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Coal Mining on a Yorkshire Estate: Land Ownership and Personal Capitalism, 1850-1914

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Abstract

The Winn family were landowners with estates at Nostell in Yorkshire and Appleby in Lincolnshire. Their property was mainly agricultural but included a small colliery on the Yorkshire estate. In the late 1850s the Winns' land was heavily mortgaged and the family was in financial difficulty. The thesis centres on the successful efforts led by Rowland Winn (1820-1893), elder son of the landowner Charles (1795-1874), to restore the estates' financial 'equilibrium through the exploitation of their mineral resources. Edmund Winn (1830-?1908), Rowland's younger brother, supported him in these endeavours, as did George Winn (1863-1952), Rowland's fourth son.

The thesis places the Winn family in the context of the mid-nineteenth century landowning class, with particular reference to their characteristic attitudes to the preservation, management and economic development of landed property. The Winns' previous experience in mining is linked to their plan for a new and larger colliery at Nostell, which they considered the best opportunity for increasing the income from their estates. This plan was overtaken by the discovery of ironstone on the Lincolnshire property, and the thesis investigates the Winns' rationale for leasing the stone rather than mining it on their own account. The ironstone generated a rapid and growing income and, building on this success, the Winns sank a new colliery at Nostell that opened in 1866.

Unlike the ironstone, the colliery was directly financed and managed by the Winn family, who took on the full capital risk of the venture. The thesis investigates the sources of the colliery capital, and considers the running of the colliery between 1866 and 1914 from the perspectives of accounting policy, transport and logistics, marketing and management. It concludes that in establishing and running the colliery the Winn family combined the characteristic and in some ways contrasting approaches to entrepreneurialism and management of the landowning class, and of the personal capitalists who dominated contemporary British industry. The conclusion challenges the suggestion that the mid-late nineteenth century landowning class had an inherent dislike of all forms of industry. The thesis also attempts to contribute to the knowledge of the evolution of marketing and management in the Victorian and Edwardian coal industry.

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Abbreviations

ECCC.....Electrical Coal-cutting Contract Corporation

GCR.....Great Central Railway

GNR.....Great Northern Railway

LNWR.....London and North Western Railway

L&YR.....Lancashire and Yorkshire Railway

MIS.....Management information system

MR.....Midland Railway

MS&LR.....Manchester, Sheffield & Lincoln Railway

PO (wagons)...Privately-owned railway wagons

SYR.....South Yorkshire Railway

TA&GR.....Trent, Ancholme and Grimsby Railway

WR&GJR.....West Riding and Grimsby Joint Railway

WYAS (K).....West Yorkshire Archives Service (Kirklees office)

WYAS (W) ....West Yorkshire Archives Service (Wakefield office)

WYCOA.....West Yorkshire Coalowners' Association

Chapter 1

Introduction

This thesis examines aspects of the coal mining industry in west Yorkshire, 1850-1914, and centres on a case study of the collieries owned and operated by the Winn family on their estate at Nostell near Wakefield. It also addresses the discovery and early exploitation of ironstone on their land in Lincolnshire. The Winns' mineral businesses are placed in the context of the family's status as landowners, and the thesis considers, inter alia, the financing, management and marketing strategies employed in the Winns' mining interests. This chapter outlines the archival sources that underpin the thesis and the use of case study methodology. It also introduces the thesis's main themes. To begin, a short introduction to the Winn family would be appropriate.

The Winns: the family and its property

NB: Appendix 1 includes a Winn family tree and short biographies of the main participants; Appendix 2 is a glossary of locations and significant dates; Appendix 3 is a map of the Winn estates, railways and population centres.

The Nostell estate is located seven miles south east of Wakefield on the main road to Doncaster, and has been owned by the Winns since 1654. The house on the estate is named Nostell Priory because it is built near the site of a religious foundation that was closed during the dissolution of the monasteries. The Priory was built in the mid-eighteenth century by Sir Rowland Winn, 4th baronet, and its interior was designed by Robert Adam. For much of the nineteenth century, Nostell was owned by Charles Winn (1795-1874) who inherited the estate in 1817, succeeded by his son Rowland (1820-1893) to whom the property passed on Charles' death. The Winns also owned land and a house at Appleby in Lincolnshire, where Rowland lived prior to his inheritance of the entire property. Subsequently Charles' widow and unmarried daughters resided there.

Charles Winn was a clergyman, collector and antiquary. Rowland, the elder of Charles' two sons, had – aside from his industrial activities - a successful political career, serving as Member of Parliament for North Lincolnshire from 1868 to 1885. He

became Conservative Chief Whip and a Lord of the Treasury, and was created the first Baron St Oswald in 1885. His younger brother Edmund (1830-c1908) was active in the family's industrial interests and was treasurer of the West Riding from 1868 to 1889. The second Lord St Oswald, also Rowland (1857-1919), inherited the estate and title from his father in 1893. Nostell Priory was given to the National Trust in 1954 but is lived in by the current Lord St Oswald.

Coal has been mined at Nostell since at least the sixteenth century. In the early 1830s the Winns sank a new colliery at Wragby, a village on the estate. The colliery was quite small, raising 10-15,000 tons p.a. and contributing modestly to the Winns' income, over 90 per cent of which then came from agricultural sources. In the late 1850s the Winns suffered a financial crisis that required them to increase the income from their estates. Their first thought was that the coal at Nostell could be exploited to greater effect, but in 1858 Rowland discovered ironstone on the Lincolnshire estate. Quarrying of the stone began in 1859-1860 and the Winns become prime movers in the foundation of the iron and steel industry in the Scunthorpe area. The ironstone generated a cash flow that greatly eased the Winns' financial problems and quite soon the preponderant proportion of estate income came from minerals. To support their mining interests, the Winns promoted the West Riding and Grimsby Joint Railway (WR&GJR) from Doncaster to Wakefield, and the Trent, Ancholme and Grimsby Railway (TA&GR) in Lincolnshire. Both these railways opened in 1866. The success of the ironstone relegated coal to a less financially crucial role, but between 1864 and 1866 a new colliery, named after the estate, was sunk a short distance from the Priory. Nostell Colliery began production in 1866, a few months after the opening of the WR&GJR that linked it to the national railway network. The pit at Wragby closed in 1869. Nostell Colliery's shafts, originally 140 yards in depth and cutting the Shafton seam, raised 50-60,000 tons p.a. and were deepened to the Winter and Beamshaw beds in the mid-1880s. Average annual production rose to 200,000 tons after the deepening of the shafts. Until 1918, when a private limited company was formed, the colliery was the direct personal property of the estate owner. Edmund Winn managed the colliery on the family's behalf until 1888 when he was succeeded by his nephew George (1863-1952), the fourth of Rowland's five sons. George Winn remained managing director of the colliery up to nationalisation in 1947. Nostell Colliery closed for production in 1987.

Archival sources

The bedrock of the thesis is the Nostell papers deposited in the West Yorkshire Archives Service. The papers comprise a large body of material relating to all aspects of the estate and the Winn family's affairs, including the coal and ironstone. So far as can be ascertained, the Nostell collection has not previously been used as the basis for academic research of the Winns' industrial interests. The records relating to coal are split between the Nostell Priory and Nostell Colliery collections, and date from the eighteenth century to the 1950s when the Nostell Colliery Company was wound up after nationalisation.[1] They include runs of production, financial and sales data, some for extended periods. The statements of costs cover 1869 to 1914, virtually the entire pre-First World War life of Nostell Colliery, and there are also long runs of the six-monthly profit/loss accounts and balance sheets.[2] Financial, production and sales information on the Winns' coal interests is therefore plentiful, but different sources for the same period quite often do not easily align. For example, a notebook probably produced as an aide memoire for Charles and Rowland Winn is a concise source of production and financial figures for the years 1854 to 1875. However, the data in it are difficult to reconcile with the General Financial Statements ledger for the period, although ostensibly they convey the same information. In such cases the figures have been taken that are the most consistent with related corroborative evidence.

The correspondence between members of the Winn family and with their employees, suppliers and customers is especially important to the thesis as there are no minutes of business meetings relating to the coal and indeed no evidence that any such formal meetings ever took place. For the most part, there are no collections of letters relating wholly to coal.[3] Up to the First World War, the colliery was managed as an element of the estate owner's personal property, and policy matters were resolved in an informal manner. Decisions relating to the colliery were made by members of the Winn family in private discussion or letters and not officially recorded. References to coal in letters between family members are sometimes plentiful but are usually scattered among a wide range of other subjects: domestic gossip, political and church affairs, general estate matters, the Lincolnshire ironstone and contemporary news items. It is unusual

[1] The collection references are WYL1352 and WYL523 respectively.
[2] Many of the runs of pre-1914 records continue well into the twentieth century. The statements of costs, for example, only terminate at nationalisation.
[3] The exceptions are two of George Winn's letter books covering the early 1890s and from 1906 to the First World War, and a bundle of letters relating to the Carlton project mentioned later in this paragraph.

for both sides of a correspondence to be preserved, and the survival of letters is patchy over time. For example, there are over one hundred letters on Edmund Winn's attempt to finance a colliery at Carlton in south Yorkshire during the 1850s, and events at Nostell Colliery in the 1880s are well covered, but correspondence relating to the early and mid 1870s is limited. Where possible, the evidence from letters has been supplemented from diaries and other subjective personal material.

The survival of such a large body of documentation is unusual for a nineteenth century colliery. Such enterprises were often owned by companies whose business was exclusively, or largely, coal mining. When they ceased to raise coal the companies lost their key purpose and were liquidated, and their records were disposed of rather than retained by a continuing organisation. This was particularly true for colliery companies that survived until nationalisation.[4] Nostell Colliery's records formed part of the estate muniments, and therefore were preserved as part of the wider enterprise. The importance of this to the structure of the thesis is discussed later in this chapter.

Themes of the thesis

The first theme of the thesis relates to the socio-cultural mores of the landowning class in mid to late Victorian Britain, and in particular to its attitudes to the economic exploitation of landed property. A contrast is provided by the alternative attitudes to the achievement and maintenance of economic gain that were held by personal capitalists, the owner-managers who dominated Britain's industry in the Victorian and Edwardian eras.[5] An assessment is then possible of the extent to which the Winns applied conventional landowning attitudes to solving their financial difficulties by exploiting their mineral resources, or whether they were influenced by the conventions of personal capitalism. Chapters 2 and 3 of the thesis begin this process by placing the Winns in the context of the landowning class.

Landowners constituted the social élite in mid-Victorian Britain, a status that was based primarily on their landed property. They also figured largely in the political leadership of the country, and took a prominent place in many sectors of its civil administration. In the mid nineteenth century there was a high proportion of landowners

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[4] M. Dintenfass, *Managing Industrial Decline: Entrepreneurship in the British Coal Industry between the Wars* (Columbus, 1992), p. 8; M. W. Kirby, *The British Coalmining Industry, 1870-1946: a Political and Economic History* (London, 1977), p. 5.

[5] R. Lloyd-Jones and M. J. Lewis, *British Industrial Capitalism since the Industrial Revolution* (London, 1998), p. 84.

in Parliament, and they dominated some branches of local government – especially those outside the industrial cities – including the Justices' benches and the county Quarter Sessions.[6] Chapter 2 of the thesis begins by establishing the Winns' credentials as landowners against the delineations of the class made by Cannadine and F. M. L. Thompson.[7] By these criteria the Winn family of the 1850s enjoyed property and income that indicate a status on the cusp of the small to medium categories of landowner. They also took a place in political life and civil administration at a level appropriate to a family that was well established but not prominent in the counties in which it owned property.

Historians writing on the nineteenth century agree that a major objective of contemporary landowners was to maintain their influence and standing in society.[8] Because land was essential to this, the landowning class adopted a number of strategies to protect its property. These included conventions and legal constructs that enabled property to be transmitted entire between generations, and to be safeguarded from despoliation in a single generation through ill luck or poor management. The chief among these devices were male primogeniture and the strict settlement, under which the property was settled on a direct masculine inheritor as tenant subject to conditions that attempted to restrain his ability to dispose of land or excessively burden it with debt. However, each generation was also encouraged to enhance the property by expansion or improvement of its size, amenities or economic activities. In order to achieve this objective, and to make provision for the support of family members other than the inheritor, some ability for the tenant to raise funds was necessary, and many mid-Victorian estates were heavily in debt.[9] The conclusion of the analysis in Chapter 2 of the Winns' approach to their property is that they conformed to landowner behavioural

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[6] W. L. Burn, *Age of Equipoise* (London, 1968), pp. 261-262; D. C. Coleman, 'Gentlemen and Players', *Economic History Review*, 2nd sr., 26 (1972), pp. 92-116, this ref. p. 98 (quotation); D. Spring, *The English Landed Estate in the Nineteenth Century* (Baltimore, 1963), p. 119; D. Cannadine, *The Decline and Fall of the British Aristocracy* (London, 1996), p. 14.

[7] Cannadine, *Decline and Fall*, pp. 8-16, and F. M. L. Thompson, *English Landed Society* and *Gentrification and the Enterprise Culture: Britain, 1780-1980* (Oxford, 2001), passim.

[8] References include H. J. Habakkuk, H, *Marriage, Debt, and the Estates System: English Landownership 1650-1950* (Oxford, 1994), G. E. Mingay, *Land and Society in England, 1750-1980* (London, 1994), D. Spring, *The English Landed Estate* and 'English Landed Society in the Eighteenth and Nineteenth Century', *Economic History Review* vol. 17 no. 1 (1964), pp. 146-153; Cannadine, *Decline and Fall*, F. M. L. Thompson, *English Landed Society in the Nineteenth Century* (London, 1963); L. & J. C. Stone, *An Open Elite? England 1540-1880* (Oxford, 1986).

[9] Stone, *An Open Elite?*, pp.72-74, 266; Thompson, *English Landed Society*, p. 66-68; C. J. Napier, 'Aristocratic Accounting: the Bute Estate in Glamorgan 1814-1880', *Accounting and Business Research*, vol. 21 no. 82 (1991), pp. 163-174; this ref. p. 164; Spring, D., 'The English Landed Estate in the Age of Coal and Iron: 1830-1880', *Journal of Economic History* vol. 11 no. 1 (Winter 1951), pp. 3-24,; this ref. p. 15.

norms, and were intensely aware of their estates' vital importance in maintaining the family's status and way of life. The property was passed between generations through processes that were similar to those employed by other landowners, and it was subject to strict settlement. The Winns' attempts to improve their property and to live in the style appropriate to their status resulted, however, in a significant level of mortgage and bank debt.

A more contentious historiographical issue than the landowning class's desire to maintain and advance its status, is its attitude to the development of industry on its estates. Up to the early nineteenth century, landowners whose property held appropriate resources – especially minerals – invested directly in industrial development. This was usually in primary industry like mining and metal smelting; very few landowners were involved in manufacturing except in the supply of land and access to coal or water power for factories. Most landowners' investment in industry was restricted to the development of their own property, rather than through the seizure of industrial opportunities irrespective of location. A landowner might finance and operate a colliery or ironworks on his estate, but was unlikely to own a similar operation located on other people's property. From the first quarter of the nineteenth century onwards, many landowners withdrew from direct investment in mining and other industry and preferred to lease mineral seams under their land for exploitation by capitalist entrepreneurs.[10] Some historians have attributed this trend to an endemic distaste for industry, which culminated in a general withdrawal to a rentier, essentially parasitic, status.[11] The Winn family, however, retained ownership of Wragby Colliery into the 1850s, and, as is demonstrated in Chapters 2 and 3, when they came under financial pressure at the end of that decade, their thoughts turned to the mineral resources under their land – indeed, Rowland Winn made successful efforts to prove the presence of iron under their Lincolnshire estate in addition to the Yorkshire coal. The alternative interpretation of the landowners' withdrawal from industry centres partly on evidence that the withdrawal was not as complete as depicted, and mainly on the argument that it was the result of the increasing scale, complexity and risk of industrial entrepreneurship. Direct

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[10] Thompson, *English Landed Society*, pp. 263-265. P. Mathias, *The First Industrial Nation: An Economic History of Britain 1700-1914* (London, 1983), p. 107; P. Hudson, *The Industrial Revolution* (London, 1992), pp. 92-93; J. T. Ward, *The Finance of Canal Building in Eighteenth Century England* (Oxford, 1974), pp. 42-43; D. Spring, 'English Landowners and Nineteenth-Century Industrialism', in Ward, J. T., and Wilson, R. G. (eds), *Land and Industry: The Landed Estate and the Industrial Revolution* (Newton Abbot, 1971), pp. 16-62, this ref. p. 21.

[11] For example Coleman, 'Gentlemen and Players', A. Offer, *The First World War* (Oxford, 1989) and Martin J. Wiener, *English Culture and the Decline of the Industrial Spirit, 1850-1980* (Cambridge, 1981).

investment in a wholly-owned industrial enterprise on their property was simply beyond the resources of most landowners, who preferred to secure a reliable and predictable income through the lease of mineral seams and land for industrial development.[12]

This thesis contends that although most landowners in the mid-nineteenth century became rentiers of the minerals and other industrial resources on their estates, rather than direct participants in their exploitation, this was not a universal trend. It argues that the Winn family were enthusiastic and proactive industrialists, evidenced by their ownership and direct management of the colliery at Nostell throughout the period 1866-1914, and by the leading role they took in establishing their ironstone business. In addition, the thesis suggests that the entrepreneurial and 'hands-on' approach taken by the Winns to their industrial ventures combined elements of the characteristic attitudes of both the landowning class and the personal capitalists found extensively among British industrialists. There was therefore no clear-cut dichotomy between the attitudes and behaviours towards industry of landowners and of middle-class entrepreneurs.

These conclusions cast doubt on the intensity of the disdain of the landowning class for industry, which Wiener has argued in *English Culture and the Decline of the Industrial Spirit, 1850-1950* was sufficiently strong to damage the entrepreneurial drive that had made Britain the first industrialised nation. There are extensive literatures on both Britain's industrial performance in the period 1840-1914, of which coal mining was a key component, and on the cultures of nineteenth century landed and business classes. On the industrial side, the writing highlights the decline of British industry in relation to the performance of other countries, particularly the USA and Germany, in the last quarter of the nineteenth century and up to the First World War, and to the alleged parts played in this by a number of factors: an adherence to family ownership of companies, a reluctance to modernise and innovate (among other entrepreneurial failures), and an anti-business bias in British culture. The coal industry, despite its apparent success – production reached an all-time high in 1913, when Britain was the world's largest exporter – has not escaped criticism of its performance during this period.[13] With regard to the socio-cultural aspects of Britain in the Victorian era, the

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[12] F. M. L. Thompson argues these points particularly strongly in *Gentrification and the Enterprise Culture*.

[13] Criticisms include those relating to transport (through the use of small coal wagons), failures to introduce mechanisation for specific processes and to integrate process mechanisation into high throughput technologies, entrepreneurial shortcomings including a reluctance to rationalise the units of production, and a decline in effort and therefore output by coalface workers. Critical references include A. J. Taylor, 'Labour Productivity and Technological Innovation in the British Coal Industry, 1850-1914', *Economic History Review* 14 (Aug. 1961), pp. 48-70, and 'The Coal Industry' in D. H. Aldcroft, *The Development of British Industry and Foreign Competition* (London, 1968); Rhodri Walters, 'Labour

literature focuses on the social, economic and political primacy of the landed classes, its rapid decline in the later nineteenth and early twentieth centuries, the degree to which the landed and business classes were integrated, and the wider influence of attitudes towards industry and commerce by landowners. The alleged effect of the latter on the national economy gave rise to an extended academic debate in the 1980s and 1990s.[14]

The remaining four themes that the thesis addresses are in some degree related. They are concerned with the management and operation of collieries in the second half of the nineteenth and early twentieth centuries. The themes focus on management structures and the development of technical expertise and functional specialisms within management; on the marketing and sale of coal; transport and logistics; and the accounting processes that recorded the outcomes of these activities.

The development of management in the coal industry has received relatively little attention from historians, particularly when compared with the extensive literature on trade unionism and labour relations.[15] Chapter 7 of the thesis is intended to contribute evidence from Nostell to the study of colliery management. Management in the coal industry has its origins in the landed estates by which many early collieries were owned and operated - for example, the use of the words 'agent' and 'steward' for managerial posts, and the division of management responsibility by geography rather than technical specialism.[16] From the early nineteenth century and particularly after the railway network began to take shape, the market for coal greatly expanded in geographical and volume of output. Larger, deeper and more technically complex collieries were established as shallow seams became exhausted and high volume

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Productivity in the South Wales Steam Coal Industry, 1870-1914', *Economic History Review*, 28 (May 1975), pp. 280-303; N. K. Buxton, *The Economic Development of the British Coal Industry* (London, 1978); C. P. Kindleberger, *Economic Growth in France and Britain, 1851-1950* (Cambridge, Mass., 1964), and B. T. Hirsch, and W. J. Hausman, 'Labour Productivity in the British and South Wales Coal Industry, 1874-1914', *Economica* vol. 50 (May1983), pp. 145-59. McCloskey, Church, Dintenfass and others have argued that these criticisms are overstated.

[14] References include Thompson, *Gentrification and the Enterprise Culture*; W. D. Rubinstein, 'Cultural Explanations for Britain's Economic Decline', in B. Collins and K. Robbins (eds.), *British Culture and Economic Decline* (London, 1990), and *Capitalism, Culture and Decline in Britain, 1750-1990* (London, 1993); Wiener, *English Culture*; Coleman, 'Gentlemen and Players'; K. Robbins, 'British Culture versus British Industry', in Collins and Robbins, *British Culture and Economic Decline*, pp. 1-24; T. Nicholas, 'Clogs to Clogs in Three Generations? Explaining Entrepreneurial Performance in Britain since 1850', *Journal of Economic History* vol. 59 no. 3 (Sept. 1999) pp. 688-713.

[15] This point has been made over the years; for example in H. L. Beales, 'Studies in Bibliography: IV. The 'Basic' Industries of England, 1850-1914,' *The Economic History Review* vol. 5 no. 2 (April 1935), pp. 99-112; this ref. p. 102; R. G. Neville and J. Benson, 'Labour in the coalfields (II). A select bibliography', *Bulletin of the Society for the Study of Labour History* 31 (1975), p. 49, and A. Perchard, *The 'Black Jock' Manager? Mine Management Professionals in the Scottish Coal Industry, 1911-1967*, paper presented at the Economic History Conference, University of Nottingham, 28-30 March 2008.

[16] S. Pollard, *The Genesis of Modern Management* (London, 1965), pp. 23 and 29.

production required the exploitation of economies of scale.[17] The market for coal became segmented by the uses to which it was put, and the number of product variants increased. New sales channels developed. The regional coal markets that resulted from the near ubiquity of the railway were highly price-competitive, and the industry was prone to cyclical booms and slumps. From the 1850s onwards, legislation came into force to improve safety and disseminate best practice, and regulation of management by government took shape. The Coal Mines Act of 1872 required that certain management required technical qualifications and assigned specific responsibilities to designated posts.[18]

To successfully manage the pressure of these developments required managerial and technical expertise of various types within the enterprise. Colliery management structures broke away from the landed estate model and typically developed a tripartite pattern consisting of the owner or his representative, a consultant engineer ('viewer') and the resident manager. Engineering and technical departments usually reported to the manager, and sales to the owner.[19] Chapter 7 traces the development of management at Nostell Colliery. In its early days the Colliery's management was closely allied to the estate, and several managers had joint roles at the colliery and elsewhere on the Winns' property. Edmund Winn as colliery general manager had multiple roles on the estate and in an external organisation. During the 1870s a sales function was established, and technically qualified staff were recruited for engineering roles. After the 1880s redevelopment, the colliery became organisationally separate from the estate, and had qualified, full-time managers in key posts, operating in a tripartite structure. The family member in charge of the colliery, George Winn, contributed to the technical expertise through his knowledge of electricity. This management team led the colliery through its most successful period, from 1895 to 1914, during which time it was notably open to new technical developments, particularly in electricity as an underground power source and the use of mechanical coal-cutting machines. The competence and level of engagement of the management team in the period after 1886 contrast markedly with its equivalent in the colliery's early days.

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[17] R. A. Church, *The History of the British Coal Industry, vol. 3: 1830-1913 Victorian Pre-eminence* (Oxford, 1986), pp. 387-389.

[18] B. R. Mitchell, *Economic Development of the British Coal Industry 1800-1914* (Cambridge, 1984), pp. 268-273; Church, *History of the British Coal Industry, vol. 3*, pp. 71-79; O. O. G. M. MacDonagh, 'Coal Mines Regulation: The First Decade, 1842-1852', in R. Robson (ed.), *Ideas and Institutions of Victorian Britain: Essays in Honour of George Kitson Clark* (London, 1967), pp. 58-86; this ref. pp. 75-78; J. Sinclair, *Coal Mining Law* (London, 1958), pp. 84-85.

[19] Church, *History of the British Coal Industry, vol. 3*, p. 413.

The influence of transport on the coal trade is the third theme of the thesis and is explored in Chapter 5. A cheap and efficient means of moving a heavy, bulky product across inland areas was crucial to the expansion of the industry in the mid nineteenth century. Without it, collieries lacking access to river or sea ports were restricted to purely local markets because of the inadequacy of contemporary road transport.[20] Markets followed new canals and railways into non-coalbearing areas, and the railway supplanted sea transport as the prime mover of coal over distance.[21]

Mitchell's work on the work on the geographical markets supplied by Britain's coalfields between 1816 and 1913 is a valuable yardstick against which the Nostell Colliery's markets can be calibrated.[22] From a largely local sale in the early nineteenth century, an increasing proportion of Yorkshire's output went to other parts of Britain and the wider world. Nostell's coal sold in the west Yorkshire/east Lancashire industrial area, East Anglia and London. These markets contrast with the hinterland barely ten miles across that was served by Wragby Colliery in the 1850s. The new markets enabled a far higher output - the annual sale of coal by Nostell Colliery in the 1860s was 400 per cent of that achieved at Wragby a few years earlier, and the national market absorbed a further quadrupling of Nostell's output in the 1880s.

Because of the intense competition in the railway market for coal, small variations in transport cost and service levels could be crucial to a colliery's competitiveness and profitability.[23] Shifts in the relative cost and efficiency of using different forms of transport were therefore reflected in the market share that they carried. For example, coastal shipping gained ground in the London trade in the 1890s because of improved bulk loading techniques and faster journey times. To avoid being constrained by transport shortages, many collieries preferred to ensure that they had maximum control of the means of getting the product to the customer. Church in *History of the British Coal Industry* weighs the advantages and disadvantages to a colliery of owning a fleet of wagons, rather than relying on the customer or the railway company to provide them.[24] Nostell Colliery owned its own wagons throughout the period 1866-1914, and contemporary sources were keenly aware of the importance of

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[20] J. U. Nef, *The Rise of the British Coal Industry* (London, 1966), p. 359.
[21] G. R. Hawke, *Railways and Economic Growth in England and Wales, 1840-1870* (Oxford, 1970), pp. 168-169.
[22] Mitchell, *Economic Development of the British Coal Industry*, pp. 16-17.
[23] Ibid, pp. 263-264.
[24] Church, *History of the British Coal Industry, vol. 3*, pp. 82-85.

effective management of this resource.[25] Chapter 5 reviews Nostell's experience of running a wagon fleet. Although their wagons made a loss in terms of delivery revenues generated against the cost of purchase and maintenance, this must be balanced against the competitive advantage of the ability to complete a sale quickly as the means to transport the coal were readily available. The small mineral wagons common on Britain's railways in the Victorian and Edwardian eras, and the extensive use of private owner wagons have been cited as a source of lost economies of scale.[26] Nostell's wagons were small and non-standard, but Chapter 5 argues that this was a rational response to a distribution pattern of small quantities sent to multiple locations.

The fourth theme of the thesis relates to the marketing and sale of coal from the 1860s to the First World War, and is the subject of Chapter 6. As with the development of management, marketing in the coal industry has received little attention from historians, particularly for the period between the collapse of the Limitation of the Vend and 1914.[27] Church's *History of the British Coal Industry vol. 3* and Mitchell's *Economic Development of the British Coal Industry 1800-1914* are the main authorities on the subject, supported by studies of individual collieries and coalfields.[28]

By the mid nineteenth century coal was not a commodity product and the market was differentiated into distinct segments. These segments were based on the uses to which the coal was best suited, which evolved as suppliers and users became better informed and more sophisticated on the attributes of different types of coal. The usages underlying the market segments were a function of the chemical and physical characteristics of the coal itself. In the early nineteenth century these characteristics were dependent on the nature of the coal when it was delivered 'raw' from the colliery.

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[25] For example, Jonathan Hyslop's *Colliery Management*, published in 1876, contains a lengthy section on buying, maintaining and managing wagons.

[26] T. Veblen, *Imperial Germany and the Industrial Revolution* (London, 1915); C. P. Kindleberger, 'Obsolescence and Technical Change', *Bulletin of the Oxford University Institute of Economics and Statistics* vol. 23 no. 3, (August 1961), pp. 281-297; P. David, 'The Landscape and the Machine: Technical Interrelatedness, Land Tenure and the Mechanisation of the Corn Harvest in Victorian Britain', in D. N. McCloskey (ed.), *Essays on a Mature Economy: Britain after 1840* (London, 1971), pp. 145-204.

[27] Benson et al's comprehensive bibliography of the British coal industry has seven entries for marketing, most of which relate to the 1930s. Following P. M. Sweezy's article 'Monopoly and Policy in the English Coal Trade, 1550-1850', published in 1938, there has been a steady flow of interest in the Limitation of the Vend. J. Benson, R. G. Neville and C. H. Thompson, *Bibliography of the British Coal Trade: Secondary Literature, Parliamentary and Departmental Papers, Mineral Maps and Plans and a Guide to Sources* (Oxford, 1981).

[28] For example, G. Rimmer, 'Middleton Colliery, near Leeds (1770-1830)', *Yorkshire Bulletin of Economic and Social Research* vol. 7 (1955), pp. 41-57; J. H. Morris and L. J. Williams, *The South Wales Coal Industry, 1841-1875* (Cardiff, 1958); R. W. Sturgess, *Aristocrat in Business: The Third Marquis of Londonderry as Coalowner and Portbuilder* (Durham, 1975); C. P. Griffin, 'Robert Harrison and the Barber, Walker Co.: a Study in Colliery Management, 1850-1890', *Transactions of the Thoroton Society* vol. 82 (1978), pp. 51-62.

As the century progressed, collieries increasingly began to improve and refine their coal because it enabled a higher price to be obtained. Coal was cleaned, graded by size and quality, mixed with other coal into a product of specified character, or processed into a by-product such as coke. Increasingly, coal became a manufactured product.[29]

The Victorian coal market was dynamic, and new patterns of demand were driven by technical change or economic circumstances. For example, coke ceased to be used for railway engines in the 1860s, and a new category of steam coal emerged specifically for use in the boilers of locomotives and steamships. The outcome of these trends was the five market segments discussed in Chapter 6: steam, manufacturing, coking, gas and domestic coal. The nature of demand differed between segments – for instance, steam coal was in strong demand during the spring and summer, while domestic coal's high season was autumn and winter. The pricing of each segment was largely market-driven, except in areas where transport difficulties gave some protection to a local supplier. Individual collieries had little ability to manoeuvre on price in a given segment, which was an incentive to improve coal quality so that it could compete in a higher-priced segment. In the late nineteenth century many collieries, including Nostell, adopted more sophisticated means of sorting and grading coal, so that the market was presented with a wide range of differentiated products. Chapter 6 also considers the channels to market and contractual arrangements through which coal was sold, which varied by market segment. In the late nineteenth century the length of the supply chain was reduced and end-users increasingly bought coal direct from collieries or through suppliers owned by collieries.[30]

Various means were used to differentiate products in highly competitive markets. The capacity to deliver orders quickly was advantageous, as will be noted in Chapter 5. Channels appropriate to the target market segment were used. Coals were given distinctive names to highlight the supplier's brand and inform the customer on their grade and size. Although in the 1860s and 1870s Nostell Colliery had sold a small number of generic coals, in the quarter century to 1914 it marketed a greatly increased range and adopted a naming policy that attempted to establish a clear market presence. As with the colliery's managerial capabilities, Chapter 6 argues that although in its early days little attention was paid to the presentation of coal in the market place, after the

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[29] Mitchell, *Economic Development of the British Coal Industry*, pp. 266-268; Dintenfass, 'Entrepreneurial Failure Reconsidered: The Case of the Interwar British Coal Industry', *The Business History Review,* vol. 62, no. 1 (Spring, 1988), pp. 1-34; this ref. p. 20.

[30] Church, *History of the British Coal Industry, vol. 3*, pp. 30, 71-78; Mitchell, *Economic Development of the British Coal Industry*, pp. 264-268.

late 1880s Nostell Colliery adopted marketing and sales practices that were attuned to best practice in the industry.

The final theme of the thesis is addressed in the latter part of Chapter 4. It concerns the relative development rates of financial and management (cost) accounting, and the use of accounting information to inform managerial decision-making. This field of study has undergone a significant change in approach in recent years. Writings in the 1960s and 1970s argued that financial accounts were the earlier to be developed and played a larger role in defining professional practice in nineteenth century accounting. Management accounts were considered to be the work of engineers rather than professional book-keepers, essentially ephemeral and mainly used for short-term purposes of individual process improvement. As such, they were more advanced in manufacturing – which had easily identified process steps – rather than extractive industry, and they only became widely used in any sector in the later nineteenth century.[31]

Research undertaken since 1990 has challenged a number of these arguments. Evidence has been found of the use of cost accounting in Britain during the Industrial Revolution, and that it was employed in the coal industry as well as manufacturing. Integrated systems including both financial and management accounts have also been detected far earlier than was previously supposed, as has the incorporation of management accounting into accountancy professional training and standards. The use of accounting information can be detected in making ad-hoc decisions, although neither as a regular input to managerial activity, nor as a proven cause of better decisions.[32]

Chapter 4 sets out the contribution of Nostell Colliery to this debate. Both financial and management accounts were produced for the Winns' collieries from at least the last quarter of the eighteenth century. They continued to be produced in parallel after the establishment of a more comprehensive accounting system in the 1850s, which brought in more elements of financial accounting but remained separate from the costing side. Accounting information was used to assist with managerial decision-making: there is clear evidence of its use in making ad-hoc decisions such as the installation of a steam-pump, and a strong implication that costing information was

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[31] Particularly in Pollard, *The Genesis of Modern Management*; also D. Solomons (ed.), *Studies in Cost Analysis* (London, 1968); S. P. Garner, *Evolution of Cost Accounting* (Alabama, 1954); A. Chandler, *The Visible Hand: The Managerial Revolution in American Business* (Cambridge, Mass., 1977) suggested that management accounting was largely invented by mid-nineteenth century US railway companies.

[32] The sources for the post-1990 work are summarised in R. K. Fleischman and V. S. Radcliffe, 'The Roaring Nineties: Accounting History Comes of Age', *Accounting Historian's Journal* vol. 32 no. 1 (June 2005), pp. 61-109.

used to determine production levels in the late 1860s. The accounts system introduced at the colliery in 1869 was relatively sophisticated, and had several characteristics indicative of contemporary best practice. These included the regular production of a profit and loss account and balance sheet. In other respects, however, the colliery's accounts retained some old-fashioned aspects, especially in the treatment of capital. There is also little evidence of the full integration of financial and management accounts into a single system.

Accounting records played an important role in the Winns' oversight of their collieries and had been produced in a coherent and meaningful form since at least the late eighteenth century. With the reservations stated above, the evidence from Nostell is therefore in support of the interpretation that brings financial and management accounts into more equal roles in the development of accounting practice, and extends the origins and practical use of costing information back to the late eighteenth century at least.

Methodology of the thesis

The case study is the methodology selected for this thesis, as it enables the 'particularity and complexity' of an individual instance to be understood within the holistic perspective of the various influences that bear upon it.[33] It is also suitable for testing specific examples against theoretical propositions.[34] The first theme described in the previous section requires an understanding of the Winns' response to the interaction between the attitudes required to establish and manage an industrial organisation, and the socio-cultural values of a landed family. The thesis attempts to identify the linkages between the assumptions and values held by the Winns as landed gentry and the decisions made by them in the running of the colliery. In order to undertake such an analysis, the Winns' activities must be observed from a variety of perspectives. A prerequisite for this holistic approach is the presence of sufficient source material to support a range of perspectives. The primary material described in the section on archival sources provides these perspectives. It is rich in financial and operational data but also allows insight to the decision-making process and the personal interaction between key players.

[33] R. E. Stake, *The Art of Case Study Research* (Thousand Oaks, 1995), p. xi.
[34] R. K. Yin, *Case Study Research Design and Methods* (Thousand Oaks, 2003), pp. 10-13, 40-42.

Chapter 2

Arriving at the financial crossroads: the Winns as landed gentry to 1858

Introduction

In the mid-1850s the Winns were apparently securely situated as landed proprietors with estates in Yorkshire and Lincolnshire. Their income was derived mainly from agriculture, although the small colliery at Wragby contributed a few hundred pounds of profit each year.[1] In common with many landowners, however, their estates were heavily mortgaged, and cash flow problems in 1857 and 1858 threatened their ability to maintain their standard of living and service their debts. The family was forced to confront its financial problems and look for potential resolutions. This chapter will explore three main themes. Firstly, it will position the Winns within a specific class context, by comparing their economic and socio-cultural characteristics with those of the wider landowning class of mid-nineteenth century Britain. Secondly, the conventional behaviours of the landed class regarding the economic exploitation of its property will be used as a template to examine the Winns' financial situation in the mid-1850s. Finally, the chapter will focus on the attempt by Edmund, Charles Winn's younger son, to expand the estate's involvement in coal mining by promoting a colliery concern. Edmund's involvement in the coal business raises a number of issues. These include the extent of involvement of landowners in the detailed business of industry on their estate, capital formation in the coal trade, and the way in which landowners resolved conflicts between the objectives embedded in the socio-economic culture of their class.

The Winns' place in the landowning class in nineteenth century Britain

The landowning class was the dominant elite in Britain up to the mid nineteenth century, in terms of wealth, social status and political influence. In addition to

[1] Wragby Colliery had an associated brickyard. For a landowner with a mansion as large as Nostell Priory, an 'in-house' supply of fuel and building material could be a considerable money-saver. Habakkuk, *Marriage, Debt, and the Estates System*, p. 280.

substantial advantages of access to political and financial power, membership of the class implied responsibilities relating to participation in both local and national government, and the maintenance of the social displays that reflected and bolstered the class's high status.[2] As C. L. W. Hill defines it, a culture constitutes 'a system of values and norms that are shared among a group of people and that when taken together constitute a design for living'.[3] Landownership in the mid-nineteenth century carried predispositions to conventional behaviour in a number of contexts, amounting to a specific culture under this definition.

In order to explore the Winns' conduct and economic activities in the context of these values and norms, their standing as members of the class must first be established. This will be undertaken through a tripartite analysis of the Winns' circumstances based on that described in Cannadine's *The Decline and Fall of the British Aristocracy*. It will also draw on F. M. L. Thompson's examinations of the characteristics of nineteenth century landowners.[4] The timing of the exercise will be the mid-1850s. It will first consider the Winns' material status, and then the degree of political and administrative power exercised by the family. Finally, their social standing will be examined.[5]

The British landowning class in the nineteenth century consisted of around 7,000 families, who through the mid 1850s owned over half the land in the British Isles. Most landed estates were rural and their owners drew around 80 per cent of their income from agriculture, which up to the 1820s was Britain's largest economic sector in terms of its contribution to total employment and to the national income.[6] Despite agriculture's subsequent decline from this leading position, landowners benefitted from the prosperity that farming enjoyed between the late 1840s and the mid 1870s. In some cases, they were able to augment their agrarian income by the mineral and manufacturing wealth arising from the new uses of the land created by the Industrial

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[2] Thompson, *English Landed Society*, pp. 1-3.

[3] C. L. W. Hill, *International Business: Competing the Global Marketplace* (New York, 2000), p. 79, quoted in J. F. Wilson, *Business Cultures and Business Performance: A British Perspective* (paper presented at the Posthumus conference on 'The Impact of Culture on Economic and Social Evolution', 2000), p. 3.

[4] Cannadine, *Decline and Fall*, pp. 8-16, and Thompson, *English Landed Society* and *Gentrification and the Enterprise Culture*, passim.

[5] Cannadine's analysis is set in the mid-1870s, when Bateman's *Great Landowners of Great Britain and Ireland* and the Second Domesday Book were published. To use his figures and comparators might seem anachronistic when considering the Winns' situation twenty years earlier. However, the Winns' landholdings did not changed little between 1855-1875, and the value of the pound in 1875 was just under 10 per cent higher than twenty years previously (D. Hobson, *The National Wealth: Who gets What in Britain* [London, 1999], pp. 1185-1186). Because the Winns' income was subject to the same general economic variations as that of other landowners, and as the intention is to gain a general sense of the family's status, the inconsistency is considered justifiable for comparative purposes.

[6] F. Crouzet, *The Victorian Economy* (London, 1982), pp. 66-67.

Revolution.[7] The most affluent among the landowners were collectively richer than any other contemporary social or occupational grouping and their wealth enabled them to spend substantial proportions of their time in artistic, sporting or leisure pursuits. In later years, however, the wealth of those proprietors who were predominantly dependent on their agricultural income was affected by reduced produce prices from the mid-1870s as a result of free trade and a general fall in world demand.[8] In the sources of their income, the Winns in the mid 1850s were entirely typical landowners - a draft annual budget for their property in 1858 showed an income of £10,800, mostly derived from agriculture but including £500 from Wragby Colliery.[9]

The landowning elite in Britain was a broad class in material terms, from a squire with a thousand acres to the magnate with extensive property in several different locations, and their incomes, politics and habits encompassed a spectrum of equivalent breadth. 'The Duke of Omnium and the small squire were half a world apart', but they had in common a sense of the rights and duties of the landed class, albeit exercised in greater or lesser settings.[10] Both Cannadine and Thompson classified the British landowner of the 1870s into three broad categories.[11] The upper 250 of the 7,000 families were magnates with over 30,000 acres, generating annual incomes from £30,000 to more than £100,000. They would certainly have had property in several locations (including a large London house) and usually in more than one of the countries in the British Isles. Their income would be derived from a range of sources, and was very likely to include a proportion of non-agricultural origin.[12] The second category of landowner constituted middling proprietors, around 750 families with holdings of 10,000 to 30,000 acres and annual incomes of £10,000 to £30,000. They were likely to have a main country seat, a London base, and perhaps additional estates and houses accrued by marriage or inheritance. Their income might be derived purely from agriculture, although the size of their property portfolios increased the likelihood

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[7] 'Consciously or unconsciously, the landed aristocracy of England had come to terms, and profitable terms, with the Industrial Revolution.' Burn, *Age of Equipoise*, p. 308.

[8] Thompson, *English Landed Society*, pp. 303-304.

[9] Budget for 1858, A/1/8/1/11, WYL1352, WYAS (W). Except when farm rentals were changed (as they were in 1854), the Winns' income from agriculture in the 1850s was usually around a consistent level. The colliery was the most variable component. It should be stressed that the colliery was operated as a separate business, and the £500 represented the *profit*; *income* from the colliery was £2,100 in 1857 and £2,600 in 1858, representing 15-20 per cent of total income. Notebook containing colliery financial analyses, C/3/1/9/1, WYL1352, WYAS (W).

[10] Burn, *Age of Equipoise*, p. 316.

[11] Cannadine, *Decline and Fall*, pp. 9-11; Thompson, *English Landed Society*, pp. 112-113.

[12] The value of land varied widely. In 1883 the 3rd Duke of Sutherland's estates included c1,300,000 acres in Scotland and 32,000 in England, and his annual gross income approached £200,000, the great bulk of which came from his English possessions. The Scottish land was largely moor. E. Richards, *The Leviathan of Wealth: The Sutherland Fortune in the Industrial Revolution* (London, 1973), pp. 12-13.

that they would also generate revenue from industrial, mineral or commercial sources. The Winns' income of c. £11,000 in the 1850s placed them on the lower margin of this category, as did their possession of two estates and houses. Nostell Priory was a substantial eighteenth century mansion, while Appleby Hall on the Lincolnshire estate was a more modest structure. A London house had been sold in 1785 to help pay for building work on the estates.[13]

The final category of landowners consisted of small proprietors, accounting for around 6,000 of the 7,000 landowning families, owning between 1,000 and 10,000 acres with annual incomes in the range £1,000 to £10,000. At the lower end, merging into the yeoman/freeholder grouping, an owner would have a single estate and residence, while the better endowed might own additional land holdings or houses. The Winns' two estates totalled 8,000 acres, 2,500 at Nostell and 5,500 at Appleby, so that in terms of acreage as well as income they were at the margin of the small and medium categories. The smaller landowners' incomes were often generated wholly by agricultural rents, although further up the scale a modest level of industrial or portfolio investment income was possible. Leasing of mineral resources or shareholding in local canal companies was not uncommon, and could provide a level of income that enabled an involvement in London society and politics.[14] The Winns again were typical of their class, as apart from owning an estate colliery they invested in local ventures including the Barnsley Canal and the South Yorkshire Railway.[15]

In terms of their property, therefore, the Winns were solid members of the landowning class, at the lower end of the spectrum but holding a significant presence in two counties. They maintained a similar position in their involvement with politics and civil government. Landowners formed the governing elite, dominating central government by a combination of entitlement and obligation: 'Until the 1880s, the lower house of Parliament was essentially a landowners' club...as late as the 1860s, it was claimed that one-third of the Commons was filled by no more than sixty families, all landed...The upper house was even more the monopoly of landowners'.[16] Smaller landowners concentrated their social and political attentions exclusively on the affairs of

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[13] Appleby Hall was destroyed by fire in 1933. The National Trust, *Nostell Priory and Parkland* (Warrington, 2001), pp. 4-5, 50-51, 57-58; J. Bateman, *Great Landowners of Great Britain* (repr. Leicester, 1971), p. 485; R. Pacey, *Lost Country Houses of Lincolnshire: Volume 5* (Burgh-le-Marsh, 2002), page number unknown.

[14] 'Only the richer members of county society could afford the London season.' Geoffrey Best, *Mid-Victorian Britain 1851-75* (London, 1979), p. 262.

[15] Charles Winn's diaries 1838-1850, A/1/8/1, A/1/8/26/16, A/1/8/26/18 and A/1/8/26/18, WYL1352, WYAS (W).

[16] Cannadine, *Decline and Fall*, p. 14.

the immediate locality of their estates. Landowners undertook the higher level local administration of the more rural parts of the country, largely at their own expense and from a sense of duty, and at the same time provided poor relief that supplemented, or sometimes replaced, the official arrangements. These activities contributed to attainment of 'high esteem [by] the performance of unpaid public service'.[17] Local tradesmen had the benefit of their patronage - sometimes doubtful because of the extended credit often taken - and social, sporting and charitable organisations in the environs of a landowner's property looked to him for support. The Winns held a solid position in county society. Charles was High Sheriff of Lincolnshire in 1828, a post later held by his elder son Rowland, and Charles, Rowland and Edmund were all Justices of the Peace. Both these functions were largely reserved to members of the landowning class.[18] The Winns took a close interest in Church of England diocesan matters, owning at least one advowson, and Charles's bank records show that he was a conscientious supporter of charitable causes and sporting or social organisations local to his property. These roles, at county rather than national level, were commensurate with a secure if relatively modest position in the landowner hierarchy.

After the middle of the nineteenth century, the apparent dominance of the landowner began to weaken at national level in the face of the rising power of the middle class. Landowner representation in Parliament shrank and a general acceptance of the landowning class's natural right to govern was replaced by pressure to demonstrate that its continuing governmental influence gave 'value for money' to other sectors of the electorate.[19] Although their hegemony lasted somewhat longer at the local level, even here the landowner-dominated Quarter Sessions, parishes and magistracies were reduced in power. Elected bodies were introduced to deal with public services, housing and schools, while the police and prison services were directed by central government. The creation of the county councils in 1888 brought many of these functions together.[20] The Winn family was affected by the changes, as Edmund held the post of treasurer to the West Riding Quarter Sessions from 1868. When the Sessions

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[17] The corporate boroughs and the lower echelons of county functions (unless they were occupied by the landowner's agent or other senior employee) were generally outside the control of the landowners. Burn, *Age of Equipoise*, pp. 261-262; Coleman, 'Gentlemen and Players', p. 98 (quotation); Spring, *The English Landed Estate,* p. 119.

[18] Thompson, *English Landed Society*, pp. 110-111.

[19] Best, *Mid-Victorian Britain*, p. 264; Thompson, *English Landed Society*, pp. 278-279.

[20] The landowning interest long fought successfully against their loss of influence at local level. Nine bills were introduced into Parliament between 1832 and 1868 to introduce elected bodies that would assume various of the duties of the Quarter Sessions, but all failed. Mingay, *Land and Society in England*, p. 210; Burn, *Age of Equipoise*, pp. 312-313.

were abolished twenty years later he was able only with difficulty to obtain compensation for the loss of his salary.

The final indicator of membership of the landowning class to be considered is that of social status. This was not defined purely by material possessions. Other factors were significant in establishing a family's social standing, such as the manner in which it lived and conducted its affairs, the length of time it had held a particular estate, or the public offices held by its members. These aspirations manifested themselves in characteristic behaviours: the desire to preserve territorial integrity and longevity, to enhance the property, and a propensity for endogamy. If necessary, landed families undertook some manoeuvring to preserve the appearance of achievement of these objectives, as did the Winns in the early nineteenth century.[21] The family had been landowners in both Lincolnshire and Yorkshire for nearly two hundred years, the estates having been the property of a succession of Winn baronets. On the death without issue in 1805 of the sixth baronet, Sir Rowland, the property was inherited by the eldest son of his sister, Esther. The youthful Esther had been 'wayward and headstrong', and had married a Manchester baker called John Williamson. Marriage to a man in trade had been considered by the family to be unforgivable, and the sister was estranged for many years. However, when Esther's children – John, Charles and Louisa - were orphaned following her death in 1803, Sir Rowland adopted them to ensure that they were 'suitably brought up' as successors to the estate. The property came to Esther's elder son, John, who changed his name from Williamson to Winn on inheritance. At John's early and childless death in 1817, his younger brother Charles inherited, and also took the surname Winn.[22] Although the baronetcy went to another branch of the family, this did not hinder the Nostell Winns' standing as landowners. A title was advantageous in the purely 'society' sense, but in the mid nineteenth century around 80 per cent of landowners were commoners, including a quarter of the largest proprietors.[23] Charles established his 'county' ties by marrying the daughter of an East Riding baronet, while his elder son's wife (m. 1854) was the niece of the Earl of Lanesborough and his second daughter's brother-in-law (m. 1846) was the first Viscount Cross. In 1855 the Winns of Nostell were 'Winns' only by sleight of hand, but had retained their ownership of the

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[21] Thompson, *English Landed Society,* p. 103; Habakkuk, *Marriage, Debt, and the Estates System,* pp. 253-254.

[22] Quotations from 'Reminiscences of Nostell by Dr T. G. Wright' (undated and unpaginated manuscript book), MS803, Yorkshire Archaeological Society; National Trust, *Nostell Priory and Parkland*, pp. 4, 51 and 58-59

[23] Cannadine, *Decline and Fall*, p. 11; Thompson, *English Landed Society*, p. 14.

property, spent liberally on improving it – a considerable acreage was added by purchase in the 1820s - and established nuptial links with other landowners.

Mid-nineteenth century landowning families had expectations of suitable occupations for their members. The landowner himself should personify the gentleman, definitively 'a man who has no occupation' other than the running of his property and such public duties as he wished to assume. His younger brothers could have careers in the church, army, law or civil service, which were 'likely to be dignified [rather] than self-supporting' at the land magnate level, but were more purposeful among less well-endowed landowners.[24] Charles Winn, before he inherited the estate when John died, was ordained and appointed rector of a church on Nostell estate. A clerical appointment in the locality of the family seat was a common career path for younger sons in the late eighteenth and early nineteenth centuries.[25] Rather surprisingly, Charles retained the rectorship for a considerable period after inheriting the property, but following his resignation from this office had no occupation other than his public duties and a directorship of the Barnsley Canal Company. He spent his time as an antiquarian and collector, redecorating Nostell Priory and restoring Wragby church, and accruing large collections of paintings and stained glass among a wider acquisition of antiquities and curiosities.[26] Such behaviour was entirely commensurate with the way of life of a landed proprietor, as was the educational background enjoyed by Charles and his sons - he and Rowland attended leading public schools and Cambridge University while Edmund was at the Royal Military Academy, Woolwich and held a commission in the Royal Artillery. Daughters married within their social class, or, like Esther, risked excommunication. Unmarried girls usually remained at home to support their parents or brothers. Charles' spinster sister Louisa lived on the estate, as did his daughters until their marriages. In summary, by the 1850s the Winns were well-established and conventional members of their class. They were on good social terms with their titled Yorkshire neighbours Lord Wharncliffe and the Armytage family.[27] They had a longstanding presence at their houses in the Yorkshire and Lincolnshire countryside, and enjoyed an appropriate status in the society and civil administration of their home counties. In Stone's term, they were 'county gentry', deriving their income largely from

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[24] Thompson, *English Landed Society*, pp. 17-22.
[25] Stone, *An Open Elite?*, p. 149.
[26] National Trust, *Nostell Priory and Parkland*, passim; S. Raikes, ''A Cultivated Eye for the Antique': Charles Winn and the Enrichment of Nostell Priory in the Nineteenth Century', *Apollo* (April 2003) fn. 2 (pages unnumbered).
[27] Rowland Winn's 1854 correspondence passim, C/3/1/9/3, WYL1352, WYAS (W).

agricultural sources and occupying themselves in local activities appropriate to their station.[28]

'Advance our family one step further': The landowners and the land

The culture of the landowning class was especially clear in relation to the passage of the family estate to the succeeding generation, entire and if possible enhanced in size and condition: 'the outward and visible symbol of family continuity'.[29] This lay at the core of the landowner's values and was well expressed by the 6th Earl of Balcarres, who inherited a heavily indebted estate and restored it to financial equilibrium by astute exploitation of its coal reserves. Writing to his eldest son in 1818, Balcarres bestowed on him his first duty. It was 'now your care and solicitude to advance our family one step further'.[30] Enhancing the family inheritance could take a number of forms. The 7th Duke of Bedford, for example, followed Balcarres's example in improving his property's financial state, and repaid £500,000 of debt.[31] Other types of improvement could be more substantive. Stone identified a wave of country house construction in the later eighteenth century, on a scale to which he attributed the term 'gigantism'.[32] The 4th and 5th Winn baronets were no exception, as exemplified by their construction and furnishing of Nostell Priory between 1736 and 1785.[33] The Priory over-compensated for the modest estate on which it was located to the extent that it was said 'that Lord Rockingham built a house at Wentworth fit for the Prince of Wales, that Sir Rowland Winn built a house at Nostel [sic] fit for Lord Rockingham, and that Mr Wrightson at Cusworth built a house fit for Sir Rowland Winn'.[34]

Conspicuous expenditure could also be applied to the estate in the form of the high farming methods that were widely adopted by landowners in the mid-nineteenth century, especially from about 1840 to 1880.[35] High farming necessitated substantial investment in soil fertility and drainage, in machinery, and in the construction of buildings suitable for the new methods. It had both a social aspect - demonstrating the

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[28] Stone, *An Open Elite?*, pp. 6-7.
[29] Stone, *An Open Elite?*, p. 69.
[30] Letter dated 10 June 1818, 6th Earl of Balcarres to Lord James Lindsay, quoted in D. Anderson and A. A. France, *Wigan Coal and Iron* (Wigan, 1993), p. 52.
[31] Spring, *The English Landed Estate*, pp. 38-39.
[32] Stone, *An Open Elite?*, p. 263.
[33] National Trust, *Nostell Priory and Parkland*, pp. 53-58.
[34] C. M. Gaskell, 'The Country Gentleman', *Nineteenth Century* vol. 12 no. 67 (September 1882), pp. 460-474; this ref. p. 467.
[35] P. J. Perry, 'High Farming in Victorian Britain: Prospect and Retrospect', *Agricultural History* vol. 55 no. 2 (April, 1981), pp. 156-166; this ref p. 156.

landlord's dedication to scientific improvement - and an economic goal in enhancing his rental return.[36] Charles Winn introduced some of these methods to his estates, spending £40,000 on 'enclosing and improving waste land [in Lincolnshire] for future culture' on land he bought in 1828.[37] Ownership of land also stimulated exercises in social display and control that were as important as the property's economic performance.[38] Stone observed that the large new houses were reflected in the activities that took place in them: 'more servants, more guests, more weekend parties, more mass slaughter of animals...', while at a less ostentatious level the landowner was expected to mark family events with a suitable public celebration and maintain hospitality at appropriate times of the year.[39] As a result, nineteenth century landowners often lived, frequently on credit, at the level that they believed was appropriate to their station, rather than at the level that they could afford. Because they were also slow to adjust to reductions in their income, by the 1840s it was estimated that up to two-thirds of land in England was subject to debt.[40] Indebtedness could arise from poor management, high family payments, expenditure on improvements to the estate, or simple personal extravagance.[41] The worst possible outcome was the forced sale of land.

To sell an estate in order to pay debts, rather than to enhance a family's standing through an advantageous purchase of property elsewhere, was a major transgression by a landowner against the ideals of his class. It risked losing the key to membership of the elite: 'the social consequences of drastic sale were altogether abhorrent...bitterly unpalatable, it would be resorted to only under the severest adversity'.[42] Even the loss of a part could significantly diminish the whole, a point made by Earl Fitzwilliam in 1845 when advising the heavily indebted Duke of Devonshire against selling an estate in east Yorkshire: '[the sale] cannot fail to make a sensible inroad upon your influence, and the position you hold in the great national community'.[43] A family's standing was based on the intrinsic value of land ownership itself, rather than the wealth that it

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[36] J. D. Chambers and G. E. Mingay, *The Agricultural Revolution 1750-1880* (London, 1966), pp. 167-168; Spring, *The English Landed Estate*, p. 49; Thompson, *English Landed Society*, p. 247.
[37] 'Reminiscences of Nostell', MS803, YAS; C/6/10, WYL1352, WYAS (W).
[38] Pollard, *Genesis of Modern Management*, p. 26
[39] Stone, *An Open Elite?*, p. 263. Thompson estimated that in the mid-nineteenth century between 1 per cent (gentry) and 7 per cent (great landowners) of gross estate income might be distributed in charity payments. Thompson, *English Landed Society*, p. 210.
[40] Sturgess, *Aristocrat in Business*, p. 5; Spring, 'The English Landed Estate in the Age of Coal and Iron', pp. 15-16.
[41] Spring, 'The English Landed Estate in the Age of Coal and Iron', pp. 14-16.
[42] ibid, p. 18.
[43] ibid, p. 17. Despite the advice, the Duke still sold.

produced: 'the unbroken shell of a landed estate, even if in reality it was empty within, was the object that conferred position, authority and responsibility'.[44]

Because continuity of property ownership was a crucial element of the landowning culture, the mechanisms by which estates were passed between generations, divided between family members, and deployed in the family's overall interests are important to an understanding of the behaviours of the landed class. The passage of the entire property to single, clearly defined individuals in succeeding generations was considered the best safeguard for continuity and accrual of wealth. It prevented inheritance disputes or paralysis of action arising from shared ownership, and subdivided estates did not carry the same political and social status as a large property. Legal instruments and conventional practices facilitated the retention of property in a single entity. The preferred means of achieving this was male primogeniture, which in English inheritance conventions also associated the masculine family name with the estate.[45] Descent through the female line occurred only if the male line failed, in which case continuity was often preserved by the inheritor changing his surname to that of the original family. Thus John and Charles Williamson became Winns.[46]

Primogeniture was administered through the entail, which defined the order of precedence by which a property passed between generations - almost invariably the descendants of the original owner. From the mid-seventeenth century onwards, the entail was enacted by the strict settlement, a legal device that defined the property that descended to the entailed heir and that assigned to other family members.[47] Under a strict settlement, the estate was settled on trustees and the succeeding family member became the tenant for life.[48] The life tenant was usually given some room for financial manoeuvre, for example by being permitted to raise mortgages or by placing land out of settlement so that it could be sold to generate capital sums for expansion or improvement of the property - the Winn estate was subject to a strict settlement but Charles was able to make the 1828 land purchase through a mortgage.[49] Because each life tenant was restrained from selling more than a small portion of the property,

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[44] Thompson, *English Landed Society,* p. 70.
[45] Stone, *An Open Elite?*, p. 70.
[46] This practice was particularly popular in the early decades of the nineteenth century, when a contemporary Lord Chief Justice described it as 'silly'. Stone, *An Open Elite?*, p. 130.
[47] Stone, *An Open Elite?*, pp.72-73. Thompson argues that the protection of younger siblings', dowagers' etc rights was the main objective of the strict settlement. Thompson, *English Landed Society,* p. 70.
[48] Contemporary estimates in the mid-nineteenth century estimate that about 70 per cent of all landed estates were subject to strict settlements. Not all of an estate's land might be settled, with some portions left at the disposal of the owner. Thompson, *English Landed Society,* p. 66-68.
[49] Stone, *An Open Elite?*, pp. 73-74.

successive inheritors were encouraged to improve their land's productivity.[50] Settlements were arranged in each generation by discussion between the trustees, the current tenant of the property and his heir. This usually occurred at the heir's coming of age or marriage, when the existing settlement would be broken and a new one set in place. This was not necessarily done immediately, and the incumbent and the heir could run the property jointly until they decided to resettle the estate. The next generation was groomed by gradual introduction to the responsibilities of landowning. Families with multiple properties often installed the eldest son, when he had come of age, as the châtelain of a secondary estate.[51] Rowland Winn took charge of Appleby during the 1840s, living on the income that it generated. The correspondence between Charles and Rowland indicated that they considered themselves joint masters of the entire property, with Charles exercising ultimate authority – particularly in financial matters - but increasingly deferring to Rowland's leadership and decisions. The occasional suggestions on financial policy made to Charles by his younger son, Edmund, were not received sympathetically.[52]

The strict settlement was intended to shield the family's economic and social foundation, the estate, from damage by the mistakes, poor management or ill luck of a single generation.[53] The trustees could constrain the actions of the life tenant with regard to disposal or splitting up of the property, and require him to follow the specified arrangements for financial support of family members. Male primogeniture failed to provide for younger sons, female siblings or dowagers, and both family affections and the desire to avoid internal strife required that their interests be protected.[54] Other conventions were developed to address this omission. Strict settlements commonly earmarked portions of the family's wealth to establish younger sons in a career, and to give daughters an independent income and a dowry on marriage. These payments became charges on the estate and were 'the price paid by the landed classes for primogeniture'.[55]

The possible consequences of the various strands of a landowner's attitude to his estate and to its value in supporting the family were illustrated in the Winn family's

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[50] Stone, *An Open Elite?,* p. 266; C. J. Napier, 'Aristocratic Accounting', p. 164.
[51] Thompson, *English Landed Society*, pp. 64, 69; Habakkuk, *Marriage, Debt, and the Estates System,* p. 2; Stone, *An Open Elite?,* p. 77; Spring, *The English Landed Estate*, p. 142.
[52] For example, 'I am quite against the application you suggest to Leatham and Co. and I will not consent to it'. Letter Charles to Edmund Winn, 28 August 1865, C/3/1/9/3, WYL1352, WYAS (W).
[53] Habakkuk, *Marriage, Debt, and the Estates System,* p. 243.
[54] It was also in the family's interest to enable younger sons to marry, as their offspring could be important in maintaining succession in the event of failure of the main line. Stone, *An Open Elite?*, p. 49.
[55] Thompson, *English Landed Society*, p. 70.

experiences in the late 1840s. At that time their mortgage debt was £88,000, and Charles was overdrawn at Leatham's bank in Wakefield by £14,000.[56] The debts largely related to the 1828 purchase of land in Lincolnshire. It had been financed by a loan for £63,000 on which, according to a contemporary, Charles paid interest 'at 4 or 4½ per cent'.[57] An additional £40,000 had been spent in the pursuit of the high farming ideal, with the intention of increasing the land's output and income. Current agricultural history research considers it 'unlikely that [such] investments made strict economic sense'.[58] This was certainly the case with the Winns' new land, which returned a profit of 'only 1½ or 2 per cent' so that the mortgage repayments bore heavily upon the income of the entire property.[59] In 1846 Sir George Strickland, the Winn estate trustee, pressed Charles to re-settle the estates and raise capital for Charles's children's portions, including an income for Rowland.[60] Reluctantly, Charles agreed to sell the Thornton Curtis estate in Lincolnshire in 1847.[61] His preference was to dispose of Nostell, but the rest of the family wanted to keep it and he knew that it would not sell easily.[62] Thornton was sold because it was smaller than Appleby and did not have the distinction of being the family's sole substantial presence in a county, as did Nostell. The re-settlement earmarked an urban property at Pontefract for sale if further capital was needed.[63] The decision to part with an estate was therefore only taken at pressing need and at the urging of the trustee. It was also carried out so as to minimise the damage on the family's standing.

The Thornton Curtis sale was only partly successful in paying down the debt. The timing of the sale - shortly before the repeal of the Corn Laws - was unfortunate as contemporary expectations for the future of grain farming were low.[64] The proceeds

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[56] The bank had reminded Charles that the overdraft was to be redeemed as agreed by the end of June. Letter Rowland to Charles Winn, 19 January 1847, A1/8/1, WYL1352, WYAS (W).

[57] Timothy Farrer, probably a relation of John Farrer, who was the estate agent for Nostell prior to John Marsden.

[58] M. Turner, 'Agriculture, 1860-1914', in R. Floud, and P. Johnson, (eds.), *The Cambridge Economic History of Modern Britain: vol. II Economic Maturity, 1860-1939* (Cambridge, 2004), pp. 133-160; this ref. p. 139.

[59] Undated manuscript book. C/6/10, WYL1352, WYAS (W).

[60] Sir George Strickland was a relative (probably brother) of Charles' wife, which would no doubt have made his representations particularly pressing (and perhaps also particularly irritating to Charles).

[61] Charles's reluctance was not from an objection to supporting his children, but from an instinctive reaction to disposal, a disagreement as to which estate should be sold, and from a sense that Sir George was intruding too deeply into Winn affairs.

[62] The value of the Nostell estate was reduced because of the Priory, which was outsized and expensive to maintain. Surprisingly, the value of the estate's coal reserves are not mentioned in the surviving letters. Letter Charles Winn to John Marsden, n.d. autumn 1846, A/1/8/1, WYL1352, WYAS (W).

[63] The Pontefract property was not an integral part of the Nostell estate. Letters Charles Winn to John Marsden, n.d. autumn 1846 and 31 December 1846, A/1/8/1, WYL1352, WYAS (W).

[64] Crouzet, *Victorian Economy*, p. 157; E. L. Jones, *Agriculture and the Industrial Revolution* (Oxford, 1974), p. 191.

permitted the mortgage debt to be reduced by less than half, from £88,000 to £48,000, cutting the annual interest payments from £3,740 to £2,050.[65] The 1846 re-settlement also initiated children's allowance payments that became charges on the estates. These amounted to £500 per annum in 1858.[66] Charles's two unmarried daughters each received £50 per annum, which rose to £105 on marriage. Two other daughters already received the higher rate. Edmund's annual allowance was £140, and Charles and Rowland were conscious of the need to find an occupation for him that would make him financially independent, which would also require a capital sum for his patrimony.[67]

As this example demonstrates, the joint objectives of preserving the integrity of the estate and providing for those insufficiently fortunate to be born the eldest male were not always compatible. A life tenant might receive little of his estate's income because it was assigned to the support of other family members. The 6th Earl of Balcarres, for example, had to pay jointures to two dowagers and provide for 'ten brothers and sisters, whose interests...lay with me to protect in their several careers of life'.[68] If the payments could not be met from income, the life tenant might have to use his ability under the strict settlement to raise cash through mortgages or land sales, further burdening or decreasing the property.[69] It was, however, unusual for a strict settlement to be circumvented simply to benefit the life tenant at his relatives' or successors' expense. This was partly because of the trustees' oversight but mainly because the assumptions underlying the strict settlement were embedded in the landowners' psyche and widely accepted because they believed in primogeniture and support of the wider family.[70]

The system was not without critics. Radicals and law reformers such as Richard Cobden attacked the settled estate on the grounds that it prevented the free sale or use of land, encouraged monopolism and placed non-landowning residents in a position of servitude. Cobden argued that economic development was hampered by the strict settlement, which was in the interest of neither the owner nor the country as a whole.

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[65] 'Statement of Principal Monies owing and Interest', A/1/8/27/2, WYL1352, WYAS (W).
[66] Budget for 1858, A/1/8/1/11, WYL1352, WYAS (W).
[67] Louisa, Charles' unmarried sister, also had £50 per annum. The need to find Edmund a job was much in Rowland's mind. He made reference to it in his letters to Charles of 31 March 1855, 16 February 1856, 30 October 1867 and 15 June 1868, A/1/8/1, WYL1352, WYAS (W).
[68] Letter dated 10 June 1818, 6th Earl of Balcarres to Lord James Lindsay, quoted in Anderson et al, *Wigan Coal and Iron*, p. 52.
[69] Finding a suitable occupation for a younger son might require funding it through his portion. This could be the purchase money to buy a commission or partnership, or an annuity to assist the son until he became self-supporting in his chosen profession. In the Winns' case, a Pontefract property was put aside for this purpose.
[70] Thompson, *English Landed Society*, pp. 69-70; Stone, *An Open Elite?*, p. 77.

Despite these criticisms, the landowning interest was largely successful in preventing any significant changes in landed property law until the Conveyancing and Settled Land Acts of 1881-1882, and the characteristic practices of the settled estate were commonly followed throughout the first three quarters of the nineteenth century.[71]

On all issues relating to the preservation of their property, its transmission across succeeding generations and its division among family members, Charles and Rowland Winn adhered closely to traditional practices – great efforts were made to keep the property together, and it was inherited in its entirety by the eldest son or other conventional heir with specific provision for the interests of other members of the family. The following section will look in more detail at the causes of the financial difficulties that compromised the Winns' ability to apply these practices, and at their potential solutions.

Balancing the books: The Winns' finances in 1857-1858

In 1857 the administration of Charles Winn's property was divided because of Rowland's occupation of Appleby. The accounts of the Yorkshire and Lincolnshire estates were separate, and Charles at Nostell and Rowland at Appleby each banked locally and employed discrete legal advisors and estate managers. In spring 1857 Charles Winn departed for an extended tour of Europe. Rowland continued to lived on the Appleby estate and manage its affairs, but in his father's absence was also responsible for the oversight of the entire property. Edmund had resigned his army commission and was employed as estate steward at Nostell, reporting to his brother.[72] Rowland had been involved from youth in the management of the Winn estates, including the 1847 sale of Thornton Curtis. He had been aware of some financial difficulty in early 1857, but did not appreciate the true financial situation until Charles had left England.[73] In July Rowland wrote to his father to express his concerns:

> I am sorry to say that we shall have <u>the very greatest difficulty</u> in making ends meet...Edmund is in a quandary about the outstanding

[71] Burn, *Age of Equipoise*, pp. 324-325.
[72] 'Reminiscences of Nostell', MS803, YAS.
[73] Rowland had been involved in decision-making on the estate since he had attained his majority. In February 1842, when he was 21, Rowland wrote to Charles that he had decided to let a house on the Nostell estate to a ropemaker, because he and his son would 'go on with their rope walk at Wragby, which will be useful for the Colliery'. Letters, Rowland to Charles Winn, 21 February 1842 and 9 November 1857, A/1/8/1, WYL1352, WYAS (W). In a letter to Charles, Rowland mentioned that he had discussed the letting of Nostell Priory with his mother 'last February [1857] when I first heard of the present difficulties'. Letter Rowland to Charles Winn, 21 October 1857, A/1/8/1, WYL1352, WYAS (W).

> bills, as he is frequently pressed for payment and I have no means of helping him...I really hardly know what to do about money. There are some bills that must be paid and there is £50 to Mr. Smith the clergyman besides some taxes...at present I have nothing to meet them.[74]

The problems centred on Nostell. The interest payments on the family's mortgage debts were charged to the income for that estate, resulting in a chronic shortage of cash. Ten years after the mortgages on the property had been reduced to £48,000, further borrowings had brought them back up to £90,000. Interest payments had of course risen in proportion.[75] Charles' account at the bank of Leatham, Tew & Co. in Wakefield was seriously overdrawn and the bank was pressing for a reduction of the deficit.[76] It was difficult to make substantial or rapid increases in income because the majority came from farm rents, adjusted annually and paid six-monthly. Only ancillary activities like Wragby Colliery and the sale of timber or game generated revenue at times other than rent days.[77] The Appleby estate was solvent, but was insufficiently profitable to meet all the family's obligations. Despite the repugnance of landowners to selling their most valuable and prestigious asset, in 1857 the Winns faced this possibility for the second time in a decade.

Through the summer and autumn of 1857, Rowland's letters to his father repeatedly refer to the 'fear and dread' that he felt at the prospect of the property being sold out of Winn ownership: 'I cannot tell you how it weighs on my mind'.[78] Rowland's concern was no doubt the greater because this would have been the second land sale that he had experienced, and his intense anxiety at the possible loss of their way of life was clearly expressed. He felt it his duty to confront the head of the family with the reality, writing to Charles that:

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[74] Letters Rowland to Charles Winn, 4 and 24 July 1857 and 3 October 1857, A/1/8/1, WYL1352, WYAS (W).
[75] Budget for 1858, A/1/8/1/11, WYL1352, WYAS (W).
[76] The Winns banked with Leatham, Tew & Co. in Wakefield in Charles's name, and Smith, Ellison & Co. in Brigg, Lincs in Rowland's name. Leatham, Tew wanted a reduction of at least £5,000 in the overdraft. Letters Rowland to Charles Winn, 24 July and 9 November 1857, A1/8/1, WYL1352, WYAS (W).
[77] Personal account and cheque books, c. 1813-1871, A1/8/27/1, WYL1352, WYAS (W). Rents could not easily be raised unless land improvements were made. This usually had to be funded at least in part by the landowner, and the investment was only likely to show a return in the long term. Ancillary income like the colliery and timber was variable in quantity. Thompson, *English Landed Society,* pp. 248-249. Spring, 'The English Landed Estate in the Age of Coal and Iron', p. 14-16; Habakkuk, *Marriage, Debt, and the Estates System*, pp. 333-338.
[78] Letter Rowland to Charles Winn, 7 October 1857, A/1/8/1, WYL1352, WYAS (W).

> I really greatly fear that nothing short of an entire breaking-up of this place can ever put us on a safe footing, I quite dread looking the thing in the face, tho' it is quite necessary to do so.[79]

Apart from the implications of a sale for the family's domestic and social circumstances, Rowland's hopes for his own future were under threat. He had political ambitions in the Conservative Party, and membership of the landowning class was a substantial advantage for an aspiring Tory politician. Habakkuk remarked that 'Economy compromised more than [a landowner's] standard of living', and both Rowland and Charles believed that the retention of the estate and of their accustomed style of life were linked objectives.[80]

Stone described the sale of an estate as a 'failure in family strategy', and Rowland tried to avoid a second failure in ten years through urgent attempts to raise cash.[81] Railway shares were sold at a loss, and Rowland obtained loans from friends, relations, and through their solicitor John Marsden of Wakefield.[82] Marsden's loan offer was accepted by Rowland 'with very great reluctance', as he suspected that the solicitor's advice had contributed to the downturn of the family's fortunes.[83] Timber harvests were taken from each estate, raising cash at the expense of future years. Finally, Charles was persuaded to agree to the auctioning of paintings and household effects from Nostell Priory 'for the best prices they could get...If we could at once sell the pictures at anything like Holder's [an auctioneer] valuation we should be able to pay a considerable proportion of the bills'. Rowland was reluctant to transfer more money from the Lincolnshire estate account as it would simply relocate the indebtedness: 'I cannot do more from Appleby than pay the rest of the Bond interest and perhaps the half-year's interest to Leatham without overdrawing the Brigg bank considerably which will never do'.[84] In October 1857, however, Rowland cut costs in Lincolnshire in order to pay expenses at Nostell. At Christmas of that year, Rowland took stock of the

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[79] Letter Rowland to Charles Winn, 21 October 1857, A/1/8/1, WYL1352, WYAS (W).
[80] Habakkuk, *Marriage, Debt, and the Estates System,* pp. 279-282.
[81] Stone, *An Open Elite?*, p. 69.
[82] Low dividend returns on railway stock in the 1850s resulted in a reduction in share prices. B. L. Anderson and P. L. Cottrell, 'Another Victorian Capital Market: A Study of Banking and Bank Investors on Merseyside', *Economic History Review* vol. 28, no. 4 (Nov. 1975), pp. 598-615; this ref. p. 600.
[83] Rowland's emphasis. The loan from Marsden fell through as he was unable to find anyone willing to lend, which is perhaps a comment on the Winns' lack of creditworthiness.
[84] Quotations in this paragraph: letters Rowland to Charles Winn, July 1857 to January 1858 passim. A/1/8/1, WYL1352, WYAS (W). In the course of the sales, it was found that a number of Charles' objects d'art were fakes. The Winns may have sold household goods and personal possessions rather than land either because they were not covered by the strict settlement on the estate, or - more likely - because they would raise cash more quickly and discreetly than the disposal of land. Stone, *An Open Elite?*, p. 77.

financial situation when he drew up a budget for 1858 that combined income and expenditure for both estates (Table 2.1). This proved a turning point in the crisis.

Table 2.1: Projected income and expenditure for 1858

Income		
Nostell	Agricultural rents	£3,060
	Wragby Colliery profit	£500
	Tithes, felled timber etc	£443
	Sub-total	*£4,003*
Lincolnshire	Agricultural rents	£6,827
Total		**£10,830**
Expenditure		
Nostell		£1,253
Lincolnshire		£2,564
Family payments		£500
Interest on £90,000 mortgages		£3,403
Interest on £8,200 bonds		£400
Total		**£8,120**
Balance		£2,710

Source: Budget for 1858, A/1/8/1/11, WYL/1352, WYAS (W).

Estate expenditure included only wages and fixed outgoings - rates, taxes, tithes etc - and no maintenance or living expenses. Rowland warned his father that the budget might be too optimistic, because 'Edmund has put nothing in the Nostell statement in the shape of bills for the Estate'. This was a sensible caveat, because bills payable at Christmas 1856 had amounted to £2,000 of which £1,150 remained outstanding the following October, and the situation was unlikely to be better in 1858.[85] Mortgage and bond interest was the largest outgoing, and combined with family payments constituted nearly 40 per cent of income.[86] The annual profit payable by the colliery was highly variable - in the 1840s and 1850s it occasionally reached £1,000 but in other years fell to under £500.[87] The Lincolnshire income, all from agricultural sources, was largely consistent over the medium term.[88] Rowland commented cautiously that 'I do not think that the available balance after allowing for...contingencies can safely be put at more

[85] Letter, Rowland to Charles Winn, 24 December 1857, A/1/8/1, WYL1352, WYAS (W).
[86] The mortgages were: £40,000 (Earl of Scarborough) at 4 per cent; £25,000 (Brown & Scarlett) at 4 per cent; £20,000 (Brown) at 3¾ per cent; £5,000 (Hadwen) at 41/8 per cent. Budget for 1858, A/1/8/1, and letter Rowland to Charles Winn, 24 December 1857, A1/8/1; both WYL1352, WYAS (W).
[87] The colliery profit, including the 6d per ton royalty paid to the estate, was £1,017 in 1855, £510 in 1856 and £400 in 1857. Personal account and cheque books, c. 1813-1871, A1/8/27/1; Nostell and Wragby records of coal got, etc, C/3/1/9/1; both WYL1352, WYAS (W).
[88] The average Appleby annual rental was around £5,300 p.a. in the early 1850s, £6,400 in the mid and late 1850s (following a sharp rise in 1854, presumably from a rental review), and £7,000 (exclusive of ironworkers' housing) in 1870. A/1/8/57 and A1/8/[787]; both WYL1352, WYAS (W).

than £3,000 at the most if so much'.[89] This surplus gave limited opportunity for the reduction of debt, or for accumulation of capital for improvement to the property.

There is no indication that the problems of summer 1857 were caused by some sudden disruption in the Winns' affairs. They arose instead from longstanding factors, often related to adherence to typical landowner policies. As Habbakkuk remarked, it was very common for landowners to 'drift into debt in course of time by following the[ir] traditional activities...with a little too much vigour and by laxity in estate management'.[90] The main problem for the Winns was the inability of the property to meet, without further borrowing, both the financial demands of their lifestyle and the terms of the settlement made in 1846-1847. The estate in 1857 had to support a number of significant charges in addition to the debt interest. The first was Nostell Priory itself. Charles described it as 'a place that has always been a burden to the property' because of its size and grandeur relative to the small estate on which it was built, and we recall his preference in 1846 for selling Nostell rather than the Thornton estate for that reason.[91] Rowland reiterated the problem in 1857, stating that the house would be impossible even to let rent-free: 'It is too large for anyone to take, and anyone able to do so would have a place of his own, and secondly it wants so much doing in the way of painting, lead work and repairs generally'.[92] As we have seen, the £500 family payments were the outcome of the 1846-1847 resettlement.[93] All these outgoings stretched the property's resources.

To compound the problems, Charles had been an inattentive custodian of his property's financial affairs. The 1857 crisis was not the disaster that attended other cash-strapped landowners, but it severely stretched the Winns' relatively limited resources.[94] Although Charles was in holy orders and took a keen interest in diocesan affairs in Yorkshire and Lincolnshire, there was a hint of an expansive Georgian attitude to his management of his property, and particularly to its adornment.[95] He may have been unlucky in his foray into the land market, but his management of the property

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[89] Budget for 1858, A/1/8/1/11, WYL1352, WYAS (W). In the original document, Rowland miscalculated the balance as £3,710. One hopes that he realised his error quickly - it is unclear whether the £3,000 in the letter represented a rounding down from the incorrect figure or up from £2,710.
[90] Habakkuk, *Marriage, Debt, and the Estates System*, p. 294.
[91] Letter Charles Winn to John Marsden, n.d. (almost certainly 1846), A/1/8/9, WYL1352, WYAS (W).
[92] Letter Rowland to Charles Winn, 21 October 1857, A/1/8/1, WYL1352, WYAS (W).
[93] Assuming a return of 5 per cent, the interest from £10,000 of capital went to family payments.
[94] For example, the 2nd Duke of Buckingham and 6th Duke of Newcastle were bankrupted. Thompson, *Gentrification and the Rise of the Enterprise Culture*, pp. 33-34.
[95] As well as undertaking building work on the Priory, he extensively redecorated the house, collected numerous works of art and antiquities, and restored Wragby Church. National Trust, *Nostell Priory and Parkland*, pp. 59-60.

added to its debts at the rate of over £4,000 per annum between 1848 and 1857.[96] Certainly record-keeping was not his strength. Rowland discovered that the bond debt was £2,200 higher than his father had told him prior to departure on his European tour.[97] Charles had handed many aspects of the management of the Nostell estate and his own finances to a solicitor/land agent, a common practice among his contemporaries and a subject that will be examined in more detail in Chapter 3. Rowland Winn, however, conformed to Habakkuk's characterisation of the generation of landowners that 'came of age about or after 1830...[who] evinced greater outward decorum, were more serious and businesslike...and included more informed industrialists'.[98] He was certainly, in the words of the historian Spring, 'more careful about how [his] money was spent and more careful about how it was earned' than his father.[99] Once he had recovered from the shock of discovering the Winns' true financial state, Rowland began to apply these sober perspectives to the management of the property.

Rowland took the preservation of the estate in its entirety to be his over-riding objective. Other aspects of typical landowner behaviour – especially those relating to expensive displays of social status – were to be avoided. He believed that the family could live at their existing standard on the current income, but they would not be able to reduce the debt burden. Furthermore, any reduction in revenue would be awkward, at the very least. It is likely that by excluding share income and under-forecasting colliery profits – which actually realised £650 in 1858 – Rowland had compiled a 'worst case' budget. However, irrespective of any spin on the figures, Rowland took care to state the situation bluntly to his father:

> I think it is quite possible to live, as things now are, in a quiet way, without exceeding the Income, but I don't think any material saving can be effected, and if times should come anything like what they were in 1849 and '50, [and] a 10 per cent reduction has to be made, I am afraid you will find great difficulty in making ends meet.[100]

'In a quiet way' is a key phrase in this letter.

A good housekeeping policy was put in place, an approach used by many landed families 'under pressure of debt but not by any means at crisis point', and this certainly

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[96] Charles' debts of £98,200 equate to over £4,000,000 at current values. Hobson, *The National Wealth*, p. 1185.
[97] Letter Rowland to Charles Winn, 4 July 1857, A1/8/1, WYL1352, WYAS (W).
[98] Habakkuk, *Marriage, Debt, and the Estates System*, p. 351.
[99] Spring, 'The English Landed Estate in the Age of Coal and Iron', p. 15.
[100] Letter, Rowland to Charles Winn, 24 December 1857, A/1/8/1/1, WYL1352, WYAS (W).

contributed to the improvement of the Winns' position.[101] Edmund was prevented from selling a parcel of land to pay off the bank overdraft, because Rowland preferred to retain the land for a more constructive purpose. A consequence of keeping the overdraft was that Rowland as Charles's representative had to sign cheques drawn on the account and could therefore control expenditure for both Appleby and Nostell, albeit at the expense of continuing bank charges.[102] Charles' overseas trip allowed Rowland to rein in his father's spending by limiting money transfers to him.[103] By taking personal control, raising and redeeming short-term loans, cutting costs and transferring funds from the Lincolnshire estate, cash flow was improved and by mid 1858 the immediate difficulties were over.[104]

Rowland considered the family's options. Further economies were impossible without fundamental changes to the manner in which the Winns were accustomed to live, thereby endangering their social standing. He concluded that 'I can see nothing for it but arranging for the payment of some part of the debt without diminishing...yearly income, for this latter is absolutely necessary I am quite certain'.[105] The sale of land was ruled out, as this would certainly 'diminish the income'.[106] The difficulty was to repay debt from existing resources, while avoiding risk: 'With things in their present state I could never for a moment consent to the smallest speculation or risk of any kind however trifling.'[107] Rowland's use of the personal pronoun in this statement illustrates that over the course of 1857-1858 there had been a shift of leadership and power in the family. Rowland was initially shocked by the seriousness of their money problems, and the tone of his letters to his father implied that he looked to Charles for guidance. Charles' replies, however, suggested that he was overborne by the problems, and indeed his lengthy European trip may have been designed to distance him from them. Rowland accepted that he had to deal with the situation, and displayed an increasing grasp on the detail and a determination to approach the issues positively. An important example of Rowland's assumption of power, and a clear demonstration of his willingness to overturn customary practices, was the marginalisation and eventual dismissal of

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[101] Habakkuk, *Marriage, Debt, and the Estates System*, pp. 328-329.
[102] Until the overdraft was paid off, Edmund was not authorised to sign cheques. This caused some resentment on his part, but Rowland, perhaps pointedly, did not hurry to alter the situation. Letter Rowland to Charles Winn, 16 April 1858, A/1/8/1, WYL1352, WYAS (W).
[103] Letters Rowland to Charles Winn, 24 July 1857, 23 January, 8 March, 10 and 16 April 1858, A/1/8/1, WYL1352, WYAS (W).
[104] Letters Rowland to Charles Winn, 21 October 1857 and 4 January 1858, A/1/8/1, WYL1352, WYAS (W).
[105] Letter Rowland to Charles Winn, 7 October 1857, A/1/8/1, WYL1352, WYAS (W).
[106] Letter Rowland to Charles Winn, 21 October 1857, A/1/8/1, WYL1352, WYAS (W).
[107] Letter Rowland to Charles Winn, 7 October 1857, A/1/8/1, WYL1352, WYAS (W).

Marsden as the family solicitor, in which Rowland got his way despite Charles' reluctance to part with a longstanding and trusted advisor.[108] Although all major decisions and expenditure had to be sanctioned by Charles as proprietor, in practice Rowland quickly became the mainspring of policy and, behind a show of deference to the head of the family, his proposals were usually acted upon. During spring 1858, as his economies brought him into calmer financial waters, Rowland began to consider how the resources of the property might be better exploited.

Making more money from land

Landowners could increase their income in a variety of ways. Some of these methods were inappropriate to the Winns' circumstances: Rowland was married and so a match with an affluent heiress was not an option, and the Winns had no presence in national politics and therefore had little opportunity of obtaining a financially rewarding central government appointment, a diminishing market in any case after the introduction of the Civil Service Commission in 1855.[109] Professional employment other than in politics was out of the question for the owner of 10,000 acres – or for his heir - and there were few opportunities for a landed gentleman to profit from adding social tone to the board of a public company.[110]

The most likely means of increasing a landed family's income was through the 'deliberate exploitation of the resources of the estate'.[111] However, this was subject to the nature of the estate's natural resources, location and transport connections. It was also dependent on the landowner's ability to raise capital, a subject that will be considered in more detail in the next chapter. The Winns' opportunities to generate more income were limited. Turning first to the potential of the land surface, it was unlikely that they could significantly improve their agricultural revenue. The family had raised its farm rents in 1854, and a further increase would require support from capital that they did not have. In any case, the timescale to receiving a return from improved agricultural output was, as Charles Winn had discovered, both long and uncertain, while

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[108] Letter John Marsden to Charles Winn, 8 November 1861 and reply (no day given) November 1861, A/1/8/13/2, WYL1352, WYAS (W).
[109] S. J. Checkland, *The Rise of Industrial Society in England, 1815-1885* (London, 1964), p. 313; G. R. Searle, *Entrepreneurial Politics in Mid-Victorian Britain* (Oxford, 1993), p. 113.
[110] Such as shortly before the First World War when Rowland's son was a director of the British Australian Oil Co.
[111] Habakkuk, *Marriage, Debt, and the Estates System*, pp. 304-305.

its cost was immediate and real.[112] Victorian landowners exploited a number of alternatives to traditional forms of agriculture, particularly the supply of perishable foodstuffs and diary products to urban areas. These markets were 'small islands of success' in 'the unparalleled decline of late nineteenth century British agriculture', but they required excellent transport systems or very close proximity to major centres of population.[113] Other landowners developed their property for residential or industrial purposes, or exploited the potential of coastal estates for ports or seaside resorts.[114] Land was an asset that held out the potential to exploit space to build industrial plant and transport infrastructure.[115] The Winns' estates were in thinly-populated rural areas in which there was no demand for manufacturing premises, little residential or leisure potential, and poor transport connections. In 1858 no railway crossed the Appleby estate and the closest line to Nostell was sufficiently distant that carting costs decimated profit margins. This was made clear by Rowland when discussing the felling of a plantation for timber:

> [The plantation] is so situated that it is very difficult to get rid of the wood at all because the railway stations are so far off that it takes half the value of the wood to pay for the leading [i.e. carting], and it is so far from the collieries that they will not fetch it for prop wood.[116]

Nostell was distant from a canal, and although the Lincolnshire land was close to the River Trent, it did not generate any agricultural or industrial activities that would benefit significantly from water-borne transport - much of the estate consisted of sandy heath land.

As the surface of the Winns' land did not offer any obvious opportunities, consideration had to be given to its mineral resources. Nineteenth century landowners inherited a tradition of proprietorial entrepreneurship in industrial ventures on their estates, and particularly in mining. This had long been a staple on suitably endowed property because of the scarcity in earlier centuries of independent entrepreneurs with

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[112] Rent day remittances from the Yorkshire and Lincolnshire land stewards indicate that a rent increase of c. 15 per cent took place in 1854. Charles Winn's bank books, personal and mineral accounts c. 1846-1871, A1/8/[787], WYL1352, WYAS (W).

[113] Turner, 'Agriculture, 1860-1914', p. 134.

[114] Thompson, *Gentrification and the Rise of the Enterprise Culture*, pp. 29-40 passim; Spring, 'English Landowners and Nineteenth-Century Industrialism', passim. Spring's 1951 article *The English Landed Estate in the Age of Coal and Iron* includes a long list of landowners who encouraged and benefited from urban development.

[115] Railway construction could be rewarding to landowners. Robert Stephenson calculated that of the £286 million invested in British railways between 1830 and 1855, 25 per cent had been spent on the purchase of land. Bédarida, *Social History of England*, p. 44.

[116] Letter Rowland to Charles Winn, 4 January 1858, A/1/8/1, WYL1352, WYAS (W).

sufficient capital to undertake the task: 'many estate owners developed large industrial enterprises [in the seventeenth and eighteenth centuries]. The link was most direct in the case of mining'.[117] Mining might not be limited to coal: the Beaumont family and the Duke of Devonshire mined lead and other metals in the Pennines and Wales, and several landed families were active in Cornish tin and copper. Earls Dudley and Glanville were ironmasters, exploiting the coal and iron ore found under their land.[118] Coal, however, was the most commonly mined mineral as it was widely distributed and in demand for industrial and domestic purposes.[119] Earl Fitzwilliam and the Duke of Norfolk were both colliery operators in south Yorkshire, and the Duke of Bridgewater owned several collieries linked by an extensive network of subterranean waterways in south Lancashire and Cheshire.[120] The value of mineral assets was secured by Britain's land law, which conveyed the right to the landowner of excavating the subsoil for all minerals except precious metals.[121] The use of land for industrial purposes was therefore considered a legitimate aspect of a landlord's desire to exploiting his property's natural assets, and did not carry any stigma of 'trade'.

Rowland was willing to think expansively on the subject of mineral potential and to test out any possible opening. In October 1857 he advertised the fireclay under the Appleby estate for lease, 'as it was thought a desirable opportunity in consequence of the London potters being driven from...London by the new Smoke Act'.[122] Nothing came of this, and it was unlikely that a consumer-goods industry would move to rural Lincolnshire from London, where it was co-located with a large market and on excellent transport routes. The coal under the Nostell estate was a more realistic potential source of income. The Winns had been involved in the coal trade for many years, although their existing colliery at Wragby was of modest size and was treated as a minor element of the estate's activities.[123] The demand for its coal was strongly seasonal, and was

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[117] Thompson, *Gentrification and the Rise of the Enterprise Culture*, p. 36; Pollard, *Genesis of Modern Management*, p. 29 (quotation); F. Bédarida, *A Social History of England 1851-1990* (London, 1990), p.45.

[118] Spring, 'English Landowners and Nineteenth-Century Industrialism', pp. 28-32.

[119] Pollard, *Genesis of Modern Management*, pp. 28-30.

[120] Ward, J.T., 'Landowners in Mining', in Ward, J. T., and Wilson, R. G. (eds), *Land and Industry: The Landed Estate and the Industrial Revolution* (Newton Abbot, 1971), pp. 63-116; this ref. pp. 70-75.

[121] Spring, 'English Landowners and Nineteenth-Century Industrialism', p. 17; H. F. Bulman, 'Mineral Holdings', in W. S. Boulton (ed.), *Practical Coal-Mining* vol. 5 (London, 1907), pp. 123-142; this ref. p. 123. It was possible (particularly under enclosed common land) for the ownership of the surface and the minerals to become separated, but usually they were co-owned.

[122] Letter Rowland to Charles Winn, 29 October 1857, A/1/8/1, WYL1352, WYAS (W).

[123] WYL523 WYAS (W) contains an agreement dated 1699 between a Winn and a Mr Smith to dig coal at Wragby on the Nostell estate.

therefore probably sold largely for domestic use.[124] The shallow seams the colliery worked were unlikely to be able to support a sufficiently increased output to raise the level of profit, and the lack of transport links other than public roads constrained Wragby's market to its immediate locality.[125] In any case, the Winns lacked the capital to develop a new colliery.

Despite this apparently unpromising situation, however, by the 1850s the rising demand for coal, coupled with improved mining techniques and expansion of the railway network, had stimulated a search for coal at deeper levels in the area east of Wakefield. Economically viable reserves had been confirmed, and the focus of the west Yorkshire coal industry began to shift to a district north of Nostell, around Castleford and Featherstone.[126] Alert to these developments, the Winns had for several years been making trial bores to establish whether the deeper seams were present under their land.[127] Nostell was a few miles distant from the axis of the newly-developed coalfield but shared the same geological characteristics, and when the Barnsley seam was proved under a estate at nearby Woolley the West Riding press asserted that 'at least half a million of money' had been added to the estate's value.[128] A febrile 'Gold Rush' atmosphere prevailed in the area in the late 1850s, with rumours of coal discoveries at different locations and depths. Rowland maintained a sceptical attitude but kept his father informed on events:

> Some Wakefield people I hear have put down a bore hole half way between Nostell and Normanton and have it is said at less than 100 yards [found] a 6' bed but this latter I do not believe tho' I fancy there is no doubt they have come to coal.[129]

The deep seams presented a real opportunity. The railway network - crucial for access to high-volume markets - was reaching the Wakefield area. During the 1840s and '50s, Wakefield, Doncaster and Pontefract all gained railway connection. These towns were too distant for a dedicated branch to a colliery at Nostell, or for road transport to the

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[124] A. J. Taylor, 'Productivity and Technological Innovation', p. 50.
[125] Most of Wragby's customers were located within six miles of the colliery. C/3/1/9/7, WYL1352, WYAS (W).
[126] Dintenfass, *Managing Industrial Decline,* pp. 54-55. By 1913, around 70 per cent of west Yorkshire output was from the concealed coalfields east of Wakefield.
[127] Boreholes had been put down in 1853 and summer 1857, and probably also in 1856. Letters Rowland to Charles Winn, 27 June 1853 and 7 June 1857, A/1/8/1, WYL1352, WYAS (W).
[128] Letters, George Middleton to Mrs Wilson (owner of Crofton estate adjoining Nostell), 17 October and 22 November 1853; C/3/1/9/3, WYL1352, WYAS (W). The quotation is from an enclosed cutting from the *Leeds Intelligencer*, which was unlikely to understate the sensation of the discovery.
[129] Letter, Rowland to Charles Winn, 10 February 1858; A/1/8/1, WYL1352, WYAS (W).

railhead to be economic. However, a relatively short link between the existing lines at Wakefield and Doncaster, passing close to the Priory itself, would give access from Nostell to the West Riding, Lancashire and the south and east of England.[130] In early 1858 Rowland stated unequivocally to his father that: 'Our greatest hope must rest in the coal at Nostell, which if it proves as good as it promises, and a railway is eventually made, may be of very considerable value'.[131] Other landowners – for example the Duke of Norfolk and the Rockingham-Fitzwilliam family in the Sheffield area – developed collieries because their coal fed local metal-based industry that produced high rents for the estates.[132] Rowland had grasped that the value of a new colliery to the Winns would lie in its ability to sell coal in distant markets reached by rail, and that a railway was an essential element of the preparation to develop a new colliery.

Carlton: an apprenticeship in the coal trade

Prior to the financial crisis of 1857, the Winns largely conformed to landowner culture in their social characteristics, the use of their property's resources and the passing of its ownership between generations. The crisis forced the family to re-evaluate the way in which they ran their estates, and they turned to the conventional practice of exploiting their land's mineral resources. An aspect in which the Winns were not conventional, however, was in still owning and operating Wragby Colliery in the middle of the nineteenth century, when most landowners leased out their mineral resources rather than take the risk of direct ownership of mining activities.[133] In considering the possibility of a new, larger colliery at Nostell, the Winns would have to decide whether to finance the colliery themselves or lease out the deeper seams to a third party. They had some experience of the practicalities of entering the coal market at regional or national level as they had learned a number of valuable lessons in entrepreneurship in the coal trade through a bid submitted by Edmund in 1854 to sink a new colliery at Carlton, a few miles south of Nostell. The bid had eventually failed but will be considered in detail

[130] It would also provide a more direct route to west Yorkshire from London and East Anglia than existing lines.
[131] Letter Rowland to Charles Winn, 4 January 1858, A/1/8/1, WYL1352, WYAS (W).
[132] R. Medlicott, 'The Development of Coal Mining on the Norfolk and Rockingham-Fitzwilliam Estates in South Yorkshire, 1750-1830', *Yorkshire Archaeological Journal*, 59 (1987), pp. 103-118; this ref. pp. 105-107.
[133] Ward, 'Landowners in Mining', pp. 71-72.

because it strongly influenced the Winns' determination of a strategy for sinking a new colliery on their home estate.[134]

By 1854, Edmund had returned to civilian life from the Army. He needed to find another career and was interested in owning and managing a commercial concern, stating that he 'should like the constant employment it would afford'.[135] The first half of the 1850s was a period of rapid expansion and rising prices in the coal trade, and the burgeoning coal industry around Barnsley was an attractive milieu for an aspiring entrepreneur.[136] Colliery ownership as a career was less socially outré for the son of a landed family in the West Riding than it might be elsewhere – as we will see, a number of other gentlemanly families were prepared to launch a son in the coal trade. The Winns had experience of mining on their estate and contacts among Yorkshire landowners. These advantages were brought into play in spring 1854 when Lord Wharncliffe advertised a lease of the coal reserves under 1300 acres of his Carlton estate near Barnsley.[137] The Winns agreed that, backed by a contribution of family capital, Edmund would bid for the lease.

Edmund obtained first refusal on the lease from Wharncliffe, granted largely on the basis of their social connection. The families were on friendly terms, and – for the initial period at least – this link overrode considerations of mining expertise and financial strength.[138] When the development of Carlton was first mooted, Rowland assumed that the upper coal seams could be opened out for around £10,000 cash plus a modest amount of borrowing:

> If we manage well, by the time the four [rent-free] years are out from the beginning of the lease we ought to be almost ready to go down to the Barnsley bed, and have paid off a good portion of our borrowed money at least as I hope.[139]

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[134] The majority of the letters and other documents relating to Carlton are preserved in a collection individually numbered and listed by Edmund and Rowland themselves, apparently as a reference resource.

[135] Letter, Edmund Winn to William Aldam, 19 November 1855, C/3/1/9/3, WYL1352, WYAS (W).

[136] Lloyd-Jones et al, *British Industrial Capitalism*, pp. 70-71; Church, *History of the British Coal Industry, vol. 3*, p. 55.

[137] Letter, Henry Holt to Edmund Winn, 30 May 1854, C/3/1/9/3, WYL1352, WYAS (W).

[138] When Wharncliffe invited Rowland to visit for early discussions on Carlton he stated that he 'would be very glad to see you independently of the coal'. Letter, Lord Wharncliffe to Rowland Winn, 30 August 1854, C/3/1/9/3, WYL1352, WYAS (W).

[139] Letter, Rowland to Edmund Winn, 5 July 1854, C/3/1/9/3, WYL1352, WYAS (W). Note the use of the collective pronoun, implying the involvement in the enterprise of the entire family rather than Edmund alone. The first few years of a coal lease were usually rent-free, while sinking took place.

This was optimistic, even naïve. It assumed that in a four-year timescale not only could a shaft be sunk to over 100 yards' depth, surface plant and worker housing built, a workforce of several hundred recruited in a rural area, and a connection made to the canal or railway network, but also sufficient coal sold in a highly competitive market to meet running costs and debt interest, and repay the majority of the borrowed capital. Rowland's estimate was not based on recent or directly comparable experience. The Winns' existing colliery at Wragby had been sunk in the 1830s at a cost of under £2,000 fully funded by the family. The shaft was around 50 yards deep and supplied a local market, providing the Winns with what was effectively a monopoly because of transport limitations.[140]

Rowland's plans were put into perspective by a report on Carlton produced by a Wakefield mining engineer, John Walker. Rowland and Edmund had been advised by Henry Holt, the mining agent for Nostell estate, to obtain an independent report on the coal.[141] Walker's opinion was that because the new colliery would operate in a highly competitive, price-driven market, the project held significant risks relating to geology, the cost of transport, and the minimum rent demanded by the landowner. He recommended that before signing a lease, the Winns should sink boreholes to prove the location, thickness and quality of the coal, and obtain assurances from canal and railway companies that transport could be provided to the colliery site.[142] Walker followed up in early 1855 with his estimate that the minimum capital necessary to sink and equip the colliery would be £40,000, substantially higher that Rowland's expectation. It was also more than the capital sum that Charles was prepared to pay to establish Edmund in an occupation. Rowland and Charles concluded that 'a large amount of capital will be required, and it will therefore be quite necessary that Edmund shall get two or three partners to join with him'.[143]

Negotiations on the coal lease took place by correspondence and face-to-face meetings between the Winn brothers and the 2nd and – from autumn 1855 - 3rd Lords Wharncliffe.[144] F. M. L. Thompson has suggested that the involvement of many landowners to industrial activity on their estates was often slight and distanced from

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[140] C/3/1/9/1, WYL1352, WYAS (W).
[141] Holt was also mining agent to the Wharncliffe estate, and had first brought the tender advertisement to Edmund's attention. Holt could not himself produce the report because of a clear conflict of interest. Letters Henry Holt to Edmund Winn, 30 May 1854, and Rowland Winn to Lord Wharncliffe, 29 August 1854, both C/3/1/9/3, WYL1352, WYAS (W).
[142] Letter, John Walker to Rowland Winn, 5 September 1854, C/3/1/9/1, WYL1352, WYAS (W).
[143] Letter, Rowland to Charles Winn, 31 March 1855, A/1/8/1, WYL1352, WYAS (W).
[144] John Stuart-Wortley-Mackenzie, 2nd Baron Wharncliffe, died in October 1855 and was succeeded by his son Edward.

commercial reality, but this was not the case at Carlton.[145] Although matters of detail were referred to the mineral agent, the negotiations took place directly between Lord Wharncliffe and the Winns. The outcome was important to each party and the exchanges were brisk and business-like. The Wharncliffe family's long experience in the north-east coal trade had given them firm opinions on commercial matters.[146] For example, the 2nd Lord refused to contribute to the cost of cottages for the Carlton workforce because 'they would very probably [be] worse than useless to me when they became so to you'. He also declined to reduce the annual coal rent below £1,500 or to extend the lease to thirty years from the twenty-three in the draft lease:

> This appears to me to be as low as I can go [Wharncliffe had agreed a decrease of £500 per annum]. The coalowner's object is generally a large certain rent...in my own case I have lately obtained £2,000 without difficulty, after having been advised to ask more, on workings which cannot be so extensive as these should be...I do not think [long leases] can be fairly called for when the risk is inclosed [sic] within such narrow limits [because the quality of the seams is] well-known...I must repeat that I think Colliery lessees have very little claim on the plea of risk under such circumstances as these, when I am doing all I can to reduce it to a minimum.[147]

The negotiations demonstrated that landowners discussed issues with a clear business mind, but the concessions given by Wharncliffe suggest that they were based on the principle of being social equals among the gentry class. When it came to financial risks, however, Wharncliffe was a businessman at heart.

A potential incompatibility between commercial reality and the landowning class's conventions was brought to the fore when the project ran into difficulties over Edmund's financial standing. In late 1855 the 3rd Lord Wharncliffe took over the negotiations, assuming that either Charles or Rowland would be the lease signatory and the cost of the colliery underwritten by the Winns' entire estate. The Winns, for their part, claimed that it was always intended that Edmund would be the leaseholder and that

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[145] Thompson, *Gentrification and the Enterprise Culture*, p. 41.
[146] The Wharncliffes were original members of the Grand Allies in north-east England. Spring, 'English Landowners and Nineteenth-Century Industrialism', p. 33.
[147] Letter, 2nd Lord Wharncliffe to Rowland Winn, 10 September 1854, C/3/1/9/3, WYL1352, WYAS (W).

the 2nd Lord Wharncliffe had been aware of this.[148] The 3rd Lord wanted a soundly capitalised lessee who would produce a reliable return for his estate, and, as a landowner himself, understood the weakness of Edmund's position. Once the Winns' intention was clarified, Wharncliffe bluntly stated his objection to Charles. He required a lessee who:

> ...is at once a sufficient security and guarantee for the proper working of the field. Your son Edmund is only a second son, and in consequence of our wish to have really responsible persons to deal with, it did seem to us that his name alone would hardly be a sufficient guarantee.[149]

Wharncliffe wanted Charles or Rowland to be the lessee. Rowland convinced his father not to agree to this, because the colliery might become an unlimited charge on the entire Winn property: 'a smash, from unforeseen events, in the colliery, must produce the same as regards the Estate'.[150] Even before the financial problems of 1857, the risk of being exposed to the collapse of a commercial venture was intolerable to the elder Winns. The priorities of the landowning class were asserted and the objective of securing employment for Edmund was placed second to that of protecting the financial stability of the property. As with other contemporary landowners, the high capital requirement and high risk of mining was too much for a single family, and the Winns proposed to Wharncliffe that Edmund assemble and lead a partnership to finance the bid. Lord Wharncliffe reluctantly agreed in principle to grant a lease to a partnership, on condition that his solicitor approved the proposed partners as being of adequate financial standing.[151]

Partnerships of the type that Edmund hoped to recruit had become popular in the mid-eighteenth century and were common in the Yorkshire mining industry in the 1850s. A well-balanced partnership could supply finance, technical expertise, and

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[148] Charles Winn stated in a letter to the 3rd Lord Wharncliffe that the latter's father had been informed verbally that Edmund was to be the lessee. There is no indication in the surviving correspondence that the 2nd Lord was aware of Edmund's 'lead' status and his son strongly denied that this was the case. Although the Carlton bid was probably genuinely intended to set up Edmund in a business separate from the estate – otherwise a new colliery could have been established at Nostell – it is hard not to suspect that the Winns had deliberately obfuscated the identity of the lease signatory. Virtually all the correspondence to Wharncliffe from the Winns in 1854-1855 was signed by Rowland, and a letter from Rowland to Edmund written in July 1854 implied strongly that the project would involve the family as a whole. Letters, Rowland to Edmund Winn, 5 July 1854, Charles Winn to 3rd Lord Wharncliffe, 7 March 1856, and 3rd Lord Wharncliffe to Charles Winn, 8 March 1856, all C/3/1/9/3, WYL1352, WYAS (W).

[149] Letter, Lord Wharncliffe to Charles Winn, 8 March 1856, C/3/1/9/3, WYL1352, WYAS (W).

[150] Letter, Rowland to Charles Winn, 16 February 1856, A/1/8/1, WYL1352, WYAS (W).

[151] Letter, Lord Wharncliffe to Charles Winn, 31 March 1856, C/3/1/9/3, WYL1352, WYAS (W).

manpower for the management of the enterprise.[152] Edmund explained to a potential investor that he intended to take the role of joint managing partner:

> ...Works on such scale as I have supposed would require a considerable outlay of capital, larger perhaps than my father or I should think any single individual would like to embark, but if we can establish a company of four or five, this difficulty would be at an end, and I should propose to get one of the proprietors to join with me in the management, as I object to the idea of leaving the management of such concerns altogether to agents.[153]

Rowland suggested that Edmund should contribute only £7,000 of his quarter share of the £40,000 capital proposed by Walker, the balance of £3,000 being met by the other partners to recompense him for setting up the company and managing the enterprise; Edmund would still be entitled to 25 per cent of the profits. Rowland probably got this idea from John Marsden, the Winns' solicitor, who was also managing partner in the Woolley Coal Co. Marsden's stake in the Woolley company was £9,000.[154] He had paid only £6,000 of this, the remainder being remitted by his partners as reward for carrying out the same services that Edmund would at Carlton.[155]

Other than through a partnership, Edmund's options for finding the balance of the capital were limited. He was in his mid-twenties, and was handicapped by his youth, lack of contacts in the commercial world, and absence of practical experience of mine management other than the oversight of Wragby Colliery. Yorkshire banks at this period were prepared to lend money to colliery ventures – although usually for short-term working capital and for sums substantially less than £33,000 – while life insurance companies occasionally lent money on mortgage to industrial companies, but any form of loan would require security, preferably against real estate.[156] As a younger son, Edmund had no property of his own, and Charles's refusal to act as leaseholder precluded the estate's use as loan security for Carlton. Rowland did not want the family to assume any further debt, advising Edmund that 'if a mortgage can be done

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[152] John F. Wilson, *British Business History, 1720-1994* (Manchester, 1995), pp. 27-28.
[153] Letter, Edmund Winn to William Aldam, 19 November 1855, C/3/1/9/3, WYL1352, WYAS (W).
[154] Letters, Rowland to Charles Winn, 31 March 1855, A/1/8/1, and Rowland to Edmund Winn, 24 March 1856, both C/3/1/9/3, WYL1352, WYAS (W). Crouzet suggests that a managing partner entitled to a disproportionate share of the profits was a common arrangement. F. Crouzet, *The First Industrialists: The Problem of Origins* (Cambridge, 1985), p. 113.
[155] The total capitalisation of the Woolley Coal Co. was £30,000. John Goodchild, *Coals from Barnsley* (Wakefield, 1986), p. 26.
[156] P. L. Cottrell, *Industrial Finance, 1830-1914: The Finance and Organization of English Manufacturing Industry* (London, 1980), pp. 215-216.

without...it will be the best and save a great deal of expense'.[157] An informal market-place for entrepreneurs seeking partner capital for industrial ventures developed in the last quarter of the nineteenth century, often mediated by accountants and solicitors using newspaper advertisements and specialist investor magazines, but this did not exist as early as 1855. The London stock exchange at this period was largely concerned with government securities and railway shares. It had little interest in provincial industries, particularly one as risky as coal. Although the Joint Stock Companies Act had passed into law in 1856, to set up a public company for a venture like the Carlton colliery would have been an unusual and pioneering step for a youthful member of a provincial landed gentry family.[158] The great majority of capital in the coal industry in the 1850s was arranged informally by private investors, and Edmund followed this path in his search for funds.[159]

In late 1855 Edmund set out to find partners to contribute the full £40,000. In so doing, he ignored John Marsden's advice, which was that sinking and equipping should be undertaken at minimum expense so that coal could be raised quickly. The resultant revenue could then be used to expand production and improve facilities:

> I strongly advise you not to talk of so large a sum as capital. It will in these days frighten people...There is a manifest difference between the capital actually required to open out a concern in the first instance, and what may be afterwards be deemed desirable [to get the largest output]...the latter should come from accumulated profits.[160]

Rowland considered this 'most absurd' and attributed it to Marsden's fear that a new sinking at Nostell would compete with his own colliery.[161] In fact Marsden's advice was sound and was based on personal experience. Carlton was in a new coalfield and therefore a high-risk investment, and a low initial outlay would make it a more attractive proposition for potential investors.

Edmund's attempts to find partners for Carlton were restricted to a small number of friends and family, mostly in Yorkshire. Two of the main contacts through whom he hoped to identify potential investors were Thomas Faulconer - a member of a Yorkshire

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[157] Letter, Edmund to Rowland Winn, 30 May 1854, C/3/1/9/3, WYL1352, WYAS (W).
[158] M. Collins, *Banks and Industrial Finance in Britain, 1800-1939* (London, 1991), pp. 27-29. Prior to the 1880s, the main use of limited liability companies in the coal industry was to enable successful personal proprietors to 'cash in' by converting private companies into joint-stock organisations. L. Newton, 'Capital Networks in the Sheffield Region', p. 132.
[159] Church, *History of the British Coal Industry, vol. 3,* pp. 131-132.
[160] Letter John Marsden to Edmund Winn, 25 March 1856, C3/1/9/3, WYL1352, WYAS (W).
[161] Letter Rowland to Edmund Winn, 24 March 1856, C3/1/9/3, WYL1352, WYAS (W).

family living in London and associated with the Stock Exchange - and William Aldam, a family friend and chairman of the Aire and Calder Navigation Company.[162] Both sent polite but negative responses. Gentry families were not a naturally receptive audience for a speculative company working leased coal, because of the limited enthusiasm shown by most landowners for industrial ventures not directly connected to their own property.[163] Aldam simply remarked that 'I should not be sanguine that any of them [directors of the Aire & Calder Navigation] would be willing to embark in it'.[164] Faulconer replied that 'London money' was not interested as southern investors had little knowledge of or trust in colliery speculation, leaving Edmund to conclude that 'comparatively few people out of the coal districts know much or take interest in collieries...'.[165]

The networks through which Edmund sought investors were restricted to his own social class, and there is no evidence that he attempted to reach a wider audience by advertising in the press or approaching any established mine-owners. However, in his letter to Thomas Faulconer, Edmund noted that he had received some positive approaches:

> I have already had applications from two parties, the one a banker and the other a railway contractor both men of money but not Gentlemen, and I would greatly prefer associating myself with a gentleman if possible.[166]

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[162] In 1888, Aldam supported Edmund's application for a grant of £250 for the extra costs and expenses that he would incur through the transfer of the Quarter Sessions Treasurer's business to the West Riding County Council. *Huddersfield Chronicle and West Yorks Advertiser*, 20 October 1888.

[163] Thompson, *Gentrification and the Rise of the Enterprise Culture*, p. 37. However some landowners did invest 'outside' their own estates. For example, members of the Lister-Kaye and Armytage families – both prominent West Riding gentry - had money in Marsden's Woolley Coal Co. Unfortunately this company, being in financial difficulties, was not an exemplar for potential investors. By early 1858, the Woolley Coal Co. had run out of capital because of difficulties with poor coal and excessive water. One partner unilaterally sold his investment and another refused to commit more money to the venture, or even to communicate to the other partners. At least two of its investors were allegedly ruined – Rowland gossiped to his father that 'The ladies of the two families have now taken up the quarrel and are not on speaking terms...'. Letter, Rowland to Charles Winn, 20 February 1858, A/1/8/1, WYL1352, WYAS (W).

[164] Letters William Aldam to Edmund Winn, 21 November 1855, and Thomas Faulconer to Edmund Winn, 19 January 1856, C3/1/9/3, WYL1352, WYAS (W).

[165] Letters, Thomas Faulconer to Edmund Winn, 29 January 1856 and Edmund's reply, 2 February 1856, both C3/1/9/3, WYL1352, WYAS (W). This exchange provides an interesting contrast with John Buddle's opinion in 1840 that 'London capitalists' were funding many of the new sinkings in the north-eastern coalfield. Buddle's caveat that the sinkings were taking place 'notwithstanding the unprofitable aspect of the trade', culminating in the collapse with huge losses of the London-based Durham and Northern Coal Companies of the 1830s and early 1840s, perhaps explains the lack of interest fifteen years later. Quoted in Sturgess, *Aristocrat in Business*, p. 21; Church, *History of the British Coal Industry, vol. 3*, pp. 131-132.

[166] Letter Edmund Winn to Thomas Faulconer, 15 January 1856, C3/1/9/3, WYL1352, WYAS (W).

This comment did not represent simple snobbery. Although no doubt influenced by the 'acute sense of social distinction' that Burn attributed to the mid-Victorians, Edmund pursued the Carlton bid with determination and expressed several times his enthusiasm for industrial management.[167] It is unlikely that he would have done so if he considered the industry itself so distasteful that he had to insulate himself from it with partners from a landowning background. As Casson observes, there are advantages in the congruities of values and conduct - the 'impersonal trust' - between members of the same social group.[168] The Wharncliffes showed this trust when they negotiated directly with the Winns in ways that they probably would not have done for middle-class applicants. These congruities enabled business partners to develop a collective will and reduce the inefficiencies and tension caused by conflicting attitudes and goals - important criteria in an organisation with unlimited liability, operating in a risky industrial sector.[169] Edmund was seeking to increase the likelihood of business success, rather than practicing social exclusion, but the outcome was to substantially reduce his chance of finding investors.

After being rebuffed by Aldam and Faulconer, Edmund made some further desultory attempts to recruit partners from a gentry family in Yorkshire who were involved in mining, plus a number of 'friends of friends'.[170] Several of those expressing an initial interest also had the aim of launching a younger son in the coal trade and proposed similarly financially cagey terms as the Winns, without bringing any relevant experience to the partnership. The applicants who were willing to invest were unacceptable to Edmund, and those with whom he would have been happy to join in partnership were not interested. The informality of this process is striking and the 'personal, local and informal nature' of the formation of capital was a characteristic of English industry up to the First World War.[171] Edmund sent diffident letters describing the Carlton project to a network of family friends and acquaintances, the majority of whom lived within a short distance of Nostell. The surviving responses to Edmund's letters rejected his proposal on the economically rational basis of its risk and the size of the capital, and perhaps also the inexperience of the potential managing partner.

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[167] Burn, *Age of Equipoise*, p. 265.
[168] M. C. Casson, 'An Economic Approach to Regional Business Networks', in J. F. Wilson and A. Popp (eds), *Industrial Clusters and Regional Networks in England, 1750-1970* (Aldershot, 2003), pp. 19-43; this ref. p. 30.
[169] M. C. Casson, 'Entrepreneurship and Business Culture', in J. Brown, and M. B. Rose (eds), *Entrepreneurship, Networks and Modern Business* (Manchester, 1993), pp. 30-54; this ref. pp. 40-41.
[170] The 'mining gentry' family were the Stansfelds of Flockton, who were withdrawing from active involvement in mining.
[171] Wilson, *British Business History*, p. 46.

Landowners were leasing the coal under their own estates, and not making high-risk investments in collieries on other peoples' land. In July 1856 Edmund wrote to Lord Wharncliffe to surrender the option on the lease and withdraw his interest in Carlton, an embarrassing retreat from a business deal with a wealthy and socially prominent titled neighbour. Edmund stated in his letter that people were 'afraid of embarking in the speculation when made aware of the terms', not because it was, prima facie, an unbecoming activity for people of their social background, but because it was too risky for individuals with other outlets for their capital. Wharncliffe's reply was courteous but suggested relief that an uncomfortable episode had been brought to a conclusion.[172] The experience was not, however, wasted. In the following years, developments on the Winn property were to benefit from the advice John Walker gave on Carlton, and from Edmund's experiences in trying to raise capital.

After the collapse of the Carlton venture, the Winns' attention was diverted by the financial difficulties of 1857 and 1858. Towards the end of the latter year, however, developments on the Lincolnshire estate began to offer hope for the resolution of the Winns' money problems. These came to fruition so quickly that by 1860 the Winns were on the threshold of a new era in the family's history, in which the economic basis of their wealth would change from agriculture to industry. This change would be initiated by the family, managed by it, and to a large degree financed by it, so that when Rowland returned to planning a venture into the coal trade it would be in a wholly different environment.

[172] 'I suppose that I must now throw myself on the wide world in the shape of an advertisement, but on that point Mr Holt will be my adviser'. Letter Edmund Winn to Lord Wharncliffe, 10 July 1856, and reply, 12 July 1856, both C3/1/9/3, WYL1352, WYAS (W).

Chapter 3

Investing in iron and coal: business strategy and capital financing, 1859-1871

Introduction

Chapter 3 considers the factors that influenced the Winns with regard to the method and timing by which the ironstone at Appleby and the coal at Nostell were turned to their financial advantage. It reviews the contributions made by Rowland Winn and his mineral agent, John Roseby, to the realisation of the strategy, and the consequent effect on the Winns' finances. The focus of the chapter then moves to the family's debts, and assesses Rowland's attempts to reduce the burden of interest payments on the estate. This introduces the role played in the Winns' financial affairs by John Marsden, Charles Winn's solicitor and agent to the Nostell estate. The issues of moral hazard and the principal-agent relationship are central to this discussion. Finally, the chapter considers the practical issues – particularly transport - that had to be resolved before a new colliery at Nostell could be sunk, and concludes with an analysis of the sources from which the colliery's capital was obtained.

Developing a mineral strategy, 1859-1860

By January 1858 Charles and Rowland Winn had agreed that a new, larger colliery at Nostell was the most promising opportunity for increasing the income from their two estates.[1] There were several barriers to realising this aspiration. The largest was the capital required for the colliery, which was beyond their financial resources, so that apart from drilling to prove the extent of the coal reserves, the project was in abeyance throughout 1858. However, in mid-1859 Rowland surprised his father with a 'somewhat unlooked-for piece of intelligence'. He had found economically viable ironstone deposits on the Lincolnshire estate. Rowland described the find to Charles in a terse and cautious manner:

[1] Letter Rowland to Charles Winn, 4 January 1858, A1/8/1, WYL1352, WYAS (W).

> I have been for some months past looking for ironstone here...A few weeks since I found two beds of undoubted ironstone, the reports on both of which on analysis are certainly satisfactory...I begin to hope it may be turned to some account. We are to have some of the ironmasters from Rotherham and that neighbourhood and also one from Durham to look at it...it may prove of considerable value.

Rowland had not mentioned the iron previously, in order not to raise false hopes, 'as until now I have felt so very skeptical [sic] on the subject of it being worth anything'.[2] His prospecting activities echoed those of many eighteenth and nineteenth century landowners who hoped to increase the income from their property. A few were instrumental in opening up an entirely new field of coal or metal ore. Earl Fitzwilliam, for instance, proved the eastern extension of the Yorkshire/Derbyshire coalfield in the Doncaster area.[3] More modest proprietors also saw the commercial benefit of confirming the presence of minerals. For example, in 1857 the executor of the Beaumont estate near Huddersfield instructed its land agent that:

> If there is any chance of coal or ironstone being found under Meltham Moor I should certainly advise its being bored for...coal and iron if found would materially advance the Crossland estate's value either for sale or for letting.[4]

Rowland's discovery had a lengthy gestation, as the first evidence of ironstone on the estate had been found in 1854. He had not pursued the matter because analysis had shown the stone to have an uneconomically low metal content. In 1858, under pressure from the estate's financial problems, Rowland's methodical approach to assessing the economic potential of the Lincolnshire property had led him to the conclusion 'that the geological position of this part of the county corresponded very much with Cleveland and that portion of Yorkshire in which ironstone is worked largely'.[5] Further searches were made on the estate and ironstone was found that had a

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[2] Both quotations from letter Rowland to Charles Winn, 3 June 1859, A1/8/1, WYL1352, WYAS (W). Note Rowland's tactful use of the phrase 'a few weeks since'. He had actually found the ironstone at least six months previously and presumably did not wish to admit that he had concealed the information from his father for so long.

[3] Thompson, *English Landed Society*, pp. 172-173; Ward, 'Landowners in Mining', pp. 70-71.

[4] Letter, Sir Digby Cayley to Thomas Dunderdale, 18 February 1857, WBC/382 (Whitley Beaumont papers), WYAS (K).

[5] Letter, Rowland to Charles Winn, 3 June 1859, A1/8/1, WYL1352, WYAS (W). Rowland was assisted in the discovery by Rev. J. E. Cross, the vicar of Appleby and a geologist. D. C. D. Pocock, 'Stages in

higher metal content than the samples tested four years previously.[6] A twentieth century history of the iron and steel industry described Charles Winn as 'far-sighted' because the ironstone was found under common land that he had enclosed, but the enclosures were made without awareness of the land's mineral wealth and until 1858 the area was a burden to the property. A large proportion of the ironfield was on sandy 'warren land' with little agricultural potential, whose 'chief economic activity was the sale of skins at the Brigg fur market' from commercial rabbit farming.[7] Rowland's 1858 budget showed that the average yield per acre of agrarian activities at Appleby was less than that of Nostell, realising £1-5-0d per annum compared to £1-8-0d for the Yorkshire estate.[8]

The discovery soon became known locally, a newspaper reporting that ironstone had been found 'in such quantities...as to lead to the expectation that mines will shortly be opened in the locality'.[9] The Winns greeted the news with enthusiasm, delighted by the prospect of relief from their financial troubles. Their comments were compatible with the view that profiting from the extraction of minerals was, as P. Hudson argued, 'an aspect of estate improvement', and that involvement in this form of industry did not compromise a landowner's social status.[10] Rowland's mother described the sensation in the Winns' social circle:

> I believe you are astonishing some people at present with the wonders of your works in Lincolnshire – at least we hear of Dick Lee being full of our wonderful wealth, which he is talking about since he returned home from Appleby.[11]

Rowland's brother-in-law added his congratulations: 'I am delighted to hear such a good account of the iron affairs, it really has become a great fact and there can be no mistake that I can see'.[12] Charles Winn described the discovery as 'a triumph', and

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the Development of the Frodingham Ironstone Field', *Transactions and Papers of the Institute of British Geographers* (no. 35, December 1964), pp. 105-118; this ref. pp. 105-106.

[6] Memorandum in Rowland's handwriting, undated (1865?), C/3/1/6/[330], WYL1352, WYAS (W).

[7] Charles Winn was also not responsible for finding the stone. A. Birch, *The Economic History of the British Iron and Steel Industry, 1784-1879* (London, 1967), pp. 349-350.

[8] Budget for 1858, A/1/8/1/11, WYL1352, WYAS (W). R. W. Ambler, 'The Villages of the 1850s, in M. E. Armstrong (ed.), *An Industrial Island: A History of Scunthorpe* (Scunthorpe, 1981), pp. 24-30; this ref. p. 24.

[9] *Barton, Caistor, Brigg & Winterstone News*, 26 May 1859, C/3/1/6/[330], WYL1352, WYAS (W).

[10] Hudson, *The Industrial Revolution*, p. 92

[11] Letter Priscilla to Rowland Winn, n.d., c. late 1859, A1/10/[1808], WYL1352, WYAS (W). Compare Lady Granville's comment in 1818 about the Lilleshall Company established by her husband: her family was 'much elated at our good iron prospects. Trade is flourishing and we expect to be very rich soon'. Quoted in Crouzet, *The First Industrialists*, p. 80.

[12] Letter W. A. Cross to Rowland Winn, 1 November 1859, WYL1352, C/3/1/6/[328], WYAS (W).

wrote to his son Rowland in the warmest terms, but behind his words lay his concern at the estate's indebtedness:

> Your report has certainly given me a most agreeable surprise...the truth of which I can yet scarcely realise to myself, though it be an established fact. You have worked hard, and with great tact, in this matter, and I am well satisfied with all that you have done, indeed I should be hard to please were I not. I cannot tell you, my dear Rowley, what a load of anxiety will be removed from my mind if, in the course of a few years, we are able to pay off the large mortgage.[13]

Buttressed by the applause of his family, Rowland worked to confirm the value of the mineral resource and the ways in which it could be realised. The Winns had deposits of two minerals under their estates, doubling the opportunity to stabilise their finances. In the late 1850s the markets for both coal and iron were expanding rapidly. Coal production rose by 15 per cent between 1855 and 1860, and, following a brief peak in 1853-1855, the price of coal remained steady and on a slight upward trend into the 1860s.[14] There was a strong demand for iron ore as a number of Britain's older ironfields were becoming exhausted.[15] The market for pig iron was buoyant and output increased by one third between 1855 and 1865, a period during which the iron and steel industry saw the beginnings of a number of major innovations, including the Bessemer convertor and the Siemens-Martin open-hearth furnace.[16] The Lincolnshire stone was not as rich as that from many established fields, but the Middlesbrough iron industry had given British smelters experience in dealing with lower-grade ore.[17] Given adequate transport access, it was likely that a ready market could be found for both coal and iron.

Mining the minerals on their own account could potentially net the largest return for the Winns, but required capital that they could not easily get and exposed the family to a variety of market and operational risks. Leasing the minerals for extraction would realise a lower but predictable income with much reduced risk, and was the route taken by most of their peers in the late 1850s. The Winns' background was a factor. They had a longstanding presence in the coal trade – albeit at a local level – and had recent experience at Carlton of the issues involved in establishing a colliery. Ironstone, on the

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[13] Letter Charles to Rowland Winn, 10 November 1859, A1/10/[1808], WYL1352, WYAS (W).
[14] Buxton, *The Economic Development of the British Coal Industry*, p. 86; Church, *History of the British Coal Industry, vol. 3*, p. 54.
[15] Crouzet, *Victorian Economy*, p. 238.
[16] Mathias, *The First Industrial Nation*, pp. 378-379.
[17] Crouzet, *Victorian Economy*, p. 239.

other hand, was new to them. In 1859 Rowland appointed the mining engineer and geologist John Roseby as mineral agent for the Lincolnshire estate, to assist with the development of the iron ore. Roseby was chosen because of his knowledge of the Cleveland ironstone field, which Lincolnshire was likely to resemble.[18] He provided technical and commercial advice, and access to contacts in the iron trade. Acting on his advice Rowland adopted a rational economic strategy based on the characteristics of the estates and the minerals, in the context of the Winns' overall financial situation.

A number of factors favoured exploiting the ironstone before the coal. The iron deposits were extensive, underlying much of the Winns' property and substantial areas of neighbouring estates. The stone was self-fluxing, thus saving the ironmasters the cost of limestone, and occurred in thick, unfaulted beds overlain by light sandy soil so that it could be worked easily on the outcrop or by opencast.[19] As a result, the ore could generate income quickly for the Winns because shafts did not need to be sunk, an expensive and time-consuming exercise. It also reduced capital investment. The main items of fixed capital would be the means of transport from the ore-field to the River Trent, about six miles away, and the construction of suitable loading facilities on the riverbank. Finally, ironstone gave the opportunity for the development – as at Middlesbrough – of furnaces co-located with the ore, generating industrial and urban revenues from land that was of limited value for agricultural purposes. The coal at Nostell was unlikely to attract industry in the same way. It was an important as a fuel in many industries, but was relatively cheap and easily transported by rail to the site of scarcer and more expensive factors of production. The ironstone had greater potential for generating rents from industrial and residential development.

In the short term, therefore, the coal at Nostell was a less attractive proposition than the ironstone. There were other reasons to delay the exploitation of the coal. The Winns did not have available the capital to finance a colliery themselves, and Rowland did not wish to increase the family's borrowings. If the coal was leased, the rental was unlikely to be high because of the location and nature of the estate. In the late 1850s there was no immediate prospect of a railway being built close to Nostell. The high

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[18] Roseby and/or his father were variously credited by the newspapers by having discovered the Cleveland iron ore deposits, and certainly were among the first to exploit them. *Northern Echo*, 7 October 1881, and *North Eastern Daily Gazette*, 25 January 1882.

[19] Birch, *Economic History of the British Iron and Steel Industry*, pp. 347-348.
Rowland initially preferred the ore to be mined, presumably to preserve the surface, but this proved impractical and no mining – as opposed to quarrying - of stone took place on the Winn estate until 1938. T. Daff, 'The Establishment of Ironmaking at Scunthorpe', in M. E. Armstrong (ed.), *An Industrial Island: A History of Scunthorpe* (Scunthorpe, 1981), pp. 31-38; this ref. pp. 31-32.

transport costs that would have to be paid to get the coal to market would be reflected in a lower lease rental. The size of the estate was also problematic. It was quite small at 2,500 acres, and included a major fault that prevented the full acreage from being mined from a single location. The Winns were unlikely to permit mining under the Priory and its environs, further reducing the area available for lease. A small 'take' made it difficult for entrepreneurs to recoup their capital expenditure unless the price of coal was particularly high, as John Walker pointed out in his report on Carlton in 1854, and this consideration would diminish the Nostell coal's potential rental. The ability to maintain a high rental over the medium term would therefore require an extended period of buoyant prices, and the coal market was notoriously subject to price cycles. In 1854 Lord Wharncliffe had been prepared to accept £1,500 minimum annual rental for 1,350 acres of coal at Carlton, during a period of elevated coal prices.[20] The coal seams at Carlton were the same as those at Nostell, and the acreage would probably also have been similar. In these circumstances, the highest minimum annual rental that the Winns would be able to demand would probably have been £2,000 to £2,500. The higher figure would be a useful contribution to the Winns' income, but not one that would make a substantial reduction in their debts. Leasing the coal would not bring in revenue quickly, because the normal terms of a coal lease included a period of shaft sinking during which no rent was paid.[21] The main advantage of leasing was its low risk, but in this case the return was also likely to be unacceptably low.

Rowland concluded that the Nostell coal was not a viable short-term option, whether it was leased out or mined by the Winns on their own behalf. A self-financed colliery had the potential to be more remunerative, but only in the longer-term and at significant capital cost. Leasing the Appleby iron ore, on the other hand, represented an attractive opportunity in terms of speed of return, low risk, and limited capital investment by the Winns. This strategy was recommended by Roseby, and reflected his experience in Cleveland where ironmasters held many of the ore leases, rather than independent mining companies who sold the stone on to smelters.[22] Rowland therefore put the coal aside for the time being, and adopted a rentier approach to the iron ore. Parcels of land were designated for lease to ironmasters who would transport the

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[20] For the Carlton rent, see Chapter 2, p. 42. Church, *History of the British Coal Industry, vol. 3*, p. 54.

[21] Caleb Pamely, *The Colliery Manager's Handbook* (London, 1904), p. 42. The Winns assumed a rent-free period during the Carlton bid. Of course, the necessity to sink shafts would also meant that a self-financed colliery would not produce any revenue until the coal had been reached.

[22] Letter, John Roseby to Rowland Winn, 4 May 1859, WYL1352, WYAS (W). William Fordyce, *A History of the Coal, Coke, Coalfields and Iron Manufacturing in Northern England* (Newcastle, 1973; facs. of original publ. 1860), pp. 141-143.

extracted ore via the Trent/Aire/Ouse waterways to their furnaces in Yorkshire.[23] Although leasing the ironstone reflected the established trend to withdrawal from direct involvement in mining by landowners, the decision was taken as the most appropriate to the Winns' situation rather than to conform to the practices of the family's peers.

Ironstone, financial resurgence and capital accumulation, 1859-1865

Rowland and Roseby set about monetising the Lincolnshire ironstone. A history of the Scunthorpe iron and steel industry accurately describes Rowland as 'a man of considerable vigour and determination, willing to work hard and long to achieve his aims', and he threw himself into his task.[24] Throughout the start-up period he participated in all business matters, attended meetings and negotiations with potential lessees, worked with legal advisors on mineral rights disputes, and was active in the promotion of a public railway to serve the quarries. He travelled extensively, domestic life taking second place to the pursuit of the family's commercial interests.[25] Thompson remarked that 'railway travel was a convenience to the aristocracy, who could move their plate and servants back and forth...with ease', and it was equally convenient for entrepreneurial landowners.[26] Rowland's letters were frequently written on trains and posted at intermediate stations, and the speed with which he was able to bring his plans to fruition was materially assisted by railway travel. He dealt personally with ironmasters from Leeds, Rotherham and Birmingham – realising that he had to deal with the middle-class businessmen who owned most of England's ironworks - and did not assert his social dignity. For example, his usual London hotel was in St James St., convenient for his base at the Carlton Club, but he was willing to forgo it for business reasons: 'If I find it will facilitate matters I will stop at the Tavistock where Mr Dawes [a potential lessee] is'.[27]

In the light of the Stones' remark that 'before 1880, [the landed elite's] personal contacts with the entrepreneurs of the great Victorian economic revolution seem to have

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[23] Daff, 'The Establishment of Ironmaking at Scunthorpe', p. 32.
[24] F. Henthorn, 'The Coming of the Railway', in M. E. Armstrong (ed.), *An Industrial Island: A History of Scunthorpe* (Scunthorpe, 1981), pp. 39-45; this ref. p. 39.
[25] Rowland's correspondence 1859-1861 shows that he travelled frequently between, inter alia, London, the west Midlands, Cleveland, Lincolnshire, Nostell and Leeds. The letters make clear his regret at the frequent separations from his family, to whom he was closely attached.
[26] Thompson, *English Landed Society,* p. 190.
[27] Letter from Rowland Winn to John Hett, 7 November 1860, reproduced in F. Henthorn (ed.), *Letters and Papers concerning the Establishment of the Trent, Ancholme and Grimsby Railway, 1860-1862* (Lincoln Record Society vol. 70, Lincoln, 1975), p. 7. Hett was a partner in a Brigg, Lincs, legal firm that acted for Rowland.

been curiously remote', Rowland Winn was a pioneer in his willingness to engage in the world of industry.[28] Thompson characterised the landowners who owned and ran their own industrial enterprises as participating in commercial matters 'conducted at arm's length through agents and managers, and it was not a business providing their sole source of support'.[29] This was not the case with Rowland in the late 1850s and 1860s, when his immersion in commercial affairs differed little from that of a busy middle-class entrepreneur. The ironstone was not his 'sole source of support', but it was the source of the money that would preserve his status and way of life.

The ironstone was quickly leased. Nearly a dozen iron manufacturers came to view the Appleby ore and Messrs Dawes, ironmasters at Elsecar, Yorkshire, signed the first lease in autumn 1859.[30] Joseph Cliff of Leeds and Samuel Beale of Rotherham were also early lessees.[31] Transport was as important for ironstone as for coal, so that after a short period during which the stone was taken to a loading point on the Trent by horse-drawn cart, the Winns donated land and cash for a tramway from the iron deposits to the river.[32] Rowland also worked to ensure that the iron field was linked to the national railway network, a more reliable and flexible form of transport than the inland waterways.[33] He was the driving force behind the Trent, Ancholme and Grimsby Railway, a 14-mile line that passed through the Appleby estate and connected the South Yorkshire Railway's route to Doncaster with the Manchester, Sheffield and Lincoln Railway's Grimsby line.[34] It gave direct access from Appleby west to the industrial areas of Lancashire, Yorkshire and the Midlands and east to the port of Grimsby, benefiting Rowland's Yorkshire-based iron lessees and opening up the possibility of sea-borne markets for the ore. Rowland personally negotiated with the South Yorkshire

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[28] Stone, *An Open Elite?*, p. 291.

[29] Thompson, *Gentrification and the Rise of the Enterprise Culture*, p. 40.

[30] Pocock, 'Stages in the Development of the Frodingham Ironstone Field', p. 106; Daff, 'The Establishment of Ironmaking at Scunthorpe', pp. 31-32. Because of problems with the mortgagors of the Appleby estate, the Dawes lease was not finally confirmed until 1862. In the meantime the draft agreement was sufficient for the Dawes to begin working the stone.

[31] Memorandum in Rowland Winn's handwriting, undated c. 1865? C/3/1/6/[330], WYL1352, WYAS (W).

[32] Pocock, 'Stages in the Development of the Frodingham Ironstone Field', p. 107. The cost of the tramway was just under £10,000. Agreement proposal dated 27 October 1859; C/3/1/6/[328], WYL1352, WYAS (W). To provide funds for expenditure relating to the ironstone, Rowland sold some Australian and Turkish bonds. Letter, H. Downer to Rowland Winn, 12 November 1859, C/3/1/6/[330], WYL1352, WYAS (W).

[33] The disadvantages of using water transport were demonstrated as early as January 1861, when frozen rivers prevented ironstone being shipped. Edmund wrote to Rowland that 'we are getting something by [the cold weather]...the sale of coal is good and I've put up the price to 5/10d and 2/- for slack, so that is better than nothing, though I'm afraid it will be a very poor make up, from the stoppage of the iron works.' Letter Edmund to Rowland Winn, 8 January 1860 (probably mis-dated for 1861), A/1/10/[1808], WYL1352, WYAS (W).

[34] See Appendix 3.

and the Manchester, Sheffield and Lincoln Railways (SYR and MS&LR), discussions that were probably assisted by the close connections between the various parties: Charles Winn was a shareholder of the SYR and the MS&LR chairman, Lord Yarborough, was a fellow Lincolnshire landowner.[35] The Act authorising the railway received parliamentary approval in 1861 - once again a rapid rate of progress - but poor project management delayed the opening of the line until 1 October 1866.[36]

Despite the delay to the railway, the iron ore soon began to pay. The first surplus reached Charles Winn's personal account in September 1861, less than two and a half years after Rowland had informed his father of the iron's discovery.[37] Table 3.1 lists the profits paid between 1861 and 1867 to Charles as estate owner, from the minerals account at Smith, Ellison's Bank in Brigg, Lincolnshire.[38]

Table 3.1: Transfers from the Lincolnshire Minerals Account to Charles Winn's personal and Estate accounts, 1861-1867

Year	*Amount transferred*
1861	£220
1862	£3,400
1863	£3,250
1864	£2,400
1865	£4,400
1866	£8,500
1867	£9,600
Total	**£31,770**

Source: All information from A/1/8/[787], WYL1352, WYAS (W).
Note: the figure for 1864 is under-stated as the records for that year are incomplete.

These payments represented a substantial addition to the Appleby estate's annual gross income, which had been assessed as £6,800 in 1858, and compare favourably with the potential revenue from leasing the Nostell coal.[39] Building on this promising start, Rowland's longer-term strategy was to encourage the establishment of furnaces in Lincolnshire on land leased from the Winns, using the railway to import fuel

[35] Lord Yarborough's interests no doubt also would profit from the new railway. Charles Winn owned at least 25 £20 shares in the SYR; letter Rowland to Charles Winn, 10 April 1858, A/1/8/1, WYL1352, WYAS (W).
[36] The Trent, Ancholme and Grimsby Railway Act was approved on 22 July 1861. Henthorn, 'The Coming of the Railway', pp. 39-41.
[37] The first ironstone was shipped from a quay on the River Trent on 21 June 1860. Henthorn (ed.), *Letters and Papers concerning the Establishment of the Trent, Ancholme and Grimsby Railway*, p. xvi.
[38] In the early 1860s, Charles Winn had a personal bank account in Wakefield with Leatham, Tew & Co, and a 'Lincolnshire Minerals' account with Smith, Ellison & Co. of Brigg. After the commencement of sinking at Nostell, a Colliery account was opened with Leatham, Tew. A/1/8/[787], WYL1352, WYAS (W).
[39] See p. 54.

and distribute the finished product. This would generate rents from industrial and residential development, and enhance the capital value of the estate.[40] The first furnace was lit in early 1864, and others followed in later years. Rowland also began to quarry ironstone on his own account, and the land leases to ironmasters for furnaces on the estate included the obligation to buy their ore from the Winns. This link to the end-user helped the Winn family to become the largest producer of ironstone in the Lincolnshire field by 1880.[41] Rowland's strategy was therefore incremental; the original mining leases quickly brought in income to ease the Winns' financial problems, improved transport enhanced the area's attraction as an industrial centre, co-located iron-smelting was encouraged, and the family's role evolved from rentier to active producer of iron ore. By these means they gained a swift and increasing income from the ironstone, albeit at the expense of some capital investment and attendant risk. The success of the strategy can be seen from Charles's bank account (Table 3.1) and in the trebling of the income from the Appleby estate between 1858 and 1869 (Table 3.2).

Table 3.2: Income from the Appleby estate, 1858 (estd.) and 1869 (actual)

Year	*Iron*	*Brick/clay*	*Housing*	*Agriculture*	*Total*
1858				£6,800	£6,800
1869	£10,600	£100	£520	£7,980	£19,200

Sources: A/1/8/[787] and budget for 1858, A/1/8/1/11, both WYL/1352, WYAS (W).

Industrial and housing receipts represented the great majority of the increase, as agricultural revenue in 1869 was only 15 per cent higher than the 1858 estimate.[42] In a letter to his father, Rowland permitted himself a justified moment of self-congratulation:

> ...every one [sic] tells me that we have got on more rapidly here than ever was accomplished before and that whereas Middlesbrough was ten years before it was fairly going we shall only be about five or six.[43]

The discovery of the ironstone and Rowland's speed in realising its value transformed the Winns' fortunes in a remarkably short time. However, the improvement in the Winns' finances did not relate solely to events on the Appleby estate. Rowland

[40] The rural location of the furnaces required housing and services to be provided for the quarry and furnace workforces.
[41] Daff, 'The Establishment of Ironmaking at Scunthorpe', p. 33; Pocock, 'Stages in the Development of the Frodingham Ironstone Field', p. 108.
[42] A/1/8/57, WYL1352, WYAS (W). Over half of the increase in agricultural income was generated by a large fall of timber, a bonus that would not be possible every year. Agricultural rental income on the estate was in fact lower in 1869 than 1858.
[43] Letter, Rowland to Charles Winn, 5 June 1865, A/1/8/1, WYL1352, WYAS (W).

found time during the ironstone launch to deal with an issue of longstanding concern. This was his suspicion of the quality of the advice given to Charles Winn by the family solicitor and Nostell land agent, John Marsden, and in particular the financial arrangements that Marsden had made on Charles's behalf

Loans, a lawyer and moral hazard

During the Carlton negotiations and Charles's absence in Europe, Rowland had become familiar with the services that John Marsden provided to the Nostell estate, and his influence on Charles. Marsden had a legal practice in Wakefield and was Charles's personal solicitor. He was also Solicitor to the West Riding, an investor/manager in a colliery, and agent to a number of local estates, including Nostell.[44] A member of the Institution of Surveyors remarked that solicitors as land agents were 'little more than receivers', with very limited knowledge of agricultural techniques or economics.[45] They received no greater plaudits from the tenantry with whom they dealt, who were allegedly 'very much plagued by attorney stewards who must have business or otherwise make it'.[46] Whatever his competence as a land steward, Marsden's pluralism made it hard not to suspect that he was 'making business', especially as – like many provincial lawyers - he augmented his other activities by acting as a broker in the regional loans market.

During the eighteenth century and nineteenth centuries, lawyers were an important conduit through which mortgages and bonds were arranged for private and business purposes, particularly in Lancashire and Yorkshire.[47] The legal profession's customary activities - particularly as land agents and trustees of wills – conferred knowledge of those holding capital and of those requiring it, and they also possessed the legal expertise to complete the necessary agreements. To establish their credentials as loan intermediaries, solicitors had to assure private individuals and fund trustees of the

[44] Goodchild, *Coals from Barnsley*, p. 30. Marsden was probably appointed as agent to the Nostell estate in 1845.
[45] Quotation from *Transactions*, Inst. of Surveyors (1868-1869), quoted in Thompson, *English Landed Society*, p. 160; Spring, *The English Landed Estate*, p. 59;
[46] R. Brown, *General View of the Agriculture of the West Riding of Yorkshire* (1794), quoted in G. Firth, 'The Roles of a West Riding Land Steward, 1773-1803', *Yorkshire Archaeological Journal* vol. 51 (1979), pp. 105-115; this ref. p. 105.
[47] L. Neal, 'The Finance of Business During the Industrial Revolution', in R. Floud, and D. N. McCloskey (eds), *The Economic History of Britain since 1700 vol. 1: 1700-1860* (Cambridge, 1994), pp. 151-181; this ref. pp 167-168.

fiscal propriety of lending substantial sums of money to strangers.[48] They also had to overcome a longstanding suspicion of their professional activities, which were considered, well into the nineteenth century, to be 'wanting in integrity'.[49] John Marsden had achieved a position of trust with Charles Winn. Marsden had arranged several loans for Charles, secured on land at Nostell, in addition to the legal and administrative services he provided. In the mid-1850s, Rowland became sceptical about the propriety of some of the transactions that Marsden had made on Charles's behalf. In 1854, at the beginning of the Carlton project, Rowland advised Edmund to discuss financial matters with Marsden as he was 'the best person to consult', but a year later he told Charles that 'we are quite as well able to judge as he [Marsden] is' about money. This change of mind, perhaps coloured by traditional misgivings about solicitors' motives, arose from Marsden's advice that it would be a mistake to quote £40,000 to potential investors as the capital required for Carlton: 'It will in these days frighten people'. Rowland believed that this opinion arose from Marsden's fear that a new mine at Carlton would compete with his own colliery investment.[50]

Rowland's distrust of Marsden increased during his father's European trip in 1857 to 1858. He reached the conclusion that Marsden, in his role as land agent, had failed to propose ways in which the estate's financial performance might be improved, but rather encouraged Charles to take out further loans to cover shortfalls in the estate's annual balance sheet. This contrasted with the endeavours of many of the leading land agents in the mid-Victorian period to reduce their employers' debts.[51] Marsden obtained commission from the loan transactions, for which he held the land deeds as security on behalf of the lender and thereby tied the Winns to a relationship that was rewarding to the lawyer, but less so for the Winns.[52] Moreover, Marsden's professional standing appeared to be under threat. He had lost the position of agent for the estate of Sir John

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[48] Wilson, *British Business History*, p. 52; P. Hudson, 'The Regional Perspective', in P. Hudson (ed.), *Regions and Industries: A Perspective on the Industrial Revolution in Britain (*Cambridge, 1989), pp. 5-38; this ref. pp. 16-17; M. Miles, 'The Money Market in the Early Industrial Revolution: The Evidence from West Riding Attorneys, c. 1750-1800', *Business History* vol. 23, 2, no. 1 (July 1981), pp. 127-146; this ref. p. 127; M. B. Rowlands, 'Continuity and Change in an Industrializing Society: the Case of the West Midlands Industries', in Hudson (ed.), *Regions and Industries: A Perspective on the Industrial Revolution in Britain*, pp. 103-131; this ref. p. 127.

[49] Spring, *The English Landed Estate*, pp. 59-60.

[50] Letters, John Marsden to Edmund Winn, 25 March 1856, WYL1352, C/3/1/9/3, Rowland to Edmund Winn, 30 May 1854 and Rowland to Charles Winn, 31 March 1855; WYL1352, C/3/1/9/3 and A/1/8/1, all WYAS (W).

[51] For example, George Loch and Christopher Haedy. Spring, *The English Landed Estate*, pp. 36-37, 128-129.

[52] Letters Rowland to Charles Winn, 21 October 1857, 16 January and 10 April 1858, A/1/8/1, WYL1352, WYAS (W).

Lister-Kaye, a prominent Wakefield landowner, and his longstanding legal partnership had been dissolved.[53] The Woolley Coal Company, of which he was the managing partner, was in severe financial difficulties. Rowland wanted to withdraw the Winns' affairs from him as soon as possible: 'I am decidedly in favour of getting out of Marsden's hands as soon as we can quietly manage it, because I am convinced that besides the Colliery failing his business is going off as well'.[54]

Rowland's objection to Marsden was based on the issues of trust and moral hazard in the principal-agent relationship between Charles and his solicitor. The decisions and actions of an agent affect the value received by a principal, which the principal wishes to maximise against the payment made to the agent. Conversely, the agent is concerned with the value received from the principal in relation to his costs in working on the principal's behalf. Most agent/principal relationships require an element of trust between the parties involved, as it is very difficult for either party to have full visibility of the intentions, objectives and actions of the other, or to create a contract that defines an agent's required behaviour in every eventuality. Once one party perceives the other as being untrustworthy, he is likely to behave in ways designed to protect himself from that untrustworthiness, increasing the possibility of a sub-optimal outcome. For instance, Rowland ignored Marsden's counsel regarding the level of capital for the Carlton colliery – which was in fact good advice - because he suspected that Marsden only expressed that view because he wanted to discourage a competitor from entering the market. The multiplicity of Marsden's dealings with the Winns led him into moral hazard, in which the agent behaves differently when acting in the principal's interest than he would do in a similar situation on his own behalf, knowing that the principal will take any resulting loss.[55] Marsden advised Charles to take out loans rather than make greater efforts to balance the books at Nostell, which increased the expenses of the estate without generating additional income and benefited the agent at the expense of the principal.

Rowland's solution was to place the legal and loan brokerage aspects of Nostell's affairs with separate firms of solicitors, to reduce the likelihood of an agent

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[53] Marsden dissolved the partnership in 1857 when he gave up (or was dismissed from, for negligence) the agency of Sir John Lister-Kaye's estate. Letter Rowland to Charles Winn, 6 August 1857, A/1/8/1, WYL1352, WYAS (W); J. Goodchild, *A New History of Caphouse Colliery and Denby Grange Collieries* (Wakefield, 2000), p. 26.

[54] Letters, Rowland to Charles Winn, 20 February 1858, A/1/8/1, WYL1352, WYAS (W).

[55] This section is based on D. Besanko, D. Dranove, M. Shanley, and S. Schaefer, *Economics of Strategy* (New York, 2004); J. W. Pratt and R. J. Zeckhauser, 'Principals and Agents: An Overview', in J. W. Pratt and R. J. Zeckhauser, *Principals and Agents: The Structure of Business* (Boston, 1985), pp. 1-35; K. J. Arrow, 'The Economics of Agency', in Pratt and Zeckhauser, *Principals and Agents*, pp. 37-51.

manipulating different types of business to his own advantage. Marsden's services were terminated by late 1861, despite his emotional personal appeal against dismissal to Charles.[56] Another Wakefield law firm - in fact, Marsden's ex-partners - was appointed to handle the estate's purely legal business. For the arrangement of loans, Rowland's brother-in-law, William A. Cross, recommended to him a Preston (Lancashire) solicitor, James B. Dickson:

> I consider [Dickson] a most honorable [sic] and agreeable man to do business with, and very reasonable in his charges. He has a good deal of business of the best sort...What he may be as a very 'cute' attorney I do not know. I think the best thing you could do would be to come over here next week and see him yourself.[57]

Cross stressed the importance of Dickson's gentlemanly demeanour – implying trustworthy - which was reflected in the social origin of his clients ('the best sort') and the modest, 'unpushy' nature of his charges. These attributes made Dickson the antithesis to Marsden, and to Cross they were more important than Dickson's professional expertise. The main objection to Dickson was his location. Most lending arranged by solicitors took place between principals living in the same county or region.[58] Rowland showed his sensitivity to the local nature of this capital market when, in discussion with Charles about the options for replacing Marsden, he speculated whether a London solicitor or 'a county man' would be preferable.[59] Dickson's contacts were in Lancashire, but nonetheless Rowland engaged him to carry out the Winns' financial business. This was representative of a loosening of regional ties into a more broadly based market for private capital. Borrowing outside Yorkshire may also have had the attraction of more flexible interest rates, as a Bank of England survey showed that even as late as 1909, banks in rural areas, and especially in Yorkshire, continued to use the traditional 5 per cent interest charge on loans irrespective of the Bank rate.[60] Lancashire may have been more flexible in this regard, and Dickson was indeed able to arrange loans at a lower rate than Marsden's. Once Dickson was engaged in 1860, the

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[56] Letter John Marsden to Charles Winn, 8 November 1861 and reply (no date given) November 1861, A/1/8/13/2, WYL1352, WYAS (W).
[57] Letter W. A. Cross to Rowland Winn, 1 November 1859, WYL1352, C/3/1/6/[328], WYAS (W).
[58] Based on the period 1780-1871. P. Hudson, 'Capital and Credit in the West Riding Wool Textile Industry c. 1750-1850', in P. Hudson (ed.), *Regions and Industries: A Perspective on the Industrial Revolution in Britain (*Cambridge, 1989), pp. 69-99; this ref. pp. 78-82.
[59] Letter Rowland to Charles Winn, 6 August 1857, A/1/8/1, WYL1352, WYAS (W).
[60] Cottrell, *Industrial Finance, 1830-1914*, pp. 207-208.

threat of moral hazard receded and the overhaul of the Winns' borrowing arrangements began.

Rowland redeemed the loans obtained through Marsden as quickly as possible, to reduce the cost of borrowing and curtail the solicitor's involvement in the family's affairs. Charles Winn's main debts in late 1857 were four mortgages totalling £88,000 at interest rates between 3¾ and 4 1/8 per cent, which were reasonable for the period.[61] The mortgages were borrowed from private individuals, the largest (£40,000) being from the Earl of Scarbrough. Rowland and Charles were particularly concerned about the Scarbrough mortgage, because of a possibility that it could be foreclosed.[62] In addition Charles had borrowed £8,200 in five bonds from private lenders, all through Marsden and at 5 per cent interest. Rowland remarked to Edmund in 1854 that 'about ½ to ¾ per cent more interest might have to be paid' by borrowing through a bond rather than a mortgage, so that the bonds arranged by Marsden were somewhat overpriced. Rowland intended to replace them with other loans of the same type because they offered greater flexibility in repayment and were cheaper to set up than a mortgage.[63] In November 1861 Rowland brought his father up to date with progress on repaying the money borrowed through Marsden:

> In January we shall pay off Miss Tennant's bond [£3,500] and there will then only remain in Marsden's hands the £1,500 bond of Miss Armytage's, and as soon as I can manage to get money together for this I should like to pay it off and then ask Marsden again for the papers he has in his possession. I have arranged with Dickson for paying off Miss Tennant by borrowing the money at 4½ per cent instead of 5 per cent as is now the case...[64]

During the 1860s Rowland reduced the amount of annual debt interest that the Winns paid by over 25 per cent. In 1869 annual interest payments were £2,650 compared to

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[61] A contemporary solicitor calculated in the mid-1850s that the typical return on a mortgage on real property was 4 per cent. Cottrell, *Industrial Finance, 1830-1914*, pp. 46-47.

[62] Letters Rowland to Charles Winn, 7 and 21 October 1857, A/1/8/1, and Charles to Rowland Winn, 10 November 1859, A1/10/[1808], both WYL1352, WYAS (W). Under the contemporary mortgage terms, loans could be called in simply because the lender had a better investment for the money. For example, in 1820 a landed investor called in £2,000 that he had out on mortgage as he wished to invest the money in the Hetton Coal Company instead. M. Sill, 'Landownership and Industry: The East Durham Coalfield in the Nineteenth Century', *Northern History* vol. 20 (1984), pp. 146-166; this ref. p. 153.

[63] Letter, Letter Rowland to Edmund Winn, 30 May 1854, C/3/1/9/3, WYL1352, WYAS (W).

[64] Letter Rowland to Charles Winn, 11 November 1861, A/1/8/1, WYL1352, WYAS (W). Dickson had said that he could obtain the money at 4 per cent on a mortgage, but Rowland preferred to pay 4.5 per cent for a bond as he only wanted the money for a short time, and 'desired to avoid the expense of a mortgage'. Letter Rowland to Charles Winn, 9 January 1862, A/1/8/1, WYL1352, WYAS (W).

£3,800 ten years previously.[65] This was achieved both by repaying capital and re-financing other loans at a more favourable rate. Almost as importantly, Rowland was now dealing with legal agents in whom he had confidence, and he was free from any involvement in Marsden's potential bankruptcy. As the income from the ironstone began to rise in the mid 1860s, Rowland could turn his attention to a new colliery at Nostell.

A new colliery at Nostell – laying the foundations

Once the ironstone business was well established, Rowland renewed his interest in the coal at Nostell. The new colliery would be financed and managed by the family, assisted by the ironstone income. This approach gave the Winns the opportunity to gain the maximum return from the resources of the Nostell estate, rather than be satisfied with a moderate rent from leasing. A colliery managed by the family provided an opportunity to fulfil an important element of the landed family's ethos, of investing part of its wealth to secure employment for a younger son. A number of contradictory elements come into play at this point. Rowland remarked that 'I have always looked on it [Nostell Colliery] more as a future source of income for [Edmund] than anything else', which suggests that the decision not to join their class's flight from direct investment in mining was made for a reason that was founded firmly in the traditional habits of landowners.[66] At the same time, the Winns were following the practice widespread among businesses owned by middle-class entrepreneurs of appointing a close relative to run an important branch of the family business, because professional managers were distrusted. Both Rowland and Edmund had expressed their dislike of agents having control of their affairs, and Edmund's appointment was a practical demonstration of this distrust, which ran counter to the landowning class's tradition of delegating responsibility for management of their property to professional agents.[67] These nuances of attitude and action support Thompson's argument that there was 'no one, single, unchanging set of aristocratic values', and that personal disposition,

[65] A/1/8/1 and A/1/8/57, WYL1352, WYAS (W).
[66] Letter, Rowland to Charles Winn, 30 October 1867, A/1/8/1, WYL1352, WYAS (W).
[67] Rowland wrote to his father that the prospect of the Carlton colliery being run by an agent was 'an arrangement that I could never feel satisfied with'. Letter, Rowland to Charles Winn, 6 February 1856, A/1/8/1, WYL1352, WYAS (W). By early 1855 Rowland was already encouraging his father to make his own decisions rather than refer all financial questions to John Marsden. Edmund had expressed his reservations about professional managers during the Carlton bid; see Chapter 2, p. 44.

circumstance and opportunity were important influences on the behaviour of the landed classes.[68]

The decision to sink a new colliery on their own account having been taken, two major issues had to be resolved before work began in earnest. The first was to prove the coal's location, depth and economic viability. There were several seams at varying depths in the area east of Wakefield, of which the best was the Barnsley at c400 yards depth. The test bores at Nostell had only proved the Shafton seam under the Winns' land. This was the first significant seam below the bed worked by Wragby Colliery and was much shallower – and therefore cheaper to reach - than the Barnsley and Stanley Main coals tapped by other collieries in the area.[69] It was decided to sink only to the Shafton seam in order to minimise costs, a decision that would have significant implications for the output achievable by the colliery.

The second issue to be resolved before proceeding with a new colliery was the construction of a railway.[70] A proposal for a line from Doncaster to Wakefield, passing close to Nostell, had failed at the parliamentary committee stage in summer 1857, and Rowland remained pessimistic for the following few months about its prospects in view of the general economic conditions: 'There is no chance of the Doncaster and Wakefield Railway going on, the Bank of England has just raised their rate of discount to 8 per cent'.[71] By January the following year he was more hopeful, and his optimism was rewarded.[72] It is uncertain whether the Winns were involved in the earlier schemes, but by 1860 Rowland was among the leading figures in the West Riding and Grimsby Joint Railway Company.[73] This proposed a railway from Barnby, on the SYR Doncaster to Goole line, to the existing GNR main line at Wakefield, and included several branches, including a south-facing connection to the GNR's east coast main line at Doncaster and, of course, a short spur to the new colliery at Nostell. Both of the Winns' estates would benefit from the WR&GJR. The colliery would be directly connected to London, Lancashire, the Midlands and the rest of Yorkshire.[74] The WR&GJR was a variant on

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[68] Thompson, *Gentrification and the Rise of the Enterprise Culture*, pp. 43-44.
[69] The Nostell seam was found at 50 yards depth, the Shafton at 140 yards, and the Stanley Main and Barnsley at 350 to 400 yards. W. H. Wilcockson, *Sections of Strata of the Coal Measures of Yorkshire* (Sheffield, 1950), pp. 352-353.
[70] The reader is reminded of the map at Appendix 3.
[71] Letter Rowland to Charles Winn, 21 October 1857, A/1/8/1, WYL1352, WYAS (W).
[72] Letter Rowland to Charles Winn, 26 January 1858, A/1/8/1, WYL1352, WYAS (W).
[73] Rowland was certainly a director of the company (for which he was required to have invested at least £500) and probably the chairman, as his name appears at the top of the directors' list in the WR&GR Act. West Riding and Grimsby Railway Act, 1863; 25 & 26 Vict. – session 1862, DZMD/590/5, Doncaster Archives.
[74] It also gave the West Riding a direct link with Grimsby and Immingham.

an unsuccessful Doncaster-Wakefield line proposed by the GNR. A West Riding newspaper commented that 'to our legislators, however, "the rose" under another name was..."sweeter", though perhaps they were mollified by the addition of the Grimsby [Barnby] branch, which, indeed, is an improvement on the original scheme'.[75] Rowland remarked to his father in 1860 that the railway 'will be a great thing for our colliery, and will enable us to get the coal both into this part of the world or London as well'.[76] It also had benefits for the ironstone, as the junction at Barnby would give a link into the West Riding from the Lincolnshire ore field, via the TA&GR

In mid 1860 the WR&GJR bill was going through Parliament and Edmund attended the committee hearings - the customary Winn hands-on approach to promoting their industrial interests. The parliamentary process prompted an incident that confirmed Rowland's suspicions about John Marsden. The supporting evidence for the bill cited the opening up of the coal reserves south-east of Wakefield, which included Nostell. Taking benefit from the lucrative opportunities that railway schemes opened up for professional men, especially surveyors and solicitors, Marsden had been retained by the GNR to record evidence for the committee hearings.[77] Rowland described to his father Edmund's meeting with Marsden to register the Winns' evidence:

> Marsden said...that the Nostell coal must on no account be alluded to. Edmund told him he certainly should allude to it, and made him take down what he wished to say...A copy of this he [Marsden] of course had to send up to London to the Great Northern solicitors, but instead of sending a true copy, he made a number of additions which E[dmund] had never heard of and I believe omitted all about the coal; at the same time sending a fair copy to E[dmund] of the original evidence – we have exposed the whole of this to the Great Northern people...and [Edmund] believes it is the last job he [Marsden] will get for the Great Northern.[78]

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[75] *Bradford Observer*, 18 January 1866. The WR&GR was backed by the South Yorkshire and Manchester Sheffield & Lincoln Railways, but following its acceptance by Parliament was quickly brought into by the GNR as it substantially shortened the length of the latter's route between Doncaster and Leeds. A. J. F. Wrottesley, *The Great Northern Railway vol. 1: Origins and Development* (London, 1979), pp. 160-161.

[76] Letter Rowland to Charles Winn, 3 May 1860, A/1/8/1, WYL1352, WYAS (W). Both lines promoted by Rowland Winn remain part of the national railway network.

[77] T. R. Gourvish, *Railways and the British Economy, 1830-1914* (London, 1980), p. 22. The GNR was also closely involved in the WR&GR hearings.

[78] Emphasis in the original. Letter Rowland to Charles Winn, 3 May 1860, A/1/8/1, WYL1352, WYAS (W).

There is an element of hearsay about the story, but Marsden's legal and entrepreneurial activities were sufficiently entangled to give credence to suspicions of conflict of interest. Rowland believed that Marsden was 'extremely jealous about our coal field because he thinks if the railway is carried it will seriously interfere with coal about Wakefield and Woolley. He has therefore taken the line of crying down our coal'.[79] As a result Marsden lost the trust of the Winns and probably that of the GNR. Such behaviour encouraged the high level of regulation of solicitors' activities introduced over the course of the nineteenth century, much of which, 'conceived in an intolerant spirit', was intended to reduce conflict of interest with clients' affairs.[80]

Despite Marsden's alleged efforts, the WR&GJR Act received royal assent on 7 August 1862 and the line opened in February 1866. The independence of the new railway was nominal. It was to be worked by the MS&LR in return for 45 per cent of the receipts, and that company also guaranteed an annual dividend of 4½ per cent and the interest payments on its debenture debt, and nominated four of the twelve directors. In fact shortly after opening the WR&GJR was jointly vested in the GNR and the MS&LR,[81] 'advantageous negociations [sic] having been conducted by Mr Winn'.[82] Rowland had probably been working on this arrangement from July 1864 at least when he advised his father not to dispose of his WR&GJR shares because if the company made an alliance with the Great Northern, their value would rise to parity with that of the GNR and matching shares would be issued.[83] These financial manoeuvrings were no doubt merely a fringe benefit to the Winns' confidence from summer 1862 onwards that that a railway would be built near their coal at Nostell and that they could keep close track of its progress. The WR&GJR's shareholders were well satisfied with Rowland's efforts. After the line opened in February 1866 they awarded him £400 and additional free shares, and in the following year donated £25,000 to be divided among the board members at the winding-up of the company.[84] The Winns now had a railway to transport their coal.

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[79] Letter Rowland to Charles Winn, 3 May 1860, A/1/8/1, WYL1352, WYAS (W).
[80] Burn, *Age of Equipoise*, p. 211, fn.
[81] West Riding and Grimsby Railway Act, 1863; 25 & 26 Vict. – session 1862, DZMD/590/5, Doncaster Archives; D. Joy, *A Regional History of Railways vol. 8, South & West Yorkshire* (Newton Abbot, 1984), p. 220.
[82] *Leeds Mercury*, 22 February 1866; report of the eighth half-yearly meeting, West Riding and Grimsby Railway Co. Ltd.
[83] Insider dealing? Letter Rowland to Charles Winn, 9 July 1864, A/1/8/1, WYL1352, WYAS (W).
[84] *Leeds Mercury*, 22 February 1866 and 24 June 1867; reports of the eighth half-yearly and special general meetings, West Riding and Grimsby Railway Co. Ltd.

Hawke's comment that 'the siting of railways, especially in Yorkshire and the Midlands, was influenced by potential coal traffic, and railways in turn facilitated the opening of mines' was fully justified in Nostell's case.[85] Once the passage of the WR&GJR bill had been secured the Winns lost no time in accumulating the capital to sink a new colliery, despite the economic slump of the early 1860s.[86] The ironstone profits provided an increased cash flow but would not support the full cost of the colliery, so that part of the capital would have to be obtained elsewhere. As the new colliery was to be part of the Nostell estate, partner capital was irrelevant. Other means would have to be found to raise money, although neither the sale of property nor the raising of additional loans was attractive to Rowland. He did not wish to subvert his policy of reducing debt while maintaining income, and the Carlton project had shown that institutional sources of capital for provincial collieries were limited.

The timing of capital formation for the colliery was influenced by practical considerations. The establishment of a mine was often a lengthy process, because of the time required for shaft-sinking. However, because the labour and some materials costs of this process could be paid for as they were incurred, there was no operational necessity for all the capital to be available at the outset.[87] Landlords often required applicant lessees to demonstrate that they had sufficient resources to bring the colliery into production, but as the Winns were sinking on their own land they had no operational or contractual need to 'front up' capital.[88] The typical capital spend pattern for a new colliery was that once the main shaft had reached the required depth and the coal was confirmed as workable, there was a period of substantial expenditure to install plant above and below ground, and to sink the second shaft required under the 1864 Coal Mines Act.[89] Church estimated that the composition of mining capital between 1870 and 1913 was 40 per cent shafts and 35 per cent colliery plant, with the balance expended on railways, wagons, tradesmen's workshops and other ancillary functions.[90] Capital expenditure at Nostell followed these patterns. Work began in August 1862 and

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[85] Hawke, *Railways and Economic Growth*, p. 398.
[86] Crouzet, *Victorian Economy*, p. 56.
[87] J. Hyslop, *Colliery Management* (London, 1876), p. 134. The sinking at Nostell was carried out by contractors, who were paid monthly over the period of the work.
[88] For example, Lord Wharncliffe had required Edmund's potential partners at Carlton to demonstrate that that they had the necessary resources.
[89] Hyslop, *Colliery Management*, pp. 131-133. The requirement for two shafts applied only to collieries employing more than thirty men.
[90] Church, *History of the British Coal Industry, vol. 3*, p. 112.

the first three years were occupied in shaft-sinking, on which rather over £11,000 was expended.[91] In 1865-1866, following completion of the shafts, £12,000 was spent on opening out the colliery. Production began in 1866 and a further £12,000 was invested between 1867 and 1871.[92]

Table 3.3: Sources of capital for Nostell Colliery to 31 December 1871

Source		*Amount*	*Per cent of total*	*Interest rate p.a. (per cent)*
Loans:				
	Mrs Thornber	£9,825	27.5	4
	Rev. Cookson	£1,550	4	4½
	Mr Shaw	£3,500	10	4
	Sub-total:	£14,875	41.5	4.05
Internal:				
	Timber from Lincs. estate	£473	1.5	n/a
	Coal from Wragby Colliery	£2,938	8	n/a
	Transfers from Estate Account	£6,430}	32	n/a
	Transfer from Estate Account (note 2)	£5,096}		n/a
	Wagons (note 1)	£6,136	17	n/a
	Sub-total:	£21,074	58.5	
	Total	**£35,929**	**100**	**1.7**

Notes: 1. The payments for wagons on lease purchase were charged to revenue when production started but included in capital in order to calculate the colliery's return on investment. 2. The balance of £5,096 was resolved by a further transfer from the Estate Account in 1872.
Source: All information from 'Receipts and expenditure on capital account' except the wagon capital which is from the Wagons account, both in General Financial Statements Book 1866-1882, 2/1, WYL523, WYL1352, both WYAS (W).

The capital was raised from the sources shown in Table 3.3. 40 per cent were loans, which the Winns obtained through a solicitor (J. B. Dickson) in the traditional provincial landowner's manner. Dickson's business was largely conducted by personal contact with lenders, rather than through a centralised and organised market. For example, he wrote to Rowland in 1865 that he had failed to obtain a suitable loan in Preston, but would try in Liverpool 'when he went there soon'.[93] Although all the colliery loans were obtained from private individuals, Dickson's range of contacts

[91] £8,250 of the £11,000 was spent on shaft sinking. The two main shafts were sunk consecutively rather than simultaneously, standard practice in the interest of proving the ground so that the project could be abandoned at minimum cost if excessive water was discovered, the coal was found to be of poor quality, or some other insuperable difficulty was encountered.
[92] The £12,000 spent between 1867 and 1871 included £6,000 paid out of revenue for railway wagons, but treated for revenue purposes as a capital expenditure. Abstract of drawings on capital account, 1862-1883, 5/7, WYL523, WYAS (W).
[93] Letter Rowland to Charles Winn, 28 August 1865, A/1/8/1, WYL1352, WYAS (W).

included corporate bodies such as the London, Liverpool and Globe Insurance Co., as by 1860 insurance companies were important commercial lenders.[94] The loans for the colliery were taken as the need arose, £6,000 being borrowed for shaft sinking in July 1864, a further £1,500 for cottages in September 1865, and the remainder in 1867.[95]

The cash flow from the ironstone and the competitive loan rates obtained by a trusted agent reduced the burden and risk of capitalising the colliery, and Rowland attempted to further minimise any threat to the estate's financial stability by offering collateral other than land. A loan was taken on the security of the Trent, Ancholme and Grimsby Railway Co. shares, and Rowland tried to secure the loan from Mrs Thornber on the colliery plant and coal seams.[96] The lender, who preferred the solidity of land, rejected the proposal. Rowland expressed his irritation to his father:

> I am sorry the money is not borrowed on the works and the coal, as I should have preferred it very decidedly to giving land...tho' I could never see why there should be [a difficulty with other security] for if it is not possible for a coal owner to borrow on his coal and on his own colliery works, how can a lessee ever do so; but everyone knows this is done every day – however perhaps a trifle higher rate might have to have been paid.[97]

Rowland's final comment confirmed that money could be more cheaply borrowed on solid security. This would appear to give an advantage to a landowner seeking a loan for commercial purposes, as he would have land to offer as security rather than the assets and goodwill of the enterprise itself – albeit at the cost of encumbering the estate. For his part, Rowland was reluctant to take loans on security that he considered excessive, telling Dickson to reject the London, Liverpool and Globe Insurance Co.'s demand for a life assurance policy in addition to land to secure a loan for the construction of miners' cottages. The proposed arrangement fell through and was replaced by the £1,550 loan from the Rev. Cookson.[98] Rowland clearly preferred the familiar character of the traditional private loan, but the failures to secure the Thornber loan on the colliery or to agree terms with the insurance company suggest that a landowner borrowing money for

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[94] Cottrell, *Industrial Finance, 1830-1914*, p. 253.
[95] Letters Rowland to Charles Winn, 9 July 1864, 28 August 1865 and 20 December 1867, A/1/8/1, WYL1352, WYAS (W).
[96] Letter Rowland to Charles Winn, 9 July 1864, A/1/8/1, WYL1352, WYAS (W).
[97] Letter Rowland to Charles Winn, 20 December 1867, A/1/8/1, WYL1352, WYAS (W).
[98] Letters Rowland to Charles Winn, 28 August and 12 September 1865, A/1/8/1, WYL1352, WYAS (W).

industrial purposes was a combination that did not fit comfortably into either the commercial or private loan markets.

The Winn estates acted as surety for the loans, and 9.5 per cent of the colliery's capital was supplied in kind from the estates' human and physical resources. Coal from Wragby was provided free of charge to the sinkers to power their machinery, and to Whitham & Co. as payment for two pumping engines. Timber from Appleby was used in the construction works, probably for shaft lining during sinking and in erecting the surface buildings. The miners' cottages were built by estate staff rather than contractors, which Rowland believed was 'decidedly the cheapest plan'.[99] The cottages were built in batches as required so that money need be raised only as operationally necessary: 'Edmund told me that...twenty cottages would do for the present, after the Colliery begins to pay a few additional houses might be added yearly if necessary'.[100] Marsden's recommendation for Carlton that facilities be added at need and the money raised accordingly – a view that had attracted Rowland's scorn - was in fact applied to the colliery. The Winns were open to any 'special offers' that were available, and in 1867 they considered the installation on approval of a Lemielles ventilation fan, a new product trying to establish itself in the English colliery market.[101]

All these manoeuvres suggest the close involvement of the Winns in the project, and their willingness to adopt unconventional tactics. The Winns' own cash contribution was £11,500, under 40 per cent of the total, which was sourced without selling land, although during 1866 Rowland realised £4,000 in WR&GJR shares.[102] The remainder of the cash originated either from ironstone profits or the surplus on agricultural activities, so that 'the plough-back of company profits' constituted as important a source of capital for the Winns' industrial ventures as it did for commercial organisations without landowning connections.[103] Like the loan capital, the cash was supplied as necessary through the course of the project. The transfers from the Estate account to cover capital expenditure took place from mid-1866 to mid-1872, a timescale

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[99] General Financial Statements Book 1866-1882, 2/1, WYL523, WYAS (W); letter Rowland to Edmund Winn, 27 May 1866, quoted in letter Edmund to Rowland Winn, 10 October 1888, A1/10/[291], WYL1352, WYAS (W). Rather surprisingly, there is no record of estate bricks being supplied from the Wragby brickyard.

[100] Letter Rowland to Charles Winn, 28 August 1865, A/1/8/1, WYL1352, WYAS (W).

[101] The apparatus would be removed without cost to the Winns if it subsequently failed specified tests. Letter Ellis Lever to John Roseby, 20 December 1866, C/3/1/9/1, WYL1352, WYAS (W). Only a small number of Lemielle fans were fitted in English collieries, despite its success in France and Belgium, and the Winns probably did not proceed with the installation. A. Hill, *The History and Development of Colliery Ventilation* (Matlock Bath, 2000), p. 75.

[102] 'Nelson has sold some more shares so the colliery difficulty is got over'. Letter, Rowland to Charles Winn, 1 June 1866, A/1/8/1, WYL1352, WYAS (W).

[103] Newton, 'Capital Networks in the Sheffield Region', p. 132.

implying that the Winns took full advantage of suppliers' and bankers' credit facilities.[104] The annual outlay on interest and bank charges for the colliery rose from nearly £700 in early 1867 to over £1,300 in 1870, of which £600 was loan interest and the remainder overdraft charges.[105] The colliery maintained a hefty overdraft on its account for many years at a period when banks were generally less accommodating to mines owned by partnerships or companies. Hudson suggested that in provincial areas there could be an uncertain differentiation between fixed and circulating capital in the minds both of the banks and their customers, so that short-term loans were repeatedly extended.[106] In this instance it is more likely that the long-term maintenance by Charles Winn of an overdraft on his personal account – a typical landowner characteristic – habituated Leatham's Bank to the use of this form of borrowing by the Winns as industrialists as well as landowners.[107]

Church notes that private funding in the coal industry by 1855 was largely provided by various forms of partnership, spreading the cost and risk of an industry in which sole funding 'either by landowner or petty capitalist, became subject to increasing limitations in the context of technological and commercial developments'.[108] The Winns swam against this tide. By funding a colliery on their own land, they were able to source capital as it was required. They had no need to seek sizeable inputs of capital from partners or the members of a company to reassure a landlord of their financial standing, or to enter into formal arrangements that would enable the enterprise's profits to be assigned between shareholders or partners. The Winns capitalised a modern industrial unit in a piecemeal fashion: variously through the means by which estate improvements were made, by loans sourced through traditional routes, and by using income and resources from other estate activities, wholly owned by the proprietor. Capital formation for Nostell Colliery differed from its earlier counterpart at Wragby largely only in scale. Contrastingly, the proposed colliery at Carlton had been conceived as a stand-alone commercial enterprise for which a partnership with other capitalists was an appropriate financial and management vehicle. However, that venture

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[104] 'Receipts and expenditure on capital account' in General Financial Statements Book 1866-1882, 2/1, WYL523, WYAS (W); letters, Rowland to Charles Winn, 9 July 1864 and 12 September 1865, A/1/8/1, WYL1352, WYAS (W).

[105] C/3/1/9/1, WYL1352, WYAS (W).

[106] Hudson, 'Capital and Credit in the West Riding Wool Textile Industry', pp. 69-99; this ref. p. 80; Church, *History of the British Coal Industry, vol. 3*, pp. 168-170. The colliery had an overdraft with Leatham's Bank in Wakefield of around £4,000 in 1867, rising to £8,200 in 1872. Letters Rowland to Charles Winn, 7 October 1867, and Edmund to Rowland Winn, 15 August 1872, A/1/8/1, WYL1352, WYAS (W).

[107] Sturgess, *Aristocrat in Business*, p. 5; Spring, *The English Landed Estate, p.* 15.

[108] Church, *History of the British Coal Industry, vol. 3*, p. 125.

foundered on the landowner's instinct to avoid risk, whether the risk was incurred by exposing the family estate to the possibility of failure by a colliery or by accepting a 'non-gentleman' as a partner.

The *Times* in the mid-1850s suggested that 'your modern English peer is a sharp land agent or conveyancer', and this was a fair description of Rowland Winn in the decade after the discovery of the Appleby ironstone. His careful attention both to commercial strategies and to the financial detail of loan security and capital investment implied that while he might not have considered his behaviour as a landowner to be 'regulated by the opinions of the middle classes', as Bagehot put it, it was certainly influenced by their habits and aspirations to entrepreneurship, efficiency and profit.[109] Rowland's striving after economy and modest personal habits made him the model of the 'sobriety and prudence' that was characteristic of the mid-Victorian aristocracy.[110] At the same time, he was strongly influenced by the traditional landowner traits of the preservation of the estate from external economic threats, and the need to support all members of the family. The following chapters will examine the outcome of these various influences on the success of the colliery, and the Winn family, from 1866 to the outbreak of the First World War.

[109] Walter Bagehot quotations: *The Times* from 1854, and *Literary Studies*, published in 1879. Both quotes from D. Spring, 'English Landed Society in the Eighteenth and Nineteenth Century', *Economic History Review* vol. 17 no. 1 (1964), pp. 146-153; this ref. p. 152.
[110] Thompson, *English Landed Society*, p. 286.

Chapter 4

An outline history of Nostell Colliery, 1866-1914

Introduction

This short chapter summarises Nostell Colliery's history from its opening in 1866 until the First World War, an outline that serves as background to the remainder of the thesis. Two key periods are identified, 1866-1888 and 1889-1914. Prosperity in the inflated prices of the early 1870s was succeeded by a lengthy run of poor returns, so that in 1883 the Winns decided to redevelop the colliery to achieve a higher level of production. Once the redevelopment had been completed and the new colliery came into full production, the Winn family derived a consistent profit from its coal during the quarter century from 1889 to 1914.

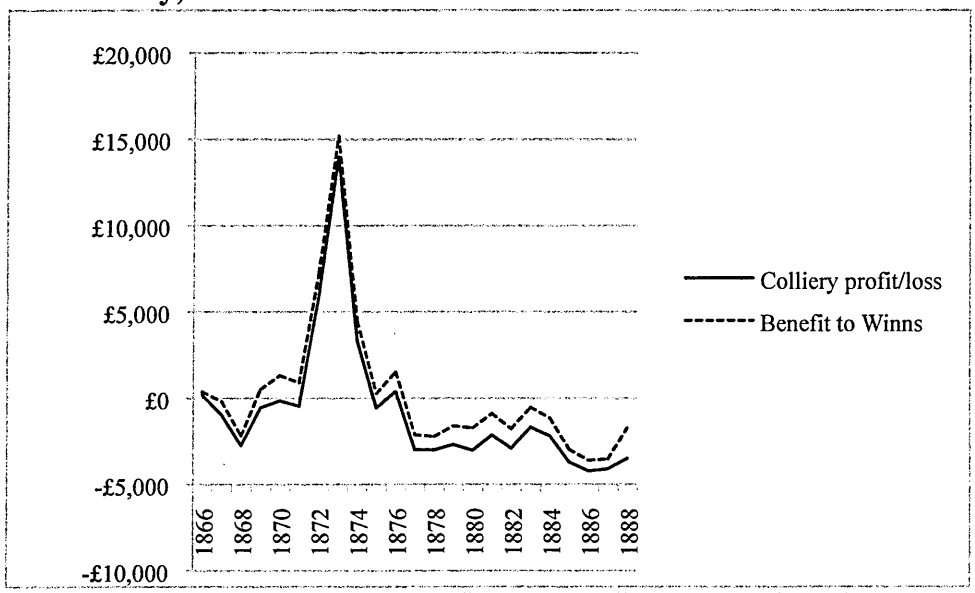
Nostell Colliery, 1866-1888

Nostell Colliery commenced production in autumn 1866, roughly six months after the opening of the WR&GJR, excellent timing for a project that had been contemplated for nearly a decade. From 1866 to 1888 the colliery was profitable in only five years, cumulative losses amounting to nearly £17,000.[1] This deficit would have been larger but for the high prices and profits of the early 1870s 'coal famine', of which a contemporary remarked that 'hills of rubbish became valuable gas coal...heaps of dross, all green with age, disappeared into the hungry market'.[2] However, because the colliery paid to the Nostell estate a royalty of 6d per ton of coal produced, the benefit to the Winns from their coal was always more favourable than the financial performance of the colliery alone.[3] The total return from the coal business was positive in nine years between 1866 and 1888, during which the Winns received a cumulative profit of £6,500. Including the coal royalty, the Winns' investment in the colliery of around £55,000 over this period therefore earned an average annual rate of return of only 0.5

[1] This figure includes the profit/loss from railway wagon hire and cottage rentals, which were accounted for separately from the colliery but were closely associated with its operation.
[2] Hyslop, *Colliery Management*, p. 507.
[3] The royalty is also referred to in this chapter as the coal rental. This payment was included in the colliery costs.

per cent over twenty-three years.[4] Figure 4.1 presents the profitability of the colliery and the coal business as a whole.

Figure 4.1: Annual profit and loss of Nostell Colliery and overall benefit to the Winn family, 1866-1888

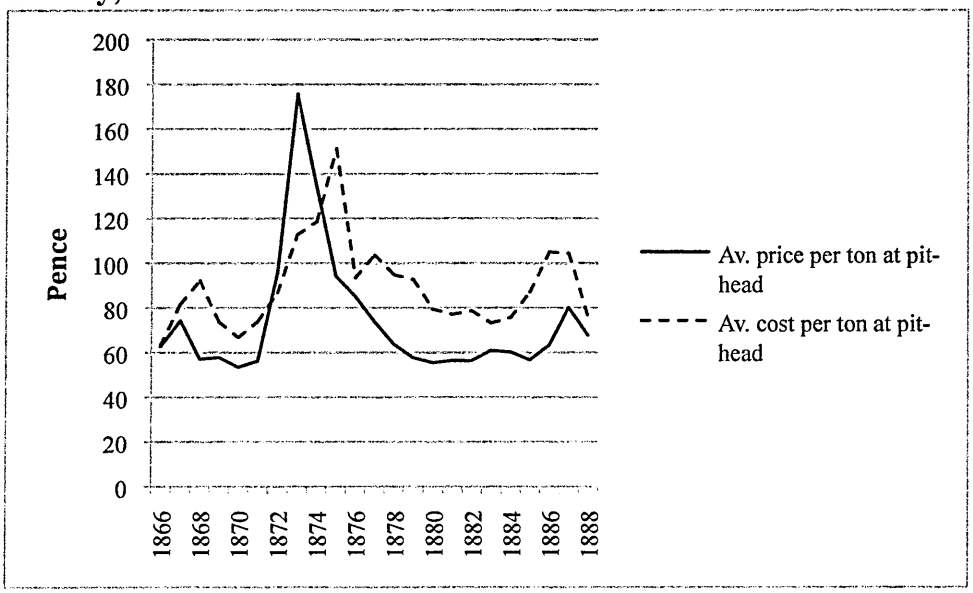


Note: 'Overall benefit' is the annual profit/loss by the colliery, wagon hire and cottage rents plus the coal royalty.
Source: 2/1, 2/3, 2/4, 2/6, and 2/7, WYL523, WYAS (W).

The colliery in its 1866 form was profitable only during periods of high prices. Figure 4.2 illustrates this point, and also the tendency - particularly noticeable after the period of price inflation – for costs to rise and fall more slowly than prices. Costs lagged at the start of the boom, but between 1873 and 1876 the average price fell over 50 per cent while the cost of production decreased by little more than a quarter.[5] Wages constituted 70-80 per cent of total working costs at Nostell in the 1870s and 1880s, and the 'stickiness' of costs is largely attributable to delays in the adjustment of miners' pay to the cycles of the coal market.[6]

[4] The figure of £55,000 is the undepreciated capital invested in the colliery to the end of 1888, including wagons. It excludes cottages, which were not treated as part of the colliery capital between 1878 and 1894, and the expenditure on deepening the shafts.
[5] Colliery data from C/3/1/9/1, WYL1352, and 2/1, WYL523, both WYAS (W).
[6] Other industries, including the railways, experienced a similar refusal by wage rates 'to adjust...to downward movements in...revenue and the general price level in the later 1870s'. R. J. Irving, 'The Profitability and Performance of British Railways, 1870-1914', *Economic History Review* vol. 31 no. 1 (1978), pp. 46-66; this ref. p. 51; Gourvish, *Railways and the British Economy*, p. 46.

Figure 4.2: Average pithead price and production cost of coal per ton at Nostell Colliery, 1866-1888



Source: 2/1, 2/3, 2/4, 2/6, and 2/7, WYL523, WYAS (W).

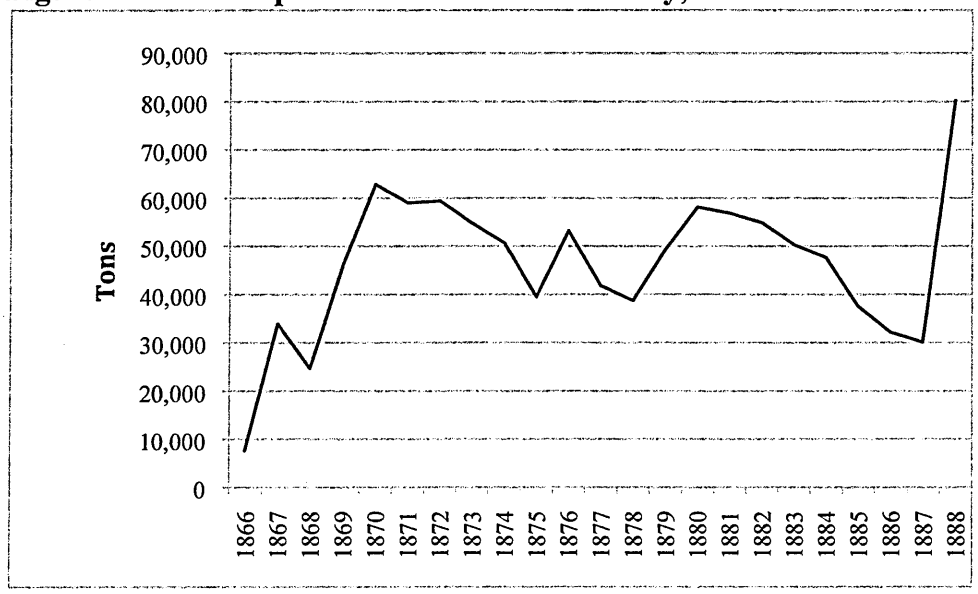
Edmund was the general manager of the colliery from 1866 to 1888. Initially, responsibility for the technical aspects of the colliery lay with Edmund and the underground manager. However John Roseby, who had an advisory role during the colliery's sinking and fitting out, was appointed viewer in the summer of 1868, responsible for the engineering aspects of the operation.

The early 1870s boom provided windfall profits for Nostell, but also attracted substantial new investment into the coal industry. As a result, later in the decade 'new, enlarged, deeper and more capital-intensive pits disgorged supplies onto a market in which prices had stabilised at levels below those current in the 1850s and 1860s'.[7] From 1877 into the early 1880s the Winns' royalty receipts did not cover Nostell's mounting losses. During this period both Edmund and Rowland were much involved with the ironstone, and the colliery received little attention in the brothers' correspondence. Roseby was dismissed in 1880, by which time the losses at Nostell were becoming unsustainable.[8] Following a debate between the brothers on the colliery's future, it was decided to deepen the shafts to the lower coal measures, which promised a higher output of a better class of coal. Sinking began in spring 1884 and the shafts had been extended to the Beamshaw and Winter seams at around 400 yards depth by autumn 1887, at a cost of £10,250. Production increased substantially in 1888 after a period of low output during the deepening operations (Figure 4.3), and in that year the

[7] Church, *History of the British Coal Industry, vol. 3*, p. 60.
[8] Roseby died on 12 January 1882. *York Herald,* 21 January 1882.

Winns' losses were halved in comparison to 1887. This was achieved despite a 15 per cent fall in the pithead price.

Figure 4.3: Annual production at Nostell Colliery, 1866-1888



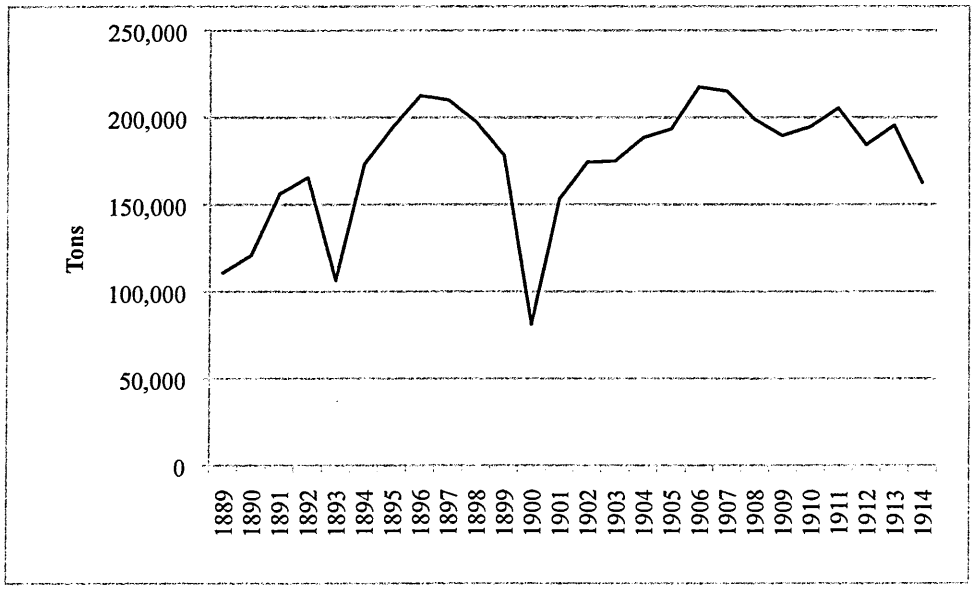
Note: Output in 1884-1887 was adversely affected by the development works.
Source: All information from 2/1, 2/3, 2/4, 2/6, and 2/7, WYL523, WYAS (W).

A significant event in 1888 was the appointment of George Winn, Rowland's fourth son, as successor to Edmund as general manager of the colliery. It therefore ended the 1880s under new management and with a higher productive capacity.

Nostell Colliery, 1889-1914

Production rose swiftly following the deepening of the shafts, so that the average annual output at Nostell of 175,500 tons for 1889-1914 was nearly four times that for 1866-1888 (46,500). The consistency of the colliery's output up to the First World War is shown in Figure 4.4, punctuated by lengthy strikes in 1893 and 1900. The financial position of the coal business was revolutionised by the shaft deepening, and - in contrast to the struggle to break even in earlier years - the Winns realised an average annual profit of nearly £9,000 over the period 1889-1914. The colliery recorded a profit in all but four years in the period, while the overall benefit to the Winns was in surplus in every year. The impressive turnaround in the colliery's fortunes after 1888 can be seen in Table 4.1 and Figure 4.5.

Figure 4.4: Annual production at Nostell Colliery, 1889-1914



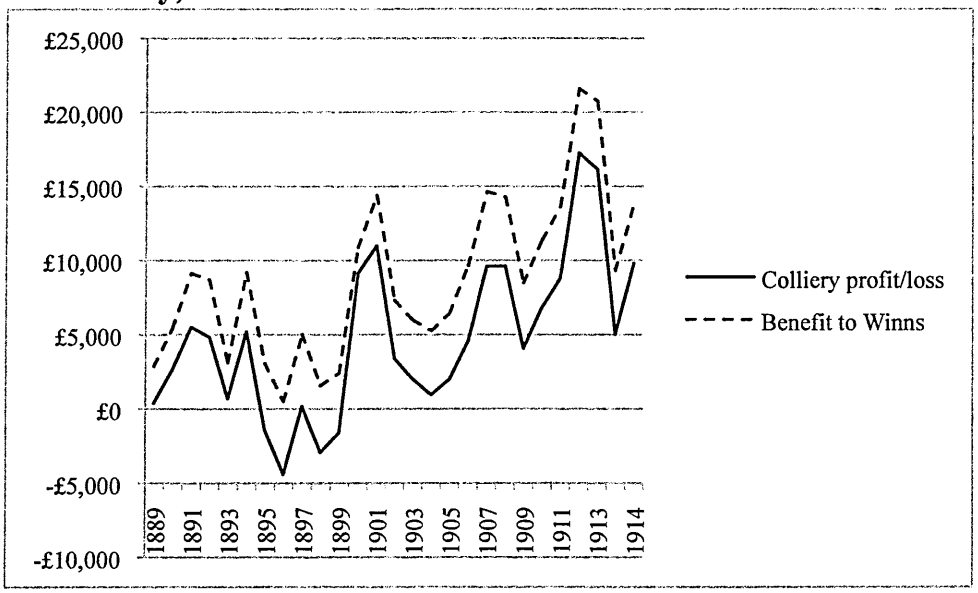
Note: The strikes in 1893 and 1900 each lasted over five months.
Source: 2/1, 2/3, 2/4, 2/6, and 2/7, WYL523, WYAS (W).

Table 4.1: Cumulative colliery profit/loss and overall benefit to the Winns, 1866-1888 and 1889-1914

Period	*Colliery profit/(loss)*	*Royalty payments to Winn estate*	*Benefit to the Winns*	*Average benefit p.a.*
1866-1888	(£16,779)	£23,240	£6,461	£281
1889-1914	£125,252	£105,328	£230,580	£8,868
1866-1914	£108,473	£128,568	£237,041	£4,837

Source: 2/1, 2/3, 2/4, 2/6, and 2/7, WYL523, WYAS (W).

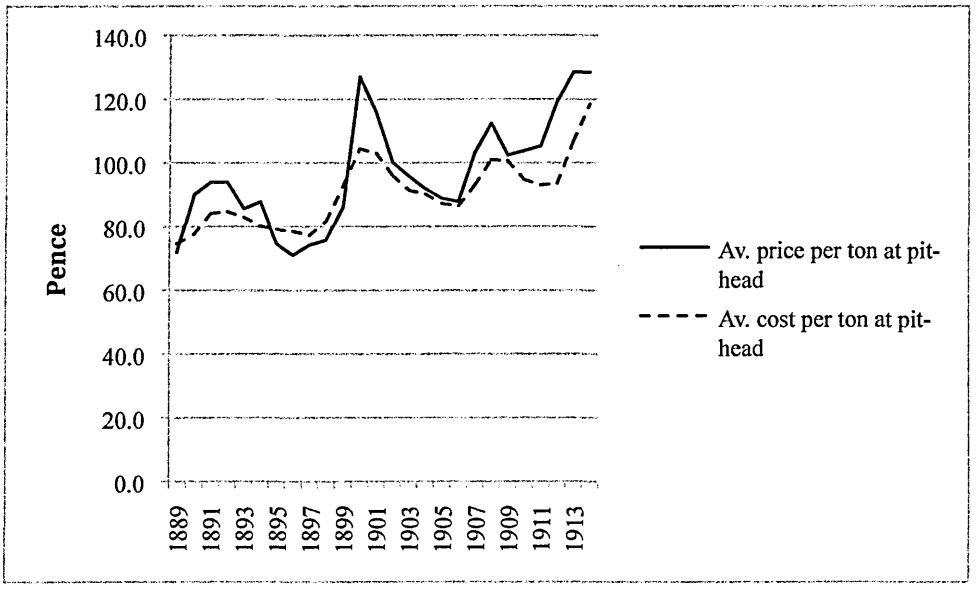
Figure 4.5: Annual profit and loss at Nostell Colliery and overall benefit to the Winn family, 1889-1914



Note: 'Overall benefit' is the annual profit/loss by the colliery, wagon hire and cottage rents plus the coal royalty.
Source: All data from 2/1, 2/3, 2/4, 2/6, and 2/7, WYL523, WYAS (W).

Prices in the coal market generally rose from 1889 to 1914 and although average production costs at Nostell also increased, they were kept under control. Nostell's average sale price in 1914 was over 75 per cent higher than that of 1889, outperforming the corresponding average national pithead price rise plotted by Church.[9] Figure 4.6 illustrates the cyclical nature of the coal market in the quarter century preceding 1914. Prices peaked in the early 1890s, in 1900-1901, 1907-1908 and 1911-1913, and these events were reflected in the colliery's profit performance.

Figure 4.6: Average pithead price and cost of coal per ton at Nostell Colliery, 1889-1914



Source: All data from 2/1, 2/3, 2/4, 2/6, and 2/7, WYL523, WYAS (W).

As output increased at Nostell so did employment. In the early 1870s the underground workers at the pit totalled around 100.[10] This figure probably remained stable until the shaft deepening in 1884-1887, and then increased in line with the colliery's production. By 1894, Nostell's annual output was touching 200,000 tons and employee numbers had risen to 600 underground and around 150 on the surface. After the colliery redevelopment the Winns modernised various aspects of its work practices and equipment. Long-wall mining was introduced to replace the traditional room-and-stall method. Electricity was used to power lighting above and below ground. Electrically powered coal cutters were used from 1888 onwards. At senior level the management of the pit changed little over the period. George Winn was general

[9] Church postulated a rise of around 50 per cent over the period 1889-1913. Church, *History of the British Coal Industry, vol. 3*, p. 53. The average price realised for Nostell's coal was affected by the changes in the nature of the coal sold by the colliery that are discussed in Chapter 5.

[10] During a prosecution brought by the Winns of Nostell miners who were in breach of their contract by failing to report for work, Edmund stated that 'it was no uncommon thing to see only about 50 men resuming work out of a regular [underground] staff of 95'. *Leeds Mercury*, 18 March 1873.

manager throughout, supported by William Spencer as viewer until his replacement in 1910 by G. H. Ashwin. The resident management at the colliery was also stable. In 33 years there were only three colliery managers - William Hay (1881-1896), James Linday (1897-1898) and George Kenyon (1899-1914) – and on the commercial side the sales manager was of very long standing.[11]

The success of the colliery in the early years of the twentieth century, and the profits accrued from the ironstone, enabled the Winns to build up a share and bond investment portfolio of over £500,000 by 1917. Their holdings were in a wide range of locations and industries but primarily in colonial, American (north and south) and Asian mines, railways and ports, in central and local government bonds.[12] This was far from the late 1850s when Rowland sold paintings for cash to meet the family's bills.

In 1914 Nostell Colliery was one of the few in Britain that remained the personal possession of a landowner and aristocrat. Although its output was moderate by the standards of the eastern extension of the West Yorkshire coalfield on which it was located, the colliery was a prosperous operation with an experienced and technically competent management that was willing to try modern methods. It formed part of a portfolio of industrial enterprises and investments that had transformed the Winns' financial status. The pathway to success had not been entirely smooth, and the following chapter will examine the capital asset and accounting policies that underpinned the colliery's commercial performance.

[11] All staffing information from Home Office, *List of Mines* (London, 1881 onwards), passim.
[12] A1/10/[291] 1st and 2nd Lords St Oswald, misc. corres, 1875-1894, WYL1352, WYAS (W).

Chapter 5

'A proper analysis of what the money has been expended for...':[1] capital expenditure at Nostell Colliery 1866-1888 and accounting for Nostell's coal

Introduction

Chapter 5 analyses the colliery's capital in more detail. Firstly it examines the effect that the restrictions of capital spend on the colliery in the 1860s had on its competitiveness, and moves on to investigate the proportions of capital spent on different types of equipment and facility at Nostell. Comparison is made with coal industry norms for expenditure on shafts, worker housing, transport facilities and other forms of capital. The final section of the chapter examines accounting practices at Nostell's collieries from the late eighteenth century up to 1914, and places them in the context of the evolving discourse on accounting history.

Spending the capital: fixed assets at Nostell Colliery 1866 to 1888

By late 1871 Nostell Colliery was in the condition in which it largely remained until the redevelopment of 1884-1888: two shafts sunk 140 yards to the Shafton seam, a third, shallower shaft for ventilation and drainage purposes, and sufficient plant and siding accommodation for an output of around 1,000 tons per week. The total capital invested was just under £36,000. While direct comparisons are difficult because of the variables involved, in 1860 most British collieries selling more widely than local landsale possessed capital in the range £8,000 to £25,000, although in the north-east of England expenditure on a new colliery might reach well over six figures.[2] This suggests that Nostell was heavily capitalised for a colliery of modest output. Another indicator also hints at this conclusion. Nostell's average annual net production of around 50,000 tons between 1866 and 1885 was 20,000 tons fewer than John Walker believed would be necessary for a £40,000 investment at Carlton to be profitable.[3] It will be recalled that

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[1] Letter, John Roseby to Edmund Winn, 5 July 1868, C/3/1/9/3, WYL1352, WYAS (W).
[2] Fordyce, *History of the Coal, Coke, Coalfields and Iron Manufacturing*, p. 44; Church, *History of the British Coal Industry, vol. 3*, p. 122.
[3] Letter, John Walker to Rowland Winn, 5 September 1854, and production notebook 1854-1875, both C/3/1/9/1, WYL1352, and 2/1, WYL523, all WYAS (W).

Nostell was sunk only to the shallow Shafton seam because of the limitation that Rowland placed on the capital that he was able to raise without over-stretching the family's resources. By working the Shafton seam the cost of the colliery was reduced compared to sinking to the deeper measures, but the potential output was also reduced. Output was largely dependent on the quality and thickness of the coal being worked, and the Shafton seam was not as productive as the Barnsley and Stanley Main beds that lay 250 yards below it.[4] These seams were being worked by most of Nostell's local competitors, the numerous large collieries that were established in the late 1860s and early 1870s in the Castleford-Featherstone area and in south Yorkshire, and whose output dwarfed Nostell's.[5]

A crucial element of a colliery's likelihood of financial success was its productive capacity, as although price fluctuations influenced return in the short run, over the longer term 'tonnage was regarded as the primary factor influencing potential profitability'.[6] A high level of production enabled economies of scale that compensated for the expense of shaft-sinking and equipment. At Nostell the Shafton seam contained two dirt partings that made it expensive to work and to prepare for sale. It also had difficulties in commanding a good price for its products. The coal market was highly differentiated by grade and coal from the deeper seams could command a higher price than those of the Shafton, which produced some good gas coal but whose output was mainly steam coal of moderate quality.[7]

Between 1866 and 1888 the average pithead price of coal at Nostell remained fairly stable at around 5/- to 6/- per ton, while the average cost per ton consistently exceeded this price by between 10d and 20d. The exception to this rule was during the price inflation in 1873-1875 (Table 4.2). In order to secure consistent profitability when working the Shafton seam, Nostell Colliery required one or more of the following conditions to be fulfilled: a very high market price to be maintained; a reduction to be made in the colliery's operating costs to compensate for the high fixed overhead; or an increase in production and sales volumes to be achieved while controlling variable cost. However, unless it could find a quasi-monopolistic niche market, Nostell was unlikely

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[4] HMSO, *Geology of the Country round Wakefield* (London, 1940), p. 87.

[5] Collieries sunk 1865-1875 included Manvers, Sharlston, Woolley (new), Featherstone Main, Rothwell Haigh, Whitwood and Carlton Main. C. L. Baylies, *The History of the Yorkshire Miners, 1881-1918* (London, 1993), p. 10. Middleton Colliery, east of Leeds had raised around 60-100,000 tons p.a. throughout the period 1810-1840. Rimmer, 'Middleton Colliery', p. 55.

[6] Church, *History of the British Coal Industry, vol. 3*, p. 511.

[7] The 'all–important' Barnsley seam was the 'thickest, most constant and most valuable seam in the coalfield', yielding steam, gas, house and coking coal. J. V. Elsden, and J. Griffiths, *Analyses of British Coals and Coke* (London 1924), pp. 98-100.

to have much control over the selling price for its product. It sold in the railway market, a regime of intense price competition to which all suppliers were subject.[8] The nature of the Shafton coal and its production difficulties prevented sufficient improvement in working costs, product quality or output volume to meet the other conditions. The issues of transport and market pricing will be considered in the next two chapters, so for the moment it is sufficient to reiterate that maintenance of consistent profitability at Nostell was a problem for the Winns from 1866 to the late 1880s.

The colliery's predicament brings into focus the alleged shortcoming of the family firm. Critics of personal capitalism argue that by restricting capital formulation to a single family's resources, the resulting enterprises may be too small to take full advantage of economies of scale.[9] This could be a particular disadvantage in an industry like coal mining, in which the entry cost became higher as the industry matured and easily accessible seams became worked out. Capital expenditure on collieries was also liable to incremental stages, so that a relatively small additional investment to reach a richer seam could realise a much higher level of production.[10] Production at Nostell quadrupled when the colliery's shafts were deepened to the Stanley Main seam in the 1880s. The cost was approximately £15,000, or less than half the original investment. The increased production enabled the overhead of fixed costs per ton to be reduced to under 20 per cent from the 25-30 per cent that had been the standard from 1869 into the 1880s.[11] Nostell Colliery in its original form was effectively hamstrung by the amount of capital that the Winns were able to spend.

To place Nostell more precisely in the context of the contemporary coal industry, the colliery's capital cost will be assessed from the perspective of the types of asset purchased. For this purpose Church's analysis of the nineteenth century coal industry's capital deployment will be used, which identified three categories of asset in which capital was invested.[12] The first category was the mining assets: items of fixed capital necessary to raise and process the coal, including shafts, surface plant, railways, wagons, horses and ancillary functions such as coke and brick works. Church included coke works in this category because coke could be a colliery's sole product. The inclusion of brick-making is less compelling because although it was a by-product of

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[8] Mitchell, *Economic Development of the British Coal Industry 1800-1914*, p. 294.
[9] Kindleberger, *Economic Growth in France and Britain*, p. 124; A. Colli, *The History of Family Business, 1850-2000* (Cambridge, 2003), p. 9.
[10] Hyslop, *Colliery Management*, p. 294.
[11] General charges included rent of coal, salaries and office expenses, discounts, rates and taxes, overdraft and loan interest, sundries, rent of wagons); 5/8, WYL523, WYAS (W).
[12] Church, *History of the British Coal Industry, vol. 3*, pp. 108-111.

the frequent co-existence of fireclay and coal, it was rarely the raison d'être for collieries of significant size.

The second category comprised the colliery assets, which added to mining assets items such as workers' housing, land and farms. Church noted that housing could be crucial to collieries in rural areas that would otherwise be unable to maintain an adequate workforce.[13] In the 1840s Seymour Tremenheere, the first Mines Inspector, observed that the urban location of many collieries in the West Riding meant that miners' housing was integrated with that of other industrial workers. However, in the following twenty years, the expansion of the coalfield east of Wakefield took mining into a previously agricultural area in which new housing had to be built for the workforce. As a result, many single-industry colliery settlements were established, a phenomenon little known in the western part of the coalfield.[14] Rowland's plans for Nostell recognised that housing was an essential part of the colliery's capital, and he built miners' rows in Wragby and the nearby village of Crofton. Company housing did not merely ensure adequate numbers of workers. It also enhanced the colliery's efficiency through a stable body of pitmen familiar with local mining conditions. As Edmund remarked to his brother, working the Shafton seam meant that 'lodgers are little use [because] as soon as work improves they are off', to a colliery in which coal-getting was easier.[15] For many collieries in rural locations, houses were not, as Church suggested, 'complementary' to profitable mining operations, but an essential element of the enterprise that might appropriately be included in the mining assets.[16] However, for comparative purposes with Church's aggregate figures, the houses at Nostell will be incorporated in colliery assets.

The final category of asset identified by Church was total company assets, encompassing mining assets and all the other items in a corporate asset structure. This category will be ignored because Nostell was a small organisation relative to the large joint stock companies increasingly common in the later nineteenth century coal trade,

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[13] The coalfields mentioned by Church were north-east England, the East Midlands and Scotland.

[14] Tremenheere believed that the integration of mining with other industrial pursuits encouraged the miners to 'partake of the general habits of the labouring classes in Yorkshire, which are those of attention to domestic propriety and cleanliness'. British Parliamentary Papers, *Reports from Commissioners on Mining Districts, 1839-1849: Mining Districts 1* (Shannon, 1971), p. 20; Buxton, *Economic Development of the British Coal Industry*, p. 134.

[15] By 'lodgers', Edmund meant men without their families working at Nostell and livings in lodgings because they could not find a job in a colliery with easier working conditions or in their home area. Letter Edmund to Rowland Winn, 19 January 1882, A/1/10/[291], WYL1352, WYAS (W).

[16] Church, *History of the British Coal Industry, vol. 3*, p. 108.

and the development of a corporate infrastructure servicing a number of operational units was unnecessary.

Most of Nostell Colliery's major individual assets can be identified, although a brickyard, which certainly existed from the earliest days of the colliery, was not accounted for independently until 1893. A breakdown by asset description of the colliery's capital at 31 December 1871 is shown in Table 5.1.

Table 5.1: Nostell Colliery's capital to 31 December 1871, by asset type

Asset	*Cost*	*Per cent Mining Assets*	*Per cent Colliery Assets*
Shafts	£8,250	28	23
Underground and surface plant	£11,700	40	33
Railways and roads	£3,100	11	9
Wagons	£6,300	21	18
Mining assets	**£29,350**	**100**	**83**
Houses	£6,100	n/a	17
Colliery assets	**£35,450**	**n/a**	**100**

Notes: 1. The financial reporting procedures at Nostell for this period did not depreciate capital and the figures represent cumulative actual capital spend;
2. 'Underground and surface plant' includes £1,000 for 'Management and interest'.
Source: General Financial Statements Book 1866-1882, 2/1, WYL523, WYAS (W).

Church calculated mean figures for each asset category in a sample group of enterprises for the period 1870-1913. The sample consisted of nine middling to large collieries, including two from Yorkshire, although Church asserted that 'there are no obvious reasons why the mass of smaller middle-sized firms...should have possessed a noticeably different asset structure so far as mining assets are concerned'. It contained collieries with and without the 'optional' elements, such as coke works and housing.[17] The national figures for mining and colliery assets from Church's calculations are compared with those from Nostell in Table 5.2 below.

[17] Church, *History of the British Coal Industry, vol. 3,* p. 110.

Table 5.2: Nostell Colliery's mining and colliery capital, 1871, in comparison with a national sample of collieries, 1870-1913

	Mining assets		*Colliery assets*	
	Sample (per cent)	*Nostell (per cent)*	*Sample (per cent)*	*Nostell (per cent)*
Shafts	40	28	32	23
Underground and surface plant	44	40	36	33
Railways	11	11	9	9
Wagons	5	21	5	18
Houses	n/a	n/a	19	17

Sources: Nostell information from Table 3.3; sample figures from Church, *History of the British Coal Industry, vol. 3,* pp. 112-113.

The most noticeable discrepancies between Nostell and Church's sample are the proportions spent on the shafts and on railway wagons. The average depth of new sinkings in England in 1870-1913 was substantially greater than earlier in the nineteenth century, as easily accessible seams became worked out and deeper beds had to be exploited.[18] As we have seen, in Nostell's district most new pits were sunk to the Barnsley coals, necessitating shafts nearly three times the depth of Nostell's, so that expenditure on Nostell's shafts was low in comparison with the sample.[19]

In contrast, the proportion of Nostell's capital spent on wagons was significantly above Church's mean. Several factors influenced this. Firstly, the capital spent on non-wagon assets was reduced because of the relatively low spend on sinking, which would account for some of the proportional variance. Secondly, the capital cost of wagons to the coal trade may be underestimated in Church's figures. Wagon costs appeared in some colliery companies' accounts as a working expense and not as capital because they hired rather than bought or leased their rolling stock. In addition, joint-stock colliery companies used various methods to keep wagon purchase costs off their balance sheets so that the apparent rate of return on capital was enhanced – an attractive policy if capital was not depreciated and the management wished to impress shareholders with the value of their investment.[20] Nostell Colliery, as Charles Winn's personal property, had no need for such ploys. Finally, the colliery was probably over-provided with wagons. Nostell's output suggests that the colliery required 150-200 wagons, but they owned c250. They were also not being used with the greatest efficiency. Discussions between Edmund and Rowland in the 1880s suggest that the

[18] Church, H*istory of the British Coal Industry, vol. 3*, p. 113.
[19] Dintenfass, *Managing Industrial Decline*, pp. 52-54
[20] Church, *History of the British Coal Industry, vol. 3*, pp. 158-159.

average number of journeys undertaken by each wagon was below the optimum, due to slow turn-round on deliveries and their use to store unsold coal at the pit.[21] A combination of these factors resulted in a higher proportion of Nostell's capital being spent on wagons than in Church's sample. Issues relating to the deployment of wagons are discussed in more detail in Chapter 6.

Accounting for coal: definitions and historiography

The remainder of this chapter examines the process of accurately measuring costs, revenue and profitability at the Winns' collieries. The coal trade in England in the second half of the nineteenth century was a difficult one in which to achieve consistent commercial success. The industry was highly competitive, and had rising entry barriers and elevated levels of physical and commercial risk. It was prone to sharply defined price/demand peaks and troughs associated with economic cycles.[22] In the 1860s the Winns also had to meet challenges at more personal and local levels. The ironstone was flourishing, but the success of the new colliery remained significant to the family. Its failure would reduce annual revenue from the estate and require another career to be found for Edmund, at additional expense. It would also leave an external debt of £15,000 to be supported out of other estate activities. An important influence on the colliery's performance, as with any commercial enterprise, was an accounting system that delivered accurate, relevant and timely information to the management.[23]

Financial information in a commercial enterprise originates from two distinct sources: the financial account and the management account. The former is the recording and balancing of the external interactions between the organisation and its customers, suppliers and investors, a synthesis that enables the trading and capital performance of the enterprise to be defined through periodic formal statements, particularly the profit and loss account and balance sheet. The management account monitors transactions within the enterprise, recording data arising from the application of the factors of production and the costing of individual procedures so that expenditure can be attributed to the correct point in the production process. These two sources of data

[21] Letters, Edmund to Rowland Winn, 24 October and 12 December 1888, A/1/10[291], WYL523, WYAS (W). The sourcing and use of wagons is discussed at greater length in Chapter 6.
[22] H. F. Bulman and Sir R. A. S. Redmayne, *Colliery Working and Management* (London, 1921), p. 31.
[23] 'Numerous studies and government reports show that the largest cause of business failure is the lack of an effective accounting system, the controls it includes, and the reports, documents and sources it generates'. E. L. Summers, *Accounting Information Systems* (Boston, 1991), pp. 40-41, quoted in T. Boyns and J. Wale, 'The Development of Management Information Systems in the British Coal Industry, c. 1880-1947', *Business History* vol. 38 no. 2 (1995), pp. 55-80; this ref. p. 58.

provide 'accounting information...of direct assistance to the management in the formulation of policy and in the day-to-day control of a business'.[24] In addition there are non-financial data that inform the accounting material. For a colliery, these could include the quantities of saleable coal raised and the seams from which it was obtained. The combination of financial and management accounts with relevant non-financial information constitute the enterprise's management information system (MIS).[25]

Each of these three elements has a distinct place in accounting historiography. Historians' perception of English accounting since the Industrial Revolution has undergone a significant change in the last twenty years. Amongst leading historians in the 1960s, financial accounting in nineteenth century industrial enterprises was considered to be more advanced and better integrated into professional practice than management accounting, so that, as Pollard expressed it, 'entrepreneurship in the industrial revolution did not develop to any significant extent the use of accounts in guiding management decisions'.[26] Furthermore, it was assumed that cost accounting was likely to have advanced further in factory environments than in extractive industries, because cost inputs could be more easily allocated to the clearly delineated stages of a manufacturing process.[27] These views were based partly on the limited archival evidence of costing data, much of which was informal or ephemeral in nature, and partly on the views expressed by contemporary writers and professional bodies. Accounting literature published prior to the very late nineteenth century was seen as being largely concerned with the outcome of interactions between the firm and its customers. Costing records were considered to be irreconcilable with audited financial accounts as they were usually collected for short-term purposes by 'practical men' - non-accountants, often engineers.[28] Other historians supported Pollard's basic premise on different grounds. Chandler considered that there had been little cost accounting

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[24] T. Boyns and J. R. Edwards, 'Cost and Management Accounting in Early Victorian Britain: a Chandleresque Analysis?', *Management Accounting Research,* vol. 8 (1997), pp. 19-46; this ref. p. 22. The definition is taken from a publication by the Institute of Chartered Accounts of England and Wales, 1954. Edwards and Newell suggest that the distinction between cost accounts and management accounts has become blurred to the point that the terms can be used interchangeably, and this will be the case here. J. R. Edwards and E. Newell, 'The Development of Industrial and Management Cost Accounting before 1850' *Business History* vol. 33 no. 4 (1991), pp. 35-57; this ref. p. 39.

[25] T. Boyns, 'Cost Accounting in the South Wales Coal Industry, c. 1870-1914', *Accounting, Business and Financial History* vol. 3 no. 3 (December 993), pp. 327-352; this ref. p. 329; Boyns et al, 'Development of Management Information Systems', p. 57.

[26] Pollard, *Genesis of Modern Management*, p. 248.

[27] R. K. Fleischman and L. D. Parker, 'British Entrepreneurs and pre-Industrial Revolution Evidence of Cost Management', *The Accounting Review* vol.66, no. 2 (1991), pp. 361-375; this ref. p. 363.

[28] T. Boyns, and J. R. Edwards, 'The Construction of Cost Accounting Systems in Britain to 1900: The Case of the Coal, Iron and Steel Industries', *Business History*, Volume 39, Issue 3, (1997), pp. 1 – 29; this ref. pp. 1-3; Boyns, 'Cost Accounting in the South Wales Coal Industry', pp. 328-329;

prior to the invention of most elements of management accounting by the American railway companies of the 1850-1860s. Alternatively, Solomons suggested 1875 as the starting point for the use of cost accounting on the basis that prior to the 'Great Depression', profit margins were sufficiently high for most firms to be unconcerned with cost analysis.[29]

More recent researchers have challenged these views. A 2005 review of accounting history noted that a major outcome of work undertaken since 1990 had been 'to backdate the chronology for sophisticated cost/managerial accounting' to the Industrial Revolution in Britain and the early nineteenth century in the USA.[30] Similarly, Wilson observes that investigation of contemporary sources shows that management accounting tools were being used widely by 1850.[31] The existence of costing systems in British industry has been detected at dates up to three centuries before 1900, and evidence found of the integration of cost and financial accounts into a single system in several UK industries, including coal and steel. Furthermore, management accounting has been shown to appear in professional literature from the 1870s, a quarter of a century earlier than previously suggested.[32] Similar results are claimed for the USA.[33] These are broadenings not only of the chronology of cost accounting but also of its industrial application. Many of the assumptions implicit in the older hypotheses are therefore under challenge.

With regard to the practical application of the data in management accounts and information systems, however, there is some difficulty in demonstrating their use to inform real-life decisions. The use of MIS data in the production of forecasts and ad hoc reports on specific issues can be identified quite readily, but otherwise much of their contribution must be discerned by inference rather than firm evidence. Even greater difficulty is experienced in judging whether they led to better decisions having been

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[29] Chandler, *The Visible Hand,* p. 109; Edwards et al, 'The Development of Industrial and Management Cost Accounting', p. 36.

[30] Fleischman and Radcliffe, 'The Roaring Nineties', p. 77.

[31] Wilson, *British Business History*, pp. 29-30. Studies showing the development of management accounting include: T. McLean, 'Agent's Reputation, Accounting and Costing in Organisational Control Structures', *The Accounting Historian's Journal* vol. 24 no. 1 June 1997, pp. 1-22; Boyns et al, 'Development of Management Information Systems'; Boyns, et al, 'The Construction of Cost Accounting Systems'; Edwards et al, 'The Development of Industrial and Management Cost Accounting'; Fleischman, R. K., and Macve, R. H., 'Coals from Newcastle: an Evaluation of Alternative Frameworks for Interpreting the Development of Cost and Management Accounting in Northeast Coal Mining during the British Industrial Revolution', *Accounting and Business Research* vol. 32, no. 3 (2002), pp. 133-152.

[32] Boyns, et al, 'The Construction of Cost Accounting Systems', pp. 3, 10; Edwards et al, 'The Development of Industrial and Management Cost Accounting', p. 36.

[33] K. Hoskin and R. Macve, 'Knowing More as Knowing Less? Alternative Histories of Cost and Management Accounting in the US and the UK', *Accounting Historian's Journal, vol.* 27 no. 1 (2000), pp. 91-149; this ref. p. 98.

made.[34] In the context of this shifting ground, the extensive financial records that exist for Nostell and Wragby Collieries from c. 1855, and the more fragmentary evidence from the late eighteenth to the mid nineteenth centuries for Wragby and its predecessor, are reviewed for their contribution to the various debates.

The development of accounting practice at Nostell's collieries

Both formal and ad hoc financial records of the Nostell estate colliery were kept from at least the late eighteenth century.[35] Weekly accounts prepared by the colliery overseer survive from 1779, 1781 and 1805, itemising coal sold on credit and for cash, colliers' wages and stock in hand. Annual calculations of the colliery's profitability are extant for 1802 to 1804 and 1817 to 1833, and statements of cash received from 1806 to 1825. Management accounts were also compiled, shown by the statements produced in 1777 and 1780 of working expenses and employee numbers. External cash flow, production cost and profit/loss information was therefore being produced on at least an occasional basis. Unscheduled events also triggered accounting activity, particularly in measuring current assets. The colliery was valued at the deaths of Sir Rowland Winn (1805) and John Winn (1817), including statements of creditors and total debt as well as the physical assets. There is little evidence on how the financial data produced before 1830 were utilised, although the valuations would have been used in the inheritance process. Nonetheless they display a continuing desire for an understanding of the profit to the estate and of the commercial processes taking place. The recording of detailed labour and material expenses implies an interest in the nature of costs and their use for analytical or comparative purposes.[36] From the late eighteenth century, therefore, the performance of the colliery on the Nostell estate was being periodically tracked in terms of both financial and management accounting data. The detailed and varied nature of the data suggests that they were not – as was the practice in many small collieries at the time - simply intended as a check on the honesty of the underground steward.[37]

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[34] Hoskin et al, 'Knowing More as Knowing Less?', p. 107; Boyns, 'Cost Accounting in the South Wales Coal Industry', p. 342; Boyns et al, 'Development of Management Information Systems', p. 76.

[35] 'Formal' in the sense that they were concerned with a specific time period and had a clear objective; for example, of measuring the profit and loss for a stated year. Wragby Colliery was sunk in the 1830s, and the mine that preceded it was known as Nostel (sic) Colliery ('Nostell' became the standard spelling during the later nineteenth century). Its exact location is unknown.

[36] All documents referred to in this and the following paragraph are from C/3/1/9/1 and C/3/1/9/3, WYS1352, or 1/4 and 1/7, WYL523, WYAS (W).

[37] B. F. Duckham, 'The Emergence of the Professional Manager in the Scottish Coal Industry, 1760-1815', *The Business History Review* vol. 43 no. 1 (Spring 1969), pp. 21-38; this ref. p. 32.

Following the sinking of Wragby Colliery in 1833-1834, there is increased evidence of the maintenance of both financial and management accounts, and of their use in management decision-making. Profit and loss continued to be calculated at least annually, and in some years as often as monthly, a high frequency in view of Boyns and Wales's finding that even in the final quarter of the nineteenth century the directors of colliery companies usually received profit figures at most twice yearly.[38] Charles Winn's diary records regular meetings with the colliery overseer at which he received the surplus of sales income over wage payments for the week, or made up a deficit from petty cash. The frequent passing of cash surpluses to the owner was a typical contemporary practice among small to medium-sized collieries.[39] Cost accounting records have also survived from the first half of the nineteenth century, showing that coalface and hurrying expenditure at Wragby Colliery was calculated annually.[40] In 1838 the colliery's underground expenses were analysed on a cost centre basis, with cost per ton being assigned for the processes of coal winning and haulage, pit prop manufacture, underground maintenance and new work. Cost sheets for each of the individual expense lines have not survived, probably because such documents of prime entry were produced by a colliery official rather than the book-keepers and were more ephemeral than the annual summary.[41] The level of detail in the costing figures matches similar records produced by contemporary collieries in north-east England, most of which had a far larger output than Wragby's 10-12,000 tons p.a.[42] On the sales side, separate records were kept by year, of total sales, sales by type (cash or credit), and debtors. Credit sales contributed about 30 per cent of income. At least 75 per cent of the colliery's debtors in 1839 and 1851 owed less than £10, suggesting that Wragby sold mainly to domestic or small commercial customers.[43]

These various data were used in managing the colliery. For example, an 1838 estimate of the profitability of working 2½ acres of coal used assumptions based on the previous period's actual figures for sale price and production costs, and two instances

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[38] Monthly profit/loss figures were produced for Wragby Colliery during the period 1835-1841 at least. Boyns et al, 'Development of Management Information Systems', p. 71.

[39] Diary entries for 1850 and 1854, A/1/8/26/28 and A/1/8/26/32, WYL1352, WYAS (W); McLean, 'Agent's Reputation, Accounting and Costing', pp. 18-19.

[40] 'Hurrying' was haulage from the coalface to the pit bottom, often undertaken in the early nineteenth century by children.

[41] C/3/1/9/3, WYL1352, WYAW (W); Boyns and Edwards, 'The Construction of Cost Accounting Systems in Britain to 1900', p. 4. Documents of prime entry are those in which transactions are first recorded, before being entered into a double entry accounting system. Cash receipt or payment books and day books are prime entry documents.

[42] Fleischman et al, 'Coals from Newcastle', p. 136.

[43] C/3/1/9/3 and C/3/1/9/7 WYL1352, WYAS (W). Credit sales were 25-35 per cent of the total.

have survived of ad hoc reports that, as Fleischman puts it, 'utilize costing data for non-routine decision making'.[44] The first of these reports was written in 1837 by Henry Holt, Charles Winn's colliery viewer, and analysed the extent to which the continuation of pumping at a disused shaft kept Wragby free from water. It also estimated the cost of replacing the pump with a drainage drift. Three years later a lengthy report by Holt compared the costs of raising coal by a steam engine or continuing to use the existing horse gins. The report breaks down the cost of equipment and shaft sinking, quantifies the annual direct cost of workmen and materials for each option, and amortises the purchase price of the engine over ten years, a form of depreciation of capital expenditure.[45] In addition to addressing the expense implications, Holt's conclusions include the concept of opportunity cost: 'Extra advantages: the fewer the shafts, the less the accumulation of water by the perforations – and less waste of property'.[46] These reports support the view that financial data was used to inform management decisions. They also add to the evidence that in collieries like Nostell that utilized northeast England's practice of employing a consultant coal viewer, the occasional visits by non-resident management encouraged the production of summaries of a pit's performance and the use of cost calculations based on data derived from experiential industry standards.[47] Nostell's practices contrast with Boyns' finding in South Wales – where the viewer system was not generally used - that investment in new plant by colliery companies later in the nineteenth century 'seems often to have been carried out...with little by way of hard figures as to the capital cost...or of potential savings'.[48]

Before the mid-1850s regular statements of the estate owner's investment in the works were produced for neither Wragby Colliery nor its predecessor. The cost of sinking and initial equipping of the works was calculated on completion of the work or at the owner's death, but not updated at regular intervals or used to estimate the annual return on capital. The accounts did not identify expenditure on the long-term development of the colliery, probably because the sums involved were small and

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[44] Fleischman et al, 'British Entrepreneurs and pre-Industrial Revolution Evidence', p. 369 (quotation); Edwards et al, 'The Development of Industrial and Management Cost Accounting', pp. 36, 40.

[45] Continuing the use of horse gins required the sinking of additional shafts because of the power limitations of the horse.

[46] n.d., c1840; 'An estimate of the relative cost of raising coal in the Nostell Colliery by steam and horse power. H Holt'. C/3/1/9/1, WYS1352, WYAS (W).

[47] For example, Fleischman et al, 'Coals from Newcastle', p. 136; McLean, 'Agent's Reputation, Accounting and Costing', pp. 14-15; R. K. Fleischman D. and Oldroyd, 'An Imperial Connection? Contrasting Accounting Practices in the Coalmines of North-east England and Nova Scotia, 1825-1900', The *Accounting Historian's Journal,* vol. 28 no. 2 (2001), pp. 31-62; this ref. p. 33.

[48] Boyns, 'Cost Accounting in the South Wales Coal Industry', p. 346 (quotation); Church, *History of the British Coal Industry, vol. 3*, p. 412.

continuing capital investment such as expanding the underground workings was treated as a working expense and charged to revenue. This was an accepted contemporary practice in the industry, and in Wragby's case is perhaps unsurprising in view of the trivial nature of the colliery capital compared to Charles Winn's substantial expenditure on agricultural improvements.[49] Wragby Colliery's low capital expenditure, its variable and limited contribution to the overall property income and the weekly payment of cash surpluses suggest that it was considered to be an integral part of daily estate business, rather than a separate enterprise of financial significance to the property.[50] The customary accounting practices that were used to provide regular checks on the performance of agricultural elements of the property were simply replicated at the colliery. This aligns with the landowner's view of mining as a normal estate activity. Fleischman and Macve found evidence of a lively interest in return on capital in the contemporary north eastern coalfield whether the colliery was the property of landowners or of independent capitalists, but this attitude was probably influenced by the substantially higher average colliery investment in that region.[51]

Accounting procedures: 1854-1869

A new accounting arrangement at Wragby was introduced in 1854, more systematic and comprehensive than that used in the 1830s and 1840s. The new system was also used for Nostell from its opening until 1875, although for the final six years it ran in parallel with a further new accounting protocol that was introduced in 1869. The 1854 system separated some elements of the finances of the colliery from those of the estate, and it originated the practice of paying 6d royalty per ton of coal raised to the Estate Account.[52] This payment represented the income that Charles Winn would have received if the coal had been leased to a third-party mine operator, 6d per ton being typical of west Yorkshire at that period.[53] Coal rent was recorded as a cost to the colliery and as income to the estate, so that – as already noted - a loss-making period for the colliery might nonetheless be profitable to the estate. The actual transfer of cash royalties from the colliery to the estate varied in relation to the need of the two entities

[49] Boyns, 'Cost Accounting in the South Wales Coal Industry', pp. 333-334; McLean, 'Agent's Reputation, Accounting and Costing', p. 19.
[50] The shifting of labour between colliery and agricultural purposes has already been noted.
[51] Fleischman et al, 'Coals from Newcastle', p. 143.
[52] The royalty/rent was calculated on the net (saleable) production minus coal used at the colliery, a standard arrangement for the Yorkshire coalfield. Rent was not charged on coal consumed at the colliery.
[53] Royal Commission appointed to Enquire into the Subject of Mining Royalties, *First Report,* 1890 (Shannon, 1969), p. 117 (evidence of Marshall Nicholson).

for funds. In 1875 Rowland instructed Edmund to pay the coal royalties to the estate at quarterly or six-monthly intervals as convenient, but in later years the colliery retained the royalties as reserve funds, with occasional payments to the estate of relatively large sums.[54]

The 1854 system addressed costs and income in an integrated manner and calculated receipts, outgoings and profit at two points, as shown in Table 5.3.

Table 5.3 Cost and income categories, 1854-1869

Cost at the pithead, comprising:	**Price at the pithead**, comprising:
rent of coal;	sale value of coal without delivery.
coal consumed at the pit;	
underground and top wages;	
wagon lease charges.	

Cost on total payments, comprising:	**Price on total receipts**, comprising:
cost at the pithead, plus:	price at the pithead, plus:
interest and bank charges;	railway charges;
rates and taxes;	wagon hire.
tradesmen's bills;	
management cost.	

Average cost at the pithead *or* total payments	**Average price at the pithead *or* total receipts**
Cost divided by net tonnage of coal raised.	Price divided by tonnage of coal sold.
Profit/loss	
Price on total receipts minus cost on total payments. Profit/loss was not calculated on the pithead cost and price.	

Source: C/3/1/9/3, WYL1352, WYAS (W)

This system differentiated between the variable cost of production, fixed overheads and delivery costs in a more sophisticated and consistent analysis than had previously been used. Each of these categories had several sub-divisions. The pithead was the first point at which cost and income was calculated, when the coal had reached the surface and was ready for sale. It included underground and surface workers' wages and the rent of the coal, but excluded indirect costs, delivery and management salaries. The second point of calculation was on total payments and receipts. For Nostell

[54] Letter 5 April 1875 Rowland to Edmund Winn, C/3/1/6 [372], WYL1352, and six-monthly profit & loss accounts and balance sheets, 1900-1909, 2/6, WYL523, both WYAS (W).

Colliery, the 'total payments' figure added indirect costs, which included interest on the loans that part-funded the sinking and the bank charges for the colliery's overdraft. Neither of these items figured in Wragby's accounts. Wragby's sinking cost had long been written off and there is no evidence that it had a separate bank account. Indeed, the weekly reconciliation of the cash balance implies that receipts were paid directly into general estate funds. The income on total payments was calculated by adding the delivery charges to the pithead price.

Summary figures for pithead and total payments, including profit and loss, appeared in a formal statement at six and twelve monthly intervals, a periodicity in line with contemporary industry best practice.[55] Average costs and prices for each heading were also produced. An advance on earlier practice was that the 1854 system included a mechanism for recognising capital expenditure, rather than treating it as a working expense. At Wragby, nominal deductions were made from profits to pay for equipment renewal or other capital expenditure. These sums were transferred to a capital account and written off annually. Nostell Colliery was dealt with somewhat differently. The initial investment cost of the colliery was represented in the capital account, which was not subject to write-off or depreciation. Subsequent capital spend was added in cumulatively.

The 1854 system did not include cost analysis of the individual stages involved in the production process, or of the consumption of materials other than the coal burnt to power the colliery engines, so that the expenses were difficult to break down into smaller components. The aggregate cost figures were, however, used on occasion to inform managerial decision-making. In 1868 two analyses were made of the optimum method of working the coal in the light of expected market price reductions.[56] These were intended to establish the cost base required in order to make a profit rather than to reconcile an aspirational price point with known costs of production, and are indicative of the pre-eminence of market forces as a determinant of commercial policy in the nineteenth century coal trade.[57] Whatever the practical effect on colliery policy of these particular analyses, the shortcomings of the 1854 accounting system in the context of the larger scale of the new colliery directly contributed to the system's replacement in 1869.

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[55] Boyns et al, 'Development of Management Information Systems', fn. p. 71.
[56] Cost estimates produced in February 1868, C/3/1/9/1 and C/3/1/9/8, WYL1352, WYAS (W).
[57] J. F. Wilson A. and Thomson, *The Making of Modern Management: British Management in Historical Perspective* (Oxford, 2006), p. 237.

Nostell Colliery had an output four times higher than Wragby's, and its sales were shipped by rail to a wider geographical area than that served by the older pit.[58] It required more coalface and haulage workers, as output per man could not have increased sufficiently to achieve a higher annual production without significant numbers of additional staff. More surface staff was needed to work on the screens and railway sidings. The reliance on the railway trade required a proactive sales function, and more work in, inter alia, administering the wagon fleet and settling accounts with customers and railway companies. The numbers of clerical and managerial staff would therefore have expanded, and a comparison of the working costs of the old and new pits indicates that the labour force at Nostell was three to four times that at Wragby.[59]

The stimulus for the 1869 change in accountancy procedures was largely practical. There was no statutory reason for them to be changed. The 1862 Companies Act set out forms of accounts for limited liability corporations, but Charles Winn as sole proprietor had no obligation to produce accounts to meet the Act's requirements or to inform partners or shareholders. Similarly, although accountancy was moving towards a corpus of formalised standards based on nascent professional organisations, these had not yet passed into widespread use in non-corporate enterprises.[60] Several studies have suggested that modifications to an organisation's accounting system were often responses to financially difficult times – which particularly encouraged an interest in cost analysis – and to changes in the senior personnel of an enterprise.[61] These disruptive influences were at work at Nostell in 1868-1869. In June 1868 John Roseby was appointed colliery viewer in addition to his duties as engineer for the Lincolnshire ironstone.[62] Shortly after appointment, Roseby expressed his dissatisfaction at the condition of the pit. He was particularly concerned about the high underground costs, and the difficulty of obtaining a breakdown of their constituent parts: 'As for the

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[58] From 1870, at least 80 per cent of Nostell's sale was by rail, and much of the remainder was consumed at the colliery itself. Landsale (including the domestic supply to the Winns' residences) was a minor component of income, particularly after 1880. Notebook, c. 1875, containing financial and production records of Wragby and Nostell Collieries, C/3/1/9/1, WYL1352; General financial statements book, 1866-1882, 2/1, WYL523, both WYAS (W).

[59] C/3/1/9/3, WYL1352, WYAS (W).

[60] Wilson et al, *The Making of Modern Management*, pp. 239-240.

[61] For example, Hoskin et al, 'Knowing More as Knowing Less?', p. 123; Boyns et al, 'Development of Management Information Systems', p. 72; Boyns et al, 'Cost and Management Accounting in Early Victorian Britain', pp. 32, 40-41.

[62] Letters 22 June 1868 Edmund Winn to John Roseby and 25 June 1868 reply, both C/3/1/9/3, WYL1352, WYAS (W).

increased expenses I must say that I am very sorry to see them but more particularly as I find that I cannot get a proper analysis of what the money has been expended for'. He considered the costs of underground haulage and of coal winning to be about $2^{3/4}$d per ton (10-15 per cent) too high.[63] Roseby's policies brought about a sharp increase of production at the colliery at a time when the colliery's financial position was unpromising. In early 1868 Rowland's observed that it was 'certainly not very satisfactory', and the Winn brothers disagreed on the best means of improving matters.[64] These various issues provided an environment conducive to a change in accounting procedures, and arguably the accounts system at the colliery was overhauled because it provided insufficient costing information for Roseby to make policy decisions on production levels. This implies that cost accounting information was actively used – at least while Roseby was assessing the condition of the colliery in summer 1868 - to analyse the colliery's performance.

The 1869 accounting system completed the separation of the colliery and estate businesses that had begun with the charging of rent for the coal. Nostell Colliery had its own bank account, and the colliery and estate cross-charged each other for the supply of materials and services, the transfers being recorded in each set of accounts as external transactions. For example, the colliery charged for its staff to service a lift at the Priory, and it paid cottage ground rents to the estate. The reality of the single ownership of all elements of the property would assert itself at need, but the resulting transactions were recorded formally. For example, assets were transferred between departments. The miners' cottages were moved to the estate account for capital purposes between 1878 and 1893, while the colliery administered the profit and loss account for the cottages, based on rental income against the cost of repairs and ground rent payable to the estate.[65] Accumulated coal rents were retained by the colliery as a reserve fund, and later transferred to the Estate Account en bloc. Funds were transferred between departments if one was short of ready money.[66] This flexibility applied to loans as well as short-term cash shortages. For instance, £1,000 of a loan taken for colliery purposes

[63] Letter, John Roseby to Edmund Winn, 5 July 1868, C/3/1/9/3, WYL1352, WYAS (W).
[64] C/3/1/9/1 and letters 30 October 1867 and 14 February 1868, Rowland to Charles Winn, A/1/8/1, both WYL1352, WYAS (W). Chapter 8 has further discussion of these events.
[65] The cottage capital account was transferred back to the Colliery just before a large number of new houses were built. 2/4, WYL523, WYAS (W).
[66] For example, in spring 1866 Rowland offered to pay £1,000 from Appleby to the colliery.

was diverted to the estate to pay off an overdraft at Leatham's Bank and not repaid for nearly three years.[67]

The financial accounting aspects of the new procedures brought the colliery closer to standard professional practice and the forms of company accounts set out in the 1862 Companies Act and its successors.[68] Both the 1854 and 1869 systems were founded on the cost centre principle that Edwards and Newell identify as exemplifying modern accounting practice.[69] The handling of financial matters at Nostell was far removed from the 'charge and discharge' system of landed estate accounting in which an entry for the cost of feed for race-horses could be followed by one for coal-miners' wages.[70] The coal business was divided into four: the colliery itself, cottages, wagons and stores.[71] The first three of these categories had profit and loss and capital accounts, calculated at six-monthly intervals.[72] The cost centre accounts recorded the variable costs and income for their activities, and the overall enterprise balance was the aggregate of these, less indirect overheads such as management salaries, bad debts, bank charges and interest. The main colliery revenue account included credits from coal sales and other income so that a profit or loss could be calculated.[73] The chief expense on the cottage account was the payment of ground rent to the estate, and the wagon account was credited with the interest on the capital that had been saved by the policy of leasing rather than buying wagons. The new system also incorporated balances of stock from the previous period, and the periodic return on capital invested was calculated.

Some elements of the new accounting system retained a distinctly 'home-grown' feel, especially the treatment of capital.[74] Although capital expenditure was recognised and recorded, there was no balance of assets and liabilities broadly conforming to the template in the Companies Act. On the asset side, the capital account itemised and calendarised expenditure on shafts, plant, railways and other types of fixed capital. The liabilities side recorded the sources from which capital had been obtained, including

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[67] Letter Rowland to Charles Winn, 2 December 1867, A/1/8/1, WYL1352, WYAS (W). Presumably the loan had a lower interest rate than the overdraft.
[68] Wilson et al, *The Making of Modern Management*, p. 238. Nostell Colliery was not incorporated until 1918, when it became a private company.
[69] Edwards et al, 'The Development of Industrial and Management Cost Accounting', p. 40.
[70] Thompson, *English Landed Society*, p. 153. The example is taken from the Fitzwilliam estate at Wentworth Woodhouse.
[71] Miners were responsible for providing at their own expense certain items used underground (picks etc), and the Stores account was for these items which were bought in bulk by the colliery and sold on to the workforce at a small mark-up. The cottage account was for the housing rented to the colliery workforce.
[72] 'General Financial Statements' ledger, 2/1, WYL523, WYAS (W).
[73] The main colliery account was misleadingly entitled 'Statement of working costs', and the 'stores' profit/loss was included in it as a sub-account.
[74] All comments relate to 'General Financial Statements' ledger, 2/1, WYL523, WYAS (W).

loans, payments in kind and cash transfers from the Estate Account. No reference was made to coal stocks or to trade debtors and creditors. Between 1869 and 1872 a balance was struck for each year, which was paid off by the transfers of cash from the estate totalling £11,500 in 1871 and 1872, identified in Table 3.3.[75] Conventional balance sheets only began to be produced in 1883, for six monthly periods with an annual summary.

During the later nineteenth century the accountancy profession debated whether a colliery's capital account should be closed once it had begun production, so that all subsequent capital expenditure was charged to revenue. Alternatively, fixed capital items could be charged to capital while labour cost incurred in the maintenance or improvement of the capital stock was funded out of revenue. Although Boyns suggests that the normal practice at collieries in the later nineteenth century was that '[capital] expenditure relating to a particular colliery, once normal production had begun, should be expensed', Nostell adhered to the alternative policy.[76] New items of fixed capital were added to the capital account, while the labour cost for the underground development of the colliery, which in accounting terms was maintenance of capital, was charged to revenue as 'New work'.

The capital account at Nostell accumulated year on year without depreciation, a common practice in collieries in the north-east of England, which retained this practice longer than elsewhere.[77] The cumulative figure was used to calculate the Winns' return by expressing the annual profit as a percentage of capital, which had the effect of deflating the percentage return. Depreciation was first applied at Nostell in 1901, and from 1903 the colliery and brickworks capital accounts were reduced each year by fixed sums of £3,540 and £1,142 respectively. Following a substantial write-off of wagon capital in 1902 - presumably to more accurately reflect the current value of the colliery's wagons, some of which were over 30 years old - depreciation was applied to wagons at a rate of c26 per cent p.a. until 1906 after which the fixed sum of £442 was deducted annually.

Capital expenditure on wagons at Nostell was treated in an inconsistent manner. This resulted from the colliery's practice of obtaining wagons on lease purchase, by which the colliery made periodic payments – monthly, quarterly or half-yearly, depending on the agreement - over a seven-year term. At the termination of this period,

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[75] See Chapter 3, p. 69.
[76] Boyns, 'Cost Accounting in the South Wales Coal Industry', pp. 333-334; quotation p. 334.
[77] Church, *History of the British Coal Industry, vol. 3*, pp. 513-514.

the wagons became the Winns' property, although the colliery was responsible for their maintenance throughout the lease term.[78] Under Nostell's accounting practices, the periodic lease payments appeared in the separate wagon capital account, not as expenditure from the colliery capital account, so that in the 1871 'Receipts and expenditure on capital account' for the colliery, wagon costs appear only as £400, representing a small number of wagons that the Winns had built internally or purchased outright.[79] However, when calculating the return on capital - 'Summary of profit realised or loss on Capital invested' – the costs of both leased and purchased wagons were included. From 1891, Nostell accounting policy towards wagon capital was revised. A substantial number of wagons were bought on lease purchase after the colliery deepening. 50 per cent of the annual payments for these wagons was assigned to the capital account, the remainder being charged to revenue. This effectively depreciated the wagons' value, ten years before depreciation was introduced for other forms of capital.

For the management accounts, the main innovation in 1869 was the introduction of a fortnightly 'Statement of Costs'.[80] This recorded a range of production data, including the weight of coal won from each seam, an analysis of wage expenditure for various functions, and the consumption of stores, timber and fuel.[81] It also assigned 'per ton' figures for overheads including management, selling costs, taxes and interest charges, and 'New work'.[82] Supporting information was recorded, such as changes in wage rates and their date of effect. The cost book therefore supplied a wide range of information that contributed to the analysis of work processes at the colliery and, in conjunction with other accounting outputs, constituted the basis of a management information system. It certainly fulfilled a characteristic of management information systems observed by several accounting historians, that they often remained in place for long periods unless disrupted by significant changes in the organisation: the 'Statement

[78] Other forms of lease existed, for example the purchase lease, under which the colliery company paid an annual fee for the maintenance of the wagons (which was carried out by the lessor) and at the end of the lease period the lessee had the right to buy the wagons outright at a fixed price. Hyslop, *Colliery Management*, p. 267.

[79] The contemporary cost of an 8-ton wagon was around £70. Ibid, p. 264.

[80] From autumn 1867 into the following summer, Rowland made several comments in letters to his father about the poor financial performance of the colliery.

[81] 5/8, WYL523, WYAS (W).

[82] A surprising omission is the absence of any overt statement of the costs of underground haulage, pit ponies etc.

of costs' kept the same basic format, and was recorded in the same ledger, from 1869 until nationalisation in 1947.[83]

Assessment of the extent to which Nostell's MIS was used in making management decisions is hampered by the methodological and evidentiary problem of linking the production of information to managerial action. Occasional references in their correspondence show Charles and Rowland Winn to be informed on colliery affairs in the 1830s and 1840s and concerned about its running costs.[84] However, the infrequency of the references suggests that the colliery was an insufficiently important element of the property to generate much discussion and thereby evidence on the practical use of costing data. In the late 1860s Roseby's belief that the inadequacy of the costing system was a serious hindrance to improvement of the colliery's performance indicated that accounting information was acknowledged to be of significant value to management. However, the increase in the volume of accounting data did not also increase the evidence of their use in, for example, the preparation of advance budgets based on assumptions of production and sales. The systematic use of financial scenarios to inform practical decisions therefore cannot be assumed. Although Roseby saw the justification of the colliery's financial performance to the Winn family as part of his role as viewer, this process - and management generally – was reactive and took place in an informal organisational environment. Understanding the detailed character of an organisation and the manner in which its business was conducted is important to interpretation of the surviving records. Boyns and Wale note in their study of management information systems in the coal industry that:

> The earliest example we have found of the production of financial accounts on a more regular basis than six months is at the Nostell Colliery. Half-yearly and annual accounts were produced prior to 1882, but from the beginning of the year fortnightly balance sheets were prepared. Since no minute books have survived, however, it is not clear how regularly these were submitted to the board.[85]

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[83] Boyns et al, 'Development of Management Information Systems', pp. 75-76.

[84] Such as Rowland's letter to Charles Winn, 2 March 1844, A/1/8/1, WYL1352, WYAS (W): 'There has been a very large sale of coal at the pits lately, more than they have had for a very long time. Last week they sold 240 tons and the week before 270. Drake the blacksmith has sent in a very large bill for work done at the Coal Pits and some of the charges are out of all reason, and he has charged...1/3 more iron in weight than he has used'.

[85] Boyns et al, 'Development of Management Information Systems', fn. p. 79. Judging by the surviving examples, the production of fortnightly accounts appears to have been a short-term practice.

This failure of evidence arises because until 1918 Nostell Colliery was not incorporated, and had no board of directors.[86] Policy issues were dealt with in discussion and private correspondence. The absence of formal records makes the influence of accounting information on the formulation of policy especially difficult to trace.

The 1869 financial accounting procedures continued largely unchanged until the First World War – apart from the introduction of conventional balance sheets and the use of depreciation - and, as noted, the main management accounting tool changed little until 1947. From 1882 the accounts were kept in the Winns' Wakefield estate office, where book-keeping for all elements of the property was concentrated, and were in the care of employees of very long service: a 1907 request for a pay increase from the chief book-keeper showed that he had worked for the Estate for forty-three years and one of his colleagues for thirty-one.[87] The self-sufficiency of the Estate organisation is underlined by the absence of evidence that the colliery accounts underwent independent audit. The practice of external audit had become increasingly common among companies incorporated under the 1862 Act and was not unusual among landed estates with substantial industrial or urban incomes – both the Northumberland and Bute estates employed independent auditors.[88] The apparently inward-looking nature of accounting at Nostell Colliery, which hardly changed after the upheavals of the 1850s and 1860s, contrasts markedly with the culture of openness to technical change that was apparent in the late nineteenth century and which is described in Chapter 8.

In conclusion, how does the evidence from Nostell contribute to the historiographical debate described earlier in this chapter? Financial and management accounts, although unsophisticated, had been prepared in a regular and consistent manner from the late eighteenth century. The production of such records at a small colliery like Wragby might suggest that similar records could commonly have been kept at enterprises of similar size. It is likely, however, that Wragby was more likely to keep such records as it was part of a landed estate that was accustomed to monitoring its financial performance. It is notable that cost accounting data appeared at least as early as financial accounts, and in an extractive industry that lacked the pattern of clear-cut

[86] Dintenfass notes that even in the inter-war years among collieries that were limited companies, it was difficult to find evidence of decision-making processes or details of the personalities involved. Dintenfass, *Managing Industrial Decline*, pp. 9-10.

[87] Letters, Edmund to Rowland, Winn, 11 February 1882, A1/10/[291], WYL 1352, and J. B. James to George Winn, 16 July 1907, 15/1, WYL523, both WYAS (W).

[88] Independent audit of limited liability companies was not made compulsory until 1947. Napier, 'Aristocratic Accounting', p. 171; Spring, *The English Landed Estate*, p.12; Wilson et al, *The Making of Modern Management*, p. 238.

incremental production characteristic of manufacturing industry. They were used in ad hoc analyses and forecasts that were prepared by technical specialists to assist the owner in considering investment and production decisions. Inadequate process costing information was one of the triggers for the 1869 accounting process revision. These factors imply that financial and cost accounting data developed in parallel, and that cost data influenced management decision-making at a relatively early date. It also suggests that the relative stages of development of financial and cost accounting in the late eighteenth and early nineteenth centuries were misconstrued by the earlier interpretation of the evolution of accounting practice, and understated costing data's influence on management. The Winn estate's interest in understanding production costs at its colliery predates by nearly a century Solomons' proposal of 1875 as the commencement of the investigation of costs by industrial managers.

Accounting practices at Nostell, although not subject to statutory influence, became more sophisticated over the course of the nineteenth century in response to the level of investment in the colliery and to common practice in the coal trade. The introduction of the 1869 accounting system supports the suggestion that changes of senior management or periods of financial difficulty may trigger new accounting initiatives, rooted in a real concern to improve accounting practices for managerial purposes. However, Nostell does not support the revisionist perspective at all points. Boyns and Edwards suggested that the integration of management and financial accounts in the coal industry was 'widespread' by the 1870s and that this integration was often signalled by the use of cost centres as the basic unit of accounting. This finding was disputed by Hoskin and Macve, whose alternative hypothesis was that in the nineteenth century the integration of financial accounts, management accounts and organisational administration was not far advanced, and that this was indicated by a failure to 'articulate and systematically implement labour standards', the touchstone of 'the modern approach [to management] based in a human accounting'.[89] The evidence of accounting integration at Nostell inclines to Hoskin and Macve's interpretation, and indeed to the earlier view that cost and management accounts were entirely separate. Despite the use of cost centres for financial accounting purposes at Nostell the integration of financial and management accounts was far from complete, so that, for example, the costs per ton given in the 'Statement of costs' cannot be reconciled with the total figures for working costs in the profit and loss account, and the tonnages of

[89] Boyns, et al, 'The Construction of Cost Accounting Systems', p. 10; Hoskin et al, 'Knowing More as Knowing Less?', pp. 109-110.

coal used in each as the basis for calculations do not exactly agree. The likelihood is that each set of accounts was maintained by a different function, probably the engineering ('Statement of costs') and book-keeping (financial accounts) departments, and was used to inform separate decision-making processes. The new accounting procedures were not even in universal operation throughout the colliery, especially at the most senior level. The 'pithead' and 'total payments' system dating from 1854, although not readily comparable with the new cost centre-based method, ran in parallel with it until 1875, probably at the preference of a member of the Winn family. This underlines the informal nature of a family-owned business and the ability of senior individuals to override the imposition of pan-organisational practice.

As regards the measurement and introduction of labour standards, there was little evidence of Chandler's 'visible hand' of corporate management in directly and consistently moulding the setting of such standards at Nostell, where the process was not decided by objectivity and measurement of performance. Setting the piece rate for a new seam was worked out between management and workforce through a subjective and adversarial series of manoeuvres and compromises, which on the labour side included the deliberate restriction of output during trial periods, localised strikes and pressurising management through anonymous critical letters. Edmund considered this behaviour to be 'natural' and understandable on the part of the miners, and accepted its unpredictable and unstructured nature, which clearly could not be characterised as 'based in a human accounting'.[90] However, the variety and level of detail of the accounts at the Nostell collieries and the range of uses to which they were put, including forecasting, estimating and analysis of past performance, testify to 'the variety of accounting's contractual and managerial roles' from the late eighteenth century onwards, and bear out the view that 'accounting and costing have long been of great importance in the British coal industry'.[91]

[90] Letter, Edmund to Rowland Winn, 16 November 1886, A1/10/[291], WYL1352, WYAS (W).
[91] Hoskin et al, 'Knowing More as Knowing Less?', p. 98; McLean, 'Agent's Reputation, Accounting and Costing', pp. 4-5.

Chapter 6

The influence of transport on the market for coal

Introduction

Chapter 6 explores in detail the role that transport – and especially the railway – played in the British coal trade. It begins by considering the relationship between the growth of the railway and canal networks and the increases both in national coal consumption and the geographical extent of colliery markets. The influence of these changes on Rowland Winn's strategy for the founding of Nostell Colliery is touched upon. The extent of Nostell's own market is assessed in the context of the markets addressed by the Yorkshire coalfields as a whole. The focus of the chapter then turns to the operational management of the delivery of coal by rail, and the importance to the coalowner of having the means to get the product to the customer promptly and cost-effectively. The chapter concludes with a review of the use of the private owner wagon on British railways, and notes the increasing use of service levels as a differentiator in the delivery of coal.

Sea-sale, landsale and new technology in transport

Prior to the eighteenth century, the coal trade in England had two routes to market, each defined by transport. Coalfields with easy access to ports sold to 'sea-sale' markets, in which coal was shipped by sea in bulk over relatively long distances to markets in the British Isles and north-west Europe. The most notable sea-sale route was north east England's longstanding trade to London, while the Cumberland coalfield had well-established links with Ireland and ports on the west coast of England.[1] Inland coalfields had 'landsale' markets, selling to customers accessed by land transport.[2] These were highly localised because of the cost and difficulty of moving a heavy and bulky commodity by road or by early, rudimentary tramways, and a landsale colliery's market rarely extended further than ten miles from the pit-head.[3] Wragby was a classic example

[1] Mitchell, *Economic Development of the British Coal Industry*, p. 30.
[2] Inland coalfields were those without easy access to the sea; that is, most of the English fields apart from the north-east and Cumberland.
[3] Nef, *The Rise of the British Coal Industry*, p. 359.

of the landsale colliery - 85 per cent of its sales were made to customers within a 6-mile radius, an area in which it probably enjoyed a virtual monopoly.[4] As roads and road transport improved towards the end of the nineteenth century, it became possible for mines in industrial areas to support moderate production levels on a landsale trade. For example, in the twenty years before the First World War Hunsworth Colliery near Cleckheaton sold c50,000 tons annually to local textile and engineering industries, mostly delivered by road direct from the pithead.[5] The majority of nineteenth and early twentieth century collieries, however, were dependent on the railways.

The pattern of local landsale and long distance sea-sale was broken by the growth of the canal network, and later the railways. Cheap and efficient overland transport by water or rail 'destroyed regional and local monopolies'. Collieries without access to coastal shipping could move coal economically to customers beyond the limitations of road transport, and prices were reduced in markets outside the coalfields.[6] Reliable bulk transport also enabled coalowners to obtain economies of scale in production without holding large stocks, which were expensive and prone to deterioration.[7] Low-priced coal transported by canal or rail from large, distant collieries undercut small-scale, high-cost indigenous suppliers.[8] For example, George Loch, agent to Sir John Ramsden's estate at Huddersfield, commented in 1844 that local townspeople were 'very desirous' that a Manchester to Leeds railway should be built because it would 'enable them to command a cheaper supply of coal than they now have...coal from the [Leeds] collieries could be delivered in Huddersfield at 6/6d per ton, the price now paid being 10/-'.[9] From the 1830s, railways quickly established an advantage over canals through their ability to move freight 'from a much wider variety of locations, faster, at more regular speeds, and with a lower outlay of man and horsepower'.[10] At Carlton, Edmund had planned to benefit from the competition between canals and railways. If a railway competed with the Aire & Calder Canal Company in carrying coal from the south Yorkshire coalfield to the Humber, the canal company would have to:

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[4] Sales for 1851. C/3/1/9/7, WYL1352, WYAS (W).
[5] Ledger, Cleckheaton Colliery Co Ltd, B/CC, WYAS (K).
[6] R. A. Church, 'Ossified or Dynamic? Structure, Markets and the Competitive Process in the British Business System of the Nineteenth Century', *Business History* (vol. 42, no. 1, 2000), pp. 1-20, p. 5 (quotation); Church, *History of the British Coal Industry, vol. 3*, pp. 43-45; B. Fullerton, *The Development of British Transport Networks* (Oxford, 1975), p. 21.
[7] Bill Hudson, *Private Owner Wagons vol. 1* (Barnsley, 1988), unnumbered introduction.
[8] Gourvish, *Railways and the British Economy*, p. 30.
[9] George Loch, report on the Huddersfield estate to Sir John Ramsden, 6 June 1844, Ramsden papers DD/RA/4, WYAS (K).
[10] Fullerton, *The Development of British Transport Networks*, p. 21.

> ...reduce their tolls to a minimum below what would be remunerative with the present mode of using horse power (and they must therefore propose substituting steam tug boats)...if at any time they should raise their tolls...[we] should always have the opportunity of sending coals to the same part of the country by rail'.[11]

Technological competition would therefore enhance the beneficial effect of the new transport media on the cost and speed of moving Carlton's coal. These effects could be seen nationally, as coal consumption in Britain increased rapidly in the mid-nineteenth century - from 23,500,000 tons in 1830 to 32,600,000 ten years later and 60,000,000 in 1855.[12]

The new forms of transport did not create a national market in which all coalfields, irrespective of location, could compete equally, but they did increase the level of competition by enabling markets in non coal-bearing areas to be supplied by a number of coalfields.[13] For instance, in 1850 90 per cent of coal supplies reached London by sea, mostly from north-east England. Twenty years later, after the completion of the North Midland/Great Northern main line allowed the Midlands coalfield to compete in London against sea-sale coal, the coal market in the capital had doubled in size and 55 per cent was carried by rail.[14] Similarly, in the last twenty years of the nineteenth century Yorkshire and the East Midlands benefited when connections to the east coast were established and new docks were built by competing railway companies at Hull, Grimsby and Immingham. As a result these coalfields made significant inroads into sea-sale markets in Britain and abroad.[15]

The Winns were introduced to the importance of transport in the coal trade during Edmund's attempt to promote Carlton Colliery. A report by John Walker on the proposal described the opportunity that canals and railways gave to the coalowner, but also hinted at the fragility of that opportunity, and its vulnerability to changing circumstances:

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[11] Letter, Edmund Winn to Lord Wharncliffe, 22 January 1856, C/3/1/9/3, WYL1352, WYAS (W).
[12] Mitchell, *Economic Development of the British Coal Industry*, p. 12.
[13] Coalowners were assisted to maximise sales by the adoption of a similar policy on freight by the major railway companies, which 'pursued traffic maximisation from the 1840s which eroded the effects of spatial imperfections in industrial competition'. Gourvish, *Railways and the British Economy*, p. 30.
[14] In both 1850 and 1870 around 90 per cent of sea-borne coal was from the north-east, and no more than 10 per cent of rail-borne. Hawke, *Railways and Economic Growth in England and Wales*, pp. 168-169.
[15] Fullerton, *The Development of British Transport Networks*, pp. 39-40; Mitchell, *Economic Development of the British Coal Industry*, pp. 23, 27; Church, *History of the British Coal Industry, vol. 3*, pp. 39-40.

> [Carlton] is well situated with reference to canal and railway...[the Great Northern Railway] will not give facilities for the transit upon their line of any coal but their own. This leaves the Midland Railway only as the means of gaining access to the south – at a higher rate of toll – which will of course have its effect upon both sales and profit...The canal transit places the Carlton coal at a slight disadvantage in point of toll as compared with the Barnsley district...and this although only amounting to a few pence per ton operates seriously upon profits.[16]

Rowland's promotion of new railways to support his coal and ironstone interests, and his refusal to commit capital to a new colliery until the construction of a railway was certain, indicate his grasp of Walker's point: an inland coalowner aspiring to launch a colliery of any significant size had to be connected to the railway network, unless there was a very large local 'captive' market. Transport defined the markets that could be reached by a colliery, and influenced the physical extent of the coalfield. The expansion of the coalfields tracked that of both canals and railways, so that 'even the prospect of a new line sometimes led to the sinking of pits in hitherto untapped parts'.[17] The construction of the West Riding and Grimsby Joint Railway linking Wakefield and Doncaster – vital to Nostell's prospects – stimulated the sinking of several other pits, at Fitzwilliam, Hemsworth and South Elmsall.

The ability of Nostell Colliery to produce and sell an average of over 1,000 tons of coal each week – rather than the 1,000 a month that Wragby had sold - was dependent on the market access given by the railway network. In 1869 over 90 per cent of Nostell's sales were transported by rail, rising to 95 per cent after 1887. However, landsale had some qualitative advantages over railway-sale coal. Landsale coal volume was more consistent year on year and varied less in response to economic cycles than did the railway market, so that the proportion of landsale rose in periods of low overall sales. Jonathan Hyslop, a contemporary colliery manager writing in the 1870s, tempered his opinion that 'it is seldom that [landsale] is sufficient for even one pit, and a wider connection is necessary' with the qualification that it 'had the advantage of being a ready-money branch of the business with little trouble, no extra allowances for weight, no discounts, and generally higher prices'.[18] The tendency to higher prices can be seen

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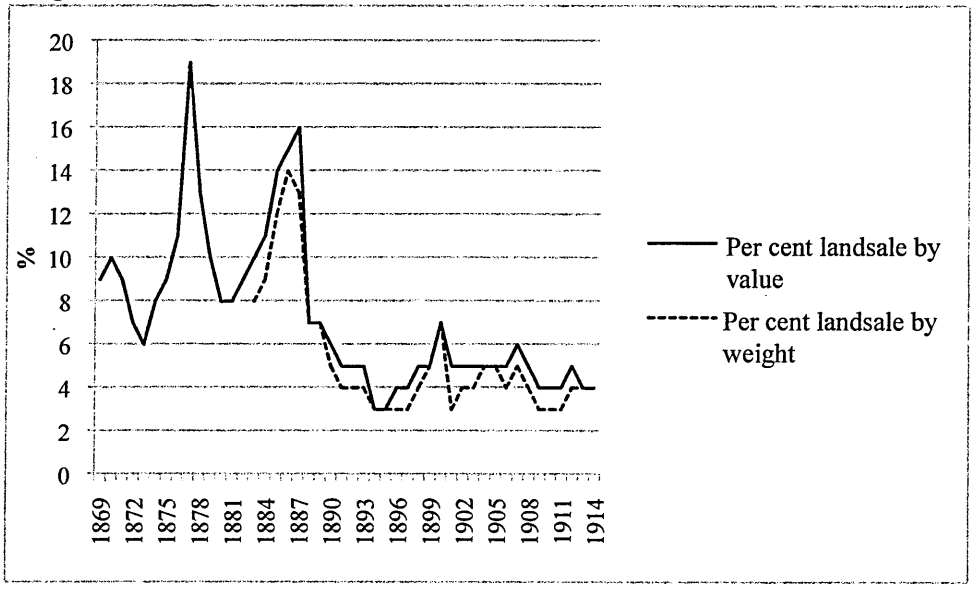
[16] Letter, John Walker to Rowland Winn, 5 September 1854, C3/1/9/1, WYL1352, WYAS (W).
[17] Buxton, *Economic Development of the British Coal Industry*, pp. 67-68 (quotation p. 68); Fullerton, *The Development of British Transport Networks*, p. 4.
[18] Hyslop, *Colliery Management*, p. 148.

in Figure 6.1, but railway transport generated far higher sale volumes, especially for a rural colliery. Reliance on a local market would have restricted Nostell's potential to little more than Wragby's 10-15,000 tons per annum.

Figure 6.1: Landsale as a proportion of all sales at Nostell Colliery by value and weight, 1869-1914



Note: Landsales by weight are not available for 1869-1882.
Source: Ledgers 1869-1888, 4/1, WYL523, 1889-1903, C/3/3/2/2 and 1903-1914, C/3/3/2/4, WYL1352, WYAS (W).

The geographical extent of the Yorkshire coalfield's market

Consideration of the geographical extent of Nostell's market will begin with that of the Yorkshire coalfield as a whole. Mitchell estimates that around 80 per cent of Yorkshire coal production in the 1860s was consumed in its home county or in Lancashire, buoyed by an expanding manufacturing base. Coastwise and export shipments were 'negligible', and only about 5 per cent went south by rail.[19] However, in the ensuing forty years, the coalfield's market became more geographically diverse, as can be seen from Table 6.1:

[19] Mitchell, *Economic Development of the British Coal Industry*, p. 24.

Table 6.1: Estimated consumption of coal produced by Yorkshire collieries, 1869-1913

Year	*1869*		*1887*		*1903*		*1913*	
	Tons (m)	*Per cent annual total*	*Tons (m)*	*Per cent annual total*	*Tons (m)*	*Per cent annual total*	*Tons (m)*	*Per cent annual total*
Export	0.4	3.66	1.9	9.4	3.1	10.9	6.8	15.6
Coastal	0.1	0.9	0.4	2.0	1.1	3.9	2.4	5.5
Ironworks	1.4	12.8	3.4	16.8	4.4	15.4	6.1	14.0
Local genl. mfg.	5.3	48.6	6.9	34.2	7.3	25.6	10.9	25.0
Local house	2.2	20.2	3.0	14.8	3.7	13.0	4.3	9.8
Mfg./house railed south	0.5	4.6	2.0	9.9	4.0	14.0	5.4	12.4
Railways	0.4	3.7	0.9	4.5	1.4	4.9	2.2	5.0
Steamships	0	0	0.5	2.5	1.9	6.7	3.2	7.3
Collieries	0.6	5.5	1.2	5.9	1.6	5.6	2.4	5.5
Total	**10.9**	**100.0**	**20.2**	**100.0**	**28.5**	**100.0**	**43.7**	**100.0**

Notes: 1. 'Local general manufacturing' in this context includes gas and electricity, and consumption of Yorkshire coal by Lancashire manufacturers.
2. Much of the ironworks consumption was located in the Leeds and Sheffield areas.
Source: All information from Mitchell, *Economic Development of the British Coal Industry*, p. 16.

Coal consumption by general manufacturing businesses in Yorkshire doubled between 1869 and 1913, but the proportion of coal produced in the county and sold locally or in Lancashire declined to under 50 per cent by the First World War, the reduction being especially pronounced in the 1880s and 1890s. This was the outcome of structural changes in the regional economy. Yorkshire's flax and linen industries died out in the third quarter of the century and the growth of the woollen industry slowed in the 1890s. West Yorkshire coalowners looked to alternative markets to absorb the production increase of the later 1870s that resulted from the investment attracted by the high prices of 1872-1875. Much of this new capacity was located – as was Nostell - in the eastern extension of the field and relatively close to the Humber ports, so that sales were sought in the export, coastal and steamship bunker trades.[20] All these markets showed stronger growth in the early twentieth century than that for coal sent south by rail, which declined as a proportion of total sales between 1903 and 1913. The proportion of exports accelerated from 1890, although the west Yorkshire coalfield was below that of the county as a whole - returns from West Yorkshire Coalowners'

[20] Mitchell, *Economic Development of the British Coal Industry*, pp. 23-26; H. S. Jevons, *The British Coal Trade* (London, 1915), p. 67.

Association members in 1913 showed that 14 per cent of their output was exported, mostly from Hull, Goole and Grimsby and destined for the Baltic area or South America. This was because many of the Association's members were located in the western part of the coalfield, distant from east coast ports but close to plentiful local industry.[21]

The geographical extent of Nostell Colliery's market

Although a lack of surviving records makes the recreation of the extent of Nostell's market more difficult for the 1860s and 1870s than for the years between the late 1880s and the First World War, a number of conclusions can be drawn for the earlier period. The regional markets served by Nostell can be characterised through the usages to which its coal was put – the main categories being domestic, manufacturing, coking, gas or steam – and these were dependent on the nature of the coal produced.[22] Virtually all Nostell's output prior to 1886 came from the Shafton seam. The best quality coal from the seam could be sold for gas generation, and included some cannel that attracted a high price for this purpose.[23] However, the bulk of production was sold for manufacturing purposes – that is, to fire stationary engines used by industry – and as steam coal for railway engines.[24]

Table 6.1 suggests that a new colliery of Nostell's size, opening in the West Riding in the mid-1860s, would find most of its sales within Yorkshire or contiguous industrial areas, while less than 10 per cent of the county's production went to export or southern markets. It is therefore surprising that in its early days Nostell looked to sell coal in London and Europe. In 1867 Rowland signed a five-year contract with the London Gas Co., the coal to be railed to Grimsby for onward shipment by coaster – an immediate payback by Rowland's railways.[25] Later that year the Winns sent consignments from Grimsby to London for sale on arrival through the coal exchange, and John Roseby attempted to sell direct to the French gas industry.[26] The likely

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[21] Dintenfass, *Managing Industrial Decline*, p. 56.
[22] See Chapter 7 pp. 132-138 for a more detailed analysis of the characteristics of these markets.
[23] Mitchell, *Economic Development of the British Coal Industry*, p. 31.
[24] Coal from the Shafton seam was 'often bought by the railway companies for use by slow traffic'. *The Times*, 1 December 1913, p. 26.
[25] Letter, Rowland to Charles Winn, 29 June 1867, A/1/8/1, WYL1352, WYAS (W).
[26] Edmund followed on by rail to sell the coal, probably through London Coal Exchange. Belton hinted to Rowland that Roseby's French trip was simply a 'jolly' at the Winns' expense. Letters, Rowland to Charles Winn, 30 October 1867, A/1/8/1, and Thomas Belton to Edmund Winn, 4 September 1867, C/3/1/9/3, both WYL1352, WYAS (W).

explanation of these metropolitan and export aspirations is the personal involvement of Rowland and Edmund in marketing the coal. As commercially ambitious members of the landowning class, the Winns' education, social milieu and political aspirations made them more oriented to London than the average Yorkshire coalowner. Their thoughts turned to the convenient forum of the London Coal Exchange to gain an entrée to the capital's domestic and industrial market.

The nature of Nostell's coal was also an influence. Cannel and other good quality gas coals were common around Halifax, Dewsbury and Bradford, and the collieries in those areas had the advantage of proximity to the West Riding conurbation.[27] The London gas market was large, and the Winns appeared to have taken the opportunity to place the colliery on a good financial footing by securing a five-year London Gas Co. contract and an agreement to supply locomotive coal to the GNR. Rowland had clearly identified the 'corporate' market as a particular sales target - in October 1867 he referred to 'obtaining a gas contract or two' - but his expectations were not fulfilled because of commercial problems that are discussed in Chapter 8.[28] Despite this, and the failure of the French gas venture to make any further impression on the colliery's records, Nostell certainly established a presence in the capital, as a price for Nostell gas coal was quoted on the London Coal Exchange in the late 1860s.[29] The coal sent to southern markets was transported by rail and sea, in addition to rail-borne deliveries to the Yorkshire manufacturing customers who constituted a large part of Nostell's market. After the early 1870s boom, during which Edmund noted that the difficulty lay in bringing sufficient coal to the surface rather than in selling it, a lengthy slump set in during which production fell sharply and landsale again became a significant proportion of the colliery's sales.[30]

The coals from the Winter and the Beamshaw seams that were worked by the colliery after the deepening of the shafts had a strong influence on Nostell's geographical markets from 1888 onwards. They were particularly suited to domestic usage as well as the gas market that the Shafton addressed. By linking customer names in sales records with data relating to the coal carriage costs paid to railway companies, a reconstruction of the geographical extent of Nostell's market is possible for the period

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[27] A. Greenwell and J. V. Elsden, *Analyses of British Coals and Coke, and the Characteristics of the Chief Coal Seams worked in the British Isles* (London, 1907), pp. xxviii-xxx.
[28] Letter, Rowland to Charles Winn, 30 October 1867, A/1/8/1, WYL1352, WYAS (W).
[29] *The Times*, 6 August 1867, p. 11.
[30] See Fig. 6.1, p. 109. Production fell from 53,000 to 38,000 tons between 1876 and 1878. 2/1, WYL523, WYAS (W). Letter, Edmund to Rowland Winn, 15 August 1872, A/1/8/1, WYL1352, WYAS (W).

from 1888 to 1914.[31] In the ten years after 1888 the main railways used by Nostell for coal carriage were the Great Northern, North Eastern and Lancashire and Yorkshire, the extent of whose networks suggest that Nostell coal was being sold in the industrial north, the east of England south of Doncaster, and London. From the late 1890s onwards, Nostell increased its use of the Lancashire and Yorkshire, while the London and North Western, Great Central, and Hull and Barnsley Railways also became more prominent. The Great Central was an alternative to the Great Northern for the London trade, potentially giving access en route to the east Midlands, although the main destination for Nostell coal on GCR lines was probably the newly constructed dock at Immingham. Nostell's inland market therefore lay in four main districts - the West Riding, Lancashire, East Anglia and London - and coal sent by sea went via the east cost ports around the Humber.

Coal merchants were supplied in all four of these districts. These merchants mainly supplied the domestic market, but some of the larger firms – especially in London – also sold to industrial users. The northern merchants were substantial regional operators with a number of branches or sub-retailers, and were concentrated in the industrial West Riding and the Pennine towns of Lancashire. Geo. Moxon and Son was a typical customer, based in Huddersfield but with a branch network extending to east Lancashire. Larger clients were W. Fletcher and Son, headquartered in Leeds but with connections throughout England, and G. Hinchliffe & Co., also northern-based with depots in east coast ports and London. After 1900, Nostell built up a trade with Co-operative Retail Societies in the West Riding and Lancashire, probably the source of the increased use of the Lancashire and Yorkshire and London and North Western railways for carriage. Rail access to London from Nostell was possible through the Great Northern, Great Central or Midland, but the Winns did little business with the latter company - the colliery was directly connected to a Great Northern/Great Central joint line, and the Midland's service level was inferior.[32] Destinations in the east of England were reached via the Great Northern. Some of Nostell's output went south by sea, as indicated by correspondence regarding a delivery of coal to Hull Docks to be shipped to Myers, Rose & Co. in London.[33] The colliery's southern customers were large merchants who sold to industrial consumers and smaller retailers, and had regional branch networks. These dealers included Thomas Moy & Co., which had a substantial

[31] C/3/3/2/2, C/3/3/2/3and C/3/3/2/4, WYL1352, WYAS (W).
[32] See below, p. 124.
[33] Letters, George Winn to Myers, Rose & Co., 10 June 1906, and George Winn to J. A. F. Aspinall, general manager L&YR, 30 October 1906, both C3/6/4/[1857], WYL1352, WYAS (W).

business throughout East Anglia and owned depots in the capital. Nostell's London trade included William Cory & Son, Myers, Rose & Co. and Rickett, Cockerell & Co. Cory's were one of the first merchants to practice backward vertical integration by moving into colliery ownership. Rickett's claimed to be the largest distributor of household coal in London and the Home Counties.[34] This was an impressive customer list for a colliery of modest size, and the cachet of dealing with a prominent Conservative politician and – from 1885 - peer may have influenced some purchase decisions. After Rowland's ennoblement the colliery letterhead specified that any reply should be addressed to 'Lord St Oswald', and many correspondents did exactly that.[35]

Nostell's market for manufacturing coal was largely in the Leeds, Wakefield and Dewsbury areas, with a few customers in east Lancashire. Much of the colliery's landsale trade was for small orders of this grade of coal, emphasising the local nature of the demand. Larger clients included wagon builders, ironworks and brick-makers, but there is no evidence of sales to the textile industry.[36] Carriage for these customers was by the Great Northern or the Lancashire and Yorkshire. Sales of gas coal from Nostell were split between Yorkshire and London. Several West Riding gasworks were customers, as was the Beckton Gas, Light and Coke Co. in east London. Nostell's steam coal market was local to the West Riding, mostly to GNR locomotive depots. Finally, the colliery was indirectly involved in the export market through its trade with shipping companies, two of the most prominent of which were Pyman & Bell of Hartlepool and J. T. Crampton of Portsmouth. Nostell supplied coal – probably domestic or manufacturing grade - f.o.b. to east coast ports, in Pyman & Bell's case at Hull although Nostell coal was also shipped from Grimsby/Immingham. Pyman & Bell sold pit-prop timber to Nostell, and the coal was a return cargo for this trade, bound for ports around the Baltic Sea.

The effect of the railway can be appreciated by comparing the geographical extent of markets for Nostell's coal in 1851 and in the 1890s. At the earlier date, a high proportion of Wragby's customers were located within six miles of the colliery and little coal travelled more than ten miles.[37] Forty years later, Nostell Colliery's market

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[34] Information on coal merchants from Hudson, *Private Owner Wagons vols. 1-4*, and K. Turton, *Private Owner Wagons: Fifth-Tenth Collections* (Witney, 2006-2011).

[35] Perhaps disappointingly to the originators, the replies came from George Winn, who was merely an Honourable.

[36] For example, engine and foundry coal sold to the Horbury Junction Iron Co., the Yorkshire Wagon Co. (both Wakefield), Headfield Brick Co. (Dewsbury), and the Monk Bridge Iron Co. (Leeds). C/3/3/2/3 [175], WYL1352, WYAS (W).

[37] C/3/1/9/7, WYL1352, WYAS (W).

extended to approximately fifty miles by rail within the Yorkshire/Lancashire industrial region, and up to 150 miles to the south and east of England either by rail throughout or transhipped from rail to coaster at a Humber port. The colliery had few inland customers in coalfields outside the West Riding and east Lancashire, however, as the transport cost made its coal uncompetitive with more local suppliers - for example, there is no evidence that Nostell coal sold in the Midlands markets accessible from the Great Central's route to London via Nottingham and Leicester. New lines could open up new markets, as when the East Anglian market became accessible to Yorkshire collieries in the 1880s by the construction of a line south-east from Lincoln into Norfolk. Just as collieries opened close to the route of new railways, so coal sales followed new lines into non coal-producing areas.[38]

The railway companies' own commercial policies had a direct influence on geographical coal markets. One of John Walker's reservations about the proposed colliery at Carlton was that the Great Northern Railway, whose lines ran close to the site, did not carry coal other than that sold under the company's name at its stations.[39] Because of this, the Midland – whose rates were higher – was the only railway that the colliery could use. However, the GNR abandoned its 'entrepreneurial role in the coal trade' after an 1859 court ruling that it could not be involved in the sale of coal, and thereafter it carried coal simply as freight.[40] In 1871-1872 the company aggressively sought coal business by cutting its charges for taking coal from Yorkshire to London to a point below the Midland's charges from Nottinghamshire. As a result of this 'rate war', the volume of coal sent south by rail increased to nearly 10 per cent of Yorkshire's output: a trade report for the West Riding in spring 1872 commented that 'within the last two years the quantity has been doubled to the metropolis from our district'.[41] No doubt Nostell benefited from this boom. However, it subsided rapidly when the Great Northern built lines into the north Derbyshire coalfield, which was nearer to London than Yorkshire and could compete with the Midland without price-cutting. Yorkshire collieries then began a lengthy period during which they developed markets in other parts of southern England accessible by rail, particularly East Anglia,

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[38] Mitchell, *Economic Development of the British Coal Industry*, p. 25.
[39] See the letter from John Walker to Rowland Winn dated 5 September 1854, p. 108 above.
[40] Church, *History of the British Coal Industry, vol. 3*, p. 45 (quotation); P. Bagwell, *The Railway Clearing House in the British Economy 1842-1922* (London, 1968), pp. 83-84.
[41] *Iron & Coal Trades Review*, 6 March 1872 (vol. 6, no. 210), p. 92.

and re-established Yorkshire's place in the London market as changes in transport rates permitted.[42]

Nostell's trade with the eastern counties and with several prominent London merchants showed that it participated in the consolidation of the Yorkshire coalfield's markets. It also shared in the renaissance of the coastal trade in coal. Although by 1870 the railway had outstripped coastal shipping as the prime carrier of coal to London from all coalfields, in the last quarter of the nineteenth century improvements took place in the loading capacity, speed and fuel consumption of maritime transport.[43] Railway companies invested in upgraded facilities at ports on their networks, including those closest to Nostell on the Humber estuary. By the 1890s, coastal shipment was once again competitive with rail transport for Yorkshire coal heading south, so that in 1900 one million tons of coal from the county was carried to London by sea. This figure continued to grow up to the First World War, and this included a proportion of Nostell's sales.[44] The various modes of transport developed their own specialities. Coastal shipping was more suitable for bulk deliveries for industrial use and for bunkering, especially after 1890. The railways could better manage the highly distributed delivery of coal, often in small lots, for domestic use or for inland industrial consumers, and canals remained cost-effective for bulk deliveries if the colliery and customer were located close to the waterway.[45] Much of Nostell's market consisted of relatively small consignments of the type typically carried by rail - the colliery was not on a canal and there is no evidence that it used inland waterways.

Managing 'the means for transit to the ordinary market':[46] railways and wagons

The effective use of the railway network could materially affect a colliery's profitability, as Jonathan Hyslop made clear in his 1875 guide to colliery management. He recommended that a colliery should market to customers the shortest rail distance

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[42] Mitchell, *Economic Development of the British Coal Industry,* p. 25.
[43] Fullerton, *The Development of British Transport Networks*, p. 41.
[44] Although shipment to London by coasting vessel held an apparent cost advantage over rail as charges were 3-5/- per ton in 1900, compared to rail's 7-7/9d, this was reduced by other transit costs associated with water transport. Mitchell, *Economic Development of the British Coal Industry*, p. 16; Church, *History of the British Coal Industry, vol. 3*, pp. 20-21.
[45] V. Van Vleck, 'Delivering Coal by Road and Rail in Britain: The Efficiency of the 'Silly Little Bobtailed' Coal Wagon', *The Journal of Economic History*, vol. 57 no. 1 (1997), pp. 139-160; this ref. pp. 145-146; P. J. Cain, 'The British Railways Rates Problem, 1894-1913', *Business History* 20 (1), 1978, pp. 87-99; this ref. p. 92.
[46] John Walker's description of the role of the railways and canals. Letter, John Walker to Rowland Winn, 5 September 1854, C3/1/9/1, WYL1352, WYAS (W).

away. This would minimise railway charges, deploy the colliery's stock more efficiently and reduce wagon wear and tear per delivery. If possible a single railway company should be used for the journey. By doing so, delays caused by failures of co-operation between rival railways would be eliminated, and the colliery's competitiveness enhanced because of the lower carriage charges given by railway companies to 'exclusive' customers. Hyslop suggested that coalowners should give preference to journeys that avoided re-marshalling at an intermediate point and did not require transit through railway bottlenecks, particularly large cities.[47] This avoided delays that were disruptive to both supplier and customer, and consumed management time in disputes about demurrage costs. From the perspective of Hyslop's recommendations, Nostell made good use of its railway connections. The great majority of Nostell's coal carriage costs were payable to a small number of railway companies with direct or near access to the colliery. Because carriage costs payable to companies that transported loads for sub-sections of a journey were re-distributed through the Railway Clearing House, this did not necessarily imply that Nostell's market did not extend beyond its 'home' lines. However, there is no evidence from charges for maintenance of stock developing faults in transit that Nostell's wagons were commonly taken by a second company to reach their destination. Coastal traffic and customers in Yorkshire, Lancashire and London were easily accessible through a single railway and, apart from sorting at the beginning and end of a journey for train formation and customer delivery, would not have required re-marshalling en route. Beyond the geographical access given by the railways, however, lay a set of issues relating to the management and financing of coal movement. The prominence that Hyslop gave to this subject in his guide suggested that the coalowner needed to invest wisely in transport capital and manage it efficiently in order to derive maximum benefit from the marketing opportunities that railways presented.

A coalowner could only gain the advantages of railway transport if he had at his disposal wagons in which his coal could be moved. For the coal trade, wagon shortage was a recurrent problem at busy times. The early 1870s 'coal famine' was partially attributed by contemporaries to a shortage of rolling stock, and in 1893 William Spencer, the viewer at Nostell, commented to George Winn that 'in [Leicestershire] we

[47] Bagwell, *Railway Clearing House in the British Economy*, pp. 81-83; Hyslop, *Colliery Management*, pp. 292-293. Hyslop may have been influenced by the failure of the Railway Clearing House to standardise transit and demurrage rates for coal.

are busy, but a good deal strapped for wagons'.[48] It was assumed in the late nineteenth century coal trade that at least as many wagons of ten-ton capacity were required by a colliery as it raised tons of coal per day.[49] In Nostell's case, between 1866 and 1886 this was 150-200, rising to 7-800 after the shaft deepening.[50] The coalowner then had to decide how to obtain the wagons. One option was to hire them from a railway company. In theory this enabled the coalowner to pay only for the wagons he actually required, but in practice it made him dependent on the railway for the means to complete his sale transaction. In effect, he was competing against the railway company's other priorities for its limited resources. It was a problem that affected the Winns, as in 1887 Edmund wrote to his brother that 'there may be some difficulty in getting Great Northern and Great Eastern Railway wagons [to fulfil an order from East Anglia], as there is always considerable demand for them about this time for potatoes and corn'.[51] Alternatively, the coalowner could rely on the customer to supply wagons, but some customers might not own any, or have insufficient to carry all their requirements. This exposed the coalowner to the danger of losing business to a rival who had taken the third option, of buying and running his own rolling stock, and who therefore controlled the means of fulfilling the sale.

The decision between the methods of sourcing wagons can be analysed through their relative transaction costs. By relying on a railway company or customer to supply them, a coalowner was dependent on geographically and organisationally diverse third parties, each with their own priorities. He also forfeited an opportunity for profit from the wagon hire charge made to customers for delivery, and lost a convenient means of storing unsold coal.[52] Transaction cost theory argues that a firm will internalise a process if it reduces the spatial distribution and variety of the transactions involved, and that internalisation is especially likely if it improves the co-ordination of buyer and

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[48] Hyslop, *Colliery Management*, p. 264; letter, William Spencer to George Winn, 20 November 1893, 11/1, WYL523, WYAS (W). In addition to his work as a consulting engineer, Spencer was a principal in several colliery companies in the east Midlands.

[49] Hyslop, *Colliery Management*, p. 133.

[50] Letter, Edmund to Rowland Winn, 19 December 1888, A1/10/[291], WYL1352, WYAS (W).

[51] Letter, Edmund to Rowland Winn, 8 November 1887, C3/1/9/[846], WYL1352, WYAS (W).

[52] Hyslop, *Colliery Management*, p. 265. Storing unsold coal in wagons was a common practice but could lead to overcrowding in colliery sidings, and to cost if wagons were stabled on railway company sidings. Over-use of wagons for storage might also require sourcing additional stock. For example, in 1907 George Winn requested the loan of wagons from the Great Northern Railway in order to deliver a locomotive coal order to the company because the domestic trade was very slow and much of Nostell's stock was full of 'wait order' house coal. Letter, George Winn to J. W. Morton, GNR, 14 November 1907, C3/6/4/[1857], WYAS (W).

seller so that they interact in the most practicable way.[53] This suggests that many coalowners would buy their own rolling stock, to simplify the delivery process and reduce the complexity of customer transactions. The Winns certainly took this approach and their experience of the pitfalls of hiring railway company wagons made them aware of the danger of curtailing sales by a shortage of wagons. When production was ramping up at Nostell in the late 1880s, Edmund recommended to Rowland that they buy more rolling stock: 'If Shaw [Nostell's sales agent] can sell the coal we must not let want of wagons stop him'.[54]

The Winns had invested in wagons before Nostell Colliery came into production. 'Wagon hire' appears as a charge to Wragby Colliery's debit account in 1864, and the regularity and rate of the payments suggest that they were for the lease purchase of rolling stock.[55] Although Nostell built some wagons itself, most of its stock was obtained by seven-year lease purchase on the terms described in Chapter 4.[56] By the late 1870s a fleet of some 250 wagons had been built up, at a capital cost of £17,500.[57] The deepening of the shafts began a period of renewed investment in wagons as the colliery output rose. Beginning in May 1888, the Winns bought 515 wagons on seven-year lease purchase agreements, payments for the final one hundred beginning in October 1894.[58] At their peak in the first half of 1895, lease payments exceeded £2,500 per half-year and the total capital spend on wagons was nearly £37,000 – over three times the cost of sinking the new shafts. In the early twentieth century the Winns changed their approach to outright purchase and bought 100 new vehicles in 1901-1902, probably to replace life-expired stock from the 1870s.[59] From then until the First World War the colliery acquired no new stock.[60]

By investing in their own rolling stock, the Winns were typical of most coalowners. Railway companies encouraged the collieries to run their own wagons, and although for their part the coalowners preferred their customers to provide rolling stock, the majority accepted that 'the increased capital cost and inconvenience [of buying

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[53] R. H. Coase, 'The Nature of the Firm', *Economica*, New Series vol. 4 no. 16 (November 1937), pp. 386-405; this ref. p. 397; P. Milgrom and J. Roberts, *Economics, Organization and Management* (Englewood Cliffs, 1992), pp. 29-30.
[54] Letter, Edmund to Rowland Winn, n.d., probably 1888, A1/10/[291], WYL1352, WYAS (W).
[55] C/3/1/9/1, WYL1352, WYAS (W).
[56] Chapter 4, pp. 99-100.
[57] The suppliers included the Bristol & South Wales Wagon Co. (Bristol), the North Central Railway Wagon Co. (Rotherham) and the Yorkshire Railway Wagon Co. (Wakefield). All these companies were founded c1860 to supply the market for private owner wagons. 4/1, WYL523, WYAS (W).
[58] Obtained from the Yorkshire Railway Wagon Co.
[59] C/3/3/2/1, WYL1352, WYAS (W).
[60] 2/7, WYL523, WYAS (W).

wagons] was more than offset by the uncertainty of the ability of railway companies to supply enough wagons when trade conditions required'.[61] Of the mineral wagons running on British railways in 1918, 62.5 per cent were owned by collieries, 24 per cent by distributors, 8 per cent by end users and only 5 per cent by the railway companies.[62] The ownership of sufficient rolling stock was an important competitive advantage in a strongly cyclical market like coal. It was essential to exploit the financial opportunity of an upturn when prices and profits were high, which were also times when demand for wagons might exceed supply and collieries without their own supply might have difficulty making deliveries.[63]

The purchase and maintenance of a fleet of wagons, and their storage when not in use, added a substantial overhead to a colliery's costs.[64] Nostell's investment in wagons constituted around 25 per cent of its total capital throughout the last quarter of the nineteenth century.[65] As noted in Chapter 5, this was an unusually high proportion of colliery assets in comparison to the industry norm of around 10 per cent, but the cost of the stock itself was not the only expenditure resulting from the decision to run 'in-house' wagons.[66] Land and siding space was needed to accommodate the stock at the colliery when it was not out on delivery. At Nostell in 1888 Edmund calculated that the colliery needed another 4-500 wagons to cope with the increased output, and that one hundred such trucks took up 500 yards of siding capacity.[67] The cost of the land was mitigated for the Winns because the colliery was built on their own property, but in many cases the coalowner had to buy or lease it at commercial rates. In slack periods much of this capital would be underemployed, an issue that made some coalowners reluctant to buy their own wagons. For instance, the directors of the Nottinghamshire coalowners Barber, Walker & Co. cited the cost of idle stock when rejecting the advice of their managing director to buy their own wagons in the late 1860s. A few years later, the Grassmoor Colliery in Derbyshire reaped 'huge profits' as its owner had bought a fleet of wagons shortly before the 1870s boom and therefore could fulfil deliveries

[61] Church, *History of the British Coal Industry, vol. 3*, pp. 83-84;
[62] Van Vleck, 'Delivering Coal by Road and Rail in Britain', p. 140. During the 1920s, ownership of coal wagons by the railways increased considerably.
[63] Church, *History of the British Coal Industry, vol. 3*, p. 82.
[64] Ibid, p. 82.
[65] C/3/3/2/1, WYL1352, and 4/1, WYL523, both WYAS (W).
[66] Church, *History of the British Coal Industry, vol. 3,* pp. 112-113.
[67] Letters, Edmund to Rowland Winn, 25 January 1887 and 19 December 1888, C3/1/9/[846] and A/1/10/[291], both WYL1352, WYAS (W). In later years, the normal wagon size at Nostell was increased to 10 tons.

while other collieries, including its near neighbour Barber, Walker, were hamstrung by shortage of stock.[68]

Maintenance of a high level of wagon usage, with prompt dispatch, speedy return and minimum damage to coal or rolling stock, was a key element in determining the return on a colliery's investment in wagons and in achieving economies of scale. Successful management of the issues referred to by Hyslop – the swift turn-round of wagons on each delivery trip, and minimisation of time spent sitting in sidings en route to or from the customer – helped to reduce the coalowner's costs and was an important aspect of the commercial management of a colliery. There is evidence that managerial time was spent on this issue at Nostell, and that decisions were informed by the colliery's management information system. In 1888 Edmund stated that the number of wagons required to meet the higher level of production from the new seams was based on the assumption that each wagon would make one return trip to a customer per fortnight.[69] This was a 'best case' scenario, because the wagon ledger indicated that the actual average was one trip per month, with the expectation that as production rose so would wagon usage. However, even a fortnightly trip was less than the frequency required for the wagons to break even:

> For an eight-ton wagon it takes...a journey a week when the rate is 6d per ton, to cover rent [lease payments] and repairs and they never make anything like that...I should think barely a journey a month on the average.[70]

Nostell's wagons were accounted for in a separate profit centre, so that some insight is possible into the efficiency with which they were being used. Coal prices were customarily quoted as 'delivered' to the customer's premises or as loaded into the customer's wagons at the colliery sidings. The credit side consisted of the wagon hire charges paid by customers ordering 'delivered' coal, and was therefore dependent on the number of revenue-earning journeys undertaken by each vehicle. Debit items included railway mileage charges and the cost of maintenance and repair of the wagons. The latter was unpredictable, as it was largely a function of the miles run by the wagons

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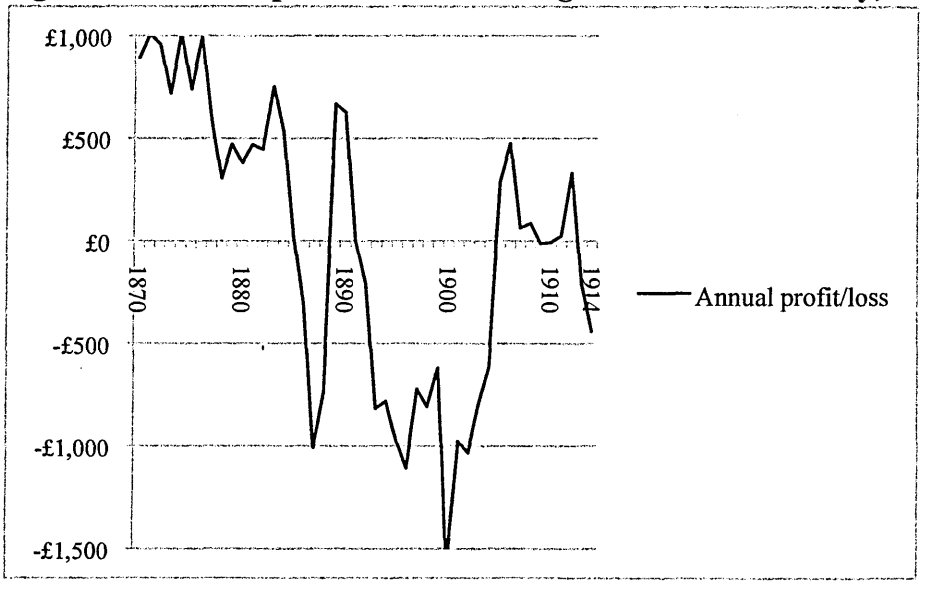
[68] C. P. Griffin, 'Robert Harrison and the Barber, Walker Co.: a Study in Colliery Management, 1850-1890', *Transactions of the Thoroton Society* vol. 82 (1978), pp. 51-62; this ref. p. 53; Church, *History of the British Coal Industry, vol. 3*, p. 82.

[69] Letter, Edmund to Rowland Winn, 19 December 1888, A1/10/[291], WYL1352, WYAS (W).

[70] This calculation used the colliery's management information system, in this case the wagon ledger that recorded stock usage. Letter, Edmund to Rowland Winn, 24 October 1888, A/1/10/[291], WYL1352, WYAS (W).

and the care with which they were treated, especially while loading and unloading.[71] Two significant debit items were omitted from the Nostell wagon account. There was no overhead for the clerical and managerial effort related to wagon ownership. More significantly, and as discussed in Chapter 5, until 1890 the wagon account did not include a charge for lease payments. After that year, 50 per cent of the lease payments were charged to the wagon account, and the balance to capital. This made a substantial difference to the profitability of the wagon business, which after 1890 was at best marginal. Figure 6.2 shows the annual profit and loss of the wagon account for 1870 to 1914. In slightly over half the years the wagons were modestly profitable, but cumulatively over the period made a small loss.

Figure 6.2: Annual profit and loss on wagons at Nostell Colliery, 1870-1914



Source: C/3/1/9/1, WYL1352; 2/1, 2/3, 2/4, 2/6 and 2/7, WYL523, both WYAS(W).

Deficits were particular heavy in periods of low sales or of high expenditure on lease payments such as the mid 1880s and 1895-1905. If lease payments had been attributed to the account for the period before 1890, the losses on the wagon business would certainly have been higher. From a purely financial perspective, therefore, the Winns' investment in a wagon fleet was unprofitable, but it improved the colliery's market competitiveness.

Striking a balance between cost containment and servicing the market was not the only difficulty in managing rail deliveries. The coal trade was one of the largest owners of private goods stock in the late Victorian and Edwardian eras, and the prevalence of privately-owned (PO) mineral wagons has been cited by a number of

[71] Church, *History of the British Coal Industry, vol. 3*, pp. 82-83.

historians as a major cause of 'unexploited economies of scale' by the railway system.[72] PO wagons carried only the goods supplied or purchased by their owners, to whom they returned 'home' empty and required careful shunting to ensure that they were routed correctly.[73] Private owners like Nostell had no interest in return loads in their wagons, and merely required that they were returned quickly and safely.[74] In addition, many PO wagons, including much of Nostell's stock, were small and constructed to non-standard specifications. Although the smallest conventional wagon capacity for coal was generally established by the late 1880s as ten tons, the Winns purchased 115 eight-ton wagons in 1889.[75] Furthermore, the wagons were not built to a consistent standard. They were registered to carry eight tons on the public railway but purportedly were manufactured to the ten-ton Railway Clearing House specification. As a result, the Great Northern Railway's inspectors frequently stopped Nostell's wagons for overloading, causing delay and expense to all parties. When George Winn requested that the wagons be re-registered as ten tons, it transpired that some elements of their technical specification were inadequate for the higher weight.[76]

This incident suggests sharp practice on Nostell's part, to get eight-ton railway rates for a ten-ton load. Notwithstanding that possibility, low-capacity wagons were suited to its trade, which included a high proportion of small deliveries to multiple destinations. Nostell's sales ledgers from the 1880s to 1914 record an extensive customer base with few accounts exceeding annual sales of £1,500, and colliery correspondence from the late 1880s refers to the receipt of daily orders for fifteen or twenty wagons of coal for a variety of destinations in London and the West Riding: as an apologist for the PO wagon expresses it, 'precisely the domain of the "bobtailed" wagon'.[77] This pattern of distribution corresponded to the numerous depots provided by the railways to reduce coal merchants' cartage distances – a significant issue when road

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[72] Originally by Veblen in *Imperial Germany and the Industrial Revolution* (1915), supported inter alia by Kindleberger, *Obsolescence and Technical Change*, and David, *The Landscape and the Machine*. Van Vleck, 'Delivering Coal by Road and Rail in Britain', pp. 140-141.

[73] P. Scott, 'The Efficiency of Britain's 'Silly Little Bobtailed' Coal Wagons: A Comment on Van Vleck', *The Journal of Economic History*, vol. 59 no. 4 (1999), pp. 1072-1080; this ref. p. 1074; Van Vleck, 'Delivering Coal by Road and Rail in Britain'p. 141.

[74] V. Van Vleck, 'In Defense (Again) of "Silly Little Bobtailed" Coal Wagons: Reply to Peter Scott', *The Journal of Economic History*, vol. 59 no. 4 (1999), pp. 1081-1084; this ref. pp. 1082-1083.

[75] The wagons were bought from Yorkshire Wagon Co. of Wakefield, one of the largest wagon manufacturers. Charles Roberts & Co. one of the largest British wagon manufacturers and a near neighbour of the Yorkshire Wagon Co., ceased building coal wagons of under ten tons loading during the 1890s. Bill Hudson, *Private Owner Wagons vol. 2* (Barnsley, 1988), p. 1.

[76] Notably the axle bearings. Letters, George Winn to H. N. Gresley, 27 July and 6 August 1908, C3/6/4/[1857] 1906, WYL 1352, WYAS (W).

[77] Van Vleck, 'In Defense (Again) of 'Silly Little Bobtailed' Coal Wagons', p. 1082.

motive power was primarily equine. The railway companies continued to use their networks of local depots even after the advent of the motor lorry made them unnecessary.[78] In view of the high proportion of the colliery's capital invested in small wagons, to replace them by higher-capacity rolling stock and concomitant handling facilities would have required major investment both by the coalowners, railway companies and port proprietors.[79] It would also have needed a high level of co-ordination and co-operation by diverse competing companies. For example, in 1907 the Mersey Dock and Harbour Board wrote to the West Yorkshire Coalowners' Association to enquire if its members would adopt larger wagons if the port of Liverpool could accommodate them. The Association replied that several of its members had a proportion of higher-capacity stock but had not adopted them fully because the port of Goole could not handle other than standard wagons.[80]

Towards the end of the nineteenth century railway freight rates became largely standardised, particularly after the 1894 Railway and Canal Traffic Act, which 'severely limited the railways' powers to raise charges'.[81] As a result, competition between railway companies became centred on service levels, such as the frequency of trains, free warehousing and the inclusion in freight rates of collection and delivery at either end of the rail journey.[82] George Winn's concerns with Nostell's wagons during the period up to the First World War centred on the speed of their delivery and return, and with the correct execution of delivery instructions by the railways – complaints from customers were often directed to the supplier of the coal, rather than the railway that carried it. A few examples will illustrate the importance of service. In 1906, George claimed that the late arrival at Hull docks of coal for Myers Rose & Co. in London had delayed a ship's departure, and that the railway was responsible for demurrage costs. In the same year, he gave detailed instructions to the Great Northern Railway as to the correct order in which wagons of manufacturing coal and slack delivered at the company's Bradford depot should be positioned over the drops for unloading.[83] Poor service could lead to the exclusion of a railway from a colliery's business. In 1912

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[78] Bagwell, *Railway Clearing House in the British Economy*, p. 85.

[79] T. Nicholas, 'Enterprise and Management', in R. Floud and P. Johnson (eds.), *The Cambridge Economic History of Modern Britain: vol. II Economic Maturity, 1860-1939* (Cambridge, 2004), pp. 227-252; this ref. p. 235.

[80] Minutes, 5 March 1907, West Yorkshire Coalowners' Association, MS/148/3, Special Collections, Leeds University Brotherton Library.

[81] Scott, 'The Efficiency of Britain's 'Silly Little Bobtailed' Coal Wagons: A Comment', p. 1077.

[82] Bagwell, *Railway Clearing House in the British Economy*, pp. 88-89; Cain, 'The British Railways Rates Problem', pp. 87, 93-94.

[83] Letter, George Winn to J W Morton, Great Northern Railway, 9 November 1906, C3/6/4/[1857], WYL1352, WYAS (W).

George complained to the Midland Railway about delays in returning wagons from its Kensington depot, stating in his letter that 'our customers will not now order coal from your company's depots' and always used the Great Northern or Great Central.[84]

The service demands of customers in London and Bradford were symptomatic of a coal market that was becoming more sophisticated in its expectations of the supplier. The supplier himself needed to come to terms with the nature and demands of the railway market, and the effect that it could have on an enterprise's competitiveness. A balance was necessary between having the ability to deliver the product, and burdening a company with under-used capital. The coalowner had to be aware of the market opportunities that could open up or be closed by new railways or changes in carriage rates. Wagon usage and costs benefited from close and continuing attention. The railway market required coalowners not merely to get the coal to the surface, but to be equally attentive to the process of delivery. However, at the same time as the market acquired enhanced expectations of the delivery of coal, it became equally discriminating about the nature of the coal that it bought. Chapter 7 will therefore turn to the segmentation of the coal market in the later nineteenth century and Nostell's efforts to market its coal in a manner that met its customers' evolving expectations.

[84] That is, would not order wagon-loads for delivery to MR goods stations in the south. Letter, George Winn to J. Rawson, MR, 3 January 1912, C3/6/4/[1857], WYL1352, WYAS (W).

Chapter 7

'The capacity to sell':[1] marketing Nostell's coal

Introduction

Chapter 7 examines Nostell Colliery's marketing policy. The later nineteenth century coal market was segmented by the various purposes for which coal was used. This segmentation had developed as consumers became more aware of the suitability of individual types of coal for specific uses, and the benefits achievable from using the most appropriate product. The first part of the chapter gives an overview of this segmentation, which had a range of implications for coalowners. In order to succeed in a highly competitive market, colliery companies needed to produce coal that was tailored to users' requirements and maintained a consistent quality. They had some ability to vary the markets into which they sold. Modifying the nature of the coal that they supplied could be achieved by preparation – cleaning and grading the coal or mixing it with coal from other seams - or by changing the seam that was mined. In either case the intention was to market a coal that supplied particular benefits to the end user.

The second section of the chapter analyses the five main market segments in detail, including the extent to which each was important to Nostell's sales. The final three sections consider how and to what extent a coalowner could use means other than coal quality to differentiate his products and gain competitive advantage. The elements of the marketing mix that come under examination are pricing, product nomenclature and the channels through which the coal was sold to the end user.

Much of this chapter is based on the two main studies of coal marketing, selling and pricing in the Victorian and Edwardian eras: Church's *The History of the British Coal Industry, vol. 3: 1830-1913 Victorian Pre-eminence* and Mitchell's *Economic Development of the British Coal Industry 1800-1914*. Some of Dintenfass's writing is also relevant, although his main focus is the inter-war period.[2] There is limited

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[1] William Armstrong, Co. Durham coal viewer, discussing the importance of effective selling, quoted in Church, *History of the British Coal Industry, vol. 3*, p. 71.

[2] Dintenfass, 'Entrepreneurial Failure Reconsidered'; *Managing Industrial Decline: Entrepreneurship in the British Coal Industry between the Wars* (Columbus, 1992); 'Family, Training and Career in the British Coal Industry in the Era of Decline', *Business and Economic History,* vol. 22, no. 1 (Autumn

academic and contemporary literature addressing in detail the selling and marketing of coal in the nineteenth century. There was an extensive contemporary 'how-to' literature on colliery management but these books were mostly directed at readers studying for the statutory examinations for colliery officials, and concentrate heavily on technical and safety matters.[3] Very few books dealt with commercial subjects: commerce was not on the examination syllabus, and to give away 'trade secrets' might benefit a writer's business rivals. The two exceptions to this are Hyslop's *Colliery Management* (1875; written by a practicing colliery manager) and Jevons' *The Coal Trade* (1915; written by an academic), both of which discuss sales channels, market segmentation and commercial strategies. Chapter 7 leans heavily on these sources for a contemporary perspective.

'The great variety of coal will no doubt strike you with astonishment':[4] segmentation of the later nineteenth century coal market

If the geographical markets into which a colliery could sell were dependent on transport, the user markets available to it were a function of the nature of its coal, and the manner in which the coal was prepared for sale. In 1867, Rowland wrote to his father about a sales contract he had signed under which the customer would take Nostell's coal unsorted and ungraded: in Rowland's words, 'slack, smudge and everything, just as it comes out of the pit'.[5] Contrastingly, H. S. Jevons compared the coal market in 1914 to that for office paper, in which a clearly differentiated set of products was sold, each with a distinct purpose:

> When you order a ream of paper you specify the size, the thickness, the texture, the colour, whether ruled or unruled; and it is really, for most purposes, just as necessary to specify carefully the kind of coal required.[6]

1993), pp. 273-284; and 'Industrial Identities and Civic Imperatives: The Life Tales of British Coal Masters and the Problem of Economic Decline', *Business and Economic History,* vol. 25, no. 1 (Autumn 1996), pp. 275-282.

[3] There was a large market in self-teaching books designed to prepare candidates for the examinations for the various levels of colliery officials' certificates introduced in the 1872 Coal Mines Act and subsequent legislation.

[4] William Laird, *The Export Coal Trade of Liverpool: a Letter to William Littledale Esq.* (Liverpool, 1850), p. 33.

[5] Letter, Rowland to Charles Winn, 29 June 1867, A/1/8/1, WYL1352, WYAS (W). 'Slack' was small coal and 'smudge' was very fine slack.

[6] Jevons, *British Coal Trade*, p. 31.

These two comments highlight the development of a segmented coal market in Britain, a process that had begun well before the 1860s but which picked up speed from mid-century. The market for ungraded coal clearly survived into the 1860s, as evidenced by the contract that Rowland had obtained, but it was increasingly superseded by a demand from domestic and industrial consumers for products of consistent size and combustion characteristics. Users developed a better understanding of the suitability of different types and sizes of coal for a range of purposes. Commercial users could consult a variety of comparative analyses of the properties of different coals. An early example was the Admiralty's 1845 'Report on the coals best suited to the steam navy', which measured the heat and smoke generation, combustion characteristics and residue levels of coal from various collieries and seams.[7] Coal and coke comparisons were widely published in trade journals and buyers' guides, such as a serial feature in the *Colliery Guardian* in 1885-1886 on chemical analyses of coal from different seams. Books such as Greenwell and Elsden's *Analyses of British Coals and Coke: A Guide to the Purchaser of Coal* were published in several editions.

During the third quarter of the nineteenth century five main market segments became established: domestic, steam-raising, manufacturing, coking and gas.[8] Within each category there was a number of sub-divisions. These related to the size of the coal, its quality in matching the purpose for which it was used, and the originating colliery's ability to supply a product of consistent size and quality. The market segments are described in greater detail later in this chapter, but some examples of the characteristics that made coal preferred for particular uses will clarify the nature of the categories. Coal used to generate gas ideally required high levels of volatility and bitumen. A good class coking coal had to cake when fired in an oven, to optimise the size of the final product. The best steam coal – used mainly in ships and railway engines - burned hot and freely with little smoke. The domestic market preferred coal that was easily lit, burned with a luminous flame and left the minimum ash.[9] Manufacturing coal was used to fire industrial steam engines, and was often a lower grade residuum of the other coal types – effectively a by-product.[10] Few of these characteristics were exclusive to a category, but a coal that possessed a particular attribute could attract a higher price in an appropriate market segment.

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[7] Laird, *The Export Coal Trade of Liverpool*, p. 23.
[8] Mitchell, *Economic Development of the British Coal Industry*, p. 266.
[9] Jevons, *British Coal Trade*, pp. 37-39.
[10] Mitchell, *Economic Development of the British Coal Industry*, pp. 35, 267-268.

In addition to the physical properties of the product, market segments favoured coals from certain sources on the basis of customer experience. This was especially important in the domestic market, especially in London, which developed a matrix of prices in which the district, seam or colliery was an indicator of price and quality. For example, the Wallsend district of Northumberland was celebrated as a source of high-class household coal.[11] The coal's provenance was less important to industrial markets but there were some preferences for the output of certain coalfields and seams. For instance, south Durham was able to charge a slight premium for gas coal because of the reputation of its products for this purpose.[12]

Small coal became an increasingly valuable product in the later nineteenth century. Up to mid-century 'round' (large) coal dominated the market, and small coal and slack were virtually unsellable. They were left as infill in the goaf[13], burnt on the surface as waste, or at best used to raise steam at the colliery. Attitudes began to change after 1850. Competitive pressure in finished goods markets encouraged manufacturers to reduce costs. Fuel economies were achieved by adapting industrial equipment to burn smaller and less calorific grades of coal more efficiently.[14] This trend was reinforced by the periodic shortages and price inflations that affected the coal market. In the early 1870s the *Iron and Coal Trades Review* commented that 'consumers of furnace and engine fuel have been compelled by absolute necessity to economise...owing to the difficulty in obtaining supplies'.[15] Small coal constituted an increasing proportion of the total market and higher demand led to higher prices. Mitchell found that between 1870 and 1913 the increase in demand for small coal was paralleled by a rise in its price relative to other coals. In the Yorkshire coalfield over this period, the price of best house coal increased by 80 per cent but that of screened small coal for manufacturing purposes went up by 140 per cent.[16]

The sorting of coal into different grades was a long established practice but developed most rapidly in the last quarter of the century: 'genuine improvements in

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[11] Sturgess, *Aristocrat in Business*, p. 18; *Pearsall's Monthly and Annual Importation and Delivery of Coal, 1832-1833 and 1834* (London, 1835) lists over 200 varieties of 'coal', 'small coal' and 'Wallsend' that were sold in the London coal market in the early 1830s. 100 came from Northumberland, 22 from Co. Durham, 35 from Yorkshire and 50 from other coalfields including Tees-side, Cumberland, Scotland and Wales,

[12] Mitchell, *Economic Development of the British Coal Industry,* pp. 266-267; Kirby, *British Coal-Mining Industry,* p. 11.

[13] The area in the workings from which coal had been removed.

[14] R. A. Church, *The Great Victorian Boom 1850-1873* (London, 1975), pp. 49-50.

[15] Buxton, *The Economic Development of the British Coal Industry*, pp. 87-88; *Iron and Coal Trades Review* 28 February 1872 (vol. 6 no. 209), p. 172 (quotation).

[16] Mitchell, *Economic Development of the British Coal Industry*, pp. 268-271.

quality and more elaborate differentiation of the inferior types of coal proceeded apace after the boom of the early 1870s'.[17] The trend had considerable implications for coalowners. By cleaning and grading coal, coalowners could find 'more (and more remunerative) markets', trading on consumers' desire for a product that was consistent in quality and tailored to its intended use.[18] The capital cost of screens and cleaning plant was usually more than offset by the higher prices obtainable for prepared coal.[19] In its early days, Nostell Colliery lacked the equipment to grade or clean coal in the manner demanded by the railway market, a probable hangover from Wragby's sales to local domestic and small business customers who took coal 'through and through' as it came out of the pit.[20] When he was appointed viewer in 1868, John Roseby reported to Edmund that:

> The expenses for screening I know will be always high as the coal must be properly screened or it will not sell. And the pieces of small dirt must be properly taken out both in the [large] screened coal and also in the small and nuts.[21]

These problems were caused by the dirt partings in the Shafton seam which reduced its thickness and added to the difficulty and cost of producing a 'pure' product. Roseby highlighted the value of properly sorted coal and justified the capital cost of the equipment by the higher prices that could be obtained and the reduction in labour costs achievable by substituting mechanical screening for hand sorting:

> I would advise an independent screening for nuts and slack the cost of which will be about £400 or less. With this you will be enabled to make a considerable saving in labour...I am fully aware of the unpleasant feeling to spend money in new work when the Colliery is not making it but in this instance it would pay for itself in a few months.[22]

Edmund accepted Roseby's recommendation for the installation of new screens and became convinced of the necessity for cleaning and grading coal in order to obtain the highest price. For example, after the deepening of the shafts, Edmund was much

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[17] Ibid, p. 270.
[18] Mitchell, *Economic Development of the British Coal Industry*, p. 268.
[19] Jevons, *British Coal Trade*, pp. 219-220.
[20] 'Through and through' was a nineteenth century term for unsorted coal.
[21] Letter, John Roseby to Edmund Winn, 5 July 1868, C/3/1/9/3, WYL1352, WYAS (W).
[22] Letter, John Roseby to Edmund Winn, 5 July 1868, C/3/1/9/3, WYL1352, WYAS (W).

concerned about the need to remove a layer of white ash from coal cut from the Beamshaw seam before it was shipped to the customer.[23]

The physical characteristics of coal often defined the purposes for which it could be sold, so that a colliery might be restricted to certain market segments. Because Nostell did not produce coal that was prone to caking, it sold little to the coke market. By changing the seam that it mined, a colliery could also change the market it sold into, and many collieries – as did Nostell – had access to coal seams of varying characteristics at different depths. This could place older-established collieries in a difficult position when their better seams became exhausted. They had of necessity to tap coal that was of inferior quality or more difficult to work. Costs rose relative to price because in order to maximise sales and prices, they had to spend more in improving a second-class product.[24] However, when Nostell changed the seams from which it produced coal in the mid-1880s, the shortage of capital that had restricted it to the shallow but inferior Shafton seam worked in its favour – the new seams were better and more productive than the old. When the deepening of Nostell's shafts neared completion in 1886, Edmund wrote that a seam cut by the shaft-sinkers was 'first class house coal - if it works at all easily [it] will be a profitable one'.[25] The bed was the Winter seam, described by the British Geological Survey as 'an extremely good house coal', and in *The Times* as one of the three best house coals in the west Yorkshire coalfield.[26] The Beamshaw seam, occurring a few yards below the Winter, was primarily sold to the gas market but also produced a good second-class house coal. The Beamshaw and Winter coals were bituminous like the Shafton, but were more consistent in quality and easier to work. The new seams allowed the Winns to continue to supply the gas market, which was large and reliable in its demand, and also to enter the domestic market on a large scale. This was a crucial development for Nostell's future because of house coal's high prices. Collieries mining bituminous coal commonly specialised in the gas and domestic markets - the Forest of Dean coalfield, for example, did so - and these two sectors came to dominate Nostell's sales.[27]

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[23] Letter, Edmund to Rowland Winn, 27 August 1887, C3/1/9/[846], WYL1352, WYAS (W). See below, p. 148.
[24] Mitchell, *Economic Development of the British Coal Industry*, pp. 95-96.
[25] Letter, Edmund to Rowland Winn, 9 January 1886, A/1/10[291], WYL1352, WYAS (W).
[26] W. N. Edwards et al, *Geology of the Country Around Wakefield* (London, 1940), p. 77; *The Times*, 1 December 1913, p. 26.
[27] Forest of Dean Colliery Association, *Fine Forest of Dean Coal* (Cinderford, c. 1930), passim.

'Good enough house coal to sell easily':[28] Nostell Colliery's markets by segment

Nostell's ability to sell coal from the same seam to both the house and gas markets confirms the permeability of the boundaries between the five market segments. A glut or shortage in one market could affect supplies in another. A House of Commons Select Committee investigating the high domestic coal prices of 1871 decided that they were influenced by strong demand for coal in the iron trades.[29] Edmund Winn noted a similar effect fifteen years later, when steam coal prices were depressed by over-supply in the domestic and metallurgical markets:

> This is always the worst time of year to sell steam coal; it is not the shipping season and there is an extra quantity of Hards thrown on the market in consequence of the demand for house coal, and this year there will be extra difficulty from the depression in the iron trade.[30]

The propensity to cross-over between sectors does not diminish the usefulness of the five segments as a tool with which to analyse the marketing of Nostell's coal. However, as with the analysis of Nostell's geographical markets, the usage markets into which it sold in the 1860s and 1870s can only be assessed in general terms. Like most contemporary collieries it sold several grades and sizes of coal, but their volumes cannot be established from the colliery's records because the surviving data define sales only as either 'coal' or 'slack'. It is certain that in the 1860s the market for gas coal was important to Nostell, as it was the highest-priced sector into which the Shafton coal could be sold – as shown by the Winns' efforts to sell gas coal in London and in France.[31] The gas market had a number of advantages for coalowners. Demand for gas was relatively stable over economic cycles, and consumption rose as the urban population increased and new applications in heating and cooking supplemented demand for lighting purposes. Until the early years of the twentieth century gas maintained a substantial advantage over competing products, and its range of uses expanded. As a result, the demand for gas coal was relatively price-inelastic and did not

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[28] Letter Edmund to Rowland Winn, 2 March 1886, A/1/10/[291], WYL1352, WYAS (W).
[29] Buxton, *Economic Development of the British Coal Industry*, p. 89.
[30] Letter, Edmund to Rowland Winn, 12 January 1886, A/1/10 [291], WYL1352, WYAS (W).
[31] Letters, Rowland Winn to Charles Winn, 29 June and 30 October 1867, A/1/8/1, and Thomas Belton to Edmund Winn 4 September 1867, C/3/1/9/3, both WYL1352, WYAS (W).

display the marked seasonality of other market segments.[32] Total sales grew from around 1,000,000 tons in the 1840s to over 15,000,000 in 1903.[33]

The specialised nature of the gas industry also gave coalowners a market for premium-priced products, particularly cannel. Nostell produced cannel from the Shafton seam until the seam's abandonment in 1885, and it was in high demand – in 1867 the colliery received complaints from a cannel customer who could not be supplied because of production problems.[34] The Winns marketed cannel even though it occurred in tiny quantities, because it enhanced the colliery's reputation for producing high quality coal and sold at a substantial premium. For example, in 1869 490 tons of cannel were sold at 8/- per ton, when the average pithead price for all coal was 5/-. By the early 1880s the differential was even wider, cannel being sold at well over twice the price of 'best' coal.[35]

Gas customers ordered in large quantities and were early adopters of the practice of placing contracts direct with a colliery for the supply of coal for multiple years, usually to a maximum of three.[36] Rowland exceeded this with the five-year contract through which he hoped to sell a large proportion of Nostell's annual output in a single transaction.[37] After the deepening of the shafts, the gas market continued to be important to Nostell. From 1888 to the turn of the century gas coal was the colliery's leading product by weight and value, constituting over 50 per cent of sales by value in 1890, decreasing to 25 per cent by 1900 (Figure 7.1).[38] The colliery's main gas product at this period was a coal from the Beamshaw seam described by George Winn to a customer as 'an average gas coal'.[39] This apparently slighting reference was probably intended to differentiate it from high-grade cannel. After 1900 slack from the Winter seam comprised an increasing proportion of Nostell's sales of gas coal, the large coal from the Winter being supplied to the domestic market. The gas industry was adapting to the use of smaller, cheaper coal as it began to feel competitive pressure from

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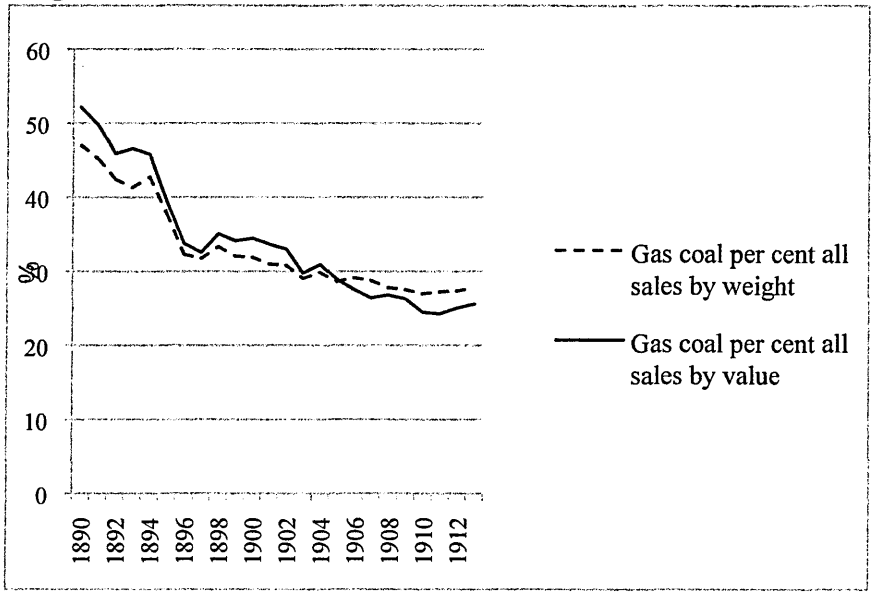
[32] Mitchell, *Economic Development of the British Coal Industry*, pp. 37-38; Church, *History of the British Coal Industry, vol. 3*, pp. 17, 23-24. In a 60-page 'advertorial' special edition of *The Times* on power ('The Fuel Number') in December 1913, electricity was treated as a by-product of coal, gas and oil, rather than as a power source in its own right.
[33] Mitchell, *Economic Development of the British Coal Industry*, p. 12; Jevons, *British Coal Trade*, p. 41.
[34] Letter, Thomas Belton to Edmund Winn, 11 July 1867, C/3/1/9/3, WYL1352, WYAS (W).
[35] 1/4 and 2/3, WYL523, WYAS (W).
[36] Jevons, *British Coal Trade*, p. 291.
[37] Letter, Rowland to Charles Winn, 29 June 1867, A/1/8/1, WYL1352, WYAS (W).
[38] C/3/3/2/2 and C/3/3/2/4, WYL523, WYAS (W).
[39] Letter, George Winn to J. T Crampton & Co., 30 May 1907, C3/6/4/[1857], WYL1352, WYAS (W). Beamshaw was the west Yorkshire name for the Stanley Main seam. At Nostell it was also referred to as the Priory seam, and coal sold by Nostell from the Stanley Main/Beamshaw/Priory seam were marketed under the name 'Priory'.

electricity.[40] The increased proportion of lower-priced small coal in Nostell's gas sales accounts for its drop below the mean price for all sales after 1904-1905 shown in Figure 7.1.

Figure 7.1: Annual gas coal sales at Nostell Colliery as proportions of all sales by weight and value, 1890-1913

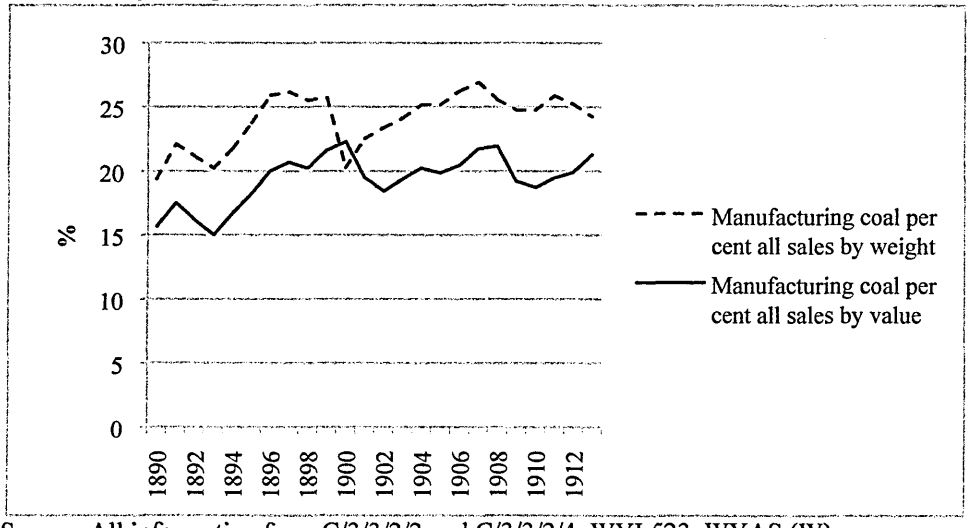


Source: All information from C/3/3/2/2 and C/3/3/2/4, WYL523, WYAS (W).

The manufacturing coal market for powering steam engines in industry also made extensive use of small coal and was important to Nostell sales. Yorkshire's manufacturing industry consumed at least 25 per cent of the county's output by weight up to 1914, with an additional percentage sold to more distant customers.[41] In the 1860s and 1870s, manufacturing coal was probably Nostell's main market. After the shaft deepening it lost this prime position, and its proportion by value fell because of its low price compared to gas and domestic coal (Figure 7.2).

[40] Jevons, *British Coal Trade*, pp. 55-56.
[41] See Table 6.1, p. 110.

Figure 7.2: Annual manufacturing coal sales at Nostell Colliery as proportions of all sales by weight and value, 1890-1913



Source: All information from C/3/3/2/2 and C/3/3/2/4, WYL523, WYAS (W).

Demand in the manufacturing market was fairly inelastic because fuel was generally a minor component of total production cost, although sales were liable to the same cyclical fluctuations as the industries it served. As manufacturing coal increasingly became a by-product of more expensive grades, the market could be affected by certain special circumstances. In the first stages of a boom, for example, increased demand from industry might lead to price inflation because the supply of manufacturing coal would not rise until higher domestic demand stimulated house coal production.[42] This could trigger price inflation such as that of winter 1871-1872, when the price of manufacturing grade nuts and slack in the West Riding rose by nearly 40 per cent in four months.[43] A similar effect can be seen in Figure 7.2 in the price of Nostell's manufacturing coal in 1900, during a major strike in the Yorkshire coalfield.

In times of normal demand, manufacturing coal had limited seasonal price variation. However, when demand for household coal was high the price of manufacturing coal could be influenced by the cross-over of better class coal to the more remunerative domestic market. George Winn commented to one of Nostell's larger manufacturing customers, the Horbury Junction Iron Co., that:

> After having met you as regards price, we scarcely think it fair that you...expect such a large quantity should be delivered in the winter

[42] Mitchell, *Economic Development of the British Coal Industry*, pp. 35, 266-268.
[43] Hyslop, *Colliery Management*, p. 507; *Iron & Coal Trades Review* 21 February 1872 (vo. 6, no. 208), p. 52.

months [when domestic demand and prices were high], when we could do so much better.[44]

For the Yorkshire coalfield as a whole, the industrial base of the West Riding formed a solid block of demand throughout the nineteenth century.[45] In Nostell's case, manufacturing coal remained a consistent, if lower-priced, component of total sales, maintaining a level of 20-25 per cent of all sales by weight from 1895 to the First World War.

The related but discrete entities of manufacturing and steam coal emerged from the undifferentiated demand for engine coal in the mid-nineteenth century, and exemplified the refinement of markets through technological change and the increasing sophistication of consumers.[46] The steam coal market originated from the introduction of iron steamships and the substitution, in the interests of economy and greater availability, of coal for coke in railway engines.[47] As well as producing a hot and smoke-free flame, the best steam coal was consistent in size and had a propensity to produce detached cinders, as these characteristics reduced stoking costs.[48] Steam coal was expensive to work because of the need to supply a physically uniform product but – despite a rise in price as it became established as a distinct product and its consumption increased – its price was lower than domestic coal. Consumers bought in bulk and were usually good credit risks, which compensated for the lower price, and the market was attractive to collieries with large reserves and high productive capacity.[49] Steam coal prices tended to rise in the summer, which was the main shipping season. The coal was generally differentiated only into 'best' and 'seconds', reducing grading and storage costs for producers. Steam coal was a relatively minor component of Nostell's sale because the steam market preferred a less bituminous product.[50] Nostell's modest output also prevented it from competing effectively in a market oriented to high volume producers. After the shaft deepening, steam accounted for about 10 per cent of sales in the 1880s, declining somewhat after 1900. The GNR was its sole railway customer.

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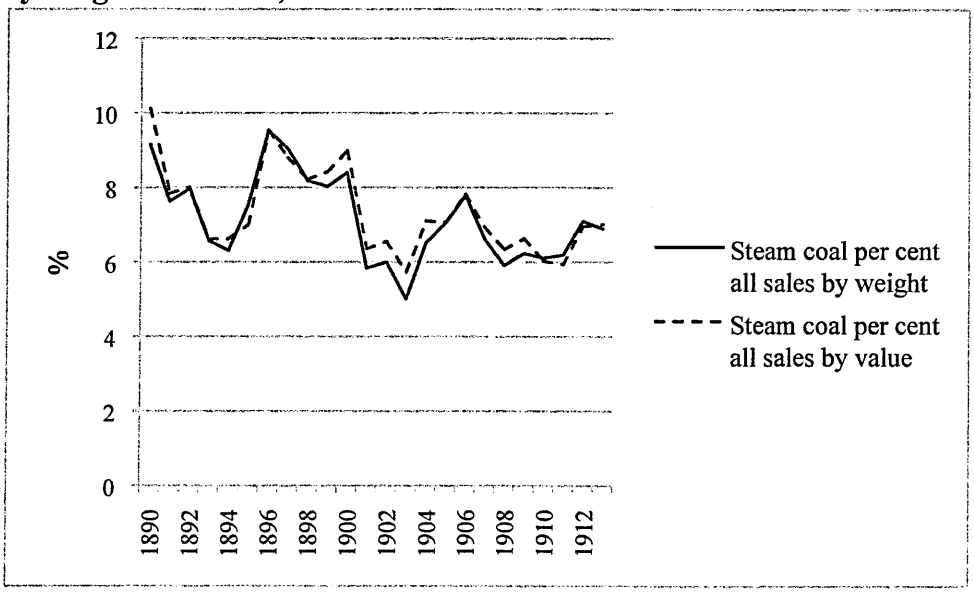
[44] Letter, George Winn to the Horbury Junction Iron Co., 16 November 1907, C/3/6/4[1857], WYL1352, WYAS (W).
[45] See Table 6.1, p. 110.
[46] Mitchell, *Economic Development of the British Coal Industry*, p. 267.
[47] Church, *History of the British Coal Industry, vol. 3*, pp. 30 and 33.
[48] Jevons, *British Coal Trade*, pp. 37-39.
[49] Hyslop, *Colliery Management*, pp. 290-291; Mitchell, *Economic Development of the British Coal Industry*, pp. 33 and 267; Church, *History of the British Coal Industry, vol. 3*, p. 48.
[50] Jevons, *British Coal Trade*, p. 37.

Figure 7.3: Annual steam coal sales at Nostell Colliery as proportions of all sales by weight and value, 1890-1913



Source: All information from C/3/3/2/2 and C/3/3/2/4, WYL523, WYAS (W).

House coal was the fourth market sector into which Nostell sold its coal, and became the most important from the late 1890s through to 1914. The domestic market was the most complex sector in terms of the range of products and supply channels available to the consumer, and attracted the highest prices in the British market throughout the nineteenth century.[51] Household coals were clearly differentiated by name, and consumers often had strong preferences for particular producers or seams. It is not possible to estimate Nostell's house coal sales before the deepening of the colliery. However, it is unlikely that the highly-priced domestic market constituted a significant proportion of sales at that time, because Nostell's coal sold for a markedly lower average pithead price than either all UK collieries in 1875-1881 or Yorkshire collieries in 1882-1885 (Table 7.1).

[51] Church, *History of the British Coal Industry, vol. 3*, p. 48.

Table 7.1: Average pithead prices per ton at Nostell Colliery, 1875-1885, compared with all UK collieries 1875-1881, and Yorkshire collieries, 1882-1885

Year	*Nostell*	*All UK*	*Yorkshire*
1875	7/10d	8/9d	
1876	7/1d	7/6d	
1877	6/2d	6/9d	
1878	5/4d	6/-	
1879	4/8d	5/6d	
1880	4/8d	5/3d	
1881	4/8d	5/-	
1882	4/9d		6/6d
1883	5/1d		5/7d
1884	5/1d		5/4d
1885	4/9d		5/-

Sources: 1. UK and Yorkshire averages from Church, *History of the British Coal Industry, vol. 3*, pp. 53, 58-59. 2. Nostell information from 5/8, WYL523, WYAS(W).

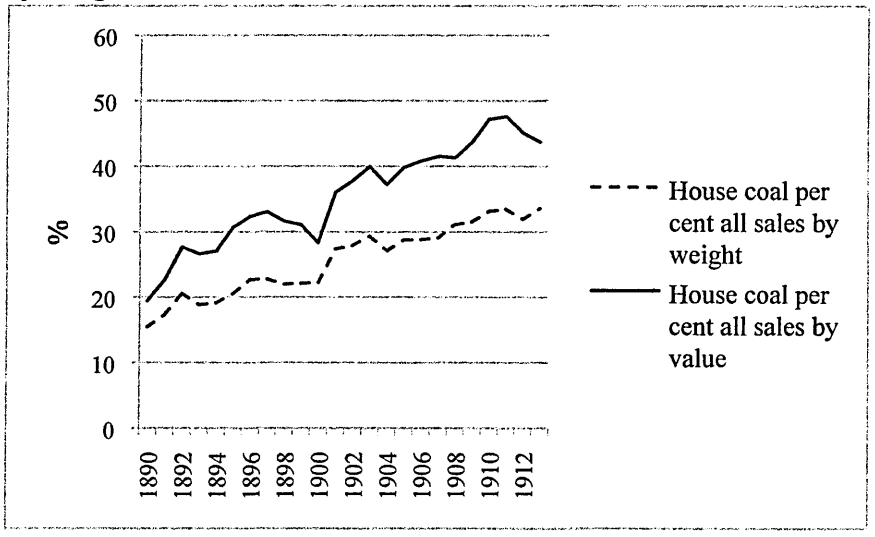
This situation changed after the colliery began producing coal from the Winter seam in the late 1880s. Edmund – admittedly not a disinterested witness – described the Winter coal as 'burning splendidly with very little dust'; ideal for a house coal.[52] The domestic market was seasonal, prices and sales invariably rising in winter. Demand tended to vary in relation to the weather, as Edmund noted just before Christmas 1891: 'This weather will help our coal trade, we have not had less than 10 and 12° [of frost] the last three days'.[53]

As well as for its high prices, the domestic market was attractive to coalowners because it was less liable to cyclical fluctuations than sectors dependent on manufacturing and trade, and demand was reasonably price-inelastic. Although consumers were not entirely unresponsive to price rises, heating the home was a high priority for all but the poorest households. However, although the UK market for domestic coal grew throughout the Victorian and Edwardian eras, it declined as a proportion of all sales from the mid-century onwards because of rapidly increasing demand in other sectors.[54] In the Yorkshire coalfield, local domestic consumption as a proportion of all uses fell by half between 1869 and the First World War.[55]

[52] Letter, Edmund to Rowland Winn, 27 November 1890, A/1/10[291], WYL1352, WYAS (W).
[53] Letter, Edmund to Rowland Winn, 22 December 1891, A/1/10[291], WYL1352, WYAS (W). Writing from London, he went on to say that 'the yellow fog is fearfully thick and pretty nearly as bad in the house as out', a side-effect of the rising coal sales.
[54] Mitchell, *Economic Development of the British Coal Industry*, pp. 12, 33.
[55] See Table 6.1, p. 110.

Domestic coal rose as a proportion of Nostell's total sales by weight from 16 per cent in 1890 to 25 per cent in 1900 and 33 per cent by 1913. This exceeded the equivalent proportion for the Yorkshire coalfield as a whole, which ran at 20-25 per cent from 1887 to 1913. There was a matching rise in the proportion of Nostell's income derived from the domestic market, which surpassed 40 per cent throughout the ten years prior to the First World War. Figure 7.4 illustrates the increasing importance of domestic coal sales at Nostell.

Figure 7.4: Annual domestic coal sales at Nostell Colliery as proportions of all sales by weight and value, 1890-1913

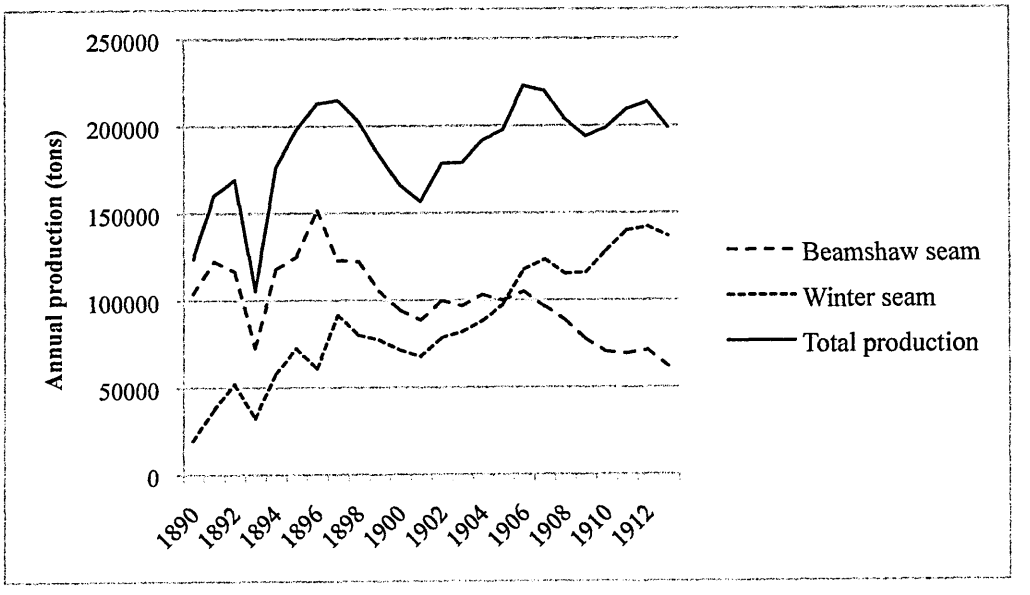


Note: All information from C/3/3/2/2 and C/3/3/2/4, WYL523, WYAS (W).

Figure 7.5 shows that the Beamshaw seam dominated production at Nostell between 1888 and 1905, although the superior quality of the Winter seam was recognised at an early stage. Winter coal was added to sample wagonloads from the Beamshaw seam that were sent to merchants in 1887, in order to raise their quality.[56] There is no documentary evidence to explain the initial concentration on production from the Beamshaw, but one could speculate that it was because its coal could easily be sold into the gas and manufacturing markets in which Nostell was already established.[57] There may have been technical reasons for working the Beamshaw seam first. These probably related to drainage because it was at greater depth than the Winter. The Winter seam, however, was the focus of the Winns' introduction of mechanical coalcutting, when it was first tried at Nostell in 1888.[58]

[56] Letter, Edmund to Rowland Winn, 27 August 1887, C3/1/9/[846], WYL1352, WYAS (W).
[57] The explanation could be purely technical - collieries generally worked seams in their descending order, to reduce problems of drainage. The Barnsley seam was at 485 yards' depth at Nostell, approximately 80 yards beneath the Winter and Beamshaw/Stanley Main.
[58] B. Fraser, *The History of over 850 Years of Mining at Nostell* (Wakefield, 1987), p. 20.

Figure 7.5: Annual production from the Beamshaw and Winter seams at Nostell Colliery, 1890-1913



Source: All information from West Yorkshire Coalowners' Association, 'Annual Output of Members' Collieries, 1889-1931', MS 148/13-14, Leeds University Brotherton Library Special Collections.

As the proportion of domestic coal in Nostell's total output rose, the colliery's average pithead price began to exceed that for the Yorkshire coalfield as a whole and remained above it to 1912, as can be seen from Table 7.2.

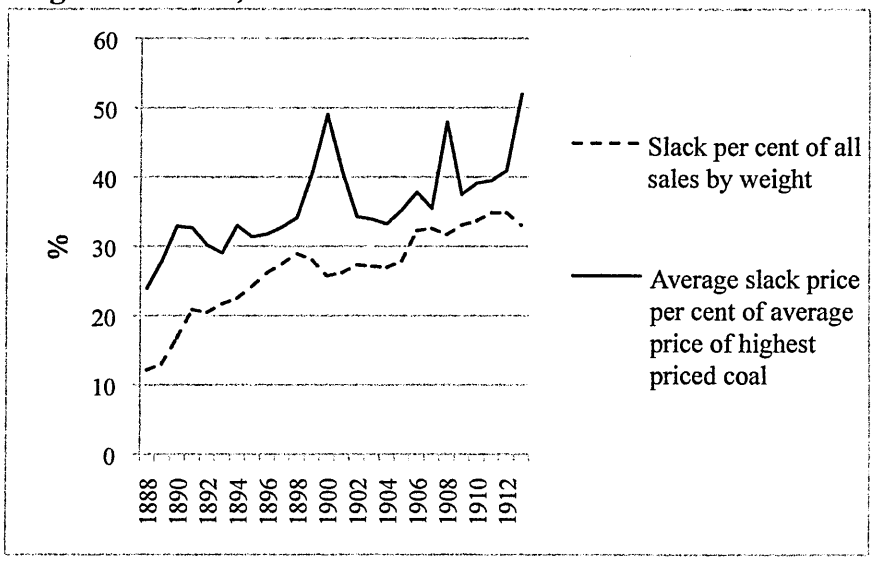
Table 7.2: Annual average pithead prices for Nostell Colliery and the Yorkshire coalfield, 1890-1912

Year	*Average pithead price per ton*	
	Nostell	*Yorkshire*
1890	7/6d	8/9d
1892	7/10d	7/9d
1894	7/3d	7/4d
1896	5/11d	6/5d
1898	6/4d	7/-
1900	9/7d	10/1d
1902	8/3d	8/1d
1904	7/8d	7/1d
1906	7/4d	6/9d
1908	9/4d	8/5d
1910	8/8d	7/8d
1912	9/11d	8/4d
1913	10/8d	9/5d

Sources: Yorkshire averages from Church, *History of the British Coal Industry, vol. 3*, pp. 58-59. 2. Nostell prices from C/3/1/9/1, WYL1352, WYAS(W).

The rising market for small coal, which became an increasingly significant component of the colliery's total sales, also influenced the increase in average sale price. Coal sales at Nostell increased from 75,000 to 200,000 tons p.a. between 1888 and 1913, and small coal provided around half that increase. The average price of small coal rose sharply relative to other types of coal. The average pithead price per ton of Nostell's most expensive coal doubled in the twenty-five years before the First World War, while the mean price of small coal rose fourfold. Coalowners could take advantage of economies of scale by marketing small coal: 'the importance of utilising to the greatest advantage the whole of the coal output from mines'.[59]

Figure 7.6: Annual small coal sales at Nostell Colliery as proportions of all sales by weight and value, 1888-1913



Source: All information from C/3/3/2/2 and C/3/3/2/4, WYL523, WYAS (W).

After 1888, the better coal and larger quantities being raised from the Beamshaw and Winter seams encouraged the management at the colliery to exploit the opportunities available in a segmented market for differentiating coals for specific groups of users. Table 7.3 shows the types of coal sold by Nostell from 1885 to 1913, and an indication of the relative annual average price by grade.

[59] Jevons, *British Coal Trade*, p. 219.

Table 7.3: Coal types sold by Nostell Colliery and their average prices, 1885-1913

	1885	*1890*	*1895*	*1900*	*1905*	*1910*	*1913*
Gas/Best	£0.29 (100)						
Engine	£0.24 (83)	£0.38 (69)	£0.32 (63)	£0.92 (100)	£0.37 (62)	£0.45 (67)	£0.59 (79)
Nuts	£0.22 (76)	£0.41 (75)					
Slack	£0.13 (45)	£0.18 (33)	£0.16 (31)	£0.38 (41)			
Wragby Best		£0.55 (100)	£0.51 (100)	£0.76 (84)	£0.60 (100)	£0.67 (100)	£0.70 (93)
Priory Wallsend		£0.47 (85)	£0.43 (84)	£0.69 (75)	£0.51 (85)	£0.60 (90)	£0.59 (79)
Cobbles			£0.36 (71)	£0.64 (70)	£0.51 (85)	£0.57 (85)	£0.66 (88)
House Nuts			£0.46 (90)	£0.46 (50)	£0.34 (57)	£0.39 (58)	£0.50 (67)
Steam Nuts			£0.28 (55)	£0.50 (54)	£0.32 (53)	£0.38 (57)	£0.48 (64)
Wragby Nuts					£0.54 (90)	£0.66 (98)	£0.75 (100)
Rough slack					£0.24 (40)	£0.28 (42)	£0.42 (56)
Medium slack						£0.25 (37)	£0.36 (48)
Pea slack					£0.20 (33)	£0.24 (36)	£0.36 (48)

Notes: 1. The figure in brackets is that coal's price as a percentage of the highest-priced coal in that year; 2. Prices are pit-head, per ton; 3. The spike in prices in 1900 resulted from a strike that particularly affected Engine (manufacturing) coal demand because it took place between April and October.
Source: C/3/3/2/1, C/3/3/2/2 and C/3/3/2/4, WYL523, WYAS(W).

In 1885 Nostell marketed four types of coal, mostly to industrial markets, differentiated by generic identifiers: 'gas, 'engine' or 'slack'. As the output of the new seams ramped up, a different approach was taken. The colliery's grading and cleaning capability was improved in the redevelopment so that the output could be exploited to its full extent.[60] The coals were given names that were designed to indicate origin, size and quality, a practice that is considered in more detail later in this chapter. In addition to the two premium coals ('Wragby Best' house coal and 'Priory Wallsend' gas/house coal), a generic name was retained only for 'Engine' coal, a low-priced manufacturing variety. Small coal was initially sold in two grades - nuts and slack - but later in the

[60] The colliery's screens were renewed in 1888. C/3/3/2/1, WYL523, WYAS (W).

1890s the range was widened. The new size of cobbles was introduced and the nuts grade was sub-divided into three to reflect the respective quality. Slack was also sub-divided by size, into rough, medium and pea.[61] By 1901 Nostell's product range had more than doubled since the redevelopment of the colliery. The management showed an awareness of the needs and expectations of customers, and a willingness to invest in an enhanced capability for sorting, storing and shipping coal. They were rewarded by the marked improvement of the colliery's financial performance from the early 1890s onwards. The colliery evolved from producing a commodity differentiated only in the broadest terms to marketing a range of individual products that corresponded to the customer's needs and expectations. As well as the development of clear market segmentation, the later nineteenth century coal market also saw changes in pricing, sales channels and the contractual arrangements through which coal was sold. The remainder of the chapter will consider Nostell's response to the evolution of the commercial environment in which it operated, beginning with pricing.

'These days of keen competition':[62] setting a price for Nostell's coal

The heterogeneity of the later nineteenth century coal market, well characterised by Jevons, implied that there was no easily defined single price for coal. As we have seen, the segmentation of the coal market after 1850 corresponded to the specific needs of the user, and coal prices constituted a complex matrix that reflected these five usage segments and the different grades within each category. The pricing of coal from the mid-nineteenth century to the First Word War was a function of a largely perfect market, although in earlier years it had been strongly influenced by legislative regulation. The statutory price controls and duties that had applied in the London market and some provincial locations had been repealed by 1830, and from the 1850s coal industry legislation refocused on safety and social improvement.[63] Successive national governments took a laissez-faire stance in economic matters, and the most important example of the organised control of prices by coalowners came to an end when north east England's Limitation of the Vend broke down in the mid-1840s.[64] The nature of the coal industry was an influence on the owners' inability to combine after the 1850s. As the industry grew, so did organisational fragmentation and competition -

[61] C/3/3/2/1, C/3/3/2/2 and C/3/3/2/4, WYL523, WYAS (W).
[62] William Armstrong, 1863, quoted in Church, *History of the British Coal Industry, vol. 3*, p. 72.
[63] Buxton, *Economic Development of the British Coal Industry*, pp. 131-132.
[64] ibid, p. 40.

in 1900, there were over 3,000 collieries in Britain, owned by nearly 1,800 separate firms.[65] Coalowner organisations had difficulty in controlling prices,[66] for reasons made clear by a contemporary report:

> There was great competition in the sale of coal; and although there existed agreements among the masters not to undersell each other, yet this was done, first, in an underhand manner, by giving extra weight and allowing discount, and afterwards by openly lowering the price.[67]

The trajectory of coalowner organisations in Yorkshire in the nineteenth century is worth brief review. Outside north east England, early nineteenth century coalowners in west Yorkshire had been among the most active in price collusion. However, the West Riding coalowners' organisations that existed sporadically in later years had mostly been intended as mutual support against organised labour, notably during strikes in 1853 and 1858.[68] Rowland Winn was sceptical of owners' organisations, stating in 1885 his desire to avoid involvement in 'any combination of colliery owners – from which I am convinced there is nothing in the long run to be gained'.[69] The Winns were equally unenthusiastic about trades unions. Edmund deprecated the activities of Ben Pickard, the first secretary of the Yorkshire Miners' Association, and remarked of a decision by the London Gas, Light & Coke Co. to employ only union members that 'I can hardly believe they would put themselves so completely in the power of their own workmen'.[70] Rowland's attitude to combinations of suppliers or workers was consistent with his preference – made clear from the Carlton project onwards – for avoiding arrangements that might enable external interests to influence the running of his property. Nostell Colliery was a passive follower of trends in wages and prices, reacting to market-wide changes but staying clear of organised attempts to influence the level and timing of those changes.

When a new employers' organisation, the West Yorkshire Coalowners' Association (WYCOA), was founded in 1890, it concentrated on resolving wage

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[65] Crouzet, *Victorian Economy*, p. 270.
[66] Church, *History of the British Coal Industry, vol. 3*, p. 668.
[67] National Association for the Promotion of Social Science (1860). Quoted in F. Machin, *The Yorkshire Miners vol. 1* (Barnsley 1958), p. 82.
[68] Church, *History of the British Coal Industry, vol. 3*, pp. 652 and 655.
[69] Letters, Rowland Winn to William Spencer, 21 March 1885, C/3/1/6/[1876-1889 372], WYL1352, and Ben Day to George Winn, 26 June 1890, WYL523, both WYAS (W); West Yorkshire Coalowners' Association minute books, 1890-1914, MS 148/1-3, Leeds University Brotherton Library Special Collections.
[70] Letters, Edmund to Rowland Winn, 27 May 1885, 10 July 1886 and 8 February 1891, A/1/10/[870] and A/1/10/[291], WYL1352, WYAS (W).

disputes and providing financial assistance to members resisting labour demands, although it also had some success in regulating the normal seasonal price changes.[71] George Winn, who had taken over as Nostell's general manager shortly beforehand, recognised the value of the organisation's stance on labour relations, and Nostell joined shortly after its establishment. George was not active in the WYCOA – he never held a post within it, and attended meetings infrequently after 1892 – but Nostell used its arbitration and strike indemnity services several times during the 1890s and early 1900s. During a 1900 strike, for example, the colliery received over £8,000 in indemnity payments.[72]

The market itself became the determinant of coal prices. Mitchell argues that from 1850 coal prices were the set by 'the largely unfettered forces of competition in a nearly perfect market'.[73] The two major influences on price – particularly after the railway network in the coalfields was largely completed in the 1860s - were the inevitable variations in quality between coal produced by individual coalfields and collieries, and the relative locations of a market and its supplying coalfields. Location was important in two respects: firstly, the distance of travel was a prime influence on the cost of transport and, secondly, the number of suppliers with easy access to a particular market determined the level of competition within it. A market that was easily accessible from a number of coalfields was likely to be highly price-competitive. More isolated markets had less competition and higher prices. Coal of the same type and quality, originating from a single colliery, could therefore have different prices in the various markets in which it was sold.[74] With a few exceptions in remote areas that were insulated by high incoming transport costs,[75] virtually all coalowners had the theoretical ability to set prices at whatever level they pleased, but were actually 'price-takers in a highly competitive market' in which 'the scope for departing from market prices was...extremely limited'.[76]

This situation had been pre-figured by John Walker in his report on Carlton in 1854. In a telling phrase, Walker expressed concern that the proposed colliery would be 'controlled by the circumstances' of the market because of its high rental and a small

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[71] An indemnity scheme gave financial support to coalowners during strikes about issues that were considered points of principle for the employers. The focus of the Association's activities can readily be seen from its minute books, held in the Brotherton Library, University of Leeds.

[72] West Yorkshire Coalowners' Association minute books, 1890-1914 passim, MS 148/1-3, Leeds University Brotherton Library Special Collections.

[73] Mitchell, *Economic Development of the British Coal Industry*, p. 264.

[74] Mitchell, *Economic Development of the British Coal Industry*, pp. 263-264.

[75] This occasionally extended to an entire coalfield, for example the high-cost field in north Somerset.

[76] Church, *History of the British Coal Industry, vol. 3*, p. 70.

but competitively significant disadvantage in transport costs relative to other local collieries. This would make it difficult to price the coal at a level that would 'realise the large annual vend' that would be needed to 'cover the minimum and reserved rents'.[77] A similar situation applied at Nostell. As a supplier to the railway market, Nostell had little control over prices and its high cost base in the pre-1888 period meant that it could only be profitable during periods of price inflation. In the late 1870s and early 1880s, the Winns' discussions of the colliery were suffused by the sense that they operated in a pricing environment in which there was little room for manoeuvre by the individual producer. This manifested itself in a fatalistic attitude to market forces and concerns about costs. Edmund implemented a 'cutting policy' on costs in 1867 and 1868, and in 1876 Rowland observed to a fellow landowner that 'I believe that the number of pits that are being opened out will keep the price down...and that we shall not see a general increase in letting values [of coal-bearing land] in our lifetime'.[78] In the following year he considered the possibility of leaving the coal trade.[79] This extreme step was not taken, but discussions recurred about closing the colliery and the necessity of a rise in coal prices to restore Nostell's profitability, without any suggestion that alternative action on pricing was possible.[80] Indeed, Rowland welcomed a potential coalfield strike, as it would lead to a rise in prices and reduce variable costs.[81]

In the early 1880s, after a succession of unprofitable years, Edmund pressed his brother to decide on the colliery's future. He stated bluntly that it was impossible to increase the output or reduce the production cost of the Shafton coal to the point that it could be profitable at the price levels of the late 1870s and early 1880s.[82] There was no opportunity for supplying more highly priced markets other than through the tiny output of cannel. He successfully proposed to Rowland that the shafts should be deepened to reach better coal, albeit at the cost of further investment. When this process had been completed and production began from the lower seams in 1886, Nostell launched new coal into the market for the second time in twenty years. Early indications were good. The Beamshaw seam was, in Edmund's opinion, 'good enough house coal to sell easily and I shall be surprised if we have not a market at a good fair price for all we can

[77] Letter, John Walker to Rowland Winn, 5 September 1854, C3/1/9/1, WYL1352, WYAS (W).
[78] Letting values related to expectations about the market price of coal. Rowland was correct, as a sustained rise in the pithead price of coal did not begin until about five years after his death. Letter, Rowland Winn to H. S. L. Wilson, 8 August 1876, C/3/1/6/[372], WYL1352, WYAS (W).
[79] Letter, Rowland Winn to H. S. L. Wilson, 24 April 1877, C/3/1/6/[372], WYL1352, WYAS (W).
[80] Letters Edmund to Rowland Winn, 19 January and 5 February 1882, A/1/10/[291], and 5 December 1883 and 11 March 1885, A/1/10/[870], WYL1352, WYAS (W).
[81] Letter Rowland Winn to William Spencer, 21 March 1885, C/3/1/6/[372], WYL1352, WYAS (W).
[82] Letter Edmund to Rowland Winn, 19 January 1882, A/1/10/[291], WYL1352, WYAS (W).

raise'.[83] The brothers' correspondence described the process by which a 'good fair price' was set. In effect, it was an auction, bearing out a contemporary's remark that 'the selling price is to a very great extent beyond [the coalowner's] control'.[84] An internal trial was made against a recognised good domestic coal to estimate the coal's likely appeal to the market.[85] Sample wagon-loads were then sent to merchants who were invited to offer a price for bulk supplies. Edmund wrote to Rowland to express his satisfaction at the outcome:

> The merchants at Bradford like the look of the sample wagons...and offer a price that leaves 8/9d at the pit, we shall make this 9/- and upwards before long I have little doubt.[86]

Mitchell's view that transport and coal quality were the main determinants of price variation are borne out by the manner in which Edmund proposed to 'tweak' the offered price a little higher. Nostell had good access to the national railway network so that its transport costs were already competitive with those of neighbouring collieries. Edmund therefore concentrated on ensuring that the quality of the samples would not only engage the interest of the coal merchants in the initial auction, but also be consistently achievable when in full production:

> It is a new coal going to the market; buyers will crab it as much as possible to lower the price and the salesman will try to get the sample as good as possible to help himself in selling it. It is Spencer's business to see that a sample is made that will sell.[87]

He recommended that an entry into the important southern markets should not be attempted until the best attainable quality could be achieved consistently:

> I should not be in any hurry to send samples into the London or Eastern Counties' markets until I saw what sort of sample of coal comes out of

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[83] Letter Edmund to Rowland Winn, 2 March 1886, A/1/10/[291], WYL1352, WYAS (W).
[84] E. E. Melly, who was manager of Griff Colliery, Warwickshire, from the early 1880s until 1913, quoted in Church, *History of the British Coal Industry, vol. 3*, p. 70.
[85] 'I have got a wagon of good Barnsley Hards to the Colliery so that it may be compared with the wagon Hay had got out of the seam at Nostell'. Letter Edmund to Rowland Winn, 13 February 1886, A/1/10/[291], WYL1352, WYAS (W).
[86] Letter Edmund to Rowland Winn, 13 March 1886, A/1/10/[291], WYL1352, WYAS (W).
[87] Letter Edmund to Rowland Winn, 25 November 1886, A/1/10/[291], WYL1352, WYAS (W).

> the long wall workings, I expect it will be better (more large) than out of the narrow work.[88]

Edmund was concerned about a layer of white ash in the Beamshaw seam that did not adversely affect its combustion characteristics but which for cosmetic reasons would make it harder to sell as a household product:

> ...the white ash will prove the main difficulty with the coal in preparing it for the London market. It must be kept out. If it is confined to the lower part of the bed there ought not to be much difficulty...but if we find it varies in different parts of the workings it will increase the difficulty very greatly.[89]

Edmund's comments contrast with twenty years earlier, when he had to be encouraged by Roseby to invest in grading and cleaning equipment for the Shafton coal. Dintenfass noted that 'the trade in coal came more and more to involve 'manufactured' commodities rather than 'extracted' ones'.[90] In the original samples sent to merchants, and almost certainly as a matter of course during bulk supply, a significant proportion of Nostell's output from the late 1880s onwards was, in some degree, manufactured: graded, cleaned, and largely from the Beamshaw seam but including a proportion from the superior Winter seam.[91]

The strategy for the redeveloped colliery was to 'sell the largest possible proportion of the coal [at] the price of first class coal', and the Winter seam made this possible.[92] Johnson Shaw, Nostell's sales agent, told Edmund in 1887 that:

> '...he will not have difficulty in disposing of as much coal as is likely to be raised for some time to come, say four or five hundred tons a day. If he can do that and keep up the price...I think the Colliery ought to pay well enough'.[93]

Once Nostell had secured and maintained a profitable presence in the market through the quality and consistency of its products, there were other ways in which the

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[88] Letter Edmund to Rowland Winn, 20 September 1886, A/1/10/[291], WYL1352, WYAS (W). HM Inspectorate would not allow the deployment of the full workforce until both shafts were completed, giving two escape routes from the workings. Longwall methods would be used from that point. Until then, coal was extracted by pillar and stall ('narrow work') using a limited workforce.
[89] Letter, Edmund to Rowland Winn, 27 August 1887, C3/1/9/[846], WYL1352, WYAS (W).
[90] Dintenfass, 'Entrepreneurial Failure Reconsidered', p. 20.
[91] Letter, Edmund to Rowland Winn, 27 August 1887, C3/1/9/[846], WYL1352, WYAS (W).
[92] Letter Edmund to Rowland Winn, 25 November 1886, A/1/10/[291], WYL1352, WYAS (W).
[93] Letter, Edmund to Rowland Winn, 2 September 1887, C3/1/9/[846], WYL1352, WYAS (W).

Winns could establish their colliery in the minds of the consumer. One means of achieving this was the use of distinctive names, and the influence of this practice on the marketing of Nostell's coal will be considered in the following section.

What's in a name?: from Stanley Main to Beamshaw

It was difficult for a coalowner to physically differentiate his merchandise from that of his competitors, as coal was delivered in bulk and was not easily packaged or visually distinguishable one type from another.[94] Many collieries attempted to differentiate their products by naming them in ways that would help to establish a 'brand', and indicate to the customer the quality and origin of the coal. In industrial markets the name usually identified only the district or coalfield but more detailed nomenclature was common in the household trade, in which the reputation of individual collieries or seams had considerable commercial value. The London domestic market had a long-established practice of naming coals after the originating colliery or coalowner, usually with a suffix that related to the region or seam from which it came – for example Killingworth Wallsend or Toft Main Splint.[95] By the time of the redevelopment of Nostell in the mid-1880s, the Winns were well aware of the power of coal names. When the new sinking cut a seam at around the depth at which the Barnsley measures were expected to be found, Edmund was anxious to establish its identity – an uncertain process, as the depth and nature of individual beds could vary considerably within a coalfield. He was concerned that the seam they had reached was the Stanley Main, generally considered a second-class coal,[96] and warned his brother that 'it will be as well not to say anything about what it may turn out to be, I think it would injure the sale. There is much prejudice'.[97] The seam was in fact the Winter, with the Stanley Main – locally known as the Beamshaw - a few yards below it, and the Winns decided to work these coals rather than incur further expenditure in reaching the Barnsley seam.[98] The Stanley Main produced better coal at Nostell than it did elsewhere, but was always referred to by the Winns as the 'Beamshaw', and the marketing title given to coal cut from it was 'Priory'. No coal from Nostell was sold under the name 'Stanley Main'.

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[94] Although privately-owned wagons always displayed the name of the colliery or owner, and acted as mobile advertisements.
[95] Mitchell, *Economic Development of the British Coal Industry*, pp. 266-267; Church, *History of the British Coal Industry, vol. 3*, p. 49.
[96] Greenwell et al, *Analyses of British Coals and Coke*, p. xliv.
[97] Letter, Edmund to Rowland Winn, 17 December 1886, A1/10/[291], WYL1352, WYAS (W).
[98] Wilcockson, *Sections of Strata of the Coal Measures*, pp. 252-253.

The desire for association with perceived high quality was strong, so that collieries whose sale was mostly from second-class seams would produce small amounts of high quality coal – even at a loss - in order to enhance their market standing.[99] Coalowners also appropriated coal identities to which they had little right. Wallsend coals and those from the Silkstone seam of Yorkshire and Derbyshire were traditionally among the highest quality products in the London market. The terms became used as generic indicators of quality for coal, so that 'some collieries in south Yorkshire and even North Staffordshire use [Wallsend] for their best qualities'.[100] The Winns themselves indulged in this sleight of hand and gave the name 'Priory Wallsend' to a gas/house coal produced from the Beamshaw seam. 'Premium' coal names were also used as comparative indicators, as when the Clay Cross Co. advertised its best quality coal as 'equal to Wallsend'.[101] A contemporary acknowledgement of the power and value of nomenclature was made when Lord Londonderry used legal action to stop the use of the name 'Londonderry Wallsend' for coal that had not been produced from his estate.[102]

As prepared coal became increasingly important in the market, specific indicators of a coal's quality or size – such as 'best', 'seconds', 'kitchen', 'nuts' or 'cobbles' – were added to the nomenclature. Examples were Russell Hetton Nuts and Ellison Main Bean, while the Clay Cross Company advertised its Brights, Seconds and Kitchen coals as a domestic range, in descending order of quality.[103] After the redevelopment of the colliery, Nostell marketed a portfolio of coals prepared by cleaning, screening and – in some cases – mixing of different seams, that were targeted at various market segments but with a bias to the domestic (see Table 7.3). A naming policy was introduced that was appropriate to this sector. Nostell's premium product, a good domestic coal from the Winter seam, was christened 'Wragby Best'. The gas/second class house coal from the Beamshaw/Stanley Main was called 'Priory Wallsend'. The names combined indicators of geographical origin – albeit perhaps best understood by inhabitants of the Wakefield/Doncaster area – and quality. 'Engine' coal retained its generic name as appropriate to the market at which it was targeted. 'Wragby' was retained for the top grade of nuts, echoing the name of the premium

[99] Church, *History of the British Coal Industry, vol. 3*, pp. 49-50.
[100] *The Times*, 1 December 1913, p. 26.
[101] *The Times*, 5 January 1870, p. 11.
[102] Church, *History of the British Coal Industry, vol. 3*, pp. 48-49.
[103] *Pearsall's Monthly and Annual Importation and Delivery of Coal*, unpaginated; *The Times*, 7 January 1885.

domestic coal, and the other nut grades were called 'House' and 'Steam' to indicate their quality and appropriate use. Slack was divided into the industry-standard sizes of rough, medium and pea. This range of named coals brought Nostell into the mainstream of contemporary coal marketing.

The use of names to establish a brand in the market encouraged some coalowners to attempt to enhance their market position through advertising, on their own behalf or acting through their membership of a regional association. Collieries with a network of retail depots advertised their outlets' location and prices in local newspapers, stressing the economies achievable by buying direct from the mining company, with a guarantee of single-source unadulterated coal. The Amalgamated Collieries Co.'s press advertisements, for instance, claimed that buying from their depots would 'save the middleman's profit'.[104] Those collieries whose main markets were industrial or wholesale advertised in trade journals. Whether the advertisements addressed the domestic or business user, the coal names were prominent and there were emphases on quality and the advantages of buying direct from the producer – for larger advertisements, a list of customer endorsements might be included.[105] Conversely, merchants' advertisements stressed the choice available through buying from a middleman who carefully selected the best products on the market. The 'advertorial' was used at local and national level. For example, the Heckmondwike Colliery Co. benefited from an article in the Spen Valley *Advertiser & Times* urging its readers to buy local coal rather than 'imported', 'foreign' varieties from Barnsley. A forty-page supplement in *The Times* on coal, gas and oil included full-page advertisements by large collieries, and the coalowners' associations of various coalfields provided much of the copy.[106] Nostell did not have its own retail outlets except for the landsale at the pit-head, and appears not to have placed advertisements. However, it did benefit from WYCOA's efforts on behalf of its members, and particularly through the comment in *The Times*' 1913 fuel supplement that the Winter seam was an outstanding house coal. This discussion of the use of advertising has brought to the foreground the retail and wholesale channels by which the coal reached the market. As with coal names, the use of the most appropriate channel gave the enterprising coalowner an opportunity to differentiate his products, and the focus of this chapter will therefore switch to the issue of sales channels.

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[104] *The Times*, 6 January 1885, p. 15.
[105] Church, *History of the British Coal Industry, vol. 3*, p. 49.
[106] *Advertiser & Times*, 19 December 1907, p. 2; *The Times*, 1 December, 1913.

'In all selling, great caution is required...':[107] collieries, merchants and retailers

The sales channels through which coal reached the customer were in a state of flux during the middle years of the nineteenth century. The arrangement that had been commonplace in the north-east's trade with London - of a shipper taking title to a consignment of coal from the colliery at a discounted price to cover his risk, and then selling on to a merchant at the destination port - had largely been discontinued by the 1860s. It had been replaced by a system under which railway and sea-sale collieries sold to merchants, the transport costs being borne by the purchaser. The merchant sold to retailers or end-users. Merchants bought coal from different collieries as the opportunity arose, although they often dealt regularly with the same producers and customers over a long period. For purely local sales, the collieries retailed direct to end-users.[108]

Mitchell noted that 'the separation of producing and merchanting was virtually complete until the early 1870s', but from then onwards these functions began to come together. Selling directly to the end user without the use of middlemen, gave coalowners several benefits. They could retain more of the price margin for themselves, and they had greater control of the marketing of their coal. This gave them the opportunity for a degree of price flexibility, particularly when improvements in the speed and capacity of coal-handling technology enabled further cost to be removed from the supply chain by combining production and delivery. Church estimated this as a reduction in the cost of distribution from two-thirds of the retail price in 1830 to 30 per cent to 50 per cent fifty years later.[109]

Coalowners gained these advantages at the expense of increasing the complexity of their businesses. By taking out middlemen, collieries had to maintain their own retail outlets for domestic and small business customers, and employ salaried salesmen to sell to larger business customers. They could establish a chain of outlets independently or buy an existing retailer, and deliver coal direct from the pit in colliery wagons.[110] Railway companies that rented storage and siding space at their stations encouraged the development of colliery-owned retailers. For example, in 1908 the London and North Western Railway alone had 155 such coal-yards in the London area.[111] Through the last

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[107] Hyslop, *Colliery Management*, p. 299.
[108] Church, *History of the British Coal Industry, vol. 3*, pp. 71-72; Jevons, *British Coal Trade*, pp. 293 and 305.
[109] Church, *History of the British Coal Industry, vol. 3*, pp. 63-64, 72-75.
[110] Depots at railway stations were used extensively by both collieries and coal merchants. Church, *History of the British Coal Industry, vol. 3*, p. 73.
[111] Bagwell, *Railway Clearing House in the British Economy*, p. 85.

quarter of the nineteenth century coalowners from a variety of coalfields, including Derbyshire/Nottinghamshire (Clay Cross Co., Staveley Iron & Coal Co. and the Pinxton Colliery Owners), the north-east (Tyne Main Coal Co. and the Marquis of Londonderry) and south Yorkshire (J. & J. Charlesworth and the Silkstone & Elsecar Colliery Co.) opened depots at railway stations across the country, and particularly in London.[112] Hyslop remarked in *Colliery Management* that the profits from retail 'were in many cases very considerable', but also drew attention to the cost and difficulty of managing a distributed retail network, and particularly of ensuring the honesty and conscientiousness of salaried agents.[113]

Perhaps influenced by these considerations, there is no evidence that the Winns sold through wholly-owned outlets. In 1907, in fact, George Winn wrote to the Great Northern Railway requesting that it install a weighing machine at its station in Sandal (a suburb of Wakefield close to Nostell) to encourage coal merchants to begin trading from it, implying that the colliery had no 'in-house' outlets even in its home locality.[114] The great majority of Nostell household coal sales were made through merchants. It is possible that the Winns, as landowners, were inclined to commercial development only of their own property, so that a network of branches held no attraction for them. Alternatively, the Winns could have simply be conforming to local practices, as a review of the coal market written immediately before the First World War noted that 'very little direct trade is done with the consumer' in west Yorkshire, most house coal from the area being distributed through merchants and factors.[115] By using merchants, the number of transactions to be managed was reduced, and the cost and risk of running a distributed retail business entirely removed.[116] This was in any case an overhead that might have been difficult for a medium-sized colliery like Nostell to sustain, especially given the limited size of its management team. The colliery certainly developed longstanding relationships with some large merchants, though there was little likelihood of amalgamation with them given Nostell's status as the personal property of a landowner and an integral element of a landed estate. Nostell's commercial options were therefore constrained by the nature of its ownership.

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[112] A review of advertisements of the London *Daily News* and *The Times* from 1860 to 1892 suggests that collieries as a proportion of all coal suppliers advertising retail depots in London rose from 15-20 per cent at the earlier date to 33-40 per cent in the 1890s.
[113] Hyslop, *Colliery Management*, pp. 296-297.
[114] Letter, George Winn to E. Ellis, 21 September 1907, C/3/6/4[1857], WYL1352, WYAS (W).
[115] *The Times*, 1 December 1913, p. 26.
[116] Hyslop, *Colliery Management* (London, 1876), pp. 298-299.

Although it eschewed an entry into domestic retail, from its earliest days Nostell sold direct to industrial users. Direct selling usually increased the coalowner's share of the profit, and enabled the colliery to get a better understanding of its customers. The ability to deal face-to-face with its end-users was helped by the ubiquity of the railway network, which Rowland had used so effectively when setting up the first ironstone leases. In addition, many provincial centres in the later nineteenth and early twentieth centuries followed London's example in founding coal exchanges, and these provided focal points for colliery salesmen. Both wholesale merchants and large end-users participated in the exchanges, so that a colliery salesman could reach the two types of bulk-buyer in a single forum. Collieries in south Yorkshire and the Nottinghamshire/Derbyshire coalfields were among the leaders in appointing salaried salesmen to sell to large customers, and also developed close – preferably exclusive - ties with local agents and merchants.[117]

At first, Rowland and Edmund undertook much of the direct selling at Nostell. Rowland secured contracts with gas and railway companies, while Edmund went to London to sell shiploads of coal through the exchange.[118] The use of direct sales was encouraged by the increasing popularity in the 1860s and 1870s of bulk purchasing on contract by wholesale merchants and large industrial customers, especially consumers of gas, steam and manufacturing coal, two of Nostell's main markets. Under these arrangements the coalowner undertook to supply an agreed weight of coal, often of a closely specified quality, over a set period and typically on a monthly basis. The contracts enabled the buyer to guarantee receipt of an essential fuel or raw material to a known price and timetable. They were usually put out to tender directly to the collieries, reducing opportunities for middlemen.[119] They had benefits for the coalowner, because as Jevons pointed out, collieries 'cannot be worked advantageously on day-to-day sales, which would probably mean irregular working as coal cannot be stored without great expense'.[120] Hence Rowland's satisfaction at obtaining a gas contract in 1867 that he hoped 'will at once put the colliery on its legs and keep them going as hard as they can go'.[121]

Jevons, writing in the Edwardian era, estimated that in coalfields supplying the steam market or selling manufacturing coal to large industrial customers, extended term

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[117] Church, *History of the British Coal Industry, vol. 3*, pp. 72-75.
[118] Letters, Rowland to Charles Winn, 29 June and 30 October 1867, A/1/8/1, WYL1352, WYAS (W).
[119] Church, *History of the British Coal Industry, vol. 3*, p. 73.
[120] Jevons, *British Coal Trade*, p. 293.
[121] Letter, Rowland to Charles Winn, 29 June 1867, A/1/8/1, WYL1352, WYAS (W).

contract sales accounted for up to 75 per cent of all sales by weight. In Yorkshire and the Midlands coalfields, in which domestic and small industrial consumers made up a greater proportion of the market, contract sales constituted about 50 per cent of sales. Jevons described most contracts as being for terms of three to twelve months, and exceptionally up to three years.[122] *The Times*, in its 1913 coal trade review, characterised the London trade as being dominated by yearly contracts, the price either being annualised or with a contractual variation between summer and winter.[123] George Winn's correspondence with colliery customers from 1900 onwards corroborates Jevons and *The Times*. Contracts were employed by many of Nostell's larger customers, and the proportion of coal sold in this way was around 50 per cent of the total by weight. Most of Nostell's contracts lasted for a six monthly 'season' - that is, covering the period of summer or winter prices – or at most to a year.[124] The average length of contracts decreased over the last quarter of the nineteenth century as the commercial risks involved became clearer to the market, so that Rowland's five-year agreement with the gas company in 1867 was unlikely to be replicated forty years later. The length of contracts was partially a response to the cyclical nature of the coal market. The term tended to reduce with increased commercial uncertainty as both buyer and seller feared being caught out by a significant price change, although the contracts themselves contributed to smoothing the amplitudes of the market cycles in the sectors in which they were most commonly used.[125]

During the period of generally rising prices after 1900, there is evidence from Nostell that extended contracts enabled coalowners to influence the prices paid by large consumers based on the volume and schedule of deliveries. Throughout the period 1900-1914 George Winn consistently offered price reductions to the customer only in exchange for a minimum volume or a longer-term commitment. If this approach failed, however, the ultimate weakness of George's position was shown by his recourse to the superiority of the service that Nostell offered or reference to a reduction that had been given to the customer for a previous contract. On one recorded occasion only, George would not negotiate with one of Nostell's largest customers, when during a period of high demand and prices in 1907 he refused a reduction 'simply because our neighbours

[122] Jevons, *British Coal Trade*, pp. 291-293.
[123] *The Times*, 1 December 1913, p. 26.
[124] George Winn's correspondence passim in C3/6/4/[1857], WYL523, WYAS (W).
[125] Jevons, *British Coal Trade*, pp. 291-292; Church, *History of the British Coal Industry, vol. 3*, p. 49.

are offering their coal a little cheaper'.[126] In general, Nostell was forced to abide by the prices - and their seasonal shifts - generally prevailing for west Yorkshire collieries, with only minor negotiation on the conditions under which the coal was sold.

The responsibility for selling to large customers, whether end-users or merchants, lay within the Nostell Colliery organisation, apart from a brief period when Edward Myers was appointed as the London agent in the late 1860s. From 1866 to the early 1880s Thomas Belton combined the roles as administrator of coal sales and house steward at the Priory. This was a relic of the traditional approach to estate management in which industrial, agricultural and domestic facets of the estate were combined. Belton's role as overseer had to be supplemented by proactive salesmen, a role that was initially taken by Rowland and Edmund. From 1875, when the easy sales and high prices of the boom were slacking off and the Winns had withdrawn from sales, Belton was assisted by directly-employed salesmen working on a commission-only basis. In 1879 two full-time salesmen were appointed on salary, commission and expenses. The earnings of one of them – Johnson Shaw - identify him as a successful operator and from 1884 he was the colliery's main salesman, and one of its three salaried employees. The other two were the viewer and the colliery manager, an indication of the importance of sales. Shaw was heavily involved in the launch of the new coal in 1886-1888, negotiating a price for the sample wagonloads of domestic coal and sending orders back to Nostell from customers in the West Riding/Lancashire industrial district and the London area.[127] He regularly attended the London exchange and the Yorkshire Coal Exchange in Leeds, of which he was a founder and committee-member.[128] A representative of Nostell was therefore prominent in a regional network designed to promote coal sales, in addition to the colliery's membership of WYCOA, the producers' organisation. Shaw was one of the Winns' most loyal employees and continued as colliery sales agent into the 1920s.[129]

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[126] Letter, George Winn to Geo. Hinchliffe & Co., 23 July 1907, C3/6/4/[1857], WYL1352, WYAS (W); other letters in this reference 1906-1914 passim, including to the Horbury Junction Iron Co., J. T. Crampton & Co., and Pyman, Bell & Co.. Prices rose sharply in 1907-1908, falling again late in the latter year. Mitchell, *Economic Development of the British Coal Industry*, p. 278.

[127] 4/1, WYL523; *The Times*, 1 December 1913, p. 26; letters Edmund to Rowland Winn 1886-1887 passim, A/1/10[291] and C3/1/9/[846], WYL1352; all WYAS (W).

[128] Church, *History of the British Coal Industry, vol. 3*, p. 79. On Mondays the London Coal Exchange was attended by 'a large number of owners and representatives from the Midlands and Yorkshire'; *The Times*, 1 December 1913, p. 26; Yorkshire Coal Exchange Ltd, Leeds, Committees minute book no. 1, National Coal Mining Museum of England library.

[129] Shaw worked for the Winns for at least 48 years, appearing in the 1927 *Colliery Year Book and Coal Trades Directory* as sales agent at Nostell.

The Winns' approach to marketing became more complex and sophisticated in the twenty-five years from 1866. Although overall price-setting remained largely market-led with limited input from individual suppliers, the Winns were increasingly aware of the value of meeting market needs. Nostell's product marketing progressed substantially from 1868, when Roseby urged Edmund to install adequate screens, to the decision to deepen the shafts in the early 1880s, which was informed by a greater understanding of market realities – such as the advantages of high volume - than had been in evidence fifteen years previously. It culminated in the expanding range of named, graded products in the 1890s. Selling became professionalised and firmly established in the colliery hierarchy, undertaken full-time by a salaried employee rather than as an occasional task for the Winns. The colliery's sales staff became established members of the formal coal markets in Yorkshire and London. By the early 1890s coal marketing at Nostell had evolved from weakness to strength.

Chapter 8

'One head man on the spot': management of Nostell Colliery

Introduction

Chapter 8 sets Nostell Colliery within the context of the evolution of management in the nineteenth century coal mining industry. The chapter will investigate the links between the management of collieries and of landed estates, in a period during which the Winns' colliery evolved from an adjunct of the estate into a stand-alone operation. Finally, during the second half of the nineteenth century the greater size and complexity of the average colliery, the intense competition in the industry, and increasing statutory intervention all contributed to a higher degree of professionalization and specialisation in the operational management of colliery companies. The chapter will explore these changes and analyse their effect on the management of collieries on the Nostell estate.

The historiography of management in the coal industry

In a bibliography of industrial history published in 1935, H. L. Beales remarked that 'it is noteworthy that the history of mining trade unionism is more accessible than the history of mining enterprise'.[1] Thirty years later, in *The Genesis of Modern Management*, Pollard separated entrepreneurialism from management in the industrial history of the late eighteenth and early nineteenth centuries, and reached the more wide-ranging conclusion that 'the story of modern industrial management' was 'one of the most glaring gaps' in the history of the Industrial Revolution and its aftermath. Pollard also identified coal mining as being among the earliest endeavours that required active management of varied and extensive resources, noting that as early as the seventeenth century substantial capital investment could be required to establish a coal mine of significant size.[2] As he and other writers have observed, the running of a large colliery involved supervision of a sizeable labour force undertaking a production process in an

[1] Beales, 'Studies in Bibliography', p. 102.
[2] Pollard, *Genesis of Modern Management*, pp. 1, 61-62.

environment that made managerial oversight particularly difficult.[3] By its nature, mining also carried a high level of physical risk to its workers, and of capital risk to its owners. Colliery managers and owners also had to contend with competitive pressures, technological change and, from the mid nineteenth century, intervention by government in the interests of social improvement. Because of the structure of the industry and the environment in which it operated, coal mining was likely to be an innovator in management.

Historians have continued to pay limited attention to managerial processes in the coal industry, despite its central position in the development of British industrial management practice. Neville and Benson noted in their 1975 bibliography of labour in the coal industry that 'the absence of any interpretation of the "management revolution" in the context of the British coal industry as a whole during the nineteenth and twentieth centuries remains a glaring gap in the existing state of our knowledge'.[4] This omission has been addressed to some degree in the multi-volume *History of the British Coal Industry* and in a number of individual studies, and colliery management has received attention through analyses of productivity levels and mechanisation.[5] However, even in 2008 Perchard remarks on the 'scant attention paid to managerial employees in the historiography of the British coal industry. In most cases, managers in the industry have been assumed to be either adjuncts to their employers or local autocrats. There have only been a handful of studies examining managers in the industry'.[6]

Perchard's reference to 'local autocrats' suggests a similarity between the power held by management over a colliery, its workforce and the local community, and that wielded by a landowner over his property. In *Genesis of Modern Management*, Pollard

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[3] For example, B. F. Duckham, *A History of the Scottish Coal Industry vol. 1, 1700-1815* (Newton Abbot, 1970), p. 113; M. W. Flinn, *The History of the British Coal Industry, vol. 2: 1700-1830 The Industrial Revolution* (Oxford 1984), p. 52; McLean, 'Agent's Reputation, Accounting and Costing', pp. 1-3.

[4] R. G. Neville and J. Benson, 'Labour in the coalfields (II). A select bibliography', *Bulletin of the Society for the Study of Labour History* 31 (1975), p.49.

[5] The Flinn, Church and Supple volumes of *The History of the British Coal Industry* include surveys of managerial practice. Individual studies of management in the coal industry include Mee, *Aristocratic Enterprise*, on the Fitzwilliam estates and the Biram family; T. J. Raybould, *Economic Emergence of the Black Country* (Newton Abbot, 1973), on the Earl Dudley's estates; E. Richards, 'The Industrial Face of a Great Estate: Trentham and Lilleshall, 1780-1860, *Economic History Review* vol. 27 no. 3 (August 1974), pp. 414-430; the surveys of mining by landowners and studies of individual estates in Ward et al, *Land and Industry: The Landed Estate and the Industrial Revolution*; Sturgess, *Aristocrat in Business*; Dintenfass, *Managing Industrial Decline*, which deals extensively in matters of management; Duckham, 'The Emergence of the Professional Manager in the Scottish Coal Industry'; Medlicott, 'The Development of Coal Mining on the Norfolk and Rockingham-Fitzwilliam Estates'; Griffin, 'Robert Harrison and the Barber, Walker Co'. There has also been discussion of managerial attitudes in the debates on mechanisation and production levels conducted by Greasley, A. J. Taylor, Buxton, Kirby and others.

[6] Quotation from Perchard, *The 'Black Jock' Manager?*.

specifically identified the development of management practice in the coal and industries as founded on that of landed estates. He noted the similarities in job titles and responsibilities of managers of large collieries and ironworks, and of the estates on which they were based – for example, the use of the titles 'agent' and 'steward', and a tendency to sub-divide responsibilities by geography rather than function.[7] The coal industry frequently appears in studies of the management and development of landed property, and a significant proportion – possibly a majority - of studies of managerial practice in the coal industry relate to mining on landed estates.[8] As noted in Chapter 7, contemporary nineteenth century literature dealing with management at collieries was heavily skewed to engineering and safety, rather than man-management or managerial structures and strategy.[9]

Managerial oversight of estate collieries developed from the arrangements made for running the agricultural and domestic facets of landed property. From the early eighteenth century onwards, many landowners employed professional agents. These agents had a wide remit, with responsibility for all elements of the property.[10] Where mineral mining was a significant element of the estate's activities, a sub-agent with relevant technical and legal expertise was employed to handle this specialised business, reporting to the main agent.[11] North east England was the driving force of the coal industry in the eighteenth century, largely because of the activities of a number of the region's landowners, and the functions of the commercially-oriented mineral agent and the technical mining engineer coalesced into the colliery viewer, competent in engineering, marketing and labour relations.[12] Viewers could be resident or consultant, and on estates to which mineral income was especially important – such as Earl

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[7] Pollard, *Genesis of Modern Management*, pp. 23, 29.

[8] Examples of references to coal in the context of wider studies of estate management include Spring, 'The English Landed Estate in the Age of Coal and Iron'; Thompson, *English Landed Society,* and *Gentrification and the Rise of the Enterprise Culture*; Richards, *The Leviathan of Wealth*; Sturgess, 'Landowners, Mining and Urban Development'.

[9] Jonathan Hyslop's book *Colliery Management* is an exception, as it is in its discussion of marketing. The concluding chapter 'General Economy' includes general guidelines for the management of a mine, on principles informed by religious conviction.

[10] E. Richards, 'The Land Agent', in G. E. Mingay (ed.), *The Victorian Countryside vol. 2* (London, 1981), pp. 439-456; this ref. pp. 339-340.

[11] Flinn, *History of the British Coal Industry, vol. 2*, p. 52.

[12] Church, *History of the British Coal Industry, vol. 3*, pp. 409-410; McLean, 'Agent's Reputation, Accounting and Costing', pp. 3-4.

Fitzwilliam in Yorkshire and the Marquis of Londonderry in County Durham – the coal viewer's responsibilities might include more general elements of estate administration.[13]

The link between the management of estates and of collieries weakened when landowners moved from colliery ownership to leasing their coal seams. This trend accelerated after the first quarter of the nineteenth century, and by the time of Nostell Colliery's opening in the 1860s, management in the coal industry was increasingly professionalised and specialised.[14] The impetus for this came from a range of sources. The emergence of competitive regional and national markets in place of local monopolies stimulated marketing, selling and logistics skills in the industry. Investors supplying the rising levels of capital required for a colliery hedged against the risks of their investment by employing management that was technically and commercially competent. As shallow seams became exhausted, the increasing depth from which coal was being mined required the application of specialised technical knowledge to ensure that the coal was obtained economically and safely. Intense price competition promoted efficiency in working methods. Prior to the 1840s, legislators had adopted a policy of 'conscientious non-interference' in the running of collieries. After the report of the Children's Employment Commission in 1842 and a series of major colliery explosions, an increasing body of legislation was directed to improving safety in mines and ensuring that colliery managers employed best contemporary practice. A safer work environment, a stable workforce and increased profitability were seen as interlinked, and a government inspectorate was established in the 1850s to oversee compliance with legislation.

The desire for improved safety was a particular motivation for the foundation of professional bodies. Once again, the north east of England took the initiative. The North of England Institute of Mining and Mechanical Engineers, founded in 1851, was the precedent for the formation of similar bodies in other coalfields. These institutions codified and disseminated approved professional standards, often citing safety as a means to profitability.[15] For example, when the Midland Institute of Mining Engineers

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[13] A. Orde (ed.), *Publications of the Surtees Society vol. 217: Letters of John Buddle to Lord Londonderry, 1820-1843* (Woodbridge, 2013), pp. xviii-x; G. Mee, *Aristocratic Enterprise* (Glasgow, 1975), pp. 97-99.

[14] The following three paragraphs are based on O. O. G. M. MacDonagh, 'Coal Mines Regulation: The First Decade', pp. 75-78; Church, *History of the British Coal Industry, vol. 3*, pp. 420-425; D. Morrah, 'A Historical Outline of Coalmine Legislation' in Mining Association of Great Britain, *Historical Review of Mining* (London c. 1929), pp. 301-320; and Sinclair, *Coal Mining Law*, pp. 84-85.

[15] Griffin, 'Robert Harrison and the Barber, Walker Co', pp. 59-60; Church, *History of the British Coal Industry, vol. 3*, p. 426.

was formed in Wakefield in 1868-1869, one of its major objectives was the formulation of safe practices for working the gassy Barnsley seam, which had experienced a series of lethal explosions.[16] The strengthening of the Mines Inspectors' statutory powers and the imposition of a compulsory (if broad-brush) safety code in 1860 indicated government's intention to encourage the use of contemporary best practice. The north eastern coalfield's system of employing an expert viewer to periodically review a colliery's progress and advise its resident management was particularly favoured, the viewer acting as the conduit through which technical knowledge was disseminated to an industry that consisted of a multiplicity of separate sites, often in isolated locations.

Many of these developments required collieries to formalise their managerial responsibilities and documentation practices. For example, plans of the workings had to be kept current and deposited with the Home Office when the mine was abandoned. Regular inspections of shafts and underground workings were required. From 1872, colliery managers had to hold a certificate of competency awarded by examination, and qualifications were introduced for other levels of management. Legislation assigned safety responsibilities to defined roles held by named individuals and established a reporting framework through which the responsibilities were to be discharged. It also established the mine manager as a compulsory appointment, defined by his safety responsibilities and with a technical background. The workforce was represented in safety inspections, and the checkweighman became an elected official who could not be replaced by management. However, the legislation did not specify a functional management structure for collieries; nor did it outline a form of management that would enable the whole business of the colliery company to be run. There was a similar trend towards increased formality in organisational and accounting issues, among the small but rising number of colliery companies which were limited liability corporations under the 1862 Companies Act. These were statutorily required to make public certain financial and company governance information, while the companies that continued as partnerships had the stimulus to record financial performance and managerial responsibility, in order to protect the interests of the partners.[17]

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[16] J. Blunt, *A History of the Midland Institute of Mining Engineers* (n.p., 1988), pp. 11-12.

[17] P. L. Payne, 'Family Business in Britain: An Historical and Analytical Survey', in A. Okochi and S. Yasuoka (eds), *Family Business in the Era of Industrial Growth: Its Ownership and Management* (Tokyo, 1984), pp. 69-104; this ref. p. 70; Wilson et al, *The Making of Modern Management*, pp. 239-240.

The trend to professional specialised colliery management embedded in a framework of statutory regulations will be examined through the evolution of managerial practice at Nostell Colliery. However, the study of the form and quality of management is subject to evidence-related difficulties, as Wale identifies in a review of the literature relating to the performance of entrepreneurs in the British coal industry between 1900 and 1946. Business records rarely state the objectives or assumptions underlying a managerial decision or policy as these lay in 'the shared and tacit knowledge of the participants'.[18] It is often difficult to identify the range of alternative courses of action available to a particular group of decision-makers, or to assign reasons for which a decision was made. The study of management at Nostell before the First World War is subject to these problems. The colliery's mode of ownership ensured that there were no board meetings, and the interaction between individual managers was informal. No meeting minutes survive, or any official record of decision-making. The main evidence lies in letters between Charles, Rowland, Edmund and George Winn, in which matters relating to coal are interspersed among many other subjects. The family correspondence is supplemented by a smaller number of letters from Thomas Belton and John Roseby. These letters possess the virtues of honesty and contextual richness and are not simply a formal record of decisions without underlying reasons, but they express an individual's perspective and often tell only a part of the story. Wale's article concludes that courses of events and the reasons for management action must often be inferred from the full range of records. For this thesis, the robustness of the argument has been supplemented by additional data from the extensive collection of production and financial records, and from George Winn's correspondence with suppliers, customers and other external agencies.

The evolution of management at Wragby and Nostell Collieries

This survey of the development of colliery management at Nostell will begin with Wragby. Wragby Colliery employed a workforce of no more than thirty men, who raised 200 to 300 tons of coal per week under the supervision of an underground foreman.[19] Although the Wragby workforce was primarily employed in the pit, it was put to other tasks on the property at need. In 1841, for example, the viewer noted that no

[18] J. M. Wale, 'Entrepreneurship in an Industry Subject to External Shocks: British 'Coalowners', 1900-1946', *Management Decision* vol. 39 no. 9 (2001), pp. 729-738; this ref. p. 737.
[19] C/3/1/9/1, WYL1352, WYAS (W).

coal had been raised between 21 August and 18 September because the colliers were harvesting.[20] Twelve years later, the men involved in drilling test bores for additional coal seams under the estate were reassigned to haymaking because the colliery 'cannot spare the colliers as there is a large sale of coal going on at present', implying that under normal circumstances the pitmen would have been redeployed into the fields.[21]

The colliery's managerial staff was also integrated with the wider estate. Thomas Belton, the house steward, oversaw sales administration. The estate rent collector and surveyor, Henry Holt, a civil engineer, provided technical advice, periodic performance reviews and ad hoc reports on the colliery.[22] Although, as discussed in Chapter 5, accounts of a relatively sophisticated nature were kept for the mine at Wragby, financial management was founded on traditional estate habits, such as Charles Winn's weekly meeting with the colliery overseer to balance the cash in hand.[23] Beyond this routine transaction, the Winns were little involved in daily colliery management. They saw their role was primarily to make financial decisions regarding capital expenditure and major changes in procedure, or to express suitable sentiments at particularly successful or unprofitable years. For example, in 1837 Holt wrote a report for Charles Winn on whether to continue pumping from an old shaft. Two years later Rowland remarked on a period of particularly high output and sales, and in 1857 father and elder son worried over the cost of test bores and the price of a new stationary engine boiler.[24] The colliery rarely figured in Charles' diaries or in his correspondence with his sons. There is no evidence that the Winns were directly involved with Wragby's customers and suppliers in the way that they were to be with those at Nostell Colliery. Wragby was not a separate, full-time operation, and the Winns resembled other landowners in 'regard[ing] pits as merely extensions of their agricultural estates'.[25] Management was in the hands of individuals whose main duties lay in the agricultural and domestic aspects of the estate, and the only dedicated managerial resource was the underground supervisor. The colliery provided fuel for the Priory, in good years a modest but valuable addition to the owner's personal income, and seasonal supplementary manpower in the fields.

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[20] C/3/3/3/4 [1027], WYL1352, WYAS (W).
[21] Letter Rowland to Charles Winn, 19 July 1853, A/1/8/1, WYL1352, WYAS (W).
[22] Holt was a civil engineer by profession. A/1/8/1, A/1/7[787] and C/3/1/9/1, all WYL1352, WYAS (W).
[23] See Chapter 5, p. 91.
[24] C/3/1/9/1, Letters, Rowland to Charles Winn, 2 March 1842, 27 June and 4 July 1857, A/1/8/1, all WYL1352, WYAS (W).
[25] A. R. Griffin, *Mining in the East Midlands, 1550-1947* (London, 1971), p. 23.

When in the early 1860s the Winns decided to replace Wragby with Nostell Colliery, it would have been a natural point for the family to move to the status of coal rentier rather than entrepreneur. The ironstone was so successful that in 1865 Rowland reassured his father that 'after this year there will be no more difficulty on the money score'.[26] Not all members of the family were in favour of a venture into the volatile coal market. In the late 1850s, Charles had eagerly discussed the founding of a colliery, and greeted the ironstone discovery with enthusiasm, but from the financially secure perspective of 1865 he complained that the new sinking would be a 'nuisance in the parish and I fear entail an extent of mischief for which no amount of gain can compensate'. He 'most sincerely regret[ted] that I was ever induced to open a new colliery at all' – displaying what his sons may have found to be an exasperatingly short memory.[27] However, Charles' comments represented less an evaporation of Wiener's 'Industrial Spirit' or alarm at the uncertainties of the coal trade, but rather the irritation of an elderly man who foresaw the disruption of a settled manner of life.[28]

Despite Charles's reservations, the sinking at Nostell proceeded. A major part of the new colliery's value to the Winns was to provide a job for Edmund, who had expressed a preference for 'regular employment' at Carlton, and had gained management experience as agent to the Nostell estate from the late 1850s. As director of the new colliery, he had sole responsibility for running a separate enterprise. His salary was generous in view of his limited experience of the coal trade and the pit's moderate output. At £400 p.a. it was equivalent to that of a resident manager taking charge of all operations at a larger colliery than Nostell.[29] From 1868, however, Edmund combined his colliery role with that of Treasurer of the West Riding Quarter Sessions.

Other aspects of the new colliery at Nostell, apart from providing an income for a younger son, were influenced by landowner values. Professional agents were expected to be hard-working all-rounders: 'Few things are more conspicuous than the incessant industry of the leading land agents in the nineteenth century...versatility, no less than activity, was held a desirable quality'.[30] A high premium was placed on honesty, so that an employee of proven probity could shoulder a workload whose weight compromised

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[26] Letter, Rowland to Charles Winn, 5 June 1865, A/1/8/1, WYL1352, WYAS (W).
[27] Letter, Charles to Edmund Winn, 28 August 1865, C/3/1/9/3, WYL1352, WYAS (W).
[28] Charles was 70 at the time of the letter.
[29] Letter, Rowland to Charles Winn, 15 June 1868, A/1/8/1, WYL1352, WYAS (W); Hyslop, *Colliery Management*, p. 518; Church, *History of the British Coal Industry, vol. 3*, p. 463.
[30] Spring, *The English Landed Estate*, pp. 105-106.

his expertise, efficiency and, indeed, his health.[31] These characteristics can be seen on the Winns' estates. Reliable personnel from Wragby Colliery and the ironstone operation were transferred across to Nostell Colliery. They retained their functional responsibilities, even though the nature and size of the new colliery significantly changed the nature of those functions. Thomas Belton ran the commercial and sales side as he had for Wragby, although it was greatly expanded in extent and complexity as a result of increased production and the preponderance of railway sale rather than landsale. He also retained his duties as house steward. Hunter was the underground steward at Wragby and continued in this role at Nostell, for an enterprise three times the size.

The most surprising appointment was that of John Roseby, who was made colliery engineer in 1868 in addition to his ironstone responsibilities. In 1859 Rowland described Roseby as 'first rate and most indefatigable and clever' and attributed much of the early success in marketing the ironstone to his efforts.[32] Over the next few years his shortcomings became manifest. He was unreliable in keeping appointments, and admitted to Edmund that 'I have sometimes caused you and Mr Rowland Winn inconvenience' by this habit.[33] Mrs Roseby told Rowland in 1863 that her husband was 'speculating in so many things in different parts of the country, that he had not time to attend to half...[and she] appeared to despair of finding any means of checking him in his relentless proceedings'.[34] He was bankrupted several times by his speculations outside the Winn property - in 1864 and 1868, and probably in 1882 at the time of his death.[35] It was not unusual for resident mining engineers to be consultants at other collieries; for example, Robert Harrison, managing director of the east Midland coalowners Barber, Walker & Co., took consultancy commissions on the grounds that they kept him informed of good practice among the competition.[36] Roseby, however, was involved in two heavily promoted iron-smelting companies of doubtful provenance,

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[31] Mee, *Aristocratic Enterprise*, pp. 94-95; Medlicott, 'The Development of Coal Mining on the Norfolk and Rockingham-Fitzwilliam Estates', pp. 115-116.
[32] Letter Charles to Rowland Winn, 4 November 1859, WYL1352, A1/8/1, WYAS (W). Rowland later became less complimentary about Roseby.
[33] Letter, John Roseby to Edmund Winn, 22 October 1867, C/3/1/9/3, WYL1352, WYAS (W). In the late 1850s Rowland kept a notebook recording these instances - 'Notes on the behaviour of J. Roseby', C/3/1/6/[1467], WYL1352, WYAS (W).
[34] C/3/1/6/[1467], WYL1352, WYAS (W).
[35] *Hull Packet and East Riding Times*, 16 October 1868 and 15 October 1869.
[36] Griffin, 'Robert Harrison and the Barber, Walker Co', p. 52.

and with a colliery in Staffordshire with a poor safety record.[37] Despite these issues, Roseby had not been detected in any dishonesty affecting the Winns, and Rowland was swayed by the traits of paternalism and loyalty to employees of long standing that were commonplace among the landed class – and no doubt also by the convenience of simply adding to an existing employee's workload.[38]

All Nostell Colliery managers apart from Hunter devoted only part of their time to the colliery, and in some degree their competence and professionalism were questionable. Edmund lacked knowledge of either the commercial aspects of the coal trade or the technical side of mining. A main aim of the campaign for the compulsory certification of colliery managers was to preclude the unqualified or the pluralist being made responsible for the safety of a colliery.[39] This objective was snobbishly expressed as preventing 'a shopkeeper or joiner, or half-educated young 'gentleman', a nephew of the owner' from attaining such a position.[40] While Edmund's credentials as a 'gentleman' were excellent, he had no formal or experiential training as a colliery manager or mine engineer. Other aspects of his appointment also compromised his status. Charles had considered but rejected the possibility of giving Edmund part-ownership of the colliery. This kept the estate and its economic activities under a single owner and avoided any possible inheritance problems.[41] Although Edmund had achieved at Nostell the managerial role that he had envisaged for himself at Carlton, he lacked the authority of ownership. This was a significant weakening of his position in a setting imbued with the proprietorial ethos of a landed estate, in which the owner was the ultimate decision-maker for his property. At Carlton Edmund would have had the status of an independent owner and manager, but as general manager for Nostell Colliery he was the employee of his father and, later, his brother. Landowners reserved the right to ignore the advice given by their employees, or to reverse or modify their decisions.[42] Quite soon after Nostell's opening, it became clear that as heir-apparent to the estate Rowland intervened in the colliery as he felt necessary, and that his interventions might undermine Edmund's standing as much as that of any other

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[37] *Derby Mercury* 22 November 1871; *Birmingham Daily Post*, 27 July 1872, 21 February and 4 September 1873.
[38] Letter, Rowland to Edmund Winn, 12 May 1879, C3/1/6/[1876-1889 372], WYL1352, WYAS (W); Spring, *The English Landed Estate*, pp. 108-110. The Winns had a number of employees of very long standing. Thomas Belton began as a gardener and rose to house steward in a career of over fifty years; William Langbridge was employed on the Lincolnshire ironstone for thirty-five years.
[39] Certification was introduced in the 1872 Coal Mines Regulation Act.
[40] *Colliery Guardian*, 14 December 1867.
[41] Letter, Edmund to Rowland Winn, 9 July 1887, C/3/1/9/[287], WYL1352, WYAS (W).
[42] Thompson, *English Landed Society*, pp. 151-152.

employee. Rowland's attitude also presented an opportunity for aggrieved or ambitious members of staff to appeal directly to the estate owner, especially if, like Belton and Roseby, they had easy access to him in the course of their other duties. The informal and autocratic practices of the landed estate undermined the management chain of an industrial organisation.

Other weaknesses existed in the management team. Roseby's main experience was in the mining and marketing of ironstone. Belton's mix of domestic and commercial responsibilities had forerunners on other estates, for example Joshua Biram, who had fulfilled similar roles for Earl Fitzwilliam at Wentworth Woodhouse in the 1820s.[43] By the 1860s it was unsuited to contemporary market conditions.[44] Feuds arose because of incursions into each other's jurisdictions, a situation exacerbated by the informal nature of the colliery's managerial processes and poor definition of individual responsibilities. Salary levels were only belatedly adjusted to match new responsibilities. These various issues manifested themselves in the management history of Nostell Colliery between 1867 and the mid 1870s, although as the problems were worked through the beginnings can also be seen of a greater degree of managerial specialisation and professionalism. The link with the wider estate was loosening. It was first entirely severed for manual workers, as there is no evidence that Nostell's colliers doubled as harvest-time field labour as Wragby's had. Their skills were more valuable when applied permanently to mining, The new colliery's greater size and scope developed its own momentum, requiring expertise and commitment of time that precluded split responsibilities.

'Certainly not very satisfactory':[45] management at Nostell Colliery in 1867-1868

Soon after the colliery's opening, the management structure began to show signs of strain. In mid-1867, Belton claimed that Hunter's shortcomings were causing a fall in production, and that Roseby was interfering in sales matters while neglecting his real responsibility for the efficiency of production:

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[43] Mee, *Aristocratic Enterprise*, pp. 96-97.

[44] Belton began his career at Nostell as a gardener and was appointed house steward in 1856. *The Gardener's Magazine* vol. 9 (1833), p. 734, noted that at a West Riding Horticultural Society show in September 1833, 'Mr Thomas Belton, gardener to C. Winn, Esq., Nostell Priory, exhibited a specimen of a rare fungus, Agaricus Nobilis'.

[45] Letter, Edmund Winn to John Roseby, 22 June 1868, C/3/1/9/3, WYL1352, WYAS (W).

> Coal from the new pit is coming out slowly, and will until a proper person be appointed to deal with men rationally...Mr Roseby is in France testing the coal...if the result is satisfactory with gas works here, [and] we cannot supply anything approaching the quantity that would be required, why then seek another market and keep the pit standing?[46]

Roseby responded to this criticism by resigning, his letter to Edmund trading on the loyalty that he felt he was owed from the success of the Lincolnshire ironstone: 'I have done my duty as far as any human being can do for you both at Nostell and at Appleby'.[47] The dispute arose from an inadequate definition of responsibilities. Although Roseby was primarily an engineer, he displayed the characteristic wide-ranging managerialism of viewers originating from north-east England, whose perception of their role could extend to marketing, labour relations and transport.[48] He had been heavily involved in arranging the ironstone leases and had received a percentage of the income they generated. In the absence of any instruction to the contrary, he attempted to sell Nostell's coal because he considered it his legitimate responsibility, and perhaps also in the expectation of commission on the sales.[49] Roseby was persuaded to stay on, but the dispute resurfaced a few months later when he claimed that Belton was withholding information from him, and that he was excluded from decision-making at the colliery. He again wrote to Edmund in highly emotional terms:

> What I have done to merit such treatment from you or Mr Belton I cannot consider. I can however only come to the conclusion that all confidence is lost in me and for what cause I know not unless it is that I

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[46] Both emphases in the originals. Roseby was trying to sell coal to the French gas industry. Letters, Thomas Belton to Edmund Winn, 11 July and 14 September 1867, C/3/1/9/1, WYL1352, WYAS (W).
[47] Letter, John Roseby to Edmund Winn, 31 July 1867, C/3/1/9/3, WYL1352, WYAS (W).
[48] John Buddle, the doyen of north-eastern colliery viewers in the first half of the nineteenth century, set the boundaries of a viewer's responsibilities. Depending on his agreement with the owner of a colliery – and while trying to avoid obvious conflicts of interest – in some cases he might advise only on underground matters, while in others he controlled the colliery finances and was involved in resolving labour disputes or major transport construction projects like the Marquis of Londonderry's Seaham Harbour. Roseby joined the North of England Institute of Mining and Mechanical Engineers, the wellspring of the north-east's mine engineering/viewing professionalism, in February 1867. Orde (ed.), *Letters of John Buddle to Lord Londonderry*, p. 94; Fleischman and Oldroyd, 'An Imperial Connection?', p. 34; McLean, 'Agent's Reputation, Accounting and Costing', pp. 2-3.
[49] Letter, Rowland to Charles Winn, 23 January 1860, A/1/8/1, WYL1352, WYAS (W).

have made myself disagreeable in interfering in things which I had nothing to do with.[50]

Roseby's 'interfering' related to his attempts to reverse Edmund's production policy. The colliery lost money in late 1866 and through 1867, and in response Edmund cut production and costs, a course of action that Roseby strongly opposed: 'From my experience in these matters I know that nothing like a full profit can be got without keeping the pit in full work'.[51] Wale observes that 'in coalmining at any time or place there is a requirement for output maximization...owing to the high overhead costs involved in operating a mine', so that Roseby was almost certainly correct in his opinion.[52] Contemporary colliery managers put this theory into practice. Robert Harrison at Barber, Walker & Co., for instance, kept up the highest possible output and invested in improved facilities during poorer times, to take full advantage of the upswing of a highly cyclical industry.[53] Roseby expressed his concerns to Charles, and the elder Winns undermined Edmund's authority by accepting his subordinate's point of view without consulting Edmund himself. Rowland wrote to his father that:

> Roseby says he had a talk to you about the colliery...and advised against cutting it at present at all events. I think he is right. I do not and never did at all take the view of it that Edmund did.[54]

Rowland intervened in colliery affairs despite his stated determination to allow Edmund a free rein: 'I had rather not interfere in the colliery account if I can help it'.[55] His interventions were not always more successful or well informed than Edmund's policies. The contracts Rowland arranged with the London Gas Co. and the Great Northern Railway in 1867 failed to produce the sales that he predicted would 'put the Colliery on its legs and keep them going as hard as they can'.[56] In retrospect, he believed that this was because the individual gas works or railway depot managers had not been offered commission on coal supplied to their site.[57] These incidents suggest a marked degree of managerial naivety in the colliery's early years. The management

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[50] Letter, John Roseby to Edmund Winn, 22 October 1867, C/3/1/9/3, WYL1352, WYAS (W).
[51] Letter, John Roseby to Edmund Winn, 31 July 1867, C/3/1/9/3, WYL1352, WYAS (W). The force of Roseby's argument was redoubled because cutting production also reduced Charles Winn's royalty income.
[52] Wale, 'Entrepreneurship in an Industry Subject to External Shocks', p. 733.
[53] Griffin, 'Robert Harrison and the Barber, Walker Co.', p. 54.
[54] Letter, Rowland to Charles Winn, 2 December 1867, A/1/8/1, WYL1352, WYAS (W).
[55] Letter, Rowland to Charles Winn, 27 May 1866, A/1/8/1, WYL1352, WYAS (W).
[56] Letter, Rowland to Charles Winn, 29 June 1867, A/1/8/1, WYL1352, WYAS (W).
[57] Letter, Rowland to Charles Winn, 30 October 1867, A/1/8/1, WYL1352, WYAS (W).

structure was ill defined, resulting in the bickering between Roseby and Belton, probably because there was no internal precedent in the estate on which it could be based. Belton had to deal with a higher level of sales, and Roseby was an 'incomer' filling a role that had not previously been required. Furthermore, the Winns had a limited knowledge of the commercial customs of the coal markets and, in Edmund's case, of the intersection between mining engineering and economics.

The colliery's financial performance reflected these managerial deficiencies and was exacerbated by a sharp fall in UK market prices in the first six months of 1868.[58] Edmund suggested that the colliery should be leased out, and Rowland observed that his brother 'seems to have lost confidence and fears money being wasted...I think he is not well altogether and somewhat nervous'. Rowland was confident that good engineering and commercial management would bring the colliery into profit. He reported these discussions to Charles, making clear that the colliery was being run for Edmund's benefit:

> I do not see any reason myself to doubt the Colliery being worked to profit...depending on the chance of accidents, and of not getting accounts paid as regularly as they ought to be. Edmund has talked a great deal about letting the Colliery...if he is not disposed to go on with working [it], certainly I should not be so...I have plenty of work without it.[59]

Throughout 1867 and 1868, Rowland's attitude to the colliery's profitability reflected the priority of its existence as a job for Edmund, and he was sanguine about its losses: 'the Colliery is certainly not very satisfactory, but I do not yet despair of making it do'.[60]

In mid-1868, two changes occurred that had considerable implications for the management of the colliery. Although Edmund's salary as general manager was generous, it did not meet the expectations of a scion of a financially resurgent landowning family. Given the uncertainty both of the colliery's prospects and of Edmund's continuing interest in running it, an additional source of income for him was sought. It was found in a stronghold of landowner influence, the county Quarter

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[58] Church, *History of the British Coal Industry, vol. 3*, p. 53. The pithead price at Nostell fell from 6/5d in July to December in 1867 to 4/11d in January to June 1868. C/3/1/9/1, WYAS (W).
[59] Letter, Rowland to Charles Winn, 30 October 1867, A/1/8/1, WYL1352, WYAS (W).
[60] Letter, Rowland to Charles Winn, 14 February 1868, A/1/8/1, WYL1352, WYAS (W).

Sessions.[61] In mid-1868 Edmund was appointed treasurer of the West Riding, backed by a bond guaranteed in part by Rowland.[62] The post was essentially a sinecure, as the salary attached to it was intended in part to pay clerks who did the work.[63] The balance of this salary, his colliery pay and some family money gave Edmund £1,200 a year, funding a lifestyle suitable to his status, so that he could leave the Priory and 'be set up in a house for himself'.[64] In contributing to this independence, the colliery had fulfilled its main function.

It is unlikely that Edmund's treasury duties were onerous, but they were a distraction from the colliery. He was relieved of responsibility for production strategy at Nostell in June 1868 when Roseby was formally appointed colliery viewer at a monthly salary of 8 guineas.[65] Roseby's appointment letter was the first clear job description for a Nostell Colliery official:

> You [must] devote at least one day (Tuesday) in each week at the colliery...you undertake to superintend the works above and below ground and are responsible for the correctness of the wages bill. Your duties will be entirely independent of the commercial part of the undertaking and I do not wish you to interfere with the sale of the coal in any way whatever...you must not be dependent on this house [i.e. Nostell Priory] for meals etc.'[66]

These terms addressed several issues. The offer letter was sent by Edmund and established him as Roseby's immediate superior. It gave Roseby sole responsibility for the technical, production-related aspects of the colliery, so that they were in the hands of a qualified mining engineer. Edmund was moved into general management in which he concentrated on 'looking after, managing and keeping the accounts of the colliery',

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[61] In 1861 John Stuart Mill described the Quarter Sessions as 'the most aristocratic institution remaining in England'. Quoted in Burn, *Age of Equipoise*, p. 313.

[62] QD1/513. WR Quarter Sessions, records of the Clerk of the Peace, WYAS. Appointees had to post a bond as surety against financial malpractice.

[63] Edmund was given an allowance by the estate to fund the clerks. They were housed in a building owned by the Winn family, for which the West Riding paid rent. Rowland referred to Edmund receiving '£500 a year from the net proceeds of his office'.

[64] Letter, Rowland to Charles Winn, 15 June 1868, A/1/8/1, WYL1352, WYAS (W).

[65] This implied that until June 1868 Roseby had filled the colliery engineer role as a casual extension of his ironstone duties, without any addition to his pay. It is possible that Roseby's aggrieved reaction to criticism of his activities at the colliery over the previous two years was prompted by resentment of this situation.

[66] Letter, Edmund Winn to John Roseby, 22 June 1868, C/3/1/9/3, WYL1352, WYAS (W).

as Rowland rather vaguely described it a few years later.[67] This role was commensurate with his standing as a family member, but limited his technical input. The potential for friction between Roseby and Belton was reduced by the former's specific exclusion from sales and commercial matters, creating two functionally defined departments, each with its own manager. The appointment tried to remedy Roseby's unreliability by specifying regular hours of attendance, and to deflate his social pretensions by instructing him to cease using the Priory's hospitality. The latter requirement reduced the likelihood of contact with Charles Winn, who was normally resident at Nostell. Edmund's authority was therefore less likely to be subverted and a more coherent and focused management structure emerged.

The Colliery is 'put on its legs', 1869-1876

Shortly after accepting the post of engineer in 1868, Roseby sent Edmund a report on the colliery's technical shortcomings. These included the production of wet coal through failure to drain the workings adequately, an excessive proportion of broken coal resulting from poor coal-getting and haulage practice, high working and haulage costs, and inadequate screens. Roseby implied his desire to rebuild his relationship with Belton by discussing with him potential markets for the wet coal. He concluded by emphasising his commitment and softening the implied criticism of Edmund: 'I can only sum up by saying that the thing is not to my satisfaction and <u>will alter</u> it'.[68] Under Roseby's guidance the colliery's finances markedly improved. In the first six months of 1869 output increased by 50 per cent, underground costs fell from 7/1d to 5/9d per ton and, despite a continuing low pithead price, losses fell to £200 compared to £1,200 in the previous half-year. In the full year, the Winns made a profit of £556 (including coal royalties) against a loss of £2,150 in 1868, and thenceforward the colliery maintained a surplus up to 1871. The 1872 Coal Mines Regulation Act required that a manager be registered with the Home Office and John Roseby was given this status. He combined the roles of viewer and manager, and supervised the underground foreman. The colliery's output was only a little over 1,000 tons per week, so that a full-time surface manager plus a separate consultant viewer would have been excessive. Having lost the battle with Belton over his involvement in sales, Roseby expanded his engineering

[67] Letter, Rowland to Edmund Winn, 5 April 1876, C3/1/6/[1872-1876 373], WYL1352, WYAS (W).
[68] Letter, John Roseby to Edmund Winn, 5 July 1868, C/3/1/9/3, WYL1352, WYAS (W).

remit so that up to 1873 he personally prepared the colliery's annual accounts and passed them to Charles Winn with a commentary on the year's performance.[69]

In the early 1870s boom, the colliery generated £27,000 in profits and coal rent. The management structure defined in 1868 – under which Edmund put into operation Roseby's recommendations - worked satisfactorily in favourable conditions, and attention was concentrated on maximising profit. As Edmund put it, 'the Colliery is doing well…if I can manage to get the quantity of coal brought to bank increased it will be doing very well'.[70] The colliery was used as a cash cow, paying for the completion of the outstanding parts of the Priory and the refurbishment of its older section, plus a substantial pay rise for Edmund. Rowland instructed Edmund that:

> I want you to pay the royalty of 6d per ton to the Estate account quarterly or half-yearly as you prefer, and also as much of the nett profits as is possible, reserving only in the Colliery account as much as is required for carrying on the concern…I desire also that you should pay yourself at the rate of £1,000 a year.[71]

Between 1866 and 1876 there was a distinct shift in the nature of the management of the colliery. It had been founded with the main purpose of employing Edmund. At its opening in 1866, the management was entirely based on existing Winn employees and traditional reporting lines, and little allowance had been made for the differences between the old and new collieries. The subsequent evolution of the form and reporting structure of the colliery management was influenced by the characteristics of the industry in which it operated rather than that of the landed estate. Rowland – who by the mid-1860s was an experienced and successful businessman – realised that management had to be modified to cope with the intense competition in the coal trade, and to reduce the average overhead. Technical expertise was strengthened, and a functionally oriented organisation introduced with clearer individual responsibilities. Demarcation lines between commercial and technical matters were established, and in the technical area at least there was a degree of professionalization. Rowland's grasp of practicalities is indicated in his references in late 1867 to the inadvisability of cutting costs and production, and to the necessity of collecting accounts efficiently and avoiding accidents. A balance of family duty and commercial practicality was achieved

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[69] After Charles' death, Roseby ceased to produce this commentary.
[70] Letter, Edmund to Rowland Winn, 15 August 1872, A/1/8/1, WYL1352, WYAS (W).
[71] Letter, Rowland to Edmund Winn, 5 April 1876, C3/1/6/[1876-1889 373], WYL1352, WYAS (W).

by the retention of Edmund as general manager – a vantage point from which he could learn more about the industry - while responsibility for production and technical affairs was settled on a professional engineer. This structure coped with the strong sales and high prices of the early and mid-1870s, but came under pressure in the downturn that followed.

Decline and Roseby's departure, 1877-1883

After the extraordinary profits of the boom, the colliery's financial performance declined in the latter part of the decade. The national coal price trend was strongly downwards, and between 1876 and 1880 the average pithead price at Nostell fell by a third. It then held steady at around the 1880 level until the middle of the decade. The average cost of production per ton at Nostell, however, remained practically constant - indeed increased by 10 per cent in 1877 - and the Winns' early 1870s gains were eroded by losses totalling nearly £6,000 between 1877 and 1879 as the colliery struggled to compete.[72] Between 1872 and 1882 the output of the Yorkshire coalfield grew by one third, while Nostell's production and sales fell by nearly 30 per cent between 1876 and 1878, and only regained their 1872 level in 1880.[73] Despite this recovery, the 1880s began with a sequence of poor results, as can be seen in Table 8.1:

Table 8.1: Output, profit/loss and average costs and prices at Nostell Colliery, 1877-1885

Period	*Output (tons)*	*Average working cost (per ton)*	*General overheads (per ton)*	*Average pithead price (per ton)*	*Colliery profit/(loss)*	*Benefit/ (loss) to the Winns*
1877	41,947	5/9d	2/10d	6/2d	(£2,943)	(£2,089)
1878	38,833	5/11d	2/1d	5/4d	(£2,962)	(£2,177)
1879	49,343	5/8½d	2/0½d	4/10d	(£2,654)	(£1,566)
1880	58,245	4/11d	1/8½d	4/8d	(£2,995)	(£1,683)
1881	57,014	4/9½d	1/7½d	4/8½d	(£2,096)	(£849)
1882	55,000	4/11d	1/8d	4/7½d	(£2,877)	(£1,739)
1883	50,494	4/10d	1/3d	5/1d	(£1,638)	(£492)
1884	47,796	5/5d	1/5d	5/0½d	(£2,160)	(£1,118)
1885	37,714	5/11d	1/4d	4/9d	(£3,673)	(£2,939)

Sources: All information from 2/3 and 5/8, WYL523, WYAS (W).
Note: In 1885 output was restricted by the work to deepen the shafts.

[72] All Nostell statistics from 2/1, 2/3 and 5/8, WYL523, WYAS (W). National pithead prices from Church, *History of the British Coal Industry, vol. 3*, p. 54.
[73] Mitchell, *Economic Development of the British Coal Industry*, p. 50.

Although deficits were mitigated by the rise in production and therefore royalty payments in 1880-1883, a further £5,000 was lost on the coal business. In April 1877 Rowland wrote to a neighbouring landowner that 'at present prices it is doubtful if we shall not have to close the Nostell Colliery until better times'.[74] Two years later, Rowland expressed concern to Edmund that 'the Colliery is paying nothing and the iron greatly reduced', and that expenditure had to be reduced.[75] As losses mounted in the early 1880s, the brothers debated the colliery's future.

Duckham observed that the amount of attention paid by a landowner to mining or other industrial activity on his estate was a direct function of the proportion of his income that it provided.[76] This could vary over the passage of time as new industrial opportunities emerged or income fell from agriculture. At Nostell, for example, coal figured in the Winns' correspondence during the cash crisis of the late 1850s when it offered the best solution to their problems, and in 1866-1868 when the colliery was getting started; and again in the good years of the mid 1870s. By the later 1870s, Rowland's political duties as a Conservative whip in the House of Commons - chief whip from 1880 – required his frequent absence in London or involvement in party affairs.[77] In 1879 he complained that since he had taken office he worked fourteen hours a day, four days a week, in the House of Commons.[78] He had also inherited the full estate on Charles' death in 1873. The colliery was a minor part of the property with no distinguishing features other than a tendency to losses, and Rowland was little involved in it. However, the ethos of the landed estate required that he continued to be the colliery's principal decision-maker and Edmund occasionally encouraged his brother to become more familiar with the way in which it was run. For example in 1884 he suggested to Rowland that: 'The next time you are down I wish you would come to the office and spend a few hours there and see how these accounts [of transactions between the colliery and the ironstone businesses] are kept'.[79]

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[74]Letter, Rowland Winn to H. S. L. Wilson, 24 April 1877, C3/1/6/[1876-1889 372], WYL1352, WYAS (W).
[75] Letter, Rowland to Edmund Winn, 12 May 1879, C3/1/6/[1876-1889 372], WYL1352, WYAS (W).
[76] Duckham, 'The Emergence of the Professional Manager in the Scottish Coal Industry', p. 24.
[77] E. J. Feuchtwanger, *Disraeli, Democracy and the Tory Party: Conservative Leadership and Organization after the Second Reform Bill* (Oxford, 1968), p. 56.
[78] Henthorn, *Letters and Papers concerning the Establishment of the Trent, Ancholme and Grimsby Railway*, p. xiv, fn4.
[79] Letter, Edmund to Rowland Winn, 5 February 1884, A/1/10/[291] WYL1352, WYAS (W).

Edmund was also busy in the late 1870s. In September 1878 Rowland asked him to act as his 'man of business' for the ironstone as well as the colliery. The workload of the West Riding Treasurer's office had increased considerably and Edmund requested a salary increase in 1876, justifying it by the claim that since 1868 receipts in the Treasury had risen by 48 per cent and the number of cheques handled by 38 per cent.[80] Edmund's letters from the late 1870s show that his knowledge of both management and mining technicalities had strengthened over the preceding ten years. Despite this, and despite his position at the colliery and the high salary attached to it, he did not take independent action on major issues and his attitude to the colliery's affairs was noticeably detached. He had no financial interest in it beyond his salary, and was very unlikely to inherit the estate because Rowland had five direct male heirs. Edmund was content to refer to Rowland the matters that needed resolution and to remind his brother about them when, as was often the case, no decision was forthcoming.

Managerial paralysis resulted. Changes in policy or structure could only take place if Rowland was made aware of a problem and was inclined to define a course of action. Although regular and detailed accounting information was produced, there were no internal triggers to discussion of the colliery's financial or organisational health, such as directors' meetings, annual reports to justify the organisation's results, or agitation by shareholders concerned for their investment's health. The colliery was subject to a highly personalised form of management. Discussion of its performance was informal and took place only with those whose family status qualified them to express an opinion, which was effectively only Edmund. This delayed the resolution of major issues – particularly related to personnel - as can be seen from the handling of Roseby's eventual dismissal from full-time employment on the estate.[81]

Roseby's input to the colliery in the late 1870s was limited. In 1877 he was seriously ill, and when he was able to work the ironstone preoccupied him.[82] Roseby had reverted to bypassing Edmund and communicating directly with Rowland, and while in the late 1860s Rowland had been tolerant of this behaviour, in 1878 he was not. Roseby sent a disingenuous reply to Rowland's rebuke:

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[80] *Leeds Mercury*, 3 April 1877. His salary was increased to £1,100.

[81] For other personnel problems at the colliery, see pp. 184-185.

[82] Roseby wrote to Rowland in December 1877 that his London doctor 'was disposed to think it is a cancer'. He was later operated on by Sir James Paget, Surgeon Extraordinary to the Queen. Letter, John Roseby to Rowland Winn, 3 December 1877, A/1/10[289], WYL1352, WYAS (W).

> I will always be glad to confer with Mr E. J. Winn in all matters and have done so latterly as I know your time was much occupied...But I am anxious at all times that you should know what is moving.[83]

When Edmund was asked to manage the ironstone as well as the colliery, he responded bluntly that the price was Roseby's dismissal:

> I am afraid I can do little good...till the time comes when Roseby can be told he must attend to orders or go...If you want me to look after things at Frodingham, Roseby will have to go I'm sure, I cannot stand been [sic] made such a fool of in the way he has done. When I am there he professes to be going to carry out anything I may tell him, and nothing is done...he seems to have said what he did merely to mislead me, all the time intending to have his own way.[84]

Rowland's did not respond to Edmund's complaints until May 1879. He was very conscious of the debt that the Winn family owed Roseby for the development of the ironstone:

> I have not the least doubt I suffer by keeping Roseby...but he has been so long there and having been invaluable in the opening out of the place [Lincolnshire] that I should not like to turn him off without adequate reason...I must tell Roseby that the Colliery is paying nothing and the iron greatly reduced because of the times, that you have for several years looked after the Colliery when it is now doing nothing and in consequence must take the ironstone instead or rather in addition...there is not room for both you and him, [and] in consequence of the falling off in receipts I must do all that is possible to economise expenditure.[85]

Roseby was dismissed a full year after this letter. The actual reasons for his dismissal were incompetence and indiscipline, but Rowland justified it on the grounds of economy and the superior claim to employment enjoyed by Edmund as a family

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[83] Letter, John Roseby to Rowland Winn, 31 January 1878, A/1/10[289], WYL1352, WYAS (W).
[84] Emphases in the original. Letter, Edmund to Rowland Winn, 2 September 1878, C3/1/6/[1876-1889 372], WYL1352, WYAS (W).
[85] Letter, Rowland to Edmund Winn, 12 May 1879, C3/1/6/[1876-1889 372], WYL1352, WYAS (W).

member. Roseby responded with a characteristic combination of passive aggression and appeal to Rowland's loyalty, making clear his disdain for Edmund:

> I can hardly think it is your intention to turn me adrift after over twenty years of service [and] the successful development of your estates in Lincolnshire…you can scarcely expect me to meet your brother to settle so important a matter as the termination of my engagements…I must therefore respectfully ask that you will see me and that we may settle our business without the interference of Mr Winn or anyone else.[86]

Although dismissed from full-time employment, Roseby was granted an excellent pension and, until his death in early 1882, remained as viewer and registered colliery manager at Nostell, an unexpected conclusion to his career given his mutual antipathy with Edmund. It can be explained, however, by the personalised decision-making of the owner of a landed estate. Rowland's loyalty to an employee who had played a large part in the restoration of the family's financial health – and, therefore, its social position - outweighed more workaday considerations.[87]

Re-invest or close? 1883-1886

Roseby's death necessitated the appointments of a registered manager and a viewer at the colliery, the roles that he had combined. Rowland promoted William Hay, the underground foreman at Nostell, to registered manager despite a lukewarm endorsement by Edmund:

> It will be necessary to…let the Government Inspector know who is the certificated manager in charge…Hay has a certificate I believe…I don't think [he] always sticks to the truth and I doubt if he is sufficiently strict with the men. On the other hand, I believe he is a sober man,

[86] Letter, John Roseby to Rowland Winn, 2 and 5 June 1880, A/1/10[289], WYL1352, WYAS (W). Edmund's only comment on Roseby's death was that a replacement registered manager was needed. Letter, Edmund to Rowland Winn, 13 January 1882, A1/10/[291], WYL1352, WYAS (W).

[87] To Edmund's exasperation, Rowland paid a pension to Roseby's widow until at least 1887. Letter, Edmund to Rowland Winn, 30 December 1886, A1/10/[291], WYL1352, WYAS (W).

seldom away from the colliery and I don't think the underground costs excessive.[88]

Hay was a certificated mine manager under the 1872 Coal Mines Act, and from 1884 a member of the Chesterfield and Derbyshire Institute of Engineers.[89] When William Spencer was appointed as viewer in succession to Roseby, the two leading engineering managers at the colliery were fully qualified men. Spencer was a Leicester-based mining engineer who, like many viewers, was also an investor in colliery companies.[90] He represented the mainstream of contemporary coal mining expertise, as he had been trained in Durham collieries and was a founder member of the North of England Institute of Mining and Mechanical Engineers. His main responsibility on the Winns' estates was the Nostell coal, as by the early 1880s the ironstone required little more than oversight of the leases and wayleave agreements.[91] His contract required him to visit the colliery at least once a month to inspect the underground works.

A change in the sales function at Nostell was precipitated by the advancing years of Thomas Belton, the last of the joint colliery/estate managers. In spring 1879 the Winn brothers discussed contingencies for when Belton 'broke down', as Rowland charmlessly expressed it.[92] Later that year two full-time salesmen were appointed, on salary and commission terms.[93] As described in Chapter 7, during the last quarter of the nineteenth century the direct appointment of salesmen by coal companies supplanted in some measure the use of agents and factors, and brought the sales process under the coalowner's control.[94] Nostell responded promptly to this trend. After Belton's retirement in 1882, sales were professionalised as a distinct function within the colliery management structure, entirely separate from estate administration. The personnel changes in manager, viewer and salesmen brought Nostell closer to the nineteenth

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[88] Letters, Edmund to Rowland Winn, 13 and 19 January 1882, A1/10/[291], WYL1352, WYAS (W).
[89] *Nottinghamshire Guardian*, 4 July 1884. This institution later became a part of the Midland Institute of Mining Engineers.
[90] Rowland preferred to appoint a viewer from outside the local area who was a qualified mining engineer (that is, higher up the professional scale than a certificated manager) to prevent any professional or personal jealousy arising between the viewer and the resident manager. Letter, George Winn to William Spencer, 19 October 1910, C3/6/4/[1857], WYL1352, WYAS (W).
[91] Despite this, most of Spencer's salary (£160 p.a.) and expenses were paid from Lincolnshire. This was probably a hangover from Roseby's days. William Hay's starting salary was £200 p.a. (cf Edmund's salary of at least £1,000), increased from £150 on his promotion from under-manager. Letters, Edmund to Rowland Winn, 5 February 1883, and 5 February 1884, both A1/10/[291], WYL1352, WYAS (W).
[92] Letter, Rowland to Edmund Winn, 12 May 1879, C3/1/6/[1876-1889 372], WYL1352, WYAS (W).
[93] 4/1, WYL523, WYAS (W).
[94] See Chapter 7, pp. 152-153.

century norm in terms of the functional division of responsibilities and the qualifications of the post-holders.

In 1881 Edmund initiated some minor cost reductions such as the centralisation of bookkeeping in the main Estate office, while pointedly reminding his brother to transfer money into the colliery account to make up the £2,000 loss.[95] Soon afterwards, Edmund began to raise with Rowland the issue of the colliery's future. In a personally managed enterprise, the debate on this important issue was the preserve of the owning family, and the final decision was the estate owner's. Citing the importance of maintaining maximum possible production, Edmund argued that the moderate quality and limited production potential of the Shafton seam made Nostell uneconomic except in times of high prices, and that profitability could be achieved only by increasing the family's investment and the colliery's impact on the estate:

> Until prices rise very considerably, I do not think it will be possible to make it pay anything without a much larger output of coal that would mean more men and therefore more houses...If you finally decide to give up all idea of the lower beds [being reached], then I think there is little use in carrying on the colliery.[96]

This suggests that the detached attitude he had taken over the previous few years was influenced by the conviction that without a change in strategy, the colliery was a dead letter.

Edmund presented the colliery's future in the context of the profits accruing to the estate, without mention of his own interests. Convinced that profitability could only be achieved by investment to increase output, Edmund outlined the three choices that faced Rowland – to deepen the colliery's shafts to the lower coal at his own expense and to continue to operate the mine; to lease the lower seams to another party who would finance the deepening; or to close the pit. Edmund argued that leasing out the deep seams was unattractive because their quality had not been proved, so that lease payments and covenants would be heavily discounted against the elevated level of risk borne by the entrepreneur. As a result, any terms acceptable to a lessee would be unpalatable to Rowland, whether the entrepreneur purchased and deepened the existing shafts or made a wholly new sinking: 'I cannot see why anyone should wish to

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[95] Letters, Edmund to Rowland Winn, 13 January and 11 February 1882, A1/10/[291], WYL1352, WYAS (W).

[96] Letter, Edmund to Rowland Winn, 19 January 1882, A1/10/[291], WYL1352, WYAS (W).

undertake the risk and cost of a deep sinking in an untried field, except on [lease] terms you would never accept'.[97] Rowland, with capital already sunk in the shafts, could deepen the workings and improve the surface facilities for a relatively modest investment. All being well, this would produce a higher output of good quality coal that would secure better returns for the colliery and for the Winns. If Rowland was not prepared to increase his investment in the colliery Edmund believed that it should be closed: 'If you make up your mind never to sink deeper or build more houses, I would not carry on the present colliery any more'.[98]

Edmund's clear statement of the options and suggestion that a way forward should be decided upon before a new viewer was appointed did not hasten Rowland's decision on the future of his property, in the absence of any external trigger to force the issue except the extent to which he was prepared to bear the colliery's losses.[99] In summer 1883 the subject had still not been properly aired, Rowland writing that 'the question of sinking to the Stanley Main must stand over till I see you, and we can talk it over. My own inclination is in favor [sic] of closing the Colliery'.[100] However, by December 1883 Rowland had decided to deepen the shafts, and sinking to the lower seams began in May 1884. This was nearly two and a half years after Edmund had first suggested that the colliery was financially untenable in the current market. The historical record is weakened by the informal and personal nature of decision-making on a landed estate, as there is no evidence for the rationale for Rowland's change of mind. Despite some cautious optimism on Edward's part about an upturn in the market, Rowland was still not entirely convinced of the colliery's viability and in May 1885 he welcomed a possible miners' strike as it would reduce his losses pending the outcome of the deepening:[101]

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[97] Letter, Edmund to Rowland Winn, 9 February 1882, A1/10/[291], WYL1352, WYAS (W). The field was 'untried' because the seams in Nostell Colliery's 'take' were separated from the wider coalfield by faults, preventing any other sinking from having access to them.

[98] Emphasis in the original. Letter, Edmund to Rowland Winn, 9 February 1882, A1/10/[291], WYL1352, WYAS (W).

[99] 'You ought to decide this before a mineral viewer [is appointed], it will make so great a difference in his engagement'. Letter, Edmund to Rowland Winn, 9 February 1882, A1/10/[291], WYL1352, WYAS (W).

[100] Letter, Rowland to Edmund Winn, 24 May 1883, C/3/1/6/[372], WYL1352, WYAS (W). At this point Rowland appears to have been set on closure, having written to a colliery agent six months earlier that 'I have no desire now to extend my colliery operations, indeed quite the reverse.' Letter, Rowland Winn to Benjamin Sellars, 16 November 1882, C/3/1/6/[372], WYL1352, WYAS (W).

[101] 'I think the Colliery will have done rather better in November and December than it has for a long time past – the average selling price is somewhat higher'. Letter, William Spencer to Edmund Winn and Edmund to Rowland Winn, 17 and 19 December 1883, both A1/10/[291], WYL1352, WYAS (W).

> I do not in the least mind [if there is a strike], as the Colliery is paying nothing it is no object to me to keep it going and I should close it till we have proved the Barnsley bed and then go on or not as that turned out.[102]

By February 1886 the upcast shaft had been deepened to the lower seams, whose quality and thickness was found satisfactory. Small amounts of coal from the new seams began to be raised, while the main production continued from the Shafton seam.[103] In September 1886 work began on the downcast shaft and by early 1888 all shaft deepening was finished although the rearrangement and renewal of the surface plant continued.

Managing the redeveloped colliery from 1887

The deepened colliery came into full operation between mid 1888 and the early 1890s. Annual production was 30,000 tons in 1887, rose to 110,000 two years later, and 150,000 tons in 1891.[104] This quintupling of output materially reduced the average working cost and overhead per ton raised, and, in a rising market, from 1889 the colliery was profitable.[105]

Table 8.2: Profit/loss and average costs and prices at Nostell Colliery, 1886-1893

Period	*Average working cost (per ton)*	*General overheads (per ton)*	*Average pithead price (per ton)*	*Colliery profit/(loss)*	*Benefit/ (loss) to the Winns*
1886	6/10d	1/11d	5/3½d	(£4,186)	(£3,565)
1887	6/0½d	2/8d	6/7d	(£4,065)	(£3,495)
1888	4/9d	1/7d	5/8d	(£3,457)	(£1,693)
1889	5/1d	1/2d	6/-	£449	£2,928
1890	5/3d	1/3d	7/6d	£2,700	£5,483
1891	5/10d	1/2½d	7/10d	£5,547	£9,174
1892	5/10½d	1/2d	7/10d	£7,788	£11,640
1893	5/9d	1/2d	7/2d	£1,441	£3,865

Sources: All information from 2/3, 2/4, and 5/8, WYL523, WYAS (W).

[102] Letter, Edmund to Rowland Winn, 21 March 1885, C/3/1/6[1876-1889 372], WYL1352, WYAS (W).
[103] Letter, Edmund to Rowland Winn, 13 March 1886, A1/10/[291], WYL1352, WYAS (W).
[104] Mining of the Shafton seam ceased when the deep seams came into production. *Colliery Guardian*, 28 December 1894, p. 1161.
[105] Mitchell suggests that by 1890-1891, the average price of Yorkshire coal was at around 175 per cent of its 1886 level. Mitchell, *Economic Development of the British Coal Industry*, p. 278.

The cost of the redevelopment was around £25,000 and Rowland received a swift return on his investment, netting over £20,000 in 1891 and 1892 alone. The colliery employees also benefited as between July 1889 and August 1890 they secured pay rises amounting to 30 per cent.[106] The financial return in 1893 was reduced by a lengthy strike.

The Winns showed a keen interest in the shaft deepening and the market launch of the new types of coal but the daily management of the colliery continued to be problematic and policy questions were decided only after much delay. For example, an extended correspondence between Rowland, Edmund and William Spencer failed to produce a decision on whether to enforce a 10 per cent wage cut on the colliery's employees. Differences of opinion occurred on policy matters, as when Spencer urged Rowland to join the coalowners' association but was rebuffed.[107] Practical matters also suffered, for example confusion over the date for starting the deepening of the downcast shaft, when Edmund wrote to Rowland with some exasperation that 'possibly something may have passed between you and him [Spencer] whilst I was in Scotland shooting'.[108]

The inadequacy of some aspects of the colliery's management structure was highlighted by the animosity that existed between two senior technical staff, the registered manager William Hay and Hewitt the mechanical engineer. Edmund wrote to Rowland in June 1886 that:

> There has been a grand blow up between Hewitt and Hay today, Spencer says Hewitt has abused Hay in a most unjustifiable way, before the men, that he took an opportunity when there were several men collected. Spencer says that things cannot go on as they are...I see nothing for it but Hewitt or Hay's leaving altogether...tell me your wishes.[109]

Edmund would not dismiss or redeploy one of the pair, presumably because they were both senior management figures and Edmund saw this as a decision proper to the owner. He repeatedly canvassed Rowland's instructions, whose responses were as evasive as when discussing the colliery's future in 1882 and 1883. The feud flourished, and the

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[106] 5/8, WYL523, WYAS (W).
[107] Letters, Edmund to Rowland Winn, 11 March, 20 March, and 25 June 1885, and Rowland Winn to William Spencer 21 March 1885, A/1/10/[870], A1/10/[291] and C3/1/6/[1876-1889 372], WYL1352, WYAS (W).
[108] Letters, Edmund to Rowland Winn, 13 July and 1 September 1886, A1/10/[291], WYL1352, WYAS (W).
[109] Letter, Edmund to Rowland Winn, 3 June 1886, A1/10/[291], WYL1352, WYAS (W).

situation became intolerable when the Yorkshire Mines Inspector, Frank Wardell, was angered by Hewitt's refusal to acknowledge his failure to carry out the statutory daily shaft inspection. Writing to Rowland, Edmund patronised Wardell and believed that a little noblesse oblige could have resolved the problem, but was aware of Wardell's ability to disrupt the colliery's operations:

> [Wardell] is not a bad sort of man, but thinks himself of some importance...if you had asked him up to luncheon it would have covered a multitude of sins...I think it is not the thing to try to oppose a Government Inspector or be impertinent...he has plenty of ways in which he can make his authority most awkward.[110]

Edmund attempted to pass the problem to Spencer: 'Spencer calls himself "consulting engineer". We consider he has the management of the colliery and if he is to do so, I think the only way will be to let him rearrange the staff and appoint the men he likes'.[111] This approach foundered on the evolving role of the colliery viewer. In the first half of the nineteenth century, the viewer was an all-rounder who directed all aspects of a relatively small and simple operation during his occasional visits to the colliery. Roseby had seen his responsibilities at Nostell in this light, and the Winns retained this concept of the viewer's duties. However, the role had evolved during the middle and later years of the nineteenth century. As collieries became larger, more capital-intensive and technically complex, on-the-spot management was necessary. Furthermore, mining legislation placed the responsibility for safety and technical expertise on staff at the colliery itself. Many larger collieries appointed a resident, full-time general manager in overall charge – in essence, the role that Edmund could have played - supported by a colliery manager specifically responsible for technical and safety matters. The viewer became a consultant who provided periodic advice on engineering and commercial strategy, and took little part in man management.[112] Spencer's view of his responsibilities aligned with this later model and he avoided being drawn into appointing and line-managing Nostell's employees, which was anyway largely precluded by his contractual commitment to spend only a day or two per month at Nostell.

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[110] Letter, Edmund to Rowland Winn, 7 February 1887, C3/1/9/[846], WYL1352, WYAS (W). Hewitt refused to meet Wardell to discuss the shaft inspections, and Wardell threatened Hewitt with a writ unless he did so.

[111] Letter, Edmund to Rowland Winn, 2 November 1886, A1/10/[291], WYL1352, WYAS (W).

[112] Church, *History of the British Coal Industry, vol. 3*, pp. 410-412.

Even the workforce contributed to the debate over running the colliery. Rowland received a number of anonymous letters complaining about the existing management, especially with regard to agreeing a getting price for the new coal. Edmund's response was brisk: 'I think we need not take much notice of anonymous letters. You may be quite sure if any of the men thought they could better themselves by going to another colliery they would very soon leave'. He assured Rowland that until the price was fixed, 'you are sure to hear the manager, whoever he may be, accused of every crime'.[113] A managerial vacuum had been created because the Winns failed to recognise that the complexity of the redeveloped colliery's operations required committed management effort. The lack of a consistent decision-making managerial presence continued to delay strategic outcomes and the resolution of day-to-day problems.

Edmund suggested to Rowland that the colliery's management should be reformed: 'I think in general working arrangements at the colliery [require] some overhauling and change is wanted, things have got into a slack...I think there ought to be one head man on the spot'.[114] Neither Rowland nor Edmund wished to fill this role. Edmund continued to refer major decisions to Rowland, who was in his mid sixties, had retired from full-time involvement in politics after his creation as Lord St Oswald in 1885, and showed little enthusiasm for taking a managerial lead in his business interests. Each brother intervened in the management of the colliery during times of change or for specific events but they were not a daily presence.

Rowland and Edmund's thoughts turned to a family candidate for the post of general manager at the colliery. This was a more complex decision for the Winns than it might have been for a middle-class industrialist or merchant. The latter's focus was on a single business without the ramifications of social status, landownership and hereditary titles, and they lacked the 'well-formulated strategy' of primogeniture and the strict settlement to deal with inheritance and succession.[115] Rowland had five sons, and primogeniture dictated that the eldest would inherit the estates and the peerage, joint symbols of the family's success. The other four sons had the range of career opportunities that the Winns' affluence and status afforded them, in which they would

[113] Letter, Edmund to Rowland Winn, 16 November 1886, A1/10/[291], WYL1352, WYAS (W).
[114] Emphasis in original. Letter, Edmund to Rowland Winn, 29 January 1887, C3/1/9/[846], WYL1352, WYAS (W).
[115] Daunton, "Gentlemanly Capitalism' and British Industry', p. 146.

be supported by a contribution from the family property.[116] A newspaper commented that the sons' 'tastes...incline more to commerce than politics', so it seemed probable that a candidate willing to commit full-time to the colliery could be found.[117] Reluctance to becoming the employee of a sibling might be the main objection to taking on the job, an issue of which Edmund had experience and tried to overcome by suggesting that the nominee was given a share of the colliery business.[118]

Rowland's fourth son, George, was the preferred candidate. He had an interest in and aptitude for engineering and in particular the applications of electricity, which in the 1880s was beginning to be used as a power source in mining.[119] In summer 1887 he oversaw the installation of electric light at Nostell Priory, the power being generated at the colliery and brought up to the house by cable. Trade journal reports credited George with the design of a number of novel features of the installation.[120] Such technical expertise in a man of his social background had contemporary precedent, as Charles Parsons, a son of the Earl of Rosse, had a few years earlier invented the steam turbine. In his critique of Wiener's thesis of an anti-industrial bias among the landowning class, F. M. L. Thompson cites Parsons as an example of aristocratic technocracy. However, while Thompson quotes a number of later nineteenth century landowners who were happy to invest in industry, and to take an active and informed interest in those investments, he does not offer any other examples of technically skilled members of the class, a probable indication of their low incidence.[121] As a landowning family, the Winns were unusual in possessing a member with such expertise.

In July 1887 Edmund reported George's willingness to assume the general management of the colliery for a trial period. He took over when still only twenty-four, and quickly became involved in all aspects of the business. He was willing and empowered to make decisions on personnel and technical policy, and was soon

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[116] Edmund also had a son. He managed a cattle-ranching venture in the USA in which Rowland was a major investor. He was therefore employed by the family, but not directly by or on the estates.

[117] *Sheffield and Rotherham Independent*, 21 January 1893; letter, Edmund to Rowland Winn, 29 January 1887, C3/1/9/[846], WYL1352, WYAS (W).

[118] Letter, Edmund to Rowland Winn, 9 July 1887, C/3/1/9/[287], WYL1352, WYAS (W).

[119] Electric lighting began commercial development in the 1880s, and the use of electricity for tramways, railways and factories accelerated in the following decade. I. C. R. Byatt, *The British Electrical Industry, 1875-1914: The Economic Returns of a New Technology* (Oxford, 1979), pp. 1-2.

[120] The dynamo and cabling for the project were purchased from the Colonial and Imperial Exhibition held in South Kensington in 1886, after its closure in November of that year. The lighting at Nostell was installed only five years after the first major installation of incandescent lamps in England, at the Law Courts in London, at a time when domestic electric light was only available to those who could afford their own electricity supply. *The Telegraphic Journal and Electrical Review*, 27 December 1889, pp. 713-714; Byatt, *The British Electrical Industry, 1875-1914*, pp. 15-16.

[121] Thompson, *Gentrification and the Rise of the Enterprise Culture*, pp. 37-43.

be supported by a contribution from the family property.[116] A newspaper commented that the sons' 'tastes...incline more to commerce than politics', so it seemed probable that a candidate willing to commit full-time to the colliery could be found.[117] Reluctance to becoming the employee of a sibling might be the main objection to taking on the job, an issue of which Edmund had experience and tried to overcome by suggesting that the nominee was given a share of the colliery business.[118]

Rowland's fourth son, George, was the preferred candidate. He had an interest in and aptitude for engineering and in particular the applications of electricity, which in the 1880s was beginning to be used as a power source in mining.[119] In summer 1887 he oversaw the installation of electric light at Nostell Priory, the power being generated at the colliery and brought up to the house by cable. Trade journal reports credited George with the design of a number of novel features of the installation.[120] Such technical expertise in a man of his social background had contemporary precedent, as Charles Parsons, a son of the Earl of Rosse, had a few years earlier invented the steam turbine. In his critique of Wiener's thesis of an anti-industrial bias among the landowning class, F. M. L. Thompson cites Parsons as an example of aristocratic technocracy. However, while Thompson quotes a number of later nineteenth century landowners who were happy to invest in industry, and to take an active and informed interest in those investments, he does not offer any other examples of technically skilled members of the class, a probable indication of their low incidence.[121] As a landowning family, the Winns were unusual in possessing a member with such expertise.

In July 1887 Edmund reported George's willingness to assume the general management of the colliery for a trial period. He took over when still only twenty-four, and quickly became involved in all aspects of the business. He was willing and empowered to make decisions on personnel and technical policy, and was soon

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[116] Edmund also had a son. He managed a cattle-ranching venture in the USA in which Rowland was a major investor. He was therefore employed by the family, but not directly by or on the estates.

[117] *Sheffield and Rotherham Independent*, 21 January 1893; letter, Edmund to Rowland Winn, 29 January 1887, C3/1/9/[846], WYL1352, WYAS (W).

[118] Letter, Edmund to Rowland Winn, 9 July 1887, C/3/1/9/[287], WYL1352, WYAS (W).

[119] Electric lighting began commercial development in the 1880s, and the use of electricity for tramways, railways and factories accelerated in the following decade. I. C. R. Byatt, *The British Electrical Industry, 1875-1914: The Economic Returns of a New Technology* (Oxford, 1979), pp. 1-2.

[120] The dynamo and cabling for the project were purchased from the Colonial and Imperial Exhibition held in South Kensington in 1886, after its closure in November of that year. The lighting at Nostell was installed only five years after the first major installation of incandescent lamps in England, at the Law Courts in London, at a time when domestic electric light was only available to those who could afford their own electricity supply. *The Telegraphic Journal and Electrical Review*, 27 December 1889, pp. 713-714; Byatt, *The British Electrical Industry, 1875-1914*, pp. 15-16.

[121] Thompson, *Gentrification and the Rise of the Enterprise Culture*, pp. 37-43.

occupied in the task of 'deciding how to divide up Hay's and Hewitt's jobs', a task that had been unresolved for the previous two years.[122] Another early action was to view several types of mechanical coal-cutter in action, in company with Spencer.[123] George developed a good working relationship with Spencer, and Edmund acted as a mentor and sounding board. Edmund was glad to be relieved of the burden, but cannily credited the responsibility for the decision to Rowland, remarking to him that 'I have little doubt making Willie [George] manager will prove the best arrangement you could have hit upon for the colliery'.[124] Table 8.3 provides evidence that Edmund's view was correct.

Table 8.3: Output, profit/loss and average costs and prices at Nostell Colliery, 1894-1913

Period	*Output (tons)*	*Average working cost (per ton)*	*General overheads (per ton)*	*Average pithead price (per ton)*	*Colliery profit/(loss)*	*Benefit to the Winns*
1894	173,581	5/5½d	1/3d	7/4d	£5,242	£9,233
1895	194,500	5/3½d	1/3d	6/3d	(£1,364)	£3,114
1896	212,865	5/4½d	1/2½d	5/11d	(£4,353)	£552
1897	210,339	5/2½d	1/3d	6/2½d	£215	£5,061
1898	197,758	5/5d	1/5d	6/4d	(£2,894)	£1,617
1899	178,630	6/3d	1/6d	7/2½d	(£1,560)	£2,458
1900	81,386	7/-	1/9d	10/7d	£9,159	£10,931
1901	153,512	7/5d	1/2½d	9/8d	£11,024	£14,426
1902	174,717	7/1½d	10½d	8/4d	£3,416	£7,346
1903	175,417	6/9d	10½d	8/-	£2,038	£6,005
1904	188,811	6/7½d	10½d	7/8d	£988	£5,292
1905	193,766	6/4½d	11d	7/5d	£2,022	£6,474
1906	217,901	6/2d	1/0½d	7/4d	£4,584	£9,684
1907	215,482	6/5½d	1/3½d	8/7d	£9,644	£14,686
1908	199,326	7/1d	1/3d	9/4½d	£9,648	£14,299
1909	189,974	7/1d	1/3d	8/6½d	£4,115	£8,530
1910	195,086	6/9½d	1/1d	8/4d	£6,862	£11,422
1911	205,698	6/9d	1/0½d	8/7½d	£8,830	£13,965
1912	184,765	6/9d	1/-	9/11½d	£17,282	£21,624
1913	195,869	7/8d	1/2½d	10/8½d	£16,186	£20,789
Average p.a.	*186,969*				*£5,054*	*£9,362*

Note: Output in 1900 was affected by a strike lasting from 19 April to 1 October.
Source: All information from 2/4, 2/6, 2/7 and 5/8, WYL523, WYAS (W).

[122] Letter, Edmund to Rowland Winn, 6 July 1888, A/1/10/[289], WYL1352, WYAS (W). After George became general manager, no further problems were reported between Hay and Hewitt.
[123] Letter, Edmund to Rowland Winn, 6 July 1888, A/1/10/[289], WYL1352, WYAS (W).
[124] Letter, Edmund to Rowland Winn, 8 August 1888, A/1/10/[289], WYL1352, WYAS (W).

Although the high profits of the early 1890s faltered later in the decade as pithead prices fell, George Winn's management of the colliery was successful. Its working costs and general overheads maintained levels that enabled the net benefit to the Winns - buoyed by the royalties generated by the increase in production - to remain in the black, although only barely in 1897 and 1904. Costs were kept under control in the upswings, so that the nine years before the First World War were the most successful in the colliery's history to date, during which the net benefit to the Winns averaged £13,500 p.a.

'Electric light is the thing for the colliery': George Winn and technical innovation[125]

Edmund's enthusiastic endorsement of the use of electricity in mining was soon realised by George Winn. In March 1888 DC-powered lights were installed at the colliery, first in the surface yard and later extended to the pit bottom. The event was sufficiently novel for a Sheffield newspaper to report in some detail, George Winn receiving the credit:

> A dynamo has been introduced at Nostell Colliery to light three large arc lamps in the yard, each of three thousand candles' power. They were tried on Friday last for the first time, and with success...the pit bottom is to be illumined in the same way. One of Lord St Oswald's sons takes a personal share in this lighting business, being a skilled electrician.[126]

Improvements in cable technology in the 1880s and 1890s reinforced the advantages of electricity as a source of power underground, and particularly for supplying mobile machinery. Both its main rivals – compressed air and steam – were expensive and cumbersome to deliver below ground. By 1890, electricity was supplied underground at Nostell to power haulage and other machinery.[127] This early use of electricity placed Nostell Colliery in the technical vanguard of the coal industry - even by 1907, less than

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[125] Letter, Edmund to Rowland Winn, 16 October 1887, C3/1/9/[846], WYL1352, WYAS (W).
[126] *Sheffield and Rotherham Independent*, 19 March 1888, p. 5.
[127] The *Morning Post*, 2 June 1890, included an advertisement for the public flotation for the General Electric Power and Traction Co Ltd. The company's list of its installations included 'hauling plant at Lord St Oswald's Nostel [sic] Colliery'.

5 per cent of the power supplied to British collieries took the form of electricity and twenty years earlier, when Nostell's lights were installed, it was still rarer.[128]

George's influence also ensured that Nostell was well to the fore in the use of mechanical coal-cutters. Machine cutting was intended to reduce labour costs, and much of the early experimentation with mechanical cutting took place in thin-seam coalfields, including west Yorkshire. The general manager of Pope & Pearson Ltd, which owned collieries near Nostell and also was an early user of mechanical cutters, remarked that 'without higher productivity in thin seams we cannot compete with the thick seams of south Yorkshire'..[129] The redevelopment at Nostell had given the colliery a long-term future, if capital and working costs could be controlled. Minimising labour numbers would reduce the investment in housing necessary because of the colliery's rural location, and de-skilling would cut running costs. Edmund's letters to his brother made these aspirations clear:

> If...Willie finds the coal cutter will do, you can well afford to dispense with some of the men you have and employ a different class...Colliers are an awful nuisance. If coal-cutting machines can be made practical and a commercial success it will be an immense boon to any colliery where the seams are thin.[130]

The first electrically powered cutter was developed by officials at the Allerton Colliery near Leeds, owned by the Bower family, which George and Spencer visited in early 1888 as part of their survey of mechanical cutters.[131] George arranged to borrow a machine for trial.[132] The Bower machine proved unreliable, although it is unclear if this was the fault of the machine, its handling or the environment in which it was used. Edmund was confident of eventual success: 'Willie tells me they broke the cutter after they had bored only a few yards. There are sure to be these mishaps before the thing is got into proper working order'.[133] At the end of trials lasting two years, William Spencer was forced to echo Edmund's blend of short-term disappointment but

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[128] Byatt, *The British Electrical Industry, 1875-1914*, p. 74.
[129] Church, *History of the British Coal Industry, vol. 3*, p. 354.
[130] Letters, Edmund to Rowland Winn, 10 October 1888 and 25 March 1891, both A/1/10/[289], WYL1352, WYAS (W).
[131] 'It is two years since myself and young Mr. Winn (son of Lord St Oswald) went over to see these machines at Allerton' (comment made by William Spencer at a meeting of the Midland Institute of Mining, Civil and Mechanical Engineers, 22 January 1890). *Transactions of the Institute of Mining Engineers* vol. 1 (1890), p. 139; Buxton, *Economic Development of the British Coal Industry*, p. 111.
[132] Letter, Edmund to Rowland Winn, 6 July 1888, A/1/10/[289], WYL1352, WYAS (W).
[133] Letter, Edmund to Rowland Winn, 9 November 1888, A/1/10/[289], WYL1352, WYAS (W).

confidence in eventual success: 'I cannot say that so far we have done much, but we believe we are on the way to success. I mention this to show the great difficulties in the way'.[134]

Despite this setback, mechanisation remained central to the Winns' plans for the colliery. They resumed their involvement with coal-cutters in 1892, as investors as well as users. The development of the Bower cutter passed to a London-based group of entrepreneurial engineers, who in June 1892 founded the Electrical Coal-cutting Contract Corporation (ECCC), of which George Winn was a founding shareholder.[135] The company manufactured and rented out cutters, each hire including a supervisor to oversee the cutting operation and maintain the equipment, an early exercise in out-sourcing. The coalowner supplied the labour and haulage that, directed by the ECCC supervisor, brought the coal down and took it out of the pit. The hirer could therefore obtain the full benefit from mechanical cutting without spending time to develop internal expertise, as the ECCC supervisor was responsible for ensuring that the work was properly planned and there were the minimum of interruptions to production. The service was considered too expensive by many coalowners, who, having experienced its benefits, bought and operated their own machines. Without proper supervision, they often could not replicate the results achieved under the ECCC hire.[136] The ECCC quickly failed and was liquidated in 1898.

Nostell was one of ECCC's earliest customers, with a contract running from 1892 to 1896.[137] After the ECCC contract terminated, the Winns bought four machines and continued to use them on a regular basis.[138] Greasley suggested that 'the key elements in the process of technical change' for mechanical cutters were 'pervasive modification to innovations during diffusion, arising from local and collective experience'. George Winn contributed to the grass roots nature of the development of coal-cutting technology both financially in his backing of the ECCC and at the practical level with a cutting head that he patented in 1902.[139] Nostell's experience with mechanical cutters was typical of many collieries, in that a long period was spent

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[134] *Transactions of the Institute of Mining Engineers* vol. 1 (1890), p. 139

[135] Memorandum and Articles of Association, Electrical Coal-cutting Contract Corporation Ltd., National Archives, ref. BT 31/5346/36643.

[136] A. V. Jones and R. P. Tarkenter, *Electrical Technology in Mining* (London, 1992), p. 104.

[137] C/3/3/2/2[171], WYL1352, WYAS (W).

[138] C/3/3/2/1[174], WYL1352, WYAS (W).

[139] D. Greasley, 'The Diffusion of Machine Cutting in the British Coal Industry, 1902-1938', *Explorations in Economic History*, vol. 19 (1982), pp. 246-268; this ref. p. 250; S. F. Walker, *Coal-cutting by Machinery in the United Kingdom* (London, 1902), p. 129.

understanding the best means of applying the new technology. Mechanical coal-cutters were eventually used at Nostell with success, but not all George's technical experiments turned out well – in 1907 to 1909 he made a lengthy and ultimately failed attempt to generate electricity economically by use of an engine driven by producer gas, and he also collaborated with a local inventor on an improved form of household battery.[140] It is worth noting that the Winns' enthusiasm for mechanisation was not restricted to the colliery – in 1885 they introduced the first grab cranes in the Lincolnshire iron field, to remove the overburden before extraction of the ore.[141]

The evolution of management at Nostell Colliery

Church defined the typical management structure of medium to large collieries in the later nineteenth century as consisting of the owner or his direct representative, a consultant viewer and a salaried resident colliery manager. Beneath this tripartite top layer, functionally-divided technical departments reported to the certificated manager, while the commercial/sales function often reported direct to the owner or his representative.[142] The viewer and the owner's representative formulated the colliery's strategy, particularly on production but also labour relations and marketing, while the viewer guided the colliery manager on technical matters. Boyns and Wale modified Church's tripartite concept for collieries owned by limited companies by substituting the company board for the owner's representative and the organisation's managing director for the viewer, examples of which were Barber, Walker & Co. under Robert Harrison and the Staveley Coal & Iron Co. Ltd under Charles Markham.[143] After the appointments of Hay, Spencer and George Winn, Nostell Colliery conformed to the pattern described by Church. Hay and Spencer were qualified for their roles through apprenticeship and examination. William Hay carried out Spencer's instructions underground, and issues such as the preferred type of coal-cutter and the timing of price and wage changes were worked out between Spencer and George Winn. The technical

[140] There is a long and highly technical correspondence between George and the Haslam Foundry Co. Ltd. regarding the problems of the gas engine trial. The battery inventor was E. M. Bailey of Leeds. Letters passim 1906-1909, C3/6/4 [1906-1914 1857], WYL1352, WYAS (W).
[141] Pocock, 'Stages in the Development of the Frodingham Ironstone Field', p. 110.
[142] Church, *History of the British Coal Industry, vol. 3*, p. 412.
[143] Griffin, 'Robert Harrison and the Barber, Walker Co', passim; Church, *History of the British Coal Industry, vol. 3*, p. 413.

production function was separate from the commercial/sales department, which reported to George as general manager.

From the outset, George Winn brought together the roles of manager and strategic decision–maker. He dominated the daily operation of the colliery, corresponding directly with customers, suppliers and government authorities. He rarely referred decisions to his father or, after Rowland's death in 1893, to the second Lord St Oswald, who showed limited interest in the colliery. George's correspondence makes clear that policy decisions in all spheres of operation were his responsibility, informed by discussions with Spencer or the relevant manager. He was willing to overturn longstanding policies, as in 1890 when he decided to join the West Yorkshire Coalowners' Association despite Rowland's initial rejection of their invitation.

In 1910, when a new viewer was appointed following William Spencer's retirement, Spencer's son wrote to the appointee to describe the Winns' concept of the viewer's duties:

> ...visiting the colliery one day each month, making an inspection of a portion of the underground workings, advising the Manager generally on the working of the mine, seeing the plans, and making suggestions, if of sufficient importance, to Mr Winn as General Manager...My father and I always finish our letters with 'Yours obediently', Mr Winn being the son of a noble lord and brother of the present one; it may seem rather old fashioned...Your business relations will be entirely with Mr Winn, Lord St Oswald only coming to the colliery for a few minutes very occasionally, just to show us that he is alive.[144]

These social niceties recognised that the colliery was the estate owner's personal property and Spencer accurately characterised the ownership arrangement as old-fashioned. However, between 1866 and the late 1880s the colliery's management had radically changed. At its opening, it was largely run by part-time managers whose main qualification for their positions was that they were known quantities to the estate owner and, with qualifications so far as Roseby was concerned, trusted by him. There was no clear separation between the management of the colliery and that of the estate on which it was located. Individual responsibilities were ill defined and sometimes contradictory.

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[144] Letters, Edward Spencer to G. H. Ashwin, 29 October and 1 November 1910, C/3/3/3/10, WYL1352, WYAS (W). Ashwin was appointed on William Spencer's recommendation.

The colliery's prime raison d'être of providing Edmund with an income was bound up with the ethos of a landed property. Rowland's attitude in the first twenty years of the colliery's existence was that of a traditional landowner and he retained the right to make managerial decisions related to any aspect of his property. Edmund's role as general manager was shared with other responsibilities both within and outside the Winn property. He was not fully occupied by the colliery, and he saw his role as being the estate owner's representative, bringing major issues to Rowland's attention for a decision.

By the late 1880s the colliery was still run by a family member, but he was committed full-time and had executive capability. His influence extended throughout the organisation, and his knowledge and personal characteristics shaped its development. Operational decisions were taken within the colliery organisation and its management was wholly separate from that of the estate. The experience and qualifications of the professional managers at the colliery reflected those of the coal industry as a whole. The organisational structure that of a typical personally owned and managed family business, and consisted of a shallow managerial layer, split functionally, with all major decisions reserved to the family member at its head. There was no board of directors or other designated governing body. Some elements typical of the landed estate remained. Rowland had begun to take a less prominent role in decision-making and the 2nd Lord St Oswald was still more remote, but Nostell Colliery remained their personal property. It was run by a younger son, and the profits accrued directly to the estate owner. The Winns had successfully grafted a modern and profitable industrial operation onto the traditional values of a landed estate.

Chapter 9

Conclusions

'A remarkable talent for survival'

Writing on the social history of Britain between 1860 and 1914, Thane remarks that, despite the high level of industrialisation, the landed interest 'showed a remarkable talent for survival' and that although industrialisation and agricultural decline were in some respects a threat, they 'also offered the shrewder [landowner] new opportunities for making money and wielding influence'. In taking these opportunities, the landowners' efforts did not accrue purely to their own interest, as they often made substantial contributions to the infrastructure of nineteenth century Britain. Thane offers the example of the Marquess of Bute's financing of Cardiff docks, a venture barely profitable to its owner but which opened up the South Wales coalfield.[1] By both these criteria, Rowland Winn was a shrewd operator. His entrepreneurialism enriched his family so that in barely twenty-five years from 1860, the Winns rose from debt-ridden gentry to secure affluence. Rowland became an established industrialist and successful politician, with a seat in the House of Lords. His efforts also benefited the regional economies of the West Riding and Lincolnshire by building railways, helping to open up a new coalfield, and founding the Scunthorpe iron industry.

Rowland's success was built on his willingness to put existing resources to new use, by exercising his entrepreneurial talents in a landowning context. Chapter 2 illustrates that many of his actions and attitudes conformed to the traditional preoccupations of the landowning class. The potential loss of the family property was the initial spur to exploitation of its iron and coal assets. His industrial ventures were based on mineral resources, and were confined to the physical extent of the Winn estates. The source of the Winns' wealth became predominantly industrial rather than agricultural, but the estates and their industry remained personally owned and passed between generations through strict settlement and primogeniture. Support for a younger son in finding a career was a major objective for the family, and capital was raised

[1] P. Thane, 'Social History 1860-1914' in R. Floud, and D. N. McCloskey, *The Economic History of Great Britain since 1700: vol. 2, 1860 to the 1970s* (Cambridge, 1991), pp. 198-238; this ref. pp. 213-215.

through the channels conventionally used by landowners. From this perspective, the Winns' activities were typical of the landowning class.

From another viewpoint, the Winns' behaviour with regard to the industrial development of their estates was characteristic of a middle-class entrepreneur running a family-owned business. As shown in Chapter 2, the Carlton episode provided a solid grounding in business practice. Once Rowland took up the challenge of restoring the family's fortunes in the late 1850s, his approach was that of close personal involvement, attention to practicalities, and persistence. Rowland applied to his coal and ironstone the detailed, cost-driven approach used by the consultant engineer John Walker in his report on Carlton, and he retained a strong grasp on the importance of infrastructure, particularly transport. There was nothing detached or dilettante about his analytic approach to developing the ironstone, or about the brothers' relentless travel in pursuit of railway bills, iron lessees and coal sales. Learning from Edmund's experience when seeking partners for Carlton, Rowland was willing to engage with middle-class businessmen and to establish commercial partnerships with them. The care with which he confirmed the viability of the minerals and ensured that transport to market was provided in a timely manner are shown in Chapters 2 and 3, while Chapter 5 investigates Rowland's careful manoeuvrings to establish the ironstone quarries and colliery without incurring a substantial increase in estate debt - a financial strategy that reflected the preferences of the typical middle-class personal capitalist. Chapters 3 and 6 demonstrate that Rowland was not simply a passive investor but was active in operational and commercial matters for the railway companies in which he was involved. The Lincolnshire ironstone was leased for financial reasons, not from a desire to be distanced from industry, and the Winns' involvement with the nitty-gritty of industrial life continued after the enterprises were established. Chapter 8 shows that members of the Winn family were key protagonists in founding the ironstone and coal businesses, were closely involved in managing them, and remained so into the following generation.

The Winn brothers' activities in the 1860s and 1870s are hard to reconcile with Wiener's thesis of landowning disdain for industry, or even with Thompson's suggestion of a lordly, arms-length attitude by landowners to industry on their property. The Winns' high level of involvement in their iron and coal ventures represented personal industrial capitalism with a landowning flavour. Daunton summarised gentlemanly capitalism as 'a way of getting rich *and* being a gentleman', combining a

lucrative financial activity with actual or aspiring landowning status.[2] The Winns arguably embodied an equivalent category of gentlemanly industrialist, landowners who used industry to achieve their class's socio-economic objectives. Daunton does not discount the possibility that such a category existed, concluding that landowners 'differ[ed] in their ability to benefit from urban and industrial growth' and that the nature of aristocratic landowners' involvement in industry needs 'more detailed investigation'.[3] Thompson supports the concept of the gentlemanly industrialist more positively, acknowledging that it is 'extremely hard' to conclude that those nineteenth century landowners well endowed with industrial opportunities were 'hostile to industry, indifferent to its problems or ignorant of its nature'.[4] Under the initial spur of their debts and cash-flow problems, Rowland and Edmund Winn certainly were not. Even when Rowland had a demanding political career, he retained his involvement in industry.

Habbakuk remarked that English landowners 'did not acquire their land in order to develop it, but to enjoy it'.[5] In the late 1850s the Winns resolved to develop their estates in order to continue enjoying them. Rowland and Edmund combined industrial activities with more typical landowner pursuits, and at different times one or the other activity would predominate. Rowland worked energetically to increase estate income, but once financial stability had been restored, he became involved in the traditional landowner sphere of national politics. As we see in Chapter 8, this distracted him from the industrial enterprises that had made a political career possible. Although Edmund expressed a preference for commercial employment, in order to achieve an income equivalent to his social status he supplemented his colliery income with a sinecure in the Quarter Sessions. Conversely, it is worth recalling that the Winns started their industrial ventures in order to improve their financial position and thereby retain their elite status. Despite the initial incentive being economic, Rowland and Edmund showed signs of the motivation ascribed to middle-class industrialists, that their 'interest and satisfaction in...business' was based on 'success in well-contrived and well-conducted action', as much as the pursuit of profit.[6] This attitude can be detected when Rowland noted the speed with which the iron had been brought to market and described the manoeuvrings for the take-over of the West Riding and Grimsby Railway, and in

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[2] Daunton, "Gentlemanly Capitalism' and British Industry', p. 125.
[3] ibid , pp. 141-142.
[4] Thompson, *Gentrification and the Rise of the Enterprise Culture*, p. 43.
[5] Quoted in Wiener, *English Culture and the Decline of the Industrial Spirit*, p. 13.
[6] Samuel Courtauld, quoted in Coleman, 'Gentlemen and Players', p. 96.

Chapter 6 when Edmund ruminated on the most efficient use of the colliery's wagons. They did not merely tolerate industry for its financial rewards but enjoyed the prestige and self-fulfilment brought by business success.

Rowland, Edmund and George Winn divided their time between social worlds. They were landowners, Justices of the Peace, officers of the Quarter Sessions, Conservative MPs, holders of advowsons and conscientious supporters of organisations local to their property. At the same time they managed a colliery and its labour force, argued with recalcitrant lessees and coal merchants, negotiated commercial agreements and worried about the state of the iron and coal trades. As noted in Chapter 4, they were also investors. The family therefore had a presence in land, industry and finance. The Winns gave no indication of seeing any contradiction between these sets of activities, and they moved between the different worlds with ease.

Management at Nostell Colliery

In a case study of a medium-sized colliery in the west Yorkshire coalfield, Dintenfass argues that management is a crucial factor in defining the success of an enterprise. He concludes that the ability to link marketing objectives to technical and commercial processes had enabled an enterprise with unexceptional natural resources to outstrip better-endowed rivals:

> The unique suitability of the coals for domestic purposes had to be recognized; production had to be oriented to the nuances of the household-coal market; and the appropriate commercial outlets for the coal had to be developed.[7]

The skill lay in matching resources to profitable commercial outcomes. A key element in the turn-round of the Winns' financial health was an improvement in the quality and technical skill of the management employed on the property, both the estate and the new colliery. In Chapter 2 and 3 we saw that Charles Winn had a loose grasp on the estates' affairs, and had run heavily into debt. When Rowland assumed the leadership of the estates in the late 1850s, he actively managed the property to a defined purpose and did not simply allow it to run in the manner that it always had. The Yorkshire and Lincolnshire estates were united for budgetary purposes, no further borrowing was permitted and capital was conserved in the interest of generating income. These

[7] Dintenfass, *Managing Industrial Decline*, p. 28. Waterloo Colliery, Temple Newsam.

strategies came together in the decision to exploit the ironstone first, and to lease it so that a reliable and rising income could be generated at minimum risk. Agents and professional managers were subject to more direct and critical oversight than Charles Winn had exercised. For example, Rowland's concerns about the conflict of interest inherent in John Marsden's position as land steward, legal advisor and loan broker to the estate – but also its competitor in the coal trade – led to his replacement. Alternative arrangements were made that avoided the inefficiencies generated by moral hazard. Throughout this process, Rowland applied to a landed estate the managerial approach of the personal capitalist: closely involved, and distrustful of professional agents and of outside influence on his property.

The management of Nostell Colliery took time to evolve. In its first years, the colliery was run largely as an adjunct of the agrarian estate. Over the following twenty years its management became more specialised, not only in technical mining skills, but also in managing transport, marketing, sales and finance, issues that are discussed in detail in Chapters 5-8. Management became organised by function and worked within a framework of statutory requirements and professional guidelines. The colliery also became established as an entity distinct from the estate, with its own corpus of management. However, the Winns displayed more uncertainty in management than they did in entrepreneurial matters. Edmund had to serve a lengthy apprenticeship in colliery management, and, particularly after he assumed oversight of the ironstone in 1878, was distracted by other responsibilities. Roseby was retained too long. The Winns eventually recognised the need for increased professionalisation of management and adjusted to the changes it required. Rowland's entrepreneurial ability returned to the fore in deciding to invest in deepening the colliery. Finally, by recognising George Winn's managerial and technical abilities, a successful team was placed in charge of the colliery.

From the late 1880s Nostell Colliery represented the apogee of personal capitalism: 'Personal ownership and a style of management governed by a small, but clearly defined, governance structure'.[8] It was heavily reliant on the competence of the family members involved. George Winn had the authority to run the colliery without constant reference to the estate owner, which represented the final break with the managerial habits of the landed estate and eliminated the indecision of the early 1880s.

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[8] R. Lloyd-Jones and M. J. Lewis, 'Business Networks, Social Habits and the Evolution of a Regional Industrial Cluster: Coventry, 1880s-1930s', in J. F. Wilson and A. Popp (eds), *Industrial Clusters and Regional Networks in England, 1750-1970* (Aldershot, 2003), pp. 229-250; this ref. p. 230.

Management became a strength of the organisation. George's full-time involvement, independence of action and interest in engineering were an excellent foil for William Spencer, who brought in a broad knowledge of the coal industry and strong technical and commercial competence. The statutory registered manager was professionally qualified and resident at the colliery, whereas up to 1882 Roseby had held the position largely through Rowland's loyalty and in absentia. The desire and expertise were in place to introduce modern sources of power and methods of working. The management had sufficient understanding of the nature of the coal from the deeper seams, and of the requirements of the market, to enable a substantial proportion of sales to be made in the high-priced domestic market. Nostell had achieved the synthesis that Dintenfass identifies, of good management securing the close alignment of production and marketing. This sophisticated grasp on the priorities of the coal trade represented a considerable advance from 1868, an improvement that owed much to the Winn family's willingness to adjust to the demands of a dynamic market environment.

The Winns in the regional economy

The Winns' contribution to the regional economies of Yorkshire and Lincolnshire was extensive. Chapter 2 notes that they supported local organisations in the manner typical of most landowners: patronising local shopkeepers and tradesmen, and subscribing to multifarious sports clubs, musical groups, charities and similar bodies. The Winns invested – unsuccessfully - in the agricultural economy when they bought additional land in Lincolnshire and spent £40,000 in trying to improve its output. They were also prominent in civil administration. Rowland's service as MP to North Lincolnshire from 1868 was the springboard to Conservative Party prominence at the national level as Chief Whip. The Winns' financial arrangements were mainly local. The estates and the colliery and ironstone businesses all banked in nearby towns, and initially capital at Nostell was obtained from Yorkshire sources via John Marsden. Later they also had a hand in stimulating inter-regional capital flows. The appointment of a Preston-based loan broker initiated a transfer of capital into Yorkshire from Lancashire, and while the first ironmasters to be established on the Appleby estate were all based in Yorkshire, they were followed in the mid-1860s by a Manchester company and in the 1870s by a Scottish firm.[9]

[9] Daff, 'The Establishment of Ironmaking at Scunthorpe', pp. 32-34.

The largest contribution made by the Winns to the economies of the West Riding and Lincolnshire was in their industrial activities and support of new infrastructure, a theme running throughout the Winns' story. They were longstanding investors in transport projects, from turnpikes and canals to the South Yorkshire Railway. Rowland understood the importance of railways and backed well thought-out schemes that were eventually approved and constructed. The two companies of which he was a director built lines that were – and remain – important links in the railway network, and stimulated development in the West Riding coalfield and iron industry, the Scunthorpe iron field, and the ports of Grimsby and Immingham. After deepening, Nostell Colliery employed over one thousand men in a predominantly agricultural area. An undeveloped heathland in Lincolnshire was transformed into an industrial centre. Urban development followed both the coal and iron. The Winns built housing at Wragby and Crofton in Yorkshire, and at Scunthorpe and Frodingham in Lincolnshire.[10] They paid the stipend of the clergyman and funded the restoration of Wragby church, and contributed largely to the cost of two churches, a town hall, and church institute in Lincolnshire.[11] They were key players in the economies of the eastern portion of the West Riding and northern Lincolnshire during the sixty years preceding the First World War, and also contributed extensively to aspects of the social, cultural and religious life of the regions.

In the course of enriching themselves, the Winn family left a mark in their home counties that in various forms survives to the present day. They displayed a high degree of flexibility and willingness to adjust to the realities of a competitive industrial environment. At the same time they retained key tenets of the landowner's cultural norms, particularly in relation to the ownership and succession of their property. The later Victorian landowning class's 'talent for survival' has rarely been better demonstrated than by the Winns' enthusiastic and successful seizure of the opportunities arising from possession of the land.

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[10] D. C. D. Pocock, 'The Urban Response', in M. E. Armstrong (ed.), *An Industrial Island: A History of Scunthorpe* (Scunthorpe, 1981), pp. 55-66; this ref. p. 57.

[11] National Trust, *Nostell Priory* , p. 60; M. E. Armstrong, 'The Creation of a New Community', in M. E. Armstrong (ed.), *An Industrial Island: A History of Scunthorpe* (Scunthorpe, 1981), pp. 84-110; this ref. pp. 86, 886.

Appendix 1: short biographies and Winn family tree

Belton, Thomas (1806-1886): longstanding estate employee at Nostell. By 1833 was employed as a gardener, and from 1850s to 1880s was house steward at Nostell Priory. Also sales/commercial manager for Nostell Colliery until early 1880s.

Dickson, J. B. (d. 1889): Preston, Lancs, lawyer who acted as loan agent for Rowland Winn from c1860 until his death.

Hay, William (d. 1896): Underground manager at Nostell Colliery in the 1870s, appointed colliery manager in February 1882. His son William became director and general manager of Newton, Chambers Ltd, and his grandson Sir Douglas Hay was the first Chief Mining Engineer for the National Coal Board.

Hewitt, ?: engineer for Nostell Colliery in the 1880s.

Holt, Henry: mineral agent for Nostell estate c1830-1850s. Also mineral agent for Lord Wharncliffe in the mid-1850s.

Marsden, John (1807-1886): Wakefield solicitor. Estate and loan agent at Nostell from c1845 to 1861. Part-owner and managing partner of Woolley Colliery; also Solicitor for the West Riding.

Roseby, John (d. 1882): Geologist and mining engineer trained in the Cleveland iron field. Appointed mineral agent to the Appleby estate in January 1860, and had advised Rowland Winn on the ironstone for at least the previous six months. Advised on the sinking of Nostell Colliery, and appointed colliery viewer in June 1868. Remained in these posts until dismissed in 1880, but continued to be the registered colliery manager at Nostell until his death.

Shaw, Johnson: appointed salesman at Nostell Colliery in 1879. Like Belton, Shaw was a very longstanding employee of the Winns. He became colliery agent at Nostell and was still working in this capacity in 1927.

Spencer, William (1831-1911): Leicester-based mining engineer who was appointed viewer at Nostell Colliery c1882-1883. Continued in this capacity until 1910, the work latterly being undertaken by his son. Founder member of the North of England Institution of Mining and Mechanical Engineers in the early 1850s, and president of the Chesterfield & Midland Counties Institution of Mining Engineers, 1894-95.

Winn (ex-Williamson), Charles (1795-1874): Younger brother of John Winn and owner of Nostell and Appleby estates from 1817. Father of Rowland (I) and Edmund.

Winn, Edmund (1830-c1908): Younger son of Charles Winn. General manager of Nostell Colliery 1866-1888. Assisted in running the Lincolnshire iron stone business from 1878. Treasurer of the West Riding Quarter Sessions, 1868-1889.

Winn, George ('Willie') (1863-1952): Fourth son of Rowland (I). General manager/director of Nostell Colliery 1888-1947.

Winn (ex-Williamson), John (d. 1817): Elder brother of Charles. Inherited the estates at Nostell and Appleby on the childless death of Sir Rowland Winn, Bart., in 1805.

Winn, Rowland (I) (1820-1893): Elder son of Charles Winn and inherited Nostell and Appleby estates on his death. Discovered Appleby ironstone 1858-1859. Conservative MP for North Lincolnshire 1868-1885. Government whip 1874-1880, and chief whip 1880-1885. Ennobled as Lord St Oswald 1885.

Winn, Rowland (II) (1857-1919): Eldest son of Rowland (I). Succeeded in 1893 as second Lord St Oswald and owner of the two estates.

Winn family tree

Sir Rowland Winn, 5th Baronet (d. 1785) = Sabine d'Hervart

One son (Rowland); one daughter (Esther)

Sir Rowland Winn, 6th Baronet (d. 1805 w/o issue) Esther Winn (d. 1803) = John Williamson

Two sons (John, Charles); one daughter; adopted by 6th Bart.

John (d. 1817) inherited the estates from 6th Bart.

Charles (d. 1874) inherited the estates from John. Charles = Priscilla Strickland

Two sons (Rowland I, Edmund); four daughters

Rowland I (1st Lord St Oswald) = Harriet Demaresque Edmund = Frances St George

Five sons (Rowland II, George + three); three daughters One son; one daughter

Appendix 2: Glossary of estates and collieries

Appleby estate: The Winns' Lincolnshire estate on which Rowland I lived before inheriting the entire Winn property from Charles. Ironstone was found on this estate in 1858 and it became the focal point of the North Lincolnshire iron and steel industry. c5,500 acres.

Carlton: Lord Wharncliffe's property near Barnsley. Edmund Winn put in a bid for the coal lease of Carlton estate in 1854-1856.

Nostell Colliery: The new colliery on the Nostell estate and the focus of this thesis, sunk 1864-1866. It opened in 1866 and its shafts initially reached the shallow Shafton coal. The colliery was deepened to the Beamshaw (aka Priory or Stanley Main) and Winter seams in 1884-1888. Closed in 1987.

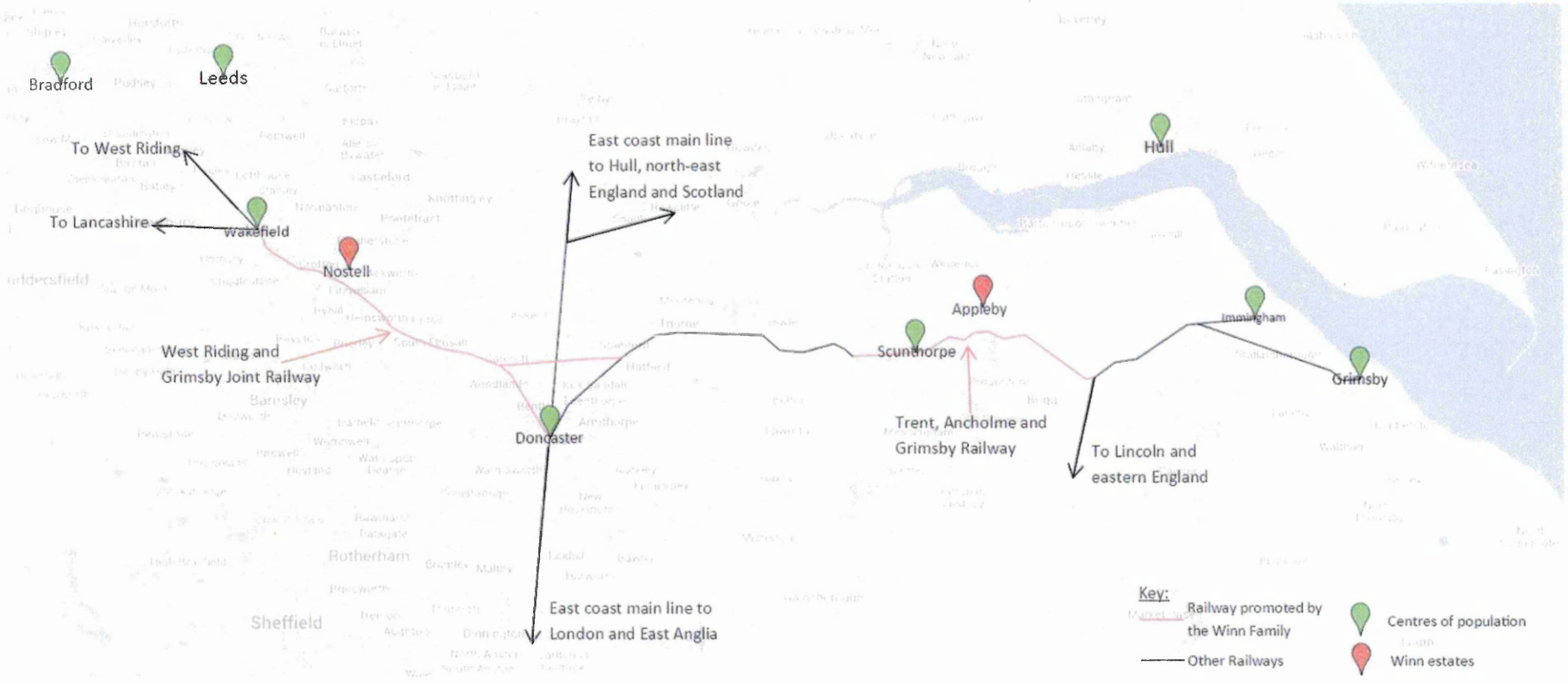
Nostell estate: The Winns' Yorkshire estate, on which **Nostell Priory** was located, the family's main home. c2,500 acres.

Thornton estate: An estate in Lincolnshire estate that the Winns sold in 1847.

Trent, Ancholme and Grimsby Railway (TA&GR): Railway promoted by Rowland Winn to connect the South Yorkshire Railway at Trent to the Manchester, Sheffield and Lincoln Railway at Barnetby. It crossed the Appleby estate and iron field, giving access for the ironstone to Grimsby and Immingham to the east, and the industrial Midlands and north to the west. Opened in 1866.

West Riding and Grimsby Joint Railway (WR&GJR): Railway promoted by a company chaired by Rowland Winn that connected Barnby, on the South Yorkshire Railway Doncaster to Goole line, to the existing Great Northern Railway main line at Wakefield. It included a south-facing connection to the GNR's east coast main line at Doncaster and a spur to the colliery at Nostell. It gave access from Nostell Colliery to the east coast, the Yorkshire/Lancashire industrial region, and eastern and south-eastern England. Opened in 1866.

Wragby Colliery: The successor to other small mines on the Yorkshire estate and immediate predecessor to Nostell Colliery. Sunk in the early 1830s to the Nostell seam, and closed in 1869.



Scale: 1” = c11 miles

Appendix 3: map showing the Winn estates, railways and population centres

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