

NORTHERN MILL ENGINE SOCIETY.

Philip W. Pilling

Almost a quarter of a century ago, a number of like-minded individuals combined to form a society dedicated to the rescue and preservation of mill engines. What motivated many of the members to save the products of Victorian engineering was the sad spectacle of another great industry in the throes of destructive adjustment. In factory towns throughout Lancashire and Yorkshire, the textile mill, that symbol of Britain's industrial pre-eminence in an earlier era, came to embody Britain's decline in competitiveness in the later postwar years.

Britain's future welfare appeared to rest upon modern industries engaged in the exploitation of scientific and technological principles. This meant that the cotton industry experienced absolute decline not only because of competitive pressures, but also as a result of government measures that encouraged spinners and weavers to scrap old plant and invest in new machinery. The Cotton Industry Act, 1959, offered compensation for the elimination of excess capacity and proved to be more effective than originally envisaged. In 1959-60 some 300 mills closed down, while half the industry's spindles and 40 per cent of looms were laid aside.¹ But mill premises remained as familiar features of the northern landscape. Built to accommodate, in Dr Ure's definition of a factory, 'a system of productive machines, continuously impelled by a central power',² the mill was now adapted for light engineering and warehousing. Thus, the early 1960s witnessed the beginnings of the protracted obsolescence of redundant mill buildings, until this vacant and underused building stock represented a problem for local authorities.³

The demolition and clearance of mill sites was certainly a feature of the 1960s. However, the pace of change was sufficiently gradual to permit a group of people to establish a society to save some of the north's mill engines from destruction. David Arnfield was the enthusiastic inaugurator of the scheme. He convened a public meeting at the Queen Anne Hotel, Heywood, in January 1966, in order to determine whether the society he had in mind



Removing the crankshaft of an 1860 'A-frame' vertical engine, Redferns Glassworks, Barnsley

could be sustained by the widespread interest in industrial history and archaeology.⁴ The response demonstrated that memories and feelings for the past were stirred by the sombre events of the present. But to actually preserve mill engines was a task as monumental as the artefacts Arnfield planned to save.

The enormity of the task was recognised from the outset, as the object was no more than the 'rescue' of stationary steam engines that would otherwise be broken up. This was to be achieved by a society of private individuals, drawing upon their own resources. Those who were sceptical of the society's ambition could not be dismissed for being faint-hearted; for an elementary knowledge of the scale and weight of even a modest power plant demonstrated that the 'rescue' of just one engine would be a triumph.⁵ Faith might move mountains, but other qualities would be required to shift a representative engine weighing many tons.

If the aim of the Northern Mill Engine Society was ambitious, the assets appeared to be woefully unequal to task: the only funds available to finance the society's activities were the members' subscriptions; the only premises an assortment of members' cellars, sheds, garages and backyards. But as word of the society's work

spread information was relayed which ultimately provided the society with a permanent home in an appropriate setting.

In the late nineteenth century, the largest mill complex in Bolton was promoted by James Musgrave, whose father had been employed in the foundry of Benjamin Hick & Son, before trading on his own account as John Musgrave & Sons, engineers, millwrights and ironfounders. The Globe Foundry's speciality was mill engines for the textile trades and James Musgrave's six Atlas Mills were naturally powered by the family's speciality. At their peak, the Atlas Mills operated 460,000 mule and ring spindles and employed 2,000 people. The 9,000 horsepower required to drive the mills was provided by some outstanding stationary steam engines and all of them were broken up as one by one the mills were closed down in the early 1960s.⁶

The site's new owners, a firm of builders' merchants, Harry Mason & Sons, lent such a sympathetic ear to the society's plea for storage capacity that the society was offered exclusive use of the vacant engine house to No.3 mill. The forbearance and generosity extended by Mason & Sons has continued down to the present time and Robert Mason was pleased to become the society's first President

in recognition of his promotion of the embryonic museum. With the engine house as their repository, the members were able to concentrate their efforts on augmenting the collection of engines. But of greater significance to the vitality of the society was the realisation that Engine House No.3 could be made into an exhibition hall for the display of artefacts.

The donation of an engine was often the prelude to a protracted effort. Retrieving the double beam engine from Crossfield Mill, Wardle, occupied nine months. Ten years were to elapse before this engine could be displayed in steam. The rescue of another engine involved the removal of a flywheel broken down into two halves - each part weighing 4 tons - through a doorway with barely an inch clearance all round. More than stamina was required to accumulate industrial artefacts; the removal of an engine was an engineering job in its own right that called for the knowledge and experience of men employed in industry. This in-house expertise ensured the successful completion of several rescues, albeit with assistance on one occasion from a unit of the Royal Engineers of the Territorial Army.

By the close of the 1960s, the active members of the society were regularly dismantling steam engines on Saturday and carrying the components to Bolton on Sunday, with the occasional overtime worked by torch light in the small hours of Monday morning. Such work would have been out of the question without the storage provided by Mason & Sons, who in the early 1970s turned over an adjacent engine house to the society. At the same time, the society achieved charitable status coupled with the adoption of limited liability, which acknowledged the educational aims of the society and placed its operations within a recognised legal framework that gave confidence to the public.

The acquisition of machinery and steam plant was not the sole objective of the society. In addition to the collection of artefacts, the society aspired to preserve mill engines in-situ by offering a conservation service to mill owners. This service held out the promise of saving a great many of those mill engines that remained on site by relieving textile concerns of an unproductive financial burden. The society was in a position to undertake the maintenance and preservation of mill engines, with the proviso that the public would enjoy

the right to visit the engines on steaming days.

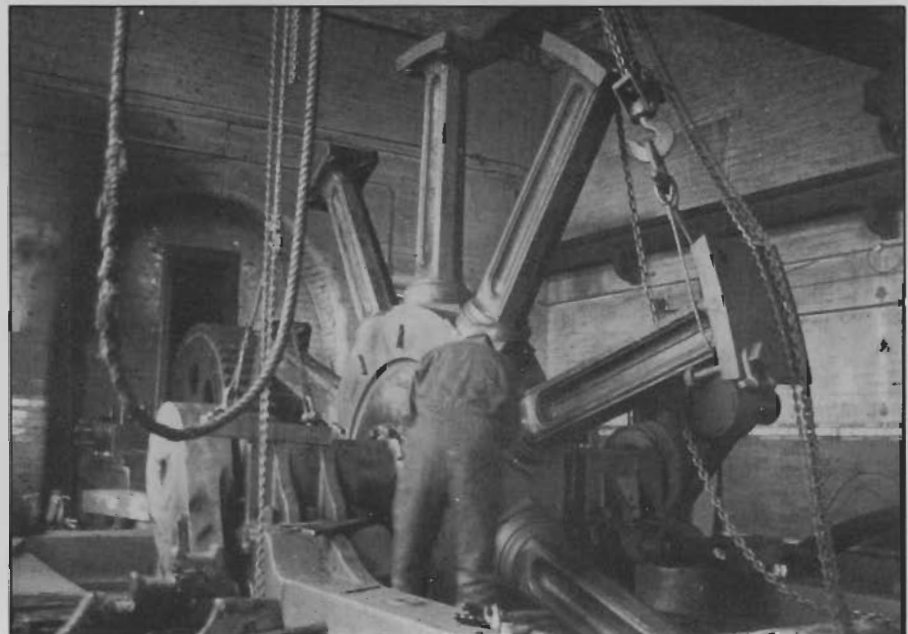
This on-site activity was rooted in an original goal of the society to preserve large engines wherever they had been set down. At a practical level, more engines were bound to be saved by this policy than those laboriously accumulated from factory premises at weekends. A positive aspect of the society's association with firms was the generation of goodwill which might reward the society at a later date with the permanent preservation of engines. On numerous occasions, factory closures or changes of use invariably led to a desperate race against time to remove an engine before the scrap merchants arrived to clear the site. The society could not save every redundant engine from the breaker's hammer and where owners did not wish to see their engines scrapped, even to the extent of offering to donate a working steam engine, local attempts to forestall the demolition contractors often foundered on realities, or apathy on the part of local townspeople. The society's on-site conservation work gave rise to instances of disappointment and triumph.

Within weeks of its formation, the society entered into discussions with Courtaulds over the preservation of eight mill engines. Attempts to save one engine foundered on the desire of a local authority to develop a mill site for housing. However, in the following year the society was appointed 'curator' of the impressive Edwardian twin tandem compound mill engine at Dee Mill, Shaw.⁷ The same year, the rescue of another large

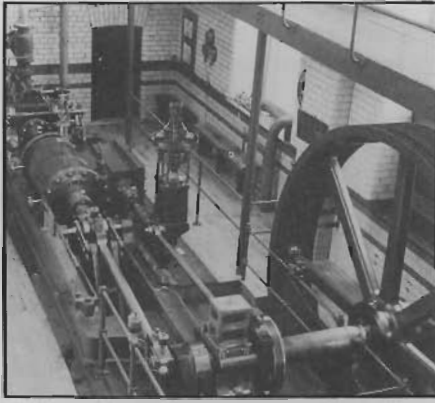
design had to be abandoned, because the time available was unequal to the enormity of the task. Consequently, the arrangement with Courtaulds over the care and restoration of the Dee engine was particularly welcome. After nine years of effort, the Dee engine could be seen running by the public on open days, when the engine house attracted individuals from home and abroad.

The agreement with Courtaulds seemed to prove that it was possible to care for a Lancashire mill engine weighing some 200 tons, without hindering the commercial operations of a modern all-electric enterprise. The society recognised that it was not practical to dismantle the Dee engine - there was insufficient spare time and muscle power for such a job - and Courtaulds were content that their technical staff should watch over the work of restoration. By the time the Dee engine was running in steam in 1976, the society had taken over responsibility for two other non-working engines: Scott & Hodgson inverted vertical compound engine at Diamond works, Royton; and the Buckley & Taylor horizontal twin tandem compound at Fern Mill, Shaw.⁸ The number of engines passing into the care of the society increased as the 1970s advanced, while those engines installed at Ellenroad Mill, Milnrow, and Trencherfield Mill, Wigan, were also made accessible to the public.

The cleaning and maintenance work carried on by the society and its organisation of open days taxed the society's manpower at a time when the 'Bolton Steam Museum' was



Dismantling 70-ton flywheel of the twin-tandem engine at Fern Mill, Shaw



1902 twin-tandem compound engine in Society's museum

taking shape in No.3 Engine House. Some enthusiasts within the membership aspired to restore all the engines place in the society's care, undeterred by the constraints faced by a voluntary society.

These limitations emerged quite clearly in 1976, when the question of raising funds through the issue of debentures was discussed. The money raised by the issue would finance the acquisition of six mill engines, together with their housing, water supply and steam-raising plant. Prospective debenture holders were invited to secure a 'one in a million experience' by becoming an 'owner-driver'. Subscribers would be helping to safeguard the future of the few remaining mill engines in Lancashire by raising 'sufficient funds to be in a position to out-bid the scrap men'. The scheme was a laudable one and a proven method of raising money in the case of railway preservation societies. But the loan scheme proved a failure for the Mill Engine Society and even had money been forthcoming, the intended purchase of engine houses within mill sites was a wholly impractical solution to the problems posed by industrial monuments, given the legal and commercial implications of engine purchases.

The worst fears of the society were realised with the closure of Dee Mill and the ruination that followed the sale of the mill premises in 1982. What had become a showpiece is today a wreck, because the preservationists enjoyed no claim to the engine and were dependent upon goodwill, that most intangible of assets. In the absence of sympathetic sponsors, the society is powerless to preserve industrial structures, or, as in the case of the Dee twin tandem engine, prevent years of unremitting attention from being nullified. Elsewhere, the 1980s have been kind to the few

spinning mill engines remaining in the region: the Trencherfield Mill, Wigan, with the society's assistance has found a role as a visitor attraction; the Ellenroad Ring Mill, at Newhey near Rochdale, is likewise the site of a planned heritage centre; the Fern Mill, Shaw, was demolished in 1983 but not before preservationists had removed the engine; the engines at Diamond Rope Works, Royton, and Leigh Spinners Ltd., remain in their original factory settings.

The rescue of the Fern engine involved the society in dealing with two government departments, as well as the company purchasing the mill premises. At one stage in the discussions, a ministry representative 'just didn't believe the NMES were a "body" who could remove the engine in the time allotted' and the society was compelled to submit a time schedule of the engine's removal over the specified period of six months and five days. It was explained that the society had never 'faltered' in the past, and the same was true at Fern Mill, where weekday parties of voluntary workers of retirement age helped dismantle 160 tons of steam engine, together with weekend teams, supplemented by the services of some unemployed youths and young offenders on community service.

This engine rescue marked a watershed in the development of the society, because the financial and administrative problems raised by the operation tested the resolve and purpose of the organisation. The rescue also coincided with preparations for the public opening of the 'Bolton Exhibition Hall' (Engine House No.3). The emergence of the Bolton Steam Museum called for a clearer definition of museum policy against the changed backdrop of the heritage business. The Fern project had barely begun when the chairman and secretary reported that they had in mind the creation of a number of committees to deal with specific aspects of the society's activities. An Engineering Committee had long existed and the time was considered ripe for the creation of other standing committees to deal with particular aspects of the society's work, such as Policy and Acquisition, Finance and Fund Raising, and a Bolton Committee, whose scope and powers would be confined to the incomplete exhibition hall. In principle, the formation of committees was unanimously accepted by the executive council of the society, but in practice decentralisation

displeased some of the active members, when it was revealed that frequency of meetings might be reduced as a result of this change.

For once, the membership 'were unusually divided on this issue', and some of the rank-and-file 'took the view that members would lose touch with the society affairs in the interim, and they enjoyed the fortnightly meetings'. Moreover, those meetings that were convened were devoted entirely to work and allowed little opportunity for amusement. In order to promote companionship, the rank-and-file resolved to hold the occasional social night on those evenings when a fortnightly executive meeting might have been held.

The costs incurred by the removal of the Fern engine meant that special importance attached to the activities of the Fund Raising Committee. Three months into the period of the engine's removal it was minuted that this committee should meet as soon as possible and 'get cracking with its ideas for generating funds'. Grants-in-aid for the Fern engine removal fund were forthcoming from the Science Museum and other bodies, but the Fern appeal managed to raise from members £883 representing a sizeable proportion of the £2,416 eventually subscribed.

Elsewhere, the Policy Committee was formulating an accessions and preservation policy. To attempt to acquire anything and everything was seen to be self-defeating. A more positive approach towards realising the society's preservation programme required an examination of the existing collection and those mill engines either cared for on site or known to be



Cylinder of 1902 engine being removed from Wasp Mill, Wardle

preserved, in order that these monuments and artefacts could be appraised for their relevance to the society's programme. That preservation policy had been taking shape at Engine House No.3 and the creation of an Exhibition Hall.

A notable event in the life of the Society was the official opening of the Engine House by the Mayor of Bolton in the Spring of 1983. The realisation of this scheme coming so soon after that other achievement for the society - the Fern rescue - seemed at the time to mark a movement away from a pure hobby towards a businesslike approach to museum management. The creation of several committees underscored this point.

The opening of the Exhibition Hall was the culmination of twelve years' effort, whose purpose was the creation of a working museum dedicated to steam power. Time was a secondary consideration in realising this goal: cost considerations were paramount. Consequently, the Exhibition Hall took shape slowly through the labours of the membership, who made use of whatever second-hand or scrap materials came to hand. Long before architectural salvage became a minor industry, the society was recovering redundant materials for use at the Bolton engine house. Two examples of this recycling of old items were

the external steel walkway reclaimed from Trafford Power Station and the maple flooring donated by Masons that took two years to install in the Exhibition Hall.

The first open day at Bolton had been held in 1981, when the charging policy to be adopted 'was the subject of much discussion' and it was resolved 'to place Donation Box(es) prominently about the place'. A great deal was learnt about catering for the public, that helped enhance the presentation of the steam museum. By 1982 open days were being held on a regular basis, with some of the exhibits displayed in steam. These events concentrated minds on the inauguration of a permanent display area, as the opening of the Exhibition Hall was seen to be an event that had been going "on & on", year after year. At this rate, it would never be opened. Easter 1983 saw the formal opening of the Exhibition Hall.

Within weeks of the opening of the steam hall, the question of working with the other museums in Bolton was under discussion. The society was already a member of the Association of Independent Museums; it later became a member of the Association of Industrial Archaeology. These bodies aspire to raise standards not only for the benefit of visitors but also those organisations dedicated to the

study of industrial archaeology. In recent times, the society has been granted provisional registration by the Museum & Galleries Commission in a noteworthy scheme intended to improve the standards of museums and enhance their appeal to all kinds of funding bodies. Once again the public benefit is in mind at a time when museums are perceived to be enterprises in tourism.

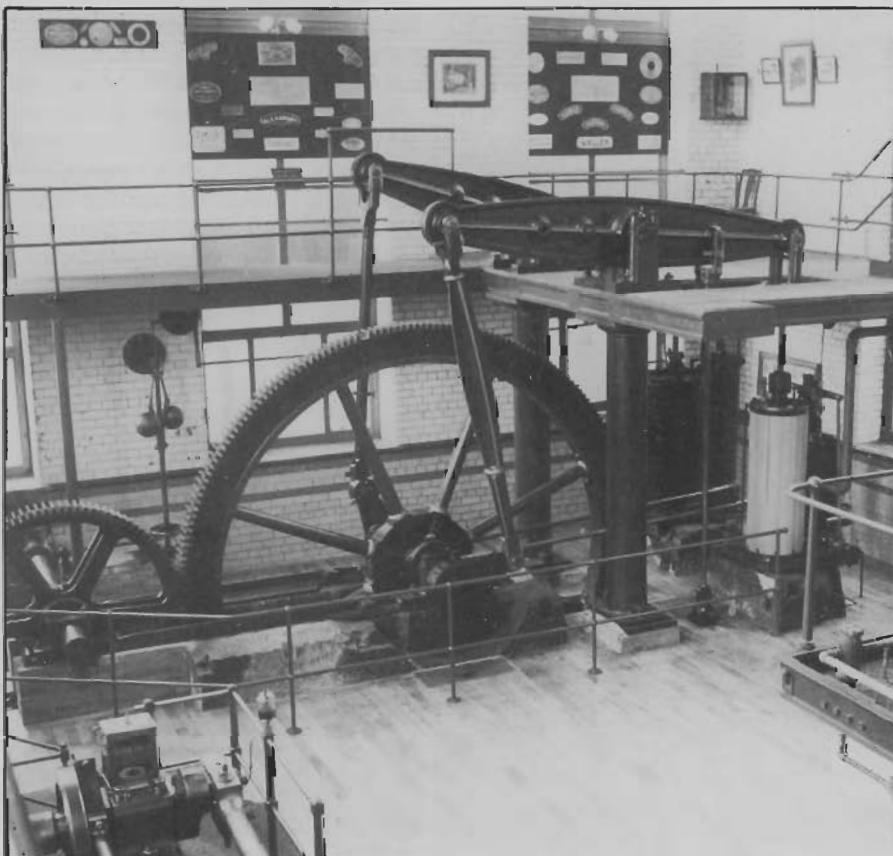
The Northern Mill Engine Society arose out of the concern of a small group of people, who were dismayed by the wholesale scrapping of steam mill engines as a result of mill closures and factory electrification in the northern textile industries. In the quarter of a century since the inaugural meeting, the work achieved by the members has refuted the idea that a local initiative could never preserve a collection of unique artefacts, particularly items demanding specialist engineering knowledge. The critics have been confounded because of the dedication brought to the society by a talented body of individuals, some of whom possess irreplaceable engineering skills.

In the 1980s, heritage found a new meaning in the context of regional regeneration through a money-spinning presentation of the past. Specialist museums proliferated and are today synonymous with visitor attractions, that is commercial ventures organised to generate income and realise a profit. This is the new ethos of a leisure industry, yet it is worth reflecting on the fact that until comparatively recently it was exceptional for a museum authority to undertake a major engineering dismantling project in the field. Thus, the Northern Mill Engine Society compensated for the professional neglect of engineering technology in the one field where British engineers acquired an undisputed reputation for supremacy — the steam engine. By acting to preserve this achievement, the society can justifiably claim to have created a niche for itself in the revised conception of the museum as a visitor attraction, without becoming at the same time an entertainment that has very little to do with the study of history and a great deal to do with culture as means to restore economic prosperity.

Visitors are welcome to see the Bolton Steam Museum for themselves on the following Steam Days remaining in 1990:

Sunday October 7

Sunday December 9 11am-4pm



Steam Museum, Atlas Mills in Bolton, as it is today

Some of the Engines in the care of the Society.

1. Twin beam engine.
c. 1840. Rebuilt 1893, possibly by *John Petrie, Phoenix Ironworks, Rochdale*. Gear-driven from flywheel rim. Slide valves and fitted with a Watt-type governor. Taken from Crossfield Mill, Wardle. Presented by Ovenden Estates Ltd.
2. Vertical overhead crank engine.
c. 1860 *Jos. Barraclough, Barnsley*. Single cylinder, approx, 12" bore by 2' stroke. Slide valve. Flywheel, 9' dia. and 6' dia. belt pulley. Presented by Redfearn's Glassworks, Barnsley
3. Horizontal single cylinder engine.
By *Tangyes of Birmingham*. Cylinder: 5" bore by 10" stroke. Slide valve and fitted with Tangyes Patent governor. Taken from Newhalley Mills, Rawtenstall, Rossendale. Presented by David Whitehead Fabrics Ltd.
4. Horizontal single cylinder engine.
By *S.S. Stott of Haslingden*. Cylinder: 4" bore by 6" stroke. Used to drive a portable boring bar for boring large cylinders in situ. Presented by S.S. Stott, Engineers, Haslingden.
5. Inverted vertical compound non-dead centre engine.
1893, by *John Musgrave, Globe Ironworks, Bolton*. Cylinders: HP 10.5" bore, LP 16.5" bore, stroke 21". Semi-rotary valves and fitted with a Pickering governor. Speed 150 rpm. Plain flywheel, 8' dia. and 4' dia. rope drum, grooved for 6 ropes. From Park Street Shed, Radcliffe, Lancs.
6. Horizontal tandem compound engine.
1896, by *Pollit & Wigzell, Bank Foundry, Sowerby Bridge, Yorks*. Cylinder: HP 11.5" bore, LP 23" bore, stroke 3'. Power is 200 ihp at a speed of 90 rpm. Corliss valves on the HP, slide valve on the LP. Flywheel 12' dia., grooved for 8 ropes. The engine is of the Pollit & Wigzell Patent 3-piston rod type. It was presented by Quarmbly & Sykes Ltd, Meltham, Huddersfield.
7. Horizontal tandem compound engine.
1902, built by *J. & W. McNaught, St George's Foundry, Rochdale*, for Messrs Baron. Moved to Wasp Mill in 1917. Cylinders: HP 13" bore, LP 26" bore, stroke 3'.
8. McNaughted beam engine.
Built by *Woodhouse & Mitchell Ltd*. Presented by Fisher, Firth Manufacturers Ltd., Sandiford & Co. Ltd, Cellarsclough Mills, Marsden nr Huddersfield
9. Double diagonal engine.
By *Langbridge Ltd., Accrington*. Cylinder: 9" bore by 1' stroke.
10. Twin cylinder barring engine.
George Saxon Ltd. Ex Hawthorn Mill.
11. Inverted vertical compound open-crank launch engine.
By *Sissons, Gloucester*
12. Enclosed inverted vertical single cylinder engine.
By *Reader, Nottingham*. Direct-coupled to a centrifugal pump.
13. Twin cylinder inverted vertical boiler feed pump.
By *Green's of Wakefield*. Centre flywheel.
14. Horizontal three cylinder engine.
By *Mather & Platt*. Cylinders: 4" bore, stroke 6". A 'Stentor' engine. Donated by Mr F. Dibnah.
15. Horizontal uniflow engine, 1926, by *Robey Co*. Cylinder: 13.5" bore, stroke 16". Runs at 200 rpm. Purchased from Messrs Mitchell, Bolton.
16. Horizontal cross compound engine.
1935, by *Robey Co*. Cylinders: HP 8.5" bore, LP 16" bore, stroke 22". Power 80-100 hp at 120 rpm and 200 psi. Presented by a member on permanent loan basis.
17. High speed enclosed engine with E.E.C. alternator, 1927, by *J. Howden*. Cylinders: HP 11" bore, LP 18" bore, stroke 12". From Seedhill Finishing Co., Paisley.
18. Vertical cross compound condensing engine.
Built in 1900 (using older parts), by *James Lumb & Sons, Engineers, Perseverance Works, Elland*. Slide valve cylinders fitted with Lumb's automatic cut-off motion. Drive from the 14" dia. double-crowned flywheel through flat leather belts running in opposite directions.

Notes

1. Sydney Pollard *The Development of the British Economy, 1914-1967* (London, 1973), pp. 421-2.
2. William Fairbairn, *Treatise on Mills and Millwork* (London, 1878), p.9.
3. Duncan Gurr & Julian Hunt (eds.), *The Cotton Mills of Oldham* (Oldham 1985); *Bolton M.B.C. Mill Strategy* - Bolton Metropolitan Borough, Department of Planning & Development, 1985.
4. M.J.T. Lewis, 'Industrial Archaeology', in Carlo M. Cipolla (ed.), *The Fontana Economic History of Europe 3* (Glasgow, 1973)
5. Mill Engine Preservation, *20 Years of the Northern Mill Engine Society* (published privately, 1986), p.3.
6. James H. Longworth, *The Cotton Mills of Bolton, 1780-1985, A Historical Directory* (Bolton, 1987), p.60.
7. G. Hayes, *A Guide to Stationary Steam Engines* (Moorland Publishing Co. Ltd., 1981), p.100
8. What follows is based on the letter files, newspaper cuttings books, Members' Newsletters, Annual Reports and Minutes of the Ordinary and Council Meetings of the Northern Mill Engine Society.