

THE LOWER DERWENT VALLEY AND THE MAKING OF THE MODERN WORLD

Historians have long abandoned the idea of an Industrial Revolution rapidly changing the nature of British society during the last quarter of the 18th century. Instead attention has been given to the concept of a process which created the transition from a pre-modern to a modern economy; a transition which witnessed the emergence of new forms of industrial organisation, the decline in agricultural employment, a rising population, the growing importance of entrepreneurial innovation and the imposition of what one historian described as 'Time, Work-Discipline' in the realm of production. This complex process evolved in Britain between the 17th and the 19th centuries and the major changes took place in regions, particularly in Northern England. This focus is at odds with much of the 20th century school history syllabus with its emphasis upon inventors and their machines. Most of the technology employed in industry during the 19th century was not new: steam power had a very long history; water powered more factories in the 1860s than steam; and the textile machinery central to the expansion of the cotton industry in Lancashire had been used in France for a long period. The change that ushered-in the modern world was the creation of an industrial society.

Since the 1920s historians and economists have acknowledged the important role played by the lower Derwent Valley in the development of the modern industrial production. The Chicago University historian John Ulric Nef was the first modern scholar to study closely the early history of the coal industry of North East England since the 16th century and his research highlighted the expansion of coal mining in the Whickham and Winlaton area as the driving force in the rise of the British coal industry. The Derwent Valley was the Eldorado of the British coal trade. Six seams lay beneath the banks of the valley, the most prized being the High Main, four yards thick in parts, and the high quality of its 'rounds' coal commanded a premium in the London market. The collieries in the valley were highly productive and in the early 18th century the Gibside colliery alone provided 13% of Tyne shipments. Those fortunate enough to own land or be part of the Grand Alliance in the area grew extremely wealthy and their quest for more wealth led to the development of long waggonways up the valley to the rich workings of Pontop and Bucks Nook. It was claimed that the construction of the Western Way was the largest civil engineering project in Britain since the building of Hadrian's Wall. Nef also explored the relationship between the coal trade and the emergence of other local industries such as salt-making, chemicals and metal production and manufacture. His research concluded that the expanding North East coal started the transition from a biologically-based economy to a mineral one. Nef, drawing upon this prodigious development, further argued that the beginnings of Britain's industrialisation could be traced to developments on Tyneside as far back as the 16th and 17th centuries.

Nef's research created a debate amongst historians that has continued since the 1930s. He was soon followed into the Libraries of the Mining Institute and the Lit & Phil Society in Newcastle by the Harvard economist Paul Sweezy. The son of a Wall Street banker, Sweezy was intrigued by the impact of the 1929 Crash from which he discerned an innate tendency within capitalism to create monopolies and cartels. His *Monopoly and Competition in the English Coal Trade, 1550–1850*, argued that Derwent Valley coal owners including Bowes, Liddell, Clavering and Montagu, organised by William Coatsworth, established the notorious Newcastle Vend in order to fix the price of coal, particularly for the London market. This organisation was, according to Sweezy, the first cartel of the modern capitalist era.

Historians' interest in the area resumed after the war with Michael Flinn's research into the Crowley metal manufacturing business located in the lower valley. Flinn's work highlighted the creation in the early 18th century of what became the world's largest capitalist enterprise, employing as many as 1,500 workers. Crowleys prospered as the chief supplier of metal goods such as nails, chains and anchors to the Royal Navy during its period of rising global dominance. The company also reaped the benefits of an expanding mercantile fleet and demand for overseas plantation ironware ranging from hoes to slave chains. Published in 1962 to scholarly acclaim, Flinn's *Men of Iron*, wrote Barry Supple, the future President of the Economic History Society, was so good it was 'unlikely ever to be surpassed'. Flinn did more than provide an account of the first major capitalist enterprise, he also showed the role played by Crowley in establishing the City of London as an international financial centre. Of equal importance was his analysis of Crowley's industrial organisation, which transformed a study of early capitalist entrepreneurial innovation into a pioneering work of social history. Crowley employed no new techniques in the manufacturing process of his metal goods: the methods were the same as he had applied in the West Midlands during the late 17th century. What was different was his method of industrial organisation with its highly controlled workforce, rules and regulations and strict oversight of all aspects of the company's activities. His portrait of work and everyday life in the Crowley villages during the early 18th century outlined the first instance of an industrial working class that conforms to modern sociological criteria, three quarters of a century before similar social formations appeared in Lancashire, often cited as the birthplace of the Industrial Revolution. More recently the work of the local history societies connected to the Land of Oak & Iron has produced important insights into the detail of life in and around Crowley's works and has shed new light on the importance of Crowley's Mill number 1 at Winlaton Mill in the development of factory-based production as early as the 1690s.

Men of Iron established Flinn's reputation as a major historian and his appointment as President of the Economic History Society was popular. Flinn went on to do pioneering research into the burgeoning area of demographic history, particularly in Scotland. His Derwent Valley work prompted some members of the Cambridge Group for the History of Population and Social Structure, established in 1964, to give close attention to the area. The publication in 1991 of *The Making of Industrial Society, Whickham 1560-1765* by David Levine and Keith Wrightson is regarded as a landmark study in demographic and social history. Deploying the sophisticated demographic methodology of the Cambridge Group, combined with detailed economic and social analysis, Levine and Wrightson empirically anchored the earlier claims of Nef and Flinn that modern industrial society first emerged in the Lower Derwent Valley. Their analysis of coal mining and iron manufacturing highlights the proletarian nature of local society where the vast majority of the population were employed in capitalist enterprises and were almost totally dependent upon wage labour for survival. They, along with Flinn, connect the socio-economic development of the valley with nascent political radicalism and demands for social reform, features of an emerging industrial society with recognisably modern political aspirations.

It is almost a century since John Nef began his research in the Mining Institute library in Newcastle. He and subsequent generations of historians were motivated to uncover the mechanisms that facilitated the emergence of early capitalism. Some saw this analysis as having a possible wider application in establishing a pattern for other societies to follow. Today our interests go beyond discovering the key to economic development. Ironically it can be plausibly argued that the origins of humanity's greatest challenge, climate change, can be traced back to the world studied by Nef and his followers. Carboniferous capitalism emerged in the Lower Derwent Valley in the early 18th century and the application of coal energy to a host of industrial processes unleashed the genie of fossil fuel pollution and its dangerous consequences. Coal begat the salt, chemical, glass, metal, engineering, electrical and shipbuilding industries that were first centred on Tyneside.

Much of this proliferation of innovation can be traced back to the remarkable academy of John Craiggy at nearby Crawcrook, established and supported by Sir Henry Liddell and John Simpson, two prominent local coal owners. Liddell, later Lord Ravensworth (whose granddaughter Alice's underground adventures were described by Lewis Carroll) owned mines in various parts of the coalfield including Wylam and Killingworth as well as in the valley, encouraged the bright sons of his workers to attend Craiggy's. Winning coal and moving it were the two main activities that confronted coal owners. William Coulson, the son of Liddell's blacksmith, developed the iron tubing method of shaft-sinking which initiated deep mining in the Durham coalfield with the opening of Hetton colliery in 1821. Coulson soon broke the one thousand feet deep barrier, piercing through the limestone strata of East Durham, resulting in an unprecedented expansion of the Northern Coalfield. Coulson subsequently opened up the Ruhr coalfield in Germany and his sinking technique was used to win previously unreachable reserves throughout the world. Coulson's close friend Nicholas Wood applied the skills acquired at Craiggy's to his work alongside George Stephenson in developing mining lamps, steam locomotives and all aspects of the industry. George entrusted Wood with Robert Stephenson as his apprentice. The mining engineer George Elliot worked with Robert Stephenson surveying the East Coast main line; and with Coulson and Wood in the pioneering of deep mining; while his numerous other business activities included the manufacture and laying of the Transatlantic telegraph cable, a development of his steel wire manufacturing interests.

This force field of innovation created by local mining engineering gave rise to the first electrical grid system, coal fired power stations and Charles Parsons turbines; the last being the underlying technology of modern jet propulsion. The establishment of the North of England Institute of Mining Engineers in 1852 brought together Craiggy's former pupils and other skilled technicians in the world's first professional society for mining engineers. Members' skills were in high demand both nationally and abroad and it was men from Neville Hall who opened up or modernised many of the world's coalfields. By 1911 45% of the Institute's membership of over 2,300 were working abroad. By 1914 the Northern Coalfield remained important but was overshadowed by the rapid expansion of mining elsewhere. By the 1930s coal was in retreat replaced by oil, a more efficient but still dirty fossil fuel. The region embarked upon a new path which economists would later call De-Industrialisation. The lower Derwent Valley today is a much-loved Country Park and the traces of industrial activity are reminders of a distant and different reality. The building and laying out of the admired Gibside estate in the 18th century could be seen as an early exercise in industrial reclamation: a close reading of Nef and his followers reveals a former hive of mining activity, the sites of which were transformed into the Georgian Hall, Orangery, Chapel, Column to Liberty and Avenue of oaks. Greening the areas of despoliation created by carboniferous capitalism is relatively easy, but the genie unleashed three centuries ago remains.

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Guide to further reading:

Joyce Ellis, *The poisoning of William Coatsworth, 1725* History Today, 28, 1978

Joyce Ellis, 'The Black Indies', Economic Development of Newcastle, c1700 -1840' in *Newcastle upon Tyne, a Modern History*, Robert Colls and Bill Lancaster; editors, Phillimore, 2001

Michael Flinn, *Men of Iron*, Edinburgh University Press, 1962, reprinted Land of Oak & Iron, 2019

Michael Flinn, *The History of the British Coal Industry, 2, 1700-1830*, Oxford University Press, 1984

Barbara Freese, *Coal: a Human History*, Random House, 2003

Edward Hughes, *North Country Life in the Eighteenth Century*, Durham University Publications, 1952

David Levine and Keith Wrightson, *The making of Industrial Society, Whickham 1560-1765*, Oxford University Press, 1991

John Ulric Nef, *The Rise of the British Coal Industry*, 2 volumes, George Routledge, 1932, reprinted Frank Cass, 1966

Paul Sweezy, *Monopoly and Competition in the English Coal Trade 1550-1850*, Harvard University Press, 1938

For Local History Societies and organisations and their work see:

<https://www.gateshead.gov.uk/article/2988/Local-History>

<http://www.landof oakandironlocalhistoryportal.org.uk/index.asp?pageid=668621>