisis of October 1847, given the intense problems in London, it would be this one.

Apart from those aspects of railway investment considered in the foregoing paragraph it has not been possible in this study to identify any major destabilizing influence arising out of the railway investment boom. The view commonly held at the time - that railway investment had created a scarcity of capital in other sectors of the economy - or any of its modern equivalents, were all found to be insubstantial or not verifiable in any meaningful way, with one qualification: as argued in Chapter V, it is possible that in 1847 variations in the level of demand for railway investment funds had a significant impact on the day to day variation in the rate of discount charged in the London market and a smaller, though still statistically significant, impact upon long term rates of interest. However, since the state of the foreign exchanges and consequent movement in the stock of bullion at the Bank of England was the principal determinant of interest rate movements throughout the 1840s, it would be wrong to attach too much to this point. The significance of the impact of railway demands for funds upon the rate of interest in 1847 was not that it unduly raised the rate, but that it caused it to fluctuate more widely than would otherwise have been the case. How far this added to the feeling of insecurity in the money market in 1847 is difficult to assess; however, compared with the problems created by the Bank of England,

by the mercantile and banking failures, and by movements in the state of the exchanges, the adverse effect of the railway demands for capital on interest rates charged in the money market must have been small compared with the enormously stabilizing influence railway investment had on most other sectors of the economy.

Taken in total, it is difficult to establish that any responsibility for the crisis lies with the railway investment activities, except indirectly through its impact on interest rates in 1847 and through the monetary consequences of distributing accumulated reserves around the provinces in the second and third quarters of 1847. Although these consequences were important it is perhaps more appropriate to emphasize the stabilizing influences - both monetary and direct - of the investment boom. In the absence of railway investment there is no doubt that the economy would have entered a serious depression after 1845. On the other hand, it is entirely safe to say that it was the onset of the crisis of October 1847 which hastened the close of the railway building boom. The increasing problem of raising investment funds in the months preceding the crisis, and the Railways (Extension of Time) Act passed in December 1847 as a result of the crisis, forced all companies to a serious reassessment of their construction programme. Although such a reassessment was bound to come, the crisis brought it on sooner than later, and resulted in fewer miles of line emerging from the 1840s than might otherwise have occurred.

## II

The role of the raw cotton shortages figures in most analyses of



the crisis of 1847, and because the cotton industry was so large and was by far the most depressed of Britain's manufacturing industries in 1847 it deserves special mention. The conclusion of this study is that there is little evidence to support the view that railway demands for capital interfered with either prosperity or investment in the industry. The cotton industry was already showing signs of recession at the beginning of 1846, and during 1847 the raw material shortages alone would have ensured that it would be deeply depressed in that year. In these conditions, had the railways not provided alternative employment, there is no doubt that Lancashire would have suffered even more acutely in 1847 than it did. As it was the raw cotton shortages were, to use Ward-Perkins' phrase, one of those "... unlucky co-incidences [which] accentuated the difficulties of Lancashire and Glasgow's manufacturers, merchants, and bankers ...".<sup>1</sup>

Similarly, there is no reason to suppose that railway demands for investment funds hindered capital accumulation in the industry. During the 1840s, capital accumulation in the cotton industry moved more or less in accordance with profitability in the industry, and with the onset of sharply diminished profit margins in 1846 new investment fell accordingly. For the next four years problems with raw cotton supplies resulted in profits being depressed in the industry, and until these problems were resolved it was to be expected that the industry would take a cautious attitude towards expanding its capacity. It is possible perhaps, that over-commitment to railway investment may have constrained the activities of some Liverpool merchants

---

<sup>1</sup> C.W. Ward-Perkins, p.271. (Words in parenthesis added)

in 1846, but in 1847, any relationship between railway investment and the cotton industry, if it existed, would have been in the reverse direction since depression and low profits in the cotton industry would have reduced the ability of Lancashire investors to go on paying calls on their railway shares. Certainly, this fact must have been an important consideration in the minds of the various deputations of shareholders who went from Lancashire to London in 1847 demanding reductions in the number of calls then being made by the railway companies.

### III

Along with the railways it was to the Bank of England and to the Bank Act of 1844 that writers have most frequently turned to find a "cause" of the crisis of 1847. Their views along with the views of the Bank itself were examined in detail in Chapter VII. That chapter was a long one and in several places came into conflict with authoritative opinion on a number of questions of money and banking in the 1840s. It will be necessary therefore to summarize in some detail its main arguments and conclusions.

The main argument was that responsibility for the crisis in economic affairs which occurred during 1847, so far as it may be attributed to the institutional framework of the monetary system, lies partly with the policy pursued by the Bank of England between 1844 and 1847, and partly with the traditional responses of the banking system to changes in interest rate charges in London. In addition to these two factors, the concentration of railway company investment funds in deposits at the London banks up to April 1847 and their subsequent dispersal around the provinces in the following months acted to reinforce the effect of the traditional responses of the banking system to overcome the difficulties in April 1847, but increased the problem of doing

so in October. At the same time, these forces allowed the provinces, with the exception of Liverpool, to escape relatively unscathed from both the April and October crisis.

Several aspects of the analysis came into conflict with the views expressed by historians of banking in the nineteenth century. In particular it examined and rejected two hypothesis which have been widely used by historians to explain the Bank's behaviour and its effect upon monetary affairs between September 1844 and the close of 1847; they were: (a) that following the adoption of the Bank Act of 1844, the Bank of England abandoned its traditional responsibilities for the general state of money and credit and began instead to compete vigorously with the rest of the money market in the discounting of bills of exchange; and (b) that as a result of this new policy interest rates were depressed below the levels that would otherwise have ruled had the Bank maintained its pre 1844 policy of remaining aloof from the discount market.

On the first hypothesis, examination of both the Bank's behaviour and of its own explanation of that behaviour led to the conclusion that it never abandoned its traditional concern for the state of money and credit during this period. Indeed, the evidence indicates that the Bank was probably more conscious of the effect of its actions on the rest of the monetary system than were its critics. Throughout the period the Bank tried to develop and to pursue policies designed to ensure its neutrality in monetary affairs and to ensure that the Currency Principle - the theory enshrined in the Bank Act of 1844 - was made to work. To achieve this the Bank had to find new ways to control its cash reserve that were at once more sensitive and more powerful than those it had previously used. It was for this reason, and not because it wished to abandon its

traditional responsibilities, that the Bank adopted the new discount policy. In doing so, moreover, it elevated the Bank rate to the principal means of credit control and, intuitively or otherwise, added an important new weapon to its armoury. The experience gained in its use between 1844 and the crisis of 1847, as well as the adoption of the weapon itself, were small but important steps in the Bank's development as a central banker.

So far as the second hypothesis is concerned, it was argued that the low market rates of discount charged between 1844 and 1846 were not the result of the Bank's discounting activities but of the large inflow of bullion arising from the strong balance of payments surplus of these years. The large volume of bills held under discount by the Bank after 1844 arose, not because the Bank was competing for discounts, but because at times conditions in the money market forced its members into the Bank for reserve cash. The fact that the Bank made reserve cash available by way of discounting bills of exchange rather than by methods used before 1844 meant that the volume of discounts was bound to rise sharply but it did not mean that money was more easily available to the market than in previous years. Indeed, the Bank's policies in general led it to adopt a counter-cyclical role in money supply and thus to perform a stabilizing function in economic affairs.

If these arguments are correct it follows that the Bank cannot be blamed for the easy money conditions and consequent speculation which marked the height of the boom in 1845 and out of which the crisis of 1847 is so often traced: responsibility for this must rest elsewhere; especially with the strong balance of payments surplus experienced between 1843 and the close of 1846.

The Bank of England's role during the two periods of monetary crisis in 1847 occupied a large part of Chapter VII. The principal conclusion arising from that discussion was that there is much evidence to support the Bank's

own defence of its conduct on both occasions. In the period leading up to the April crisis, for example, the Bank's conduct was almost entirely consistent with the policies advocated by some of its most severe critics. Similarly, although the Bank could be validly criticised for some of its actions in the October crisis, its own defence of these actions held a large measure of justification. Nevertheless, the Bank did make a series of errors in judgement which, on both occasions, resulted in its reserves falling to alarmingly low levels; since it was the low level of its reserves which sparked off the crisis at both times the Bank may be held to bear a substantial measure of responsibility for the difficulties which followed. However, the fact that on both occasions the speed of events and the existence of conflicting responsibilities left the Bank with little time or room in which to manoeuvre prevents us from condemning its failures too severely.

The latter part of Chapter VII was concerned with the reaction of the rest of the banking system to changes going on at the monetary centre, and with various aspects of the railway investment boom. With regard to the first of these factors, it was shown how R.C.O. Matthew's analysis of responses made by the rest of the banking system to a loss of bullion abroad during periods of adverse balance of payments in the 1830s also applied to the similar situation of 1847 and explained many of the features of banking affairs in April and in October of that year. Thus, the argument went, the rise in interest rates in London, consequent upon the loss of bullion abroad during the first quarter of 1847, led to the mobilization and concentration of idle cash balances in London while in the provinces merchants and bankers turned increasingly to the use of cash substitutes, such as bills of exchange, for their day to day transactions. In this way the vacuum created at the monetary centre by the loss of bullion abroad was to a large extent filled,

enabling the monetary system to maintain all the elements essential to its stability during April despite the severe shock to confidence given by the Bank's mishandling of its own affairs. In contrast, during the October crisis the banking system failed to make a similar response, partly because the large number of commercial failures which had occurred in August and September had led to sharply increasing liquidity preferences and a distrust of bills of exchange, partly because of the loss of confidence created by the Bank and the existence of the Bank Act, and partly because of the loss by the London banks of railway cash deposits.

The effect of this final factor, the movement of railway deposits between London and the provinces has already been noted but deserves repeating since it does not figure in the work of modern historians. In the final part of Chapter VII it was argued that railway investment funds became concentrated in deposits held in the London banks during 1846 and the first quarter of 1847 where they increased the level of bankers' liquidity and thus helped the London banks through the crisis of April, 1847. At the same time, by raising liquidity in London, the funds acted to assist provincial transactions by making it easier to discount bills of exchange in London. It was then argued that the gradual expenditure of these reserves by the railway companies between April and September 1847 led to a transfer of claims upon cash balances from the London to the provincial banks. The result was not only that the London banks felt the loss of the deposits, but when in October 1847 the provincial banks began to call in their reserves they were able to call upon the large cash balances which had come under their control as a result of the railway companies running down their London reserve. It was in large part this factor which enabled the country banks to increase their cash balances so strongly during October 1847 at the expense of the London system and why so much pressure came to bear upon the Bank of England. In these conditions any restraint

upon the lending powers of the Bank of England similar to those imposed by the Bank Act was bound to create a liquidity crisis; the fact that the Bank added to these limitations by failing to protect its own reserves adequately must leave some of the blame for the final crisis in this quarter.

### III

The third of the factors listed in Chapter I as prominent in the crisis of 1847 was the effect of the harvest failures of 1845 and 1846 in Great Britain, Ireland and the continent of Europe on Britain's balance of trade and balance of payments. This aspect of the crisis was considered in Chapter VIII. The chapter went much further however, and tried to account for the major variations in the balance of trade and the balance of payments as well as to account for the large number of failures that appeared amongst Britain's mercantile houses during the crisis of 1847.

By far the most important aspect of the United Kingdom's trade and balance of payments experience in the 1840s is the role played by corn imports. Had it not been for this item, the balance of trade as a whole would have moved more or less anti-cyclically throughout the forties while remaining generally favourable to the United Kingdom. As it was, the inclusion of corn imports into the balance of trade changes its behaviour quite distinctly, particularly during the second half of the decade. In 1843, for example, the sharp reduction in corn imports was a major source of the improvement in the balance of trade and the balance of payments, while the low level of corn imports in the two following years did much to keep the foreign accounts on an even keel during the domestic boom. There seems little doubt also that, had the good harvests of 1842-4 continued, United Kingdom's balance of payments would have passed fairly comfortably through the cyclical down-swing of 1846-8.

The need to import vast quantities of corn in 1847 however, not only led to a sharp loss of income arising from foreign trade, but also destroyed the equilibrium of United Kingdom balance of payments causing a large outflow of bullion in the first four months of the year. The fact that Britain had arbitrarily imposed upon herself a monetary system that tied the domestic stock of reserve money to the stock of bullion at the Bank of England, meant that the entire economy became the victim of the harvest failure.

As Chapter VIII tries to argue the outflow of bullion between January and May 1847 cannot be entirely blamed on the corn imports. The failure of the Bank of England to raise its rate of discount in the latter part of March 1847 made it highly profitable for American interests and others to speculate in bills on London on the basis of interest rate differences between London and New York. It is not difficult, looking back, to understand the concern expressed by *The Economist* in its "Bankers Gazette" column on April 3, 1847, when writing on the way the Bank's low interest rates were encouraging gold outflows.

"We must confess the policy of the Bank is entirely beyond our comprehension, to permit so rapid a decline in its means, without using any measures to check it, or avert the threatening difficulties".<sup>1</sup>

Had the Bank raised its rates in March as it had originally planned, and when *The Economist* was demanding, it is possible that much of the two million or so in bullion that flowed out would have been retained in the coffers of the Bank. When the loss in reserves eventually did force the Bank to raise its rates in April, the outflow was quickly contained, and except for some

---

<sup>1</sup> *The Economist*, April, 1847, p.392.



minor movements out in June and July, the net flow of bullion during the rest of 1847 was generally into Britain.

The corn speculators on the other hand do deserve some sympathy; not only did they genuinely believe that they were performing a public service by scouring the world for corn, but in the immediate post-corn-law environment they were still not fully aware of the elasticity of world corn supplies. Ironically enough, as Ward-Perkins has pointed out, it was not the shortage of world supply that created the problems of 1847, " ... it was the unexpected response of supplies to the higher prices that burst the speculative boom in wheat and touched off the explosive chain of bankruptcies and failures".<sup>1</sup> On reflection, however, it seems clear that a great deal of the corn ordered between April and June 1847 was needlessly imported. How far panic buying affected merchants' judgement of existing and future supply conditions in Britain and Europe is impossible to tell, but there is no doubt that many of the purchases were purely speculative and were based upon little more evidence of the future than currently prevailing prices. Apart from the direct loss to domestic income sustained through the 'income' and 'monetary' effects which these imports produced, the commercial losses sustained by those importing the corn were enormous, and it was because of these that there appeared in the corn trade the large numbers of failures which marked the initial onset of the crisis.

The discussion on the import trades brought out another feature of the crisis of 1847: one of the most common criticisms of the Bank of England is that, following the introduction of the Bank Act and the 'New Discount Policy', its discounting activities stimulated 'excessive'

---

<sup>1</sup> C.N. Ward-Perkins, "The Commercial Crisis of 1847", p.270.

speculation and credit abuse in the import trades. Here, two points have to be made. First, as has already been noted, the low interest rates prevailing between 1843 and 1846 were, for the most part, not a consequence of any action by the Bank of England; rather they were a product of the strong balance of payments surplus of these years, the reasons for which were examined in Chapter VIII. Second, an examination of the behaviour of seven major imported commodities, which together accounted for fifty-two per cent of Britain's non-corn imports, gives little support to the view that these years witnessed excessive speculation in imported commodities except, perhaps those commodities imported by the East Indian Trade. That trade already had a well known tendency towards speculation anyway, and in the environment of low interest rates which prevailed during the middle 1840s such tendencies could well have been exacerbated. However, so far as other commodity imports were concerned, the volume of goods imported conformed very closely to variations in the level of consumer demand and, even when imports did grow somewhat faster than demand, the consequent rise in stocks was never excessive (presumably the best test of 'excessive' speculative purchasing) and they were quickly corrected in subsequent years.

It follows that the collapse of prices during 1847, which some historians have used as evidence to show that speculation was extensive, was not the result of speculative activities - except, perhaps, for sugar and imported corn. It is true that speculation in these two commodities was excessive and that prices did collapse when it became impossible to maintain them by drawing upon accommodation credit; but it was the consequent mistrust of all firms in the import trades and the withdrawal of all accommodation credit which followed in the wake of collapsing grain prices after June 1847

which was the main reason for the collapse in prices in other trades, not the presence of excessive stocks or of losses brought on by wild speculation. Robbed of their traditional and legitimate method of finance, merchants in these trades were forced to reduce their prices to meet their obligations. It was the unexpected loss of these facilities at a time when domestic demand for their commodities was stagnating, that forced firms to sell goods at great reductions in prices, and which led many firms inevitably to bankruptcy.

There is little that needs to be added about the movements in income gained from trade and the effect of variations in the balance of payments on the stock of bullion at the Bank of England. The main conclusions of this study are that although generally complementing each other in their movements, they could at times move in opposite directions. The aim of parts II to IV of Chapter VIII was to analyse in detail those factors which determined the movements and the timing involved. The picture which emerged is a complex one, but one where there are some dominating features. Of these the most important are the tendency of the balance of merchandise trade (excluding corn) to move in a fairly predictable anti-cyclical manner, and the tendency of capital exports to move in general conformity with the behaviour of domestic income. Together, movements in these two items ensured that the balance of trade and the balance of payments moved in such a way as to counteract domestically generated fluctuations in income either directly, through the income effect, or indirectly, through flows in the stock bullion. Judged in this way the trade balance was, on the whole a stabilizing influence on the economy.

In these circumstances the emergence of corn imports as the single most important de-stabilizing item in the balance of payments between 1843 and 1847 is perhaps the most important of our themes. It is always difficult

not to attribute something to the role of chance in major historical events, and this is particularly the case in relation to corn imports and the crisis of 1847. Here perhaps the most important 'accident' was that the potato harvest of Ireland should have failed just at the time when Britain's own domestic harvest and stocks were less than adequate, and when the harvest of Europe was itself disastrously poor. But lesser factors played their part. Had the Bank of England raised its own rate earlier in the Spring of 1847 a smaller amount of bullion might have been lost; had there been the time and the facilities to make a more careful appraisal of the harvest situation or of the potential supply of corn, less corn might have been imported and fewer failures might have occurred. These questions and others like them litter the crisis of 1847 and, as in other periods, they remain as yet unanswered.

BIBLIOGRAPHYManuscript Sources

Bank of England, Letter Books; Liverpool, 1844-1850, vols. 5, 6, 7; Manchester, 1847, vol. 3; Liverpool Private Letter Book, 1842-9, vols. 8 and 9; Letter books of Hull, Leeds, Leicester, 1847.

Bank of England, Reports of the Special Discounts Committee, vols. 3 and 4, (1830-1848).

Dissertations

- Chaudhuri, P.M. Foreign Trade and Economic Growth; the balance of Payments as a Factor limiting economic expansion in the British economy during the years 1819-1875 (Unpublished M.Phil. Dissertation, Cambridge, 1963).
- Fairley, S.E. The Anglo-Russian Corn Trade, 1815-1861 (Unpublished Ph.D. Dissertation, University of London, 1959).
- Glover, F.J. Dewsbury Mills, A History of Messrs. Warmalds and Walker Ltd, Blanket Manufacturers; With an Economic Survey of the Yorkshire Woollen Cloth Industry in the 19th Century (Unpublished Ph.D. Dissertation, University of Leeds, 1959).

- Hyde, C.K.                      Technical Change and the Development of  
the British Iron Industry (Ph.D. Dissertation,  
University of Wisconsin 1971), (University  
Microfilms, Ann Arbor, 1972).
- Kenwood, A.G.                    Capital Investment and Economic Growth in  
North Eastern England (Unpublished Ph.D.  
Dissertation, University of London, 1965).

### Government Publications

- Reports of the Factory Inspectors, 1839-1852.
- Reports of the Railway Department of the Board of Trade, 1845-1852/3.
- Report of the Select Committee on Banks of Issue; with Minutes of  
Evidence, Appendix and Index. (B.P.P. 1840, (602.) IV).
- Joint Stock Companies, Accounts and Papers. (B.P.P. 1845, (577.)  
XLVIII: 1846, (504.) XLIII; 1847, (293.) LIX).
- Returns of Brick Duty Paid. (B.P.P. 1846, (82.) XXV; 1847-8, (168.)  
XXXIX; 1849, (218.) XXX; 1850, (112.) XXXIII).
- A Return of the Total Number of Persons Employed in Cotton, Woollen,  
Worsted Flax and Silk Factories, respectively in England,  
Scotland and Ireland. (B.P.P. 1847 (294.) XLVI).
- Number and Description of all Persons Employed on All Railways in  
England and Wales, Scotland and Ireland. (B.P.P. 1847, (479.)  
LXIII).

Returns for the year 1845 and 1846 of all sums received by Persons employed in the execution of the Metropolitan Buildings Act, and all expenses incurred and sums arising to and by the Departments of the Metropolitan Buildings Act. Similar Return for the years 1847, 1848 and 1849. (B.P.P. 1847 (735.) LVIII; 1851 (83.) XLVIII).

First and Second Reports from the Select (Secret) Committee on Commercial Distress including the Report from the Secret Committee of the House of Lords on Commercial Distress. (B.P.P. 1847-8 (395. and 584.) VIII, pts I, II, III).

Return of calls made by each Railway Company, showing, in separate columns for each year, the sums called for, the amounts received, and the arrears still due upon each call; the sums borrowed which remain owing, with the date of borrowing; the balance of capital uncalled for, and of money which the companies retain power to borrow; and the periods, if any, for which the companies have postponed making further calls. (B.P.P. 1847-8 (731.) LXIII).

An Account of the number of Live Cattle Exported from Ireland to Great Britain in each year from 1846 to 1849, both inclusive. (B.P.P. 1850 (423.) LII).

Returns of Inhabited and Uninhabited Houses at the Census of 1841 and 1851. (B.P.P. 1851 (1399.) XLIII).

Census of Great Britain, 1851, (Occupation of the People). (B.P.P. 1852-3 (1691.) LXXXVIII).

Trade and Navigation Returns (B.P.P. 1851 (21.) LIII).

Census of Ireland for the year 1851; Report on the Tables of Deaths.

(B.P.P. 1856 (2087-I.) XXIX).

Report of the Select Committee on the Bank Acts; together with the

Proceedings of the Committee, Minutes of Evidence, Appendix

and Index. (B.P.P. 1857, Second Session X (220.) pts I and II).

Goods Imported and Entered for Home Consumption: Quantities and

values in 1840, 1852, 1860, 1861 and 1862, distinguishing

following classes of Goods, and giving total Value of each

class: articles of food; raw material of manufacture; articles

used in manufacture or agriculture; manufactured articles; with

total value of imports in each year. (B.P.P. 1863 (469.) LXVI).

Royal Commission on Railways of Great Britain and Ireland, Report.

(B.P.P. 1867 (3844.) XXXVIII).

### Hansard

3rd. Series, vol. LXXIV, 1844.

3rd. Series, vol. XCV, 1847.

### Newspapers and Periodicals

All published in the United Kingdom unless otherwise stated.

*Banker's Magazine*, 1844-1848.

*Circular to Banker's*, 1840-1844.

*De Bow's Review*, New York, 1848 (Reprinted, New York, 1967).



*Edinburgh Review*, 1848.

*Journal of the London Statistical Society*, 1840-1850.

*Manchester Guardian*, 1847-1848.

*Quarterly Review*, 1847.

*The Economist*, 1843-1849.

*The Exchange*, 1862-1863.

*The Times*, 1845 and 1847.

#### Books and Articles

All published in London unless otherwise stated.

- |                    |  |
|--------------------|--|
| Bell, Sir Lowthian | <i>The Iron Trade of the United Kingdom</i><br>(1886).   |
| Birch, A.          | <i>The Economic History of the British<br/>Iron and Steel Industry, 1794-1897</i><br>(1967).   |
| Blaug, M.          | 'The Productivity of Capital in the<br>Lancashire Cotton Industry during the<br>Nineteenth Century', <i>Economic History<br/>Review</i> , 2nd. series, Vol. XIII, (1960-61). |
| Broadbridge, S.A.  | <i>Studies in Railway Expansion and the<br/>Capital Market in England, 1825-1873</i> (1970).   |

- Broadbridge, S.A. 'The Early Capital Market; the Lancashire and Yorkshire Railway', *Economic History Review*, 2nd Series, Vol. VIII, (1955-6).
- Butlin, N.G. 'A New Plea for the Separation of Ireland', *Journal of Economic History*, Vol. XXVIII, (June, 1968).
- Bythell, D. *The Handloom Weavers: A Study in the English Cotton Industry During the Industrial Revolution* (Cambridge, 1969).
- Cairncross, A.K. 'The Victorians and Investment', *Economic Journal*, Vol. II, No. II (1938).
- Cairncross, A.K. and Weber, B. 'Fluctuations in Building in Great Britain 1785-1849', *Economic History Review* 2nd Series, IX, (1956), reprinted in *Essays in Economic History* Vol. III (ed.) E.M. Carus-Wilson, (1962).
- Campbell, R.H. 'Developments in the Scottish Pig Iron Trade, 1844-1848', *Journal of Economic History*, Vol. XV, (1955).
- Campbell, R.H. 'Fluctuations in Stocks; a Nineteenth Century Case Study', *Oxford Economic Papers*, N.S. Vol. 9 (1957).
- Capie, F. and Tucker, K.A. 'British and New Zealand Trading Relationships, 1841-1852', *Economic History Review*, 2nd Series, Vol. XXV, (1972).

- Channan, G. 'A Nineteenth Century Investment Decision: The Midland Railway's London Extension', *Economic History Review*, 2nd Series, Vol. XXV, (1972).
- Checkland, S.G. *The Rise of Industrial Society in England 1825-1885* (1964).
- Clapham, Sir J.H. *The Bank of England*, Vol. II, 1797-1914 (Cambridge, 1944).
- Clapham, J.H. *An Economic History of Modern Britain*, Vol. I, *The Early Railway Age, 1820-1850* (Cambridge, 1967).
- Clapham, J.H. *An Economic History of Modern Britain*, Vol. II, *Free Trade and Steel* (Cambridge, 1952).
- Cleveland-Stevens, S. *English Railways and Their Relation to the State* (1915).
- Cooney, E.W. 'Long Waves in Building in the British Economy of the 19th Century', *Economic History Review*, 2nd Series, Vol. XIII, (1960).
- Cootner, P.H. 'The Role of Railroads in United States Economic Growth', *Journal of Economic History*, Vol. XXIII, (1962).
- Cottrell, P.L. *British Overseas Investment in the Nineteenth Century* (1975).

- Cramps, A.B. *Opinion on Bank Rate, 1822-1860* (1961).
- Crick, W.F. and Wadsworth, J.E. *A Hundred Years of Joint Stock Banking* (1936).
- Cunningham, W. *The Growth of British Industry and Commerce in Modern Times, Vol. II, Laissez Faire* (1970).
- Deane, P. 'New Estimates of Gross National Product for the United Kingdom, 1830-1944', *The Review of Income and Wealth*, Series 14, No. 2, (1968).
- Dunn, M. *A View of the Coal Trade in the North of England* (Newcastle, 1844).
- Dunn, M. *A Treatise of the Winning and Working of Collieries* (Newcastle, 2nd ed., 1852).
- Edwards, R.D. and Williams, T.D. *The Great Famine: Studies in Irish History, 1845-1852* (New York, 1957).
- Ellison, T. 'The Relative Prices of Raw Cotton and Yarn', *The Exchange*, Vol. I, (1862).
- Ellison, T. 'Great Crises in the History of the Cotton Trade', *The Exchange*, Vol. II, (1863).
- Elsas, M. *Iron in the Making, Dowlais Iron Company, Letters, 1782-1860* (1960).
- Engels, F. *The Condition of the Working Class in England in 1844* (English Edition, 1892).
- Evans, D.M. *The Commercial Crisis of 1847-48* (second ed., 1849) (reprinted New York, 1969).

- Fairlie, S.E. 'The Nineteenth Century Corn Laws Reconsidered', *Economic History Review* 2nd Series, Vol. XVIII, (1965).
- Fay, C.R. *The Corn Laws and Social England* (Cambridge, 1932).
- Feinstein, C. *National Income of the United Kingdom, 1855-1965* (Cambridge, 1972).
- Fetter, F.W. *Development of British Monetary Orthodoxy 1797-1875* (Cambridge, Mass., 1965).
- Francis, J. *History of the English Railway* (1851).
- Galloway, R.L. *Annals of Coal Mining and the Coal Trade* (1898).
- Gayer, A.D., Rostow, W.W. and Schwartz, A.J. *The Growth and Fluctuations of the British Economy, 1790-1850* (Oxford, 1953).
- Gilbart, W. *A Practical Treatise on Banking* (1849).
- Gregory, T.E. *Select Statutes, Documents and Reports Relating to British Banking, 1832-1928, Vol. I, 1832-1844* (Oxford, 1928), (reprinted, 1964).
- Halévy, E. *A History of the English People in the Nineteenth Century, IV, The Age of Peel and Cobden* (1947).
- Harris, J.H. and Williams, L.J. *The South Wales Coal Industry, 1841-1945* (Cardiff, 1958).

- Hawke, G.R. *Railways and Economic Growth in England and Wales* (1970).
- Hawke, G.R. and Reed, M.C. 'Railway Capital in the United Kingdom in the Nineteenth Century', *Economic History Review*, 2nd Series, Vol. XXIII, (1969).
- Hayek, F.A. *The Pure Theory of Capital* (second impression, 1950).
- Healey, H.J.R. and Jones, E.L. 'Wheat Yields in England, 1815-59', *Journal of the Royal Statistical Society*, Ser. A, CXXV, part 4, (1962).
- Hicks, J.R. *Critical Essays in Monetary Theory* (Oxford, 1967).
- Hoffmann, W.G. *British Industry 1700-1950* (English Edition, Oxford, 1955).
- Horsefield, J.K. 'The Origins of the Bank Charter Act; 1844', *Economica* N.S., Vol. XI, (1944).
- Hughes, J.R.T. *Fluctuations in Trade, Industry and Finance, A Study of British Economic Development, 1850-1860* (Oxford, 1960).
- Hughes, J.R.T. Review of A.B. Cramp, *Opinion on Bank Rate, 1822-1860* (1961), *Economic History Review*, 2nd Series, Vol. XVI, (1963-4).
- Hughes, J.R.T. and Rosenburg, N. 'A Dollar-Sterling Exchange, 1803-1896', *Economic History Review*, 2nd Series, Vol. XIII, (1960-1).

- Hughes, J.R.T. and Rosenburg, N. 'The United States Business Cycle before 1840: some problems of interpretation', *Economic History Review*, 2nd Series, Vol. XV, (1962-3).
- Hunt, B.C. *The Development of the British Corporation in England, 1800-1867* (1936).
- Imlah, A.H. *Economic Elements of the Pax Britannica* (Cambridge, Mass., 1958).
- James, J. *History of the Worsted Manufacture in England* (1857).
- Jenks, L.H. *The Migration of British Capital to 1875* (Second ed., 1963).
- Jevons, W.S. *Investigations into Currency and Finance* (1884).
- Jevons, W.S. *A Serious Fall in the Price of Gold Ascertained and its Social Effect Set Forth*, (1863), Reprinted in *Investigations in Currency and Finance* (1884).
- Kenwood, A.G. 'Railway Investment in Britain, 1825-1875', *Economica*, N.S., Vol. XXXIII, (1965).
- Keynes, J.M. *The General Theory of Employment Interest, and Money* (1936).
- Killick, J.R. and Thomas, W.A. 'The Provincial Stock Exchanges, 1830-1970', *Economic History Review*, 2nd Series, Vol. XXIII, (1970).

- King, W.T.C. *History of the London Discount Market* (1936).
- Kitson Clark, G.S.R. 'The Repeal of the Corn Laws and the Politics of the 1840s', *Economic History Review*, 2nd Series, Vol. IV, (1951).
- Lardner, D. *Railway Economy* (1850).
- Link, R.G. *English Theories of Economic Fluctuations* (New York, 1959).
- Levi, L. *History of British Commerce and of the Economic Progress of the British Nation, 1763-1870* (1872).
- Lewin, H.G. *Early British Railways, a short history of their origin and development, 1801-1844* (1925).
- Lewin, H.G. *The Railway Mania and its Aftermath, 1845-1852* (1936).
- Lewis, J.P. *Building Cycles and Britain's Economic Growth* (New York, 1965).
- Loyd, S.J. (Baron Overstone) *Remarks in the Management of the Circulation* (1840), reprinted in *Tracts and other Publications on Metallic and Paper Currency* (1858).
- Loyd, S.J. (Baron Overstone) *The Petition of the Merchants, Bankers and Traders of London against the Bank Charter Act; with Comments on each Clause* (1847), reprinted



*in Tracts and other Publications on  
Metallic and Paper Currency (1858).*

- Loyd, S.J. (Baron Overstone) *Second Letter to J.B. Smith (1844)*,  
reprinted in *Tracts and Other Publications  
on Metallic and Paper Currency (1858)*.
- McCulloch, J.R. *Statistical Account of the British Empire  
(1847)*.
- Mann, J.A. *The Cotton Trade of Great Britain, its Rise,  
Progress and Present Extent (1860, Reprinted,  
1968)*.
- Marx, K. *Capital, Vol. II. (Moscow, 1957)*.
- Mathias, P. *The First Industrial Nation: An Economic  
History of Britain, 1700-1914 (1969)*.
- Matthews, R.C.O. *A Study in Trade Cycle History: Economic  
Fluctuations in Great Britain, 1833-1842  
(Cambridge, 1954)*.
- Maywald, K. 'An Index of Building Costs in the United  
Kingdom, 1845-1938', *Economic History Review*,  
2nd Series, Vol. VII, (1954).
- Mill, J.S. *Principles of Political Economy (Ashley ed.,  
1915)*.
- Mitchell, B.R. 'The Coming of the Railway and United Kingdom  
Economic Growth', *Journal of Economic History*,  
Vol. XXIV, (1964).

- Mitchell, B.R. and Deane, P. *Abstract of British Historical Statistics* (1962).
- Morgan, E.V. 'Railway Investment, Bank of England Policy and Interest Rates, 1844-48', *Economic History*, Vol. IV, No. 15, (Feb. 1940).
- Morrison, J. *The Influence of English Railway Legislation on Trade and Industry* (1848).
- Newmarch, W. 'An Attempt to Ascertain the Magnitude and Fluctuations of the Amount of Bills of Exchange (Inland and Foreign) in Circulation at one time in Great Britain, in England, Scotland, in Lancashire, and in Cheshire, respectively, during each of the twenty years 1828-1847, both inclusive; and embracing in the inquiry Bills drawn upon Foreign Countries', *Journal of the London Statistical Society*, Vol. XIV, (1851).
- Nield, Ald. 'An Account of the Prices of Printing Cloth, and Upland Cotton from 1812 to 1860', *Journal of the Royal Statistical Society*, Vol. XXIV, (1861).
- North, D.C. and Heston, A. 'The Estimation of Shipping Earnings in Historical Studies of the Balance of Payments', *Canadian Journal of Economics and Political Science*, Vol. XXXVI, No. 2,

- O'Brien, D.P. (ed) *The Correspondence of Lord Overstone*  
(Cambridge, 1971).
- O'Brien, G. *The Economic History of Ireland from  
the Union to the Famine* (1921).
- Pollins, H. 'The Marketing of Railway Shares in the  
First Half of the Nineteenth Century',  
*Economic History Review*, 2nd Series, Vol.  
VII, (1954-5).
- Pollins, H. 'Aspects of Railway Accounting before 1868',  
in A.C. Littleton and B.S. Yamey (eds.),  
*Studies in the History of Accounting* (1965).
- Porter, G.R. 'An Examination of the Returns made by the  
various Railway Companies of the United Kingdom,  
with respect of their traffic during the year  
ending 30 June 1843', *Journal of the London  
Statistical Society*, Vol. VIII, (1844).
- Porter, G.R. *Progress of the Nation* (1847 and 1851 eds.)
- Pressnell, L.S. *Country Banking in the Industrial Revolution*  
(Oxford, 1965).
- Rae, G. *The Country Banker* (1899).
- Richardson, H.W. *Economic Recovery in Britain, 1932-9* (1967).
- Rimmer, W.G. *Marshalls of Leeds, Flax Spinners, 1788-1886*  
(Cambridge, 1960).

- Rogers, H.B. 'The Lancashire Cotton Industry in 1840',  
*Transactions of the Institute of British Geographers*, Vol. XXVIII, (1960).
- Salaman, R.N. *The History and Social Influence of the Potato* (Cambridge, 1949).
- Scrivenor, H. *History of the Iron Trade* (new ed., 1854).
- Scrivenor, H. *Railways of the United Kingdom Statistically Considered* (1849).
- Shannon, H.A. 'Bricks - A Trade Index 1785-1849', *Economica* (1934) reprinted in *Essays in Economic History* Vol. III, E.M. Carus-Wilson (ed.) (1962).
- Silberling, N.J. 'British Prices and Business Cycles, 1790-1850',  
*Review of Economic Studies*, Vol. 5, (1923).
- Smith, W.A. and Cole, A.H. *Fluctuations in American Business, 1790-1860*  
(Harvard, 1935).
- Spackman, W.E. *An Analysis of the Railway Interest of the United Kingdom; embracing all companies registered to the 31st day of October, 1845, showing the Defects of the present system of railway management and the necessity for amendments in the Law of Provisional Registration*, (1845) Reprinted with emendations from an article in *The Times*, Oct. 17th 1845.

- Sweezy, P.N. *Monopoly and Competition in the English Coal Trade, 1550-1850* (Cambridge Mass. 1938).
- Taylor, A.J. 'Concentration and Specialisation in the Lancashire Cotton Industry, 1815-1850', *Economic History Review*, 2nd Series, Vol. I, (1949).
- Taylor, T.J. *Observation Addressed to the Coal Owners of Northumberland and Durham on the Coal Trade of those Countries* (Newcastle, 1846).
- Temin, P. *The Jacksonian Economy* (New York, 1969).
- Temin, P. 'The Anglo-American Business Cycle, 1820-1860', *Economic History Review*, 2nd Series, Vol. XXVII, (1974).
- Thorp, W. *Business Annals* (New York, 1926).
- Tooke, T. *An Inquiry into the Currency Principle; the Connection of Currency with Prices; and the Expediency of a Separation of Issue from Banking*, (2nd ed., 1844). Reprinted, London School of Economics and Political Science, Series of Reprints of Scarce Works on Political Economy, No. 15, (1959).
- Tooke, T. and Newmarch, W. *A History of Prices and the State of the Circulation from 1792 to 1856*, 6 Vols., (1838-1857).

- Torrens, R. *A Letter to Thomas Tooke, Esq. in Reply to his Objections Against the Separation of the Bank into a Department of Issue and a Department of Deposit and Discount* (1840).
- Vamplew, W. 'Railways and the Iron Industry: A Study of their Relationship in Scotland', in *Railways in the Victorian Economy: Studies in Finance and Economic Growth* M.C. Reed, (ed.), (Newton Abbot, 1969).
- Viner, J. *Studies in the Theory of International Trade* (New York, 1937).
- Von Tunzelman, G.N. 'On the Thesis by Matthews', *Economic History Review*, 2nd Series, Vol. XX, (1967).
- Ward-Perkins, C.N. 'The Commercial Crisis of 1847', *Oxford Economic Papers*, Vol. II, (1950), reprinted in *Essays in Economic History*, Vol. III, E.M. Carus-Wilson (ed.) (1962).
- Williamson, J.G. 'The Long Swing - Comparisons and Interactions Between British and American Balance of Payments, 1820-1913', *Journal of Economic History*, Vol. XXII, (1962).
- Williamson, J.G. *American Economic Growth and the Balance of Payments, 1820-1913 - A Study of the Long Swing* (Chapel Hill, N.C., 1964).

- Wilson, J. *Influence of the Corn Laws as Affecting All Classes of the Community and Particularly the Landed Interests* (1839).
- Wilson, J. *Capital, Currency and Banking; being a collection of a series of articles published in The Economist in 1845, on the principles of the Bank Act of 1844 and in 1847, on the recent monetorial crisis; concluding with a plan for a secure and economic currency* (1847).
- Wood, E. *English Theories of Central Banking Control, 1819-1858*, Harvard Economic Studies, Vol. LXIV, (Cambridge, Mass., 1939).
- Woodham-Smith, C. *The Great Hunger: Ireland 1845-1849* (1962).