Chapter 8

Dam Builders

> "A chapter devoted to the … labourer may be regarded as intrusive by some, and as gossipy by others: by a third class it may be considered repulsive. But the 'navigator' is necessary to the rail."
> (Francis 1851)

8.1 Introduction

In this chapter, I shall concentrate on a very different scale of study than for previous periods, focusing on only a 45-year period and mostly interpreting a significant change to the Upper Derwent landscape caused by a single issue – the creation of three large reservoirs. The following discussion integrates survey I have carried out or directed along with the historical work of a single researcher, Brian Robinson, who has studied the construction of the dams and the Tin Town navvy settlement from surviving photographs and documents held today by Severn Trent Water. One of the more rewarding aspects of fieldwork in the Upper Derwent has been the many discussions we have had.

By the beginning of the 20th century the Upper Derwent had become a more regularised landscape in the sense that landowners were making more centralised decisions about its management and, therefore, its appearance. Land management was expected to follow more formulaic lines set out as prescriptions for agricultural regimes, patterns of heather burning and moorland management for grouse shooting. This control over production was an expression of estate identity, as was the imposition of standard architectural forms on farm and other buildings. The land-use of the area was mainly agricultural production and grouse shooting with some woodland plantation, though the importance of the latter had, perhaps, declined since the late 18th century zenith of charcoal production. Production and recreational shooting were largely oriented in relation to factors outside the Upper Derwent – the need for food in cities and the desire of the landed gentry to affirm their social status through effective estate management, including entertaining themselves and guests by shooting grouse.

In the 20th century three major national trends would come to have an important bearing on the Upper Derwent that would radically change the use and perceptions of its landscape. The first of these was the growing demand of cities for clean and plentiful water, which resulted in the creation of the reservoirs in a series of works between 1901 and 1945. As cities had expanded, the need for the large-scale supply of water dramatically increased, and town planners in northern England looked to the valleys of the Pennines and other uplands as potential reservoirs. The creation of reservoirs in the Pennines involved a very different way of perceiving the upland, rural, landscape, that of the engineer looking to maximise water supply through the most effective, efficient and rational utilisation of geology and topography. This was the ultimate expression of the inter-linked trends of improvement and urbanisation, of the urban perception of countryside as resource supplier, which had affected the Upper Derwent landscape from at least the 18th century onwards. The reservoirs also caused a fundamental shift in the social landscape. The flooding of the valleys necessitated the removal of much of the existing dispersed farming population and associated patterns of land-use, while leaving the grouse moors relatively undisturbed. Existing ways of inhabiting the landscape were, therefore, greatly disrupted and largely replaced. For a temporary period, a new society was implanted into the area comprising navvies labouring on the dams – the first time a settlement of village size was occupied in the Upper Derwent. By the time the reservoirs were finished, the landscape was transformed with large dam structures and huge bodies of water replacing farmland in the valley.

The other two trends were recreation and conservation, both of which were also the result of urbanisation and the proximity of cities in northern England to the uplands. Rambling and the conservationist ethos had both begun in the 19th century and gained momentum during the period of the reservoirs' construction. I shall deal with the impact of the reservoirs in this chapter and discuss the latter two in the following chapter.

8.2 Derwent and Howden Reservoirs

8.2.1 Flooding the Dark Peak for the Cities

Reservoirs began to be created in the Peak District in 1830, when the neighbouring cities began to look towards the high rainfall and water-holding valleys of the Pennines in order to satisfy the increasing demand for water (H. Harris 1971). Reservoirs were constructed by application to Parliament to pass an Act giving permission to impound

watercourses and outlining the extent of the schemes. Much like the Parliamentary Enclosures and Turnpike Trusts, it was local institutions who made the decisions that affected the landscape by working with the national government in a broad framework conceived at the level of state.

In 1830, the Sheffield Water Company was formed by Act of Parliament and began the first of many reservoirs in the valleys to the west of the city with the construction of Redmires Middle dam, completed in 1836 (Hey 1998). This was followed by two more reservoirs at Redmires, two at Rivelin, and four in the Loxley Valley, all between 1845 and 1871, and located to the east of the Upper Derwent. This included the first Dale Dike dam which burst during filling in 1864 with catastrophic effect for the valley and Hillsborough. In 1887 the company was subsumed into the Sheffield Corporation, who dammed the Little Don Valley in partnership with Doncaster and Rotherham between 1897 and 1907 (Harris, H. 1971). Manchester Corporation Waterworks flooded Longdendale, to the north of the Upper Derwent, below a chain of five reservoirs between 1848 and 1877. This resulted in the abandonment of three hamlets, Torside, Vale House and Bottoms, numerous farmsteads and four mills (ibid). Huddersfield built dams in the Holme Valley and on Wessenden Moor between 1840 and 1906, Stockport constructed Kinder Reservoir in 1912 and flooded the Goyt Valley between 1937 and 1967, a consortium of Yorkshire districts built ten dams in the north-east of the High Peak between 1858 and 1924, and Macclesfield and District Water Board created two reservoirs in the west of the Peak District (ibid). It can be seen that the Upper Derwent reservoirs were part of a long sequence of dam building by cities and other urban areas surrounding the High Peak, stretching for over 135 years between 1830 and the 1960s.

8.2.2 The Dams: Walls Across the Valley

The impounding of reservoirs behind three dams was the result of a lengthy process of negotiation and consultation during the late 19th century (Illustration 8.1. Photograph 1.1). The Upper Derwent and Ashop valleys had attracted the interest of the burgeoning industrial cities of Derby, Leicester, Nottingham and Sheffield, because of their narrowness and high rainfall (Robinson 1993). However, each city had drawn up separate plans for damming the River Derwent, which were compounded by declarations of interest in a share of the water by the county authorities of Derbyshire, Leicestershire and Nottinghamshire. After competing bills were presented to Parliament by Derby,

Leicester and Sheffield, a Parliamentary Committee decreed that only a joint bill incorporating claims of the three cities plus Nottingham and Derbyshire would be acceptable. Hence in 1899, the Derwent Valley Water Bill was laid before the House and became an Act in August the same year, so creating the Derwent Valley Water Board

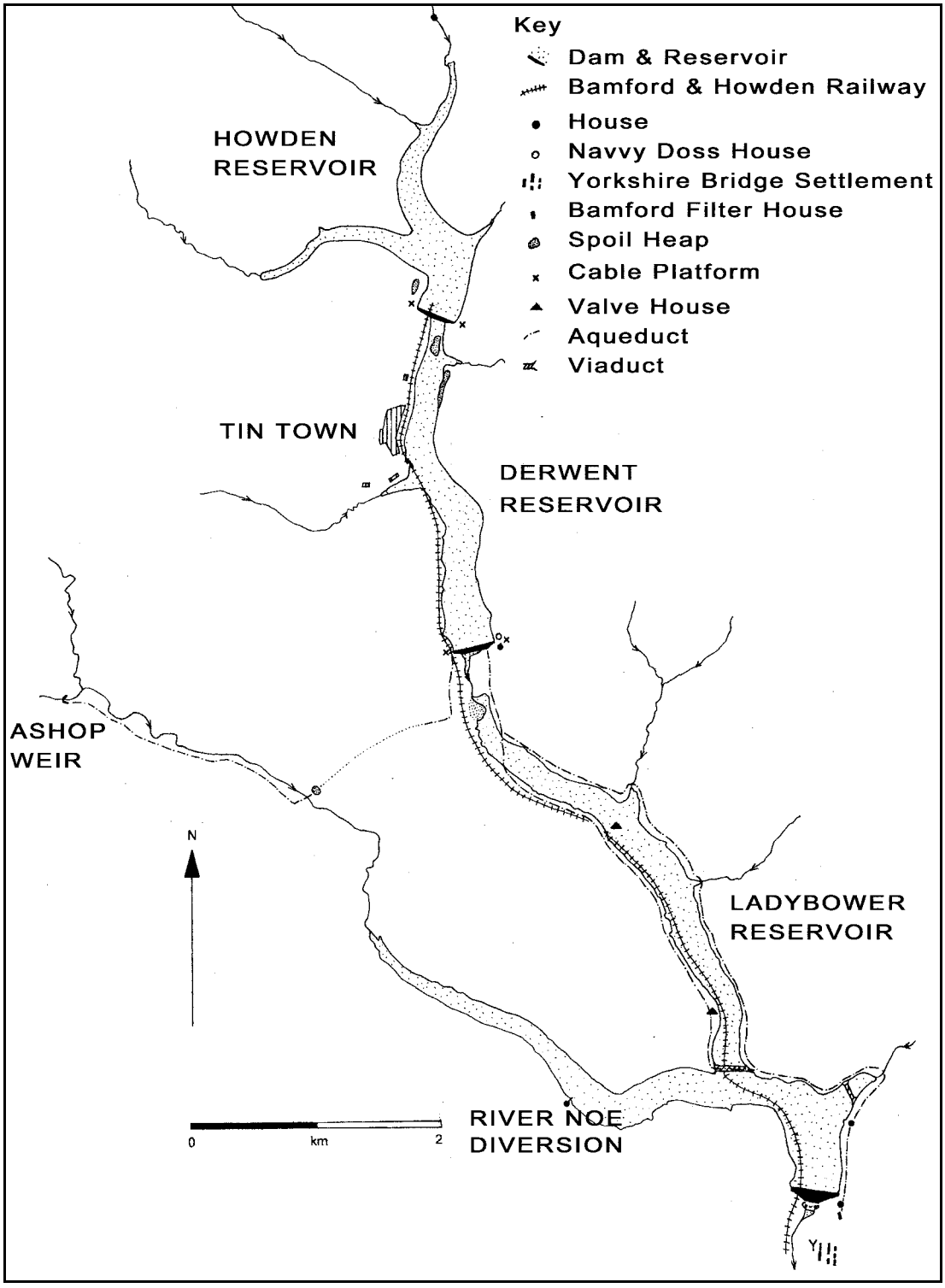


Illustration 8.1. Dams and associated features in the Upper Derwent

(DVWB). At this time, the Act represented the largest attempt in Britain to provide a combined water supply (Robinson 1993). The proposals included in the Act called for six dams, a plan cobbled-together from the original three bills. It was soon apparent that these could be improved upon and new Derwent Valley Water Acts were passed in 1901 and 1904, which allowed for the phased construction of six dams beginning with three at Derwent, Howden and Ronksley to be followed by three others at Hagglee, Ashopton and Bamford.

Photograph 8.1. Derwent dam, looking north-west

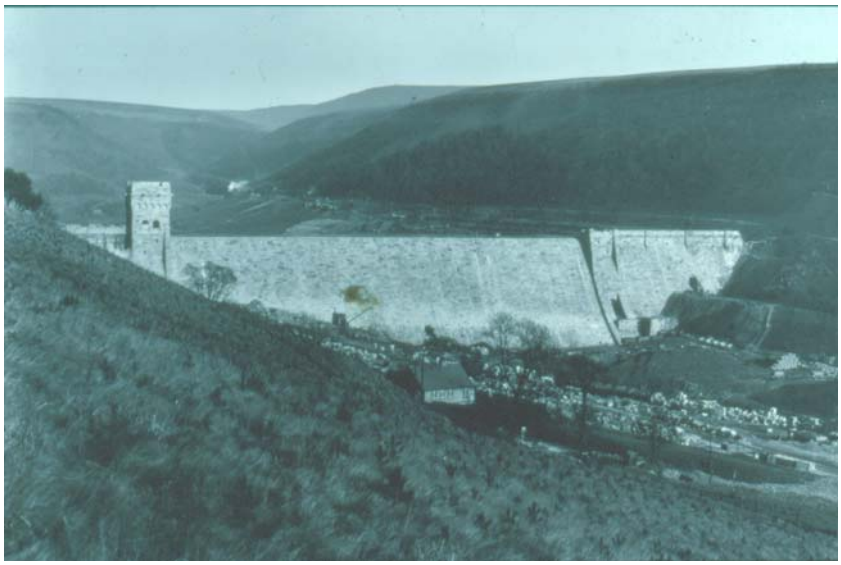
The chief engineer employed on the project was Edward Sandeman, who had experience of building masonry dams elsewhere in England. When Sandeman took up his

appointment, the original 1901 proposal for three dams would have flooded 6.2km of the Derwent Valley between Lockerbrook and Broadhead Clough with the lowest, Derwent Dam, rising to a height of 27m. It was estimated that these three reservoirs would provide 590,980 hectolitres of water per day (Robinson 1993). Sandeman considered the geology and topography and altered the plans to impound the same volume of water behind only two dams, covering 4.5km of valley bottom, and with Derwent Dam raised to 34m. The proposed Ronksley dam was omitted and construction of Howden and Derwent dams began in July 1901 and February 1902.

Photograph 8.2. Howden dam, looking north. PDNPA Collection

The two dams are similarly constructed of masonry, comprising huge Millstone Grit blocks, rather than the more common earth construction (Photographs 8.1, 8.2, 8.3). Undressed blocks were set in concrete without touching each other to create the cores of the dams. Roughly squared uncoursed stones were used for both the downstream and upstream faces below ground level, and dressed coursed stone used for the faces above ground. The upstream faces are vertical, while the downstream ones slope with a slight concave curve. Two towers were incorporated into the construction, rising above the tops of the dams. They are finished with 'Victorian Gothic' architectural embellishments including crenellations, arched windows and buttresses. Pipes in both towers allow emptying of the reservoirs, and sluices situated in the east tower of Derwent dam lead to

aqueducts which supply water to filters at Bamford and Yorkshire Bridge, and the Rivelin Tunnel. Yorkshire Bridge Filter House was built between the late 1920s and early 1930s. The west tower of Derwent dam also contains a plumb line of fine steel wire to measure movement of the structure. Cableways suspended from cable towers erected on platforms on both valley sides were used in the construction of both dams. At maximum capacity the levels of both reservoirs are regulated by allowing water to spill over the tops of the dams between the towers.



Photograph 8.3. Howden dam during construction between 1901 and 1915. PDNPA Collection

During construction work, geological flaws were discovered in the underlying bedrock that would have allowed water to seep under and around the dams. This was overcome by the excavation of deep, narrow trenches into the rock below and to the sides of each dam until solid watertight rock was reached. These trenches were filled with stone and concrete and reached a depth of approximately 35m below the original ground surface.

Ladybower Gorge had originally been targeted as the stone source but public protests forced this plan to be abandoned by the DVWB and a site at Bole Hill, Grindleford, was bought instead necessitating the construction of a railway to transport stone into the valley (see section 8.2.4).

Stone-laying ceremonies were carried out at both dams on the 21st June 1907. Large Millstone Grit record stones were placed over the doorways of the dams' west towers bearing identical inscriptions except for the name of the reservoir:

Glory To God In The Highest
IN THE YEARS OF OUR LORD
1902-
THIS DERWENT RESERVOIR
was built by the
DERWENT VALLEY WATER BOARD
for the use of the people of
DERBY LEICESTER NOTTINGHAM SHEFFIELD
and DERBYSHIRE

Both stones were laid with a certain formality by Thomas Gainsford, then chairman of the DVWB, and blessed by a clergyman in front of officials, invited guests, workmen and their families. Howden dam was officially opened on the 5th September 1912 with great ceremony by Edward Fraser, the new chairman of the DVWB, after King George V had declined the invitation to do this. Over 2,000 people were present including officials, invited guests, workmen and families. The date 1912 was later added to the record stone and the bringing into operation of the reservoir was formally entered into the DVWB's committee minutes. In contrast, the opening of Derwent dam was undertaken without any of the above ceremony, was not minuted, and the record stone did not have the year 1916 added. It has been suggested this lack of formality may have been because of the First World War, the relief at overcoming engineering problems, rather than their celebration of completion and the removal of the railway line the year before (Robinson 1993).

8.2.3 Aqueducts

The lines of the aqueducts constructed to convey water from the two reservoirs can be seen as large, linear terraces marked by stone valve houses and black or green metal domes which cover air valves in the apexes in the sections of the pipelines (Illustration 8.1). An aqueduct exited the east tower of Derwent dam and divided into two courses south of Jubilee Cottages, one running down the east side of the valley and the other crossing the River Derwent near to the site of Derwent Hall to run down the west side of the valley as far as Ashopton where it crossed back to the east side of the valley and rejoined the other pipe. Two stone valve houses were situated along the eastern pipeline, one of which is now flooded below Ladybower reservoir. From here the aqueduct continued south via the mouth of Ladybower Gorge to connect with the Rivelin tunnel and Bamford filters. Rivelin tunnel was built by Sheffield Corporation to carry water to

its Rivelin Valley reservoirs (Robinson 1993). During the construction of Ladybower dam the aqueduct running down the east side of Derwent Valley was diverted via a raised pipeline and the routes of pipes near Ashopton and Ladybower gorge were re-routed via the new viaducts.

8.2.4 Bamford to Howden Railway

Both the Derwent and Howden Reservoirs were served by a railway which ran from the quarry at Bole Hill, Grindleford, up the west side of the Derwent Valley to just north of Howden dam (Robinson 1993. Illustration 8.1). It was owned and constructed by the Derwent Valley Water Board, part running alongside the existing railway line from Sheffield to Manchester. The railway was primarily used to transport the stone, all other materials and the labour force from Tin Town, where a platform was built, and from outside the valley to the construction sites at Derwent and Howden dams. The line was further used to transport dignitaries and guests to the ceremonies marking the laying of the record stones at both dams in 1907 and the opening of Howden dam in 1912.

Photograph 8.4. Bridge supports for the Bamford and Howden Railway

The railway was dismantled in 1915 and its bed between Derwent dam and Gores Farm was later used as the line of the current reservoir-side road (Robinson 1993). The section between Bamford and Ashopton was retained with the view to its reuse during construction of the dams planned to increase the catchment. The line of the railway track survives as a series of lynchets, embankments and revetments and as sets of stone, concrete or wooden piers that supported wooden bridges used to carry the railway over

watercourses and trackways. The remains of the stone and timber piers of the Ouzleden railway viaduct form a particularly prominent landscape feature during low water levels in Derwent reservoir. A loading platform, adjacent to the line of the railway, also survives to the south-west of Derwent dam.

8.2.5 A New Way of Looking

This is a very different way of perceiving the landscape to that of any previous generations who had loved or worked in the Upper Derwent. The DVWB and their engineers did not perceive the landscape from the experiential viewpoint of living and working the land, nor did they take an overview of varying land-use within an estate. Instead, the engineers took a much broader and more simplified view of land-use, seeing the landscape as a huge water-collecting 'bowl' with a surrounding catchment area. The size of resource planning and acquisition was on a much grander scale. In a sense, this was an extreme development of the rational approach taken by improving landowners and earlier land surveyors. Where surveyors had mapped individual features and described land-use on a field-by-field scale, the engineers extended this distant prospect to one that assessed wide swathes of topography and depths of geological strata for their capacity to retain huge volumes of water. The detail of fields, farmsteads, boundaries and trackways was subsumed within this view to the point of near irrelevance. The only decisions to be taken about farmsteads were, which should be demolished and which kept for Board employee accommodation. Farmsteads were seen as posing a pollution threat to the water supply, so most of those around the reservoirs, as well as those to be submerged, were demolished.

8.3 Birchinlee: 'Tin Town' and the History of Navvy Settlements

8.3.1 Navvies in the Nineteenth Century

In this section I shall briefly outline the 19th century history of the navvy workforce and their accommodation to provide a context for Tin Town. This is not designed to be a comprehensive study of British navvies and their culture, for such see Coleman 1965 or Handley 1970, but aims to identify general trends and to highlight some of the most significant developments that resulted in the deliberate and planned creation of the navvy village in the Upper Derwent.

8.3.1.1 The Tramp of the Navigator

The skilled and unskilled workforce employed to create Derwent and Howden reservoirs were itinerant navvies, so named after the navigators who built the canals during the 18th and early 19th centuries. Large numbers of navvies moved around the country working on such large engineering projects as canals, railways and dams. By the mid-19th century, they had developed a distinctive cultural identity, actively employing particular forms of language, dress, and social and working codes (Coleman 1965; Morris 1994). Such identity was formed and reinforced by the close proximity in which they lived together, along with a corresponding social distance between navvies and contemporary mainstream society. They tended to live in close-knit groups in remote areas, and moved through the country from one construction job to another, settling in temporary settlements with little time to mix with surrounding permanent communities. Navvy society was therefore a nationally widespread culture that coalesced into distinct locally based on-site temporary communities. Navvies were often treated with suspicion by local permanent communities, because of their socially peripheral conditions, 'strange' behaviour and unusual accents, sometimes being compared to gypsies who were similarly mistrusted (Coleman 1965). General opinion characterised them as being violent, drunken and immoral, spiritually destitute, revolutionary and that they formed gangs to terrorise local communities (Coleman 1965). This characterisation was often conflated with contemporary nationalist perceptions of the Irish, to such an extent that the DVWB train service was derogatorily nicknamed the 'Paddy Mail', even though the majority of the workforce was English and Welsh. The majority of contractors who employed navvies treated them as an expendable commodity, often keeping no record of industrial injuries or deaths, and providing little or no basic services. As the contemporary account of mid-19th century railways included at the beginning of this chapter stated, navvies were necessary to the completion of large engineering projects, despite the perception of them as dangerous, immoral and even repulsive.

8.3.1.2 Unplanned Navvy Accommodation

When large numbers of people were brought together in any area, they needed to be accommodated. Navvy accommodation had often been provided on canal construction sites in the late-18th century in the form of communal barracks (for example see Hughes 1989). By the mid-19th century, most contractors left accommodation provision to market forces and overall working/living conditions were generally deplorable. In

densely settled locations accommodation was mainly in lodgings and inns. However, in remote areas this was not possible or a limited option.

Accommodation, provisions and medical care either had to be acquired by the navvies themselves or from the contractors, sub-contractors, local entrepreneurs or gang foremen at a price (Coleman 1965; Handley 1970). On some projects, living conditions were so atrocious that epidemics of diseases such as cholera and diarrhoea were commonplace (Morris 1994). Navvies were restricted to building their own sod huts or makeshift shelters, bedding down in barns, or paying for what accommodation was provided by the contractors. Clean water and sewage systems were either absent or supplied in amounts inadequate for the numbers, and such services as accident hospitals, recreation rooms and schools were non-existent. Settlements of the time were largely unstructured groupings of simple turf, wood or stone-built huts, without any internal plastering or lining and with only a single wood-burning stove for heating and cooking. Huts were packed tightly with bunk beds, each occupied by more than one individual, either at the same time or alternating when there were different shifts. On the construction of the Caledonian Canal in the mid-19th century, 30 men were lodged in a house intended for the lockkeeper (Handley 1970). It was common for foremen also to be the hutkeepers in contractor-provided accommodation. This often meant that the navvies had to build their own huts then pay to sleep in them. Provisions had to be bought from contractors, with stores using tokens issued in lieu of wages – a system known as truck. A series of 19th century laws had abolished this system in factories, albeit unsuccessfully, but they did not cover public works until one of the more respectable contractors supported the 1854 Payment of Wages Bill after he had become an MP (Coleman 1965). At the truck store, the navvy was then often sold food that was off, beer that was watered, given short-measures, and would then have a commission deducted from the value of his ticket for the privilege. Contractors often made more profits from their provision stores, or from the 'bowels of their navvies' as one contemporary commentator noted (Chadwick and Roberton 1846), than from the contractual work itself. The foremen and truck shopkeepers would often cooperate to make as much money from the navvies as they could through the truck system. Navvies could, therefore, be heavily exploited, being in no position to complain when their job, accommodation and food relied on the foreman's word (Judge 1987; Morton 1997). Contractors sometimes obtained contracts at low tenders knowing they would need to

make their profits from providing accommodation and truck stores to their navvies (Coleman 1965). They viewed the navvy as an expendable element of their commercial operation.

The mid-19th century was also the period when navvy culture was at its strongest with specific cultural identity to the fore, the greatest separation from mainstream society and a common rejection of the family as an organising unit of society. Navvies often lived together in communal accommodation, families sharing with single men. Unmarried relationships and prostitution were common, with a number of men sharing a single woman (Coleman 1965). Most navvies walked from one construction site to another, known as the 'tramp', and on their arrival without money, navvies who were already working would make a collection to help them until they got work at the site, or for the journey to the next site.

8.3.1.3 Woodhead and Hawick

Two noticeable examples of mid-19th century navvy settlements are the construction sites for the two Woodhead railway tunnels, built between 1839 and 1862 on the Manchester, Sheffield and Lincolnshire Railway, and the Hawick line of the North British Railway, also known as the 'Waverley Route', built during the 1840s. These were significant projects in relation to, the much later, development of Tin Town because they were used as the main examples of poor conditions by a Parliamentary Select Committee, whose report in 1846 recommended that construction contractors should provide appropriate accommodation for their workforces (Select Committee 1846).

The Woodhead tunnels ran through the Pennines, approximately 2.5km north of the Upper Derwent, to connect the steel mills and coal fields of the east with the cotton mills of the west. At the start of construction on Woodhead the contractors provided only 40 purpose-built shacks for a workforce of over 1,000 men. Many navvies had to build their own makeshift sod huts on the moors. These were congregated in irregular groups around the airshafts and tunnel entrances that were the access points to the construction sites. At Wike airshaft, the surviving foundations of contractor-built huts were closest to the shaft with a dispersed randomly placed scatter of huts built by navvies themselves further away (Morris 1994. Illustration 8.2). Huts were located in relation to shelter and dry ground with no formal alignment on each other. The layout of a two-room hut is

well-preserved and measures 45m^2 in size and was occupied by up to 15 navvies plus women and children (Chadwick and Roberton 1846; Morris 1994). Provisions and beer were provided through the token-based truck system at rates 20 to 50% above Manchester prices, and clean water was so scarce that dirty water was often drunk, causing epidemics of diarrhoea, while the damp working and living conditions also led to widespread bronchial problems. The navvies had to seek their own medical attention from a surgeon living over 12km away, whom they employed through a weekly subscription administered by the contractors (Coleman 1965). While wages on the Woodhead tunnel were relatively good for labourers of the time, most navvies were left with little once the contractors had made deductions for truck tokens, beer tickets and medical contributions. The lack of concern for the navvies' safety is highlighted by the number of industrial injuries sustained, with over 30 deaths, nearly 250 major injuries and 400 minor injuries. A social commentator of the time compared this toll to that of a severe battle (ibid).

During the same period, conditions on the construction of the Hawick railway line were equally as bad, if not worse (Handley 1970). Single-room windowless huts excavated into sloping hillsides and constructed of wood and turf were hired out to hutkeepers by the contractor at the rate of 1s 6d per week. The contractor provided building materials, but the hutkeeper had to organise construction by the navvies themselves. The hutkeeper then charged a rent per head, 1s 6d per week for a single navvy and 2s for a navvy with family, his profits being dependent on the numbers of individuals he could fit into the hut. Each comprised only 31.5m^2 and housed 20 to 30 navvies, plus hut keeper, female skivvies and prostitutes (Select Committee 1846). At least two individuals had to share each bunk and each hut had a single fire for both cooking and drying clothes (Handley 1970).

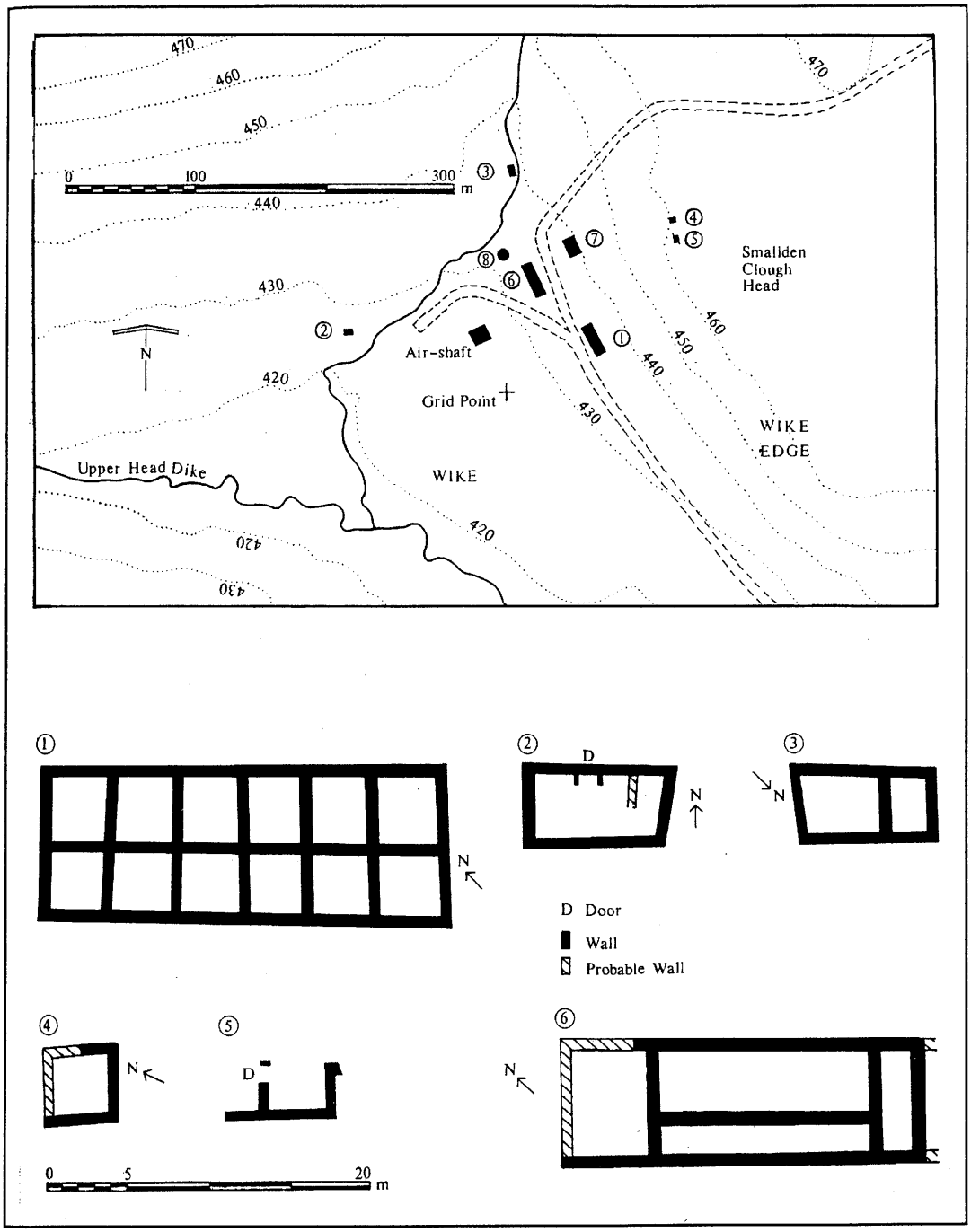


Illustration 8.2. Navvy settlement at Wike airshaft on the line of the Woodhead Tunnel. From Morris 1994

8.3.2 Origins and Structure of Planned Navvy Settlements

Social reformers campaigned for better living and social conditions for navvies, partly on welfare grounds, partly on the perceived need to improve their morals and to re-educate them into accepted social structures. In 1846, a Parliamentary Select Committee published a report recommending that satisfactory accommodation should be provided by project contractors (ibid). The Select Committee had been formed largely as a result of publicity arising from the conditions on the construction of the first Woodhead

Tunnel and sought witnesses from projects throughout the country, with both Woodhead and the North British Hawick line figuring prominently. The aim of the Committee was to look into the employment of navvies, and to recommend the means to improve their social and moral conditions to prevent depravity, immorality and violence, and to incorporate navvies into civilised culture. It recommended that the truck system be halted, wages should be paid weekly in money, proper accommodation and services for the sick and injured should be provided, special constables should be enlisted to prevent rioting, and that companies should be made liable for deaths and injuries, unless they could prove it was the fault of the workman (ibid). The report was received without debate, and virtually no enforcement of its recommendations was legislated for another 40 years.

It was not until centralisation and collectivism became more dominant over entrepreneurial and market force ideals in the 1860s that widespread improvements were made (Morris 1994; Perkin 1969). Social attitudes towards industrial production changed as the wider impact of the industrial revolution was felt. The rapid rise of industrialisation that occurred through the 19th century, changed Britain from a predominantly rural to an urban society. The houses built to accommodate the growing urban working class were constructed to be cheap, quick to build and to fit large numbers of people into small spaces. Over time this created cramped, dilapidated and labyrinthine slums districts – places that were perceived as chaotic, disease-ridden and dangerous, difficult for police surveillance and breeding grounds for immorality (Ward, D. 1976). Slum housing in early 19th century Manchester and Sheffield was perceived to encourage unruly behaviour because employers could not come into regular contact with their workforce to control domestic life and moral habits (Dennis 1984). The organisation of the Sheffield metalworking workforce into independent 'Little Mesters' rather than centralised factories, was seen as leading to a lack of appreciation of 'the value of time, or the effects of its misapplication' (Dr Holland 1839, quoted in Daniels and Seymour 1990, 510).

From the mid-19th century onwards there were a number of public and private schemes to improve poorer urban districts (ibid). Existing urban areas were redesigned and new expansions laid out with wide streets, public parks and more orderly housing estates. They were planned to fulfil certain ideals of how a settlement should function, applying rational thought to improve the living conditions of the occupants with the aim of

producing 'better' citizens who could contribute more fully to society at large. Wider and regular street layouts enabled easier access to houses for the police and were equated with giving greater discipline and control over the working classes (Driver 1988). This was very much the extension of rational, improving ideals – seen previously in model farms, factories, workhouses and prisons – into the wider urban landscape. Model farms developed during the 18th century when new farms were built within newly created enclosure fields. They were laid out to improve the efficiency of many farming practices during a period when the ideology of economic improvement was strong. Likewise, late 18th/early 19th century factories, workhouses and prisons were built to orderly designs that represented discipline and enabled surveillance of inmates and workers by those in authority (Daniels and Seymour 1990).

During the second half of the 19th century this rationalising, improving ideal became most comprehensively expressed in the building of model villages and towns that used accommodation and services, architecture and layout as a form of social engineering, where the right social conditions would breed the right social and working attitudes to provide the perceived right environments for nurturing content, morally correct, economically productive and healthy citizens. Some were the 'garden cities' such as Welwyn Garden City built by Ebenezer Howard. Others were built by enlightened industrialists who felt there was a need to create better living conditions so that their workforces would be more content, morally correct, healthy and therefore more efficient. The most famous industrialist model settlements include Saltaire, Bradford, begun in 1853 by Titus Salt, Bournville near Birmingham started by the Cadbury brothers in 1879 (growing most rapidly at the same time Tin Town was occupied, between 1900 and 1914) and Port Sunlight near Liverpool, begun by William Lever in 1888 (Cadbury 1996; George 1909; Pevsner 1959; Pevsner and Hubbard 1971; Pevsner and Wedgwood 1966; Port Sunlight 1999; Reynolds 1983; Saltaire 1999).

At each, business-driven motives were mixed with social responsibility. For example, Lever built Port Sunlight to reduce port costs and avoid renting factories as well as to provide suitable accommodation for his workforce. The squalor of the slums in which most workers lived appalled these industrialists and their guiding philosophy was that all men had a right to live in decent conditions, and if they did so could improve themselves. This echoed Dicken's social writings on the exploitative problems of the industrial

working classes and Ruskin's views on how personal improvement could be engendered by creating the right conditions through architecture (Dickens 1854; Ruskin 1849, 1851-53).

The lack of cohesion seen in other working-class urban communities was overcome by providing extensive facilities for the cultural, sporting and domestic needs of the villagers. At Bournville and Port Sunlight accommodation comprised cottage-style houses set in landscaped surroundings that emphasised space and naturalistic beauty. Saltaire was a more utilitarian, urban-looking, settlement of standardised housing laid out on a regular plan (Reynolds 1983). Grand public buildings stressed both the idea of community and the importance of the benevolent industrialist himself. Shops, canteens, schools, libraries, places of worship, children's playgrounds, allotments, village halls and parks were provided for workers so that they would have the resources to improve themselves. Saltaire was dominated by imposing, and architecturally decorative, civic buildings – a chapel, educational institute and a library – had a public baths and was centred around the mill overseer's house that was topped by a glass 'observation' tower (ibid). In return, the likes of Lever, Salt and Cadbury expected their employees to live their lives along specific lines – to follow a life of sobriety and thrift, have a desire for self-improvement and to become more effective workers. These were the 'improving' ideals of working-class accommodation design that were brought to the model navvy settlements of the late 19th and early 20th centuries.

Against this background of changing industrial, welfare and social ideals, elements of the Select Committee's 1846 recommendations became incorporated into the Bills and Acts of Parliament, which gave permission for large individual construction projects to go ahead. This resulted in the provision of planned, structured settlements with separate huts for married couples and families, and the inclusion of community services such as hospitals, missions, recreation or reading rooms, shops and clean water supplies. Through this process living conditions improved and navvy culture became more incorporated into mainstream ideals of social organisation (Morris 1994). Two of the first major construction projects where contractors provided such accommodation and services were the Forth Rail Bridge, built between 1883 and 1890 (Handley 1970) and the Manchester Ship Canal, built between 1887 and 1894 (Morris 1994). The former had a settlement of stone cottages and wooden huts incorporating separate dormitories, mess

and reading rooms, with a nearby provision store. On the latter project, settlements were provided for sections of the canal that were remote from existing towns and villages. They comprised weatherboard single-storey buildings with felt roofs arranged in orderly rows alongside unsurfaced roads. Married quarters were separate from the remainder of the accommodation, and community buildings, such as a church, school and post office, were provided, though it is unclear how they related spatially to the accommodation huts (ibid). By the time the 1899 Derwent Valley Water Act was passed, provision of appropriate accommodation was accepted as normal, however at some projects in the first decade of the 20th century navvies were expected to build their own huts, as at the Kinlochleven Dam (ibid). Here, huts formed a ring around a communal rubbish dump which, as we shall see, was in stark contrast to the layout of Tin Town.

8.3.3 Tin Town

The DVWB's workforce comprised up to 2,500 in number. The workforce was a mix of people from across the British Isles including locals, northern English farm labourers, navvies from the Burrator Dam, Devon, where the DVWB's chief engineer Edward Sandeman had worked, and navvies who had recently built three dams in the Elan Valley, Wales. These four dams were all masonry-built so the combined workforce would have had considerable experience of building the types of dam chosen for the Derwent Valley. Construction on the Derwent and Howden dams operated around the clock, with a day shift, night shift and an afternoon shift for pieceworkers (Sutton 1914).

A clause in the 1899 Derwent Valley Water Act stated that satisfactory accommodation should be provided as a statutory obligation of the Board. The DVWB undertook this obligation by building a purpose-built settlement in Derwent called Birchinlee Village after the neighbouring farm, but widely known as Tin Town (Illustrations 8.1, 8.3). Over 500 navvies were based in the village, while the rest of the workforce were placed in lodgings in Bamford, Bradwell, Castleton and Hope. At its height, a total of over 900 people lived at Tin Town including wives, children and non-labouring village officials, as well as navvies. Tin Town was located approximately mid-way between the two dams. This was probably the result of another rational decision by the engineers, placing their workforce conveniently for both sites, but it also meant that the sounds of construction, the hammers, winding wheels, steam engines, pile drivers, etc, were a constant aural backdrop to life in the village day and night. The two dams could also be seen from the

village, therefore, the fundamental reason for the navvies', and their families', occupation of the area was constantly reinforced in sight and sound, whether those people were at the workface or not.

Photograph 8.5. Navvy dormitory hut at Tin Town. Brian Robinson Collection

Photograph 8.6. Tin Town looking south. Brian Robinson Collection

A brief for the accommodation at Tin Town was won by the lowest-cost tender (Robinson 1983). The majority of the buildings were purely functional, comprising plain corrugated iron buildings which were wood-lined inside for insulation. This gave an appearance similar to army, prisoner-of-war or early holiday camps, and many of the buildings from Tin Town were reused during World War One as a prison camp. However, there were small-scale architectural embellishments on two of the civic

buildings, which show that some expectations of the existing social hierarchy of buildings were also taken into consideration. These embellishments include the bell-towers or cupolas of the school and recreation hall.

Rules and regulations for occupants of Tin Town, who were rent-paying tenants of the DVWB, were drawn up by Edward Sandeman, and concentrated on health and safety matters. Different sets of regulations were produced for workmen's dormitories, married quarters and foremen. There was a basic set of rules to cover domestic cleanliness, sanitary arrangements and safety of oil lamps. The main differences were a set of six additional rules for the workmen's dormitories. Alcohol was restricted to the personal daily allowance at the canteen – presumably families and foremen were thought to be more responsible – the hutkeeper had to seek permission to be away for more than one night and no overcrowding was permitted. Infringement of the rules would result in a warning then ejection from the hut and village. There was no mention of misconduct or violent behaviour. Tin Town was a model settlement provided with services deemed essential to the well-being of the occupants by the Water Board. It was laid out on rigorously planned formal lines based both on a functional engineering basis and the belief that settlement organisation could improve workers' morals and behaviour. Tin Town was abandoned in late 1912 and the huts were either sold or demolished over the next two years (Robinson 1993).

Before anyone employed by DVWB could take up residence in Tin Town, they had to spend a night at the doss house (Illustration 8.1). The house was opened in 1903 and provided accommodation for up to 40 men situated on the east side of the valley above Derwent Dam. If they were successful in gaining employment the following day and wished to live in Birchinlee they had to spend a week of 'quarantine' in the doss house where their clothes were disinfected and they received a bath.

> *"Do you know, we did not first relish the idea of playing these navvies, but now we agree with many other players in Sheffield, that the Birchinlee fellows are perfect gentlemen."*
> A visiting amateur footballer

> *"Sorry people are just finding that fact out."*
> A navvy in reply
> (from Robinson 1983)

The short life of Tin Town, occupied for just 14 years, has left not only a rich folklore behind but also a well-preserved archaeological site of structural foundations. When the corrugated-iron buildings were taken down to be removed to other locations and uses throughout the country, there remained their footprints preserved as earthworks and brick and stone foundations. These, and the terraces on which they were built, still mostly survive, so allowing us to interpret the layout of the settlement and its relationship to the landscape.

The social objectives can be interpreted in the layout of the village itself, as preserved in DVWB plans and the archaeological remains (Illustration 8.3). While aesthetics tended to be central to the ideals of the enlightened industrialists who created 'model' workers' settlements, Tin Town was engineered as a much more practical and utilitarian version. The aims were the same, to produce specific living conditions that would encourage better motivated and more efficient workers. Brian Robinson has conducted a large amount of research on photographs and DVWB documents of Tin Town, and the publication of his photographic collection has informed descriptions of all buildings in the village (Robinson 1983, 1993, 2002). Brian's mother was born at Tin Town and this motivated him to find out more about her life as a child there and to take her back in her 80s to the site of her birth. Descriptions of buildings in the following tour are based on the photographs published by Robinson. The locations of buildings are interpreted by comparing the DVWB village plan with the surviving archaeological features and photographs (DVWB 1901).

8.3.3.1 Tour of Tin Town

Photograph 8.7. Looking north towards Tin Town. From Birchinlee Lane between 1901 and 1915 (above. Brian Robinson Collection), along the upper street in 1999 with the terrace for the married quarters (below)

We can describe and interpret Tin Town in the form of a tour from the viewpoint of someone approaching the village along the main valley lane from the south (Illustrations 8.3, 8.4. Photograph 8.7). This road, called Birchinlee Lane, crossed the River Derwent from the east side of the valley over Ouzelden Bridge and ran to Birchinlee Farm before continuing further up the valley to Ronksley Farm. As it approached Tin Town, the lane took a large right-hand bend to climb the valley side at a gentle gradient. During the occupation of Tin Town, Birchinlee Lane was bridged by the Bamford and Howden

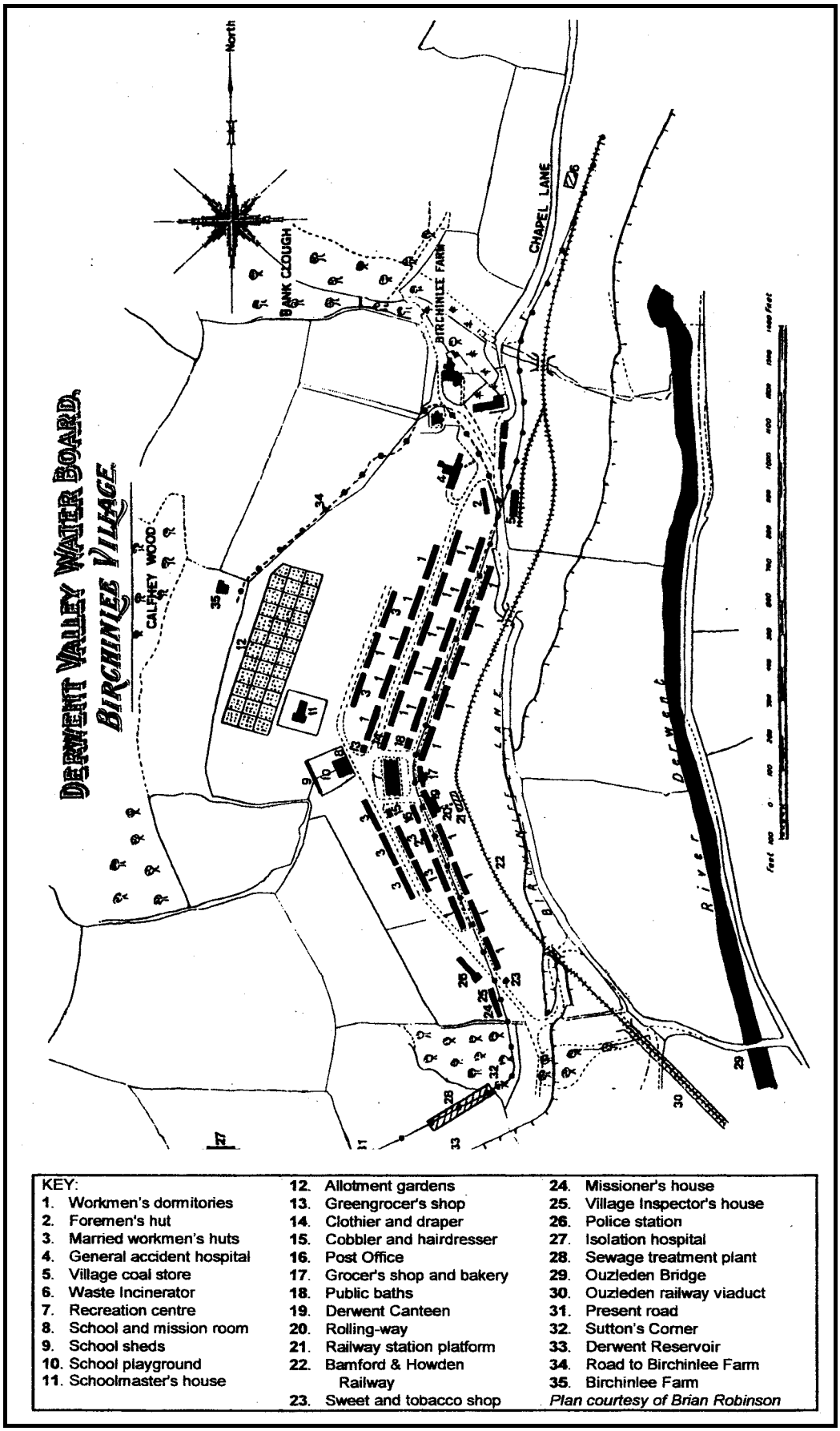


Illustration 8.3. Interpretative plan of Tin Town navvy settlement, Upper Derwent, based on the original DVWB's pre-construction plan. Courtesy of Brian Robinson

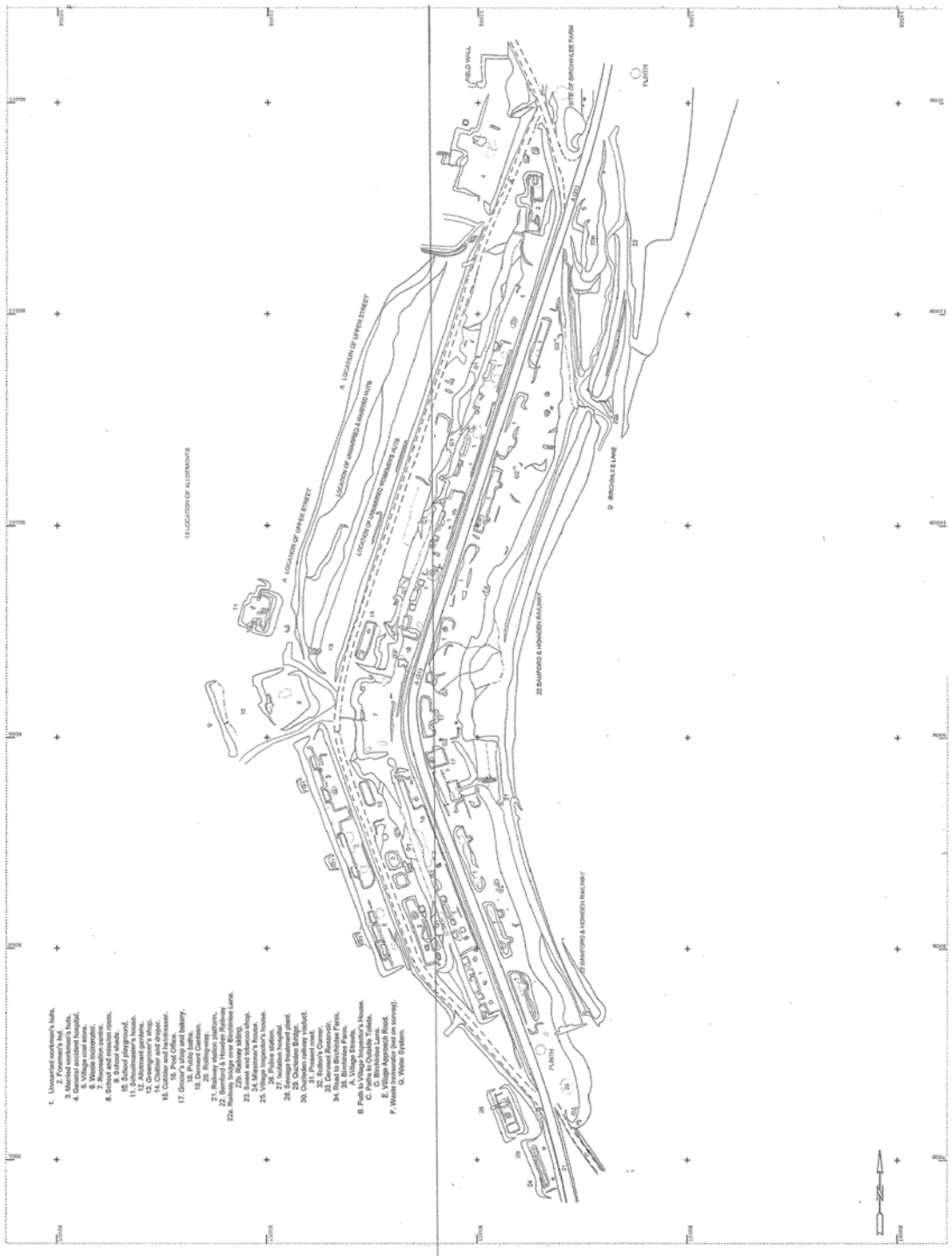


Illustration 8.4. Archaeological plan of remains of Tin Town navvy settlement, Upper Derwent

railway line and the action of passing under the bridge was an act of moving from the valley's rural landscape of fields into Tin Town. You then entered the village along the southern end of a street which soon branched into two, known as the upper and bottom streets.

The buildings were arranged in formal rows around a total of three village streets, the upper and bottom streets, which were through-roads, and a higher cul-de-sac, known as new street, which was built later during an expansion of the village. The through-roads had the appearance of many Pennine urban roads: they were surfaced with gritstone pitching covered with limestone chippings and edged with gritstone blocks.

Most of the buildings occupy large artificial terraces. The village plan does not show that the valley-side location required a vast amount of earth moving to create level building locations. A pre-construction blueprint for the workmen's huts shows the ground surface as sloping, so it is likely that the amount of terracing undertaken was not originally envisaged ([DVWB n.d.]). Four major level contour terraces were constructed, which run the whole length of the settlement, and a minor terrace was built, which ran approximately one-quarter of this length. This latter terrace was not included in the pre-construction plan, but the adjacent road was marked as 'for future extension' and was built in 1905. Photographs show that most of the terraces were simply grassed and were neither surfaced nor revetted with stone or timber along their downslope edges. These terraces still survive and form the major visible elements of the village.

These terraces supported all the workmen's and married couple's huts, one of the two foremen's huts, the canteen, public baths and shops. The village inspector's house, police station, school, school master's house, recreation centre, general hospital, and the other foremen's hut were all situated on their own terraces. For most of these their separation from the general run of workmen's hut terraces may have helped to define their specific roles, and possibly perceived higher status within the settlement.

Officer Suburbia

The first buildings a person would see as they rounded the bend into Tin Town were two huts given an imposing prominence by being built on higher ground. These were slightly detached from the rest of the village and formed a spatially distinct group, a sort of mini 'suburbia', housing the village inspector, policeman and missionary.

Village Inspector's and Missioner's Hut (Illustration 8.3, features 24, 25)

The village inspector and the missioner each had his own private accommodation, which formed the two halves of the first hut in the village. Both buildings survive as substantial foundations set on individual terraces.

The village inspector was responsible for the maintenance of the village structures and the upkeep of services, such as coal deliveries and the operation of the sewage system. After two short-lived incumbents of the post, W.S. Lelliott of Langsett was appointed, who held the position until the demise of the village. While the inspector held a position of responsibility, it was one designed to maintain the practical operation of the village, rather than one of authority over people. His responsibilities for the sewage system earned him the suitably coarse nickname of 'Shit House Dick', which suggests that he was not held in the highest regard by the villagers.

A missioner catered for the spiritual and social well-being of navvies, and was allowed to use the school as a mission room. Missioners became common on large public works after the founding of the Navvy Mission Society in the 1870s. The Society would approach contractors to allow a missioner, usually an ex-navvy, on site and this was generally accepted because it was seen as beneficial to the moral development of the workforce. George Sutton was the missioner during the whole life of the village and would make daily rounds to visit the sick in their huts and in the hospital (Robinson 1983). He wrote a book after its abandonment called *The Story of Birchinlee: a memento of 12 years in the workmen's village, Derwent Valley Waterworks, Derbyshire*, which has formed one of the fundamental sources for interpreting Tin Town culture (Sutton 1914).

Police Station (Illustration 8.3, feature 26)

Adjacent to the first hut was a police station, which included living quarters and a cell. A policeman from the Derbyshire Constabulary was employed as resident policeman to maintain law and order. Neil McLean occupied this post for the full duration of Tin Town's occupation. However, the cell was rarely used and later converted to married workmen's accommodation. This suggests that there was little crime in Tin Town, which was acknowledged by the DVWB's Chief Engineer, when in 1917 Edward Sandeman remarked that there was less crime than there was usually in an ordinary village of the same size. Sydney Lloyd, who was born in Tin Town, stated that there was very little trouble in the village – brawling was not absent, but not perceived as a crime unless

serious. Reputedly, when workmen began a fight in the Canteen, the policeman would take them to a field to get on with it.

These two huts were originally planned to be situated within the village itself, next to the married quarters. By moving them to the edge of the village, physical distance, and therefore a degree of social distance, was created between the workmen and the village officers, while associating them with each other. This would be a spatial reinforcement of social hierarchy at a period when British society was highly stratified by class. Each hut had an inside toilet, which would have been another signifier of status, because the workmen and their families all had outside toilets. The village officers also had a commanding position overlooking the approach road to Tin Town, so theirs were the first buildings visitors would encounter and allowed the occupants to monitor 'outsiders' entering the settlement.

Sweet Shop and Tobacconists (Illustration 8.3, feature 23)

The next building encountered was the small sweet and tobacco shop on the right-hand side of the road. Run by Bessie Bateman, it had originally been a newsstand, but was unsuccessful and after its closure an evening newspaper called The Star was delivered every weekday. Little of the shop survives today except for an ill-defined level area just south of the southern interpretation plinth.

Unmarried Workmen's Huts (Illustration 8.3, feature 1)

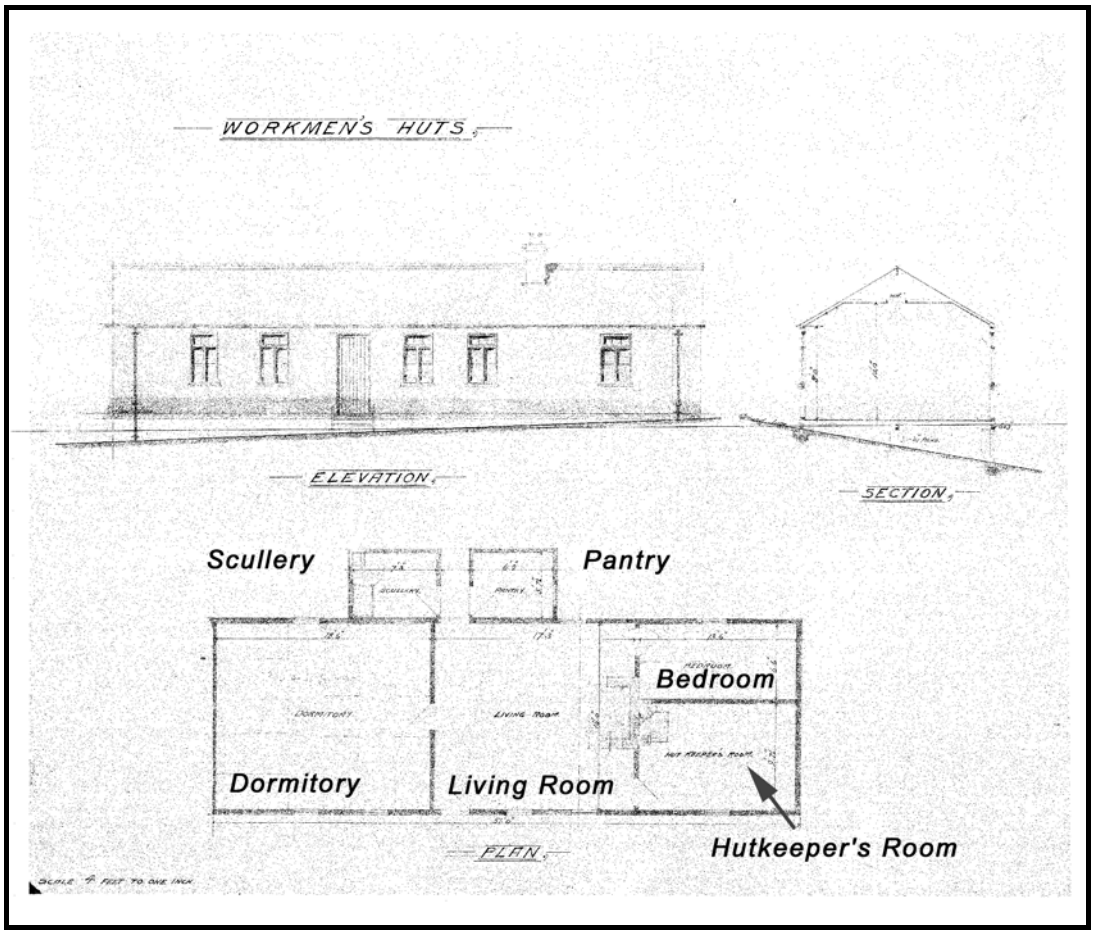


Illustration 8.5. Plan and elevations of navvy dormitory, Tin Town. From DVWB n.d.

Continuing along the bottom street would bring you into one of four main blocks of accommodation huts, which formed the bulk of the village. A total of 52 dormitories housed unmarried workmen in regimented rows of externally austere barrack-like buildings facing both sides of each street. Each hut was approximately 55.5m^2 in area and was divided into three sections; two communal areas and a private area restricted to the hutkeeper and his family only ([DVWB n.d.] Illustration 8.5). In the hutkeeper's section there was a living room with fireplace and a bedroom, while the public area comprised a communal living room, dormitory, scullery, pantry and a fireplace with range. Up to eight men could be accommodated in each unit, if the hutkeeper had a family, rising to ten if the hutkeeper was not married. This was a greater amount of space for a smaller number of people than the huts recorded at the Woodhead Tunnel and the Hawick line of the North British Railway (Morris 1994). The design of the blocks allowed for a minimum of 432 single navvies to be accommodated, rising to a maximum of 540, if all the hutkeepers

were single. Behind each hut were outside toilets and informal paths were created, as slight terraces and hollows, between them and the accommodation huts.

The huts were supported above the ground surface through a combination of sunken hollows and raised concrete and brick rafts with brick fireplaces. The foundations of 14 of the unmarried workmen's huts survive today in good enough condition to still see the outline of the buildings.

Photograph 8.8. Interior of a navvy dormitory, Tin Town. Brian Robinson Collection

The austere external walls, bare outline of dimensions and the stark regulations belie the homeliness of the interiors seen in photographs (Photograph 8.8). They were lined in a mid-tone varnished wood and personalised by the occupants with typical ornaments and décor of the time such as framed prints, net curtains, mirrors, pot plants, budgerigar cages and gramophones. Tables were covered with linen tablecloths and the forms with embroidered cushions. Fine bone china dinner services were brought out for Sundays and special occasions.

Derwent Canteen (Illustration 8.3, feature 20. Photograph 8.9)

Photograph 8.9. The Derwent Canteen during construction work to extend it. Brian Robinson Collection

Passing the first rows of dormitories brought one to the edge of the physical and social centre of the village.

On the right was one of the most important social buildings, the all-male preserve that was the public house, known as the Derwent Canteen. Situated approximately mid-way along the bottom street, it was a low, long hut with living space for the 'landlord' at the northern end (Illustration 8.6). It was double the width of the accommodation huts for over half of its length, the extra width accommodating the manager's sitting room and the rear half of the bar, which was located above the beer cellar (Photograph 8.10). Its cellar was connected to the railway line via a hollow-way (called the rolling way) and an elevated railway platform to enable easy movement of the beer barrels transported in and out of the valley by train (Illustration 8.3, feature 19). The canteen was managed by Henry Matthews and operated by the People's Refreshment House Association Ltd., a 'reformed' public

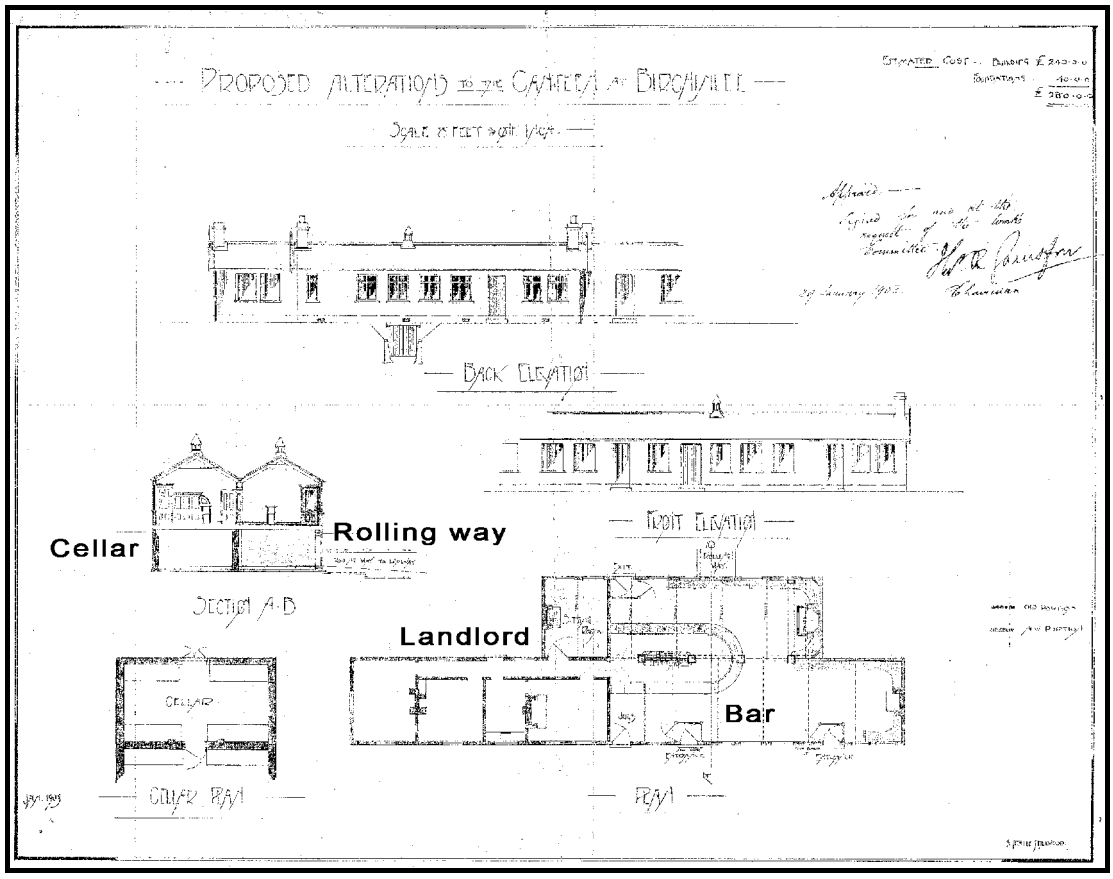


Illustration 8.6. Plans and elevations of Derwent Canteen, Tin Town. From Stallwood 1903

house trust which promoted sobriety. A contemporary account records how the navvies themselves overturned this by harassing the first 'temperate' landlord to such an extent he left. His replacement read the situation much better after being thrown out of his canteen for refusing to serve a drunken navvy (Batty [n.d.]). After that, the canteen became a dedicated drinking house. The official DVWB rationale for this was that it allowed them to assert control over the amount of alcohol consumed and prevented extortionate profiteering (Robinson 1983). It was probably also decided on the basis that if the men were working well at the construction sites, then the canteen was an important social outlet. It and its beer cellar were enlarged twice due to overcrowding, the second time a room was provided for people, including women, not requiring alcoholic drinks (Robinson 1983).

Photograph 8.10. Derwent Canteen beer cellar, now (above) and then (below)

Railway Line (Illustration 8.3, feature 22)

The remains of the line, preserved as an embankment, pass by the east side of Tin Town. As well as the embankment and the platform, stone and timber piers of the Ouzelden viaduct and the stone-facing of the bridging point over Birchinlee Lane survive. The Birchinlee Lane bridge was a significant landscape feature. Each facing end of the railway embankment was stabilised with a facing of roughly hewn gritstone blocks topped with flat dressed coping stones. Each of the two facings has a central wall over which the line itself was carried. To either side are retaining walls which are sloped to create a drop in height from the central section and, as you look at each, the right-hand side wall is straight while the left-hand wall has a shallow convex curve. Their architecture appears to be derived from the same pattern, which does not bear a relationship to any need for

differences in load-bearing caused by being on the downslope or upslope side of the railway line.

Post Office (Illustration 8.3, feature 16)

Facing the canteen from the western side of the bottom street was the post office. This was tenanted by Mrs Hebzabad Clark. The site survives in part as a rectangular sunken hollow, containing two brick-built foundation rafts and a chimney base.

Recreation Centre (Illustration 8.3, feature 7)

Just beyond the Post Office was a building which dominated the bottom street and which was the physical and social centre of the village - the recreation centre. This was a large building, situated on its own terraced platform between the bottom and upper streets. It was a prominent structure because of its size (it was one of the largest buildings in the village), the inclusion of a large roof-top bell tower and an imposing front façade incorporating eight large windows, a set of large doors and three brick-built external chimneys. Its impact was also heightened by the use of a lighter colour on the walls than used on the other buildings, this being either unpainted corrugated iron or a light paint.

Photograph 8.11. Recreation Hall looking north-west (above - Brian Robinson Collection) and the hall's building platform today looking south (below)

The centre hosted billiards, dances, concerts, cinema shows, whist drives, dinners and an annual horticultural show of produce grown in the village allotments. Photographs of the centre in use show men and women at such events, which contrasts with the male-only canteen. Dances attracted young people, especially women, from outside the village living in the Derwent and Hope valleys. This demonstrates that the village was not a totally closed community, though fathers' views about their daughters visiting the village are not documented.

Ringing the recreation centre were four roads and most of the other services provided in the village: the shops, post office, public baths, canteen and school. This created a village

centre akin to a green or square, where a great deal of informal day-to-day social interaction would have occurred as part of the routine activities of life.

Shops and Public Baths (Illustration 8.3, features 13, 14, 15, 17, 18)

The shops sold provisions independently of the works contractor, thus by-passing a major area of navvy exploitation in the 19th century. Located opposite the front of the recreation centre and next to the canteen was the grocer's shop. A bakery was added to the rear of the premises in 1905. The tenants were the Gregory brothers from Manchester. The public baths were situated adjacent to the north end of the recreation centre. They occupied a small hut and water was heated via a coal-fired stove. Charges were 2d per person. It is unknown whether tub baths could be used in individual huts, though it is highly probable, or whether the baths were the only source of bathing. The greengrocer's was located to the north-west of the recreation centre, at the junction of the middle and upper streets. The tenant was George Street of Sheffield, who employed William Motley to operate the shop. There are photographs of the front of the shop showing William Motley and 'customers'. The clothier and draper's was to the north of the recreation centre and on the eastern side of the middle street. The tenant was Harry Oliver. At least one photograph survives depicting this shop, which shows its southern gable and the shop sign, which reads 'tailor & outfitting shop'. Located to the south of the recreation centre on the eastern side of the middle street was a building occupied by the cobbler and hairdresser. Tenants are given as the Knowles Brothers and Daniel, and a photograph of the interior depicts a cobbler known as 'Cobbler Bob'.

Foremen's Huts and Coal Store (Illustration 8.3, features 2, 5)

Continuing our journey along the bottom road and between further ranks of workmen's huts, we come to the northern end of the village. Here was one of two separate huts built to accommodate the site foremen. Each was strategically placed in separate parts of the village. The northernmost hut was set on its own terrace and overlooked the village coal store. Coal was used for all heating and cooking in Tin Town, and was handed out in measured quantities. It was brought up the valley by train and a railway siding ran to the coal store. The coal was then delivered to the huts by Tom Fletcher, with the village inspector having overall supervision of the use of coal and its security. Separate foremen's huts were a departure from previous construction projects, where the foreman doubled as the hutkeeper (Coleman 1965). This separation would help to signify the

different status of the foremen to the other workmen and prevent the exploitation of navvies by their foreman. Rules and regulations were identical to those for married workmen, so no limit on alcohol allowed in the huts was mentioned.

Birchinlee Farm

Here the village street turns upslope and forms the upper street beside, the still occupied, Birchinlee Farm. Beyond the farm was Bank Clough, which was dammed to provide piped water to the village. Tin Town had an advanced water supply and waste system for its time, appropriate for a village built by a Water Board. Rather than earth closets, there were water toilets, still been an unusual occurrence during the early 20th century.

Accident Hospital (Illustration 8.3, feature 4)

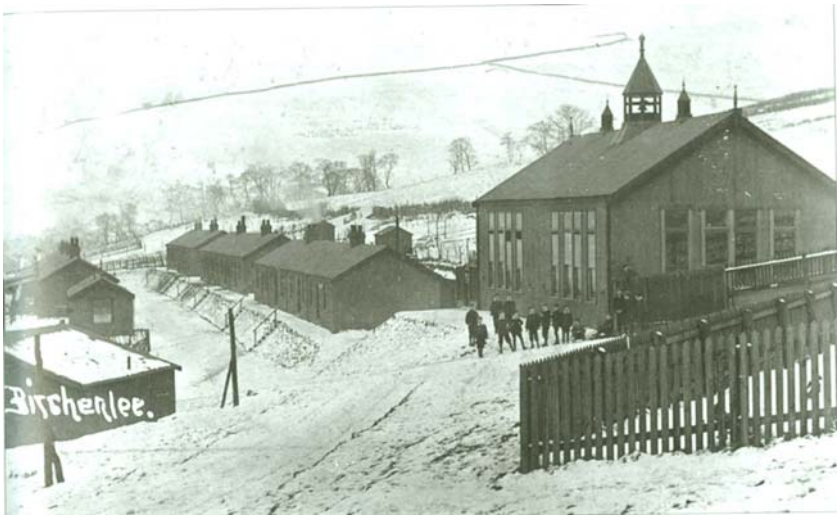
At the northern end of the upper street was the accident hospital. It was one of the larger and higher roofed buildings of the village, only the school and the recreation centre appear bigger. The hospital was restricted to caring for industrial injuries sustained by DVWB workmen until 1908 when non-employee accidents and serious illnesses could be treated for a fee. A photograph of the hospital interior taken in 1907 shows a spacious light ward with a medical officer and two nurses. The medical officer and one nurse reputedly resided at the hospital (Byford 1981). There were four medical officers employed by the DVWB in succession, the Board only setting up the post after the local doctor at Hathersage charged expensive call-out fees.

Upper street was lined with further dormitories, and walking south along it leads to the rear of the central recreation centre. Here was the junction with new street, which ran upslope before turning to run parallel with upper street. A single row of married quarters and workers' dormitories faced onto new street, beyond which were the allotments. Nearer to the recreation centre were the school and school master's house.

School (Illustration 8.3, features 8, 9, 10)

The school was opened in September 1902 and run by the Derbyshire Education Committee from September 1903. It was a substantial building occupying a visually prominent location to the west of the centre of the village. Its upslope position, height and incorporation of a bell tower made it one of the two most prominent buildings in the village, along with the recreation centre. The school was divided into two – infants and

elder children – and in 1902 had 110 pupils. Behind the school was a small playing field, again divided into lower and upper school, with wooden sheds to the rear. Behind this were vegetable growing allotments for Tin Town.



Photograph 812. Tin Town's school with the married quarters in the background. Brian Robinson Collection

School Master's House (Illustration 8.3, feature 11)

A school master was employed to run the school. He was provided with a separate hut for himself and his family, located adjacent to the school. This had three bedrooms, a sitting room, living room, scullery, larder, coal store and inside toilet. The external doors faced towards the school itself, reinforcing the master's connection with his work and the employment-based identity of his social role in the village. There was a succession of four different school masters and a photograph of 1907 shows a total of five teachers employed at this time, the remainder of the staff presumably travelling in daily from surrounding villages.

Married Workmen's Huts (Illustration 8.3, feature 3. Photograph 8.12)

Upper street continued south beyond the school, and it was here that the main concentration of married quarters were built, along with the second foremen's hut. Seven huts were subdivided into four separate 'houses' providing private accommodation for each family. This was effectively a married quarter of the village. The types of everyday activity in this immediate area would have been different to those around the unmarried workmen's huts because of the presence of women and children. The other two family huts were built in 1905, to the north of the school master's house. This demonstrates

that the DVWB was not intent on maximising the number of working men per accommodation block, they could have provided for a total of 32 men, if they had constructed unmarried dormitories instead. It also demonstrates that by this time it was more acceptable for navvies to move with their families than it had been 50 years before. The rules and regulations for married workmen's huts were similar to those for single men with one notable exception – there was no reference to limits on amounts of alcohol allowed in each hut.

Distant Structures: Dirt and Disease

Here our tour returns to where we started. The only elements of the village we have not passed are the isolation hospital situated over 300m to the south-west and the sewage farm, located somewhat closer but behind a shoulder of the hillside.

The sewage plant used a bacteriological system and carried all the waste from the outside toilets in water (Illustration 8.3, feature 28). A report from the village medical officer in 1908 claimed that Tin Town was free of insanitary diseases - 'splendid evidence of the value of the water-carriage system of excrement removal in the prevention of filth disease'. The phrasing of the sentence implies that such a system was then a relatively new development. The outside toilets survive as small terraced platforms, those between terraces two and three, revetted in stone, are some of the most visible features surviving from Tin Town today.

Photograph 8.13. Stone revetted platforms for the outside toilets at Tin Town

The isolation hospital was provided for infectious diseases and was mainly used for children suffering from scarlet fever (Illustration 8.3, feature 27).

The last remaining structure was 290m further to the north of the village. This was a brick-built waste incinerator and rubbish dump (Illustration 8.3, feature 6). It is one of the best surviving elements of the village, standing to 3m high and in good condition.

Abbey Sports Field

From the village it was possible to look out across Derwent Valley. There was an another important part of the social landscape of Tin Town in the valley bottom. A field near to Abbey Farm was converted to a sports field, where regular sports events were organised and the village football team played its home matches in the Sheffield Amateur League (Photograph 5.1). The football team provided a group identity with huge support amongst the villagers. The team would telegraph back results when playing away, and once took a homing pigeon for a crucial game in 1912 where no telegraph was present (Robinson 1983). Here, the village celebrated the coronation of Edward VII in 1903 with a traditional tea and sports day, which then became an annual event.

8.3.3.2 Overview of Tin Town

Tin Town was the ideal of improvement and rationality expressed through the creation of a highly structured social dwelling space. It comprised a very utilitarian look in both layout and construction materials of buildings. Practicalities were at the forefront of the design, but were linked to Edwardian ideals of social engineering. Beyond the plain conformity in the majority of buildings, highly stratified contemporary British notions of social status were evident in the layout of the village. These ideals were expressed in the zoning of accommodation to segregate single workmen, foremen, married workmen and village officers, and the differing regulations for each group. The formal rows of similar, 'barrack-like', accommodation blocks emphasised conformity at some expense to individual identity. Further spatial reinforcement of social hierarchy is evident in the separation of accommodation and provision of inside toilets for the village officers.

The social welfare of the workmen and their families was provided for by the missioner, school master, policeman, doctor and the shops. Hygiene was given special attention with the construction of the enclosed water-borne sewage system, leading to a treatment

plant, and a waste incinerator. These 'dirty' activities were housed in structures placed at some distance from the settlement itself. The civic buildings – the school (which doubled as the mission), recreation hall, accident hospital and public baths – dominated the village through their locations, physical stature and such adornments as the cupola on the recreation hall.

Of the range of civic buildings, the dominant communal halls – Recreation Hall and School – contrast greatly with all of the accommodation huts. They, along with the public baths, were placed centrally in the core of the village. They were imposingly large buildings topped by small cupolas, the only architectural embellishments to Tin Town buildings and the closest thing to a grand expression of civic pride made by the DVWB. They provided two arenas for social cohesion within the village. There were public spaces around them, which do not appear to have been created deliberately, but formed by default due to the layout of the village and the topography. The photographs from Tin Town suggest that all the streets were public places, where groups of people would congregate, chat, and children would play. However, those larger areas and their associations with public buildings may also have become social focal points, akin to village greens. Referencing the ideal village format was further emphasised by positioning most of the shops in the adjoining vicinity. They were augmented by travelling shops, a mobile fish and chip shop, and deliveries of coal, newspapers and milk. The other major communal building was the Derwent Canteen, though this was the sole preserve of the male navvy and therefore emblematic of navvy culture. It was situated centrally on the north-south axis of the village, close to the other communal buildings.

The accident hospital was another civic, though less public, building which also dominated the village through its large size and imposing roof. This, and the smaller isolation hospital, were placed on the edges of the village. While the accident hospital was situated just to the north of Tin Town, where it could receive casualties via Birchinlee Lane without the need for them to be taken through the centre of the village, the isolation hospital was placed much further away and was not part of the village proper.

Tin Town was not static throughout its life and though extensively planned out in advance did not come into being ready formed. Most of the civic buildings and services were built over the years following the first occupation of the accommodation. George

Sutton, the missioner, instigated Sunday School and brought baptisms to the village rather than a nearby church (Sutton 1914). Sutton also commented that in the early years there was a lack of mutual knowledge and trust amongst the navvies, but that this grew as they got to know each other and as they settled into the routines of living in such a settlement as Tin Town. As an example, an attempt to form a Minstrels group in 1902 failed and was then resurrected by 1912 when it proved a huge success. Many navvies may have been initially wary of or in opposition to such planned social groups and events at the Recreation Hall, especially if this was the first time they had worked and lived in such a social context. Over time, first aid courses, a fire brigade, Bible reading union and a football team were founded, providing planned opportunities for involvement.

The structures and routines created by work, village layout and the organised events, as well as the explicit shared aim of contributing to a huge construction project, were important in forming the social group identity of the Tin Town occupants. Within the overall village community, individuals were members of numerous communities based on gender, age, social interest and work role. This was a society comprised of wives, husbands, bachelors, foremen, experienced workers, novices, professionals, hutkeepers, shopkeepers and children. These identities were reworked through social contact with each other at times and places structured by the village and the construction sites so fostering social bonds of 'shared experience'.

As has been discussed above, zoning of the village created areas where specific social groups, for example families or foremen, would have the most immediate and frequent contact with each other. Women washed clothes on the same day of the week at communal outdoor laundry areas or met in the shops (Sutton 1914). For bachelor navvies the two most fundamental social experiences were related to work gang and dormitory cohabitant. Gangs laboured together as teams on the same workface where they shared responsibility to the foremen and engineers for completing the task to schedule. It appears that these gangs were not housed in the same dormitory, where social responsibility was to dwelling in the same space with each other. This included cleaning the hut, buying food for communal meals and helping each other out when money was tight (ibid). Humour and games, such as cards and dominoes, probably also had a strong impact on creating social bonds. An idea of how the dormitories, and also

the married quarters, were more than just a functional sleeping place is given by photographs of the interiors (Photograph 8.8) and Sutton's following commentary:

> "It is nearly always amusing to watch the faces of visitors to our village, when they enter our workmen's homes…. Perhaps they did not expect to see the piano, and sideboard, and those 'fine art' pictures, neatly framed, and the brilliantly polished copper kettles and brass ornaments."
>
> (Sutton 1914)

The huts were bound up with the social identities that navvies chose to signify through buying and displaying material culture, which for the most part would be expressed to themselves and colleagues rather than the outside world.

Social identities, in turn, influenced the ways navvies and their families interacted with the planned society and how they perceived it. A member of the Bible society is likely to have had a very different experience to a regular heavy drinker at the Canteen. So would the children born at Tin Town, home to everything they knew, compared to the young navvies who had left agricultural villages for the first time in search of higher wages in the Upper Derwent. It is unlikely that all would have conformed in their attitudes to living in such a structured place, and within the apparently tightly knit community there would have been a complex of highly defined social identities.

The social impact of Tin Town was not confined to the village itself. Locally, the arrival of the navvies and their families changed the social structure of the valley. Tin Town was the largest settlement in the area and the first significant nucleation of a population. Where previously the majority of people lived in dispersed farmsteads and the small Derwent and Ashopton hamlets, here nearly 1,000 people occupied a village. As far as the Upper Derwent was concerned, this was a new way of living and, in effect, the planned nature of the village was an extension of urban ideals into the countryside and of the application of rationality in the landscape that had begun with agricultural improvement in the 18th century.

Within and beyond the valley, the constant coming and going of navvies looking for work, and those going on rambles, picnics and shopping visits would have vastly increased the number of people travelling across the landscape. Provisions were brought

from the surrounding towns, villages and farms so increasing the economy of the area. The static and travelling shops were operated by existing shopkeepers in Bamford and Sheffield, while milk was supplied by Crookhill Farm. Events at the Recreation Hall also attracted people from Bamford, the Derwent Valley to the south and Hope Valley. Many of these were young women and there are a large number of Welsh and Irish surnames in the locality, which local folklore attributes to navvies marrying local women and settling in the region after the dams were completed. The two elder daughters of David Wain, who lived at Birchinlee Farm when Tin Town was occupied, married DVWB employees (Robinson 1983). The football team was another major point of contact and did a lot to improve the navvies' social standing. Those who died at Tin Town were buried in Derwent churchyard, then moved to Bamford churchyard after the flooding of Ladybower Reservoir. At both graveyards, burials were made in areas set aside for navvies and their families so incorporating them into the wider local community but only through a degree of separation. This was a reworking in death of the social place of navvies and Tin Town in the local area during life.

The occupants of Tin Town were the labour who transformed the Upper Derwent according to the needs of the nearby cities. It was they who arrived in a pastoral upland valley, where the largest building was Derwent Hall, and left a landscape dominated by gigantic water reservoirs contained behind huge mock-gothic stone walls (Robinson 1993). The progress of this transformation, and so the finite time span of their own occupation in the valley, would have been evident from the village, as the dams increased in height. When the job was done the village was cleared away and sold. One of the married quarters still survives and is now a hairdresser's in the nearby village of Hope. Today it is mainly host to women having their hair styled and set, so playing a role as a focus for gendered social gathering in a very different landscape.

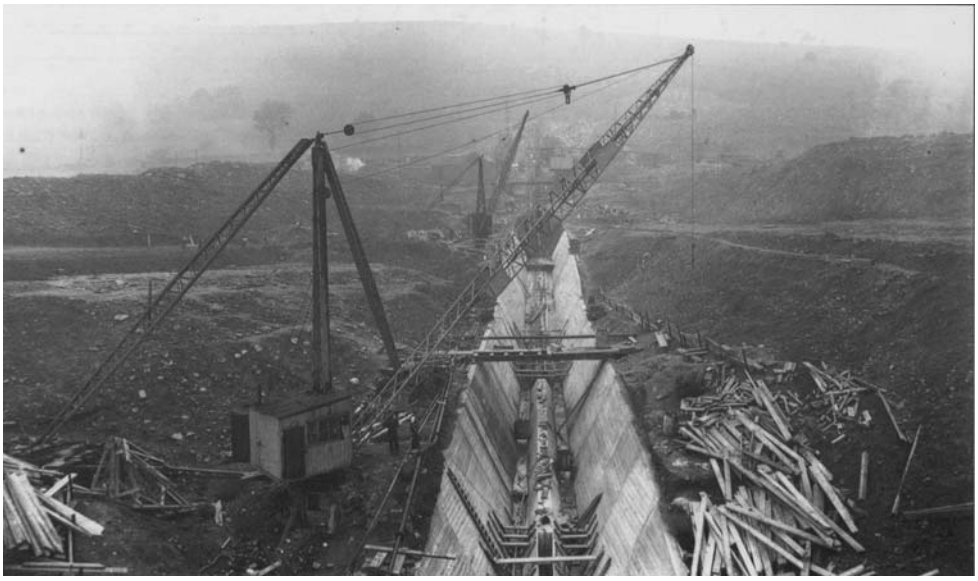
Where did the navvies and their families go after Tin Town? As mentioned above, some evidently settled in the area and stopped being itinerant labourers. Others would have moved on to other construction projects. One of these was Sheffield Corporation's Ewden Valley Dam where a smaller settlement was provided and laid out along similar principles to Tin Town, after which some navvies settled permanently in the area and found employment in the steel industry (Robinson 1983). There is a chance that some men also volunteered, or were conscripted, to fight in the trenches during World War I.

Wherever they went, they would have carried forward with them some of the social attitudes and identities formed during Tin Town to be reworked in new contexts.

One question to answer is whether the highly planned experiment in Edwardian social engineering worked in meeting the aims of the Derwent Valley Water Board? It did provide comfortable and safe accommodation, relative to working-class housing of the time, for a population which completed the dams to schedule and appeared to have lived hard but enjoyable lives, again relative to contemporary working classes. So the answer from that point of view is yes. Would the answers be the same from the people who lived there? Those are unfortunately lost because the opinions of all but one person went largely unrecorded. The exception was the missioner, George Sutton. He certainly painted a glowing report in his *Story of Birchinlee*, and held a unique position as someone who had been a navvy, with acquaintances from previous projects, yet was working to promote the DVWB's social structure to the navvies. His eye-witness testament suggests that many would also answer yes.

8.4 Increasing the Catchment

8.4.1 Ladybower



Photograph 8.14. Ladybower dam under construction. Brian Robinson Collection

The original plans for supplying water from the Upper Derwent and Ashop rivers, as approved in the Derwent Valley Water Acts between 1899 and 1904, did not include proposals for the construction of Ladybower Dam (Robinson 1993). A large dam at

Bamford had been proposed in 1900 but the three smaller dams at Hagglee, Ashopton and Bamford were favoured because they allowed the catchment area to be increased without flooding Derwent Hall, then owned by the Duke of Norfolk. Subsequently the Duke of Norfolk agreed to sell the Hall to the Derwent Valley Water Board, allowing the concept of a large Ladybower Dam to be resurrected (Photograph 8.14). It was given new authorisation by the Act of 1920 and construction began in 1935. The primary purpose of the Ladybower Reservoir has never been to supply water for use but to provide compensation water so as to maintain water levels in the River Derwent. The rationale behind this was to allow the Derwent and Howden reservoirs to provide all of their water for use.

Photograph 8.15. Architectural design and ornamental planting at Ladybower dam use country house symbolism

Ladybower Dam is very different in construction to Derwent and Howden. It is constructed as a huge embankment of earth and stone pitched on its upstream side with stone, turved on the downstream side and containing a core of puddled clay. The stone and clay was transported from a quarry on the south of Win Hill along a reinstated section of the Bamford to Howden Railway (Robinson 1993). Running along the upstream side of the top of the dam is a low stone wall. Situated on the upstream side of the dam are two circular stone tower-like structures which house the valves that control the supply of water into the discharge pipes. Either side of the reservoir and set slightly further upstream from the dam are two huge funnel-shaped overflows known as spillways which transport surplus water into the river rather than allowing it to flow over the dam's crest as at Derwent and Howden dams. Each overflow is approximately 26m

in diameter at the top, narrowing down to 5m pipe shafts. The water passes through the dam to emerge into a tailbay containing two houses in which are situated the valves that control the water discharge. The houses are constructed from dressed Millstone Grit blocks and are embellished with such architectural features as inset rectangular plaques and rooftop balustrades (Photograph 8.15). Further downstream are a venturi flume and associated building used to measure the flow of water down the river. The reservoir was formally inaugurated in 1945 by King George VI when he planted a tree at a location near Linch Clough; The King's Tree. The tree died in the 1970s, and its quietly planted replacement now marks the end of the tarmac road up the valley.

8.4.2 Ladybower Navvy Village

A second navvy settlement was built to house workers on the Ladybower project (Photograph 8.19). However, this was on a much smaller scale than Tin Town, housing a smaller population and not creating the same body of local folklore. Little is know about this settlement. While there is a rich resource of DVWB documents, photographs, folklore and surviving archaeological remains for Tin Town, little remains of the Ladybower settlement. It was located below Ladybower Dam next to the River Derwent and comprised temporary accommodation set on individual earthen terraces. The surviving remains cover a much smaller area, and there is not the scale of earth moving seen at Tin Town. A surviving contemporary photograph shows a small compound comprising less than 30 huts, and it is impossible to identify any of their specific uses, though it is known that there was a cinema (Dorothy Hitch pers comm).

It is likely that the majority of labourers were lodged in the surrounding area and that there were lower numbers due to increasing mechanisation by the 1930s. While Tin Town has become a well-known part of the landscape, the Ladybower settlement has faded into obscurity. It appears not to have caught the excitement in the same way as Tin Town, maybe because Tin Town was one of the first of its kind and much larger, or perhaps because of the lack of surviving photographs with which to evoke the age.

8.4.3 Ashop and Noe Diversions

To increase the water catchment area of the reservoirs a series of works was undertaken to convey water from the Woodlands and Edale valleys (Robinson 1993).

A small concrete and steel dam was built across the River Ashop to impound and divert water immediately upstream of the confluence of the Ashop and river Alport (Illustration 8.1). Water is diverted from the river along a conduit which follows the southern bank of the Ashop. A siphon conveys the water across the river and into a tunnel below Hagg Ridge. The tunnel breaches the Derwent Valley side of the watershed near Locker Brook and water is carried to Derwent Reservoir via another conduit. This work was completed during 1928.

A concrete water conduit empties water diverted from the River Noe in Edale into Ladybower Reservoir (Robinson 1993). The initials and date 'DVWB 1950' are inscribed above the mouth of the tunnel, which was officially opened in 1951. Water is fed into Ladybower by gravity after being pooled behind a weir across the Noe.

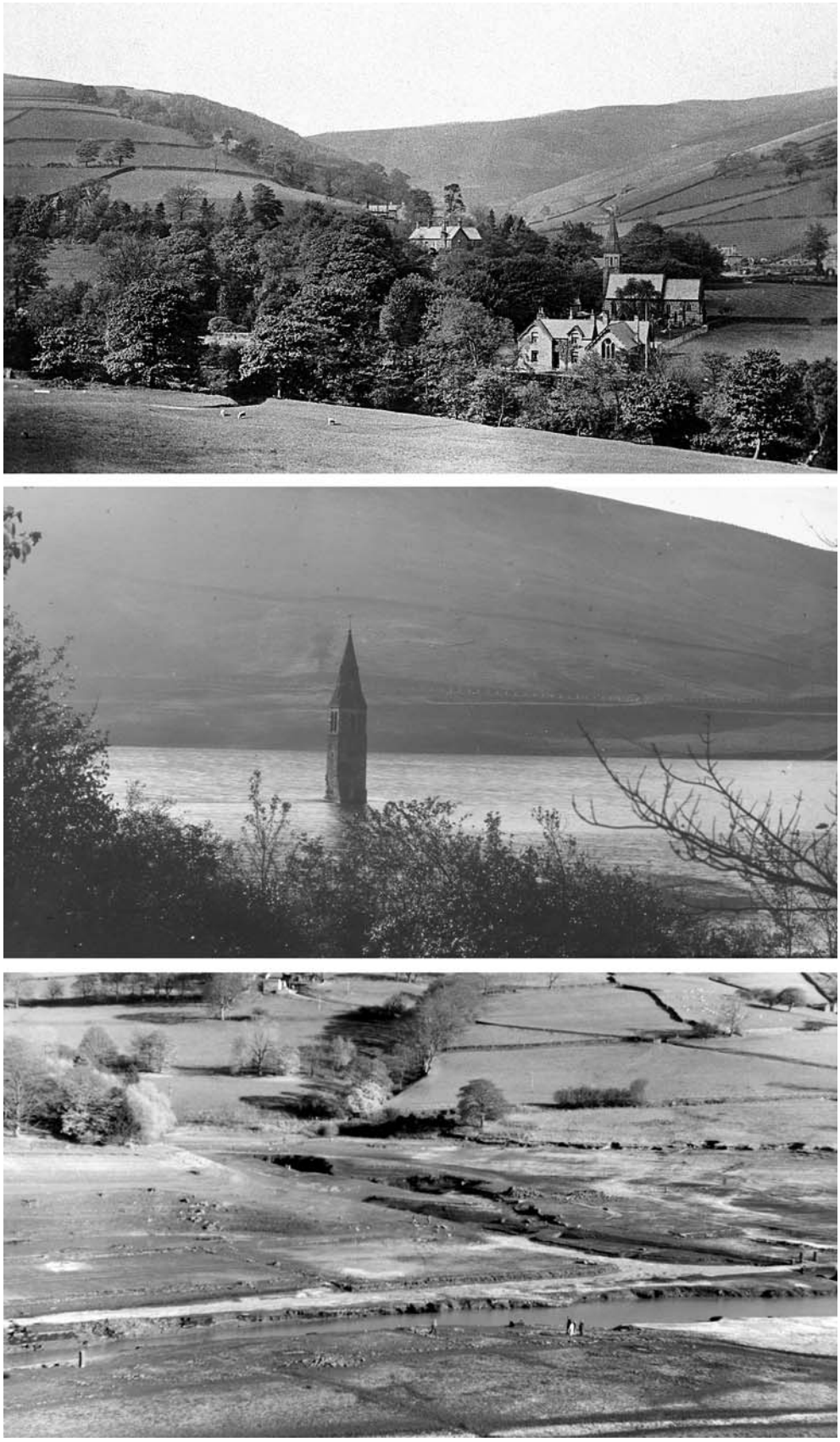
8.5 Depopulation and Plantation

8.5.1 The Local Exodus

The social structure of the valley was changed enormously through the depopulation of the area which was to be submerged. The flooding of Derwent and Howden reservoirs involved abandoning 11 farmsteads and a cottage (Table 8.1), and the relocation of the occupying families. In at least one case, stone from the farmstead was incorporated into the construction of works related to the dams, fabric from house and outbuildings at Birchinlee being used to pitch the aqueduct between Howden and Derwent dams (Robinson 1993). Ladybower involved the abandonment of both Derwent and Ashopton hamlets as well as another 21 farmsteads and four cottages (Table 8.1. Photographs 8.16, 8.17). As well as farms within the inundation area, those neighbouring its shore were depopulated due to worries about pollution of the reservoirs.

Photograph 8.16. Fairholmes farmstead. The farmhouse was still occupied in the summer of 1930 (above) after Derwent dam had been completed. It was then in the process of being demolished during winter in the 1940s as the waters of the new Ladybower Reservoir ran up to its front door. PDNPA Collection

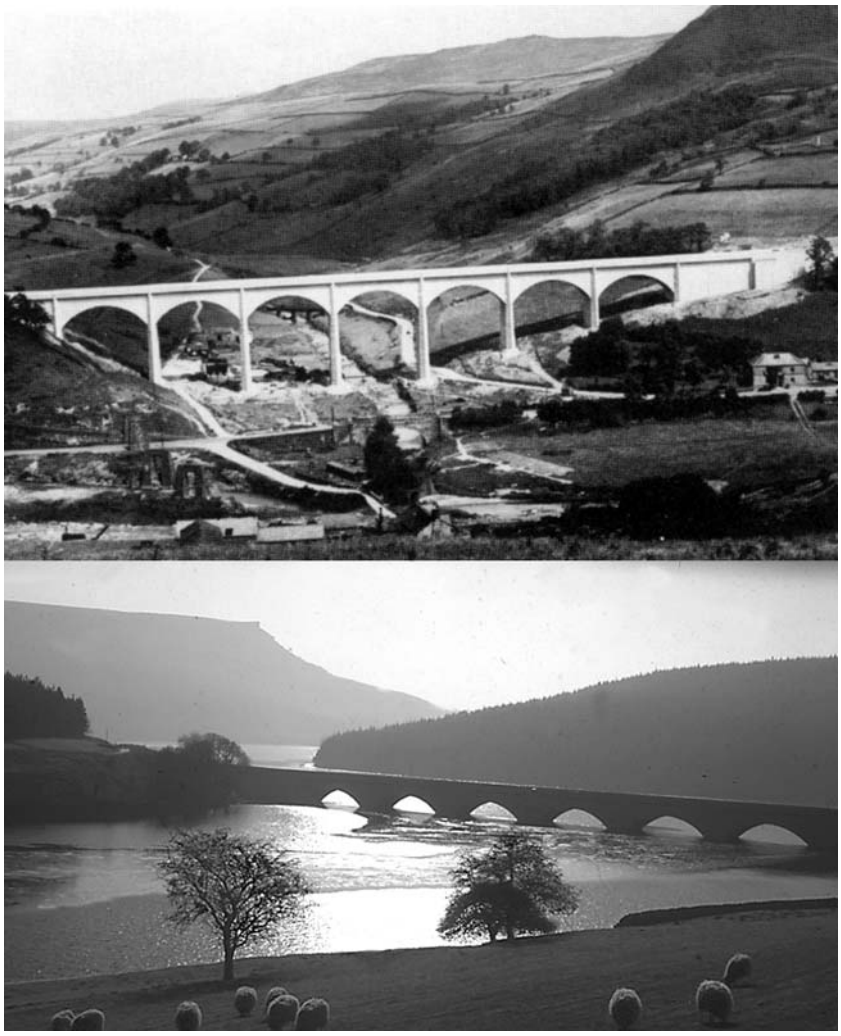
Both the hamlets and most of the farms were systematically demolished prior to the filling of Ladybower. Derwent Hall was used as a youth hostel from 1932 until its demolition when most of its internal fittings were salvaged and auctioned. The Vicarage was reputedly rebuilt in Bamford. The inundation of the hamlets created great public interest at the time (Gill 1946). After the flooding of the valleys, 27 houses were left occupied (Table 8.1), eight of them still working farmsteads at the time of the present survey, less than half the total number occupied prior to the building of the dams. Three Inns also remain - Ladybower, Snake and Yorkshire Bridge. Three new houses were built to accommodate Water Board staff.



Photograph 8.17. Three views of Derwent Village in the 20th century. Looking from the west in the 1920s (top), looking from the east when only the church spire remains above water in the 1940s (middle) and looking from the west again - the ruins lie exposed on the bed of Ladybower Reservoir in 1995. PDNPA Collection

SETTLEMENTS ABANDONED DURING FLOODING OF:		PRE-RESERVOIR SETTLEMENTS REMAINING AT TIME OF PRESENT SURVEY
DERWENT AND HOWDEN RESERVOIRS	LADYBOWER RESERVOIR	
Abbey Farm	Ashop	Alport
Abbey Grange	Ashopton hamlet	Ashes Farm
Bamford House	Bellhag Farm	Birchinlee (gamekeeper's house)
Bank Top Farm	Bridge End Farm	Blackden View Farm
Birchinlee	Cockbridge Farm	Crookhill
Hancock Farm	Derwent hamlet	Dingbank
Hollin Clough	Dryclough	Gillott Hey Farm
Ridge Farm	Elmin Pitts Farm	Gores Farm
Ronksley	Fairholmes Farm	Hagg Farm II
Shireowlers	Grainfoot Cottage	Hayridge Farm
Walker's Farm	Grainfoot Farm	High House
	Grimbocar	Jennet House
	Haglee Farm	Jubilee Cottage
	Howden House	Ladybower House
	Jack End	Lanehead House
	Lee End	Lockerbrook
	Nether Ashop	Marebottom Farm
	Parkinfield	Moscar gamekeeper's house
	Riding House	Moscar House
	Tinker's House	Moscar Lodge
	Underbank	Old House
	Water House	Rowlee
	Wellhead Farm	The Lodge
	Wood End	Tinwood
	Wood Houses	Two Thorn Field
	Wood Lane	Upper Ashop Farm
	Wood's Farm	Upper House

Table 8.1. Settlements occupied in 1900 abandoned or retained during dam building



Photograph 8.18. Ashopton Viaduct, built as part of the Ladybower Reservoir works. The viaduct under construction with Ashopton hamlet underneath, looking north (above) and in 1994 with the valley flooded, looking south (below). PDNPA Collection

The families were relocated, those from the flooding of Ladybower to the purpose-built settlement at Yorkshire Bridge (Illustration 8.1. Photograph 8.19). Burials from Derwent graveyard, which included occupants of the valleys and those navvies and members of their families who died while at Tin Town, were exhumed and re-buried at Bamford. Yorkshire Bridge settlement was built between 1935 and 1943 by the Derwent Valley Water Board. Though small, it is the largest form of nucleation to occur in the Derwent Valley. The estate was laid out on general housing estate principles of the time, as evidenced in late 1940s and 1950s council housing, rather than attempting any recreation of the flooded and demolished hamlets. The majority of the houses are arranged in three formal rows with the two terraced rows facing each other across one green and the row of semi-detached houses facing the main Bamford to Sheffield road across the other green. The larger and slightly grander looking houses are presented to the public view of

travellers along the main road, while simultaneously hiding the remaining terraces from the road. This appears to reflect the ideas held by the people responsible for planning the estate about community and how the estate should be seen from 'outside' by passers-by, visitors and the occupants. The people were therefore relocated from two hamlets, which had developed 'organically' over time and resettled in a planned 'nucleated' mini-townscape comprising orderly terraces and rows of semi-detached houses. This would have caused major social disruption of the routines of their daily lives and on the structure of social relations between them. However daily contact and a sense of community would have been maintained, though altered and possibly even increased, between the people who had lived next to each other. That owed much to the Derwent Valley Water Board resettling them in one location, rather than dispersing families throughout a wider region. Placing the settlement next to a public house would have also contributed to the maintaining and reworking of social bonds, at least for certain sections of the community.

Photograph 8.19. Yorkshire Bridge shortly after completion and during construction of Ladybower dam. Huts of the navvy settlement for the Ladybower scheme can be seen to the right of the mid-ground. PDNPA Collection

8.5.2 Replanting the Forest

A fundamental part of the reservoir scheme was the creation of a continuous plantation, dominated by conifers with some areas of beech trees, around all three of the reservoirs to stabilise the valley sides and reduce silting in the reservoirs themselves. The conifers superficially produced an idealised version of northern European forests. But, instead of wild forests with different tree ages, a natural pattern of growth and dead wood, this was a monoculture, planted at the same time and ordered into neat rows. The majority of woodlands in the valleys had been dominated by deciduous species prior to the flooding of the reservoirs, though small conifer plantations had been created during the 19th century and two 19th century documents for Hope Woodlands and Howden, Bradfield parish, refer to larch (anon. 1818; Ellison 1861-62). Coniferous plantations in the valleys are therefore not a new development in the post-reservoir landscape, but their extensive coverage is. Again, this is the product of the larger-scale and rationality of landscape management by the DVWB, which was carried out without the desire or need to work with tenants and small landholdings.

8.6 Discussion

Photograph 8.20. A 19th century road bridge across the River Derwent lies submerged in the silts of Derwent Reservoir

The building of the three dams over 44 years was the largest of the reservoir schemes in the Peak District. Combined, they hold over 454,607,446 hectolitres of water, while the largest of the five Longdendale reservoirs, the next largest scheme, contains just under

68,191,116 hectolitres (Harris, H. 1971). The flooding of the valleys under such huge quantities of water had a major impact on the physical and social landscape of the Upper Derwent, and was a major influence on the way the area is used and perceived today.

By the time the reservoirs were finished the landscape was transformed with large dam structures and huge bodies of water. The construction and subsequent management of the Water Board's Upper Derwent estate was a scale of land-use very different to anything practised previously. Only the estate managers and plan surveyors of the 17th century onwards, or perhaps the Forest officers and canons of Welbeck Abbey, had conceived the landscape with anything approaching this wide-scale overview in the past. During the managing of earlier estates, there had always been an interaction with individual farmholders and the landscape was created out of this relationship between local inhabitants and the wider structures of landownership, produce markets and other social developments such as changing house layouts. The DVWB imposed a completely externally motivated pattern of land-use to meet the demands of nearby cities. Local inhabitants were neither consulted nor interacted with as respects these needs, they were evicted and resettled elsewhere. The DVWB removed the family-run farms within its landholding and replaced them with corporately run reservoirs and plantation woodlands. This new landscape was highly managed. Utilities managers were now present, who would manage the landscape to maximise the water supply, involving periodic emptying of the reservoirs to clean the pipes and maintenance of all the associated structures. The plantations were managed as a commercial crop and foresters were employed to direct operations and maximise this resource.

The architectural style of the dams and related works followed an estate style, which copied the 'Victorian Gothic' widely used within landed estates during the 19th century, including the Upper Derwent holdings of the Dukes of Norfolk and Devonshire. The sizes of the dams monumentalised this style. Downstream of the three reservoirs the dams dominate the view because of their height and steep slopes. Approaching Howden and Derwent from downstream the dams form huge stone barriers which appear much like castle battlements with crenellated and buttressed towers. At Ladybower, the relatively small size of the top wall gives a greater impression of perspective and height to the dam wall. Set at the bottom of this artificial hill are the tailbay and control valve houses, where a small planting of ornamental trees, architectural elements such as

balustrades, and the pond-like impounding of water give the impression of garden terraces typical of 19th century aristocratic houses. Many of these features are unnecessary for the pure functioning of the dam and water discharge but rather play on existing familiar images of landed estates to help naturalise and gentrify the impact of such a huge industrial construction on the landscape.

During the building of the dams the social structure of the valley was also altered by two new nucleated settlements of a scale never before experienced in the Upper Derwent: Tin Town and Yorkshire Bridge. Both were the corporate imposition of contemporary ideals of urban living into a rural landscape otherwise characterised by dispersed settlement. The idea behind Tin Town, of creating certain 'morally correct' social conditions to improve the social welfare of the working classes and increase productivity, was an extension of the improving ideals seen in 18th and 19th century agriculture. The DVWB structured the lives of their employed navvies, as well as navvies' wives and children, during the occupation of Tin Town. The Board decided what services were provided, the layout of the village, rules and regulations for occupying accommodation, and even the frequency and times of the train to Bamford. Navvies interacted with the rational and improving ideals of the DVWB, not through debate on policy at the Board's committee meetings, but through the everyday shared experiences of working practices and dwelling in Tin Town. Tin Town also curbed some of the wilder excesses of navvies and diluted it with more mainstream culture, so marking the end of the strong navvy identity that characterised the 19th century. Navvies, being semi-nomadic, tended to live somewhat outside the local society during construction projects, forming their own highly defined social structure. However, social ties were made between Tin Town and the wider community, including the recreation hall social events, local league football matches and some navvies settling down to set up families in the local area.

The resettlement of people evicted from the valleys during the construction of Ladybower Reservoir in the new village of Yorkshire Bridge, was a practical result and a symbol of the enforcement of the national scale of urban needs for resources on a rural population. Like Tin Town, it embodies the ideals of the time as regards what a settlement should be like and it is similar to many council housing projects of the late 1940s and 1950s, with its formal rows of terraces and semi-detached houses.

Within the Upper Derwent, the building of the three dams also created new landscape zones that replaced important elements of the rural landscape that had formed between the medieval and 19th century. In replacing the majority of farms, Derwent village and most of the better valley agricultural land with water and plantations, the DVWB removed a huge part of the existing rural society and pattern of land-use. This pattern had developed and been reworked since the 13th century with little radical alteration, except the Parliamentary Enclosure Acts. Previously, changes had occurred within this structure through small-scale alterations or additions associated with farmers building upon their existing landholdings or the influence of wider influences such as the rise of landed gentry, agricultural improvement, urbanisation and industrialisation. Within 44 years, between 1901 and 1945, much of this was swept away. Some farms, fields on the higher valley sides and the moorland survived but, effectively, the reservoirs create a large full stop at the end of the post-medieval period and usher in the modern period. This was the greatest expression of the rationalist, improvement ideal that had first begun to influence the Upper Derwent landscape in the 18th century through estate management.

Large-scale industrial-inspired radical transformation shocked Hoskins where he saw it in England, with one exception. He felt that since the 19th century:

> "…every single change in the English landscape has either uglified it or destroyed its meaning, or both. Of all the changes in the last two generations, only the great reservoirs of water for the industrial cities of the North and Midlands have added anything to the scene that one can contemplate without pain."
>
> (Hoskins 1955, 298).

Hoskins could have been describing the Upper Derwent and the other Dark Peak reservoirs. The area was pulled into the large scale and fast pace of change that was occurring in many rural landscapes in Britain during the first half of the 20th century. The reservoirs would form a central part in the way the area would be perceived and occupied through the 20th century – especially to the new and growing band of tourists, ramblers and weekend visitors who would come to picnic, stroll or even fieldwalk for artefacts by their shores. For many people the area *is* Ladybower, as the name of the largest reservoir has supplanted Derwent, Ashop and Woodlands from the lexicon of places of interest in the Peak District.