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**‘A SOLID AND PRACTICAL EDUCATION WITHIN REACH OF  
THE HUMBLEST MEANS’: THE GROWTH AND  
DEVELOPMENT OF THE YORKSHIRE UNION OF  
MECHANICS’ INSTITUTES 1838–1891**

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**A thesis submitted to the University of Huddersfield in partial  
fulfilment of the requirements for degree of Doctor of Philosophy**

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## **Abstract**

This thesis questions the generally accepted view that mechanics' institutes made little contribution to adult working-class education from their foundation in the 1820s to the last decade of the nineteenth century when, finally, government recognised the importance of adult and further education with the passing of the Technical Instructions Acts of 1889 and 1891. It addresses the issue of what impact the mechanics' institutes exerted upon the adult working classes in a regional context. It has also questioned research previously carried out by a number of historians who hold the view that by 1850 the mechanics' institutes' movement was in decline. This thesis argues that in Yorkshire the movement, through no small contribution made by the Yorkshire Union of Mechanics' Institutes, went from strength to strength and responded to the need for relevant curricula throughout the period of study. It establishes that mechanics' institutes of the Yorkshire Union (1838 – 1891) were not only to be found in the urban and industrialising towns, but many were also located in the rural and semi-rural areas of the Dales and Pennines. Across the Yorkshire Union as a whole there were similar patterns in growth and development. This thesis establishes that not only did mechanics' institutes support the working classes but they also provided a firm foundation for technical and further education, which was built on through the passing of the 1889 and 1891 Technical Instruction Acts. Several institutes either became technical schools or had established a tradition of adult education which was taken up by the new technical colleges of the early twentieth century. Many smaller institutes either became satellite centres for local colleges or became public libraries and museums. The nineteenth century success of the mechanics' institutes foreshadowed the later development of adult education.

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## Introduction

There are numerous accounts, contemporary and historical, that suggest the mechanics' institute movement was a failure. Gordon Roderick and Michael Stephens argue that the mechanics' institutes were intended for the working classes but that the 'initial movement was confined in the main to London, Scotland and the industrial North'. They maintain that the Movement spread during the 1830s and 1840s, which they believed was the golden age, but that from the 1830s the mechanics institutes failed to meet the needs of the working class. 'Mechanics' rarely attended...teaching was unsystematic, activities had become frivolous and the libraries were only used for fiction'.<sup>1</sup> Contemporaries, such as Henry Brougham, also suggested that mechanics and artisans were abandoning the mechanics' institutes and were being replaced with clerks and shopkeepers.<sup>2</sup> In 1851, Dr James W. Hudson also believed that they had failed to attract the class whom they were intended to benefit.<sup>3</sup> However, this research suggests otherwise.

The first mechanics' institute was founded in Glasgow in 1823, with Dr George Birkbeck as its first president. This event was significant on two accounts. Firstly, the Institute was the successor of the Andersonian Institution which had been established in 1796, through the last Will and Testament of Dr John Anderson 'for the good and improvement of mankind'.<sup>4</sup> Secondly, Anderson had never envisaged that his educational establishment would necessarily provide the establishment of a permanent

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<sup>1</sup> G. W. Roderick, and M.D. Stephens, 'Mechanics' Institutes and the State', *The Steam Intellect Societies, Essays on Culture, Education and Industry circa 1820 – 1914* (Nottingham, 1985), 123 (Check if a paper not book).

<sup>2</sup> H. Brougham, *Practical Observations Upon the Education of the People, Addressed to the Working Classes and their Employers* (London, 1825), p.2.

<sup>3</sup> G. Wright, 'Discussions of the Characteristics of Mechanics' Institutes in the second half of the nineteenth century: the Bradford example', *Journal of Educational Administration and History*, Vol. 33, Number 1 (2001), 14.

<sup>4</sup> T. Kelly, *George Birkbeck, Pioneer of Adult Education*, (Liverpool, 1957), p.23.

system of instruction for working men, but rather, a local need for tradesmen.<sup>5</sup> The appointment of Birkbeck to the Glasgow Institute was important. Not only was he the first president, he was also one of a handful of men who are seen as the instigators of what was to become the mechanics' institute movement during the 1820s. Birkbeck believed that the working man should not be prevented from attaining scientific instruction, even at a time when many had not received an elementary education. In being involved with the Glasgow Mechanics' Institute, Birkbeck gained much experience in relation to the workings of mechanics' institutes generally, as well as encouraging other towns to establish their own. With the success of the first institute, the movement spread throughout Britain. By 1850, there were clusters of institutes in and around Glasgow and London as well as in Lancashire and in particular Yorkshire (Map 3.1).

From the mid 1820s, mechanics' institutes were being established across the whole of Britain, with several parts of the country having administrative unions to support and manage them. By 1850, there were over 700 mechanics' institutes with about 120,000 members and eight unions,<sup>6</sup> the first being the Yorkshire Union which was founded in 1838 (Appendix 1). The Lancashire and Cheshire Union was formed a year later, followed by the establishment of institute unions in the Midlands, Kent, Northumberland and Durham (known as the Northern Union), Devon and Cornwall over the following eight years, with Leicestershire Union being the last, in 1853. They were well organised and efficient.<sup>7</sup> Indeed, in the case of the Yorkshire Union, Leeds Institute had the most members with 1,852 and Huddersfield 887 was the second

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<sup>5</sup> M. Tylecote, *The Mechanics' Institutes of Lancashire and Yorkshire Before 1851* (Manchester University Press, 1957), p.5.

<sup>6</sup> I. Inkster, 'The Social Context of an Educational Movement: A Revisionist Approach to the English Mechanics' Institutes, 1820-1850', *Oxford Review of Education*, Vol. 2, No. 3, 1976, 227.

<sup>7</sup> *Ibid.*, 281.

largest in the Union. Overall, Leeds was second in the country and Huddersfield tenth (Appendix 2).

The date of the foundation of the Leicestershire Union, in 1853, is particularly significant. Contemporaries, among them Hudson, were convinced that the mechanics' institute movement had reached its zenith and was declining by 1850. Hudson believed that working men and women were being denied access to mechanics' institutes, either because they were funded and managed by the middle class or because the scientific education being delivered was too advanced which put many people off attending, or both. Writing in 1843, G. C. Holland remarked, in relation to Sheffield Mechanics' Institute, that there were several factors which prevented the working class from attending. These included poor teaching; decline in trade, affecting attendance due to unemployment and low wages and lectures that were too scientific for the section of the population who had had little or no education.<sup>8</sup> Yet significantly, several of the mechanics' institute unions continued in one way or another until the early decades of the twentieth century. Among them was the Yorkshire Union, which was still in existence until 1924, and the Lancashire and Cheshire Union which only ceased its operations in the 1950s, both of which could not have continued without a large following.

Historians, among them Professor Mable Tylecote, have concentrated on researching the period 1824-1850, assuming that the importance of the mechanics' institute movement was declining by the mid-nineteenth century. Tylecote's work in relation to the mechanics' institutes of the textile districts of Lancashire and Yorkshire before 1851 is the most comprehensive study to date. Other historians have tended to study individual institutes or, as Tylecote had done, select several examples to support

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<sup>8</sup> *Ibid.*, 305.



the debates and their research up to about 1850. But many mechanics' institutes, and their unions, continued beyond this date.

This raises two crucial questions. First, while historians have tended to concentrate on the period 1824 to 1850, what happened to mechanics' institutes after 1850? Secondly, what contribution did they make to working-class adult education, the section of society for whom they were originally established? This thesis investigates the establishment of mechanics' institutes throughout Britain and analyses the state of the movement in 1850. It focuses on the Yorkshire Union of Mechanics' Institutes, the largest of all the unions. In all, over 600 Yorkshire Union institutes had been established by the time the Technical Instruction Acts of 1889 and 1891 were passed, when government funding became available for adult education. Most Yorkshire Union institutes were, though not exclusively so, located in the County of Yorkshire. The purpose of this study is to provide evidence of developments and challenges faced by the mechanics' institutes in a national, regional and local context using class, gender, technological developments, curriculum and other indicators of their success.

Existing historical literature suggests that the institute movement, while first established for the labouring population, was patronised and attended by the middling classes. This thesis argues that this was not the case. Debates in relation to class and occupation of members are pivotal to this study. Particularly important is the need to concentrate on the vital work of Professors Hobsbawm and Neale in relation to their debates around class. Several institutes, the majority of which were members of the Yorkshire Union have been studied, identifying their class structures through reports listing occupations, relating to the findings to the work of Hobsbawm and Neale.

This thesis notes that several mechanics' institutes had female members, even if they were small in number. Membership records sent by mechanics' institutes to the

Yorkshire Union support this. The nineteenth-century work of Fanny Hertz in relation to Bradford and Huddersfield Female Institutions<sup>9</sup> as well as research carried out by historians, notably Ruth Watts, over the last ten years has further developed the analysis of female membership. While the majority of political supporters of mechanics' institutes were Whigs, many of the founders were Unitarians. The Unitarians were sympathetic to female involvement in society and this included education opportunities. Their contribution to the mechanics' institute movement is investigated.

The work has also identified several national developments which influenced the mechanics' institute movement. The Great Exhibition of 1851, the year Hudson believed the movement was in decline, was seen as a showcase of industrial and technological progress. The research explores the connection between the success of the Great Exhibition and the scientific contributions made by mechanics' institutes. Indeed, it was the Exhibition which aroused the interest in scientific and mechanical inventions in the working population which, in turn, encouraged them to want to learn more about technology through their local institute and library.

The Society of Arts was re-established, after being dormant for some time, to support on-going scientific and technological progress following the success of the Exhibition. Prince Albert was patron of both and along with others who had supported the Great Exhibition, wanted progress to continue. The Society offered certification in several subjects taught in the mechanics' institutes, particularly, but not exclusively, scientific ones. It had its own Union of Mechanics' Institutes covering the whole of Britain, which offered candidates the opportunity to sit examinations in London, and gain nationally-recognised qualifications. The popularity of gaining Society of Arts

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<sup>9</sup> F. Hertz, 'Mechanics' Institutes for Working Women, with Special reference to the Manufacturing Districts of Yorkshire', *Transactions of the National Association for the Promotion of Social Sciences* (1860).

scientific and technical qualifications meant that in 1857 candidates in the north were able to sit their examinations at the Huddersfield Mechanics' Institute and over the following years centres were established throughout the country. This would not have been possible had not the mechanics' institutes responded to the need for technical education.

This response resulted in curriculum developments and courses offered at mechanics' institutes indicating their responsiveness and contributions to their continuing success throughout the nineteenth century. This thesis provides evidence that they adapted to the needs of both elementary and technical education for adults. Many institutes responded effectively to the educational needs of working men, and women, as well as those of the local economy. Not to have done so would have resulted in their premature decline, which Hudson believed was happening in 1850. Closely linked to the courses that were offered was the quality of teaching and examination results which indicated the academic success. Several mechanics' institutes in the Yorkshire Union established pupil-teachers to support the classes, as there was a shortage of good teachers, and, later in the nineteenth century, formal technical teacher training was introduced to support the curriculum.

Leading on from curriculum changes, the research explores related developments which indicate the continued success of the movement. Further evidence of the success of many mechanics' institutes has been identified in their continual need for larger accommodation and specialist laboratories, as a result of curriculum developments and increasing membership. Other factors have been researched in order to support the argument that mechanics' institutes were successful in support of adult and technical education after 1850. This is reflected in the number of patents licensed in many towns, all of which had successful mechanics' institutes. This has

provided an opportunity to analyse the distribution of patents between 1855 and 1870 in those towns.

When mechanics' institutes were originally established, they relied on rented accommodation. After 1850, as membership grew, accommodation became a problem, either preventing the expansion in membership because of the lack of classroom space, or having to raise funds, which could have been used for other things, to construct a purpose-built institute. This is further evidence that many institutes increased in popularity as well as new ones being established. Examples of individual Yorkshire Union mechanics' institutes have been included to support the point that the movement continued to be popular after 1850 and that there were periods when new ones were founded.

Mechanics' institutes had libraries, the larger ones having their own collections of books, newspapers and journals. Smaller institutes often borrowed books from their unions. The Yorkshire Union, for example, provided such a service that changed books on a regular basis. Institutes measured their own success on the number and issues of books as these indicated their popularity with members. The Scottish-born American oil and steel magnate and philanthropist, Andrew Carnegie, provided funds to support the building of libraries in several towns throughout Britain. His criterion was that funds would be available to towns which were committed to purchasing books on behalf of their townsfolk, a decision he only made if his Trust was sure libraries would provide the book stock and that they were well-used. Thus, mechanics' institutes were ideally placed to encourage the local population to use their books. It is no coincidence that many mechanics' institute towns were the same ones which had a Carnegie Library, the latter providing free access.

Underpinning the thesis has been extensive research into the Yorkshire Union. This has included the study of general institutes in the larger towns but more significant has been the findings concerning institutes that were established in rural or semi-rural areas. As a result, several clusters have been identified which have highlighted socio-economic contributions made by institutes and factors affecting their membership. Three of these clusters have been selected to further support the argument about the success at local level and emphasise the growth and development of the movement throughout the period of study. The North East cluster included several general institutes as well as smaller ones, such as those founded by Joseph Pease and Family, in mining communities, all offering adult education in the newly established villages. The more dispersed cluster of the Yorkshire Dales and Pennines includes the general institutes of the industrial towns such as the one at Keighley, as well as smaller ones associated with local upland rural communities. Finally, the densely-concentrated cluster of over 40 institutes within only a few miles of the town of Huddersfield, which had the second largest institute in the Yorkshire Union, has provided insight in to how institutes were able to continue and be successful in such close proximity.

## **Methodology**

James W. Hudson, in his book *The History of Adult Education*, published in 1851, highlighted what he thought was the declining state of the mechanics' institute movement. He had access to individual institute data. This included membership numbers which has enabled a rank order by size to reflect importance. In the case of the Yorkshire Union institutes, Leeds was second and Huddersfield was tenth in the country in 1850. Hudson also listed all the institutes he was aware of and this has revealed some interesting patterns. While Yorkshire, Lancashire, Staffordshire and

London had most institutes in England, Devon and Cornwall were also well represented. Scotland, where the movement was first established, had mechanics' institutes both in the industrialising towns but also along the rural coastlines. Wales, however, had few institutes, the majority of which were located in the industrial communities of the South. Hudson also listed the number of books the institute libraries owned, and their issues for 1850. Rather than being too specific, the data produced by Hudson has been presented county by county, highlighting patterns across the British Isles, something that has not been done before. It provides an informative overview from Hudson's tables, of the state of the mechanics' institute movement in 1850 (Map 3.1).

The Annual Reports of the Yorkshire Union of Mechanics' Institutes published between 1839 and 1891 have proved to be a rich source of evidence for this thesis. The reports were based on individual committee reports which were sent to the headquarters of the Union, based at the Leeds Mechanics' Institutes, for publication. The reports included the number of members and sometimes their occupations, as well as factors influencing membership, local developments and issues about which they felt Leeds should be aware of. Several of the smaller institutes sent in reports, but these, not surprisingly, were often only a few paragraphs. Many institute committees unfortunately, did not send in returns, or their reports no longer survive. Nevertheless, those that did have been valuable in providing conclusive evidence to support the hypothesis for this research, that the mechanics' institute movement continued to expand and develop into the late nineteenth century. The first *Yorkshire Union Report* was published in 1838, although previous reports published by the then West Riding of Yorkshire Union have also been used. The annual reports included statistical tables. These have proved invaluable for this research, particularly with over 600 institutes

listed. They provided a year by year list of institutes, when they were active (some closed from time to time), how many male and female members attended, and the number of books in their libraries and issues as well as their annual income. All the surviving data presented by the Union, provides the opportunity to analyse statistically the growth and development of the Yorkshire Union institutes. In particular, comparing membership (male and female) to population has shown that rural institutes had a larger membership than those in industrial towns. The research methodology provides the opportunity to challenge the previously held view that the mechanics' institute movement was only influential for around twenty years.

### **Summary**

This study has identified four key areas which reveal that mechanics' institutes provided a major contribution to working-class adult education between 1824 and 1891. The discussion has concentrated on class and female membership, technical education as a result of the Great Exhibition and foreign competition, and curriculum developments. Other indicators, including membership patterns and accommodation developments are also discussed, to further point towards their success. The mechanics' institute movement was not declining by 1850, as Hudson feared. By taking a longer view than most historians, this thesis argues that the mechanics' institute movement continued to grow and be successful after 1851. Although scientific lectures and classes were offered throughout the period, the introduction of elementary education at mechanics' institutes (for children, as well as adults) and relevant scientific and technological subjects relating to industry encouraged and developed a much wider membership. The result was that the mechanics' institutes often had to move into larger rented accommodation or build their own, which many

did. While the founders were often from the wealthy classes, the majority of members were working men and women who often found themselves mixing with the professional classes, in town institutes at least. Individuals, such as George Birkbeck, made important contributions to the success of the institute movement. Radicals, particularly the Unitarians, supported the education of both men and women of the working population, supporting a relevant curriculum which was required to support semi-rural and urban industrialisation. Indeed, presidents of mechanics' institutes were often Unitarians themselves. The institute movement was given national credibility through public recognition offered by the Society of Arts, who organised national examinations in the local institutes. This fitted well with those who used mechanics' institutes. Qualifications validated the efforts of those who sought to 'better themselves'. The number of patents licensed in mechanics' institute towns is evidence that the institutes were offering relevant curricula to support technological developments and progress. Finally, specific research in relation to the Yorkshire Union has put the national mechanics' institute movement into a regional and local context. The research has supported the hypothesis that mechanics' institutes continued to be successful and their numbers grew after 1850 up to and beyond the passing of the technical instruction acts, which were to provide a firm base on which state-funded adult education would be established.



## **Chapter One**

### **Class Membership and the Mechanics' Institutes**

#### **Introduction**

Several historians have argued that the membership of mechanics' institutes was made up of members of the middle class and professional classes.<sup>10</sup> However, their assumptions are based on the view of work up to the 1850s, when it was believed the movement had reached its zenith and was seen as declining in its importance, having not achieved its initial aim of offering education to the working class.<sup>11</sup> This was not the case for the membership was substantially, if not exclusively, drawn from the working class.

#### **Early Developments**

Mechanics' institutes committees did not go out of their way to exclude anyone and they wanted to accept members from a cross-section of society. For example, in their first address in 1825, the Directors of the recently opened Huddersfield Mechanics' Institute stated that 'the great object of this Institution is to bring within the research of all, but more particularly the trading and working classes, the acquisition of useful knowledge'.<sup>12</sup> The address is evidence that from their early origins, mechanics' institute committees believed that education should be within the reach of everyone and, in particular, the newly evolving labouring population, at a time when there were rapid and far reaching social and technological changes taking place.

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<sup>10</sup> In particular, Edward Royle, Keith Luckhurst, Gordon Roderick and Michael Stephens.

<sup>11</sup> J. W. Hudson, *The History of Adult Education* (London, 1851, Woburn, 1969 edition), p.41. Hudson gives several examples throughout his book, where either the scientific curriculum or fees, or both, had become a barrier to the working-class attending mechanics' and other forms of institutions. G. W. Roderick and M. D. Stephens, 'Mechanics' Institutes and the State', *The Steam Intellect Societies, Essays on Culture, Education and Industry circa 1820 – 1914*, (Nottingham, 1985), p.123.

<sup>12</sup> *Rules of the Huddersfield Scientific and Mechanic Institute, for the Promotion of Useful Knowledge* (1825, Huddersfield), p.1.

The choice of name, ‘mechanic’, was no coincidence.<sup>13</sup> Institutes at their formation in the 1820s made every effort to appeal to the wider population through naming them as such, without realising that the name discouraged working men from attending. Charles Hindley, President of the Ashton-under-Lyne Mechanics’ Institute, for example, noted that the majority of members were ‘young, between 18 and 25 years of age, and, not strictly speaking, mechanics’. He had interviewed several mechanics himself and discovered that they had misunderstood what the function of mechanics’ institutes was, namely, ‘to advance knowledge through scientific and philosophical education’. On asking them why they did not become members of the Ashton-Under-Lyne Mechanics’ Institute, a rapidly industrialising town near Manchester, the response to Hindley was ‘[w]hat? Do you think we want to have our trade taught to everybody at a rate of 2/6 per quarter? We are not such fools’.<sup>14</sup>

If mechanics, who were skilled workers, were reluctant to attend, in case their expertise and knowledge were taken by others, so too were non-skilled labourers on the grounds that mechanics’ institutes were not for them but for mechanics. Hindley interviewed colliers working on the Lancashire Coalfield and was disappointed to discover that they too were reluctant to attend the Mechanics’ Institute. He recorded:

I called upon one and endeavoured to explain the advantages he would derive from attending the Institution – but no! The very term mechanic is enough for him and he insisted that he was no mechanic and could not be persuaded to interfere with the trade of another body of his fellow men.<sup>15</sup>

Hindley was so surprised at the responses he got, and reasons given, that he shared his concerns with Lord Henry Brougham, a staunch supporter of mechanics’ institutes,

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<sup>13</sup> Other educational establishments included Philosophical and Scientific and Literacy Societies, which had been formed before mechanics’ institutes and the names of which did not connect with the working population.

<sup>14</sup> M. Tylecote, ‘The Mechanics’ Institutes in Lancashire and Yorkshire, 1824 – 1850 with special reference to the Institutions at Manchester, Ashton-under-Lyne and Huddersfield’, unpublished PhD Thesis (University of Manchester, 1930), p.265.

<sup>15</sup> Tylecote, ‘The Mechanics’ Institutes’, p.266.

citing that the name ‘mechanic’ was discouraging to those who otherwise might have attended mechanics’ institutes.<sup>16</sup> This reinforces the belief that the nineteenth-century skilled workers often differentiated themselves from the rest of the working class, insisting on having honour and respect for their abilities. As Rohan McWilliam states ‘the working classes did not always think in terms of natural class alliances’.<sup>17</sup> Therefore, it is not surprising that both contemporaries and historians have confidently claimed that as neither the ‘mechanic’ nor the working class attended these institutes, which were set up especially for them, the movement failed.

The institutes were financially supported by middle and upper class people and, therefore, offered education which they thought relevant for the whole population.<sup>18</sup> As a result, out of 204 mechanics’ institutes in England and Wales in 1849, only 43 were largely supported by operatives and mechanics. The Manchester Mechanics’ Institute, for example, was ‘beyond the reach of the great manufacturing population’ and this was very much the case in other towns.<sup>19</sup> The same was also true of Liverpool and London. Of 32 institutes in Lancashire and Cheshire, only four were attended by ‘considerable numbers’ of the working classes, and of the 21 institutes in the

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<sup>16</sup> Brougham had a particular interest in education. He became involved in Birkbeck’s London Mechanics’ Institute in 1824 and was one of the founders in 1826 of the Society for the Diffusion of Useful Knowledge which was set up to publish affordable works on both science and arts. After 30 years the SDUK went bankrupt, partly as a result of Brougham trying to establish a Biographical Dictionary. In 1826 he played a vital part in establishing London University and particularly in persuading the dissenters not to set up a rival one in the Capital. He was active both in the House of Commons, as MP for Yorkshire, by Edward Baines and the Duke of Devonshire, both of whom were supporters of the mechanics’ institute movement, and House of Lords. In 1857 Brougham was President of the newly founded National Association for the Promotion of Social Science and in 1859 he was elected chancellor of Edinburgh University. After his political career ended he spent his retirement (in his eighties) travelling all over the country, encouraging working men to attend and manage their local mechanics’ institutes. M. Lobban, ‘Brough, Henry Peter, first Baron Brougham and Vaux (1778-1868)’, *Oxford Dictionary of National Biography*, Oxford University Press, September 2004.

<sup>17</sup> R. McWilliam, *Popular Politics in Nineteenth-Century England* (London, 1998), p.53.

<sup>18</sup> J. B. Langley, *Evidence to the Select Committee on Public Libraries* (1849), Appendix III in E. Royle, ‘Mechanics’ Institutes and the Working Classes, 1840 – 1860’, *Historical Journal*, Volume XIV, Number 2, 1971, 231.

<sup>19</sup> Hudson, *Adult Education*, p.144.

Midlands, only three had such members.<sup>20</sup> Robert Elliot summed up the situation in 1861 as he perceived it, when he wrote ‘the banquet was prepared for guests who did not come’.<sup>21</sup>

Thus, the findings of contemporaries in regard to mechanics’ institutes between 1824 and about 1850s support the view held by many historians that the majority of members attending them were from the middling and professional classes. One such historian, Kenneth Luckhurst, stated categorically that:

Mechanics’ institutes ceased to deserve their distinctive name as so few artisans were sufficiently well educated to profit from the classes, lectures, libraries and other educational facilities which they provided, and their places were soon filled by clerks and office workers, whose numbers were greatly increasing through the rapid expansion of commerce.<sup>22</sup>

To address this point about the failure of the mechanics’ institutes to attract the working class, it is necessary to consider the question of class in some detail. The term ‘class’ was being used in a new way from the 1830s, at the time when the mechanics’ institute movement was being established, identifying the relationships between different social groups.<sup>23</sup> Karl Marx argued that when ‘millions of families live under economic conditions which separate their way of life, their interests and their education from those of other classes, they constitute a class in itself’. For him, class was about relationship to the means of production – it was about source of income and it determined culture.<sup>24</sup>

In the 1830s, the failure of the Reform Act to enfranchise those who considered themselves working class and the opposition to the Poor Law Amendment Act of

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<sup>20</sup> E. Royle, ‘Mechanics’ Institutes and the Working classes, 1840-1860’, *The Historical Journal*, Vol. XIV, 2, 1971, 305.

<sup>21</sup> R. Elliot, On the Working Men’s Reading Rooms, as established in 1848 at Carlisle’, *Transactions of the National Association for the Promotion of Social; Science* (1861), 676, in J. W. Hudson, *The History of Adult Education* (London, 1851), p.vii.

<sup>22</sup> K. W. Luckhurst, ‘Some Aspects of the History of the Society of Arts’, Unpublished Ph.D. Thesis (London University College, 1957), Chapter X, p.4.

<sup>23</sup> P. Hudson, *The Industrial Revolution* (London, 1992), p.202.

<sup>24</sup> *Ibid.*

1834, social problems, such as bad housing and sanitation, and overcrowding had tremendous impact on class formation.<sup>25</sup> It was these kinds of events which, as E. P. Thompson argued, brought men with similar or common experiences together to articulate their identity of interests between themselves, and which they saw as different from other groups.<sup>26</sup> Thus, Thompson argued that ‘class consciousness’ was essential, that class was not just economic but cultural too. He believed that ‘class happens when some men, as a result of common experiences, inherited or shared, feel and articulate the identity of their interests as between themselves, and against other men whose interests are different from theirs’.<sup>27</sup>

Thompson argued that the period from the 1790s to the 1830s saw the making of the English working class.<sup>28</sup> He believed that there was a growing identity of interests between diverse groups of the working population, which were distinct from other classes, ‘strongly based and self-conscious working-class institutions and movements; friendly societies, trade unions, educational and religious movements, co-operatives, working-class periodicals and Chartism’.<sup>29</sup> Thompson highlighted certain occupations, such as ‘stockingers, handloom weavers, cotton spinners, artisans, shoemakers, small masters, tradesmen, publicans, book sellers and professional men’ who became the main thrust of this self-conscious working-class institutional movement, the same group that contributed to the membership of mechanics’ institutes.<sup>30</sup>

The working class was never as united or as self-confident as Thompson suggested. This social group was more fragmented, with marked divisions between urban and

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<sup>25</sup> McWilliam, *Popular Politics*, pp.16-17.

<sup>26</sup> E. P. Thompson, *The Making of the English Working Class* (London, 1968), p.8.

<sup>27</sup> *Ibid.*, p.13.

<sup>28</sup> Edward Royle, unlike Thompson, refers more specifically to 1833 when the term working class was used in the trade union periodical the *Pioneer*. *Ibid.*, p.83.

<sup>29</sup> Hudson, *The Industrial Revolution*, p.204.

<sup>30</sup> Thompson, *English Working Class*, p.23.

rural, skilled and unskilled. Harold Perkin cites an unreferenced contemporary account which supports this.

The ploughmen hold the mechanics in contempt as an inferior race of beings, although the latter can earn the best wages: The journeymen cabinet makers cannot degrade themselves by associating with the journeymen tailors, the journeymen shoemakers cannot so forget their dignity as to make companions of the labourers.<sup>31</sup>

It is therefore not surprising during the first twenty years or so that mechanics' institutes were being established, when the working class often had no allegiance to them or what they were offering, despite their committees believing that lectures and classes, the majority of which were in science, were for their benefit rather than the just the middle classes.

'Class' was a product of large-scale economic and social changes which had taken place in the late eighteenth and early nineteenth centuries. Before large-scale industrialisation, written accounts made reference to social hierarchy referring to 'ranks', 'orders' and 'common people'. Asa Briggs states, by 1824 the word 'class' had been added to the vocabulary, replacing these terms.<sup>32</sup> Thus, at the time that mechanics' institutes were being established throughout the country, with eight, including Huddersfield, being founded in Yorkshire alone between 1824 and 1827, the term 'class' was already being used.<sup>33</sup> The directors of the Huddersfield Institute had picked up on the term in their first *Report* of 1825.<sup>34</sup>

The largest group of the Victorian middle class was that associated with the professions and it was this group who particularly supported the mechanics' institutes and working-class education. During the first half of the nineteenth century entrepreneurship increased the numbers of employees who became part of this class

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<sup>31</sup> H. Perkin, *Origins of Modern English Society* (London, reprint 1986), p.264.

<sup>32</sup> A. Briggs, 'The Language of "Class" in Early Nineteenth-Century England', *Essays in Labour History* (London, 1960), p.231.

<sup>33</sup> *First Annual Report of the Yorkshire Union of Mechanics' Institutes 1838*, Appendix.

<sup>34</sup> *First Annual Report of the Huddersfield Mechanics' Institute, 1825*, p.2.

with a background in trade and business<sup>35</sup> Men, such as Isaac Holden, the son of a pit headman, became a successful woollen master in Bradford. He had started as a piecer at the age of 10 and by the time he was 40, he was the owner of his own worsted mill and was known as the 'first comber in Europe'. He became immensely wealthy with an aristocratic-style mansion, a seat in the House of Commons and a knighthood. The newly developing industrialists, bankers and merchants became part of the backbone of the 'middling' middle class. They were distinguished from the aristocracy and gentry because they worked for a living, and from the working class, because they were not manual workers.<sup>36</sup>

The membership of mechanics' institutes initially reflected this change in class order. Presidents of institutes were often from long-established aristocratic families, such as Sir John Ramsden, Baronet, at Huddersfield, and the Duke of Devonshire, who supported several, including the Institutes at Grassington and Keighley.<sup>37</sup>

Crucially, in relation to this work, the language of class highlights that the middle class and working class, or at least those sections which were seen as radicals, had more in common than was previously thought. While both had their own class identity, they also had much in common. Middle-class radicals supported the establishment and running of voluntary organisations for all, having a deep mistrust of state intervention, as did the working class.<sup>38</sup> Working-class radicals aligned

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<sup>35</sup> J. Tosh, *A Man's Place: Masculinity and the Middle-Class Home in Victorian England* (Bath, 1999), p.10.

<sup>36</sup> *Ibid.*, pp.12 – 13.

<sup>37</sup> The Eighth Duke of Devonshire encouraged technical, scientific and higher education. The Ninth Duke of Devonshire, like his father, was also interested in education. He had a particular interest in science and was a critic of 'the undemanding educational regime practiced in most public schools' which seldom offered science subjects. He was in charge of government education policy and was influenced by international competition by establishing a systematic policy for secondary education resulting in the passing of the 1902 Education Act. J. Parry, 'Spencer Compton Cavendish', *The Oxford Dictionary of National Biographies*, p.1. *The Report of the Royal Commission on Scientific Instruction and the Advancement of Science* [Devonshire Report] was published in 1872.

<sup>38</sup> The welfare reforms passed by the Liberals after 1906 were greeted with suspicion by the working class who disliked and mistrusted state power or at least that was the case until they could see that some of the legalisation was specific in supporting them. McWilliam, *Popular Politics*, pp.83 - 84.

themselves with middle-class sympathisers in relation to politics and ‘self-help’. The mechanics’ institutes are a good example of this, with middle-class radicals, such as Frederic Schwann, for example, a local export merchant of textiles who opposed the Corn Laws, supported the working class (his employees) with ‘self-improvement’, as a member and later President of the Huddersfield Mechanics’ Institute Committee. The language of the radicals established in the 1830s continued well into the 1870s.<sup>39</sup>

### **Early Mechanics’ Institutes and their Scientific Membership**

During the 1820s and 1830s when mechanics’ institutes were being established, most offered scientific curricula on the assumption that this was what adult education should be offering. Several mechanics’ institutes across the country, including the one at Sheffield, had highly reputable scientific classes and public lectures. While they were open to everyone of whatever class, the majority of members were middle-class professionals who could relate to the level of scientific knowledge being offered. Ian Inkster’s work shows, many institutes traced their origins back to establishing themselves as institutions specifically for science, among them Derby, Newcastle, Nottingham as well as Sheffield. While their scientific credibility is not being questioned, indeed many institutes had leading scientists as visiting lecturers, the depth and content of the lectures did not attract a working class following. At Newcastle, for example, there was an emphasis on the reading of papers on topics such as ‘The proper measure of the force of a body in motion’. At the same Institution classes were held in ‘chemistry and higher mathematics’, not practical and technical subjects relevant to a working class population.<sup>40</sup> As this work will prove the

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<sup>39</sup> *Ibid.*, 84.

<sup>40</sup> I. Inkster, ‘Science and the Mechanics’ Institutes, 1820 – 1850: the Case of Sheffield’, *Annals of Science*, Number 32, 1975, 256.



mechanics' institute movement would only survive if it offered elementary education to working-class adults. This process of change took several years.

The main object of the Sheffield Mechanics' Institute had been 'to supply, at a cheap rate, education to the [labouring] classes of the community'; in reality 'the initial response of the working class to such middle class efforts was weak.' Occupations of members of the Sheffield Mechanics' Institute verify that, in 1832, none were from the labouring classes.<sup>41</sup> Sheffield had a coherent 'scientific community' of middle-class members which in itself must have discouraged the working class from partaking because of the level and content of lectures.<sup>42</sup> While 176 out of the 487 members, or 35 per cent, were apprentices, justifying a separate chemical class, there is no evidence to indicate that these lectures were a long-term success or what background the apprentices came from.

There is much to be said for this argument for the first thirty years of the movement and it reinforces the point made by many contemporaries and historians that the movement failed in its aim of attracting the working classes. However, is this argument tenable for the subsequent 40 or 50 years, the period on which little historical research has been undertaken?

### **Re-assessing Class and Membership**

Eric Hobsbawm has conducted substantial and highly acclaimed work on class. He puts the working class into three distinct categories over three defined periods. Hobsbawm identifies the first period (1780s to 1815) as 'the classical age of the Industrial Revolution [which] saw the birth of the modern working class' and the period prior to the foundation of the mechanics' institute movement. The second

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<sup>41</sup> *Ibid.*, 470.

<sup>42</sup> *Ibid.*

period (1840s to 1870s) saw the establishment of capitalism which ‘ruled supreme’. Crucially, this was the era in which Hobsbawm states the labour aristocracy developed, the same period during which the major expansion of mechanics’ institutes also took place and which this study has concentrated on. The third period (1890s to 1914) was one of imperialism, ‘monopoly capitalism’ and mass-production and expansion of secondary and tertiary industries, the period during which the state established and funded technical colleges and schools of art (many of them previously mechanics’ institutes) following the need to expand technical education.<sup>43</sup>

Hobsbawm stipulates that there were six factors that should be considered in relation to labour aristocracy, that is, those who were in regular paid work and generally good living conditions and status, during the second period between the 1840s and 1870s. These are listed in Table 1.1 below.

**Table 1.1 Hobsbawm’s six factors relating to the labour aristocracy**

<b>Factors</b>	<b>Criterion</b>
1	Level and regularity of a worker’s earnings
2	His prospect of social security
3	His conditions of work, including the way he is treated by foremen and masters
4	His relations with the social strata above and below
5	His general condition of living
6	His prospects of future advancement and those of his children

E. J. Hobsbawm, *Labouring Men, Studies in the History of Labour* (London, 1964), p.273.

Those at the top of the working-class social strata tended to merge with the ‘lower middle class’ and, in the first half of the nineteenth century, this group would include small shopkeepers, foremen and managers, the latter being promoted workers. By the end of the century, clerks, book-keepers, managers ‘and the better sort of working folk’ as distinct from employers, solicitors, physicians and tradesmen, were on the line between being lower middle class and upper working class, who Hobsbawm saw as the labour aristocrats.

<sup>43</sup> E. J. Hobsbawm, *Labouring Men, Studies in the History of Labour* (London, 1964), p.272.

It was the Victorians who were the first to refer to the ‘superior stratum’ of the manual workers ‘as the aristocracy of the labouring classes’ or the upper working class.<sup>44</sup> Contemporary middle-class observers thought that that they made up about 50 per cent of all manual workers but Hobsbawm believes that they were a somewhat smaller group. He identified that this group were superior in terms of their economic (higher, regular wages who had the opportunity to save), social, political and cultural standing in society. They were seen as ‘respectable’ and ‘as the Victorians believed, moral’. The working-class aristocracy was associated with various organisations such as trade unions, cooperatives and friendly societies although he makes no reference to mechanics’ institutes specifically; the same must have been true.<sup>45</sup>

During the period of the Great Depression (1873 – 1896) there was a growth in class consciousness as a result of the tensions during the period. There was also the rise in tertiary employments and during the 1880s a rise in real wages due to falling living costs. Both the lower middle class and upper working class were attempting to ‘better themselves’ by personal effort and self-help which both subscribed to. For ‘one group [the working class] self-help could not become real without collective institutions such as friendly societies and cooperatives’.<sup>46</sup> Mechanics’ institutes must be included in the list of institutions that attracted the upper working class (and lower working class).

Hobsbawm’s third period covers thirty years during which class identity changed. The skills of the workforce continued to develop and resulted in exploitation between the skilled or ‘privileged workers [who] systematically protected their position by exploiting weaker [non-skilled] workers’.<sup>47</sup> In spinning mills, for example, ‘mind-ers’

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<sup>44</sup> E. J Hobsbawm, *Worlds of Labour, Further Studies in the History of Labour* (London, 1984), p.183.

<sup>45</sup> *Ibid.*, p.227.

<sup>46</sup> *Ibid.*, p.243.

<sup>47</sup> J. Harris, *Private Lives, Public Spirit: Britain 1870 – 1914* (London, 1993), p.10.

deliberately excluded the ‘piecers’, who they saw as inferior, from the acquisition of new skills which resulted in preventing them from progressing in their jobs as well as controlling their wages and even compelling them to join a separate union (subscriptions to which were deducted by the minders from the piecers weekly wage). This may well account for the fact that few piecers attended mechanics’ institutes during the first half of the nineteenth century.<sup>48</sup>

The example of piecers indicates that there was a changing nature with regards to occupational membership of mechanics’ institutes from the mid-nineteenth century onwards. In the case of mechanics’ institutes of the Yorkshire Union up to 1850, only Todmorden listed ‘piecers’ as one of several occupations, of whom there was only one attending in 1841 and two in 1843. Neither Keighley nor Huddersfield had listed them. However, ‘piecers’ were well represented amongst the membership during the second half of the nineteenth century and this is likely to be due to the institutes being more welcoming to the working class generally and the less skilled, or ‘lower working class,’ in particular.<sup>49</sup> Many institutes also reduced membership fees and offered fortnightly, rather than quarterly, payments. On both accounts, this was certainly the case at Huddersfield in 1857, of whose membership included 47 piecers out of a total membership of 662 or just over seven percent (see Tables 1.10 below).

Hobsbawm is only one of many historians to seek to define the working class. R.S. Neale has sought to categorise class in the nineteenth century with a five-class model of social structure. Like Hobsbawm’s work, this is very useful, for it allows the use of occupation lists of members of mechanics’ institutes to be further considered in relation the precise social status of their membership (Table 1.2).<sup>50</sup>

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<sup>48</sup> *Ibid.*

<sup>49</sup> *Ibid.*

<sup>50</sup> R.S. Neale, *Class in English History 1680 – 1850* (Oxford, 1981), p.133

**Table 1.2 Neale’s Five-Class Model**

<b>Class</b>	<b>Component</b>
1. Upper-class	Aristocratic, landowning, authoritarian, exclusive.
2. Middle class	Large industrial and commercial property-owners, senior military and professional men, aspiring to acceptance by the upper class.
3. Middling class	Petit bourgeois. Aspiring professional men, other literates and artisans, concerned about removing the privileges and authority of the upper class in which, without radical changes, they cannot realistically hope to share.
4. Working class A	The industrial proletariat in factory areas, workers in domestic industries, collectivist and non-deferential and wanting government intervention to protect rather than liberate them.
5. Working class B	Agricultural labourers, other low-paid non-factory urban labourers, domestic servants, urban poor, most working-class women whether working-class A or B households.

R. S. Neale, *Class in English History 1680 – 1850* (Oxford, 1981), p.133.

Neale’s five-class model provides useful categories that help identify class and membership occupations of those who attended mechanics’ institutes and, crucially, allows exploitation of the point that the working class began to be attracted to them. Neale’s model does provide a good device to use in relation to the membership of mechanics’ institutes, as it summarises occupations in relation to class which can be related to occupation of members as listed by institutes in their Annual Reports. This allows categorisation of mechanics’ institute membership occupation to class.

The Manchester Mechanics’ Institute, for example, associated during the 1820s with delivering scientific lectures to the professional classes,<sup>51</sup> saw a change in membership occupations as early as 1831, when out of 330 members the vast majority were working class. Table 1.3 below shows the breakdown by occupation.

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<sup>51</sup> John Davis addressed over 1,000 people in his first lecture on natural philosophy in 1829. Inkster, ‘Science and the Mechanics’ Institutes’, 456.

**Table 1.3 Manchester Mechanics' Institute Occupations of Membership for 1831**

Occupation	Occupation	Occupation
Accountants 3	Dyers and Drysalters 2	Plumbers and Glaziers 8
Architects and Surveyors 5	Gas Lighters 1	Solicitors 1
Bookmakers 1	Gentlemen 5	Surgeons 1
Bricklayers 1	Joiners and Builders 22	Tailors 5
Cabinet Makers 6	Hair Dressers 3	Tin Plate Workers 1
Carders 5	Mechanics and Machinists 43	Tool Makers 2
Carriers 1	Manufacturers and Merchants 7	Warehousemen 55
Clerks 83	Packers 2	Warpers and Weavers 9
Cotton Spinners 12	Painters 3	Youths 43

Tylecote, 'The Mechanics' Institutes in Lancashire and Yorkshire, 1824 – 1850', Volume I, Appendix 2, p.237.

The Ancoats Mechanics' Institute in Manchester, on the other hand, from its foundation in 1838, concentrated on offering elementary education. In 1842 there were 310 members of whom 210 were in occupations known to be working class, among them carders, weavers and spinners. Of the remaining 100, the occupations of 20 were not recorded.<sup>52</sup>

The same was also true for Bradford, a Yorkshire Union Institute, in 1838, when the Committee reported to the newly formed Yorkshire Union, that out of 540 members, 300 were from 'the class for whom especial benefit it is intended to support', namely, the working class.<sup>53</sup> In the 1860s, John Godwin studied the occupations of fathers and sons at Bradford Mechanics' Institute. The majority, he found, were from the working class (Table 1.4 below). Godwin's work strongly supports the view that the working-class aspirations of fathers were being passed on to their sons in order that they too could 'better themselves'.

<sup>52</sup> *Report from the Select Committee on Education, Manchester and Salford, and proceedings, Minutes of Evidence* (1853, London, House of Commons), pp.74 – 78.

<sup>53</sup> *First Report of the Yorkshire Union of Mechanics' Institutes*, 1838, p.19.

**Table 1.4 Father and Son Occupations at Bradford for 1842**

Fathers Occupations		Sons Occupations	
Unknown	6	In offices	3
Woolsorters	6	Woolcomber	1
Woolcombers	5	Factory boys	4
Plaster	1	Shop boy	1
Sawyer	1	In warehouses	10
Overlookers	3	Apprenticed to mechanics	3
Weaver	1	Shoemaker	1
Middle-class	3	Printer	1
		Joiner	1
		Bookbinder	1

J. V. Godwin, 'The Bradford Mechanics' Institute', *Transactions of the National Association for the Promotion of Social Science* (1859), 342.

Godwin noted that:

on the broad platform of Mechanics' Institutes men of all ranks and opinions have united to assert equality of intellectual rights. It may be said with equal truth, that, next to Sunday schools, they have been one of the strongest moving powers in the work of popular education, hitherto the greatest work of the nineteenth century.<sup>54</sup>

Looking at the same issue twenty years later, Godwin noted in 1859 that membership patterns identified that mechanics, labourers, warehousemen and others made up the highest percentage of members (Table 1.5 below).<sup>55</sup>

**Table 1.5 Percentage of members per occupations at Bradford Mechanics' Institute 1859**

Occupations	Percentage
Life members: merchants, manufacturers, etc	12
Ministers, professional men, school masters, etc	5
Shopkeepers, bookkeepers, agents, cashiers, etc	18
Mechanics, labourers, warehousemen, etc	65
Total	100

J. V. Godwin, 'The Bradford Mechanics' Institute', *Transactions of the National Association for the Promotion of Social Science* (1859), 343

Godwin reported that the Bradford Mechanics' Institute had seen:

an unbroken stream of youths, sons of working men, rising to the positions of responsibility, which in all probability they never would have filled without its [mechanics' institute] aid, and in many cases entering upon and pursuing a successful middle-class career by the habits, the knowledge, and connexions acquired in this Institute.<sup>56</sup>

<sup>54</sup> J. V. Godwin, 'The Bradford Mechanics' Institute', *Transactions of the National Association for the Promotion of Social Science* (1859), 344.

<sup>55</sup> *Ibid.*, 342.

<sup>56</sup> *Ibid.*, 343.

Godwin’s work indicates that working-class members were attending the Institute and shows social and economic mobility through education.

### **Yorkshire Union Occupations of Membership**

Occupational membership profiles of several Yorkshire Union mechanics institutes reveal that the working class attended them. A number of examples will be examined. The work of both Hobsbawm and Neale support the findings.

At the Keighley Mechanics’ Institute in 1840, for example, membership included three surgeons and two solicitors, who are classified by Neale as being middle class. However, there were also fourteen spinners, six woolsorters, three woolcombers and three overlookers, who were from his category of working-class A. (See Table 1.6 below).

**Table 1.6 Occupations of those who attended Keighley Mechanics’ Institute 1840**

Butcher	1	Joiners and Cabinet Makers	3	Surgeons	3
Book-Keepers and Bankers	5	Linen Drapers	3	School Master	4
Corn Dealers	2	Licensed Victualler	1	Spinners and Manufacturers	14
Clergy and Gentry	8	Mechanics and Moulders	5	Solicitors	2
Clogger	1	Woolsorters	6	Cordwainer	1
Masons	3	Watchmaker	1	Druggists	4
Overlookers	3	Woolcombers	3	Farmers	4
Painters and Gilders	2	Grocers	2	Plasterer	1
Hatter	1	Printers and Stationers	2	Hair Dresser	1
Reed Heald Makers	2	Ironmonger	1	No trade	5
				Total	94

*Third Annual Report of the Yorkshire Union of Mechanics’ Institutes, 1840, p.87.*<sup>57</sup>

At Todmorden Mechanics’ Institute, in 1841, there were few, if any, occupations that would be defined by Neale as from the middling class. This is not surprising, when the population of Todmorden was smaller than that of Keighley and with the exception of one or two factory-owning families, including the Fieldens, it was a typical Pennine working-class textile community. Working-class A members included

<sup>57</sup> *Third Annual Report of the Yorkshire Union of Mechanics’ Institutes, 1840, p.87.*



thirteen weavers, six overlookers; three mule spinners and three warehousemen<sup>58</sup> (see Table 1.7 below).

**Table 1.7 Occupations of those who attended Todmorden Mechanics' Institute in 1841**

Builder	1	Moulders	3	Shoemaker	1
Corn dealers	2	Mule Spinners	3	Stripper	1
Druggist	1	Mechanic	1	Sizer	1
Farmer	1	Overlookers	6	Solicitor	1
Grocers	4	Printers	3	Weavers	13
Ironmonger	1	Picker Maker	1	Warehousemen	3
Iron founder	1	Piecers	1	Whitesmith	2
Junior	1	Rope Maker	1	No trade or profession	14
Merchants	4	Schoolmasters	3		
Manufacturers	4	Schoolboy	1	Total	79

*Fourth Report of the West Riding Union of Mechanics' Institutes, 1841, p.28.*

In 1843, there were two middle-class solicitors and a surgeon but the majority continued to be working class occupations including four warehousemen, three overlookers and three weavers from working-class A (see Table 1.8 below).<sup>59</sup>

**Table 1.8 Occupations of those who attended Todmorden Mechanics' Institute in 1843**

Bookseller	1	Manufacturers	2	Solicitors	2
Builder	1	Mechanics	1	Schoolmasters	3
Clog & Pattern Makers	2	Moulders	2	Surgeon	1
Druggist	1	Mule spinners	2	Sizer	1
Dissenting Minister	1	Overlookers	3	Warehousemen	4
Hardwareman	1	Printer	1	Weavers	3
Iron-founder	1	Painter	1	No trade or profession	9
Land Surveyor	1	Piecers	2		
Merchants	4	Rope-maker	1	Total	51

*Sixth Annual Report of the Yorkshire Union of Mechanics' Institutes, 1843, p.35.*

The final example, Huddersfield Mechanics' Institute, was opened in 1825 but closed due to a small membership, and re-opened in 1841.<sup>60</sup> In 1844, the *Annual Report* to the Yorkshire Union referred to the fact that 'nearly the whole of the members are operatives in the receipt of weekly wages. The ages of members vary from 12 to 50; the greater part from 12 to 24'. In 1847 the occupations of members at the Huddersfield Mechanics' Institute were substantially working-class (Table 1.9).

<sup>58</sup> *Fourth Report of the West Riding Union of Mechanics' Institutes, 1841, p.28.*

<sup>59</sup> *Sixth Annual Report of the Yorkshire Union of Mechanics' Institutes, 1843, p.35.*

<sup>60</sup> *Annual Report of the Huddersfield Mechanics' Institute, 1841, p.2.*

**Table 1.9 List of Occupations at the Huddersfield Mechanics' Institute in 1847**

Occupations	Occupations	Occupations
Finishers 58	Clerks 15	Spinners 27
Dyers 14	Carpenters 27	Printers 12
Students 71	Mechanics 24	Errand and Factory Hands 52
Weavers 41	Warehousemen 14	Masons 13
Smiths 13	Shoemakers 14	Woolsorters 12
Wheelwrights 12	Twiners 13	Printers 10

Tylecote, 'The Mechanics' Institutes in Lancashire and Yorkshire, 1824 – 1850', Volume II, Appendix 2, p.455.

The Huddersfield Committee reported in 1848 that 'the members of the Institution belong almost exclusively to the working classes' and it particularly, and rightly, admired the fact that 'after their day's labour is over in the workshops and factories, they come hither to seek instruction, instead of spending their time in idleness'.<sup>61</sup>

By 1850 Huddersfield was the tenth largest institute in Britain and the second largest in the Yorkshire Union with 887 members.<sup>62</sup> The Huddersfield Mechanics' Institute membership in 1857 was 662 and included 30 mechanics, two solicitors, one dentist and one architect who were obviously middle class. However, there were also 108 finishers, 60 warehousemen and boys, 27 spinners, 24 dyers and 22 weavers from Working-Class A.<sup>63</sup> The spinners were the best-paid skilled adult workers as they supervised the work of semi-skilled piecers, thus the former would be Working-Class A and the latter Working-Class B (Table 1.10 below).<sup>64</sup>

<sup>61</sup> *Annual Report of the Huddersfield Mechanics' Institute*, 1848, p13.

<sup>62</sup> Hudson, *Adult Education*, pp.222 – 236.

<sup>63</sup> Huddersfield Mechanics' Institute Class Registers 1857, University of Huddersfield Archives.

<sup>64</sup> R. Gray, *The Aristocracy of Labour in Nineteenth-century Britain c.1850 – 1914* (London, 1981), p.26.

**Table 1.10 Known Occupations of the membership at Huddersfield Mechanics' Institute 1857.**

Finishers	108	Printers	6	Surveyors	2
Warehousemen / Boys	60	Plumbers	6	Twisters	2
Piecers	47	Smiths	6	Architect	1
Student	38	Bookbinders	5	Carder	1
Clerks	30	Coopers	5	Clogger	1
Mechanics	30	Manufacturers	5	Coal dealer	1
Spinners	27	Nippers	5	Confectioner	1
Joiners/Cabinet	24	Clothier	4	Dentist	1
Dyers	24	Feeders	4	Designer	1
Weavers	22	Slipper manufacturers	4	Druggist	1
Errand Boys	19	Slubbers	4	Fish dealer	1
Masons	19	Sweeps	4	Gas worker	1
Tailors	13	Builders	3	Glass dealer	1
Grocers	12	Pupil-teachers	3	Hatter	1
Letter Carriers	12	Saddlers	3	Labourer	1
Drapers	9	Watchsmiths	3	Manager	1
Painters	8	Wheelwrights	3	Music seller	1
Printer	8	Book sellers	2	Organ builder	1
Woollen sorters	8	Clippers	2	Overlooker	1
Butchers	7	Colliers	2	Tea dealer	1
Millwright	7	Engineer	2	Toy manufacture	1
Shoemakers	7	Feeders	2	Wool stapler	1
Carvers	6	Moulders	2		
Curriers	6	Silk dressers	2	Total	662

Huddersfield Mechanics' Institute Class Registers 1857, University of Huddersfield Archives.

Edward Royle has argued that warehousemen, who were the second largest group by occupation in 1857, were lower-middle class.<sup>65</sup> This may have been the case previously but the class registers of the Huddersfield Mechanics' Institute for the 1850s and 1860s, which included names, occupations and addresses, confirm that the warehousemen who did attend, and there were many, lived in the poorer eastern district of the town.<sup>66</sup>

There were changes in names and types of occupations. At the Huddersfield Mechanics' Institute, for example, the largest group who attended in 1876 were the 483 factory operatives, making up 26 per cent of the total membership (Table 1.11 below).<sup>67</sup> Warehousemen and boys made up nearly 8 per cent while mechanics only accounted for 3 per cent and engineers less than 1 per cent. Occupations include those

<sup>65</sup> E. Royle, *Modern Britain, A Social History 1750 – 1985* (London, 1987), p.248.

<sup>66</sup> Huddersfield Mechanics' Institution, Class Registers 1856 – 1868. HMI/5/2.

<sup>67</sup> Operative was a general term for all those manual workers employed in the mills and factories.

from both Working-Class A and B, such as chimney sweepers as well as teachers, mechanics and engineers who may have been from the middling class but not necessarily.<sup>68</sup>

**Table 1.11 Known Occupations of the membership at Huddersfield Mechanics' Institute 1876**

Factory Operatives	483	Engineers	13	Wiredrawers	4
Bookkeepers	158	Letter Carriers	12	Sawyers	4
Warehousemen / Boys	113	Marble Masons	11	Basket Makers	3
Errand Boys	92	Moulders	11	Brokers	3
Joiners/Cabinet	83	Rug Makers	11	Saddlers	4
School Boys	75	Plasterers	10	Ministers	4
Mechanics	56	Designers	10	Cloggers	3
Teachers	53	Porters	10	Soda Water Makers	3
Labourers/Colliers	38	Ironmongers	10	Surgeons	3
Masons	37	Pattern Makers	10	Chimney Sweepers	3
Dyers	31	Wheelwrights	9	Hawkers	3
Drapers Assistants	30	Timekeepers	8	Pianoforte Makers	2
Woollen Manufacturers	27	Watch makers	8	Drysalters	2
Printers	27	Bookbinders	8	Colourmakers	2
Smiths	26	Woolsorters	8	Engravers	2
Greengrocers	26	Organ Builders	8	India Rubber Manufactures	2
Shop Assistants	22	Ropemakers	7	Page Boys	2
Painters	19	Nippers	6	Confectioners	2
Chemists	17	Butchers	6	Carvers & Gilders	2
Leather Curriers	16	Surveyors	6	Bakers	2
Railway Servants	16	Brickmakers	6	Clothes Dealers	2
Messengers	16	Lithographers	6	Hair Dressers	2
Tobacco Twisters	16	Cardmakers	6	Compositors	2
Plumbers	16	Upholsters	5	Coopers	2
Farmers / Gardeners	16	Brassfounders	4	Waste Dealers	1
Wool Turners	14	Stokers	4		
Tailors	13	Tinners	4	Total	1,825

*Thirty-Ninth Report of the Yorkshire Union of Mechanics' Institutes, 1876, p.160.*

Between 1876 and 1877 there was a fall in membership at Huddersfield due to a depression in trade. Factory operatives were still the largest group attending, down to 447 and making up 38 per cent of members, an increase of 12 per cent. Warehousemen and boys were down by only 2 and made up 9 per cent, an increase of 1 percent, of membership. Membership of mechanics has also seen a slight rise, of 2, and making up 5 per cent and labourers and colliers were also up by 5, contributing to

<sup>68</sup> *Thirty-Ninth Report of the Yorkshire Union of Mechanics' Institutes, 1876, p.160.*

4 per cent, an increase of 1 percent. Thus, working-class occupations continued to be well represented at Huddersfield (see Table 1.12 below).

**Table 1.12 Known Occupation of the membership at Huddersfield Mechanics' Institute 1877**

Factory Operatives	447	Joiners&Cabinet Mkrs	76	Labourers and Colliers	43
Bookkeepers and Clerks	158	School Boys	74	Masons	35
Warehousemen and boys	111	Mechanics	58	Shop Assistants	33
Errand Boys	89	Teachers	56	Total	1,180

Source: *Fortieth Report of the Yorkshire Union of Mechanics' Institutes*, 1877, p.129.

Two years later, in 1879, membership had increased to 572. Of this number, 461 were factory operatives contributing 26 per cent and warehousemen and boys made up 241 or 14 per cent. Added to this number were 138 teachers and scholars, providing 8 per cent of the membership, indicating that the Institute was offering subjects relevant to these two groups.<sup>69</sup> There were also several occupations that Neale has identified as Working Class B, such as porters and gardeners. (See Table 1.13 below).

**Table 1.13 Known Occupation of the membership at Huddersfield Mechanics' Institute 1879**

Factory Operatives	461	Building Trades	220	Warehousemen and Boys	241
Teachers and Scholars	138	Iron Trades	158	Woollen Manufacturers	62
Leather Trades	21	Tailors	8	Bookkeepers, Clerks	158
Printing, Bookbinding	39	Porters, Letter Carriers	31	Solicitors, Accountants	39
Shopkeepers	47	Farmers, Gardeners	11	Watchmakers	9
Cabinet Making	21	Designers	17	Dyers	25
Miscellaneous	46			Total	1,752

Source: *Forty-Second Report of the Yorkshire Union of Mechanics' Institutes*, 1879, p.111.

Finally, in 1881, ten years before the passing of the first Technical Instructions Act in 1889, which resulted in state recognition and funding for post-school education, factory operatives were still the largest group at Huddersfield with 396 or 30 per cent. Labourers and colliers made up 2 per cent, as too did the dyers, and mechanics 3 per cent. However, there were several specialist trades, which together contributed to about 74 or 6 per cent of the total membership. Also, manufacturers, chemists and

<sup>69</sup> *Forty-Second Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1879, p.86.

school masters were now prominent, indicating that the Institute had something to offer in relation to subjects, across the social divide (see Table 1.14 below).

**Table 1.14 Known Occupation of the membership at Huddersfield Mechanics' Institute 1881**

Factory Operative	396	Pattern-Makers	6	Organ Builders	2
Clerks and Office Boys	137	Tinners	6	Corn Dealers	2
Warehouse Boys	65	Wood Carvers	6	Engravers	2
Errand Boys	64	Grooms	6	Foremen	2
School Boys	56	Gasfitters	5	Packingmaker	1
Joiners & Cabinet Makers	62	Whitesmiths	5	Porter	1
Pupil Teachers	45	Marble Masons	5	Apprentice	1
Mechanics	43	Moulders	5	Clipper	1
Masons	36	Travellers	5	Artist	1
Manufacturers	34	Coachbuilders	4	Soda-Watermaker	1
Labourers & Colliers	29	Brick Moulders	4	Pork Butcher	1
Dyers	29	Hawkers	4	Milkseller	1
Grocers	25	Waste Dealers	4	Card Nailer	1
Shop Boys	21	Rope-Makers	4	Clothier	1
Printers	20	Plasterers	4	Dentist	1
Engineers	20	Butchers	4	Billiard Proprietor	1
Painters	18	Photographers	4	School Board Visitor	1
Bookkeepers	15	Drysalters	4	Cooper	1
Chemists	14	Architects	4	Wine Merchant	1
Schoolmasters	14	Merchants	4	Veterinary Surgeon	1
Designers	11	Nippers	3	Goldsmith	1
Blacksmiths	10	Bookbinders	3	India Rubbermaker	1
Drapers	10	Finedrawers	3	Waiter	1
Gardeners & Farmers	9	Firemen	3	Agent	1
Wheelwrights	9	Upholsters	3	Wire Drawer	1
Jewellers	8	Cloggers	3	Stoker	1
Rug-Makers	8	Pipemakers	3	Oil Merchant	1
Telegraph Boys	8	Accountants	3	Police Officer	1
Ironmongers	8	Tobacconists	3	Brushmaker	1
Brass Finishers	7	Letter Carriers	3	Dressmaker	1
Confectioners	7	Timekeepers	3	Miller	1
Tailors	7	Potters	2	Salter	1
Shoemakers	7	Curriers	2	Carrier	1
Surveyors	7	Woolsorters	2		
Plumbers	6	Bottle Washers	2		
Hairdressers	6	Sawyers	2	Total	1,307

Source: *Forty-Fourth Report of the Yorkshire Union of Mechanics' Institutes*, 1881, p.101.

Some institutes did not submit lists of members occupations in their Annual Reports to the Yorkshire Union, but did make reference to membership profiles. At the Stockton Mechanics' Institute, for example, in 1849, there had been a substantial increase in working-class membership of up of 200 journeymen and assistants and 100 apprentices, making up 75 per cent of its total membership. When the Institute

had first opened in 1825 there had been only two journeymen.<sup>70</sup> The Committee at Darlington Mechanics' Institute reported a change in membership in 1859 to the Yorkshire Union of Mechanics' Institute, stating that:

although Mechanics' Institutions have not been so generally supported by the class for whose benefit they were originally intended, the Committee is glad to say the Darlington Institute includes a fair proportion of working men amongst its members. Such associations open to every class and presenting a common ground of union, commend themselves to the support of all interested in the scope of the labours and generous rivalry of this kindred Institution.<sup>71</sup>

Neale and Hobsbawm complement and support the argument here that occupations of members who attended the mechanics' institutes after 1830 were working class. Hobsbawm in particular is more specific about what occupations he sees as being of the labour aristocracy and actually increases the number of occupations of those institutes discussed here as being working class (Tables 1.6 to 1.14 above).<sup>72</sup> Thus, workers, often from the more skilled trades, together with those from the lower middle classes, were also the ones who aspired to intellectual development, previously reserved for the 'higher reaches of society'. Mechanics' institutes were ideally suited to supporting these classes.<sup>73</sup>

Neale's five-class model provides the appropriate categorisation for identifying class in relation to occupations of members of mechanics' institutes and which supports the main hypothesis of this study, that the majority of members of institutes after their early years were working class and specifically from Working-Class A.

The evidence provided in relation to occupations of members of several Yorkshire Union institutes which has survived through the Annual Reports of the Yorkshire Union, indicates that there was a change in the occupational membership of many

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<sup>70</sup> *Twelfth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1849, p.86.

<sup>71</sup> *Twenty Second Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1859, p.76.

<sup>72</sup> Hobsbawm, *Labouring Men*, p.274.

<sup>73</sup> Royle, *Modern Britain*, p.248.

mechanics' institutes, from middle-class towards more working class, as defined by Hobsbawm and Neale. Smaller institutes did not include a listing of members occupations, in some cases only sending in brief reports, but with the evidence provided above and the known locations of the smaller institutes, in rural areas and small textile communities, the evidence provided puts beyond doubt that there was a large working class membership.

### **Further evidence of Working-Class Occupational Membership in Mechanics' Institutes**

Another very important indicator that the mechanics' institute membership was becoming more working class, were the changing attitudes of many mechanics institute committees. At Middlesbrough, for example, as early as in 1849, the Committee was conscious that the welfare of the Institute depended on the activities and energies of working-class members 'who could understand and appreciate the wants of the working classes'.<sup>74</sup>

The Hartlepool Institute in 1860 identified the need, through putting out an appeal, for working-class men to become Committee members in order that they had ownership of decision making.<sup>75</sup> The Committee at Stockton reported in 1861 that: 'it was gratifying...to state that the proportion of working men belonging (to) the Institute is on the increase. Indeed, out of the 348 members, 186 [58 per cent] consisted almost exclusively of working men and working apprentices, more than one half [of] the entire number of members'.<sup>76</sup>

The Committee was enthusiastic about encouraging the working class to attend the Institute, sending out a plea to employers that it respectfully urged 'upon the firms, employing large numbers of workmen, and the members generally, to use efforts to

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<sup>74</sup> *Twelfth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1849, p.71.

<sup>75</sup> *Twelfth Third Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1860, p.86.

<sup>76</sup> *Twenty-Fourth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1861, p.128



increase the number of members, so as to enable them to spend still more on the classes, which they [the Committee] believe to be the most important means of usefulness in Mechanics' Institutes'.<sup>77</sup>

Other mechanics' institutes experiencing working-class involvement included the Keighley Institute, which reported in 1838 its pride in the fact that it was established by four working-class men; a reed-maker, a painter, a tailor and a joiner, who 'were anxious to secure for their own town and neighbourhood the benefits to be derived from such societies as had recently been established in Glasgow, Edinburgh, London, Liverpool, and a few other places'.<sup>78</sup> When Huddersfield reopened in 1841, it was established by a small group of employees of Frederic Schwann, who had originally provided a library for his employees.<sup>79</sup>

The Committee reported in 1853 to the Yorkshire Union that it was 'mainly working men – men engaged all day long in the mills, factories, and workshops – who have come night after night for years together, and without any other reward except the approbation of their own consciences, have devoted themselves to its service, either as committee-men, teachers, or librarians', as well as students.<sup>80</sup> Thus, not only were the students working class, but so were many members of staff, a development in several institutes in the district encouraged by committees, adding to the sense of a

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<sup>77</sup> *Twenty-Fifth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1862, p.130.

<sup>78</sup> *Twenty- Second Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1859, p.95. For more detailed research into Keighley Institute's history see M. Tylecote, *The Mechanics' Institutes of Lancashire and Yorkshire*, pp.224 – 241.

<sup>79</sup> *Sixth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1843, p.25. David Johnson, who was President of the Mechanics' Institute in 1882 when Schwann died, stated that 'he did not wait till people had settled what part Parliament or Government should take in the matter (education of adults), he did not wait till Church and Dissent had settled their petty differences; but seeing the work before him put his heart to it in order to assist his fellow man and fellow brother'. He believed in strongly in non-state intervention in education, 'believing that people ought to see to their own education', and he argued that they would think more of it, if they had to 'labour for its acquisition through self-help'. *Huddersfield Examiner*, 29 April 1882.

<sup>80</sup> *Sixteenth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1853, p.74.

real pride in themselves as working-class self educators who knew first hand the educational needs of the working-class membership.

In the Yorkshire Union, there is substantial evidence of the establishment of working-class mechanics' institutes. While the larger general mechanics' institutes founded in the 1820s and 1830s, such as those at Keighley and Skipton in the Yorkshire Dales and at Darlington, Hartlepool, Middlesbrough and Stockton in the North East, those established in the smaller communities such as in the agricultural districts of the Dales and Pennines, and mining communities of the North East, had predominately working-class membership from their foundation. It was not just mechanics' institute committees that reported working-class involvement. Barnet Blake, a Yorkshire Union agent and lecturer, observed that in the case of the Yorkshire Union at least, the majority of institutes not only provided 'educational wants of working men' but they were also 'mainly supported, and, in many instances, managed by them'.<sup>81</sup>

## **Summary**

Contemporaries and historians have argued that these mechanics' institutes established by the middle class were not the success they had hoped they would be in providing working-class education and that, by 1850, they were in decline. Historians have therefore assumed that the movement 'failed' in its objective, especially as many studies related to the movement up to 1850 reflect this. The majority of historians who have written on mechanics' institute are convinced that they were established, managed and patronised by the middle class. Several argue that the early founders, such as Birkbeck and Brougham, reinforced middle-class ideology. The public

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<sup>81</sup> B. Blake, 'The Mechanics' Institutes of Yorkshire', *Transactions of the National Association for the Promotion of Social Sciences* (1859), 335.

lectures and teaching were of a scientific and intellectual level which discouraged the working classes from attending in any case, all of which contributed to their failure.

However, over several years, as the membership became much broader, mechanics' institutes were also being patronised by the working class, as evidenced by the work of Thompson, Hobsbawm and Neale. Their work, relating to several specific examples of occupations of members at Yorkshire Union institutes, confirms that there was an increase in the number of working-class members attending them. The 'old' skilled occupations were being replaced with industrial ones associated with the labour aristocracy. There were also members with occupations associated with both Working Class A and Working Class B as identified by Neale.<sup>82</sup>

The membership was not only made up of a growing number of working-class attendees at mechanics' institutes, but there is also substantial evidence that many institutes encouraged them to be part of the committees. Such an opportunity not only encouraged new working-class members but also enabled them to inform their institutes of what subjects and support were required to continually attract new members.

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<sup>82</sup> Working Class B included miners who had the opportunity to attend mechanics' institutes being established in the new developing coal and iron stone mining communities of the North East and rural workers in the agricultural and small-scale industries in the Dales and Pennines (See Chapter 5).

## Chapter Two

### Mechanics' Institutes and Female Membership

#### Introduction

An article entitled 'Practical Female Education' was published in the *1858 Annual Report of the Yorkshire Union*. The unknown author made a strong case for admitting females into mechanics' institutes, the argument being that 'improvidence is the great bane of the working classes. They live from hand to mouth, have no desire to save, and do not possess the all-important art of making a little go a long way'. It argued that in working class families in the industrial towns, while their income was higher than that in the countryside, every penny earned was spent on the family in both food and clothes. In agricultural districts, wages were even lower. Any reduction in working hours meant a substantial fall in income and any stoppages in the mills or ill-health resulted in abject poverty. Thus, to teach both women and girls principles of cooking and dress-making would, so it was believed, support the economy of the home. The author believed mechanics' institutes should offer such courses to adult females and National Schools should provide them for girls. It was on this basis of home economics and dress-making that female membership evolved at mechanics' institutes in the Yorkshire Union.<sup>83</sup>

Despite the male dominance of Victorian society, it is clear that there were a significant number of mechanics' institutes in the Yorkshire Union which accepted women. This chapter focuses on women's position in society and female membership patterns at mechanics' institutes, supported with evidence from the Yorkshire Union of Mechanics' Institutes. It includes investigating the relations between men and women, in their specific nineteenth century position in society. It will also look at the

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<sup>83</sup> *Twenty-first Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1858, pp.34-5.

contribution the industrial revolution made, particularly in relation to creating separate spheres, public for men regarding work and politics and private for women relating to the home.<sup>84</sup> Gender, being a man or woman, was shaped by class and class was shaped by gender. These are looked at in relation to mechanics' institutes and female membership. Sonya Rose defines the gender of adults as depicting the 'differing positions of women and men in society. It is a system of meanings articulated in practices that positions women and men differently and that structured their life experience in different ways'.<sup>85</sup> This discussion will investigate these influences in the context of the mechanics' institute movement.

### **Women's Position in Nineteenth-Century Society**

The Great Reform Act of 1832 denied all women the franchise and their right to 'full citizenship'. Historians, particularly Susan Kingsley Kent, have stated that women were denied the vote for 'biological and characterological reasons. Kent gives the examples of men possessing the capacity for reason, action, aggression, independence, and self-interest as what has become known as public spheres, that is, within society as a whole. Women, on the other hand, 'inherited a separate private sphere, one suitable for the so-called inherent qualities of femininity: emotion, passivity, submission, dependence, selflessness', derived from their biological and sexual differences to those of men.<sup>86</sup>

Women nonetheless engaged in political activity. The Chartist movement, while it allowed wives and daughters of its supporters to set up and run Chartist schools, in all other ways excluded them from taking part in what was seen as male radical politics.

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<sup>84</sup> A. Vickery, 'Golden Age to Separate Spheres? A Review of the Categories and Chronology of English Women's History', *Historical Journal*, 36, 2 (1993), 383.

<sup>85</sup> S. O. Rose, *Limited Livelihoods, Gender and Class in Nineteenth-Century England* (University of California, 1992), pp.22-23.

<sup>86</sup> S.K. Kent, *Gender and Power in Britain, 1640-1990* (London, 1999), p.179.

Women therefore justified their participation in Chartism by emphasising their moral duty to support the welfare of their families and neighbours, supporting the men 'but not attempting to supersede or rival them'.<sup>87</sup> Many Chartist men supported working-class women having middle-class values, in particular those relating to domestic respectability. By arguing that women, both middle and working class, should not work outside the home and should instead devote themselves to domestic duties, with men as the bread winners, radicals defused tensions created by competition between men and women for jobs and re-established the traditional balance of power within the family economy, thus, reinforcing the public and private spheres of men and women.<sup>88</sup> However, during the period of study changes were taking place.<sup>89</sup>

Apart from being active in the Chartist Movement, women were also predominant in the temperance movement, itself a supporter of the mechanics' institute movement. Working-class women were also involved in establishing societies often associated with male dominance, such as benefit societies, cooperative societies and trade unions. Female Reform Societies came into existence among the cotton spinners as early as 1817 and the Female Political Association, a remnant of Chartism, pursued demands of votes for women as early as 1850. A small number of women joined the London Union of Female Tailors in 1834, part of Robert Owen's Grand National Union. Men, however, had overall control and women in the cotton unions had no part in their organisation. In contrast to male political activity, these developments were very small scale.<sup>90</sup>

The Women's Co-operative Guild, established in 1831, was one of several organisations that were supported by middle-class male patronage which rapidly

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<sup>87</sup> Rose, *Limited Livelihoods*, p.263.

<sup>88</sup> *Ibid*, p.15.

<sup>89</sup> Hudson, *The Industrial Revolution*, pp. 230-235.

<sup>90</sup> R. S. Neale, *Class and Ideology in the Nineteenth Century* (London, 1972), pp.146-151.

developed into a working-class organisation with working-class leaders supporting female suffrage. By 1897 the Guild was organising national conferences on such themes as ‘Why Working Women Needed the Vote’. In 1905, the Guild initiated a declaration seeking the vote for all women which was supported and signed by 36 societies, including the Northern Counties Weavers, the Yorkshire General Union of Weavers and Textile Operatives Association, the Leicestershire Hosiery Union and the Bleachers’, Dyers and Finishers’ Association, all of which reflected the large numbers of female employees.<sup>91</sup>

Although there is no evidence that such societies supported the mechanics’ institute movement directly, middle-class male patronage was sometimes handed over to the working-class male institute committees, several of which were accepting women from the 1830s onwards.<sup>92</sup> Few radicals, however, advocated anything ‘as daring as female suffrage’. They believed working-class men should be given the vote as an integral part of their masculinity and with the passing of the 1867 Reform Act giving more suffrage to the working class males, it left women to fight their own cause.<sup>93</sup>

Many middle-class women contributed to society generally through becoming involved in public campaigns associated with social and political ideals as well as social reforms and crucially, in relation to this research, education. Working-class women, on the other hand, ‘battled valiantly against enormous economic odds to bring in precious shillings to the household exchequer while at the same time maintaining a household in such a way as to affirm their families’ respectability’.<sup>94</sup> The 1851 Census listed motherhood as the main occupation of women, however, the 1881 Census no longer recognised housework, home industry, domestic service or

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<sup>91</sup> Neale, *Class and Ideology*, p.160.

<sup>92</sup> *Ibid.*

<sup>93</sup> McWilliam, *Popular politics*, p.75.

<sup>94</sup> Kent, *Gender and Power in Britain*, p.181.

even supporting the family business as employment. While middle-class women and mothers could afford to stay at home, working-class women could not, often having to work to support the survival of the family. There were informal and undeclared ways of working, such as taking in lodgers and laundry. However, despite the economic necessities of working-class women going out to work, there was opposition from working-class men. Trade unionists opposed women working on moral grounds, for entering a man's world and the middle class believed that a woman's place, whatever her class, was in the home looking after her husband and bringing up the children.<sup>95</sup> Socially, therefore, it was difficult for women to move out of the private into the public sphere and even where they did work, females often undercut men's pay, making them less able to support their families.<sup>96</sup>

Prior to industrialisation, men and women had worked together in what were substantially rural industries or agriculture but with industrialisation there was, generally to begin with, some segregation of the sexes with men identified with work, and masculinity, and women with domesticity and femininity. Divided gender was therefore underpinned by industrialisation, but females, particularly working class ones, were 'not successfully relegated to the home, many factory workers were women because they were cheap to employ'.<sup>97</sup>

There was, as was also true of working-class men in the nineteenth century, differentiation among working-class women. For example, economically, 27 per cent of working-class women were employed in unskilled occupations receiving wages of about 12 shillings a week with only about 2.2 per cent employed in highly skilled and well-paid work.<sup>98</sup> However, unlike their male counterparts, with wages so low and

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<sup>95</sup> *Ibid.*

<sup>96</sup> *Ibid.*

<sup>97</sup> McWilliam, *Popular politics*, p.72.

<sup>98</sup> Neale, *Class and Ideology*, p.148.



restrictions on the kind of work women were allowed to do, they were unable to have a political voice, there were in fact ‘a political sub-class’.<sup>99</sup>

During the nineteenth century, nearly all employers hired men for skilled work and what was defined as involved with ‘complicated machinery’. Indeed, employers ‘rarely questioned the appropriateness of hiring male workers for jobs’, as being responsible for running large and complex machines was seen as masculine traits, and manufacturers hired women for work which they thought was feminine ‘women’s work’.<sup>100</sup> As a result of male opposition, some working-class women left their jobs and once married, they often ‘took up [labour] that they could perform at home, taking in lodgers, doing laundry, but especially performing non-mechanised manufacturing or piece-work in their homes’, which enabled married women ‘to preserve the illusion that they did not work’ despite long tedious hours and low wages.<sup>101</sup>

The textile industries of Lancashire and Yorkshire, the two counties with the largest numbers of mechanics’ institutes<sup>102</sup> did, however, employ large numbers of women, with 50 per cent of all operatives in the cotton industry in 1835 being female. Their numbers increased in all branches of textiles as employers were able to pay them lower wages than men. These jobs included non-mechanised textile activities, including preparatory processes in the carding and blowing rooms as<sup>103</sup> well as working in the garment trade, lace finishers for garments, seam hosiery; embroidery finishers as well as other home-based non-textile employment such as making

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<sup>99</sup> *Ibid.*

<sup>100</sup> Rose, *Limited Livelihoods*, pp.22-23.

<sup>101</sup> Kent, *Gender and Power*, p.181.

<sup>102</sup> In 1850 there were 68 mechanics’ institutes in Lancashire and 151 in Yorkshire. County Durham has the third largest number with 27 while Oxford had the least number with 1. Hudson, *Adult Education*, pp.222-238.

<sup>103</sup> R. Gray, *The Aristocracy of Labour in Nineteenth-century Britain c.1850 – 1914* (London, 1981), p.26.

cardboard boxes, paper bags, and artificial flowers for fashionable middle-class homes.<sup>104</sup>

In Lancashire, power loom weaving ‘was unique among the major industries of England in the nineteenth century in that men and women were not in competition for weaving jobs’. Indeed, they were paid the same piece rates and this was supported by the weavers’ unions which represented females as well as males.<sup>105</sup> The availability of well-paid jobs, by the standards of female wages in comparison to other districts, supported higher than average family incomes for all sectors of textiles which would have provided women financially with the opportunity to attend mechanics’ institutes through having some spending power to do so.<sup>106</sup>

The gender division of labour, which was important in various parts of the country, was particularly well-established in the West Riding of Yorkshire and which had had a long history of females being involved in production. It has been estimated, for example, that there were eight or nine women and children for every man employed in wool textiles during the eighteenth century.<sup>107</sup> In 1774, female worsted spinners outnumbered weavers and combers, which were jobs mainly done by men. Geographically, the industry was able to take advantage of cheap, female labour because there was little alternative work available in the area. By 1835, when the mechanics’ institutes movement was well underway, the worsted mills in Bradford and Halifax were made up of 60 per cent female workers.<sup>108</sup>

With industrialisation, there was some involvement of women in waged work outside the home and this ‘brought greater parity between partners’. Working-class women were not subjected to the same scrutiny within the private sphere as the upper

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<sup>104</sup> Kent, *Gender and Power*, p.182.

<sup>105</sup> Rose, *Limited Livelihoods*, pp.154 – 162.

<sup>106</sup> Gray, *The Aristocracy of Labour in Nineteenth-century Britain c.1850 – 1914*, pp.26-27.

<sup>107</sup> Hudson, *The Industrial Revolution*, p118.

<sup>108</sup> *Ibid.*

classes and had the ‘freedom’ to work alongside men in the textile and some coal-mining districts.<sup>109</sup> In the case of the latter, this included women and girls working at the pit-head as well as being employed in domestic service and other female-related jobs.<sup>110</sup>

Before 1850, few institutes had female students and this was because ‘most early nineteenth-century skills were readily learned; formal education was rare and irrelevant to female jobs; age-earning profiles were flat’.<sup>111</sup> This would account for such low numbers of females attending mechanics’ institutes. However, with industrialisation, many women living in factory communities were enthusiastic about taking up education opportunities. ‘The alacrity with which working-class women took advantage of adult education facilities, particularly through mechanics’ institutes, indicates a widespread desire to improve intellectual attainments and a degree of self-respect and confidence’.<sup>112</sup> This is the likely reason why many institutes in the larger textile towns had successful female classes and why two, Huddersfield and Bradford, had very successful women-only institutions.

Women also occupied a key role in the labour market required for manufacture. Technical changes during the later nineteenth century reinforced rather than altered this pattern and some factories employed women and children rather than men. These sectors of the economy where women were more intensely employed, was as a way of avoiding artisan standards of payment and working conditions available to only

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<sup>109</sup> *Ibid.*, pp. 230 – 5.

<sup>110</sup> Gray, *The Aristocracy of Labour in Nineteenth-century Britain c.1850 – 1914*, p.25.

<sup>111</sup> P. Sharpe (ed.), *Women’s Work, The English Experience 1650 – 1914* (London, 1998), p.191.

<sup>112</sup> K. Gleadle, *British Women in the Nineteenth Century* (New York, 2001), p.44.

men.<sup>113</sup> Thus, the elementary education, and later technical education, provided by mechanics' institutes supported female adult education for the factory system.<sup>114</sup>

In others areas, not associated with textiles, the main occupation of women was in domestic service. In York in 1851, for example, where there was little textile activity, 60 per cent of all women employed were to be found in domestic service. This contrasted with Preston and Stockport where half of spinning operatives were women and very few were employed in domestic service. In the case of Preston, the number of females employed in domestic service was only about 3 per cent over the age of 15. In contrast, in the non-textile areas, such as the mining districts of the North East, domestic service was the main source of employment, as was also the case in the heavy manufacturing areas of the midlands and administrative towns of London and Edinburgh.<sup>115</sup>

Working-class women were still seen as subordinates to their male counterparts who 'treated them as weaker workers even after the 1870s'.<sup>116</sup> A small minority of working women, mostly weavers, did receive similar pay and status with men but 'for the majority of females they were viewed by their male counterparts as rivals or subordinates rather than fellow members of the same class and workforce'. Even among working-class women themselves there was differentiation. There was a 'great divide between the hat girls and shawl girls in the Lancashire mill towns' and in London, factory girls, costermongers (sellers of fruit and vegetables from a barrow or stall in the street) and domestic servants viewed each other 'with as much contempt as

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<sup>113</sup> R. Price, *British Society, 1680 – 1880: Dynamism, Containment and Change* (Cambridge University, 1999), p.39.

<sup>114</sup> R. O'Day, 'Women and Education in Nineteenth-Century England' in J. Bellamy, A. Laurence and G. Perry (ed.), *Women, Scholarship and Criticism, Gender and Knowledge c. 1790 – 1900* (Manchester University, 2000), p.106.

<sup>115</sup> Kent, *Gender and Power in Britain*, p.183.

<sup>116</sup> J. Harris, *Private Lives, Public Spirit: Britain 1870 – 1914* (London, 1993), p.115.

a belle of New York and a Chicago heiress'.<sup>117</sup> Thus, as was the case with working-class men, there were perceptions amongst working-class women that there were differences in status.

During the first half of the nineteenth century, it was socially unacceptable for women of all classes to deviate from their role as wife and mother, 'such as making political demands or seeking an education' as this was seen as being 'unsexed'.<sup>118</sup> This was reinforced through women having no legal, economic or social position outside their role in the family. Married women, for example, had no legal rights of their own under the law of covertures, to their property, earnings, freedom of movement, their children or even their bodies. These, and other laws, were from the pre-industrial age, going back to the aristocratic patriarchal society.

With industrialisation, however, certain trades, which required training, provided higher wages for some women. This is supported by the work carried out by Maxine Berg who identified that 'apprenticeships, training or experience divided the wages of young females from the piece rates of older tradeswomen [during the industrial revolution]'.<sup>119</sup> Leonore Davidoff and Catherine Hall point out that the higher skilled female trades such as millinery 'required apprenticeships with premiums as high as £50' to support these businesses.<sup>120</sup> Such developments indicate that, as there were financial rewards from having education and training, women would be more interested in an adult education.

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<sup>117</sup> O. Malvery, 'Study of Working Girls in London' in Harris, *Private Lives*, p.146.

<sup>118</sup> Kent, *Gender and Power in Britain*, p.188.

<sup>119</sup> Sharpe, *Women's Work*, p.158.

<sup>120</sup> *Ibid.*, p.272.

## **Middle-Class Women and their Contribution to Female Working-Class Education**

Various radical and free-thinking groups, especially those influenced by Robert Owen, began to question domestic patriarchy. Within respectable society there was some dissent. In particular, the Unitarians believed in a dual family headship, although 'Elizabeth Gaskell found herself wishing that William [her husband] would command her: 'I am sometimes coward enough to wish that we were back in the darkness where obedience was the only seen duty of women'.<sup>121</sup> Unitarians were one of several reforming groups who supported working-class education of all ages, including adults. Most were from the middle class but many supported the artisan class, the working-class elite, including Harriet Martineau, the sociologist and feminist, who wrote *Household Education* in 1870.<sup>122</sup>

In the case of men, and particularly working-class men, the 1830s became the decade for demands for reform. This was also true for women. One such challenge was in 1839 with the passing of the Custody Act which gave women the right to the custody of their children under the age of seven in cases of divorce or separation. There were also other events, such as the anti-slavery movement, which had drawn to the attention of female supporters, among them the Unitarian Harriet Martineau, that they were still enslaved at home.

Of particular relevance to this study, Ruth Watts shows that from 1850 there were revolutionary changes in female education. She identifies various causes, economic, demographic, social, psychological and religious, as well as individual influences particularly from Unitarians, one of a number of groups that supported the mechanics' institute movement. Watts rightly argues that women were as intellectual as men,

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<sup>121</sup> J. Tosh, *A Man's Place, Masculinity and the Middle-Class Home in Victorian England* (London, 1999), p.61.

<sup>122</sup> R.E. Watts, *Gender, Power and the Unitarians in England, 1760 – 1860* (Harlow, 1998), pp.162 - 163.

although there were physiological differences. The Unitarian movement was ideally positioned from 1850 onwards to support a 'full education for women and greater rights and opportunities for them' through mechanics' institutes.<sup>123</sup> In 1854, *A Brief Summary of plain Language of the Most Important Laws Concerning Women* was published about laws 'which condemned women to a position of chattel of men'.<sup>124</sup> Crucially for this research, the paper believed that a solution to many of the inequalities for women was their education and employment.

In practice there was much more to middle-class women's education 'than the demeaning stereotype of the ignorant novel-reading wife'. Daughters of the upper-middle and professional classes, such as doctors and the clergy, many of whom were Unitarians, involved a strong tradition of female self-improvement which included the study of history, philosophy and politics. Many women read journals and attended public lectures.<sup>125</sup>

The Unitarian Harriet Martineau, writing in 1851, stated that mechanics' institutes preferred to support women in contrast to the universities, 'where intellectual luxury was reserved to pamper the few while the many starved' of education. Some institutes were only able to offer a minimum number of courses, and usually at elementary level but the 'two chief single-sex female institutes in Yorkshire, Huddersfield and Bradford, did provide a wider curriculum'.<sup>126</sup> Three of the most popular institutes for females were Manchester, Liverpool and Leeds, all three having strong Unitarian connections and in the cases of both Liverpool and Leeds, they also supported Institute Schools for both boys and girls.<sup>127</sup>

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<sup>123</sup> R. E. Watts, 'The Unitarian Contribution to the Development of Female Education, 1790 – 1850', *History of Education*, Vol. 9: Number 4, 1980, 286.

<sup>124</sup> Kent, *Gender and Power in Britain*, p.191.

<sup>125</sup> Tosh, *A Man's Place*, p.66.

<sup>126</sup> Watts, *Gender, Power and the Unitarians*, pp.186 - 7.

<sup>127</sup> *Ibid.*, p.188; *Annual Reports of the Yorkshire Union of Mechanics' Institutes*.

The Unitarians strongly argued against state intervention and were sympathetic to *laissez-faire*. They also had the primary objective of parliamentary reform in order ‘to enable the manufacturing and commercial middle class to play a political role’ and develop ‘a [radical] philosophy with which to approach the challenges of social reforms’.<sup>128</sup> The Unitarians were enthusiastic about education which supported a developing industrial society, including the dissemination of ‘useful knowledge’. Their radical policies included the need for mass education, as well as reforming middle-class schools and universities.<sup>129</sup> Thus, their philosophy was ideally suited to that of the mechanics’ institutes, which was adult, male and female, education to support industry as well as the individuals own knowledge. The Midland Institute in Birmingham, for example, had a Unitarian foundation which offered classes in science which were popular with women.<sup>130</sup>

The Unitarians in Parliament included several who identified themselves with working-class movements. One such MP was Joseph Arthur Roebuck, a prominent figure in radical politics and educational activities in the 1830s, at the time when the mechanics’ institute movement was evolving. Others included Henry Brougham who supported the case for education for everyone and William Allen, a chemist and philanthropist, who published a magazine in which many Unitarian radicals contributed, and who played an important part in developing popular education, which ‘represented a widely influential body of middle-class thought and activity’.<sup>131</sup>

Kathryn Gleadle identifies that the Unitarian educational efforts were channelled through the academies of the 1790s with the opportunities to offer subjects in science, history and literature. She also refers to the work of Joseph Priestley, whom she calls

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<sup>128</sup> H. Silver, *English Education and the Radicals, 1780 – 1850* (London, 1975), pp.25-6.

<sup>129</sup> *Ibid.*, pp.30-1.

<sup>130</sup> Watts, *Gender, Power and the Unitarians*, pp.187 – 9.

<sup>131</sup> *Ibid.*, p.28.



‘the guru of modern Unitarianism [and] a brilliant scientist’ and specifically mentions that ‘scientific investigations were seen by Unitarians as fulfilling their duty to apply their God-given powers of reason to discover the truth’. This was a sound basis on which mechanics’ institutes were able to establish their reputation as organisations of science and manufacturing studies after 1850.<sup>132</sup>

Gleadle points out that the relationship between the Unitarians and science and invention, along with their philosophy of ‘individualism, self-advancement, [as promoted by the Unitarian Samuel Smiles] and hard work all helped to develop both a business environment and an educational philosophy which would contribute a great deal to industrial progress over several generations’. Many successful manufacturers, including the Courtauld and Strutt textile families, the Wedgwood pottery manufacturers and Schwann, the founder and first president of both the Huddersfield Mechanics’ Institute, for males, and the Female Educational Institution, were Unitarians.<sup>133</sup>

From the 1840s, the female Unitarian lobby was winning the fight for equal access to adult education. Gleadle, for example, states that:

while mechanics’ institutes had begun to admit women from the 1830s, this trend accelerated markedly during the following decade. Nationally, female members formed 9.4 per cent of total membership of mechanics’ institutes. However, in individual institutes, Glasgow and Plymouth, for example, women comprised a sizeable proportion of the membership, thus proving that female membership could often prove an extremely popular policy.<sup>134</sup>

Edinburgh Mechanics’ Institute was also singled out by the radical Unitarians for supporting female access and Charles Dickens heralded a similar policy of accepting females by the Liverpool and Leeds Mechanics’ Institutes. This acceptance of female

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<sup>132</sup> K. Gleadle, *The Early Feminists, Radical Unitarians and the Emergence of the Women’s Rights Movement 1831 – 1851* (London, 1995), p.11.

<sup>133</sup> *Ibid.*, p.17.

<sup>134</sup> *Ibid.*, p.144.

education, through the mechanics' institutes and other establishments indicates a considerable advance in public attitudes towards women, supported by male Unitarians and their wives.<sup>135</sup>

### **Female Membership and the Mechanics' Institute Movement**

Although females formed only a small proportion of the national institute membership, 5,710 by 1850, women were not insignificant and Purvis believes that these women were working class, taking the occupations from the 1851 Census.<sup>136</sup> She has identified that working-class female occupations included agricultural labourers, factory hands and domestic servants. Purvis suggests that some bonnet makers, seamstresses, dressmakers and washerwomen were, in the main, also from this class and all of whom would benefit from the subjects being offered, in particular the three 'Rs' and domestic courses including sewing and needlework.<sup>137</sup>

Using the 1851 Census lists of literary and scientific institutions, Vicky Brown and Ian Inkster, have estimated that the female membership was about 13,205 (8 per cent) out of a total membership of 165,000 members at 1,020 institutions. There were regional differences. In Kentish London 29 per cent of members were female. In the Midlands (Derbyshire and Nottinghamshire) between 10 to 12 per cent were female, while in Huntingdon, Cambridgeshire and Gloucestershire, female membership was as low as 2 per cent. Overall, the highest per cent of women members was at Kentish London, Devon, Essex, Cornwall, the West Riding of Yorkshire, the rest of Kent, Westmorland and Wiltshire.<sup>138</sup> It is important to note that the number of women in the

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<sup>135</sup> *Ibid.*, p.146.

<sup>136</sup> J. Purvis, *Hard Lessons: The Lives and Education of Working-Class Women in Nineteenth Century England* (Oxford, 1989), p.109.

<sup>137</sup> Purvis, *A History of Women's Education in England*, p.53.

<sup>138</sup> I. Inkster, (ed.), *The Golden Age, Essays in British Social and Economic History, 1850 – 1870* (Aldershot, 2000), p.166.

institutes was highest in the Yorkshire, Lancashire and Cheshire Unions.<sup>139</sup> There were about 1,200 women members in the Yorkshire Institutes in 1849 and about 600 in Lancashire ones.<sup>140</sup> The higher number of women in the northern counties may be partly explained by the fact that the Yorkshire Union during the 1840s consciously supported ‘the cause of female education’.<sup>141</sup>

Many institutes opened their doors to females with regard to public lectures and were certainly patronised initially by middle-class women, among them Elizabeth Gaskell who attended lectures at the Manchester Institute.<sup>142</sup> The Bronte sisters attended Keighley Institute where they attended the lectures and made use of the library.<sup>143</sup> The Birmingham Mechanics’ Institute was a model for the London Working Women’s College, instituted by the Unitarian Elizabeth Malleson in 1864. She had been inspired by the London Working Man’s College set up by Frederick Maurice in 1854 as she ‘admired the magnificent opportunities of self-development’ as well as ‘the association of university-trained men with manual workers’.<sup>144</sup>

Elsewhere too, there was a Unitarian influence. The Derby Mechanics’ Institute, which was opened in 1825, was also science-based. The local Unitarian Minister, Edward Higginson, ‘was possibly the most influential activist, as he was an established leader of the local scientific movement, committed to both political and educational reform, and a continued promoter of the Institute’s activities until his retirement in 1831’.<sup>145</sup> Higginson, prior to the establishment of the Derby Mechanics’ Institute, had been an active supporter of the local Philosophical Society. In 1825, he published *Observations Addressed to All Classes on the Establishment of Mechanics’*

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<sup>139</sup> Purvis, *Hard Lessons*, p.108.

<sup>140</sup> Tylecote, *The Mechanics’ Institutes*, p.83.

<sup>141</sup> *Ibid.*, p.83.

<sup>142</sup> *Ibid.*, p.189.

<sup>143</sup> Plaque in original Institute building of Keighley College.

<sup>144</sup> Watts, *Gender, Power and the Unitarians*, p.190.

<sup>145</sup> *Ibid.*, 293.

*Institutes*, which supported the idea of opening a mechanics' institute in Derby as a base for science education.<sup>146</sup> He argued that:

Perhaps the most attractive method of giving and receiving instruction, particularly on subjects of Natural Philosophy and Chemistry, is by Courses of Lectures...combined with a course of reading may be found useful. There is no art or trade which does not depend in a greater or less degree on scientific principles.<sup>147</sup>

The Derby Institute was also supported by Jedediah Strutt, another Unitarian and textile factory owner at nearby Belper, who was a leading local reform agitator leader in the town. He, and his brother Joseph, were both major influences in the establishing of the Institute, as well as the one they founded in Belper in 1836.<sup>148</sup>

### **Females and the Yorkshire Union of Mechanics' Institutes**

As already highlighted, the Yorkshire Union had a high percentage of female members. At the Sheffield Mechanics' Institute during the 1830s, for example, weekly public lectures, the majority of which were on science, attracted 200 men and up to 100 women.<sup>149</sup> According to the annual reports of the Yorkshire Union, over 10 per cent of members at Sheffield Mechanics' Institute were females between 1851 and 1880 (Table 2.1).

**Table 2.1 Sheffield Mechanics' Institute Male to Female Membership as a Percentage**

1851		1852		1855		1880	
M	F	M	F	M	F	M	F
84	16	83	17	87	13	83	17

*Annual Reports of the Yorkshire Union of Mechanics' Institutes, Statistical Tables.*

Ian Inkster has also pointed out the role of Unitarians in relation to the Mechanics' Institute. He has identified that those of the scientific communities in Sheffield, that

<sup>146</sup> *Ibid.*

<sup>147</sup> Reproduced in the *Derby Mercury* 10 August 1825 in Inkster, I., 'Science and the Mechanics' Institutes, 1820 – 1850: the Case of Sheffield', *Annals of Science*, Number 32, 1975, 294.

<sup>148</sup> *Ibid.* In 1850 Belper had a membership of 158. Hudson, *Adult Education*, p.222.

<sup>149</sup> Inkster, 'Science and the Mechanics' Institutes', 460.

is, those who gave lectures at the Institute and were also members of other notable societies such as the Medical School, the Literary and Philosophical Society, as well as regular lecturers at other mechanics' institutes (Barnsley and Chesterfield), were also often Unitarians, making up 52 per cent of those whose religion was known (Table 2.2 below).

**Table 2.2 Scientific Community supporting the Sheffield Mechanics' Institute**

Occupation	Religion	Politics
School Master	Quaker	Not known
Minister	Congregationalist	Radical
Surgeon	Not known	Reformer 1830s
Minister	Unitarian	Not known
Slater / Instrument Maker	Not known	Reformer 1830s
Table Knife maker	Congregationalist	Not known
Surgeon	Unitarian / Congregationalist	Not known
Table knife cutler	Wesleyan	Radical 1830s
Whitesmith	Quaker	Not known
Physician	Unitarian / Church of England	Radical 1830s - 1840s
Physician	Not known	Radical 1830s
Physician	Roman Catholic	Reformer 1820s – 1830s
Last maker	Not known	Radical 1820s
Colliery Engineer	Unitarian	Not known
Solicitor	Unitarian	Radical 1820s – 1830s
Minister	Unitarian	Reformer 1810s – 1830s
Minister	Unitarian	Radical 1810
Steel-roller	Quaker	Reformer 1830s
Tutor / Minister	Unitarian / Independent	Not known
Physician	Unitarian	Radical 1830s
Surgeon	Congregationalist	Not known
Solicitor	Church of England	Reformer 1830s
Merchant	Unitarian	Reformer 1810 – 1830s
Minister / Physician /Manufacturer	Unitarian	Radical 1790s – 1800s
Tutor / Minister	Unitarian	Not known
Silver-roller	Unitarian	Reformer 1820s

Inkster, I., 'Science and the Mechanics' Institutes, 1820 – 1850: the Case of Sheffield', *Annals of Science*, Number 32, 1975, 470.

The Leeds Mechanics' Institute, which acted as the headquarters of the Yorkshire Union, had been founded on the tradition of local science. The links between science, radicalism and the Institute were strong. Ian Inkster states that Unitarians such as William Wood and Edward Baines, both of whom had been radicals in the 1790s and were promoters of the Whig interest in the 1820s, were strong supporters of the

Institute.<sup>150</sup> Over time Leeds offered both elementary and technical subjects as well as scientific ones and Table 2.3 below shows the percentage of male to female members between 1849 and 1876. With gradual increases in membership between 1849, when Leeds had a total membership of 2,158 and 1876, by which time it had increased to 3,390, there was a percentage increase in female membership of nearly 50 per cent ratio female to male.

**Table 2.3 Leeds Mechanics’ Institute Male to Female Membership as a Percentage**

1849		1850		1852		1854		1856		1861		1867		1873		1876	
M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
88	12	87	13	84	16	81	19	75	25	83	17	76	24	69	31	53	47

*Annual Reports of the Yorkshire Union of Mechanics’ Institutes, Statistical Tables.*

Despite mechanics’ institutes encouraging women to become members which seems to have taken place with little opposition, there were some instances of opposition to their attendance. For example, George Searle Phillips, a journalist and writer who became secretary of the Huddersfield Mechanics’ Institutes from 1846 to 1854 and agent for the Yorkshire Union from 1854 to 1856, argued that women should be educated as housewives, not scholars:

A ‘bluestocking’ – that is, a female literary pedant – is certainly no desirable person to know either in private or public; but there is no necessity to manufacture this kind of hosiery in our educational looms...I do not see why a woman should not be a good housewife, and as prudent, virtuous, and honourable in all her relations with a furnished as with an unfurnished mind.  
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Yet despite Phillips’ opposition, reinforcing the strongly held view of ‘public’ and ‘private’ spheres of men and women, Frederic Schwann, President of the Huddersfield Mechanics’ Institute, provided finance to support the opening of the town’s Female Institution in 1846.

<sup>150</sup> Inkster, ‘The Social Context of an Educational Movement’, 291.

<sup>151</sup> Purvis, *Hard Lessons*, p.101.

This research has identified that females were attending mechanics' institutes. Throughout the 1840s, lectures on women were given by women at literary and philosophical societies as well as mechanics' institutes. At the York Institute, Mrs J. W. Hudson, whose husband at the time was assistant Secretary of the Leeds Institute, honorary secretary of the Yorkshire Union and author of *The History of Adult Education*, spoke in 1846 on 'Female Education'. Mrs Clara Balfour, a prolific moral writer and religious and temperance speaker was a key figure within the mechanics' institute movement and was contracted by the Yorkshire Union to lecture on these themes 'at reduced terms'.<sup>152</sup>

Evening classes for working women were established in several institutes in the Yorkshire Union by 1846. At Kirkstall a 'lady' teacher read to the students in the sewing class, 'giving in familiar language such explanations as they need; thus instructing and amusing their minds while skill with a needle was acquired'.<sup>153</sup> At Holmfirth, for two pennies a week, women had access to the library and lectures and 23 women were taught writing, arithmetic, sewing and knitting. Working-class women also attended classes in the three 'Rs' and knitting. Men, on the other hand, could also attend classes in the three 'Rs' and general knowledge, but also had the opportunity to take a range of what were seen as masculine subjects such as the atmosphere, geology, electricity, galvanism, the properties of water, electrotype and phrenology.<sup>154</sup> A female class of eighteen students was formed at Honley in 1846, 'extending to the female portion of the community the means of an elementary education, and being sensible of the general neglect of this interesting portion of society'.<sup>155</sup> At Wakefield and Holbeck Institutes in 1847, men and women attended

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<sup>152</sup> Kent, *Gender and Power in Britain, 1640-1990*, p.194.

<sup>153</sup> *Ninth Annual Report of the Yorkshire Union*, 1846, p.39.

<sup>154</sup> *Ibid.*, p.36.

<sup>155</sup> *Ninth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1846, p.37.

classes in reading, writing and arithmetic, with 33 males and 50 females attending them at Wakefield.<sup>156</sup> At Wilsden, a small Dales Institute near Skipton, there were 63 females out of a total membership of 196 in 1848, offering classes for women, as for men, ‘for the improvement of their minds’.<sup>157</sup> The following year there were 215 members of whom 72 were females and by 1880 females made up 19 per cent of all attendees.<sup>158</sup>

Also in 1848, the Keighley Institute established a Female Improvement Society, ‘principally for the benefit of young women connected with our factories, an interesting [social] class, whose education hitherto has been much neglected’. The Improvement Society, which became part of the Mechanics’ Institute, offered reading, writing, arithmetic, grammar as well as sewing and dressmaking and during the first week of operation ‘sixty young women enrolled and became full members’ with membership rising to 140 later in the year. The Institute made specific mention of female education stating that ‘questions are put to the classes, with a view of fixing the attention, exercising the intellect, and extending the boundaries of their knowledge’.<sup>159</sup> As a result of the success of the Female Improvement Classes, a Male Improvement Class was also introduced in 1849 providing the ‘same privileges to the young men who might feel disposed to repair the defects of a bad education’. Thus, Keighley Institute had identified the importance of a general education for working-class women which was also subsequently made available to working-class men.<sup>160</sup> Across the Yorkshire Union, therefore, many institutes were admitting women by 1849 (Table 2.4). However, the Yorkshire Union noted in the same year, that there

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<sup>156</sup> *Tenth Annual Report of the Yorkshire Union*, 1847, pp.72–3.

<sup>157</sup> *Eleventh Annual Report of the Yorkshire Union of Mechanics’ Institutes*, 1848, p.86.

<sup>158</sup> *Annual Report of the Yorkshire Union of Mechanics’ Institutes, Statistical Tables*,

<sup>159</sup> *Eleventh Annual Report of the Yorkshire Union of Mechanics’ Institutes*, 1848, p.63.

<sup>160</sup> *Twelfth Annual Report of the Yorkshire Union of Mechanics’ Institutes*, 1849, p.65.



was still a ‘far too small proportion of Female Members in the Institutes’. The *Report* for 1849 stated that:

apart from the general principle that the female intellect has as much right to culture as that of men, the extreme desirableness that the being whose influence as wife determines the character of home, and who as a mother shapes the destiny not only of the child but the future man, should herself be presented with sources of elevation and refinement, must be sufficiently apparent.<sup>161</sup>

The Yorkshire Union believed, making reference to the 1,052 females who attended 46 of the 600 institutes, that whenever special arrangements were made to accommodate females, they had ‘gladly availed themselves of the opportunity’.<sup>162</sup>

**Table 2.4 Mechanics’ Institutes in the Yorkshire Union who reported they had Female Membership in 1849**

Institute	Males	Females	Institute	Males	Females
Barnsley	232	62	Pateley Bridge	64	12
Beverley and East Riding	314	23	Pocklington	138	10
Bradford	715	21	Stockton	280	50
Dewsbury	180	14	Scarborough	233	10
Driffield	240	30	Selby	164	3
Haworth	111	2	Saddleworth	127	16
Keighley	301	139	Thorn	58	10
Leeds	1,639	229	Wakefield	506	42
Middlesbrough	501	6	Wilsden	143	72
Otley	108	2	York	626	10

*Annual Report of the Yorkshire Union of Mechanics’ Institutes, 1849, Statistical Tables*

There was some distinctive variation in percentages between males and females attending the Yorkshire Union mechanics’ institutes. For example, Leeds, the largest institute in the Yorkshire Union and second only to Edinburgh in the country in 1850,<sup>163</sup> had a female membership of 14 per cent, while Bradford, which was yet to establish a female institute, had 715 members and only 3 per cent. Both were located in industrialising towns. Rural institutes also had variations in the percentage of female members. Haworth had only 2 per cent while Pateley Bridge had 18 per cent and Wilsden had 50 per cent female membership. Although there were variations in

<sup>161</sup> *Ibid.*, p.6.

<sup>162</sup> *Ibid.*

<sup>163</sup> Hudson, *Adult Education*, p.222.

female membership at mechanics' institutes in both the growing towns and in the rural areas, crucially, women were attending them.

In the case of Halifax no more than 10 per cent of members were females and by the late 1870s this number had fallen to just 5 per cent. Nevertheless, women were attending and receiving an education (Table 2.5).

**Table 2.5 Halifax Mechanics' Institute Male to Female Membership as a Percentage**

1851		1858		1873		1874		1878	
M	F	M	F	M	F	M	F	M	F
90	10	89	11	92	8	92	8	95	5

*Annual Reports of the Yorkshire Union of Mechanics' Institutes, Statistical Tables.*

By 1850, female education was well-established in the institutes of the Yorkshire Union and in the case of Bradford, Huddersfield and Keighley, for example, separate female mental improvement societies had been formed but within the Institutes. The same was also true for Leeds where the Ladies' Educational Institute was attached to the Institute.<sup>164</sup> In the majority of towns, females attended the same institutes as males, but were taught in separate classes.<sup>165</sup>

Bingley Institute formed a Female Improvement Society in 1850 as more women wanted to learn and become members, many of whom were 'employed in our factories'. In only a few months female membership had reached 60.<sup>166</sup> By 1860, there had been a considerable number of new female members and it was thought the introduction of a sewing class had encouraged many women to join.<sup>167</sup>

Halifax Working Man's College established a Young Women's Institute in 1860 and had three qualified female teachers. Women received education in the evenings at

<sup>164</sup> There were 10 females who passed Society of Arts Examinations in arithmetic, the Gospels and Acts in the Bible, English history, geography and needlework in 1862. All attended the Ladies Educational Institute. *Twenty-Fifth Report of The Yorkshire Union of Mechanics' Institutes*, 1862, p. 65.

<sup>165</sup> For example The Huddersfield Female Institute.

<sup>166</sup> *Thirteenth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1850, p.24.

<sup>167</sup> *Twenty-Third Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1860, p.67.

the same time as their male counterparts, as they too were working all day in the mills and factories.<sup>168</sup> In 1861, women students were taught the three 'Rs' as well as sewing, dictation, grammar, geography and history, while women at nearby Northwarm could also study geography and 'correspondence', presumably in relation to letter writing.<sup>169</sup>

By the 1860s, however, there was still concern amongst institute committees that women were not attending in the numbers the committees would have liked. In 1862, for example, the Keighley Committee was questioning the benefit to women of spending their days working in the factories but with no opportunity to learn, even if it was for domestic purposes. 'The factory is not a place for females to learn household duties and if they have not obtained this knowledge in their youth, how can it be expected they will be able to make a home comfortable and happy!'<sup>170</sup> The Committee were also anxious to see a growth in female membership. 'We should be glad to see two or three hundred gathered together on an evening, and taught plain sewing, and even plain cooking in the most economical manner. These females make the best wives who can make five shillings go the furthest with comfort.'<sup>171</sup>

This supports the work of several historians, including R. O'Day and H. Barker, who saw the domestic work of women as being the main subject area in which to teach. The Keighley Committee was in effect stating that the Institute could provide a general elementary education for females which their families would benefit from and support educational development of their children as well as supporting their own mental improvement.<sup>172</sup> The Ripon Institute Committee stated in 1863 that each

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<sup>168</sup> *Twenty-Third Report of the Yorkshire Union of Mechanics' Institutes*, 1860, p.86.

<sup>169</sup> *Twenty-fourth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1861, p.78.

<sup>170</sup> *Twenty-Fifth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1862, p.104.

<sup>171</sup> *Ibid.*

<sup>172</sup> Plate on the wall in the remaining part of the Institute belonging to Keighley Further Education College.

student on the adult female courses paid tuppence a week, ‘one penny for use of the room, fire, gas, books, copy books, slates, and library; the other penny was saved for the girl’. The second penny was put aside each week for the year and when the student left, often to enter service, she was then provided with clothing. If she withdrew from the course before the end of the year the money saved was kept by the Institute. The Committee also recommended that all mechanics’ institutes offer female classes separate from males to encourage more members.<sup>173</sup>

The Mechanics’ Institute *Annual Reports* sent to the Yorkshire Union sometimes indicated the number of male and female members. Table 2.6 below has been produced which lists all mechanics’ institutes in the Yorkshire Union and identifies male to female ratios where this information was made available. As the statistics are rather *ad hoc*, the years 1850, 1860 and 1880 have been selected as they provide the most informative data for several institutes to have meaningful purpose.

**Table 2.6 Membership between Males and Females at Twenty One Yorkshire Union Mechanics’ Institutes for 1850, 1861 and 1880**

Membership by Year	1850			1861			1880		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Barnsley	219	37	256	267	40	307	506	70	576
Batley	84	0	84	160	21	181	104	5	109
Bingley	180	63	243	334	30	364	195	15	210
Bradford*	863	8	871	1,201	47	1,248	1,484	246	1,730
Brighouse	130	11	141	133	4	137	206	3	209
Darlington	432	2	434	449	16	465	486	64	550
Dewsbury	105	0	105	358	34	392	415	61	476
Gomersal M I	61	39	100	191	39	230	79	7	86
Huddersfield*	779	0	779	1,226	17	1,243	1,558	93	1,651
Lockwood	51	0	51	169	50	219	206	90	296
Keighley	319	101	420	400	30	430	1,693	280	1,973
Mossley	100	0	100	161	15	176	334	36	370
Pateley Bridge	105	4	109	54	14	68	40	4	44
Pudsey	102	47	149	133	57	190	469	73	542
Selby	104	3	107	151	31	182	140	20	160
Thirsk M I	112	0	112	143	4	147	71	9	80
Thornton	100	18	118	98	50	148	194	6	200

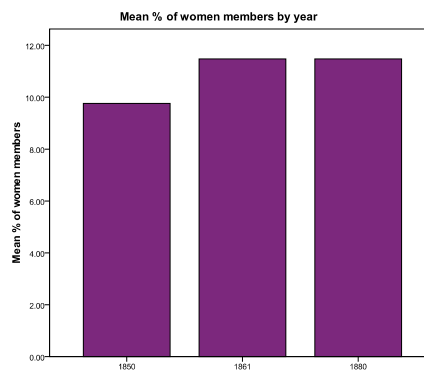
<sup>173</sup> *Twenty-Sixth Report of the Yorkshire Union of Mechanics’ Institutes*, 1863, p.125.

Wakefield M I	522	25	547	835	35	870	688	75	763
Wentworth	74	2	76	78	6	84	50	10	60
Wilsden	144	56	200	78	12	90	57	13	70
Yeadon M Imp Soc.	494	12	506	439	9	448	620	90	710

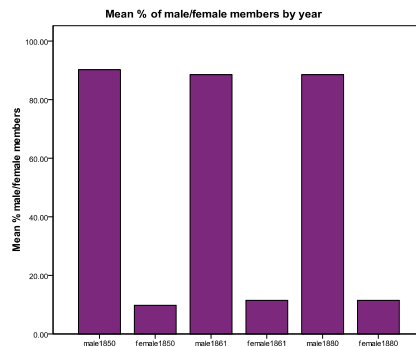
Although both Bradford and Huddersfield had separate female institutions, it is known that males wishing to attend advanced courses had to travel to larger institutes where they were offered. This might also have been this case for females. *Annual Report of the Yorkshire Union of Mechanics' Institutes for 1850, 1861 and 1880, Statistical Tables*

The two graphs below (Graphs 2.1 and 2.2) indicate that while there was growth in the number of women attending mechanics' institutes between 1850 and 1860, there afterwards female membership tended to be stable, if numbers fluctuated between individual institutes and individual years.

**Graph 2.1 Mean per cent of Women Members in the Twenty-One Mechanics' Institutes listed above**



**Graph 2.2 Mean per cent of Male to Female Members in the Twenty-One Mechanics' Institutes listed above**



In 1860, Barnsley Mechanics' Institute had 40 female members to 267 male and Beverley and East Riding Institute had 202 to 11. By 1880, Barnsley Institute had doubled its membership and the ratio between male and female members was 506 to

70. In 1857, at Lockwood Mechanics' Institute, Huddersfield, there were 212 males, who were offered courses in 11 subjects, and 45 females who were offered classes in 'reading, writing, arithmetic (as were the men), knitting, sewing and marking'.<sup>174</sup> Thornton Institute, near Bradford, is the only one that had an almost 50 per cent ratio of females to males, with 50 women members to 98 men in 1861. Brighouse had 15 per cent females attending in 1854 but by 1875 had declined to 8 per cent. In 1867 female membership accounted for 7 per cent at Dewsbury while at nearby Gomersal in 1864 females made up 18 per cent of members.<sup>175</sup>

In the case where data was not sent regularly to the Yorkshire Union, it is still possible to identify some trends in male to female membership. At Cleckheaton Institute in 1860, for example, there were 55 female members to 287 males, which was high in comparison to others at the time. Leeds Institute had 248 female members in 1850, compared with 1,625 males. By 1860, there had been a slight increase in female members, to 268 (an increase of 20) and a decrease in males to 1,201 (a fall of 424).<sup>176</sup>

Several mechanics' institutes, including those of the Yorkshire Union were to accept both girls and boys in their support of elementary education and preparation for employment. For example, by 1873, Slaithwaite Mechanics' Institute, situated a few miles from Huddersfield, did 'do great work in the district where it is situated' and encouraged females to attend. The day school for boys and girls had been recently inspected and had 'satisfactory examination results in all respects'. The evening school continued to provide 'increased and practical education to a large number of the young, both male and female'.<sup>177</sup> In 1874 Lindley Institute, on the outskirts of

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<sup>174</sup> *Twentieth Annual Report of the Yorkshire Union of Mechanics' Institutes, 1857*, p.86.

<sup>175</sup> Annual Report of the Yorkshire Union of Mechanics' Institutes 1849 - 1880, Statistical Tables.

<sup>176</sup> *Ibid.*

<sup>177</sup> *Thirty-Sixth Report of the Yorkshire Union of Mechanics' Institutes, 1873*, p.106.

Huddersfield, had a membership of 90 males and 79 females. The Committee remarked that ‘the Institute recognises the equal claims of girls and boys to a good education’.<sup>178</sup> Thus, trends fluctuated, as they did in the case of males, across all institutes in the Yorkshire Union that had female members.<sup>179</sup>

Other Yorkshire Union institutes which had female attendance included Bedale in the Dales, which had 16 per cent of females attending in 1851. In North Yorkshire, Northallerton had 15 per cent female membership and Beverly 9 per cent during the same year. It seems that there were similar percentages in the more industrialised areas. Overall, for those institutes who returned membership numbers to the Yorkshire Union and broke them down between male and female, the latter while smaller, does at least confirm that many institutes accepted women, not surprisingly making up a smaller percentage to that of men.

Most of the mechanics’ institutes in the district in and around Huddersfield offered female classes in elementary education and, in particular, textiles.<sup>180</sup> The reluctance of females to attend did not come from the institutes themselves, but from the women who were wary of attending what would have been male-dominated classes, a problem that Middlesbrough and others had responded to by offering separate classes for them.<sup>181</sup> Once this had been identified as a problem, institutes set up separate classes which increased membership and also much needed additional income.

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<sup>178</sup>.Others mechanics’ institutes that had active female memberships included Elland, Shelly, Brighouse, Mirfield and Lascelles Hall, all within a few miles of Huddersfield.

<sup>179</sup> Annual Report of the Yorkshire Union of Mechanics’ Institutes 1849 - 1880, Statistical Tables.

<sup>180</sup> *Ibid.*,

<sup>181</sup> Advertises announcing places on courses in the new merged Huddersfield Technical School and Institute in 1888 emphasise that women would be taught separately from men. *Fifty-One Report of the Yorkshire Union of Mechanics’ Institutes*, 1888, p. 106.

## Yorkshire Union Female-Only Institutions

There were two female-only institutions that were members of the Yorkshire Union, one at Huddersfield and the other at Bradford, a mere 14 miles apart. Both towns had successful male mechanics' institutes so for patrons to support separate institutes for women indicates that there was potentially little difficulty in recruiting females-only membership. Both Huddersfield and Bradford were expanding wool textile towns and female textile labour was in abundance supporting a reasonable standard of living for working-class households.

The Huddersfield Female Educational Institution was opened in 1846.<sup>182</sup> It had been founded 'by Ladies and Gentlemen' who 'observed in many villages, and most towns of the Kingdom, mechanics' institutes for the instruction of young men, but no similar provision for the young women of the working classes'.<sup>183</sup> Robert Baker, a Factory Inspector for Leeds, noted that there were 409,360 females at work 'within the walls of the factories in the United Kingdom' and believed strongly that similar institutions to the female Institute at Huddersfield were needed to provide educational opportunities for women, as well as men.<sup>184</sup>

The Female Institute was established by Frederick Schwann, the founder of the male Mechanics' Institute, and supported and organised by his wife, the daughter of a Unitarian minister from Birmingham. In the case of middle-class Victorian wives, they were often the daughters of pre-Victorian fathers whose work had often been located in or near the home and they had therefore picked up a good understanding of trade, often marrying one of his business associates. 'In Lancashire, [for example], the wives of cotton masters possessed a pool of largely unacknowledged expertise in the

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<sup>182</sup> Hole stated that 'it has been the most successful, of the kind ever established in this country. J. Hole, *Essay on the History and Management of Literary, Scientific and Mechanics' Institutes* (1851), p.39.

<sup>183</sup> *Twentieth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1857, p.85.

<sup>184</sup> *Huddersfield Female Institute, Minutes of the General Committee*, 1862, p.8.



textile trade'. This was also true in other industries and particularly agriculture where expertise was inherited by females where they were expected to work on the family farm. Thus, wives of employers would see the potential of female elementary education in supporting agricultural trade and industry, as they would have a good understanding of what skills and expertise women needed.<sup>185</sup> There can be little doubt that wives of the early patrons of the mechanics' institutes had some influence in encouraging them to support female membership, or in the case of Huddersfield, supporting a separate Institute, as well as influencing what curriculum should be offered them.

The *Huddersfield Female Institution Annual Report*, sent to the Yorkshire Union in 1846, raised questions in relation to the 'state of education amongst young women of the same (working) class as men'. The *Report* went on to say that Huddersfield claimed the pre-eminent distinction of having been the first to establish an institute organised and managed on a separate and independent basis for the education of the young women of the working classes.<sup>186</sup>

By 1846, the Institution had a membership of 240 women who attended classes in reading, writing, arithmetic, mental arithmetic, dictation, grammar, needlework, singing and geography.<sup>187</sup> The following year, the Institution offered 'sewing, reading, geography, history and other branches of a sound, moral, secular education but no studies hostile to religion'. The teaching of religion was constrained to the church schools as, from their early origins, institutes nationally had consciously made the decision not to teach or debate religion or politics.<sup>188</sup>

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<sup>185</sup> J. Tosh, *A Man's Place, Masculinity and the Middle-Class Home in Victorian England* (London, 1999), p.66.

<sup>186</sup> *Huddersfield Institute Minutes of the General Committee* for 1846, p.8.

<sup>187</sup> *Ninth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1846, pp.50-1.

<sup>188</sup> *Huddersfield Female Education Institute Minutes of the General Committee*, 1847, p.13.

Several mechanics' institutes found it hard to recruit women members due to the lack of female teachers, among them the Huddersfield Female Institution. In 1857 the Committee reported to the Yorkshire Union that Schwann had provided 'the services of an additional teacher for the next twelve months' through paying the salary himself. Some teachers were paid; others gave of their free time.<sup>189</sup> The following year a former student, her name unknown, from the Female Institute who had attended Huddersfield, was studying to be a teacher at the Homerton Training School and she wrote to the Committee in 1859:

I am glad that I was ever a member of the Female Educational Institute; what I learnt there will be useful to me through life – every dress I have brought with me I made myself in the Institute, thanks to the sewing class, which I hope will continue to prosper.<sup>190</sup>

The trainee on qualifying would be able to teach in a mechanics' institute or a school and receive a salary.<sup>191</sup> By 1878 there were five Certificated Teachers, 'assisted by ladies who volunteer their services as teachers and librarians'.<sup>192</sup>

By 1858, there were 118 students at the Female Institution, with an average nightly attendance of 65. There were 22 classes weekly, of which 12 were taught by eight paid teachers and 10 by volunteer teachers. The table below shows the number of classes, subjects offered and number attending (Table 2.7).<sup>193</sup>

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<sup>189</sup> *Twentieth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1857, pp.85 – 6.

<sup>190</sup> *Twenty-Second Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1859, p.93.

<sup>191</sup> *Report of the Huddersfield Female Education Institute*, 1858, p.4.

<sup>192</sup> *Annual Report of the Huddersfield Female Education Institute*, 1878, p.5.

<sup>193</sup> *Twenty-First Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1858, p.95.

**Table 2.7 Number of Classes, Subjects offered and Number of Females attending in 1858**

Number. Of Classes	Subject	Number. on Roll
6	Reading	75
13	Writing	115
6	Arithmetic	90
3	Grammar	52
2	Dictation	50
1	Composition	21
3	History	56
4	Geography	72
1	Singing	34
2	Sewing	40

*Twenty-First Annual Report of the Yorkshire Union of Mechanics' Institutes, 1858, p.95.*

Subjects were offered at different academic levels, with the exception of the composition and signing.<sup>194</sup> The range of subjects offered reflects the support given for elementary education as well as the domestic subject of sewing.

In 1862, classes were offered in Reading, Writing, Grammar, Arithmetic; Singing Classes were popular as they formed ‘a pleasant relief to the drier studies on the other four evenings’ as well as supporting ‘their respective places of worship’. The Sewing Class was seen as the ‘most valuable part of the Institution, supplying, as it does, instruction in a branch of female education that is only too much needed by the daughters of toil in our large manufacturing towns’.<sup>195</sup>

The success of the Huddersfield Female Education Institute was reflected in its shortage of accommodation. By 1860, ‘in consequence of not having a room sufficiently large in which to collect all the pupils of the Institution, the committee have been unable to make those arrangements for lectures and addresses they could have wished’.<sup>196</sup> By 1869 the Institute moved into the Gladstone Buildings, which were more suitable and finally by 1875 it moved for the final time into the Board School on Beaumont Street, never actually owning its own building as numbers of

<sup>194</sup> *Ibid.*

<sup>195</sup> *Twenty-Fifth Annual Report of the Yorkshire Union of Mechanics' Institutes, 1862, p.102.*

<sup>196</sup> *Annual Report of the Huddersfield Female Education Institute, 1860, p.6.*

students were far lower than its male counterpart.<sup>197</sup> The Inspector visiting in 1875 commented on the larger and better accommodation the Institute now had.<sup>198</sup>

The Committee *Report* of the Huddersfield Female Institute remarked in 1881 that it was in a prosperous condition despite the fall in the number of elementary classes, ‘a matter of congratulation rather than regret’ as the Education Acts were now having an impact on compulsory education and this Institute could concentrate on offering adult classes. These included household cookery, domestic economy (food, clothing, dwellings, health, cottage income and expenditure) and sewing.<sup>199</sup> Joanna Bourke indicates that domestic education was only established formally through the Local Authorities in 1880. Such courses involved cookery, laundry-work and general housewifery and attracted working-class females to attend. The Education Code of 1882 gave Local Authorities financial support to offer these courses, similar to the ones mechanics’ institutes had been doing since the late 1840s, as a result of improvements in housing which ‘raised standards in cleaning’ and ‘dietary diversification [which] was a notable feature of working-class life from the 1850s’.<sup>200</sup>

In 1882 the Huddersfield Female Institute Committee stated that ‘it was a fallacy to suppose that because School Boards were established with compulsory powers, there was no more necessity for such institutions as these; but they forgot that there was a number of young girls who went to the mills half time, and did not acquire sufficient education during that time, and also there were many beyond school age, and others, who were desirous of increasing the knowledge they already possessed’.<sup>201</sup> Thus, the Institute saw the potential of not only offering education to girls of school age but also

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<sup>197</sup> *Annual Report of the Huddersfield Female Education Institute*, 1869, p.7.

<sup>198</sup> *Annual Report of the Huddersfield Female Education Institute*, 1875, p.4.

<sup>199</sup> *Annual Report of the Huddersfield Female Education Institute*, 1881, p.5.

<sup>200</sup> *Ibid.*, p.343.

<sup>201</sup> *Huddersfield Female Education Institute Minutes of the General Committee*, 1882, p.12.

in providing older females, including adults, with both elementary and higher education opportunities.

Not surprisingly the Female Institute was aware that with the growth in membership it needed better premises but was also concerned that the fall in trade was affecting growth. 'The prosperity of the Institute has been seriously interfered with by the recent commercial depression'. Some members were unable to pay fees and several teachers had contributed so they could continue with their studies. The Committee had appealed to employers from the late 1850s, for them in relation to their female members, to support their attendance at the Institute and contribute financially to their 'elementary branches of education'.<sup>202</sup> The subjects offered did not change throughout the Institute's lifetime or indeed after it amalgamated with the male Mechanics' Institute in 1883.

In 1883 it was agreed between the committees of the Mechanics' Institute and Female Institution to merge, as to do so, provided the opportunity to expand and integrate under one roof. It seems to have been a relatively straightforward operation with little or no opposition to female students attending the larger male Mechanics' Institute, indicated by the March 1883 Committee Minutes stating that 'the probable closing of the Female Institute and the availability of admitting females to all the privileges of the Mechanics' Institute were discussed at length. It was proposed and seconded and unanimously agreed that all facilities would be available to females as soon as the merger had taken place'.<sup>203</sup>

Less than two months later a letter from the Secretary of the Female Institution confirmed that this had been a relatively easy transfer and that the initiative had come from the female Institute.

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<sup>202</sup> *Twenty-First Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1858, p.96.

<sup>203</sup> *Huddersfield Mechanics' Institute Minutes*, 6 March 1883, p.21.

That the best thanks of the [new joint] Committee be given to the Committee of the Huddersfield [male] Institute for the readiness with which they accepted the suggestion to take over the work of the Female Institute hitherto carried on by this Institute for upwards of thirty-six years.<sup>204</sup>

The decision to do this was both realistic and practical as the female Institute had not been as large as the male Mechanics' Institute and therefore did not have the same resources or opportunities. By bringing both together in 1883 they supported what was to become a joint successful Technical School and Mechanics' Institute which continues today as the Huddersfield Technical College. However, separate classes for the females were delivered and to reassure both present and future female students and their parents, advertisements in local newspapers made it clear that single sex teaching was the norm as in schools.<sup>205</sup>

The following table (Table 2.8) shows the number of females attending the Huddersfield Female Institution between 1849 and 1874. Within two years of opening, the number of members had doubled and before the end of the decade, in 1859, there were nearly 300 female students, the period when the institute movement was supposedly declining. Although there was subsequently some fluctuation, by 1874 there were 367 students, the last year individual returns were sent to the Yorkshire Union.

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<sup>204</sup> *Huddersfield Mechanics' Institute Minutes*, 1 May 1883, p.34. An advert announcing the merger appeared in the local newspaper during the month. *Huddersfield Mechanics' Institute Minutes*, 8 May 1883, p.43.

<sup>205</sup> *Huddersfield Chronicle*, 12 June 1883.

**Table 2.8 Number of Members at the Huddersfield Female Institution 1849 – 1874**

Date	Number	Date	Number
1849	70	1859	293
1850	127	1860	254
1851	140	1861	253
1852	124	1862	249
1853	122	1863	220
1854	107	1864	231
1855	170	1865	244
1856	295	1866	222
1857	280	1873	185
1858	268	1874	367

*Annual Report of the Yorkshire Union of Mechanics' Institutes for 1849 - 1866 and 1873 - 1874, Statistical Tables*

A Female Education Institute was established at Bradford in 1857, some ten years after Huddersfield, and was established by several women in the Little Horton district of the town. The Bradford Female Education Institute had as its main objective to 'provide for females of this town and neighbourhood increased facilities for mental improvement by means of classes, a Library, addresses and other such methods as may appear suitable for imparting sound moral and secular instruction'.<sup>206</sup> Within its first year 393 students were recruited and classes were held in reading, writing, arithmetic and needlework which were offered at elementary level and advanced classes were delivered in writing, history, arithmetic, geography, needlework and general studies.<sup>207</sup>

In 1860, Fanny Hertz of the Bradford Female Institution published a paper entitled 'Mechanics' Institutes for Working Women with Special reference to the Manufacturing Districts of Yorkshire'. Hertz stated that, while the education of working women was crucial for both social happiness and progress, the issue had not been given high priority while the opposite had been the case for working-class men. 'During the last third of the century working men have been initiated, and have

<sup>206</sup> 1860 Syllabus in F.J. Adams (ed.), *Education in Bradford since 1870* (Bradford Corporation, 1970), p.202.

<sup>207</sup> *Twenty-Third Report of the Yorkshire Union of Mechanics' Institutes*, 1860, p.71.

rapidly advanced in nearly every department of knowledge, while their minds are ever expanding more and more under the beneficent stimulus they constantly receive'.<sup>208</sup> Women, on the other hand, were not so fortunate in having these opportunities generally, of awakening 'in their fellow female companions a corresponding desire after a higher moral and intellectual life'.<sup>209</sup> Hertz put forward the argument that, while the education of working men was advantageous in their employment and life generally, the same was not true for women. She did, however, make the exception, as reinforced by the Unitarian view of female education that was acceptable, namely to support 'the duties of wives and mothers, of mistresses and servants'. Hertz did accept that as social and political opportunities for working-class men developed, so they would too for women.<sup>210</sup>

In the case of Bradford, Hertz was frustrated in seeing the state which working-class women were in as a result of social and financial deprivation, poor diet and appearance. Hertz put poor diet and appearance down to women having little or no education, which, if available, would help improve living conditions of working-class families and support women with knowledge.<sup>211</sup>

In Bradford, as elsewhere, working-class women had much in common with their male counterparts:

the female population, from its employments and its habits of life, has much in common with male artisans. The mechanics' institutes, which have effected such an incalculable amount of good in the case of working men, will no doubt also prove to be the agencies best fitted to awaken in the analogous classes of the other sex those higher aspirations and faculties now dormant, and to give them the first impulse to self-culture.<sup>212</sup>

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<sup>208</sup> F. Hertz, 'Mechanics' Institutes for Working Women, with Special reference to the Manufacturing Districts of Yorkshire', *Transactions of the National Association for the Promotion of Social Sciences* (1860), 347.

<sup>209</sup> *Ibid.*

<sup>210</sup> *Ibid.*, 348.

<sup>211</sup> *Ibid.*, 349.

<sup>212</sup> *Ibid.*, 350.



Hertz identified that mechanics' institutes were ideally suited as much for working-class females as they were for their male counterparts. With higher wages in the Yorkshire and Lancashire textile towns, young women were drawn away from their families in the agricultural districts and gained their independence at a much earlier age than previously. Thus, there were large numbers of independent working women who could afford the mechanics' institutes' fees and benefit from the classes being offered.<sup>213</sup>

Hertz indicated that Huddersfield was 'a far prettier and more cheerful town [than Bradford] with hardly a street from which green fields may not be seen'. Women were 'not engaged to so large an extent in factory work [or to the same extent as they were in Bradford], nor are they of that unsettled wandering disposition which so often baffles our efforts to educate them in Bradford'. It is true that female students who attended the Female Institution in Huddersfield tended to be milliners, dressmakers, domestic servants or still living with their parents. They were not as independent as their Bradford counterparts, and 'there exists between them and the managers of their Institute a warm friendliness, and personal regard, productive of the best results'.<sup>214</sup>

Bradford offered reading, writing, arithmetic, geography, history, grammar, needlework, and singing, as well as 'an advanced class in the elements of natural science' which was human physiology and was seen as an important subject for potential mothers. There was a library, reading room and penny savings bank, and lectures were delivered from time to time. Fees were 2d. per week.<sup>215</sup> Hertz believed that 'those who assist to establish mechanics' institutes for young women, or who in

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<sup>213</sup> *Ibid.*, 352.

<sup>214</sup> *Ibid.*

<sup>215</sup> *Ibid.*, 353.

any way further the mental improvement of female operatives, will be providing suitable and worthy helpmates for the educated and intelligent working man'.<sup>216</sup>

In 1862, the Bradford Female Education Institute female membership was 249 and a list of the trades associated with its female members is provided below (Table 2.9).<sup>217</sup>

**Table 2.9 Occupations of Members at the Bradford Female Education Institute 1862**

Weavers and Twisters	129	Spinners & other mill workers	267
Nurse-maids at home	122	Dressmakers	6
Assistant teachers	2	Piece-boards paperers	10
Domestic servants	17	Cigar makers	1
Employed in chemical works	1	Employed in paper warehouse	3
Employed in shops	4	Stay makers	2
Upholsterers	2	Book binders	2
Stitches in dyehouse	2	Total	570

*Twenty-Fifth Annual Report of the Yorkshire Union of Mechanics' Institutes, 1862, p.83*

The table highlights that the majority of occupations were working class and that the courses were relevant to the industries women were working in. As in the case of occupations listed in Chapter One, Neale's work in particular supports that the majority of members of the female Institute were working class, both A and B. For 2d. a week 'young women and mothers whose education has been neglected in their early days' could study sewing, cookery and general subjects four evenings a week.<sup>218</sup> Plain sewing and dress-making classes were seen as important economically. Once they had made the clothes, on payment for the raw materials, they could take them home.<sup>219</sup> Thus, courses of this type not only supported the 'private' sphere of domesticity through making clothing for the family but also the local textile trades and industry, providing a much-needed source of income.

<sup>216</sup> *Ibid.*, 354.

<sup>217</sup> *Twenty-Fifth Report of the Yorkshire Union of Mechanics' Institutes, 1862, p.83.*

<sup>218</sup> F. J. Adams, (ed), *Education in Bradford since 1870* (Bradford Corporation, 1970). p.202.

<sup>219</sup> *Twenty-Eighth Report of the Yorkshire Union of Mechanics' Institutes, 1865, p.89.*

The table below shows the annual membership between 1860 and 1876 (Table 2.10). There was a steady growth in numbers during the 1860s, from 359 in 1860 to 959 in 1868, almost double the number of members that attended Huddersfield, although by 1874 Huddersfield had only 63 fewer than Bradford.

**Table 2.10 Number of Members at the Bradford Female Institution 1860 – 1876**

Date	Number	Date	Number
1860	359	1867	934
1861	420	1868	959
1862	473	1872	400
1863	412	1873	472
1864	463	1874	430
1865	620	1875	374
1866	643	1876	325

*Annual Report of the Yorkshire Union of Mechanics' Institutes for 1860 - 1868 and 1872 - 1876, Statistical Tables*

The comparison of membership in both cases does not indicate that the Bradford Female Institution was more successful than the Huddersfield one. As Table 2.11 below shows, Bradford's population over the period 1851 – 1891 was larger than that at Huddersfield, despite both towns increasing in size. The Bradford Female Institution had more members than the one at Huddersfield and, like the latter, it too merged with the male Institute to form the Bradford Technical School and Mechanics' Institute.

**Table 2.11 Census Data for Bradford and Huddersfield 1851 – 1891**

Town	1851	1861	1871	1881	1891
Bradford	34,560	52,501	48,646	64,440	68,372
Huddersfield	25,068	30,880	34,877	38,654	42,234

Census Returns for 1851 - 1891

The decisions at Bradford and Huddersfield to offer women their own Institutions seem to have encouraged more of them to attend, than in other towns where there was mixed membership. However, in the case of all institutes that did have female members, committees encouraged their attendance for the sake of additional fees income as well as offering them an education which was particularly relevant in

respect of the private sphere, whether it was elementary or 'home and hearth' courses. Without female membership, many institutes, especially the smaller ones would not have survived in the numbers they did.

### **Summary**

Women had little chance of gaining the vote in the nineteenth century. Yet they had been involved in supporting men in organisations such as Chartism, and particularly in support of education and male suffrage. Females has also become members of trade associations but were rarely involved in the decision-making processes. They were, however, supporting political and social change, if not directly. The passing of the 1867 Reform Act emphasised the point that while working-class men in the towns were able to vote, all women, whatever their background, could not, thus reinforcing the gender differences.

While middle-class females tended to accept their roles in the private sphere, working-class ones did not do so, on economic grounds. Many women from poorer families were forced to either work at home, in domestic service, or in the new expanding industries, particularly the textile industries of Lancashire and Yorkshire, which provided employment for large numbers of females. Whereas, the 1851 Census had designated female work as that that carried out in the home, including looking after the family, the 1881 Census did not. This highlights the important point that there were social changes in attitudes in relation to gender and women's roles between the establishment of mechanics' institutes and their on-going importance until the 1890s. There was political segregation between men and women, working-class females, daughters and mothers were moving into the masculine public sphere of

work as well as being expected to continue to look after the private sphere of the feminine home and family.

The middle-class Unitarians were associated with nineteenth-century radical politics and the belief that women should be treated more equally in relation to men than they had been previously. It was often Unitarian men who were involved in the establishment of mechanics institutes which not only supported working-class men but also women and where they were involved, there seems to have been greater participation of women in mechanics' institutes. Their contribution to the mechanics' institute movement cannot be overstated.

The mechanics' institute movement was responsive to the needs of female education in both the three 'Rs' and home-based education including sewing and needlework which supported the textile industry, or at least some aspects of it. Although there had been some opposition to women attending mechanics' institutes, it was, in reality, insignificant. As long as working-class women were being educated to support their families and the home, working-class men do not seem to have objected, especially as the two spheres were not in conflict with each other.

Institutes supported the private sphere of domesticity in relation to female education. As men and women were taught separately with male-only teachers for the men and female-only teachers for the women, there would be little tension between the two sexes. The mechanics' institutes were, in effect supporting both spheres.

## Chapter Three

### The Great Exhibition and the Mechanics' Institute Movement

#### Introduction

The Great Exhibition of 1851 had a major impact on the mechanics' institute movement. The Exhibition was the idea of Prince Albert, who had publicly advocated the advancement of industry and science. It was opened by Queen Victoria on May 1. Prince Albert was President of the Society for the Encouragement of Arts, Manufactures and Commerce, more commonly known as the Society of Arts, which was involved in the idea and organisation of the 1851 Exhibition.<sup>220</sup> The Exhibition highlighted foreign advancement of science and technology which shocked government into supporting technical education and a number of commissions were set up to look into this. The Society of Arts supported scientific and technical education by offering nationally recognised qualifications in technical subjects taken by students, many of whom studied at mechanics' institutes. The success of the Exhibition and the encouragement by the Society of Arts in supporting technical education was reflected in the number of patents that were issued from the mid-1850s onwards.

The idea for a Great Exhibition came from the many successful exhibitions that had been held from the late 1830s at various mechanics' institutes and literary and scientific societies throughout the country. They were seen as 'enlightening the public and awakening their curiosity' and at the same time provided publicity and raised much needed income for the local institute. Mechanics' Institute committees were confident that exhibitions 'would attract the working classes, stimulate their

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<sup>220</sup> Argles, *South Kensington*, p.1.

imagination and make them aware of their cultural heritage'.<sup>221</sup> The challenge seems to have been having enough exhibits to show visitors.<sup>222</sup>

The first large exhibition was held at the Manchester Mechanics' Institute in 1837.<sup>223</sup> Exhibits included 31 model steam engines, 79 models of 'useful machines and ingenious mechanical contrivances', 12 models of public buildings, 90 philosophical [scientific] instruments, 140 India ink and coloured designs and drawings, 28 specimens of glass, painted and stained glass and 10,000 insects.<sup>224</sup> An exhibition held at Bradford in 1839 raised between £700 and £800, the proceeds going towards a new building for the Institute.<sup>225</sup> In the same year, at Halifax, an exhibition on science and art was jointly organised between the Infirmary, the Literary and Philosophical Society and the Mechanics' Institute and attracted 100,000 visitors.<sup>226</sup> Other mechanics' institutes which organised exhibitions included one at Todmorden in 1839<sup>227</sup> and at Sowerby Bridge in the same year, the exhibition at the latter lasting seven weeks, attracted 29,000 visitors and made a profit of £142.<sup>228</sup> An exhibition of arts and manufactures held at Leeds in 1842, raised £1,630 which supported the purchase of a building and helped pay off some of the debt inherited from the previous Literary Institution which it had taken over.<sup>229</sup> At the Huddersfield Institute an exhibition was held in 1844, which included displays of 'microscopes, dissolving views and optical illusions'. A series of experiments was carried out for visitors, of whom there were some 500 – 600, including several on the science of galvanism as well as demonstrations on the use of oxy-hydrogen blow pipes, air pumps and the

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<sup>221</sup> M. Tylecote, *The Mechanics' Institutes of Lancashire and Yorkshire Before 1851* (Manchester University Press, 1957), p.274.

<sup>222</sup> *Ibid.*, p.78.

<sup>223</sup> *Ibid.*

<sup>224</sup> *Ibid.*, p.306.

<sup>225</sup> *Ibid.*, p.229.

<sup>226</sup> *Ibid.*, p.238.

<sup>227</sup> *Second Report of the West Riding Union of Mechanics' Institutes, 1839*, p.24.

<sup>228</sup> *Ibid.*, p.38.

<sup>229</sup> Tylecote, *The Mechanics' Institutes of Lancashire and Yorkshire Before 1851*, p.71.

workings of a diving bell and working models of machinery.<sup>230</sup> The Birmingham Mechanics' Institute opened its 1849 exhibition to foreign competitors, something which the Great Exhibition was also very keen to do and which would highlight the serious concerns that Britain was lagging behind other countries relative to industrialisation and productivity, in part at least, due to the lack of technical education being available for the majority of employees.<sup>231</sup>

The popularity of exhibitions encouraged mechanics' institutes to request that government money be made available for the provision of public museums and art galleries to house their exhibits, as few had either the space or the finance to hold permanent displays.<sup>232</sup> Out of 600 mechanics' institutes, only 31 were recorded in 1850 as having museums in 1850 (Table 3.1 below).

**Table 3.1 Mechanics' or Similar Institutions with Museums in 1850**

Kingsbridge, Devon	Wigan, Lancashire	Newcastle, Staffordshire	Guernsey,
Dorchester, Devon	Lincoln, Lincolnshire	Guildford, Surrey	Ayr, Scotland
Hereford, Herefordshire	Northampton, Northamptonshire	Hastings, Sussex	Brechin, Scotland
Bexley, Kent	Peterborough, Northamptonshire	Lewes, Sussex	Greenock, Scotland
Gravesend, Kent	Newcastle, Northumberland	Chippenham, Wiltshire	Paisley, Scotland
Rochester, Kent	Bristol, Somerset	Warminster, Wiltshire	St. Andrews, Scotland
St Mary's Cray, Kent	Yeovil, Somerset	Anglesey, Wales	Waterford, Ireland
Tunbridgewells, Kent	Burton, Staffordshire	Carmarthen, Wales	

J. W. Hudson, *The History of Adult Education* (London, 1851, Woburn, 1969 edition), pp.222-236.

In 1850, Yorkshire, with 151 mechanics' institutes, had no museums, and Lancashire, with 68, had only one. Kent, with 25 institutes, had most museums with five, the same number as those for the whole of Scotland, which had 55 institutes.<sup>233</sup> The situation was to change, following the success of the 1851 Exhibition with the renewed

<sup>230</sup> *Seventh Annual Report of the Yorkshire Union of Mechanics' Institutes, 1844*, p.27.

<sup>231</sup> J. R. Davis, *The Great Exhibition* (Stroud, 1999), p.11.

<sup>232</sup> Tylecote, *The Mechanics' Institutes of Lancashire and Yorkshire*, p.289.

<sup>233</sup> Hudson, *The History of Adult Education*, pp.222-236.



popularity of the mechanics' institute movement. Indeed, when most of the larger institutes raised funds for purpose-built institute over the following decades, museums or art galleries were often included as at Keighley in 1877 and Huddersfield in 1888.<sup>234</sup>

The development of a national railway network from the 1830s enabled cheap excursions and reliable travel, which also provided the opportunity for mechanics' institutes to organise visits to exhibitions and places of interest as part of their responsibility for self-improvement. It was the rail network that provided so many people from all parts of the country to attend the Exhibition. Such a system had been partly encouraged, at least, by the mechanics' institute movement. 'The work of the mechanics' institutes had pioneered the want for development of cheap, popular excursions utilising the power of steam-driven locomotives to convey large crowds of people, many of whom were members of the working class'.<sup>235</sup> The first such excursion was reported in 1839 when members of the York Mechanics' Institute, a town which was establishing itself as part of the railway network, went by train to visit the Leeds Public Exhibition of the Works of Art, Science, Natural History and Manufacturing Skill, which was organised by the Leeds Mechanics' Institute, one of several such exhibitions taking place throughout the country.<sup>236</sup>

Rail travel was an event in itself and was often celebrated with processions and brass bands. Members from the Nottingham Mechanics' Institute, for example, on a visit to an exhibition at the Leicester Mechanics' Institute in 1840, were received by a welcoming party and a procession of 'four abreast'. The parade, which went from the railway station to the exhibition at the Institute, was greeted by the Duke of Rutland's

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<sup>234</sup> *Fortieth Annual Report of the Yorkshire Union of Mechanics' Institutes, 1877*, p. 133. Plans for a new Technical School and Mechanics' Institute at Huddersfield, University of Huddersfield Archives.

<sup>235</sup> S. Barton, *Working-class Organisations and Popular Tourism, 1840 – 1970* (Manchester University Press, 2005), p.29.

<sup>236</sup> *Ibid.*, pp.29 - 30.

band, playing 'God save the Queen'. The total number of travellers to the Leicester exhibition was 400 and a further 2,400 took a second trip to it the following summer. Over 700 visitors also attended the Nottingham Mechanics' Institute exhibition, indicating just how popular these excursions were. It was the arrangement of these two institutes to visit each others exhibitions that gave Thomas Cook his inspiration for establishing cheap working class rail travel. Without this, the Exhibition of 1851 would not have been the success it was, as it was supported by visitors from all over the country, many of whom were working-class members from their local mechanics' institutes.<sup>237</sup> The Exhibition did not only attract rail passengers. Most of the exhibits were delivered by rail transport and the combined traffic had resulted in an increase of between 5 per cent and 38 per cent of usage on the previous year.<sup>238</sup>

The excursions and exhibitions organised by the mechanics' institutes were not only a form of education, but they also supported political reform through peaceful means, as the exhibitions displayed the work carried out at mechanics' institutes demonstrated 'the intelligence, abilities and good behaviour of respectable working men and so dispelled some of the arguments against their enfranchisement'.<sup>239</sup> Thus, the enthusiasm with which both mechanics' institutes, and their visitors, many of whom were working class, had responded to ideas of exhibitions, and cheap excursions, meant that the Great Exhibition would be well received. As Susan Barton argues, the 'mechanics' institutes were inspirational for the Exhibition, because

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<sup>237</sup> Barton, *Working-class Organisations*, p.29.

<sup>238</sup> H. Atmore, 'The Crystal Palace Company and Joint-Stock Politics, 1854-1856', in *Journal of Victorian Culture*, 9.2, Autumn 2004, Edinburgh University Press, 190.

<sup>239</sup> Barton, *Working-class Organisations*, p.32.

smaller versions had already been held in several provincial towns between 1838 and 1840', and beyond.<sup>240</sup>

### **The Great Exhibition**

Prince Albert, Henry Cole and other organisers saw the Great Exhibition as a means of improving design and artisanal skills necessary for the continuation of Britain's industrialisation. As early as 1824, Henry Brougham had written an article on scientific education in the influential *Edinburgh Review* where he stated that 'British artisans were the least trained and the middle-class manufacturers the worst educated in Europe'.<sup>241</sup>

Francis Whishaw, the Secretary of the Society of Arts, offered a prize of £300 of his own money to encourage an exhibition in 1849 'of paintings and useful inventions' in the Society's own rooms in London. He gained his inspiration from the exhibitions at mechanics' institutes in the north and midlands that had been holding these events since the 1830s. Although only 150 attended Whishaw's exhibition, the idea was taken up 'with great enthusiasm for a great exhibition organised by the Society of Arts and supported by its President, Prince Albert'.<sup>242</sup>

Many industrial towns throughout Britain supported the Exhibition through local committees for the purpose of publicising the event and providing some funds for those who otherwise would not have been able to go due to travel and accommodation costs. The Manchester Exhibition Committee, for example, was supported by the Unitarian industrial families of Heywood, Philips, Henry, Potter and Greg, all of

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<sup>240</sup> S. Barton 'Why Should Working Men Visit the Exhibition? Workers and the Great Exhibition and the Ethos of Industrialism', I. Inkster (ed), *The Golden Age, Essays in British Social and Economic History, 1850 – 1870* (Aldershot, 2000), p.147.

<sup>241</sup> J. A. Auerbach, 'The Great Exhibition and Historical Memory' in *Journal of Victorian Culture*, 6.1, Spring 2001, Edinburgh University Press, 99.

<sup>242</sup> J. A. Auerbach, *The Great Exhibition of 1851, A Nation on Display* (Yale University, 1999), p.9.

whom had been influential in the establishment and on-going support of the Manchester Mechanics' Institute.<sup>243</sup>

The Manchester Committee included working men, of whom four mechanics were employed by the Sharp Brothers, two of who worked for Messrs Fairburn and two who were employed by Messrs W. and D. Morris. The Committee reported that the working class were being consulted similarly to the way they were in relation to mechanics' institute committees, as discussed in Chapter One. They reported that, 'we, as working men, feel gratified to find ourselves consulted upon a matter of such importance [the Exhibition] to the industrious classes'. The Committee requested 'that two men from each principal workshop and manufactory in Manchester are to assist in carrying out the objects of the Great National Exhibition of 1851'. It was also keen to promote the Exhibition through establishing 'an active canvass amongst the artisans in different machine shops and manufactories to ascertain how many individuals, or associated bodies, will prepare specimens of their skill for the exhibition'. The Committee also promised to arrange for cheap transport, presumably through block booking and at discounted rates, on a series of days, so as to allow all those who were interested, to visit the exhibition at the lowest possible cost.<sup>244</sup>

Prince Albert also believed that the involvement of the working classes 'was critical to the success of the exhibition'. He included working men on the London Committee of the Exhibition, in the same way as they were on the local committees, 'to promote the interests of the working classes'. Samuel Wilberforce, the Bishop of Oxford, who was on the same committee, gave a speech in which he stated that 'it [the Exhibition] sets forth in its true light the dignity of the working classes...it tends

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<sup>243</sup> Auerbach, *The Great Exhibition of 1851*, p.77.

<sup>244</sup> Barton 'Why Should Working Men Visit the Exhibition?' p.152.

to make other people feel the dignity which attaches to the producers of these things [exhibits]’.<sup>245</sup>

The working-class involvement in the Exhibition was through the support of their mechanics’ institute committees and place of work. Employers throughout the country encouraged their workforces to attend. The Southampton Committee, for example, listed the donors who helped support those who wanted to attend, among them clerks, draftsmen, workmen and servants, which illustrates the cooperation of the working class themselves towards supporting the event and ultimately technical education. The Bolton Committee created a separate subscription, called the ‘operative fund’, to assist artisans in ‘perfecting items for display at the exhibition’. Mill owners were encouraged to support the Leeds Committee by encouraging their workers to subscribe to its funds. John Gott’s employees, for example, donated £75 towards the Exhibition.<sup>246</sup> At Huddersfield, a donation of £25 was given by the local landlord, Sir John Ramsden, which enabled eight students from the Mechanics’ Institute to travel to London and attend the Exhibition.<sup>247</sup>

The mechanics’ institutes committees nationally were identified as the mainstay in supporting the Great Exhibition in relation to working-class technical education. The Yorkshire Union of Mechanics’ Institutes agents ‘enthusiastically took part in giving preliminary lectures about the nature and objects of the Great Exhibition’ in towns which had Union institutes.<sup>248</sup> The Union reported in 1850 that it had ‘pleasure in drawing the attention of the Institutes to the great and novel Exhibition to take place in London next year at which the works of Industry of all Nations’ will be exhibited. The Yorkshire Union was sure that such an Exhibition would not fail to give a ‘great

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<sup>245</sup> Auerbach, *The Great Exhibition of 1851*, p.129.

<sup>246</sup> *Ibid.*, p.135.

<sup>247</sup> *Fourteenth Annual Report of the Yorkshire Union of Mechanics’ Institutes*, 1851, p.60.

<sup>248</sup> *Ibid.*, p.14.

stimulus to mechanical skill and inventiveness’ as well as to ‘enlarge the minds and improve the taste of the multitudes that will flock to behold it’.<sup>249</sup>

The railway companies offered specifically low fares to visit the Exhibition, usually with return tickets that were valid up to three weeks. Working class travellers had financial support from their local committee with the cost. The Exhibition Commission noted that ‘third class passengers often travelled second class – if not first class’.<sup>250</sup> These offers encouraged many to attend the Exhibition and to take the opportunity to visit and stay in London. However, some workers took night trains from Yorkshire, spent the day at the exhibition and then returned home at night ready for work the next morning. This meant that they lost only one day’s wages where employers were not willing to fund them or they themselves could not afford to stay overnight.<sup>251</sup> This indicates very strongly that many working-class employees, wherever they lived, were enthusiastic and able to visit the Exhibition.

The Exhibition, which was so well supported by local committees and mechanics’ institutes, also put to an end ‘to the contempt shown for tradesmen and mechanics once the World witnessed the skill involved in the production of artefacts for display’. It was an opportunity for many of the working class to demonstrate their skills and intellectual capabilities in the design and making of exhibits.<sup>252</sup> Indeed, the relationship between the working class and the Exhibition was widely discussed at the time. The Liberal intellectuals hoped that the Exhibition would be ‘an ambitious model of recreation that would fulfil a wider educative function and exert a civilising

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<sup>249</sup> *Ibid.*

<sup>250</sup> H. Hobhouse, *The Crystal Palace and the Great Exhibition, Art, Science and Productive Industry* (London, 2002), p.70.

<sup>251</sup> Auerbach, *The Great Exhibition of 1851*, p.148.

<sup>252</sup> Barton ‘Why Should Working Men Visit the Exhibition?’ p.150.

influence on the majority', in the case of 'a wider educative function' it would do.<sup>253</sup>

Henry Mayhew went as far as to argue that the Exhibition demonstrated that 'manual workers have now achieved a recognition and respect in society'. Prior to the opening of the Exhibition, he believed that working men were 'mere labourers'. The Exhibition was therefore 'the first public national expression ever made in this country, a marvellous display of the trophies and triumphs of labour [which] could not fail to fill working men with pride and inspire them with a sense of their position in the State'. The Exhibition was therefore an excellent public relations event in support of British working-class manufactured goods.<sup>254</sup>

The scale and success of the Exhibition can be measured by the number of visitors who travelled from all parts of the country to see the exhibits. The Exhibition was visited by over six million people between May and October 1851 (the period it was open), the same year that the population for the whole of Britain was 27.3 million, resulting in over 17 per cent of the population visiting Hyde Park, although many may have visited more than once.<sup>255</sup> As many as 110,000 visitors attended on 7 October alone, presumably wanting to see the exhibits before the Exhibition closed at the end of the week. The entrance fee was one shilling and it took 'a second hackney carriage to take the day's takings to the Bank of England'.<sup>256</sup> Visitors often took advantage to visit other sights while in London where, for example, the British Museum saw an increase in the number of visitors from 720,000 the previous year to over two million in 1851.<sup>257</sup> Thus, a huge number of people gained at first hand, experience of the technological developments that were on show and took ideas from both the

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<sup>253</sup> P. Gurney, 'An appropriated space: the Great Exhibition, the Crystal Palace and the Working Class', in L. Purbrick, (ed), *The Great Exhibition of 1851, New Interdisciplinary Essays* (Manchester University, 2001), pp.116 - 7.

<sup>254</sup> Gurney, 'An appropriated space: the Great Exhibition, the Crystal Palace and the Working Class', pp.116 - 7.

<sup>255</sup> D. Taylor, *Mastering Economic and Social History* (London, 1988), p.10.

<sup>256</sup> Hobhouse, *The Crystal Palace and the Great Exhibition*, p.69.

<sup>257</sup> *Ibid.*

Exhibition and other places of interest in London, back to their own work place and local mechanics' institute.

Although generally, employers and employees, particularly those who were members of mechanics' institutes, were enthusiastic about supporting visits to Hyde Park, one of the Yorkshire Union mechanics' institutes did report that it believed the Exhibition had a negative impact on its membership. Shipley Mechanics' Institute had been open for two years prior to 1851. The Committee sent in its first *Report* to the Yorkshire Union in the spring of 1852 and raised concerns that membership was not as high as it should be for a growing textile town.<sup>258</sup> The Committee believed that this was due to 'the Great Exhibition when workers from the town who had travelled to it had then spent too much money while in London and as a result, on their return, they could no longer continue to pay their membership fee'. No other institute made a similar comment and it is likely that it was unfortunate that Shipley Mechanics' Institute was founded around the same time as this national event.<sup>259</sup>

Over a longer term, the Shipley Institute Committee, as others throughout the country, had nothing to fear, as those who had visited the Exhibition, received useful knowledge which they would have been able to put into practice in their local community and industry. The increase in membership numbers at Shipley may not have been as great, had not the Exhibition taken place.

The Yorkshire Union, however, made reference in its Annual Report of 1853, that 'inhabitants of every town, village and hamlet in the kingdom, more especially among the working and industrial sections, whose laudable pride led them to that temple of industry [The Great Exhibition] to see machines of the new age, have added to a thousand other fascinating inducements, which may have drawn from the pockets of

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<sup>258</sup> *Fifteenth Annual Report of the Yorkshire Union of Mechanics' Institutes, 1852*, p.80.

<sup>259</sup> *Annual Report of the Yorkshire Union of Mechanics' Institutes, 1852, 1853, 1854 and 1855, Statistical Tables.*



the people a portion of that money which otherwise would have been appropriated to furthering the objects of the mechanics' institutions'.<sup>260</sup>

Despite these short-term setbacks in membership, the exhibits at the Exhibition provided insight into technological developments and engineering knowledge for those who attended, and encouraged mechanics' institute committees to consider including the themes in class instruction with examinations organised by the Society of Arts.<sup>261</sup> All exhibits were put into one of four categories, the selection of which were relevant to manufacturers and working class members are listed in Table 3.2 below.

**Table 3.2 Classification of a selection of exhibits at the Great Exhibition**

<b>Category</b>	<b>Exhibits</b>
<b>Raw Materials</b>	Mining and Quarrying, Metallurgy and Mineral Products, Chemical and Pharmaceutical Processes and Products.
<b>Machinery</b>	Machines for Direct Use (Carriages, Railways), Manufacturing Machines and Tools, Mechanical Engineering, Architectural and Building, Naval Architecture, Military Engineering, Ordnance Armour, Agricultural and Horticultural Machines and Implements, Philosophical Instruments [scientific] and Miscellaneous.
<b>Manufactures</b>	Cotton, Woollen and Worsted, Silk and Velvet, Manufactures from Flax and Hemp, Woven, Spun, Felted and Laid Fabrics, Mixed Fabrics, including shawls, Leather, Skins, Fur and Hair Paper, Printing, Bookbinding, Cutlery, Edge and Hand Tools, and Surgical and other Instruments, Glass, Ceramic Manufacture, Decorative Paper, Paper Hangings, Miscellaneous Manufactures and Small Ware.
<b>Fine Art</b>	Fine Arts, Sculpture, Mosaics and Enamels.

J. A. Auerbach, *The Great Exhibition of 1851, A Nation on Display*, p.93.

The comprehensive coverage of exhibits, relating to many manufacturing and agricultural developments supported the technological knowledge and understanding required by employers. The Exhibition brought to the attention of manufacturers the need for better engineering, scientific and manufacturing skills. The most successful of British-made scientific instruments were microscopes. In contrast, commercial

<sup>260</sup> *Sixteenth Annual Report of the Yorkshire Union of Mechanics' Institutes, 1853*, p.96.

<sup>261</sup> Society of Arts Examination Paper 1857 for Engineering Drawing, University of Huddersfield Archives.

instruments made by the French won more medals by the judges at the Great Exhibition. 'In astronomy, navigation, chemistry and meteorology the jury which awarded prizes was consistently underwhelmed by the British offerings. The lead in developing scientific instruments was slipping away from Britain'. With regard to machinery and manufacturing, Britain was still leading the way, although 'McCormick's reaper from America posed an enormous threat' but advanced electrical and chemical science were being developed by both France and America.<sup>262</sup> The already well-established mechanics' institutes, however, had potential to support technical advancement, through teaching and offering examinations of the Society of Arts after 1851 and also from the City and Guilds of London Institute for the Advancement of Technical Education, known hereafter as the City and Guilds London Institute, from 1888 (Appendix 5).

The success of the Exhibition encouraged many mechanics' institutes throughout the country, including those in the Yorkshire Union, to continue to hold annual exhibitions of manufactured goods, on a much larger scale than before, which apart from raising additional income for their institutes, also raised the profile of new inventions and patents, often made by members themselves. Keighley in 1877, for example, included an ice rink which could only be used in winter so it was particularly important that the area could be converted into a gymnasium during the rest of the year and the space was also hired out for private functions and 'easily converted into an exhibition hall for the Institute'.<sup>263</sup> At Huddersfield, an art exhibition was held at the Mechanics' Institute in 1882 and 'was very popular with the public'.<sup>264</sup> A year later the Fine Art and Industrial exhibition was opened during the summer of 1883 at the same Institute in order to raise funds for the building of a

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<sup>262</sup> Auerbach, 'The Great Exhibition and Historical Memory', 101.

<sup>263</sup> *Fortieth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1877, p.133.

<sup>264</sup> *Forty-Fifth Report of the Yorkshire Union of Mechanics' Institutes*, 1882, p.114.

new Technical School and Mechanics' Institute. It was such a success, there were 170,000 visitors, that several temporary buildings were set up in the grounds to show exhibits of textile and other machinery, including 'displays of engines, machine tools and machines in relation to woollen manufacture. There were also displays of combing, carding, spinning and weaving processes'.<sup>265</sup> *Huddersfield Chronicle* noted that 'machinery in motion, including the American Loom and 26 other Looms, together with Combing, Carding, Spinning, Winding, Finishing, Printing, Wood Turning and Sawing Machines, &c &c' were on display. The newspaper noted that 'machinery will run until 9 o'clock every evening'.<sup>266</sup>

This was a far cry from the first mechanics' institute exhibitions such as the one in Manchester in 1837 when there was concern that there would not be many examples to keep the public's interest.<sup>267</sup> During the intermediate period great strides had been made in technological developments for such large exhibitions to have been so successful.

The success of the Great Exhibition in relation to technical and scientific education can be measured in various ways. The South Kensington complex, referred to as Albertopolis, which included the Science and Art Department, Imperial College, the Royal College of Music, the Victoria and Albert Museum, the Natural History Museum and the Albert Hall, were all established on the proceeds of the Great Exhibition. This meant that the Royal patronage of Prince Albert could be used 'for industrial education'.<sup>268</sup>

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<sup>265</sup> *The Textile Recorder*, Manchester, 15 May, 1883, p.3. It was common practice to hold mechanics' institute exhibitions throughout the country for displaying local products and machinery as well as fund raising. Money for funding the building of the Worcester Victoria Institute, the successor to the Mechanics' Institute, came in 1882 from 'an extraordinary successful exhibition of Worcestershire's products, held at the large works in Shrub Hill Road', H. A. Leicester, *Forgotten Worcester* (Worcester, 1930), p.35.

<sup>266</sup> *Huddersfield Chronicle*, 1 October, 1883.

<sup>267</sup> *Forty-Fifth Report of the Yorkshire Union of Mechanics' Institutes, 1882*, pp. 112 – 3.

<sup>268</sup> J. R. Davis, *The Great Exhibition* (Stroud, 1999), p.209.

There were subsequent exhibitions in Paris (1855), London (1862), Paris (1867)<sup>269</sup>, Vienna (1873), Philadelphia (1876), Paris (1878), Sydney (1879), Brussels (1888), Chicago (1893) and Paris (1900).<sup>270</sup> These major exhibitions cover the period during which time the mechanics' institute movement in Britain was gaining momentum, a period when knowledge and expertise were being exchanged and further contributing to technical knowledge and to the need for working-class education to support British industrialisation.

The Great Exhibition of 1851 shocked the country into realising that Europe was also producing industrial goods and that as a result, Britain could lose its industrial position if technical education was not taken seriously. The mechanics' institutes were ideally positioned to take on the role of providing technical education in support of British industry as a result of the Great Exhibition. By 1850, a year before the Great Exhibition, there were over 600 mechanics' institutes in England and Wales alone with a membership of nearly 85,000.<sup>271</sup>

### **The Impact of the Great Exhibition on Technical Education through the Society of Arts**

The impact of the Great Exhibition was to be felt for many years. Not only had it aroused the interest of the working classes to such an extent that they travelled to London in large numbers, but it also revitalised what Hudson had identified as the decline in membership of many mechanics' institutes, particularly those to be found outside the Yorkshire Union. What was required was the opportunity to offer

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<sup>269</sup> Clothworkers' Company provided £50 per annum for a probationary period of five years towards establishing the Keighley Weaving School. The money was used to purchase equipment, including hand-loom. A gift from a R. L. Hattersley resulted in the purchase of a power loom, which had been designed by him for the Paris Exhibition.

<sup>270</sup> Davis, *The Great Exhibition*, p.215.

<sup>271</sup> Argles, *South Kensington*, p.7.

technical subjects that could be certificated nationally that would support Britain's industrial progress.

James Hole, an Owenite and active member of the Leeds Mechanics' Institute, had a particular interest in supporting adult education amongst the working classes. Writing in 1853, he stated that 'education is not an affair of childhood and youth; it is the business of the whole of life'. He continued that 'the nation that possesses the largest number of skilled artisans, capable of availing themselves of the aids which science lends to industry, will, other things being equal, be the richest nation'. He had identified in both rural and industrial areas the importance of mechanics' institutes to support adult working-class education. Hole believed that the rural institutes could provide courses in the science of agriculture for farmers and husbandmen supporting 'the culture of land, the maturing of crops, their value when reaped, the feeding and treatment of stock, the manufacture and management of butter and cheese'. He saw the importance of chemistry as an industrial subject supporting the dyeing, bleaching and other trades in support of British industrial progress and particularly relevant to the textile industries of the North.<sup>272</sup>

Hole not only identified the need for industrial education, but also facilities such as qualified teachers, newspaper and reading rooms, social gathering, exhibitions, penny savings banks and itinerating libraries. In fact, all the facilities offered by mechanics' institutes. The government, he believed, should take responsibility for funding and making available education to working-class adults through the Society of Arts which should, he thought, offer nationally recognised examinations and certificates in technical subjects.<sup>273</sup> The government did establish and fund the Department of

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<sup>272</sup> J. Hole, *An Essay on the History and Management of Literary, Scientific, and Mechanics' Institutions* (London, 1853), pp. 44 – 51.

<sup>273</sup> It only became 'Royal' in 1908. Argles, *South Kensington*, p. 9.

Science and Art in 1853, referred to as the Government Department, offering qualifications in science and art.<sup>274</sup>

Hole was not the only person in favour of government-supported technical education following the success of the Exhibition. Prince Albert and Lyon Playfair, who was also a special Commissioner at the Exhibition, felt there was a need ‘to advance science in Britain’. Playfair hoped, like Hole, that the state would recognise ‘science and technology as elements of strength and prosperity’ in relation to Britain’s position in the industrialised World. At the time, however, government took little interest in supporting technical education.<sup>275</sup>

The Society of Arts was concerned that science and technology in Britain were being overtaken by other countries, having examined the quality of overseas exhibits at the Exhibition. Members of the Society, which included Prince Albert, several Whigs and Peelites as well as radical civil servants, several aristocrats, industrialists, manufacturers, and academics. Despite their diverse political views, they agreed that there should be a national system of compulsory education and ‘adult remedial courses for those who lacked schooling’. Without this foundation, the workforce would have little understanding or knowledge of ‘scientific elements to their trades’. The Society also wanted to offer examinations on technical subjects with national recognition being given through certification.<sup>276</sup>

The Society of Arts further believed that in order to support these needs, technical training schools should be established to teach new, specialised skills necessary to operate modern industrial machinery and develop a scientific knowledge in support of

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<sup>274</sup> *Sixteenth Annual Report of the Yorkshire Union of Mechanics’ Institutes, 1853*, p.206.

<sup>275</sup> F. Bosbach, J. R. Davies, S. Bennett, T. Brockmann, T., and W. Filmer-Sankey, *The Great Exhibition and Its Legacy* (K. G. Saur, Munchen, 2002), p.143.

<sup>276</sup> *Ibid.*, p.144.

British science and industry.<sup>277</sup> The Society also believed scientific and technological developments could be further supported by the building of more Government Schools of Design. The first one was established in 1832 and many were to become attached to larger mechanics' institutes throughout the country. The Society encouraged the creation of new school and technical courses, museums and exhibitions offered by the newly established Society of Arts Union of Mechanics' Institutes.<sup>278</sup> Perhaps most important of all, was the setting up, in 1856, of the Society of Arts examination board as suggested by Hole and supported by Prince Albert, in technical and commerce subjects.

In 1855 'the first courses of instruction and examination' were offered at the Society of Arts headquarters in London'. The Society established a Union of Mechanics' Institutes which it believed would encourage institutes to support their students to complete the courses to sit the examinations. The Yorkshire Union reported that the 'Union of Institutes in connexion with the Society of Arts has devoted considerable attention in offering Society of Arts examinations'. The Yorkshire Union gave its wholehearted support to assisting 'the Society of Arts Union in promoting the welfare of mechanics' institutes' and co-operating in what ever way it could.<sup>279</sup> It, like other mechanics' institute unions, identified that such a move would support the movement nationally. The Warrington Mechanics' Institute, for example, which had been in serious decline by 1850, had 'its life extended well into the 1890s' through its membership of the Union of Mechanics' Institutes, following the Great Exhibition.<sup>280</sup>

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<sup>277</sup> *Ibid.*

<sup>278</sup> *Ibid.*, p.145.

<sup>279</sup> *Fifteenth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1853, p.10.

<sup>280</sup> W. B. Stephens, 'Development of Adult Education in Warrington' (unpublished MA thesis, Exeter 1958), p.126. Chapter viii in Kelly, *Adult Education*, p.197.

Nevertheless, for many mechanics' institutes, and especially those in the far North, it was difficult for their members to travel to London with the high costs involved. Hartlepool West Mechanics' Institute, soon after it had been founded in 1854, became a member of both the Yorkshire Union and the Society of Arts.<sup>281</sup> Hartlepool was forced to give out its own certificates for regular attendance, which were signed by the President and Committee of the Institute as students were unable to travel to London to take the examinations.<sup>282</sup> It was not financially practical to do so, as examinations, usually through vivas, were over two or three days and travel and accommodation made this very difficult for many students in the North. The issue of travel at Hartlepool West, of not being able to send its students to London for the examinations, was true of several institutes which was of great concern to the Society of Arts. Mechanics' institutes did not have the finance to support all their students with examination fees, travel and overnight accommodation in London.<sup>283</sup>

It was the idea of the Rev Dr James Booth, the Chief Examiner for the Society of Arts, to find an examinations centre in the North. Booth had been responsible for reinforcing the good work that the mechanics' institutes were involved in and 'the complex moves of 1852–1853 in promoting the activities and examinations available via the Society to institutions' and this was only possible through establishing at least one additional centre.<sup>284</sup> As well as raising the profile of the Society and supporting adult technical education through the country, another reason was financial, as fees were charged to administer the process, pay examiners to set and mark the papers and presumably make a surplus.

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<sup>281</sup> *Nineteenth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1856, p.67.

<sup>282</sup> *Twenty-Second Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1859, p.85.

<sup>283</sup> F.E. Foden, *The Examiner, James Booth and the Origins of Commercial Examinations* (Leeds Studies in Adult and Continuing Education, 1989), p.179.

<sup>284</sup> *Ibid.*, p.527 - 8.



The Society of Arts Board had considered several institutes as the second centre before choosing Huddersfield. Booth in particular, wanted Manchester to be the northern centre, although he actually preferred the idea that there should be several centres set up throughout Britain. The Society was cautious and wanted to make sure that having an additional centre did not result in a fall in standards.<sup>285</sup> The Committee of the Huddersfield Institute in April 1856 arranged a meeting with Booth at Huddersfield to convince him that this should be one of the centres, or indeed the Centre, outside London for administering the Society of Arts examinations and the Society agreed, having recognised Huddersfield's record as one of the most successful institutes in the North.<sup>286</sup>

It was a good decision as only 48 candidates were examined in 1846 at the Society of Arts London headquarters, where as in 1857, with the establishment of the Northern Centre in Huddersfield, there was in total, 220 candidates, sitting 532 examination papers at either London or Huddersfield.<sup>287</sup> The success of the arrangement at Huddersfield as the Northern Examinations Centre meant that the idea was extended in 1858 to several provincial centres making it easier still for candidates to be examined without the expense of travel and accommodation.<sup>288</sup>

In its first year of operation as the Northern Centre, most candidates came from the institutes at Huddersfield, Keighley, Leeds and Wakefield, and in 1857, there were 140 candidates sitting Society of Arts examinations at the Huddersfield Mechanics' Institute, and 80 at the Society's headquarters in London.<sup>289</sup> The pass rate at Huddersfield was 80 per cent compared with London which was 77 per cent. In all,

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<sup>285</sup> *Ibid.*, p.530.

<sup>286</sup> *Huddersfield Mechanics' Institution Minutes of the General Committee*, April 8, 1856, p.21.

<sup>287</sup> Foden, *The Examiner*, p.527 - 8.

<sup>288</sup> H. Wood, *The History of the Royal Society of Arts* (London, 1913), pp.426 - 7.

<sup>289</sup> F. E. Foden, 'Colleges, Schools and the Society's Examinations', *Royal Society of Arts Journal*, Volume 140 (1992), 208. Later the Society would move into its present building in John Adam in Street.

twenty-two institutes sent candidates to Huddersfield and twenty-three institutes sent candidates to London. Thus, geographically, the two centres seem to have been equally split, with London having candidates who had travelled from the South of England, Lincoln, Birmingham, Boston, Leicester but the majority coming from the city. Huddersfield was ideally located for candidates from Lancashire, Cheshire, Yorkshire and the North East.<sup>290</sup> In June 1857, the examinations were held over one week at the local regimental riding school, as the Huddersfield Mechanics' Institute had not the accommodation for so many sitting the examinations. This was a further indication of the success of offering the examinations at a second centre.

Society of Arts examiners' reports for the 1857 examinations, which were summarised in the *Huddersfield and Holmfirth Examiner* on 1 August 1857 (suggesting public interest in adult education), provide insight into the general level of academic knowledge of students, with examiners comparing the results at Huddersfield with London. General comments identified that some candidates at both centres were too eager to take up the advanced level subjects within the minimum period of study and therefore, in several cases, 'did not master the principles on which the programme is made'. In the case of book-keeping, the answers were 'poorly done' at both Huddersfield and London. The chief examiner commented on his role as moderator and noted that students in the north were 'decidedly inferior'. He also thought the examiners had a 'liberal judgement with the view to avoid discouragement to the candidates'. However, in relation specifically to chemistry, the Report mentioned that the results were 'highly creditable', with good theoretical knowledge in many answers. The answers from candidates in the North were only 'slightly inferior' to those in London, with the exception of geography, which 'on the

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<sup>290</sup> Foden, *The Examiner*, p.158.

whole was satisfactory'. The Report did also identify that there were differences in the circumstances of candidates, in relation to their backgrounds, in the North and South and it was noted, that, overall, students were well-taught at Huddersfield.<sup>291</sup> In both English literature and English history, the examiners noted there was much evidence demonstrating that candidates had shown 'great care, accuracy and thoughtfulness'.<sup>292</sup>

Poor literacy was, however, also identified by the examiners, and it was recommended, in future, that preliminary examinations should be made available first as 'a stringent test of all the candidates regarding rudiments of common English education before sitting the Society's advanced examinations'. Preliminary examinations were made available in the North at both Huddersfield and Wakefield Mechanics' Institutes from 1858, to support students who wanted to go on and be fully-examined by the Society of Arts.<sup>293</sup>

The number of candidates who received prizes, for outstanding work, and certificates, by classification, in the 1857 examinations are listed below in Table 3.3.

**Table 3.3 Number of Candidates who received Prizes and Certificates following the 1857 Examinations at Huddersfield.**

Institutions	Candidates	Prizes	1 <sup>st</sup> Certificates	2 <sup>nd</sup> Certificates	3 <sup>rd</sup> Certificates
Huddersfield	32	4	11	11	10
Leeds	9	2	8	12	8
Bradford	12	1	2	2	2
Halifax	10	3	4	1	0
Wakefield	11	1	2	2	5
Other Institutes	31	3	9	14	23
Private Schools	17	2	5	11	10
Total	122	16	41	53	58

*Seventieth Report of the Committee of the Huddersfield Mechanics' Institution, January 1858, p.9*

The Huddersfield Mechanics' Institute had the most candidates and had more students receiving first certificates than the others, with Leeds being second. Huddersfield was paid £2 2s 0d for administering the Society's examinations and to

<sup>291</sup> Foden, *The Examiner*, p. 159. *Huddersfield and Holmfirth Examiner*, August 1 1857.

<sup>292</sup> *Huddersfield and Holmfirth Examiner*, August 1 1857.

<sup>293</sup> Foden, *The Examiner*, p. 163. See full *Reports* in the Appendices.

host the Annual Conference for the Society of Arts Union of Institutes in July of that year. From June 1858, while the Society of Arts examinations were also offered at several other centres in various parts of the country, Huddersfield continued to be one of the largest centres in the country.<sup>294</sup> The Huddersfield Mechanics Institute Report for 1859 referred to the fact that 200 candidates, up by 78, from various institutes had been entered for the examinations, despite other Society of Arts centres having been founded for the purpose of offering them.<sup>295</sup>

Although the examination papers for 1857 do not survive, they do for the previous year when the examinations were held only in London. The depth and breadth of questions set seem to have been similar to the modern-day equivalent of band A or B General Certificate of Secondary Education (GCSE).<sup>296</sup> Those who sat the examinations from Huddersfield Mechanics' Institute in 1857 are listed below, showing their occupations, which indicate that they were working class, and their results (Table 3.4).

**Table 3.4 Candidates entered for the Society of Arts Examinations who attended the Huddersfield Institute in 1857**

Candidate Name	Occupation	Age	Number of Certificates Awarded
Amos Booth	Weaver	24	Prize
James Hirst	Warehouseman	18	Prize
Joseph Locke	Warehouseman	17	Prize plus 3 certificates
Alfred Blackburn	Warehouse boy	15	3 certificates
John Haigh	Wool sorter	22	1 certificate
William Kilner	Clerk	21	1 certificate
Samuel Dockersley	Piecer	14	1 certificate
James Walton	Unknown	16	1 certificate
Thomas Broadbent	Mechanic	22	6 certificates
Alan Broadbent	Warehouseman	22	Prize plus 3 certificates

*Huddersfield Mechanics' Institution Committee Minutes*, list of successful candidates for 1857 and the *Class Register* for 1856–1857, University of Huddersfield Archives

<sup>294</sup> *Huddersfield Mechanics' Institution Minutes of the General Committee*, July 2, 1858, p.327.

<sup>295</sup> *Eighteenth Report of the Committee of the Huddersfield Mechanics' Institution*, January 1859, pp.7 – p.19.

<sup>296</sup> With reference to their own subject specialism, several Huddersfield University lecturers interviewed generally agreed the papers were the equivalent to GCSE standard A to C.

The examination results identified that Samuel Hield of Leeds Mechanics' Institute achieved seven passes, the most for any student that year with Thomas Broadbent receiving six and Alan Broadbent (no relation) gaining three passes, including a special Prize, both of whom had attended Huddersfield Mechanics' Institute.<sup>297</sup>

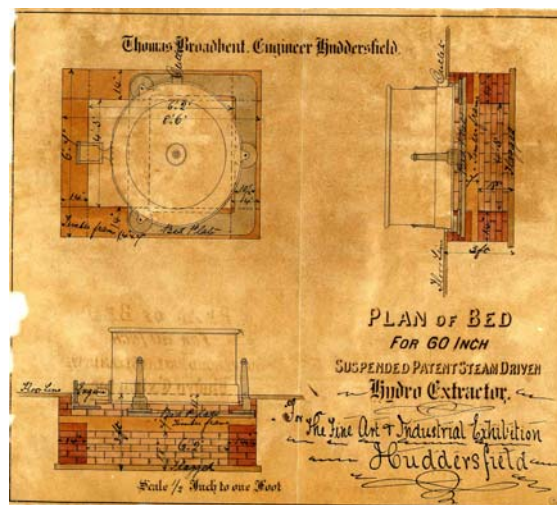
Alan Broadbent is entered on the register of 1856 – 1857 as 22 years of age and from Crosland Moor, near Huddersfield, and his occupation was a warehouseman. Thomas Broadbent was 23 years old and was from Tunbridge which was a canal-side working-class community situated among the textile mills and close to the centre of the town. His occupation is listed as mechanic. Both Alan and Thomas were regular attendees during the academic year 1856 – 1857. The register records that Alan attended 100 per cent and Thomas 98, indicating that they were both highly motivated students.<sup>298</sup> Thomas Broadbent, sitting the Society of Arts examinations in 1857 and who appears in the register as being 23, is the same person who became an engineer and millwright in local textile manufacturing and had close involvement with the Institute when he was 31, teaching practical mechanics. In 1864, Thomas founded the Textile Company of the same name and in 1870 he made a centrifugal extractor for the extraction of water from washed wool and cloth (Plate 3.1 below). It was so successful that many local mills wanted to purchase his machine. His patent ran out when Broadbent died in 1880, at the age of 47, his widow being unsuccessful in keeping it and, thus, was unable to receive the royalties.<sup>299</sup>

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<sup>297</sup> *Huddersfield and Holmfirth Examiner*, August 1 1857.

<sup>298</sup> *Huddersfield Mechanics' Institution Class Register* for 1857, Class Number 22. HM1/5/2 University of Huddersfield Archives.

<sup>299</sup> Short historical account of Thomas Broadbent and Sons, pp.2-3. University of Huddersfield Archives.



### Plate 3.1 Thomas Broadbent's Suspended Patent Steam Driven Extractor

Thomas Broadbent's Suspended Patent Steam Driven Extractor displayed at the Fine Art and Industrial Exhibition at the Huddersfield Mechanics' Institute and Technical School, 1883. Profits from the Exhibition went toward funding an extension of the building. University of Huddersfield Archives.

Prizes and certificates were awarded at the end of July in the Riding School, as the Institute was too small to hold the event.<sup>300</sup> Edward Baines, President of the Yorkshire Union, chaired the awards evening. The platform party included the 2<sup>nd</sup> Earl Granville, Vice-President of the Society of Arts, who had been a strong supporter of the Great Exhibition in 1851, working closely with Prince Albert.<sup>301</sup> Other members included Lord Goderich MP, Edward Ackroyd MP,<sup>302</sup> Mr Forster, Secretary to the Society of Arts, William E. Forster MP<sup>303</sup>, the Dean of Ripon, the Rev Dr Booth,

<sup>300</sup> The cost of hiring the Riding School was £4. 4s 0d and the request was put in June. *Huddersfield Mechanics' Institution Minutes of the General Committee*, June 23 1857, p.407.

<sup>301</sup> Hobhouse, *The Crystal Palace and Great Exhibition*, p.29.

<sup>302</sup> James Akroyd, MP for Huddersfield, was from a Halifax textile manufacturing family in the West Riding of Yorkshire. He established several mills in the district, as well as a school for child labourers, a workers pension scheme, the Yorkshire Penny Bank (later to be renamed the Halifax Building Society) to promote home ownership at his model village at nearby Ackroydon, as well as a number of Anglican churches. He also had very strong connections with adult education having established the first working men's college outside London at Halifax. Like the Halifax Mechanics' Institute, the Working Men's College was also a member of the Yorkshire Union. E. Webster, 'A Brief History of James Akroyd and Son', *Transactions of the Halifax Antiquarian Society* (1987), 42.

<sup>303</sup> William Edward Forster was Liberal MP for Bradford and was President of the Bradford Mechanics' Institute. He was also sat on several institute Committees in the West Riding of Yorkshire including the Huddersfield Institute, as did Earl de Grey and Ripon, who along with Henry Austin Bruce, were architects of the 1870 Education Act with Forster. Although originally from a Dorset Quaker family,

Chairman of the Council of the Society of Arts, the Hon. Secretary of the Lancashire and Cheshire Mechanics' Institute Union and James Hole President of the Leeds Mechanics' Institute.<sup>304</sup>

There was an 'intriguing comparison between metropolitan dignity and provincial enthusiasm' in relation to the two Centres presentation evenings. At London, the ceremony was held in the Society's headquarters and 'consisted merely of two formal speeches and the presentation of 80 successful candidates'. In contrast, at Huddersfield, the prize-giving was much more of a celebratory affair, being preceded by a sale of work in aid of the institutions from which the northern candidates came. The presentations were conducted in the Riding School,<sup>305</sup> which itself had been 'tastefully decorated for the occasion' and packed out with 'highly respectful company in the front rows and the galleries filled with humbler persons'.<sup>306</sup>

The Institute and the town were justly proud of being selected as the Society of Arts Northern Centre, but it was pointed out to the Committee by its members that elementary teaching had been neglected in the process. However, classes and funds 'had recovered' by 1858 indicating that administering the Society of Arts Examinations had been worth it, if challenging both administratively and financially.<sup>307</sup>

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Forster established his own woollen industrial community in Burley-in-Wharfedale which bore a close similarity to Sir Titus Salt's Saltaire. The community had its own mechanics' institute. All three men believed mechanics' institutes and working men's clubs were the 'tools by which effective adult working-class education could be provided'. Forster and de Grey were involved in the foundation of the London Working Men's College, as well as President of the Yorkshire Union, and Forster was closely involved with the Halifax College, the first being built in the provinces. He was also a supporter of the Chartists. G. Baker, 'The Romantic and Radical Nature of the 1870 Education Act', *History of Education*, 2001, vol. 30, No. 3, 224 – 226.

<sup>304</sup> *Huddersfield and Holmfirth Examiner*, August 1 1857.

<sup>305</sup> The Riding School was opened in 1848 and was shared with a hippodrome which was used by touring circuses and theatre companies. The building was close to the Mechanics' Institute which, due to its size would have been hired by the Committee for occasions such as prize giving. It may also have been the setting for administering the Society Examinations as the Institute would have been too small for so many candidates.

<sup>306</sup> D. Hudson & K. W. Luckhurst, *The Royal Society of Arts 1754 – 1954* (London, 1954), p.248

<sup>307</sup> Foden, *The Examiner*, p.171.

The success of the Society of Arts Examinations held at Huddersfield Mechanics' Institution encouraged 'every young man, however poor and humble in rank, to enter on the path of self-improvement'.<sup>308</sup> As early as the summer of 1857, several mechanics' institutes offered to be centres for the Society of Arts including, in the case of the Yorkshire Union, the institutes at Gomersal, Mossley, Wakefield and York.<sup>309</sup> The Union of Institutions which had been formed by the Society of Arts, was offering its examinations, as well as providing lecturers at reduced rates and the loan of books, organised through the Union of Institutions local boards (Appendix 4).<sup>310</sup>

With the increase in the number of students taking the examinations, the Society established local boards in 1860 for managing the examinations process including one at the Darlington Mechanics' Institute which was one of the centres in the North East.<sup>311</sup> At Middlesbrough in 1862 one of the successful candidates had recently been appointed to 'a good position in customs' at the local docks, indicating that gaining such qualifications was being recognised by employers.<sup>312</sup>

From the 1860s, examinations were held simultaneously 'at all places throughout the Union', managed by the local boards and providing a firm foundation for a national examination scheme<sup>313</sup> Thus, mechanics' institutes were not only responding to the needs of elementary education in support of adult education, but were also offering higher levels of technical education, which were examined through various awarding bodies, including the Society of Arts, the Science and Art Department and in 1888, the City and Guilds London Institute. In the case of the Society of Arts, it had founded its examinations specifically for the 'artisans, labourers, clerks, tradesmen

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<sup>308</sup> *Ibid.*, p.176.

<sup>309</sup> *Huddersfield and Holmfirth Examiner*, August 1 1857.

<sup>310</sup> M. A. Walker., 'Examinations for the 'underprivileged' in Victorian times; the Huddersfield Mechanics' Institution and the Society for the encouragement of Arts, Manufacturers and Commerce', *William Shipley Group for RSA History* (2008).

<sup>311</sup> *Ibid.*, p.76.

<sup>312</sup> *Twenty-Fifth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1862, p.119.

<sup>313</sup> Society of Arts Council Minutes for 1858, p.5.



and farmers...apprentices, sons and daughters of tradesmen and farmers, assistants in shops, and others, of various occupations', who otherwise would not have had the opportunity to gain formal qualifications, which were far more relevant to supporting industrialisation than the degrees being offered by nineteenth-century universities.<sup>314</sup>

### **Government involvement in technical education before and after the Great Exhibition**

There were several government-funded reports published and three Acts of Parliament passed during the period of study in support of adult and technical education. One report was produced prior to the Great Exhibition and eight, including the 1870 Education and 1889 Technical Instruction Acts, over the following thirty years.<sup>315</sup>

The *Report of the Parliamentary Committee on the Education of the Lower Orders in the Metropolis and Beyond 1816-18* had highlighted the deficiencies in elementary education. Lord Henry Brougham, who chaired the Committee, wanted industry and local rates to fund parish schools nationally, but there was much opposition from the Dissenters and Roman Catholics as the schools and staff had to be Church of England.<sup>316</sup> The Report highlighted what Parliament knew already, that elementary education was limited and unsatisfactory, and that it affected the skills and expertise required by adults, many of whom had not had an education.<sup>317</sup>

As an ardent supporter of the mechanics' institute movement, it was particularly appropriate that Henry Brougham was involved in writing this *Report*. Brougham's pamphlet *Practical Observations upon the Education of the People, addressed to the Working Classes, and their Employers*, which was published in January 1825, supported adult education and wrote in particular the need for the establishment of

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<sup>314</sup> *Ibid.*, p.252.

<sup>315</sup> Gurney, 'An appropriated space: the Great Exhibition', p.193.

<sup>316</sup> Auerbach, *The Great Exhibition*, p.10.

<sup>317</sup> J. S. Maclure, *Educational Documents, England and Wales 1816 – 1968*, (London, 1969), p.18.

mechanics' institutes. He thought institutes could be supported by one member of every manufacturing family in the country and especially those of Lancashire and Yorkshire. His vision was that 'no place [was] too small for a mechanics' library' and that from such humble beginnings would develop public lectures and at least some 'private instruction useful for the workmen'.<sup>318</sup>

In 1839, the Privy Council Committee on Education was founded and in 1840 had the powers to appoint the first school inspectors. In 1845 the Committee adopted a scheme of apprenticeship for pupil teachers. This scheme, initially designed for elementary schools was also adopted by mechanics' institutes, particularly the larger ones, several years after the establishment of the movement. Several institutes encouraged their former students to teach practical subjects after working all day in manufacturing, such as the Mechanics' Institute at Burnley in Lancashire.<sup>319</sup> Others, such as Huddersfield Technical School and Mechanics' Institute, offered several volunteer pupil teachers each year, classes of students who they taught while learning their subjects and who might wish to gain a teaching certificate to work at the Institute or the Huddersfield School Board (Appendix 11).<sup>320</sup> The Committee did make some grants available for elementary lessons by 1851 but not technical instruction.<sup>321</sup>

The establishment of the Science and Art Department, South Kensington in 1853, encouraged the development of scientific and technical education through government grants made available to mechanics' institutes that offered related courses. In 1857, the Board of Trade, which had been responsible for education, relinquished these responsibilities which were handed over to the new Education Department. The Education Department, based in Whitehall, and the Department of Science and Art,

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<sup>318</sup> *Ibid.*, p.23.

<sup>319</sup> Burnley Mechanics' Institute, *Classes Syllabus* 1898-9, p.27.

<sup>320</sup> *Forty-Ninth Report of the Yorkshire Union of Mechanics' Institutes*, 1886, p.108.

<sup>321</sup> Argles, *South Kensington*, p.6.

located in South Kensington, were joint government offices with the former being responsible for primary and the latter secondary and technical education. Lyon Playfair had been responsible for science and Sir Henry Cole for art at the Department of Science and Art, until Playfair resigned in 1858 and Cole became Secretary of both the Science and Art and Education Departments.<sup>322</sup>

### **Contribution of several Government Reports on Mechanics' Institutes**

The Exhibition had drawn to the government's attention the need to offer technical education, particularly in relation to manufacturing and foreign competition. There were seven government reports published in relation to science and technology, following the Exhibition, compared with just one over the previous thirty years.<sup>323</sup> This is significant, since the popularity of the Exhibition coincided with the need to improve education for all, and especially technical education. Crucially, investigations in support of the Reports included the impact of foreign competition resulting from better advanced technical education for adults found on the continent.

Seven years after the Exhibition, the *Report of the Commissioners appointed to inquire into the State of Popular Education in England of 1858–1861*, known as the Newcastle Report was published. It highlighted the need for 'the extension of sound and cheap elementary instruction to all classes of the people' and that both working-class children and adults should have the opportunity to attend an educational establishment.<sup>324</sup> The Report provides evidence that government had identified that elementary education should be available, via the state, for all. Crucially, in relation to this study, the Report had identified the need for elementary education for adults.

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<sup>322</sup> *Ibid.*, p.9 and p.19.

<sup>323</sup> Maclure, *Educational Documents*, p.70

<sup>324</sup> *Ibid.*

Mechanics' institutes had realised as early as the 1830s that if they were to be successful in encouraging working-class membership, elementary education was urgently required. Advanced technical courses, and industrial development, would only be successful when the majority of the adult working-class workforce could read and write. Thus, the Newcastle Report identified the importance of elementary education and mechanics' institutes were already responding to this need in relation to both children and adults.

A further report in 1864 regarding curriculum developments emphasised the importance that mathematics, one modern language, natural science and either mechanical drawing or music should be offered alongside the classical languages and literature, all of which were already being offered in mechanics' institutes.<sup>325</sup> The mechanics' institutes had responded to the need to offer elementary education but were also offering advanced courses in mathematics, geometrical drawing and science, particularly chemistry and physics, referred to as acoustics, by the 1860s. Thus, the institutes were ahead of government thinking in supporting these curricula, at both elementary and advanced level.<sup>326</sup>

Parliament had identified that there was a need to deliver technical education in schools and universities, as was happening in Germany and France. In 1867, a government paper *On the best means of Promoting Scientific Education in Schools: A Report presented to the General Committee of the British Association for the Advancement of Science* was published and it identified that 'every trade in Birmingham was being injured by the want of technical education'.<sup>327</sup> In the Potteries,

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<sup>325</sup> *Report of Her Majesty's Commissioners appointed to inquire into the Revenues and Management of certain Colleges and Schools, and the studies pursued and instruction given therein* (1864).

<sup>326</sup> *Ibid.*, p.83.

<sup>327</sup> Parliamentary Accounts and Papers: Education (cont'd): Scientific Education; Technical and Primary Education: Session 19 November 1867 – 31 July 1868, Vol. LIV (137), pp. 2-16, R. Betts,

foreign workmen were taken on because English workmen were insufficiently educated to support local manufacturers. This resulted in higher production costs which, in turn, made competing with foreign firms more difficult'.<sup>328</sup> The Report also made reference to the need for technical education in relation to dyeing, bleaching, fulling, milling and lace dressing. It stated the need for a good knowledge of chemistry as being necessary for successfully carrying out these trades.<sup>329</sup> The Science and Art Department, South Kensington, and the Society of Arts were offering external certification in technical subjects by the mid-1850s. Offering examinations, with government grants, supported institutes both financially and academically.<sup>330</sup>

In 1870, the W. E. Forster Education Act was passed, which stated that 'industrial prosperity depended on the speedy provision of elementary education'. Forster would have been aware of the importance of state-funded school-age education through his strong connections with several institutes where many adult members had been disadvantaged, through previously not having an elementary education. The Act allowed for government to fund school-age education through the setting up of school boards.<sup>331</sup> In fact, mechanics' institutes were subsidising government through offering elementary education for adults and children, where school boards had not yet been established, though they had to charge fees.

One of the main results of the Education Act of 1870 was the setting up of local school boards in areas of deficiency to support elementary schooling that had first emerged in the voluntary sector. Education would not become compulsory up to the age of 10, however, for another six years, under the terms of the Sandon Act (1876)

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'The Issue of Technical Education, 1867 – 1868', *History of Education Society Bulletin*, 1991, Vol. 48, 32.

<sup>328</sup> *Ibid.*

<sup>329</sup> *Ibid.*

<sup>330</sup> *Ibid.*, 36.

<sup>331</sup> V. Carpenter, 'Public Expenditure on Education and Economic Growth in the United Kingdom, 1833 – 2000', *History of Education*, Vol. 32, Number 1, 2003, 9–10.

and Mundella Act (1880). In 1893, the school-leaving age was raised to 11 years of age and then in 1889 to 12 years. Meanwhile, in 1891, elementary education was provided free.<sup>332</sup>

The mechanics' institutes had been delivering elementary education since the 1840s and 1850s.<sup>333</sup> The committees of institutes did not see the new school boards as a threat as they were for children, and institutes continued to offer elementary education and advanced technical educations to adults. This arrangement supported institutes financially, through the continuation of membership fees, during the remaining decades of the nineteenth century. For many, offering elementary education kept them open, particularly the smaller ones.

In 1872, a further government paper was published, the *Report of the Royal Commission on Scientific Instruction and the Advancement of Science*. The Duke of Devonshire, was patron of the Yorkshire Union of Mechanics' Institutes and supported several ones, especially in the Yorkshire Dales where he was the largest landowner.<sup>334</sup> The Report took the form of a detailed survey of scientific education at universities and other institutions. It urged that children in the elementary schools should have more science teaching and training colleges should provide new courses for science teachers. The Education Department and the Science and Art Department should be co-ordinated and work more closely together. They eventually became one

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<sup>332</sup> Taylor, *Mastering Economic and Social History*, p.290.

<sup>333</sup> The Dean of Hereford, Richard Dawes, gave the annual address at Huddersfield in 1855 and identified that as schools were few and far between, mechanics' institutes should introduce elementary education for those for whom they were established, namely, the working class. R. Dawes, *Mechanics' Institutes and Popular Education, An Address delivered at the Annual Soirée of the Huddersfield Institute*, December 13 (London, 1855), p.16.

<sup>334</sup> Eighth Duke of Devonshire encouraged technical, scientific and higher education. Ninth Duke of Devonshire, like his father, was also interested in education. He had a particular interest in science and was a critic of 'the undemanding educational regime practiced in most public schools' which seldom offered science subjects. He was in charge of government education policy and was influenced by international competition by establishing a systematic policy for secondary education resulting in the passing of the 1902 Education Act. J. Parry, 'Spencer Compton Cavendish', *The Oxford Dictionary of National Biographies*, p.1.

department with the passing of the 1902 Education Act. The Report also made recommendations for the training, recognition and payment of qualified science masters, and for building grants for certain kinds of institutions.<sup>335</sup> By 1880 there were over 70 mechanics' institutes offering examinations through the Department of Science and Art to about 7,000 students of whom 4,000 were taking science subjects and the remaining 3,000 attended art and design classes.<sup>336</sup>

The Duke of Devonshire's Commission on Scientific Instruction in 1873, stated that 'considering the increasing importance to the material interests of this country, we cannot but regard its almost total exclusion from the training of the upper and middle classes as little less than a national misfortune'. Lyon Playfair highlighted that the working class was receiving better instruction in science through mechanics' institutes.<sup>337</sup> This was following the post-1850 interest in science, when elementary education had already been firmly established, providing a firm academic foundation on which to introduce advanced subjects, particularly in mathematics, chemistry and acoustics.<sup>338</sup>

There was a concern from both employers and employees that Britain would lose its position in the World as a leading industrial country if technical education was not available to everyone in response to foreign competition. In 1879, Dr Silvaneous Thompson observed that if Britain was going to maintain its supremacy over the rest of the World, then 'trained workers equipped with intellectual weapons, and clothed with sound science' would be required. 'To ignore this call to arms would result in Britain struggling for existence'. To allay these fears, and in response to the initial

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<sup>335</sup> Maclure, *Educational Documents*, p.106.

<sup>336</sup> Stephens and Roderick, 'Science', 357.

<sup>337</sup> Playfair wanted secondary schools to offer science instead of the classics and criticised the Civil Service for examining applicants in Greek and Latin as both elitist and being anti-science. F. Bosbach, J. R. Davies, S. Bennett, T. Brockmann, and W. Filmer-Sankey, *The Great Exhibition and Its Legacy* (K. G. Saur, Munchen, 2002), pp.108 - 9.

<sup>338</sup> Acoustics included the study of heat, light and sound. Electricity was offered as a separate subject. Later, all these subjects were amalgamated with others, to form a new subject, Physics.

euphoria of science and technology following the Great Exhibition, which seemed to be declining, four artisan exhibitions tours took place between 1867 and 1889. They were devised to publicise the importance of industrial education. The tour organisers sent artisans overseas ‘to learn about continental advances in their respective trades and to evaluate Britain’s strengths and weaknesses in the light of these advances’. The tours were initiated by the Society of Arts and the findings were included in the science and technology curriculum for examination in the mechanics’ institutes.<sup>339</sup> Supporters of these tours included several important benefactors of working-class adult technical education including Playfair, Henry Cole, J. P. Kay Shuttleworth, W. E. Forster and Anthony Mundella, the radical MP, Joseph Chamberlain MP, and Sir Titus Salt, founder and President of the Saltaire Mechanics’ Institute.<sup>340</sup>

The result of these concerns was the *Report of the Royal Commission on Technical Instruction* which was published in 1884. Bernard Samuelson, the Chair, had been an iron master and engineer prior to becoming a MP in 1859. He therefore had a personal interest in technical instruction and having travelled throughout Europe he had made comparisons between countries in relation to technical education that they were offering. Swire Smith, who was one time president of the Keighley Mechanics’ Institute and had made visits to France and Germany with regards to technical education that was being offered, was also on the Committee of the Commission. Both men were aware of foreign competition and wanted technical education to support Britain’s economic position in the industrial world.<sup>341</sup> The Commission on Technical Instruction findings suggested that training should be given in technical institutions and science teaching from elementary to advanced level. The Report emphasised the importance of local authorities providing first-class technical

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<sup>339</sup> Bosbach, Davies, Bennett, Brockmann and Filmer-Sanke, *The Great Exhibition*, p.139.

<sup>340</sup> *Ibid.*, p.148.

<sup>341</sup> Maclure, *Educational Documents*, p.121.



instruction in a variety of educational establishments, including day schools and mechanics' institutes.

The Report led to the passing of the Technical Instruction Act of 1889 which gave local authorities the power to levy a penny rate in order to provide technical courses, appoint teachers and provide grants to schools and mechanics' institutes. In 1890 the government, in support of the Temperance Movement, which itself had been heavily involved in the mechanics' institute movement, put a tax on wines and spirits and it was decided that the money raised should be used for supporting technical education, known as 'whisky money' as it was a tax from the sale of whisky.<sup>342</sup>

Finally, at the end of the nineteenth century, the *Report of the Royal Commission on Secondary Education* was published. It recommended that a Minister for Education should be appointed to take over the Education Department, the Science and Art Department and the Charity Commission. The Minister would have responsibility for universities, schools and education offered by local authorities. It was under these powers, supported by the Education Acts of 1902, 1918 and 1944 that the mechanics' institutes were being replaced by art and technical colleges for post school-age students.<sup>343</sup>

Indeed, Roger Fieldhouse argues that 'from the abolition of statutory apprenticeships in 1814 to the passing of the Technical Instruction Act in 1889 there was a marked absence of government support for technical education'. He refers to the belief that the early success of industrialisation without formal, let alone technical, education meant that there was a general complacency regarding state support. It was also the period of liberal *laissez-faire* philosophy which, in any case, discouraged any

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<sup>342</sup> Curtis, S. J., *History of Education in Great Britain*, (University Tutorial Press, 1968), p.497.

<sup>343</sup> Maclure *Educational Documents*, p.140.

state intervention.<sup>344</sup> This was true up until the 1851 Exhibition, but as this research has identified, the government was shocked into taking limited responsibility for technical education.

The state was aided by mechanics' institutes. Whilst there were apprenticeship schemes, following the repeal of the Statute of Artificers in 1814, these were practical, cheap and inadequate, with no grounding in education or scientific knowledge and principles. However, the mechanics' institute movement identified the need to offer elementary and, by the 1850s, advanced technical education rather than providing high level scientific public lectures. This enabled them not only to continue but to succeed in supporting working-class adults, providing a firm foundation on which the Technical Instruction Act of 1889 could be implemented with financial support through the state.<sup>345</sup> With the passing of the 1889 Act and the Local Taxation Act of 1890, both of which raised government revenue for education, three-quarters of a million pounds was raised by 1891, which was increased to over a million by 1900, providing state-funded adult education.<sup>346</sup>

The Reports and Education Acts in one way or another supported adult education and contributed to the continuing success of the mechanics' institute movement. Elementary, scientific and technical education were seen as important contributions to Britain's continuing industrial developments and were supported with legislation and state funding to support working-class education.

Thus, many mechanics' institutes in the 1880s and 1890s took on a new lease of life in the wake of the success of the Great Exhibition and 'the various grants which

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<sup>344</sup> R. Fieldhouse, *A History of Modern British Adult Education* (National Institute of Adult Continuing Education, 1996), p.22.

<sup>345</sup> *Ibid.*

<sup>346</sup> *Ibid.*, p.43.

had been made available'.<sup>347</sup> A large number of mechanics' institutes 'had developed successful educational work; and many were converted to local authority institutes after the 1889 Act', including the ones at Birmingham, Huddersfield, Keighley, Leeds and Manchester.<sup>348</sup>

State interest, however, in adult education came at a cost. By 1918, mechanics' institutes were on the decline with some having closed during the first decade of the twentieth century, becoming public libraries, often supported by the Carnegie Trust, such as the former institute building in Skipton. Others became technical colleges<sup>349</sup> or at least had provided a firm foundation on which further education in the towns could be established. For example, Glasgow Institute became the Royal Technical College, at Edinburgh the Institute became the Herriot-Watt College, Huddersfield Institute became Huddersfield Technical College and Leeds Institutes became the Technical School and School of Art. Also in Leeds, the two Institute Day Schools were merged and became the Leeds Modern School for Boys and Girls.<sup>350</sup>

### **Contribution of mechanics' institutes to technological developments in relation to patents**

The success of mechanics' institutes teaching technical subjects can be supported by the number of patents successfully agreed for Lancashire and Yorkshire. Ian Inkster has carried out research in what he refers to as 'machinofacture', using the number of patents recorded between 1855 and 1870 as an indicator of technological developments, what he calls 'geographical and social location of inventive activity' using data provided by the Patent Office. The dates are particularly symbolic, since

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<sup>347</sup> Argles, *South Kensington*, p.40.

<sup>348</sup> *Ibid.*

<sup>349</sup> Bradford, Halifax, Huddersfield, Hull, Keighley, Leeds, Skipton and Selby to name but eight in the former Yorkshire Union.

<sup>350</sup> T.Kelly, *George Birkbeck, Pioneer of Adult Education*, (Liverpool, 1957).pp.274 – 276.

this thesis has identified the importance of this period of growth of the mechanics' movement.

The government's concern, from the results of the commissions and reports discussed previously, the impact of the Great Exhibition, development of the Science and Art department and the re-organised Society of Arts, all supported technical education and therefore generated industrial technology and developments. Mechanics' institutes, through their support of technical education, may have contributed to the growth in patents, by two thirds, between 1855 and 1870<sup>351</sup>

The Patent Law Amendment Act of 1852 reduced fees, controlled registration more rigorously, maintained systems and established a Patent Office. It placed a Commissioner of Patents in control. These developments not only encouraged more people to take out patents for inventions and products, but also carefully managed the system. The distribution of patents across Britain, and abroad, between 1855 and 1870 is listed below in Table 3.5.

**Table 3.5 Distribution of Patents 1855 – 1870**

<b>Region</b>	<b>1855</b>	<b>1860</b>	<b>1865</b>	<b>1870</b>	<b>Total</b>	<b>Per cent</b>
London *	1152	1348	1472	1532	5504	36
Industrial Counties **	1042	1073	1204	1295	4614	31
Home Counties ***	47	38	89	99	273	2
England, other	470	511	583	547	2111	14
Scotland	163	165	184	302	814	5
Ireland	73	65	58	42	238	2
Wales	17	42	47	53	159	1
Foreign	492	343	301	214	1350	9
<b>Total</b>	<b>3456</b>	<b>3585</b>	<b>3938</b>	<b>4084</b>	<b>15063</b>	<b>100</b>

I. Inkster, 'Machinofacture and Technical Change: The Patent Evidence', p.122.

\* Middlesex, Kent and Surrey.

\*\* Lancashire, Yorkshire, Cheshire, Nottinghamshire, Staffordshire and Warwickshire.

\*\*\* Hertfordshire, Surrey, Buckinghamshire, Bedfordshire, Essex, Berkshire, Oxfordshire and Hampshire.

The industrial counties of Lancashire, Yorkshire, Cheshire, Nottinghamshire, Staffordshire and Warwickshire had, between them, 31 per cent of all patents which

<sup>351</sup> I. Inkster, 'Machinofacture and Technical Change: The Patent Evidence', I. Inkster, *The Golden Age, Essays in British Social and Economic History, 1850 – 1870* (Aldershot, 2000), p.121.

were agreed by the Patent Office between 1855 and 1870. With the exception of London, which contributed 36 percent, all other parts of Britain, and those recorded from overseas, between them, contributed to 33 per cent, barely more than the industrial counties.

The distribution of mechanics' institutes by 1850 indicates a pattern somewhat similar to the regional distribution of patents (Map 3.1). It also indicates that although most institutes were concentrated in industrialising areas, there was a distribution across rural parts of Britain, particularly in Northern England, Devon and Cornwall.

There was, for example, a cluster around the capital and across Kent which, with Middlesex and Surrey, contributed to 36 per cent of patents. The industrial counties, particularly Lancashire and Yorkshire but also Staffordshire, reflect a similar pattern of mechanics' institutes to patents. The Home Counties, on the other hand, had a light 'smattering' of mechanics' institutes which was reflected in the small per cent of patents, a mere two per cent. The distribution of mechanics' institutes in Scotland, particularly those situated in the industrialising lowlands, with 5 per cent of patents, was a similar average to the number for each of the six industrial counties.

**Map 3.1 The distribution of mechanics' institutes throughout the British Isles in 1850**



When the distribution of mechanics' institutes for 1850 is compared to the distribution of patents per town, there is a similar pattern in the case of those identified in the North. This suggests that the distribution of patents provides further evidence of the success of mechanics' institute movement.

More can be said, however, to show this relationship. The ranking of British towns, with the number of recorded patents for the period 1700 and 1881, has been produced in Table 3.6.

**Table 3.6 Urban Ranking of British Patents, 1700 – 1881**

	1700 – 1858	1852 - 1853	1855 –1870	1881
London	1	1	1	1
Manchester	2	2	2	2
Birmingham	3	3	3	3
Glasgow	4	4	4	4
Liverpool	5	5	5	5
Leeds	6	7	6	6
Sheffield	7	8	7	7
Bristol	8	14	16	13
Bradford	9	6	8	8
Nottingham	10	11	7	9
Edinburgh	11	10	11	10
Newcastle	12	13	9	14
Dublin	13	16	12	18
Rochdale	14	8	13	26
Leicester	15	17	15	21
Bolton	16	15	10	11
Halifax	17	12	15	16
Oldham	18	-	14	17
Huddersfield	19	-	17	15
Derby	20	-	18	-

I. Inkster, 'Machinofacture and Technical Change: The Patent Evidence', p.124.

The top seven towns, submitting patents more or less stayed stable over the period studied. However, Bristol, which had once been an important sea port, lost its position from 8th to 16th by 1870, being overtaken by Bradford, which had moved up from 9th to 6th during 1852 – 53 and was 8th overall by 1881. With the exception of Sheffield, where the Yorkshire Union Mechanics' Institute was not particularly vibrant, the top six towns were not only those which were industrialising during the period, but also each had one or more successful mechanics' institutes. It may have been that in

Sheffield, the rapidly growing developments of iron and steel patents were submitted for technological developments from the 'shop floor', rather than through the science laboratory or classroom of the mechanics' institutes in that area.

Rochdale, a small textile town in Lancashire, in comparison to Leicester, for example, climbed from 14th to 8th by 1853 and only 'dropped out' of the top 20 towns in 1881, whereas Leicester, which was 17th in 1853, was 21st by 1881. Bolton increased from 16th to 10th by 1870 and 11th by 1881, one below Edinburgh. Huddersfield, also a textile town, moved from 19th to 15th in 1881, a respectable position for a relatively small town, particularly when compared with Leicester (21st) and Newcastle (14th). Thus, smaller towns with mechanics' institutes were submitting more patents per head of population than the larger ones, until at least the last decade or so of the nineteenth century.

Significantly, the new industrialising towns, which had been small prior to industrialisation, were sending patents to the Commissioner and were in the top twenty for the whole country. All these Lancashire and Yorkshire towns had vibrant mechanics' institutes and were members of the institutes Unions.

Both Rochdale and Nottingham, which were above Birmingham, London and Manchester, had a mechanics' institute, while the other three had several such institutions, plus much larger populations. In the case of Birmingham and Manchester, both had much more industrial activity. This suggests therefore, that the mechanics' institutes located at the two towns of Rochdale and Nottingham, and several others which were above Leeds, Sheffield, Leicester, Glasgow, Newcastle and Liverpool, supported technical developments and inventions as part of the technical education being delivered (Table 3.7 below).

**Table 3.7 Rank Order of Towns submitting Patents per Population, 1855 -1870**

	<b>Population</b>	<b>Patents over sample years</b>	<b>Patents per 1,000 population</b>	<b>Rank Order</b>
Rochdale	29,195	71	2.43	1
Nottingham	57,407	133	2.32	2
Birmingham	232,841	526	2.26	3
London	2,362,236	5,133	2.17	4
Manchester	303,382	616	2.03	5
Halifax	33,582	61	1.83	6
Huddersfield	30,880	43	1.39	7
Bradford	103,778	135	1.30	8
Bolton	61,171	79	1.29	9
Oldham	52,820	65	1.23	10
Leeds	172,270	187	1.09	11
Sheffield	135,310	139	1.03	12
Leicester	60,584	60	1.00	13
Glasgow	329,097	312	0.95	14
Newcastle	87,784	77	0.88	15
Derby	40,609	27	0.66	16
Liverpool	375,955	221	0.59	17
Dublin	146,778	78	0.53	18
Bristol	137,328	55	0.40	19
Edinburgh	222,015	77	0.35	20

I. Inkster, 'Machinofacture and Technical Change: The Patent Evidence', p.126.

Using the same calculation of patents per 1,000 of the population in relation to several towns in the industrial counties of Lancashire and Yorkshire provides further evidence. For the purpose of this thesis, separate tables have been produced to present the number of patents for both counties separately for the period 1855 – 1870 (Table 3.8 and Table 3.9 below)

**Table 3.8 Lancashire Patentees per 1,000 of Population**

<b>Town</b>	<b>Percentage</b>	<b>Rank Order</b>
Accrington	25	1
Rochdale	17	2
Manchester	13	3
Oldham	9	4
Bolton	8	=5
Bury	8	=5
Preston	7	=7
Salford	7	=7
Liverpool	4	9
Other towns	2	10

I. Inkster, 'Machinofacture and Technical Change: The Patent Evidence', p.125.

In the case of Lancashire, out of nine named towns, Accrington had 25 per cent of patents to 1,000 population, with Rochdale second. Manchester was third and



Liverpool ninth. This provides further evidence that the smaller towns, supported by their mechanics' institute had more recorded patents per head of population. This was also true for Yorkshire (Table 3.9 below).

**Table 3.9 Yorkshire Patentees per 1,000 of Population**

Town	Percentage	Rank Order
Keighley	21	1
Halifax	17	2
Bradford	11	3
Huddersfield	10	=4
Leeds	10	=4
Sheffield	8	6
Beverley	7	=7
York	7	=7
Wakefield	5	9
Hull	3	10
Other towns	1	11

I. Inkster, 'Machinofacture and Technical Change: The Patent Evidence', p.125.

For both Lancashire and Yorkshire the rank order of towns shows that in relation to what Inkster refers to as 'patent intensity' Hull, was the least successful with Accrington being the most successful (Table 3.10 below). Manchester was fifth with Bradford sixth and Huddersfield and Leeds joint seventh. York was above both Liverpool and Wakefield in joint thirteenth place.

**Table 3.10 Rank Order of all Lancashire and Yorkshire Towns**

Town	Percentage	Rank Order
Accrington	25	1
Keighley	21	2
Halifax	17	=3
Rochdale	17	=3
Manchester	13	5
Bradford	11	6
Huddersfield	10	=7
Leeds	10	=7
Oldham	9	9
Bolton	8	=10
Bury	8	=10
Sheffield	8	=10
Beverley	7	=13
Preston	7	=13
Salford	7	=13
York	7	=13
Wakefield	5	17
Liverpool	4	18

Hull	3	19
Other towns Lancs	2	20
Other towns Yks	1	21

Based on charts in I. Inkster, 'Machinofacture and Technical Change: The Patent Evidence', p.125.

The occupations of those who requested patents from the Patent Office by 1870 were, in the main, engineers, who made up 40 per cent. Gentlemen and esquires accounted for about 10 per cent, a fall of 25 per cent from 1855, with manufacturers, artisans and tradesmen contributing about 30 per cent and the rest made up of merchants and professionals.<sup>352</sup> This reflects the shift in patents more towards industrial developments and achievements and provides further evidence that the increase supported manufacturing in the industrial counties, highlighted previously.

There is little doubt that the mechanics' institute movement generally and in particular, Lancashire and Yorkshire, supported, through technical education, the development of new products which were submitted to the Patents Office for copyright. The small towns of Accrington, Rochdale, Keighley and Huddersfield, among others, had vibrant institutes which offered not only elementary but also advanced technical education which, through the number of patents approved, confirm the contribution made by mechanics' institutes to Britain's industrial development following the Great Exhibition of 1851, when it had become apparent that foreign competition was having an impact on the country's industrialisation.

## Summary

The Exhibition of 1851 was a significant contributing factor to the mechanics' institute movement at a time when there was concern that it was declining. The establishment of local committees, for the purpose of fund raising to support the working classes to attend, included members in towns that were also strongly

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<sup>352</sup> Inkster, 'Machinofacture and Technical Change', p.131.

associated with mechanics' institutes or similar. Prince Albert, President and Royal sponsor of the Great Exhibition, was keen to make sure that the working classes were not excluded from either being on local committees or from attending the exhibition itself. The Exhibition encouraged and enthused employers and employees to support it through making exhibits and visiting it, which encouraged further technical and scientific interest and development in British manufacturing over the following decades.

The success of the Great Exhibition of 1851 also supported continuing development of technical education which was delivered through the mechanics' institute movement. The response from the working class and particularly members of mechanics' institutes was quite overwhelming. Well-organised support for visitors, cheap rail travel, positive support from many employers and the enthusiasm of the working class to visit the Exhibition resulted in a desire to learn technical skills for the 'Golden Age of 1850 – 1870'.

The Great Exhibition highlighted the urgent need for adult education in support of further industrial progress as the quality of foreign exhibits had shown that Britain was losing its position in industrial and technical developments. Introducing elementary and relevant advanced technical subjects offered working-class adults an education which would support them in relation to industry and commerce. The Exhibition was therefore a major factor which provided a much needed impetus to adult education.

The Society of Arts was rejuvenated by the Exhibition's success, increasing its membership and finances, which put it in a strong position to support technical qualifications.<sup>353</sup> The Exhibition was 'an advert for industrialisation and the values

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<sup>353</sup> *Ibid.*, p.207.

that went with it, as well as promoting technological and design education'.<sup>354</sup> The success put pressure on mechanics' institutes to offer elementary as well as advanced subjects, relevant to supporting Britain's industrial development, in response to the enthusiasm of those who attended and those who were concerned that the country was losing its industrial position. It is no coincidence therefore, that as Hudson laments on the decline of mechanics' institutes in 1850, the 1851 Exhibition actually contributed to the re-branding of institutes in support of the new industrial age through technical education supported by both the Science and Art Department and the Society of Arts.<sup>355</sup>

The Great Exhibition also provided the impetus for examination bodies such as the Science and Art Department and the Society of Arts, whose President was HRH Prince Albert with Henry Cole, the Earl of Granville and the Dean of Hereford as Vice-Presidents, to be established.<sup>356</sup> Examinations in scientific and technical subjects were offered and, on successful completion, certificated which gave such qualifications recognition amongst employers nationally.

Government reports highlighted the need to support education generally and in relation to technical subjects and adults. Several key members of these report committees were involved with the mechanics' institute movement including Swire Smith, Henry Brougham and the Duke of Devonshire. Smith, in particular, had travelled abroad and observed that in Europe adult technical education was supporting industrialisation and becoming a serious threat to Britain's manufacturing and his findings, as well as those identified by the Exhibition Committee, were to make government take notice of the need for similar education to be established in Britain.

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<sup>354</sup> *Ibid.*, p.213.

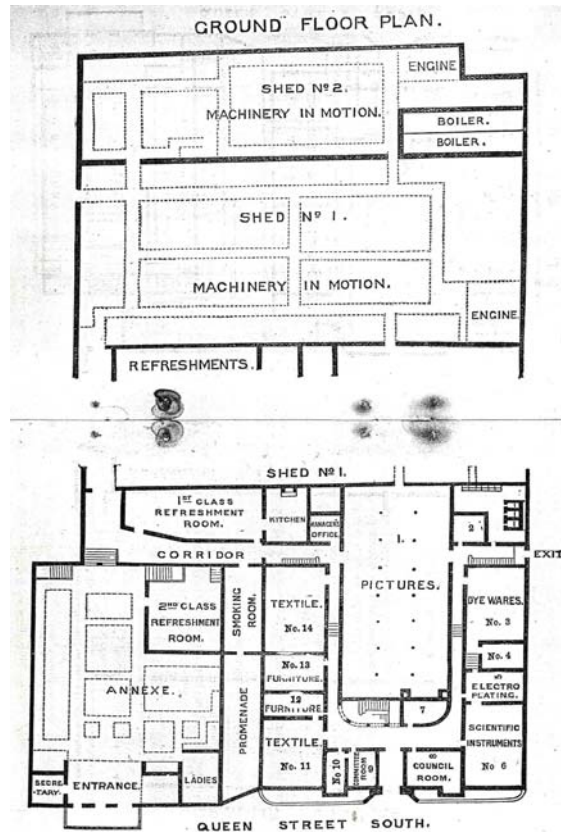
<sup>355</sup> This included elementary education, required for the industrial age.

<sup>356</sup> *Minutes of the Society of Arts*, 1855 – 1856.

The mechanics' institutes were ideally situated to respond to these needs, as they were offering Science and Art Department and Society of Arts examinations. The passing of the 1870 Education Act did have some impact on the movement, through offering school-age education where local School Boards were yet to be established. The Technical Instruction Acts further encouraged adult education and the expansion and credibility of the mechanics' institute movement and by the end of the nineteenth century they were being replaced by government-funded institutions, such as Schools of Design.

The establishment of the Society of Arts and the partnership with mechanics' institutes not only increased the reputation of both but also increased technical knowledge through teaching and examinations, supporting nationwide credibility and further technological developments. The distribution of patents indicates very strongly that the mechanics' institutes encouraged and supported the development of technology through their members and supportive employers. The towns with a high proportion of patents to population had one thing in common, vibrant mechanics' institutes; particularly Accrington, Rochdale, Huddersfield and Keighley. The success of the Great Exhibition and its impact on technical education was a major contributor to the on-going success and credibility of the mechanics' institute movement through the subjects being offered in relation to adult working-class education.

**Plate 3.2 Plan of the Layout of the Fine Art Exhibition at the Huddersfield Technical School and Mechanics' Institute in 1883**



Source: University of Huddersfield Archives

**Plate 3.3 Steam engines on show in the 'Machinery in Motion' Hall at Huddersfield**



Such technology, although on a smaller scale to that at the Great Exhibition, not only brought to the attention new developments to those who visited exhibitions, such as the one at Huddersfield, but also provided the opportunity for members to see at first hand the new machines.

Source: University of Huddersfield Archives

## Chapter Four Curriculum Developments

Indeed, the great object of the Committee has always been, to make the Institution subservient to the wants of the working classes, placing the various branches of a solid and practical education within the reach of the humblest means.<sup>357</sup>

Huddersfield Mechanics' Institute, 1850.

### Introduction

Some historians have argued that mechanics' institutes failed to offer relevant curricula. H. C. Barnard, example, argues that mechanics' institutes 'tended to fail because they provided not so much vocational training for working men, as general educational and social facilities for members of the professional and middle class'.<sup>358</sup>

Barnard's work has therefore reinforced the view, held by many, that mechanics' institutes were not educationally successful in supporting the needs of the working classes.<sup>359</sup> This study questions this view in relation to the mechanics' institute movement and in particular those that were members of the Yorkshire Union. Developments in the curriculum offered by mechanics' institutes show their successful adaptation to the requirements of working-class education and the technological challenges of the mid-nineteenth century.

The Great Exhibition of 1851 highlighted an urgent need for technical education, 'the objectives being to provide instruction in the principles of art and science applicable to industry and in the application of special branches of art and science to specific industries and employment'.<sup>360</sup> Mechanics' institutes were ideally positioned to offer such courses, particularly to the working class, in the absence of state-funded colleges. Supported by the Society of Arts and other national bodies, they had the

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<sup>357</sup> *Annual Report of the Huddersfield Mechanics' Institute*, 1850, p.4.

<sup>358</sup> H. C. Barnard, *A History of English Education from 1760*, (University of London, 1966), p.180.

<sup>359</sup> *Ibid.*, p.183.

<sup>360</sup> Argles, *South Kensington*, p.6.

opportunity to offer courses which were relevant to support industrial developments and qualifications that were nationally recognised.

### **Science curriculum and mechanics' institutes**

The initial aim of mechanics' institutes was to support scientific education. For example, in 1825, the newly opened Huddersfield Scientific and Mechanics' Institute in its published rules stated that 'the great object of this Institution is to bring within the reach of all, but more particularly the trading and working classes, the acquisition of useful knowledge – to defuse generally correct principles of Science and Mechanical Philosophy'.<sup>361</sup> Having 'scientific and mechanical' as part of the title of the Institute, gave a strong indication to the public that the objective was to teach science-based subjects.

Scientific lectures, such as those delivered at mechanics' institutes during the 1820s and 1830s, were not new. During the eighteenth century public lectures were given at various towns, including Derby, Hull and Liverpool, by itinerant lecturers, an arrangement carried out by their nineteenth-century counter-parts travelling throughout the country and attending mechanics' institutes and philosophical societies.<sup>362</sup> Derby Mechanics' Institute, for example, had the support of William Nicol, 'one of the most experienced and skilled of English itinerants in this period' who gave a course of 15 lectures on *The Philosophy of Natural History* to members, one year after the opening of the Institute in 1825. Similar arrangements were made at the Nottingham Mechanics' Institute, founded in 1837, where a well-known itinerant lecturer from London, T. Longstaff, gave 'frequent lectures on astronomy and meteorology in various English towns' and delivered the first lectures at the Institute

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<sup>361</sup> *Rules of the Huddersfield Scientific and Mechanic Institute for the Promotion of Useful Knowledge* (Huddersfield, 1825) p.1

<sup>362</sup> Inkster, 'Science and the Mechanics' Institutes', 453-454.



which were on chemistry, physiology, silk manufacture, railways, phonology, botany and printing.<sup>363</sup>

Many of the mechanics' institutes arranged for the local scientific community to support classes and lectures in science. For example, the Mechanics' Institute at Newcastle, which was established in 1824, introduced classes in chemistry, higher mathematics and phrenology. Large audiences were attracted to such public lectures, for example, over 1,000 people attended the Manchester Mechanics' Institute to listen to John Davis give a lecture on natural philosophy in 1829.<sup>364</sup>

Nevertheless, offering scientific lectures and classes did not always attract the kind of members for which mechanics' institutes were established, namely the working class. The Huddersfield Scientific and Mechanics' Institute, for example, founded in 1825, had a shaky start in its first year, partly as a result of the national banking crisis of 1826 when funds could not be raised to help finance it, but also due to the fall in membership. A Philosophical Society was formed in the town at about the same time specifically for science and in its first nine months of operation, the Committee had organised 24 scientific lectures available to a membership of 310 and it had a library of 1,200 volumes.<sup>365</sup> The Society continued for many years, indicating that its membership was made up of mainly educated middle-class professionals with a particular interest in advanced science and mechanics. This reinforces the point that philosophical societies attracted a middle-class educated audience as opposed to mechanics' institutes which attracted the working class as a result of the nature and level of the curriculum that they were offering.

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<sup>363</sup> In the case of the Yorkshire Union, as in other parts of the country, itinerant lecturers supported several institutes, including the one at Barnsley where the Institute offered public lectures and classes on chemistry over several years after its formation. At the Ackworth Mechanics' Institute, Charles Morton of Sheffield delivered several lectures on the application of science to agriculture and manufacturing and at Huddersfield, Rose of Edinburgh gave a series of lectures on geology and mineralogy. Inkster, 'Science and the Mechanics' Institutes', 456-7.

<sup>364</sup> *Ibid.*, 456.

<sup>365</sup> *First Annual Report of the West Riding of Yorkshire Union of Mechanics' Institutes, 1838*, pp.22-3.

While most previous studies have concentrated on the larger mechanics' institutes, there were also smaller ones, which were developing in rural as well as urban areas, offering science to a smaller membership. Hitchen in Hertfordshire, which had a population of 5,000 in 1851, had a mechanics' institute which was founded in 1835 'for the poor'.<sup>366</sup> In 1850, the Institute had 164 members and was ranked 202 out of over 600 institutes in Britain.<sup>367</sup> It offered classes in geometry, mechanics, land measurement, hydrostatics, chemistry, geology and botany and in its first year of operation, public lectures were given on woollen manufacturing and the steam engine.<sup>368</sup> Other examples of institutes which offered science, included the Handsworth Woodhouse Mechanics' Institute, established in 1839, and the Bakewell and High Peak Institute in Derbyshire, located in the small market town of that name.<sup>369</sup> Offering science subjects, however, did not necessarily encourage large numbers of the working class to attend.

The Sheffield Mechanics' Institute, which was a member of the Yorkshire Union, was established in 1832. Its main objective was 'instruction in the various branches of science and art'. The Institute offered natural philosophy lessons on a weekly basis between 1838 and 1841, supported with itinerant lecturers delivering public lectures in science. Lectures were given in phrenology, astronomy, mechanics, chemistry and electricity and were given by local men including a professional chemist, botanist, surgeon and steel manufacturer.<sup>370</sup> These short courses were intensive and did not allow for much discussion and debate.

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<sup>366</sup> L. J. Dyer, 'The Hitchin Mechanics' Institute', *Adult Education*, 1, Vol. XXIII, Number 1, 1950, 114.

<sup>367</sup> Hudson, *Adult Education*, p. 228.

<sup>368</sup> Inkster, 'Science and the Mechanics' Institutes', 457.

<sup>369</sup> *Ibid.*

<sup>370</sup> *Ibid.*, 458-463.

The scientific public lectures and classes at Sheffield, as elsewhere, were informative and well-delivered. University curricula were still associated with the arts, classics and law, so mechanics' institutes often gained a reputation in their early years for organising public lectures on scientific subjects. However, the depth and relevance of scientific curricula offered at mechanics' institutes did not encourage the working class to pay fees to attend the lectures or classes, even at relatively cheap rates, as the majority would have found the subject matter difficult to follow or irrelevant to their needs.

This is illustrated effectively by two lectures given in 1841 at Sheffield by John Sissons in relation to hydrostatics and hydraulics. The first lecture was delivered in a two-hour session on hydrostatics and consisted of:

Definition of terms. Difference between Fluids and Liquids, and pressure of liquids. Hydrostatic paradox explained. Pressure proportional to the Depth. Proofs. Consequences for engineering. Water compressible. The application of this principle to Useful Arts. Methods of measuring Solids. Specific Gravities. Definitions. Results.<sup>371</sup>

Lecture two, also delivered in two hours, was on Hydraulics and consisted of:

Water issuing from orifices. Experiments. Velocity proportional to depth. Analogy to principle in Mechanics – the Syphon. Archimedes Screw. Various Kinds of Pumps. Water employed as a prime mover of Machinery. Barkers' Mill. Water Wheels. Bramah's Press. Water Ram. Hydraulic Engine.<sup>372</sup>

A further example was the Darlington Mechanics' Institute Committee, who in 1848 organised several lectures including one on the *Advantages of Knowledge* and a second on *The Apparent Discrepancy, but Real Harmony between the Discoveries of Modern Science*. These lectures were theory-based science-related subjects which required an advanced understanding in order to appreciate them and therefore discouraged the

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<sup>371</sup> *Ibid.*, 460. Professor of Hydraulics at the University of Huddersfield, Gary Lucas, believes that the themes covered would have been at GCSE A - C level.

<sup>372</sup> Inkster, 'Science and the Mechanics' Institutes', 460-461.

working class from attending, a fact highlighted by Hudson in 1850 and one of which institute committees themselves were becoming aware.<sup>373</sup>

Hudson was, therefore, correct, when he observed that the curriculum was ‘not suitable or relevant for the mechanic and that it had become the cause of the national movement’s troubles by 1850’.<sup>374</sup> George Barclay, writing in 1871, made reference to the mechanics’ institutes in the period before 1850 and stated that the ‘fall of the movement in terms of the incomprehension of members at scientific lectures was due to their lack of elementary education’.<sup>375</sup> This was the crux of the problem, for without a good understanding of science, such classes and public lectures would be of little interest to the working class.

This has been identified by several historians, among them S. Shapin and B. Barnes, who have argued that mechanics’ institutes were established by members of the middle classes, particularly those with philosophical and medical interests, for delivering science lectures. Therefore, the relevance of the subject content, particularly prior to the Great Exhibition, was not particularly focussed to the educational needs of the working class. It was assumed by ‘physicians, surgeons and apothecaries; dissenting divines; ‘enlightened’ manufacturers and merchants, having found the cultivation of science appropriate to their own situation in local society, now found compelling arguments for the propriety and value of science for the lower orders’.<sup>376</sup> Offering such curricula discouraged the ‘lower orders’ from attending.

Norman Lucas has recently argued that that mechanics’ institutes did not support the adult working classes, but alienated them from the middle-class ethos of such

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<sup>373</sup> *Twelfth Annual Report of the Yorkshire Union of Mechanics’ Institutes*, 1849, p.60.

<sup>374</sup> Hudson, *Adult Education*, p.iv.

<sup>375</sup> G. C. T. Barclay, *The Schools of the People* (1871, London), pp.306-07 in I. Inkster, ‘The Social Context of an Educational Movement: A Revisionist Approach to the English Mechanics’ Institutes, 1820 – 1850’, *Oxford Review of Education*, Vol.2, No.3, 1976, 279.

<sup>376</sup> S. Shapin, and B. Barnes, ‘Science, Nature and Control: Interpreting Mechanics’ Institutes’ in *Social Studies of Science*, Vol.7, 1977, 34.

establishments through offering high level scientific lectures. ‘The mechanics’ institutes did not win credibility as genuinely mass adult education providers because their major emphasis was access to scientific knowledge through the reading of tracts and pamphlets and they assumed a high level of literacy’.<sup>377</sup>

Therefore, if those mechanics’ institute that had specifically offered scientific subjects were to survive and support their original aims in supporting working-class education, their committees needed to introduce elementary education to encourage attendance and therefore support members in more advanced level subjects in science and mechanics.

### **Curriculum developments**

As well as science-based curricula, most mechanics’ institutes throughout the country also offered mechanical and technical drawing, referred to in their reports as drawing, and which was seen by their committees as an important subject, being closely associated with science engineering. By the 1840s, mechanical engineers were indicating that students who had attended drawing classes would benefit from the ‘monitory value’, as industry required these skills for on-going success. Manufacturers identified the importance of drawing as a key part of the process of designing new machines and reducing the cost substantially by working out on paper the design and capability of a new machine or product rather than, as previously undertaken, making intricate models.<sup>378</sup>

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<sup>377</sup> N. Lucas, ‘Teaching in Further Education, New Perspectives for a Changing Context’, *Bedford Way Papers*, University of London (2004), 5.

<sup>378</sup> R. C. Denis, ‘An industrial vision: the promotion of technical drawing in mid-Victorian Britain’, L. Purbrick (ed), *The Great Exhibition of 1851, New Interdisciplinary Essays* (Manchester University, 2001), p.56.

Andrew Ure<sup>379</sup>, the renowned scientist and supporter of mechanics' institutes, suggested in 1835, that technical drawing should 'form an essential part of education to all classes of society; the noble and rich, as well as the humblest artisan'. He believed 'it was important in supporting the implements of modern manufacture and the basis of modern wealth'.<sup>380</sup>

By the mid-nineteenth century, it would be 'the humblest artisan' who was being taught drawing in the mechanics' institutes, 'as a means of acquiring a better understanding of machinery'. Some twenty years after Ure's observations, the Society of Arts in 1853, following the findings of the Great Exhibition, stated that it was important that industrial instruction should be made available for workers, in order to educate them so they could design and build machines rather than 'resort to machine-breaking [and] rick-burning', becoming the game keeper rather than the poacher and having an appreciation for all things mechanical.<sup>381</sup>

The government's Department of Science and Art, located in Whitehall, was developed as a result of its schools of design, which were being established across the country and in many cases, at mechanics' institutes. The department was administered by the Board of Trade, and, by 1857, had identified the importance of working men having a better understanding of machinery and how it worked, as a result of the findings following the Great Exhibition.<sup>382</sup> The Department offered nationally

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<sup>379</sup> Andrew Ure graduated in medicine from Glasgow University in 1801 and later took up the chair in natural philosophy at the Andersonian Institution. His evening lectures on chemistry and mechanics enjoyed considerable success and inspired the foundation of a number of mechanical institutions in Britain. By 1830, Ure had fallen out with the Committee at the Andersonian Institution and had moved to London where he set himself up as a consulting chemist. He was also involved with government commissions and industrial tours of England, Belgium and France. Ure made several visits to English textile mills which resulted in him publishing *The Philosophy of Manufactures* (1835) and *An Account of the Cotton Industry* (1836), both dealing with textile manufacturing. In 1840 he helped found the Pharmaceutical Society. Ure died in 1857 in London. D. Cardwell, *Andrew Ure, (1778–1857)*, *Oxford Dictionary of National Biography*, Oxford University Press, 2004.

<sup>380</sup> Denis, 'An industrial vision', p.57.

<sup>381</sup> *Ibid.*

<sup>382</sup> Argles, *South Kensington*, p.13.

recognised examinations in drawing classes to support classes in drawing which were offered at mechanics' institutes.<sup>383</sup>

In the case of the Yorkshire Union institutes, by 1845 Keighley Mechanics' Institute was offering classes in drawing as well as writing, arithmetic, geography and grammar. Writing and arithmetic were the most popular, being taught at elementary level (see Table 4.1 below).<sup>384</sup>

**Table 4.1 Subjects offered at Keighley Mechanics' Institute and class size in 1845**

Subject	Number in Class
Drawing	15
Writing and Arithmetic	60
Geography	30
Grammar	15

*Eighth Annual Report of the Yorkshire Union of Mechanics' Institutes, 1845, p.54*

The Institute also established several advanced classes in science, literature, architecture and mechanical and perspective drawing by 1849.<sup>385</sup> The Committee reported that evening classes were 'adequately supplied with teachers and the school-room was well attended by young men anxious to explore the paths of knowledge and to make amends for their neglected education'.<sup>386</sup> These classes were supported by the Department of Science and Arts, who provided certification for those who successfully completed the examinations. The Institute was also offering a textile class for 20 young women. There were also 28 students attending the French and German classes. In total, there were 345 members attending classes in elementary and more advanced subjects.<sup>387</sup>

In the same year, building and construction classes were introduced and attracted students who were apprentices and journeymen from the local building trades. The Committee remarked that it appreciated 'the co-operation of the master builders in the

<sup>383</sup> Denis, 'An industrial vision', pp.57-8.

<sup>384</sup> *Eighth Annual Report of the Yorkshire Union of Mechanics' Institutes, 1845, p.54.*

<sup>385</sup> *Ibid.*, p.55.

<sup>386</sup> *Ibid.*

<sup>387</sup> *Ibid.*

town...the science and art subjects are taught by authorised masters, assisted by a foreman builder, who gives lessons in practical work'. It was hoped that subjects in other trades could be introduced in the same way.<sup>388</sup> Certainly, by 1851, a specialist drawing class would be introduced for men who were training to become masons, joiners or mechanics, supporting the building trades, and the writing, arithmetic and geography classes continued to be popular.<sup>389</sup>

A similar pattern of curriculum changes were happening at other mechanics' institutes. Having closed in 1826, the Huddersfield Mechanics' Institute re-opened in 1840 and by 1843 the Institute was offering classes in pneumatics, natural philosophy, reading, writing, arithmetic, geography, grammar, French, drawing, singing and elocution subjects that would appeal to a wider membership, several of which were offered at elementary level.<sup>390</sup> As a result, there was also a substantial increase in membership, of whom 'nearly the whole of the members are operatives in the receipt of weekly wages' which supports the argument that the Institute, as were others, was offering a relevant curriculum to the working class. The Committee stated that 'the attendance is great, the average being 180 to 200 every evening'.<sup>391</sup>

The Huddersfield Mechanics' Institute Committee had made the strategic decision to concentrate on elementary education knowing that the vast majority of members had had little or no previous schooling:

The founders and supporters of this Institution, while providing for the intellectual wants of the adult, have steadily kept in view the importance of educational training. Their attention has therefore been particularly directed to the efficiency of the classes for elementary instruction.<sup>392</sup>

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<sup>388</sup> *Ibid.*, p.54.

<sup>389</sup> *Fourteenth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1851, p.63.

<sup>390</sup> *Sixth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1843, p.25 and E. A. H. Haigh, (ed.) *Huddersfield: A Most Handsome Town* (Kirklees, 1992), p.562.

<sup>391</sup> *Seventh Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1844, p. 27.

<sup>392</sup> *Eighth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1845, p.30.



All classes were ‘arranged according to progress’ and all members had to first attend the probationary classes before moving up.<sup>393</sup>

By offering elementary education and progression onto higher level subjects, many larger institutes were in a strong position to establish Government Schools of Design, such as those at Bradford, Huddersfield, Keighley and Leeds. The School of Design at Huddersfield, opened in 1846, offered ornamental, architectural and mechanical drawing classes all of which were ‘popular and the standard of work high’.<sup>394</sup>

Frederic Schwann had encouraged the teaching of design and practical chemistry classes at the Mechanics’ Institute in Huddersfield since its re-opening in 1840. He stated that ‘the importance of the chemistry class cannot be overlooked in the neighbourhood, when we consider how inferior our fabrics are in beauty of dye and colour, to those of our competitors’.<sup>395</sup> The School of Science offered chemistry classes taught by William Marriot with the emphasis on practical laboratory sessions supporting the local dye industries.<sup>396</sup> It was stated in the 1846 *Annual Report* that ‘this class, the objects of which are so important...to so many useful arts in life and its aids being necessary in almost every process of agriculture and manufacture, in the operations of bleaching, dyeing, and printing’.<sup>397</sup>

Many mechanics’ institutes, particularly during the early years when most had to hire accommodation, were not in position to install laboratories, due to the cost of fitting and lack of space. The Leeds Mechanics’ Institute, for example, had a well established chemistry department by 1847, in response to the needs of the local manufacturers, but did not have laboratories for the practical sessions. Until the

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<sup>393</sup> *Ibid.*, p.31.

<sup>394</sup> *Ninth Annual Report of the Yorkshire Union of Mechanics’ Institutes*, 1846, p.38.

<sup>395</sup> *Huddersfield Examiner*, 29 April, 1882.

<sup>396</sup> Marriot’s successor was George Jarman, who introduced the chemistry of dyeing advanced course, the first in the country, R. Brown, *Colourful Chemistry in a Northern Town*, Royal Society of Chemistry, Chemistry World (2005, unpublished paper).

<sup>397</sup> *Ninth Annual Report of the Yorkshire Union of Mechanics’ Institutes*, 1846, p.42.

Institute had funds to equip its own laboratories later in the year, students were expected to carry out experiments in their homes. An advanced class of chemical manufacturing was introduced and supervised by a teacher in the newly-opened laboratory. 'The practical method will qualify students in the short term for analytical research, develop talent where it exists, and render the services of each pupil more valuable to their employers and profitable to themselves'. This indicates that on completing elementary education, students were confident, as well as able, to go on to be successful in the advanced classes.<sup>398</sup> This was also the case at other institutes. The Huddersfield Mechanics' Institute Committee appealed to the manufacturers of textiles in the district to send employees to the Institute in 1848 as 'competent designers, sufficiently artistic and numerous to meet the requirements of the manufacturers, are not always to be found in this neighbourhood...it would be highly creditable to establish and support a school of art in our own town, where beautiful designs might be produced.'<sup>399</sup>

Members themselves, keen to gain knowledge and recognition for their learning, were motivated to attend the Huddersfield Institute, some travelling several miles. Amos Booth, who was to receive a prize in the Society of Arts examination in drawing in 1857, walked five miles from his home in Kirkburton<sup>400</sup> to Huddersfield, as did Alfred Walker who came from Rastrick, some four miles away, 'after finishing his work' in the mill.<sup>401</sup>

The School of Design at Keighley was offering classes in the practical study of design and drawing by 1849, for 'those students who are engaged in the fancy manufactures of the district and to those who are connected with ornamental trades

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<sup>398</sup> *Tenth Report of the Yorkshire Union of Mechanics' Institutes*, 1847, p.59.

<sup>399</sup> *Eleventh Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1848, p.55.

<sup>400</sup> Kirkburton Mechanics' Institute was opened in 1848 but only offered elementary classes. *Ibid.*, p.56.

<sup>401</sup> *Journal of the Society of Arts and the Institutions in the Union*, Volume IV, 1855 – 1856, 715.

and mechanics'. The mechanical drawing class was delivered through the School and students 'acquired considerable skill in drawing, and a good knowledge of the mechanical operations of steam, and the movements of locomotives and other engines'. The Committee highlighted that these classes helped to 'greatly improve their arithmetical and commensurate knowledge'.<sup>402</sup>

The Institute also identified the importance of developing skills of its members though the classes and curriculum being offered:

in a manufacturing community like this, where much ingenuity is required to invent new patterns, it is exceedingly desirable to elicit and cultivate native talent, in order that successful competition may be carried on with surrounding towns in the worsted manufactories.<sup>403</sup>

This observation by the Committee was being made some two years before the Great Exhibition of 1851 and highlights how institutes had already begun to recognise the importance of relevant curricula being offered to the working-class memberships, employed by manufacturers who benefited from their workers education.

The new curriculum, supported with elementary education, provided an excellent grounding for students at institutes to progress to advanced technical classes. These provided skills and expertise that would support members in developing new machines and processes that would give Keighley and several other northern towns with successful mechanics' institutes, reputations for new inventions and developments as discussed in the previous chapter.

It was not just mechanics' institutes in the textile districts that were offering relevant curricula. At Filey, for example, in 1849 'despite having few members of the Aristocracy to support the mechanics' institute [financially], the town has acquired some accommodation and is offering courses to fishermen and their families who spend the evenings between December and January reading and writing; the only time

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<sup>402</sup> *Twelfth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1849, pp.57-8.

<sup>403</sup> *Ibid.*, p.63.

of the year they can afford the time to do so'. Up to 20 fishermen, some as old as 60, attended the evening winter classes at night as fishing was impractical due to regular storms and lack of accurate navigational equipment. There was a demand from many of them wanting to learn to read so they could follow passages of the Bible at church or chapel.<sup>404</sup>

Meanwhile, by 1850, the profile of those who attended the mechanical and architectural drawing classes at the Huddersfield Mechanics' Institute, included 'mechanics, operatives, workers in brass and iron, builders, joiners, cabinet makers, carvers, gilders and painters'. Students of ornamental drawing had become competent in cloth designs and colour, no doubt relying on the knowledge and developments in the dye industry supported by the Institute's chemical classes.<sup>405</sup>

The Committee continued to make specific mention of the fact that chemistry was of 'great importance to manufacturers and to the arts of bleaching and dyeing' rendering the class 'a real and solid acquisition to the Institution'. The lessons were of a practical nature and students were expected to carry out their own experiments. Huddersfield was not the only institute offering courses that specifically supported the textile industry. Almost all towns and settlements that had a mechanics' institute in the West Riding of Yorkshire, and some in the North and East Ridings, offered these subjects which supported the needs of their local industry.<sup>406</sup>

The development of the curriculum was a gradual process. In 1853, a Select Committee on Education (discussing Manchester and Salford), highlighted this fact. John Watts reported to the Committee that the average attendance of members at a mechanics' institute with which he was familiar, was only nine months and that 'they [members] indicated but small intelligence, and from the attendance at the classes of

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<sup>404</sup> *Ibid.*, p.35.

<sup>405</sup> *Thirteenth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1850, p.40.

<sup>406</sup> *Fourteenth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1851, p.52.

that institution, their irregularity and inefficiency, it then appeared to me, and has done so the more I have become acquainted with mechanics' institutes, that the absence of primary education lies at the root of the failure of so many of these institutions'.<sup>407</sup> However, such instances were becoming less common as institutes developed scientific and technical education relevant to the occupations of their members.

The development of the curriculum also benefited working-class females who were encouraged to attend mechanics' institutes in similar ways to men. The Committee of the Huddersfield Female Institute, for example, reported in 1854 that it had been founded 'to afford to young females of this town and neighbourhood additional opportunities of mental improvement, by means of evening classes, a library, lectures, &c'.<sup>408</sup> The main purpose of the Institute was in providing elementary classes in 'reading, writing, arithmetic, geography, history, and other branches of a sound moral and secular education' for women. Having only been opened in 1847, some two decades after the early institutes had been established, it had not offered scientific education, partly, it must be assumed, because science was considered a masculine subject, but also having no doubt observed that its male counterpart had failed in 1825 through not offering elementary education. By 1858, there were 41 classes of which 31 offered elementary subjects to 403 students, seventy-five per cent of those who attended. (See Table 4.2 below).

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<sup>407</sup> Inkster, 'The Social Context of an Educational Movement', 278.

<sup>408</sup> *Seventeenth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1854, p.86.

**Table 4.2 Number of classes and students on roll at the Huddersfield Female Education Institute in 1858**

Number of Classes	Subject	Number on Register
6	Reading	75
13	Writing	115
6	Arithmetic	90
3	Grammar	52
2	Dictation	50
1	Composition	21
3	History	56
4	Geography	72
1	Singing	34
2	Sewing	40
<b>Total 41</b>	<b>Total 10 subjects</b>	<b>Total 605</b>

*Annual Report of the Huddersfield Female Education Institute, 1858, p.76.*

In 1858, ‘a class for the improvement of the elder pupils in sewing and plain dressing’ was established and the Committee canvassed local manufacturers for support, stressing the importance of having an educated female workforce in response to the technical developments in industry.<sup>409</sup> Other institutes responding to the need to offer elementary education included Darlington Mechanics’ Institute which, in 1855, organised fourteen lectures that were delivered specifically to the working-class membership including one on *Chemistry and the Manufacture of Iron* and another on *Gas, its History and Manufacture*.<sup>410</sup>

Geometry was also becoming an important subject in support of technical education at mechanics’ institutes. At Huddersfield, the Rev. Richard Dawes, the Dean of Hereford<sup>411</sup> and stalwart of elementary science education and the mechanics’ institute

<sup>409</sup> *Annual Report of the Huddersfield Female Education Institute, 1858, p.2.*

<sup>410</sup> *Eighteenth Annual Report of the Yorkshire Union of Mechanics’ Institutes, 1855, p.93.*

<sup>411</sup> Richard Dawes was an English churchman and educationalist, and Dean of Hereford from 1850. He was born at Hawes in Yorkshire, son of James Dawes, who farmed an estate in the village, and his wife, Isabella. Dawes was educated at the school of the blind Quaker mathematician John Gough at Kendal and then at Trinity College, Cambridge, where he graduated with a BA in 1817, proceeding M.A. in 1820. From 1818 to 1836 Dawes was mathematical tutor, fellow, and bursar of the newly founded Downing College, Cambridge. He was ordained in 1818 and also held the college living of Tadlow, Cambridgeshire, from 1820 to 1840. At this time Dawes was strongly influenced by the contemporary circle of notable Cambridge scientists, including William Whewell, John Henslow, and Adam Sedgwick. Dawes died on 10 March 1867. Dawes is remembered for his seminal contribution to the development of applied science in elementary education: traditional teaching was replaced with heuristic learning and a rudimentary laboratory was established to promote the use of technical apparatus and simple scientific experiments. W. C. Henry, *A biographical notice of the Very Revd Richard Dawes, Dean of Hereford* (1867), pp.4–27.

movement, addressed the annual soirée in 1855, and observed that there was not a class in geometry. He commented, ‘I know of no school instruction which improves the reasoning faculties more than a book or two on the subject’ of geometry. The Committee was attentive to such advice and shortly afterwards the subject was offered at Huddersfield.<sup>412</sup>

Institutes responded according to the needs of their members. Whitby Institute offered general subjects at elementary level in reading, writing and arithmetic as well as drawing and chemistry classes. In 1856, the Committee introduced a navigation class which was established ‘to enable young seamen to qualify for examination at the Marine Board’ in London.<sup>413</sup>

The responsiveness of mechanics’ institutes by providing elementary education as a basis for further advanced studies was also supported by government. The Newcastle Report of 1858–61 emphasised the need for ‘the extension of sound and cheap elementary instruction to all classes of the people’, stressing the need for children and adults to have the opportunity to attend an educational establishment.<sup>414</sup> A later Report, referred to as the *Report of Her Majesty’s Commissioners appointed to inquire into the Revenues and Management of certain Colleges and Schools, and the Studies pursued and Instruction given therein* published in 1864, emphasised the importance of educational establishments offering mathematics, at least one modern language, natural science and either drawing or music alongside the more traditional subjects of classical languages and literature. Mechanics’ institutes had by the 1860s, responded to the need to offer elementary education and advanced courses in mathematics, geometrical drawing, French, sometimes German and science,

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<sup>412</sup> Dawes, *An Address delivered at the Huddersfield Mechanics’ Institute Annual Soirée*, p.21.

<sup>413</sup> H. B. Browne, *Chapters of Whitby History 1823 – 1846, The Story of Whitby Literary and Philosophical Society and of Whitby Museum* (Hull and London, 1946), p.121.

<sup>414</sup> N. McCord, *British History 1815 – 1906*, (Oxford University Press, 1991), p.70.

particularly chemistry and physics. Thus they were ahead of government thinking in relation to offering such course progression.<sup>415</sup>

By 1865, for example, the newly established School of Art at the Keighley Mechanics' Institute was developing a reputation both regionally and nationally in relation to technical and pattern drawing. The Yorkshire Union noted that 'the success of the pupils was astonishing especially in the department of mechanical drawing, being unsurpassed by any school in England'.<sup>416</sup> The following year, the School of Art was recognised by the Department of Science and Art as a result of its national reputation, by being given a government grant of £500 a year.<sup>417</sup>

There seems, however, to have been an uneven pattern of curriculum development across the Yorkshire Union. At Marske Institute, on the North East coast, for example, the Committee had identified in 1866 that the boys who worked in the ironstone mines were unable to be entered for advanced examinations through lack of education, and they were therefore required to complete reading, writing and arithmetic at elementary level before moving onto advanced subjects.<sup>418</sup>

Other organisations had seen the need to offer elementary education and this had resulted in local competition. The Institute Committee at Guisborough, for example, reported in 1866 that it had been unsuccessful in establishing classes, particularly in reading, writing and arithmetic. This was because of several night schools in the town offering similar subjects. However, it had introduced a chemistry class which was well attended and was recognised by the Department of Science and Art, indicating that those from other local establishments were more able to progress to higher studies

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<sup>415</sup> *Ibid.*, p.83.

<sup>416</sup> *Twenty Eighth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1865, p.104.

<sup>417</sup> *Twenty-Ninth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1866, p.58.

<sup>418</sup> *Ibid.*, p.64.



at the Institute. The government provided £3 for scientific apparatus, in recognition of the success of this particular subject.<sup>419</sup>

The introduction of elementary education became important in supporting advanced study in technical and scientific subjects at mechanics' institutes. In 1873, for example, the chemistry class at Huddersfield had 27 students under the supervision of George Jarman, 'the more advanced portion of them having been diligent in laboratory practice'. The subject required practical skills in relation to the dyeing industry and new laboratories had been fitted out the previous year, to support the demand of this subject.<sup>420</sup> In 1881, Jarman introduced a class for the study of the application of chemistry in local industries and as a result of its popularity it was planned to run these particular sessions annually as a summer school, when attendance in the Institute would normally have been at its lowest. As well as keeping members interested, the additional fees charged would have contributed towards the cost of the new laboratories.<sup>421</sup> With the opening of the new Technical School and Mechanics' Institute at Huddersfield in 1881, there was 'a large and complete chemistry laboratory, providing provision for upward of 50 students' as well as 'a lecture theatre for 100 and a separate room for physical science'. The new building also had space for 'the art of dyeing processes as the subject is of such importance in the district and the new building is intended to make the best and most complete provision for the study of dyeing and chemistry' in relation to textiles.<sup>422</sup>

It was not only chemistry classes for dyeing that were supporting local textile industry but also classes on the making of woollen cloth. The Huddersfield Institute Committee reported in 1873 to the Yorkshire Union that it hoped more men 'who

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<sup>419</sup> *Ibid.*, p.48.

<sup>420</sup> *Thirty-Sixth Report of the Yorkshire Union of Mechanics' Institutes*, 1873, p.86.

<sup>421</sup> *Forty-Fifth Report of the Yorkshire Union of Mechanics' Institutes*, 1882, p.113. *Huddersfield Chronicle*, 27 May, 1882.

<sup>422</sup> *Huddersfield Chronicle*, November 12 1879.

worked in the staple trade of the town' would attend the loom class, as it was thought it would support the industry and their own skills and expertise.<sup>423</sup> The class was held in 'a large and suitable room and several good hand-loom [had] been provided'. The Huddersfield Design and Weaving School, which was established by 1877, was based on the 'district, whose prosperity so greatly depends on a cultivation of the arts of design', although according to Committee minutes, it had taken 30 years for the manufacturers in the area to really appreciate the Institute's educational contribution to their workforce and ultimately their businesses.<sup>424</sup>

Advanced classes in weaving and design were introduced by 1879, and covered broad subject knowledge, as reported by the Committee to the Yorkshire Union:

Plan making and drafting, single and double cloths in woollen, worsted, and union goods...plans on all sizes from that on four shafts up to those suitable only to the harness...setting of warps, adapting the different makes and sizes of yarn to the various reeds to be woven through; to calculating the quantities of yarn required to make a piece of cloth and the cost of the piece in the finished state; also the theory of colour.<sup>425</sup>

A reciprocal relationship between working-class education and industrial success and competitiveness was clearly established and was reinforced with relevant subjects being offered in the institutes.

The development of both weaving and chemistry supported the local economy and workforce recruitment continued to rise. However, this did have the added challenge of incorporating specialist accommodation and equipment at Huddersfield. The Weaving School had, by 1885, 35 looms of different styles, both hand and steam powered. The dye-house had been fitted out with 'sufficient dye-baths and working benches for 24 students and the chemistry classes could comfortably hold the 53 students now on the various courses being offered in this subject (see Plates 4.1 and

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<sup>423</sup> *Thirty-Sixth Report of the Yorkshire Union of Mechanics' Institutes*, 1873, pp.85 – 6.

<sup>424</sup> *Fortieth Report of the Yorkshire Union of Mechanics' Institutes*, 1877, p.128.

<sup>425</sup> *Forty-Second Report of the Yorkshire Union of Mechanics' Institutes*, 1879, p.109.

4.2).<sup>426</sup> By 1886, Huddersfield had three distinct schools, technical, science and art, offering just under 50 subjects (Appendix 10). Other institutes, often smaller than Huddersfield, were equipping their buildings with science laboratories, such as the one at Cleckheaton in the West Riding of Yorkshire and at others across the country (Plate 4.3).

To summarise, mechanics' institutes, in accordance with their objectives, established a reputation for offering good quality public lectures and science classes, which in the main were directed to the educated middle classes. However, although there is no evidence that the committees prevented the working class from attending such events; the lack of elementary education discouraged many from becoming members. Mechanics' institutes responded by introducing elementary education, particularly in relation to reading, writing and arithmetic in support of adult working-class education from the 1840s. Thus, by the time of the Great Exhibition of 1851, which highlighted the need for technical education to support industrialisation, institutes were ideally situated to offer working-class adults relevant scientific and technical subjects, after they had first received an elementary education.

### **Responding to foreign competition**

The Great Exhibition of 1851 highlighted that Britain was vulnerable to foreign competition and that relevant technical education was required and accessible to the working class. This was seen as an important way of fending off competition from abroad, where European countries were producing quality goods and relying far less on British imports. As early as 1848, the Keighley Mechanics' Institute Committee stated that 'our neighbours on the continent, especially France and Belgium, are fully

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<sup>426</sup> *Forty-Eighth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1885, p.105.

sensible of the importance of these [technical] schools. French [textile] designs are superior to English, and fetch more cash in the market'.<sup>427</sup>

In 1867 the publication *On the best means of Promoting Scientific Education in Schools: A Report presented to the General Committee of the British Association for the Advancement of Science* provided evidence of technical education being delivered in universities and schools in Germany and France. The result was a paper entitled *Technical Education: Copies to answers from the Chambers of Commerce 1868*. The Report identified that:

every trade in Birmingham...was being injured by the want of technical education. In the Potteries, foreign workmen were taken on because English workmen were insufficiently educated for the purpose. This resulted in higher production costs which in turn made competing with foreign firms more difficult in relation to dyeing, bleaching, fulling, milling and lace dressing. Knowledge of chemistry is essentially necessary for the carrying on successfully of these trades.<sup>428</sup>

The Keighley Institute reported to the Yorkshire Union in 1874, that the Trade School provided 'the daily wants of a district deriving its means of subsistence from a variety of trades, requiring workmen of intelligence and skill'.<sup>429</sup> It also highlighted that the town of Keighley had a reputation for making machinery for the worsted trade, employing 4,000 mechanics and was, in fact, ahead of its German competitors. However, the 1874 Report also stated that only thirteen students attended the School of Art in 1874, while in Germany, which had a similar proportion of mechanics, it was compulsory that all apprentices attended a trade school. The Report concluded that 'in view of the dangers of foreign competition, does not this illustration furnish a striking lesson to the ironworkers, employers and employed of Keighley?' The Institute, like others nationally and regionally, was aware and concerned that without

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<sup>427</sup> *Eleventh Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1848, p.55.

<sup>428</sup> R. Betts, 'The Issue of Technical Education, 1867 – 1868', *History of Education Society Bulletin*, Vol. 48, 1991, 32.

<sup>429</sup> *Thirty-Seventh Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1874, p.133.

the opportunity to offer technical education Britain would fall behind the rest of Europe, a fear well-substantiated.<sup>430</sup>

Huddersfield Technical School and Mechanics' Institute Committee also concerned itself about foreign competition and organised a Fine Art and Industrial Exhibition in 1883. Austin Keen, the Secretary to the Committee, stated that:

it is becoming more apparent that the commercial supremacy of this country, so far as its manufactured products, is threatened by foreign competition, and that efforts must be made to infuse new life into our industries, and to impart sound and systematic technical instruction to the rising generation. It is in recognition of this growing necessity that these schools have been erected.<sup>431</sup>

Sir Swire Smith, President of the Keighley Mechanics' Institute was a local woollen manufacturer and supporter of education. Smith wrote a paper in 1882 – 1883, entitled, *Night Schools and Technical Education* after he had visited Europe with a number of colleagues all of whom had identified that on the continent, employees had much better technical education than those in Britain and that meant that overseas competition had an adverse effect on the whole Country.<sup>432</sup> Smith's paper contributed to the 1884 *Report of the Royal Commission on Technical Instruction* which was set up to investigate the training given in technical institutions and science teaching from elementary to advanced level. The Report emphasised the importance of local authorities providing first-class technical instruction in a variety of educational establishments, including day schools and mechanics' institutes.<sup>433</sup> All Committee

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<sup>430</sup> *Ibid.*

<sup>431</sup> *The Annual Report of the Huddersfield Technical School and Mechanics' Institute, 1883*, p.6.

<sup>432</sup> Swire Smith was born in Keighley in 1842 and was educated at the Wesleyan Voluntary School in the town. At 14 he attended the Wesleyan College in Sheffield. In 1862 he set up his own spinning business in Keighley. He had two keen interests, travel and mechanics' institutes, both of which served the movement well. He travelled around Belgium, France and Germany looking at their working-class adult education technical provision and was concerned it was far superior to that found in Britain. Smith sat on several education committees including the 1884 *Report of the Royal Commission on Technical Instruction*. *100 Years of Keighley Library 1904 – 2004*, (Keighley News, 2004), p.5.

<sup>433</sup> Maclure, *Educational Documents*, p.121.

members had either experience in manufacturing or supported technical education in one way or another. None of them were from the old political class.<sup>434</sup>

Sir Bernard Samuelson, the Chairman of the Commission, had travelled throughout Europe and Smith had visited Belgium, looking extensively at European technical education. The Committee, like many manufacturers, were concerned that Britain was lagging behind her competitors and it was crucial that ‘effective labour was the most powerful weapon with which to meet our wants’ through technical education.<sup>435</sup> The findings of the Commission resulted in the passing of the Technical Education Act of 1889, which gave local authorities the power to levy a penny rate in order to provide technical courses, appoint teachers and provide grants to schools and mechanics’ institutes.<sup>436</sup>

As well as the findings of the Royal Commission, the government’s Department of Science and Art encouraged all institutes in the country to ‘keep abreast of continental competitors in science and art’ and through their grants scheme encouraged mechanics’ institutes to offer relevant subjects to support industry and commerce with this.

### **The Contribution made by the Worshipful Company of Clothworkers**

The mechanics’ institutes, particularly those that were located in the textile districts, were supported by the Worshipful Company of Clothworkers, referred to as the Clothworkers Company, an organisation with an interest in the development of the curriculum to serve the needs of their members. These related to the teaching of skills

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<sup>434</sup>The Royal Commission was made up of Sir Bernard Samuelson (Chairman), a Cleveland Ironmaster and MP, and founder of the Iron and Steel Institute, Professor Roscoe, a Chemist and founder of the School of Chemistry at Owens College, Manchester, the Vice-President of the City and Guilds of London Institute, Sir Frederick Bramwell FRS, John Slagg, cotton manufacturer and MP, William Woodall, potter and the MP for Burslem, Staffordshire and Sir Swire Smith, President of the Keighley Mechanics’ Institute. Argles, *South Kensington*, p. 31 – 2.

<sup>435</sup> *Bradford Observer*, 4 December, 1882.

<sup>436</sup> Maclure, *Educational Documents*, p.121.

associated with their trades and reflected the concerns about foreign competition. A number of Yorkshire Union mechanics' institutes were supported with funding for teaching textiles, and associated subjects, through the Clothworkers' Company, who were anxious that textile education and training should be made available in order to support the industry in Britain and safeguard competition from abroad.<sup>437</sup>

In 1874, at the 'Yorkshire Mayors and Chairmen of Commence' Conference, Obadiah Nussey, a mill owner and former Lord Mayor of Leeds, presented the case for introducing educational establishments similar to those in Germany, France and Belgium for 'practical trade instruction, in association with the manufacture of textile fabrics in Britain'. The result was that the Clothworkers' Company funded the development and introduction of textile courses at several mechanics' institutes which, as successful education establishments for working-class adults, were ideally situated to offer such curricula.

From 1876, the Clothworkers' Company, in partnership with other City Livery Companies and the Corporation of London, began to develop strong associations with technical education in support of their members. Following a conference in 1877, with the committees of the Mercers, Drapers and the Clothworkers' Company taking the lead, the Livery Companies and the Corporation of London proposed a national system of technical education.<sup>438</sup> This was supported by Sir William Armstrong, industrialist; Sir George Bartley, philanthropist; Major General Sir John Donnelly of the Science and Arts Department and Society of Arts; Sir Douglas Galton, scientist;

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<sup>437</sup> The Clothworkers' Company was founded in 1528 and was set up to promote and control its crafts within the City of London and suburbs. It had twelve trusts within its remit, which included supporting the relief of poverty, building almshouses and providing pensions for needy members. Supporting technical education had been important from its early origins. The Clothworkers' Company, Home Page. <http://www.clothworkers.co.uk/>

<sup>438</sup> *Ibid.*

Professor Thomas Huxley,<sup>439</sup> scientist, and Sir Trueman Wood, administrator of the Society of Arts. As a result, the City and Guilds of London Institute for the Advancement of Technical Education, more commonly referred to as City and Guilds of London Institute, was established in 1878. Trueman Wood, the newly appointed secretary, steered through the transferring of technical examinations from the Society of Arts to the newly formed City and Guilds of London Institute, with the agreement of the Society.<sup>440</sup>

The arrangements with City and Guilds of London Institute resulted in the Clothworkers' Company funding mechanics' institutes to support textile education in areas where this was relevant, and the Examination Board provided the opportunities for students to sit their textile examinations. The Society of Arts and the Department of Science and Art continued to offer scientific subjects, including chemistry, while the City and Guilds of London Institute examined technical subjects, as listed below for 1892 with the number of candidates (Table 4.3 below and Appendix 8).

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<sup>439</sup> Thomas Henry Huxley was born in Ealing near London and was the second of eight children of George Huxley and Rachel Withers. Huxley was brought up in a middle-class family which fell on hard times. His father was a mathematics teacher at Ealing School until it closed. As a result, Huxley left school at the age of 10 and went on to educate himself. In his teens he taught himself several languages and became a translator of German scientific material to Charles Darwin. At 16, Huxley entered Sydenham College, an anatomy school and was admitted to study at Charing Cross Hospital, where he obtained a scholarship. He never fully qualified as a MD. In 1845, Huxley published his first scientific paper on the existence of a layer in the inner sheath of hairs, later known as Huxley's layer. In 1850, he was elected a Fellow of the Royal Society. In July 1854, he became Professor of Natural History at the Royal School of Mines and naturalist to the Geological Survey, as well as Fullerian Professor at the Royal Institution (1855–58 and 1865–67); Hunterian Professor at the Royal College of Surgeons (1863–69); President of the British Association for the Advancement of Science (1869–1870) and, later, President of the Royal Society (1883–85). Huxley, having been largely self-educated, was anxious to give support and lectures to working men in relation to their own education. In 1868, he became Principal of the South London Working Men's College. He also sat on various Royal Commissions including one on education in 1870–75, entitled Scientific Instruction and the Advancement of Science. C. Bibby, *T.H. Huxley: Scientist, Humanist and Educator* (London, 1959).

<sup>440</sup> City and Guilds of London, *A Short History, 1878 – 1992* (City and Guilds, 1993), p.27.



**Table 4.3 Qualifications and the Number of Students taking the City and Guilds of London Institute examinations in 1892**

Qualifications	Number of students
Mining	90
Manufacturing	358
Engineering	1221
Electrical Engineering	689
Machinery	212
Textiles, Footwear, Leather	3650
Building and Construction	1929
Communications	256
Art Design and Crafts	29

City and Guilds of London Institute, *A Short History* (City and Guilds of London Institute, 1993), p.40.

Although the data provided is for the last decade of the nineteenth century, it does provide ample evidence of the popularity of the textile courses offered in mechanics' institutes, supported with funding from the Clothworkers' Company.

In 1872, Keighley Mechanics' Institute was promoting 'subjects in support of the trade of the district'. The Clothmakers' Company gave an annual grant of £50 for equipment and the salary for a teacher of textiles. The Committee had highlighted the problems associated with the textile industry in the area:

In the manufacture of textile fabrics this country has lost, in some respects, the pre-eminence it formerly held over its continental rivals. This was mainly due to the higher technical skill and more cultivated taste of foreign workmen.<sup>441</sup>

The Committee argued that:

The position lost can only be regained by our manufacturers and workmen surpassing our rivals in the methods of production, which render their productions more acceptable to the public. The Council urge that young men connected with the textile industries should join the Weaving School, so that their faculties of design and manipulation in which they are deficient may be cultivated.<sup>442</sup>

The Institute continued to be concerned with competition from abroad and in its 1880 Report to the Yorkshire Union, continued to highlight the importance of offering training and education in textiles. 'This country is not receiving the scientific attention

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<sup>441</sup> *Thirty -Seventh Annual Report of the Yorkshire Union of Mechanics' Institutes, 1874*, p.133.

<sup>442</sup> *Ibid.*

which they [textile industry machine manufacture] demand, and that the productions of the looms of England were being, in many instances equalled, and in some excelled, by those of other countries.<sup>443</sup>

Two Committee members from Keighley, McLaren and Beaumont, presented a report to the Institute, following their visit to Europe. They described the weaving schools in France and Germany and supported the decision taken by other Committee members to form a similar one at Keighley in 1880.<sup>444</sup>

The Clothworkers' Company provided grants to support technical education. Keighley Mechanics' Institute, for example, was provided with a grant of £50 per annum for a probationary period of five years towards establishing the Weaving School, as well as donating an additional £100 in support of a new building wing at the Institute to house the School. The money was used to purchase equipment, including hand-loom to 'fight off overseas competition'.<sup>445</sup> The Weaving School, which was set up to study the 'theoretical and practical study of designing and weaving', was founded for 'those particular subjects which are more intimately connected with the trades of the district'. These included spinning and weaving of wool, and 'the construction of the special description of machinery required for these processes'.<sup>446</sup>

It was possible for former mechanics' institute students to progress to even higher levels of textile courses. The Yorkshire College of Science,<sup>447</sup> based in Leeds, had been established in 1869 but was struggling financially and requested assistance from the Clothworkers' Company. Funding was provided and by 1885, the College was

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<sup>443</sup> *Forty-Third Report of the Yorkshire Union of Mechanics' Institutes*, 1880, p.108.

<sup>444</sup> *Ibid.*

<sup>445</sup> *Ibid.*

<sup>446</sup> *Ibid.*, p.107.

<sup>447</sup> The Yorkshire College became Leeds University in 1904, with ongoing links with the textile industry, particularly in Yorkshire, providing grants in support of adult and further education until 1919.

offering various higher-level textile courses as well as dyeing and chemistry classes. Bradford, Huddersfield and Leeds Mechanics' Institutes, as well as others, sent several students every year to attend these classes.<sup>448</sup>

The Clothworkers' Company donated scholarships enabling several students across the Yorkshire Union to continue their studies at the Yorkshire College, Leeds.<sup>449</sup> In 1881, their examinations held there were attended by six students from Huddersfield.<sup>450</sup> The following year, also at Huddersfield, over fifty candidates were entered for the City and Guilds of London Institute examinations in textiles, the results being 'very creditable'.<sup>451</sup>

There is little doubt that the developments in textiles could not have taken place without the support of the Clothmakers' Company 'finding themselves, in consequence of the changes brought by the lapse of centuries, far removed from the great centres of the woollen and worsted trades, nobly resolved to resume their ancient responsibilities by placing their Company at the head of every movement which had for its object the improvement and development of cloth working in all branches and in every locality'. Mechanics' institutes were able to respond to this, particularly with the financial support made available and which ultimately supported the movement in textile districts until the end of the century (Appendix 9).<sup>452</sup>

### **Government and other grants for mechanics' institutes**

Although mechanics' institutes were not directly state funded, there was government aid in the way of grants to support classes. As early as the late 1840s, grants were available from the Government School of Design to support drawing classes

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<sup>448</sup> *Huddersfield Chronicle*, 24 October, 1877.

<sup>449</sup> *Forty-Third Report of the Yorkshire Union of Mechanics' Institutes*, 1880, p.104.

<sup>450</sup> *Forty-Fourth Report of the Yorkshire Union of Mechanics' Institutes*, 1881, p.98.

<sup>451</sup> *Forty-Fifth Report of the Yorkshire Union of Mechanics' Institutes*, 1882, pp.112 – 3.

<sup>452</sup> The Clothworkers' Company, Textile Industry <http://www.clothworkers.co.uk/>

throughout the country. At the Darlington Institute, for example, the Committee took up the offer in 1848 to establish its own School of Design.<sup>453</sup>

Mechanics' institute committees across the Yorkshire Union, as elsewhere, were keen to be inspected and to offer examinations both for credibility and the additional funding available. In 1854, the Huddersfield Mechanics' Institutes Committee reported that a government grant of £80, which had been made available since 1848 by the Board of Trade, was being withdrawn and would have an impact on its revenue. Originally, the grant had been provided to set up a government School of Design at the Institute in order to establish successful drawing classes. However, the government wanted the School of Design to be managed separately from the Mechanics' Institute and to become self-funding as did happen at several other institutes such as Leeds. However, the Huddersfield Committee and townsmen argued against this, wishing to keep all departments together under the name of Mechanics' Institute, and the grant was withdrawn. The Committee must have been confident that there was support from local manufacturers and others to support the Institute financially, as there did not seem to be any lasting effect from this.<sup>454</sup>

The fees of both day and evening scholars at Slaithwaite in 1871 were supported by government grants, including one for 'government surveillance and inspection', allowing inspectors to visit and assess the quality of teaching.<sup>455</sup> Lindley Institute in 1872 had its classes visited by government inspectors who insisted that in order to receive grants, the Committee had to offer examinations organised by the Department of Science and Art.<sup>456</sup>

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<sup>453</sup> *Eleventh Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1848, p.40.

<sup>454</sup> *Seventeenth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1854, p.80.

<sup>455</sup> *Thirty-Fourth Report of the Yorkshire Union of Mechanics' Institutes*, 1871, p.39.

<sup>456</sup> *Thirty-Fifth Report of the Yorkshire Union of Mechanics' Institutes*, 1872, p.42.

At Middlesbrough, in 1877, a request for a government grant of £100-£150 was made to refurbish the chemistry classrooms. The Institute also wanted to improve its metallurgical classes through purchasing more equipment through government funding. The grants were all approved.<sup>457</sup>

A government grant was awarded to Greetland and West Vale Mechanics' Institute in 1879 for £8, as a result of its examination successes. An additional grant of £13 was provided as a result of the successful chemistry examination results, which covered both elementary and higher level content. The Institute also fitted out a room as a laboratory, meeting government requirements, and the cost of this, including chemicals, was estimated at between £30 and £40 and was funded by government.<sup>458</sup> In 1885, a government grant for £300 15s. 10d, with an additional £7 from the Department of Science, was awarded to Slaithwaite Mechanics' Institutes for offering examinations.<sup>459</sup>

The 1888 *Report* from the Huddersfield Mechanics' Institute and Technical School to the Yorkshire Union, included data which showed the income from fees and grants covering the period 1881 to 1887 and clearly indicates just how much income came in from grants, the total amount being quite substantial (Table 4.4).

**Table 4.4 Income in relation to fees and government grants at Huddersfield Mechanics' Institute**

Year	Fees (£ s d)	Grants (£ s d)
1881	697 4 4	361 18 6
1882	790 16 11½	398 16 6
1883	873 8 2½	460 6 0
1884	1,428 8 0½	476 18 0
1885	1,519 14 3	500 18 0
1886	1,525 13 6	641 5 0
1887	1,527 0 4	701 14 0

*Fifty-First Report of the Yorkshire Union of Mechanics' Institutes*, 1888, p.55.<sup>460</sup>

<sup>457</sup> *Fortieth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1877, p.165.

<sup>458</sup> *Forty-Second Report of the Yorkshire Union of Mechanics' Institutes*, 1879, p.102.

<sup>459</sup> *Forty-Eighth Report of the Yorkshire Union of Mechanics' Institutes*, 1885, p.122.

<sup>460</sup> *Fifty-First Report of the Yorkshire Union of Mechanics' Institutes*, 1888, p.55.

The Huddersfield Committee reported in 1891 that although there had been a slight fall in attendance, there were more passes in examinations per student and therefore the grants, so crucial to the Institute and Technical School, were higher than in previous years. The fall had been due to 'the dullness of trade' which had resulted in the members being either on short-term working or unemployed.<sup>461</sup>

Institutes across the Yorkshire Union were inspected and examined through government and the examination boards, thereby providing opportunities for students to gain nationally recognised qualifications and for institutes to receive grants. Mechanics' institutes in other parts of the country also offered the same subjects at examination to their students.<sup>462</sup>

Mechanics' institutes were supported through government funding in recognition of the support they gave regarding working-class education through the kind of curriculum they offered. Institutes were keen to be inspected as this brought with it government grants, a source of much needed revenue. Offering public examinations supported the ongoing credibility and success of the mechanics' institutes. The subjects examined through the Department of Science and Art, the Society of Arts and City and Guilds of London Institute, provided a nationally-recognised system of examination which was standardised throughout the country. Under the Technical Education Act in 1889 and the amendment Act of 1891, grants were available to mechanics' institutes that offered these examinations.<sup>463</sup>

### **Examinations supporting courses in Mechanics' Institutes**

Various examinations boards were responsible for examining subjects in science and textiles. The Department of Science and Art, for example, gave financial support for

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<sup>461</sup> *Fifty-Fourth Report of the Yorkshire Union of Mechanics' Institutes*, 1891, p.84.

<sup>462</sup> *Fifty-Ninth Annual Report of the Burnley Mechanics' Institute*, 1896, p.23.

<sup>463</sup> *Ibid.*, p.35.

science classes and provided examinations, particularly in relation to chemistry and arranged for lectures to be given in mechanics' institutes free of charge.<sup>464</sup> The Department also provided inspectors to audit the quality of teaching.<sup>465</sup>

In 1866, J. C. Buckmaster from the Department of Science and Art, attended the Darlington Institute and addressed members on *Instruction in Science and the aid given by the Department to Science Classes*. He travelled from London specifically to work with the Institute and the result was the introduction of the Department's own science and art classes and examinations at the institute, arrangements similar to those made by the Society of Arts at Huddersfield in 1857.<sup>466</sup>

Other mechanics' institutes also benefited from the Department's intervention. The Committee at Brighouse Mechanics' Institute near Halifax reported in 1872 that twenty-six students had been entered for the Department of Science and Art examinations, which were a comparatively new feature at the Institute and had 'met with a fair amount of success'.<sup>467</sup> The Committee at Lockwood Mechanics' Institute near Huddersfield, stated the following year that examinations were held through the Education Department in Whitehall, the Society of Arts and the Department of Science and Art, which were all seen as stimulating study, providing national recognition and a 'fair estimate of the work done by the classes'.<sup>468</sup>

The School of Art at the Huddersfield Mechanics' Institute in 1874 also offered examinations through the Department of Science and Art, which had 'a practical application to the industries of the town and neighbourhood'.<sup>469</sup> Examinations in

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<sup>464</sup> *Twenty-Fifth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1862, p.82.

<sup>465</sup> *Twenty-Eighth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1865, p.111.

<sup>466</sup> *Twenty-Ninth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1866, p.108.

<sup>467</sup> *Thirty-Fifth Report of the Yorkshire Union of Mechanics' Institutes*, 1872, p.26.

<sup>468</sup> *Thirty-Sixth Report of the Yorkshire Union of Mechanics' Institutes*, 1873, p.88.

<sup>469</sup> *Thirty-Seventh Report of the Yorkshire Union of Mechanics' Institutes*, 1874, p.130.

chemistry, included essays set on *Wool Dyeing* and *Cotton Manufacture*, for students attending the institutes in the textile districts.<sup>470</sup>

In 1881, Yorkshire Union mining institutes in the North East were running the City and Guilds London Institute technical qualifications including those at Crook, Peases West and Esh, all of which were supporting adult education in the newly developing mining communities. In 1882, the Lingdale Miner's Institute sought approval to run science and art classes through the Department<sup>471</sup> and in the same year, Skinningrove Miners' Institute, not only had a successful inspection carried out by the Department of Science and Art of its classes, but also the examination results were successful in comparison to national results. The Inspector for Skinningrove reported that 'the pupils are carefully taught and the discipline is highly satisfactory.'<sup>472</sup>

The Report of 1885 for Peases West Mining Institute stated that it was running the City and Guilds London Institute course in mine surveying. In that year out of five honours certificates being awarded in the subject nationally, four were gained by students attending this institute. At the Skinningrove Miners' Institute, a former student was selected by the Department of Science and Art to attend a four-month course of lectures at the Royal School of Mines, during which the institute received twenty one shillings per week on his behalf as a grant.<sup>473</sup>

The City and Guilds of London Institute was involved in setting and managing the examinations in relation to cloth manufacture as many mechanics' institutes in the textile districts were offering such courses. The subjects for examination provide

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<sup>470</sup> *Forty-Second Report of the Yorkshire Union of Mechanics' Institutes*, 1879, p.108.

<sup>471</sup> *Forty-Fifth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1882, p.127.

<sup>472</sup> *Ibid.*, p.138.

<sup>473</sup> *Forty-Eighth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1885, p.148.



much insight into the processes of cloth manufacture at the time and indicate the technical knowledge required to understand and work in the industry (Appendix 8).<sup>474</sup>

A cotton manufacture course was offered at Hebden Bridge Institute in 1882 through the City and Guilds of London Institute, and was taught by a former student. The Committee believed strongly in workers taking up the opportunity to attend and sit the examinations who were: ‘in the trades and manufacture of the district...to take advantage of the City and Guilds examinations, for the technological certificates which will doubtless become valuable testimonials to them in seeking employment’.<sup>475</sup>

In 1884, Lockwood Institute introduced a technological class for the teaching of cloth manufacture and the students were examined through City and Guilds of London Institute.<sup>476</sup> The science and practical chemistry classes were well attended at Lindley Institute near Huddersfield in 1873 where students, ‘who made good use of the laboratory’, had been successful in the May examinations held by the Department of Science and Art.<sup>477</sup>

Thus, external examinations gave academic rigour and external recognition for subjects offered through the institutes, and in the case of textiles the Worshipful Company of Clothmakers, provided grants to support individual institutes, prizes and scholarships for students in order to encourage them to continue their studies and gain higher-level qualifications through the Yorkshire College. The Society of Arts, which later was replaced by the Department of Science and Art, and City and Guilds of London Institute were offering technical qualifications throughout Britain. More

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<sup>474</sup> City and Guilds of London, *A Short History, 1878 – 1992* (City and Guilds, 1993).

<sup>475</sup> *Forty-Fifth Report of the Yorkshire Union of Mechanics’ Institutes*, 1882, p.110.

<sup>476</sup> *Forty-Seventh Report of the Yorkshire Union of Mechanics’ Institutes*, 1884, p.110.

<sup>477</sup> *Thirty-Sixth Report of the Yorkshire Union of Mechanics’ Institutes*, 1873, p.87.

locally, there were the Yorkshire Union of Mechanics' Institutes and the West Riding of Yorkshire Education Board, both of which offered examinations.

### **Mechanics' Institutes and University Extension Schemes**

The idea of university extension courses as a form of adult education evolved during the later 1860s, with the idea of establishing local colleges of higher education. The mechanics' institute movement was ideally situated to respond to this and it was no coincidence that most of the support came from the north, where the Lancashire and Cheshire Union, as well as the Yorkshire Union, had good reputations for supporting technical education through the examination boards. Indeed, the London press referred to those who attended classes as 'the sturdy artisans of the North'.<sup>478</sup>

The idea of offering university courses is attributed to Arthur Henfrey who wrote an article entitled 'Society of Arts on Industrial Instruction', and which was published in the *Annual Report of the Yorkshire Union* for 1855.<sup>479</sup> He highlighted the importance of having university-trained lecturers for the teaching of higher level courses in the mechanics' institutes. He believed it was important for mechanics' institutes to be 'converted into colleges' where there was the opportunity for working-class men to receive university level industrial training. Henfrey believed that if 'university lecturers were examined thoroughly and graduate in each branch [subject], with the view to lecturing on principles in these municipal colleges' then higher education in technical subjects would be available to a large percentage of the working class. Henfrey made specific reference to the training of chemists in

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<sup>478</sup> S. Marriott, 'University Extension in the North of England and the Leeds Historians', *Northern History*, Volume XXVIII, 1992, 197.

<sup>479</sup> *Eighteenth Yorkshire Union of Mechanics' Institutes Report*, 1855, p.34.

industrial towns and geologists in mining districts, both of which were supported well within Yorkshire Union institutes.<sup>480</sup>

Henfrey not only planned the design of these higher education colleges containing ‘a lecture theatre, library and reading room as well as laboratories and studios’, but also the sort of curriculum that would be required. For example, he suggested that advanced scientific instruction should be available for those who had already completed previous courses and would last for four years ‘in a system of progressive though gradually increasing complexity. In each year ‘the student should attend twenty-four lectures on science, delivered at intervals of a fortnight’. Henfrey even suggested the following scheme of work.

Year 1 Physics (Astronomy, Properties of Matter and Form, Heat, Light, Electricity).

Year 2 Chemistry (Crystallography, Chemical Affinities, Atomic Theory, Mineral Chemistry, Organic Chemistry, Chemistry of Life).

Year 3 Morphology (Vegetable, Animal) and Physiology (Vegetable, Animal).

Year 4 Physical Geography and Geology.<sup>481</sup>

It would be some thirty years later when university extension courses would be offered initially by the established Universities of Oxford and Cambridge from 1873, and although lectures were predominately delivered in northern towns, they were also introduced in the East Midlands.<sup>482</sup>

Both Universities ‘were proud of their northern dependencies; through them they secured a connection with centres of trade and manufacturing’ with Oxford predominantly responsible for supporting centres in the textile and engineering

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<sup>480</sup> Arthur Henfrey was born in Aberdeen, his father was an English engineer. He studied medicine and surgery at St Bartholomew’s hospital, London. He was, however, unable to continue with a medical career as he suffered from asthma. Henfrey devoted the rest of his life to botany, during which he wrote thirty-nine scientific articles and eleven books, including one entitled *An Elementary Course of Botany* (1884) which was the leading text of the day. His interest in education is apparent through his contributions as a translator and writer of textbooks in relation to science and particularly botany, subjects offered by mechanics’ institutes. F. W. Oliver (ed), ‘Arthur Henfrey’, *Maker of British Botany* (1913), *The Oxford Dictionary of National Biographies*.

<sup>481</sup> *Ibid.*

<sup>482</sup> .Marriott ‘University Extension in the North of England and the Leeds Historians’, 197.

districts of Lancashire and the West Riding and Cambridge concentrated on the North-Eastern circuit, taking in the mining communities, Newcastle and as far north as the Borders.<sup>483</sup>

Several institutes of the Yorkshire Union were promoting higher level education by the 1870s in relation to university extension classes, supported by itinerant lecturers.<sup>484</sup> Hartlepool Mechanics' Institute was anxious that its teachers which had been involved with elementary classes were given the opportunity to gain university extension teaching certificates, through Oxford or Cambridge Universities, so that they could gain formal recognition by the Education Department to teach subjects at advanced level on the scheme.<sup>485</sup>

In 1874, university extension courses were being promoted and delivered at the Keighley Institute on political economy and were 'welcomed as an important educational movement'.<sup>486</sup> Darlington, Hartlepool West, Middlesbrough and Stockton Institutes in the North East were associated with a scheme, run through Durham and Cambridge Universities. Courses were offered in political economy, history, mining and geology.<sup>487</sup>

Several mechanics' institutes across the Yorkshire Union also offered these examinations, including Barnsley Mechanics' Institute which introduced them in 1884 through Cambridge University (Appendix 7). Twelve lectures were given during the year by W.W. Watts of the Geological Society, and the first lecture, given free, was attended by the mayor of Barnsley. The remaining eleven had a weekly nominal fee. Watts remarked that the university extension movement had been established to serve students of towns which had no university but desired higher education. The work

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<sup>483</sup> *Ibid.*

<sup>484</sup> *Ibid.*

<sup>485</sup> N. A. Jepson, *The Beginnings of English University Adult Education*, (1973, London), p.114.

<sup>486</sup> *Thirty-Seventh Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1874, p.134.

<sup>487</sup> *Ibid.*, p.132.

was assessed through questions asked during the lectures and through examinations for which students would gain certificates, if successfully completed.<sup>488</sup>

A series of lectures was presented by academics from Balliol College, Oxford at the Huddersfield Mechanics' Institute in 1886 and a synopsis of the courses was printed in the *Daily Chronicle*.<sup>489</sup> The Oxford University Extension Lectures<sup>490</sup> were successful at Huddersfield in 1888, both in numbers attending, with '400 seated in the large hall', and in the income it received.<sup>491</sup>

Thus, mechanics' institutes were also responding to higher levels of technical education, some at degree-level, through the university extension scheme. The fact that the traditional Universities of Oxford, Cambridge and later Durham, were involved with the mechanics' institute movement in this way suggest they appreciated the work in which they were involved.

### **Mechanics' institutes and school-age elementary education**

Prior to the passing of the 1870 Education Act and the subsequent establishment of school boards to support compulsory education for children, some mechanics' institutes often offered elementary education to children as well as adults. Roderick and Stephens have stated that the Liverpool Mechanics' Institute had the unusual feature of establishing schools for the sons of members and that 'it created a range of educational provision which was scarcely equalled elsewhere from the age of eight to mature adults'.<sup>492</sup> In fact there were several mechanics' institutes which took the

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<sup>488</sup> *Barnsley Chronicle*, 4 October 1884.

<sup>489</sup> *The Daily Chronicle*, 6 December 1886.

<sup>490</sup> Cambridge, Oxford and London Universities provided lectures in provincial mechanics' institutes and were the forerunners of degree-level courses for adults.

<sup>491</sup> Oxford University Extension Lectures Examination Questions for Mountain Drawing, November 1886, University of Huddersfield Archives, Appendix 7.

<sup>492</sup> G. W. Roderick and M. D. Stephens, 'Approaches to Technical Education in 19<sup>th</sup>-Century England, Part IV, The Liverpool Mechanics' Institution', *The Vocational Aspect of Education* (Summer 1973) Vol. XXV, No.61, 99-103.

opportunity to become involved in the elementary school movement as well as supporting working-class adult education.<sup>493</sup>

In the case of the Yorkshire Union, the Leeds Institute, as an experiment, had established a day school for boys and one for girls of all ages in 1845 which, in its first year, had 50 pupils, offering reading, writing, mental arithmetic and grammar.<sup>494</sup> The School continued to expand and provide elementary education, becoming part of a group of primary schools organised through the city's School Boards, established under the 1870 Education Act, including the National Schools of St George's, St Mathew's, St Peter's, Kirkstall, Ackworth, Leeds Grammar School and Messrs Marshall's Mill School. Thus, the Institute's own school was recognised as one of several providing primary education to working-class boys and girls.

Several other institutes offered elementary education after the passing of Forster's Education Act of 1870 which allowed school boards to be formed in areas with inadequate voluntary schools.<sup>495</sup> By 1876, at least half of the school boards had been established under the Act, making education compulsory in their schools and the subsequent 1876 Sandon and 1880 Mundella Acts made elementary education compulsory up to the age 10, raised to eleven in 1893, and twelve in 1899.<sup>496</sup>

In 1871, the Darlington Mechanics' Institute extended elementary education to support girls and boys, increasing its membership and supporting the education of working-class children at a time when school boards were being established.<sup>497</sup> In the same year a girls and boys day school was to be opened at the Bingley Mechanics'

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<sup>493</sup> *Thirty-Fifth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1872, p.21. It was not just the Yorkshire Union that took advantage of offering school-age education. Burnley Institute of the Lancashire and Cheshire Union took pupils from local schools for certain classes. Lloyd-Davis, *Burnley Mechanics' Institute*, p.16.

<sup>494</sup> *Eighth Report of the Yorkshire Union of Mechanics' Institutes*, 1845, pp.38–41.

<sup>495</sup> Named after W. E. Forster, its architect, who was a Committee Member of the Yorkshire Union and supported local institutes in and around Bradford.

<sup>496</sup> Taylor, *Mastering Economic and Social History*, pp.287–290.

<sup>497</sup> *Thirty-Fourth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1871, p.18.

Institute and at Keighley there were also similar developments.<sup>498</sup> The mechanics' institutes were able to support the school boards soon after the passing of the Education Act, while new schools were being built.

The Huddersfield Mechanics' Institute Committee reported that the census taken in 1871 to confirm the establishment of a school board in the town under the Education Act of 1870 found that in the locality there were only enough classrooms for 8,000 children out of 12,000 and therefore if parents were anxious to send their children to school a further 4,000 places were needed. A second census taken in 1876 identified that there was a need for 16,000 places and there were only 13,000 spaces. The Duke of Richmond and Lord Sandon had supported several institutes across the country and Leeds, Bradford and Huddersfield responded to the need to offer school-age education.<sup>499</sup>

In 1876, Huddersfield Mechanics' Institute was supplementing its evening work with a day school 'so as to prevent its passing into speedy oblivion', indicating that offering primary education to children would support much needed income from the additional number of members. It made specific reference to the 1870 Education Act and stated that its impact was already being felt as it increased the number of students at the Institute, presumably as a result of the shortage of board schools, and raised the status of those entering the advanced classes.<sup>500</sup>

In 1880 there had been a fall in the number attending elementary classes at the Huddersfield Mechanics' Institute but this caused no real concern because the committee put this down to 'the great advance in popular education' as a result of the

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<sup>498</sup> *Ibid.*

<sup>499</sup> *Huddersfield Chronicle*, 24 October 1877.

<sup>500</sup> *Thirty-Ninth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1876, p.158.

Education Acts, with ‘ample provision now being made in the public elementary school for all children under the age of 13’.<sup>501</sup>

In 1876, the Female Education Institute in Huddersfield had an increase in numbers of pupils from the day schools attending the evening elementary classes, despite concerns that the local school boards would take over such responsibility.<sup>502</sup> In reality this Institute, as was the case across the region and indeed the country, was ideally suited to take factory hands, who were only able to attend during the evenings after work.<sup>503</sup>

The Committee Report of the Huddersfield Female Institute remarked in 1881 that it was in a prosperous condition despite the fall in the number of elementary classes, ‘a matter of congratulation rather than regret’ as the 1870 Education Act was now having an impact on compulsory education and the Institute could concentrate on offering adult classes. These included household cookery, domestic economy (food, clothing, dwellings, health, cottage income and expenditure) and sewing.<sup>504</sup>

In 1882 the Committee stated that:

it was a fallacy to suppose that because school boards were established with compulsory powers, there was no more necessity for such institutions as these; but they forgot that there was a number of young girls who went to the mills half time, and did not acquire sufficient education during that time, and also there were many beyond school age, and others, who were desirous of increasing the knowledge they already possessed.<sup>505</sup>

Thus, the Institute saw the potential of not only offering education to girls of school age but also in providing older ones, including adults, with both elementary and higher education opportunities.

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<sup>501</sup> *Forty-Third Annual Report of the Yorkshire Union of Mechanics’ Institutes*, 1880, p.101.

<sup>502</sup> W. E. Forster attended the Annual Soirée at the Institute several times, including the one held in 1859, ten years before the passing of his Act. *Annual Report of the Huddersfield Female Education Institute*, 1859, p.6.

<sup>503</sup> *Huddersfield Female Education Institute Minutes of the General Committee*, 1876, p.4.

<sup>504</sup> *Annual Report of the Huddersfield Female Education Institute*, 1881, p.3.

<sup>505</sup> *Huddersfield Female Education Institute Minutes of the General Committee*, 1882, p.12.



Other institutes which offered school-age elementary education included the Leeds Institute. By 1873, however, it had seen a decline in the number of pupils attending its School, presumably as a result of the establishment of school boards and may well have taken the opportunity to offer more advanced level subjects.<sup>506</sup> This was the case at the Lockwood Mechanics' Institute, located in the district of Huddersfield. In 1874, the Committee stated that:

while still affording suitable instruction to many whose early training has been neglected, the Institution is gradually adapting itself to more advanced requirements of those whose educational opportunities have been more favourable.<sup>507</sup>

Six years later the Lockwood Institute offered advanced classes as a result of the Education Act and an agreement to offer evening classes to part-time pupils.<sup>508</sup>

By 1877 the Slaithwaite Institute near Huddersfield was also specialising in elementary education for children, having established a day school as well as running evening classes for adults. In all, there were 120 day scholars, 200 infants and 100 evening class students. The evening classes included science and shorthand classes and it was hoped females would be attracted to attend the latter.<sup>509</sup>

There is no doubt that the 1870 Education Act had an impact on mechanics' institutes in the Yorkshire Union, as in other parts of the country, raising concerns that their younger membership would decline as a result of elementary education being offered free. Many institutes, however, took the opportunity to offer advanced subjects for those who had completed their elementary education at the board schools. Adults still had the opportunity to attend elementary classes at the institutes. This was supported with the passing of the Technical Instruction Act of 1889 which provided, in effect, funding through tax for post school-age education beyond the age of

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<sup>506</sup> *Thirty-Sixth Report of the Yorkshire Union of Mechanics' Institutes*, 1873, p.92.

<sup>507</sup> *Thirty-Seventh Report of the Yorkshire Union of Mechanics' Institutes*, 1874, p.131.

<sup>508</sup> *Forty-Third Report of the Yorkshire Union of Mechanics' Institutes*, 1880, p.113.

<sup>509</sup> *Fortieth Report of the Yorkshire Union of Mechanics' Institutes*, 1877, p.155.

fourteen, and later fifteen. In many cases mechanics' institutes continued to offer elementary education to adults and children on a part-time basis. Once more, there is evidence to suggest the adaptability of mechanics' institutes.

### **Mechanics' Institutes and Teachers**

The mechanics' institute movement was aware of the importance of good teaching and learning, knowing that otherwise, working-class adults would not have been committed to attend classes and pay the fees. Originally, most institutes had to rely on committee members and others, including school teachers and clergy, to teach the classes free as most had not the income to pay salaries. However, there was often a shortage of teachers, even where mechanics' institutes could afford to pay for them. This sometimes led to courses having to be closed and this was particularly the case in relation to female classes, which were taught by women only.

Mechanics' institute committee reports constantly refer to the concerns they had in relation to the shortage of both voluntary and salaried teachers. While institutes were developing during the 1820s and 1830s, committee members often volunteered to teach the elementary classes. However, as institutes developed advanced and specialist courses, this was no longer appropriate and professionally qualified teachers were required even though a large part of the annual income was taken up in salaries. Some mechanics' institutes were unable to find suitably qualified teachers for several years and therefore could only offer a restricted curriculum until they did so. It was particularly difficult to find teachers for female classes.<sup>510</sup>

Throughout the Yorkshire Union there was a serious shortage of salaried teachers at the time when there was a growth in membership and courses. The Halifax

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<sup>510</sup> *Annual Reports of the Yorkshire Union of Mechanics' Institutes.*

Mechanics' Institute Committee in 1838 considered appointing a permanent salaried chemistry teacher but had no money to fund an appointment.<sup>511</sup> In the same year at Pudsey Mechanics' Institute, no classes were delivered as members were unwilling or unable to teach the subjects.<sup>512</sup>

As institutes became more successful, their former students often became voluntary teachers. At the Huddersfield Mechanics' Institute in 1848, for example, the Committee reported that:

It is truly encouraging to find young men who have received instruction in our classes, so willing to impart their knowledge to others; and when it is remembered that they belong to the industrious classes, that their teaching is entirely voluntary, and that they attend regularly week after week ...the whole noble band of voluntary teachers, as constituting the mainstay of the Institution.<sup>513</sup>

The Committee at Bradford Institute in 1849 had suggested that Sunday school teachers might be willing to teach and support their 'less-favoured fellow-men' at their local mechanics' institute.<sup>514</sup>

With the shortage of teachers and lecturers there was a concern that not all appointments were as professional as they should have been. A sub-committee had been formed at Ripon Institute in 1849 to investigate the potential of employing a lecturer with a salary, who would also teach at other institutes as part of his duties. The cost would be shared out proportionally and it was hoped the Yorkshire Union would support this idea, as well as sending out itinerant lecturers, such as Frank Curzon, one of its agents.<sup>515</sup>

Mechanics' institutes had identified how important good teaching was to support them. The Committee at Keighley reported in 1849 that membership continued to

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<sup>511</sup> *First Report of the Yorkshire Union of Mechanics' Institutes*, 1838, p.21.

<sup>512</sup> *Ibid.*, p.27.

<sup>513</sup> *Eleventh Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1848, p.55.

<sup>514</sup> *Twelfth Report of the Yorkshire Union of Mechanics' Institutes*, 1849, p.27.

<sup>515</sup> *Ibid.*, p.79.

increase and the formation of classes, for both males and females, taken by ‘properly qualified teachers’, was seen as an important factor for its success.<sup>516</sup>

At the Honley Mechanics’ Institute in 1850, the Committee highlighted that there was a shortage of ‘properly qualified teachers’ and therefore the number of classes were restricted to those only offering reading, writing and arithmetic at elementary level. The Committee reported their concerns to the Yorkshire Union and hoped that it would encourage institutes to offer teacher training to their more experienced members, using the pupil-teacher system, similar to that being used in schools. The Honley Committee suggested that such classes should:

consist of members who have made the greatest proficiency in general knowledge, and who might be placed, for a given period, under the superintendence of a person qualified to fit them for their important duties.<sup>517</sup>

Female classes established at Keighley during the late 1840s had had to be discontinued in 1851 due to a decline in the number of students and the main reason for this was poor teaching. The Committee stated that ‘we are training up a numerous class of young persons, the greater part of whom will, in all probability, continue to be useful members of the Institution, long after their youthful days have ceased’.<sup>518</sup> Yet the problem persisted. In 1853 Keighley Institute reported that the classes were not in a healthy state. Several teachers had left the town and no replacements could be found. The geography class had to be closed because there was no teacher and the grammar class had only recently been re-established after a tutor had agreed to visit, travelling from Leeds.<sup>519</sup>

In 1854, the Huddersfield Mechanics’ Institute Committee reported that teachers who volunteered their services free kept the Institution together financially. It

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<sup>516</sup> *Ibid.*, p.62.

<sup>517</sup> *Thirteenth Annual Report of the Yorkshire Union of Mechanics’ Institutes*, 1850, p.39.

<sup>518</sup> *Fourteenth Annual Report of the Yorkshire Union of Mechanics’ Institutes*, 1851, p.57.

<sup>519</sup> *Sixteenth Annual Report of the Yorkshire Union of Mechanics’ Institutes*, 1853, pp.79 – 80.

appreciated the hard work that all teachers did through ‘discipline and efficient teaching’ which contributed to the success of the Institutes.<sup>520</sup> In 1855:

it was hoped that a class of subordinate teachers may be raised among members themselves, receiving a small remuneration and regularly recognised as part of the educational staff of the Institution where they have received a considerable portion of their education.<sup>521</sup>

This issue was raised at the Huddersfield Mechanics’ Institute annual soir ee in the same year, at which assistant teachers’ prizes were awarded.<sup>522</sup> Richard Dawes, presenting the prizes stated that the shortage of teachers was a national problem but that school training colleges, which were being established, might be willing to send qualified teachers to work in the institutes. Dawes remarked that:

during the autumn of this year being at Chester, I visited the Training College...the training of masters there seems to me to be admirably fitted for teachers in such institutes as yours. There is a scientific and commercial school attached to it ...in which youths are instructed in the application of science and business life.<sup>523</sup>

Dawes gave the example of institutes in Cheshire, including the one at Crewe, and several in the Potteries, which had successfully received grants from the Department of Science and Art to fund qualified teachers for two years. The result had been that membership had gone up, and with it, the income from fees which provided enough money to pay teachers salaries. He hoped that Huddersfield would consider the same arrangement.<sup>524</sup>

Yet where some institutes did just that, they sometimes found themselves in serious financial difficulties. At some expense to the Halifax Institute, the Committee employed trained and experienced teachers by 1855 which put a substantial burden on the finances but resulted in a marked improvement in the quality of the adult classes.

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<sup>520</sup> *Seventeenth Annual Report of the Yorkshire Union of Mechanics’ Institutes*, 1854, p.83.

<sup>521</sup> *Huddersfield Institute Minutes of the General Committee* for 25 November, 1855, p.198.

<sup>522</sup> *Ibid.*

<sup>523</sup> Dawes, *An Address delivered*, p.32.

<sup>524</sup> *Ibid.*, p.36.

However, as the Committee pointed out, on a national level, the Privy Council was preventing qualified teachers from teaching in the mechanics' institutes because of a shortage of teachers in schools. Like many other institutes, Halifax had therefore introduced a pupil-teachers scheme and those taking part were appointed for five years prior to enrolling at 'the school for schoolmasters'. During their training, the trainee teachers received £10 a year stipend rising to £20 in their final year.<sup>525</sup>

The Milnsbridge Mechanics' Institute Committee reported that classes continued to be well-attended in 1871 but it made the comment that as long as only government-recognised school teachers could be employed and paid for, there was no hope of receiving enough funds and grants to support the salaries. The Committee did remark that it had become aware that there had been discussions around voluntary teachers sitting examinations in order to be professionally qualified.<sup>526</sup>

Meanwhile the shortage of teachers, and particularly experienced and trained ones, was overcome at Wakefield in 1857 as the art class was taught by a master from the Leeds School of Design, who also travelled to teach at other institutes.<sup>527</sup> The Committee at Bradford, on the other hand, stated:

it is regretted that the classes have been of a more elementary character than those in previous years. This has arisen chiefly from the difficulty of obtaining suitable gratuitous teachers – the extremely low rate of subscription paid by the members precluding the employment of any other kind of aid.<sup>528</sup>

None of the institutes made reference to teacher training courses specifically, but many made use of the pupil-teacher scheme to support teaching in a more formalised way and the shortfall was met by qualified teachers from schools and other institutions.

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<sup>525</sup> *Eighteenth Report of the Yorkshire Union of Mechanics' Institutes*, 1855, p.71.

<sup>526</sup> *Thirty-Fifth Report of the Yorkshire Union of Mechanics' Institutes*, 1872, p.45.

<sup>527</sup> *Twentieth Report of the Yorkshire Union of Mechanics' Institutes*, 1857, p.121.

<sup>528</sup> *Twenty-Second Report of the Yorkshire Union of Mechanics' Institutes*, 1859, p.69.

The shortage of teachers continued into the following decade. The Committee at Slaithwaite reported in 1861 that the elementary classes were taught ‘by members and friends of the Institute’ and the science class by G. Jarman, a nationally renowned chemist, from the Huddersfield Mechanics’ Institute. The Committee paid special thanks to him for ‘his unremitting attention and able tuition, as proved last May by the honourable way his pupils had passed their examinations in inorganic chemistry and geology.’<sup>529</sup>

With the shortage of good teachers, the science classes at Shelley Institute in 1874 were taught by J. Allott, a science teacher from the Huddersfield Mechanics’ Institute and the drawing class was taught by J. Storey, the art teacher from Honley, indicating that institutes locally collaborated with the exchange of teachers.<sup>530</sup>

Huddersfield Mechanics’ Institute, realising that the shortage of money and qualified teachers was preventing both growth and quality, the Committee decided to offer formal teacher training from 1876:

several masters and mistresses of the day schools have availed themselves of the opportunity of studying drawing here; and it is hoped that in a very few years it will be the rule to have education in drawing in all our elementary schools. This will form a very valuable nursery to such an institution as this.<sup>531</sup>

In the same report a table of the professions of members included 53 teachers, the eighth highest number of occupations attending the classes at the Institute and were continuing with their studies in support of school teaching.<sup>532</sup> Several students in the perspective drawing and geometry courses in the School of Art at Huddersfield were pupil-teachers in 1879 and were training to become ‘teachers of drawing in their respective schools’, presumably board schools, where they were employed.<sup>533</sup>

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<sup>529</sup> *Twenty-Sixth Annual Report of the Yorkshire Union of Mechanics’ Institutes*, 1863, p.119.

<sup>530</sup> *Thirty-Seventh Report of the Yorkshire Union of Mechanics’ Institutes*, 1874, p.158.

<sup>531</sup> *Thirty-Ninth Report of the Yorkshire Union of Mechanics’ Institutes*, 1876, p.161.

<sup>532</sup> *Ibid.*, p.160.

<sup>533</sup> *Forty-Second Report of the Yorkshire Union of Mechanics’ Institutes*, 1879, p.110.

In 1880 at Huddersfield there were two pupil teachers to support<sup>534</sup> but there was still a need for qualified teachers. An advert was put in the *Weekly News* in 1882 for a qualified teacher to teach mathematics Stage 1 for the Department of Science and Art Examinations at Huddersfield on Monday, Wednesday and Friday evenings with a salary according to the salary scale of the Institute.<sup>535</sup>

A complete scheme of classes [Science and Arts] is now in operation, whereby the School practically does the work of a Training College. This should be a great boon to all Ex-P-T's [former pupil-teachers] in the neighbourhood who want their teacher's certificate without going to college for it'.<sup>536</sup>

Mechanics' Institutes were aware that to have successful inspections, including those of teacher training courses, they needed good quality teachers. At Keighley in 1881 two of the art teachers received their Art Master's Certificate in London and the Inspector reported that:

the School has proved eminently successful in training its pupils as teachers and draughtsmen. Nine have obtained the Art Master's First Certificate, and three are regularly engaged as draughtsmen in some of the large workshops in the town. Many of the pupils who have qualified as teachers are now actively engaged as Head or Second Head of Schools of Art in various parts of the country, at Leeds, Derby, Manchester, Burnley and Accrington<sup>537</sup>.

Bingley Mechanics' Institute in 1881 provided the opportunity for voluntary science teachers to be trained and examined through the Department of Science and Art.<sup>538</sup>

Samuel Tomlinson, the science teacher at the Institute, received a Queen's medal and first-class honours certificate for agriculture. James Eye, science teacher from Clapham, also passed the same subject. Others passed physiography, one in shorthand

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<sup>534</sup> *Forty-Third Report of the Yorkshire Union of Mechanics' Institutes*, 1880, p.104. Pupil-Teachers were also employed in other parts of the country. At Burnley Mechanics' Institute in Lancashire, for example, where Dr James Kay-Shuttleworth the social reformer, was President and instigator of the system in schools, Pupil-Teacher Classes were offered by the 1890s. Burnley Mechanics' Institute *Classes Syllabus* 1898-9, p.27.

<sup>535</sup> *The Weekly News*, 8 July 1882.

<sup>536</sup> *Forty-Ninth Report of the Yorkshire Union of Mechanics' Institutes*, 1886, p.108.

<sup>537</sup> *Forty-Fourth Report of the Yorkshire Union of Mechanics' Institutes*, 1881, p.91. Accrington, along with Keighley, was associated as being a successful institute in relation to technological developments as indicated by the number of patents licensed per population (see Chapter Three).

<sup>538</sup> See Appendices below for a more detailed account of South Kensington.



and a schoolmaster from Cullingworth received a first-class certificate in magnetism and electricity. Clearly credibility of the teaching qualification was provided externally through the Science Department and the Institute acted as a placement for teaching practice.<sup>539</sup>

With the establishment of teacher training courses at several institutes, quality of classes was also improved. By 1880, for example, Huddersfield was offering a certificate in teacher training, the success of which supported other institutes with teachers as well as its own inspections.<sup>540</sup> In 1882, Alfred P. Graves, Her Majesty's Inspector of Schools for Huddersfield and District noted that that the 'night School, which numbers 300 male pupils, is worked by a large and efficient staff of teachers'.<sup>541</sup>

During the late nineteenth century government attempted to prevent qualified teachers from teaching in the institutes as there was also a shortage in schools following the passing of the Education Acts during the 1870s and the subsequent establishment of School Boards. Not to be deterred, institutes encouraged former students to return as pupil-teachers. Huddersfield, Holmfirth, and Elland Institutes all provided teacher training and Huddersfield Mechanics' Institute, in particular, was offering a professional teaching qualification for this purpose. Institutes that were struggling to fill vacancies were often supported by teachers from other institutes who were used to make up the shortfall.

Mechanics' institutes outside the Yorkshire Union were also developing teacher training programmes. The Harris Institute at Preston in Lancashire, for example, produced a poster publicising the classes being run during 1882 – 1883 and put great

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<sup>539</sup> *Forty-Fourth Report of the Yorkshire Union of Mechanics' Institutes*, 1881, p.82.

<sup>540</sup> *Huddersfield Technical School and Mechanics' Institute, Prospectus of Evening Classes, Session 1886–7*, pp. 26 – 47. See also Appendix 11.

<sup>541</sup> *The Huddersfield Examiner*, 7 October 1882.

emphasis on qualified teachers. ‘The Council have arranged to open classes under the auspices of the City and Guilds of London Institute in cotton, machine tools, mechanical engineering and printing. Skilled qualified teachers are certificated by them as teachers of technology’.<sup>542</sup>

Mechanics’ Institute committees had therefore identified the importance of skilled teachers to support their members. With the shortages of good teachers, they quickly responded to introducing pupil-teachers in order to respond to the growing number of students. Committees realised that the investment in time and money (salaries) was worth it as the result was an increasing membership, government grants for successful examination results and good inspections.

## **Summary**

Mechanics’ institutes were initially ambitious in offering advanced level subjects. However, the institutes committees soon realised the enormous potential of establishing elementary education for males and females, identifying that such knowledge was the foundation for education and industrialisation, enabling British industry to respond to foreign competition. Science subjects were introduced to support advanced level learning and supporting relevant employment in the textile, engineering and agricultural trades.

The Clothworkers Company provided funding for buildings and equipment to support textile education and training and once public examinations were available the subjects had more credibility and national recognition, particularly through the Department of Science and Art, the Society of Arts and later the City and Guilds of

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<sup>542</sup> Poster advertising courses at the Harris Institute, Huddersfield Archives. The City and Guilds of London Institute to this day offers teaching qualifications for those who wish to teach in further and technical education.

London Institute. University extension courses established curricula up to degree level.

After 1870, the institutes were ideally situated, academically, to support the new education acts, which gradually moved towards making elementary education compulsory. It was rather fitting that W. E Forster, Member of Parliament and the Minister responsible for drawing up the 1870 Education Act, was a supporter of the movement nationally and he donated funds to several individual institutes in Yorkshire and was also on several institute committees.<sup>543</sup> While school boards were being set up, many institutes offered school-age education which was undertaken successfully.

The mechanics' institutes saw the importance of good quality teaching and learning and to support this, qualified teachers were required and former students were encouraged through their own institute to gain qualified teacher status through the Department of Science and Art and later the City and Guilds of London Institute. However, for smaller institutes 'educated' committee members and the clergy supported the teaching, as low funds prevented payment and voluntary teaching continued throughout the century. Successful government inspections resulted in additional grants which supported the work of the institutes and for many opening up their classes to inspectors was a financial lifeline as well as providing public recognition that the quality of teaching and learning was as good, if not better, than that in schools and other education establishments.

The 'objectives of technical education were to provide instruction in the principles of art and science applicable to industry, and in the application of special branches of

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<sup>543</sup> Forster, for example, donated £10 per year for Scholarships at Keighley Mechanics' Institute for boys and girls so they could attend the Art School and evening elementary classes. *Forty-Second Report of the Yorkshire Union of Mechanics' Institutes*, 1879, p.112. Some thirty years earlier he donated five guineas to the Institute in his native Bradford towards paying off the new building debt in 1849. *Twelfth Report of the Yorkshire Union of Mechanics' Institutes*, 1849, p.23.

art and science to specific industries and employment'.<sup>544</sup> The mechanics' institute movement by being attentive to the needs of the working class supported these objectives, through providing elementary education (including school-age children) which supported advanced studies. National examinations in these subjects gave their members employability and the movement national recognition in offering courses and qualifications to working-class members and which was relevant to industry and technological progress.

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<sup>544</sup> M. Argles, *South Kensington to Robbins*, p.6.

**Plate 4.1 The chemistry laboratory at Huddersfield Technical School and Mechanics' Institute 1881, complete with blackboard and fume cupboard**



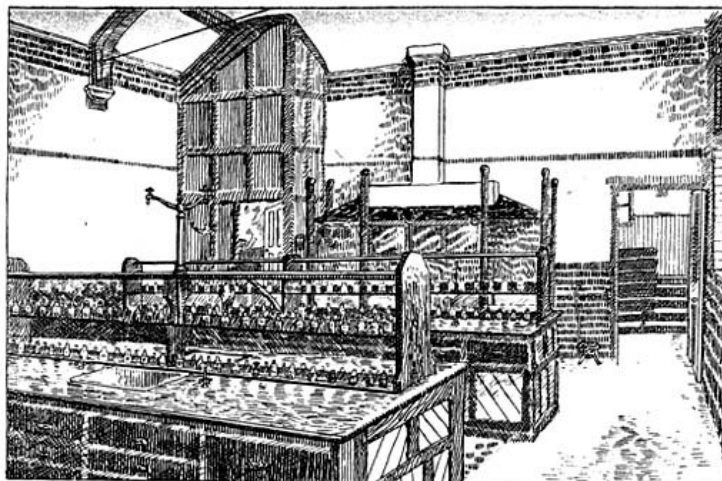
Source: The University of Huddersfield Archives

**Plate 4.2 The Dyeing Laboratory at Huddersfield Technical School and Mechanics' Institute 1881**



Source: The University of Huddersfield Archives

**Plate 4.3 Cleckheaton Technical School (formally the Mechanics' Institute)  
Chemistry Laboratory 1894**

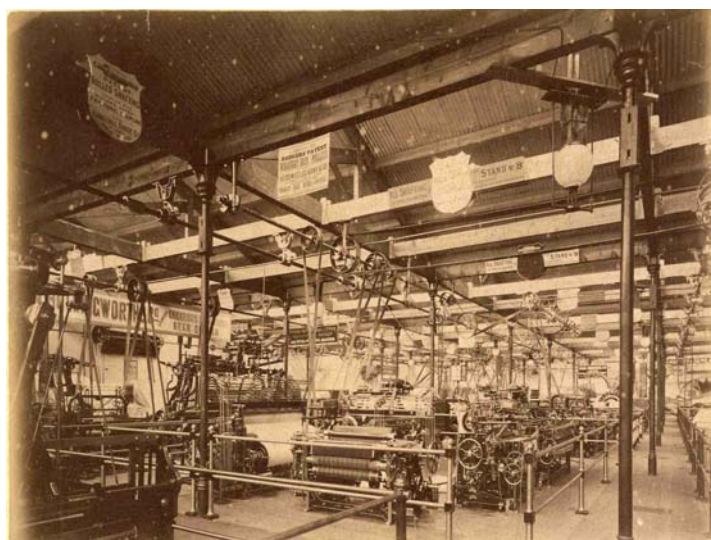


CLECKHEATON TECHNICAL SCHOOL,  
THE NEW LABORATORY.

Note the fume cupboard in the left-hand corner of the then modern laboratory. A further extractor can be seen on the back wall with an extractor pipe leading to the roof and seems to be of a more modern design made of wood. Huddersfield Mechanics' Institute had a fume cupboard fitted as early as the 1860s and it is thought that at that time they were referred to as 'sulphurated-hydrogen closets'. The benches look well-equipped with running water on each and lots of reagent bottles with gas taps above the benches. Technical information provided by Professor of Chemistry, Rob Brown, of the University of Huddersfield.

*Fifty-Seventh Annual Report of the Yorkshire Union of Mechanics' Institutes, 1894, p.72.*

**Plate 4.4 A selection of Weaving Machines at the Huddersfield Technical School  
and Mechanics' Institute in 1883**



Source: The University of Huddersfield Archives

## Chapter Five

### Distribution, Membership and Accommodation of Mechanics' Institutes

#### Introduction

The distribution of mechanics institutes, membership patterns and accommodation are additional crucial indicators of the success of the movement. They reinforce the main theme of success developed by this thesis.

#### Distribution of Mechanics' Institutes across the Yorkshire Union

There were 633 mechanics' institutes in the Yorkshire Union, which included institutes located in the three Yorkshire Ridings and several that were established in County Durham, Cumberland, Lancashire and Westmorland.<sup>545</sup> In order to gain insight into how many institutes were members of the Yorkshire Union and when they were established, a series of maps is included, compiled from the listings in the appendices of the *Yorkshire Union Annual Reports*. Most institutes were located in the West Riding of Yorkshire, which would always have the largest number, as well as being the most densely populated area of institutes to be found in the whole country (Map 5.1 and 5.2). Mechanics' institutes founded between 1824 and 1830, prior to the establishment of the Yorkshire Union in 1838 are identified on Map 5.2. Leeds was the first to be established and was the largest one in the Union. In 1850, according to Hudson, it was the second largest in the country, with a membership of 1,852, the first being Edinburgh with 2,035.<sup>546</sup>

Other institutes established between 1824 and 1830 were to become members of the Yorkshire Union, including Skipton and Keighley in the Dales as well as York and

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<sup>545</sup> Annual Reports of the Yorkshire Union of Mechanics' Institutes, 1838-1900.

<sup>546</sup> Hudson, *Adult Education*, p.232.

Hull in the East of the County. In the 1830s 12 further mechanics' institutes were established, including ones at Bradford, Todmorden and Wakefield, all in the textile towns of the West Riding. Also during the decade 1831 – 1840, Sheffield was established in the south and Middlesbrough in the north. Outside the County, institutes were established at Darlington in County Durham and Mossley in East Lancashire. The establishment of institutes at Malton, a small market town in the East Riding and at Barnard Castle on the Yorkshire-County Durham border demonstrates that it was not just industrialising towns that were associated with mechanics' institutes (Map 5.3).<sup>547</sup>

Between 1841 and 1850 there was continued activity with an additional 22 Yorkshire Union mechanics' institutes having been opened. Again most activity was in the West Riding, including the emerging cluster in and around Huddersfield with the mechanics' institute in the town being re-opened in 1841, having originally been established in 1825. Skipton Mechanics' Institute had also closed in 1839 due to a lack of members but re-opened in 1845. There may have been a similar pattern across the rest of the country, which might have indicated to contemporaries, particularly Hudson, that the institute movement was declining (Map 5.4).<sup>548</sup>

During the decade 1851 – 1860, there were further developments in the number of mechanics' institutes being established, both in the textile communities and around Huddersfield, as well as further in growth in the Yorkshire Dales. In the case of the latter, rural ones had been established at Grassington and Kettlewell, as well as in the east of the Riding at Boroughbridge and Bishop Monkton. In the East Riding, at the Pease-established seaside resort of Marske-on-Sea, an institute was founded in 1854. The period of growth was significant, since the developments in elementary and

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<sup>547</sup> Annual Reports of the Yorkshire Union of Mechanics' Institutes, 1838-1900.

<sup>548</sup> *Ibid.*



technical education in the decade after the Great Exhibition renewed interest among both the rural and urban working class to attend mechanics' institutes, which is reflected in their on-going popularity, growth and distribution (Map 5.5).<sup>549</sup>

Between 1861 and 1870 there was rapid expansion in the number of mechanics' institutes being founded both in the industrial areas, particularly around Leeds and Huddersfield, and the Dales of the West Riding. The small rural textile communities of Saltaire, near Bradford, and Oakworth, near Keighley, were founded during this decade (Map 5.6).<sup>550</sup> The identification of newly founded mechanics' institutes in the Yorkshire Union between 1871 and 1880 shows that the movement was at its most active. There were over 50 new institutes, with several located in the villages of the Cleveland Hills and on the borders between the North and West Ridings, particularly in the agricultural communities including those at Bedale, Sandhutton and Raskelf. (Map 5.7) There was also activity outside the county, particularly in the developing mining villages in County Durham (Map 5.14).<sup>551</sup>

A further 20 mechanics' institutes were established in Yorkshire between 1881 and 1890. Not surprisingly, they tended to be in the small rural communities as most industrial areas were already served with institutes. Finally, 17 institutes were established leading up to the end of the decade when the technical instructions acts provided government funding for adult education.<sup>552</sup>

At the height of their influence at the end of the nineteenth century, most mechanics' institutes were still located in the West Riding of Yorkshire, although there was also growth elsewhere. Not only were institutes to be found in the growing textile towns but also in the suburbs of such towns and individual communities

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<sup>549</sup> *Ibid.*

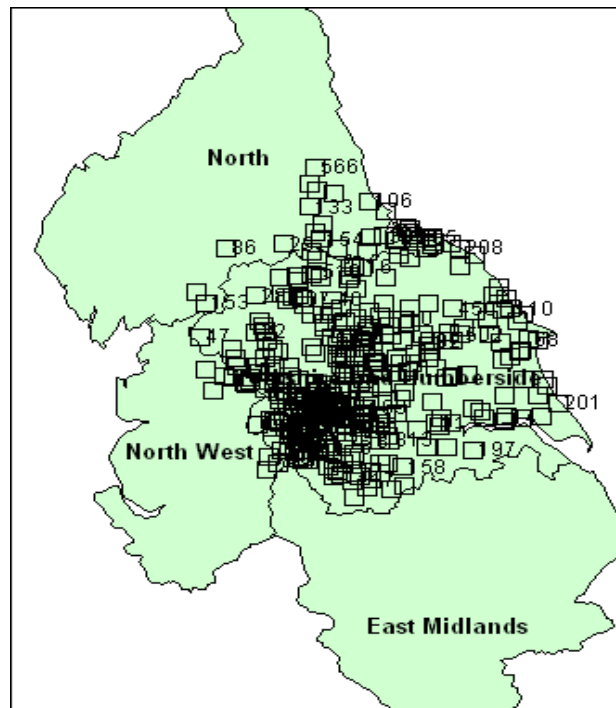
<sup>550</sup> *Ibid.*

<sup>551</sup> *Ibid.*

<sup>552</sup> *Ibid.*

associated with similar industries. Although the Mechanics' Institute Unions were to continue into the twentieth century, no further institutes were established in the Yorkshire Union.<sup>553</sup>

**Map 5.1 Density of mechanics' institutes across the four counties covered by the Yorkshire Union.**

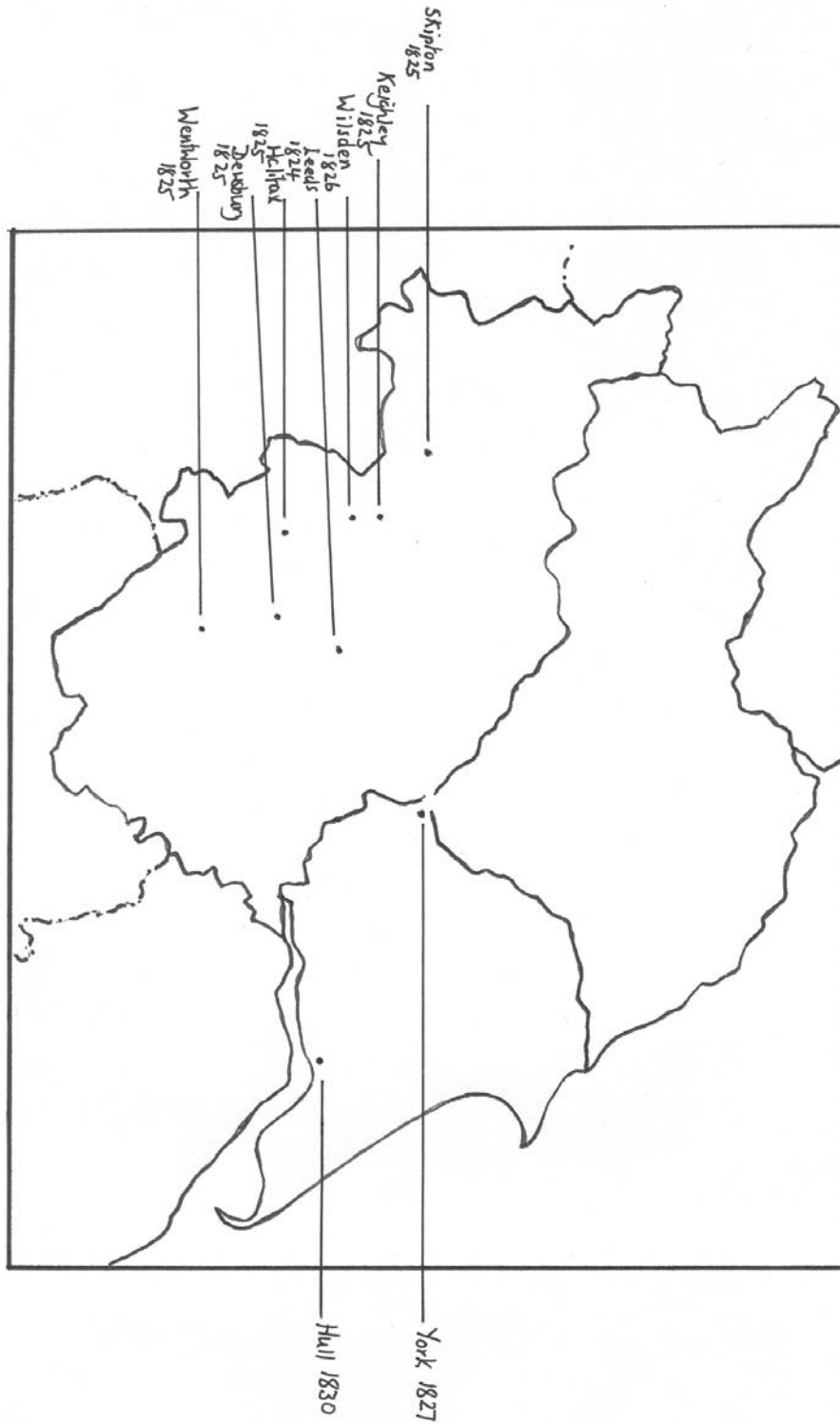


*Annual Reports of the Yorkshire Union of Mechanics' Institutes, Statistical Tables 1839 – 1890*

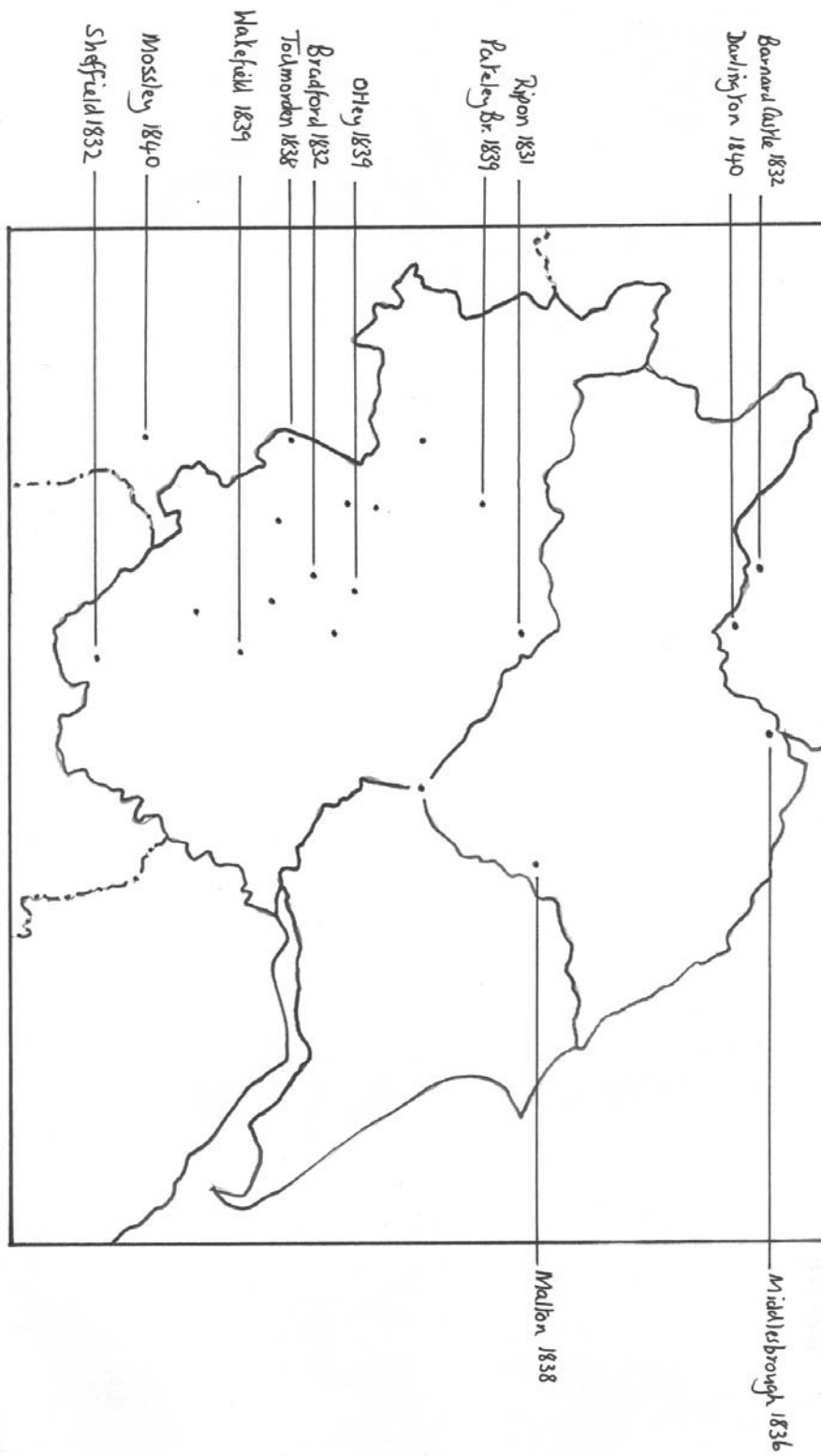
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<sup>553</sup> *Ibid.*

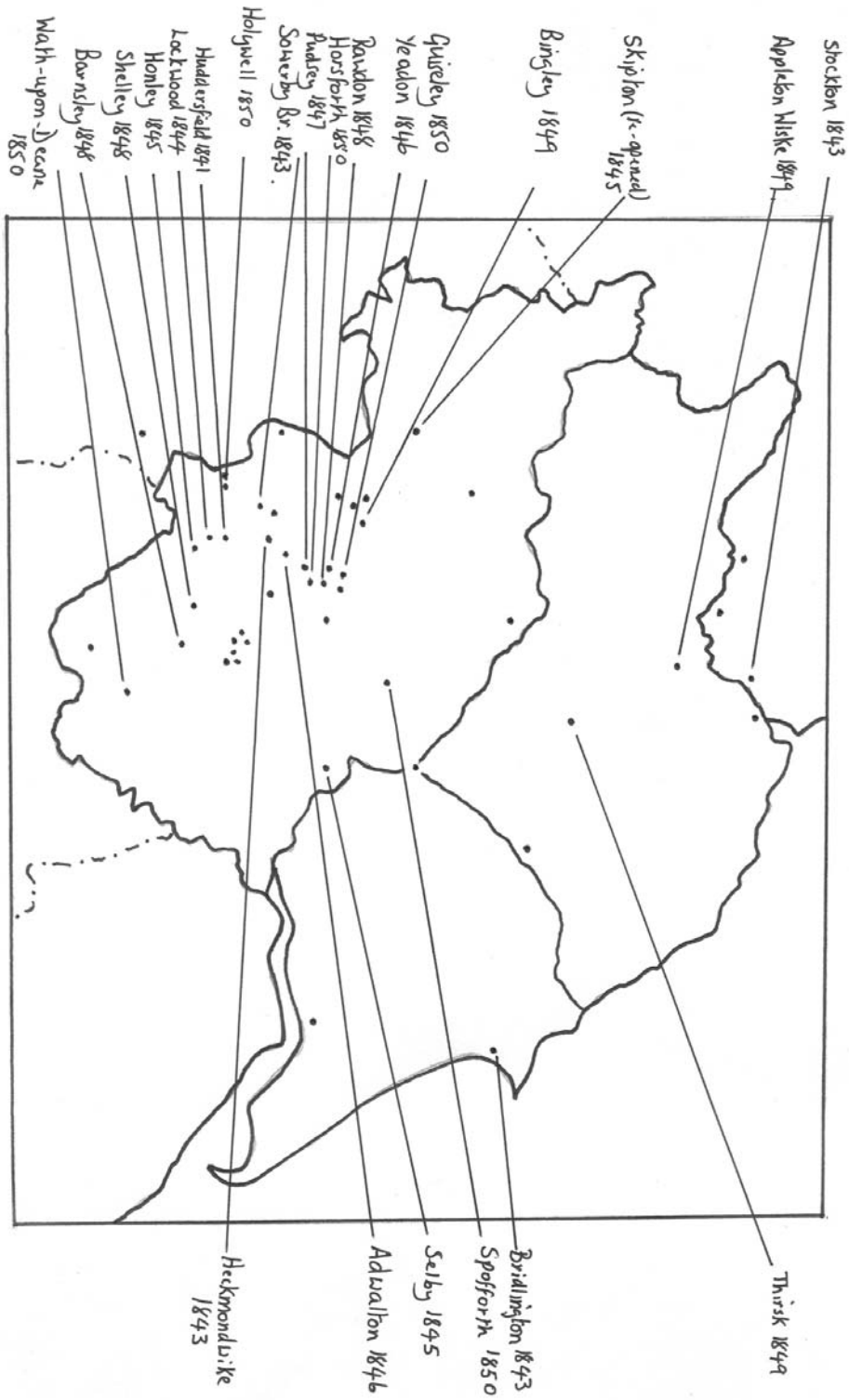
Map 5.2 1824 – 1830 Yorkshire Union of Mechanics' Institutes



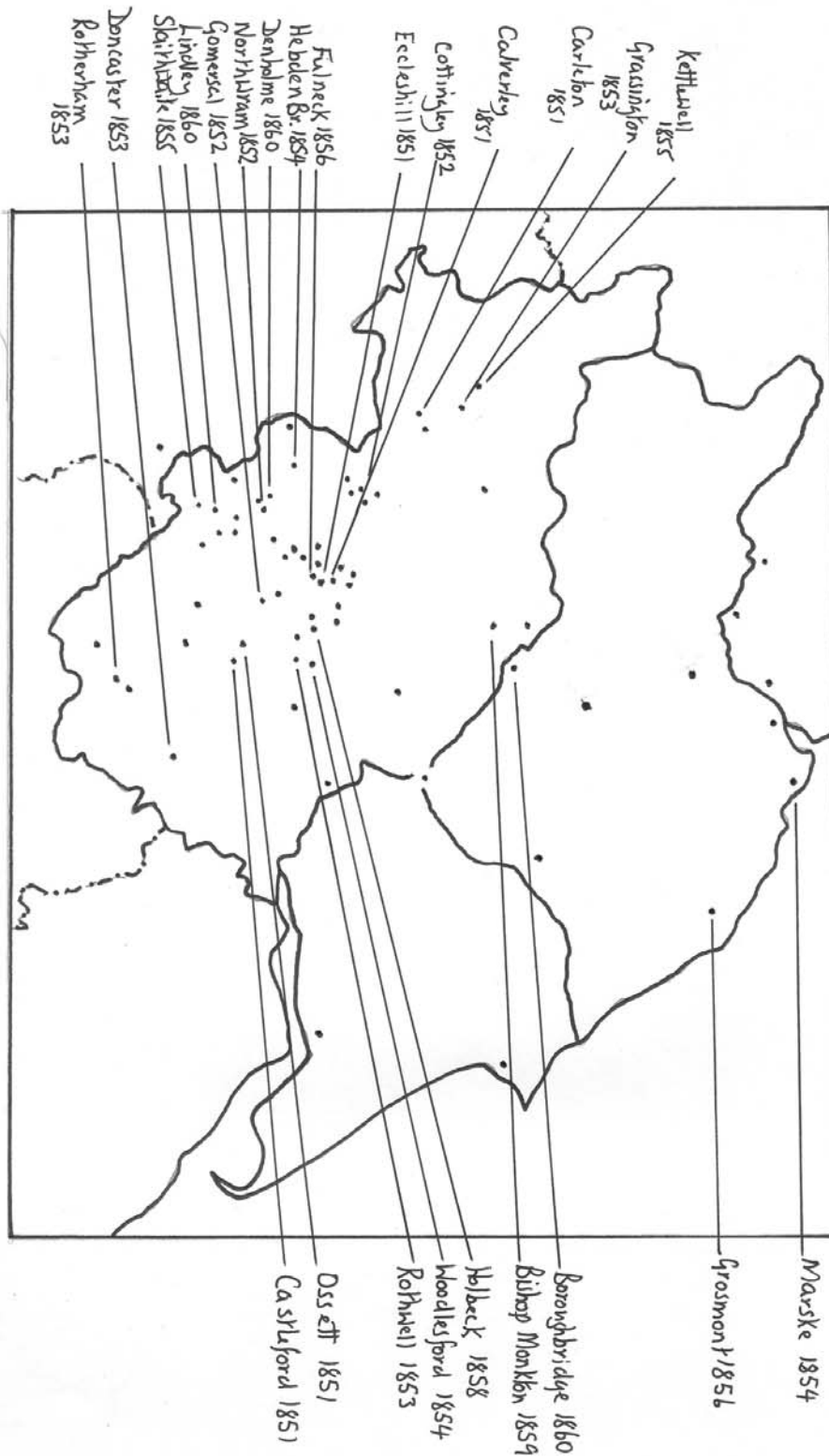
Map 5.3 1831 – 1840 Yorkshire Union of Mechanics' Institutes



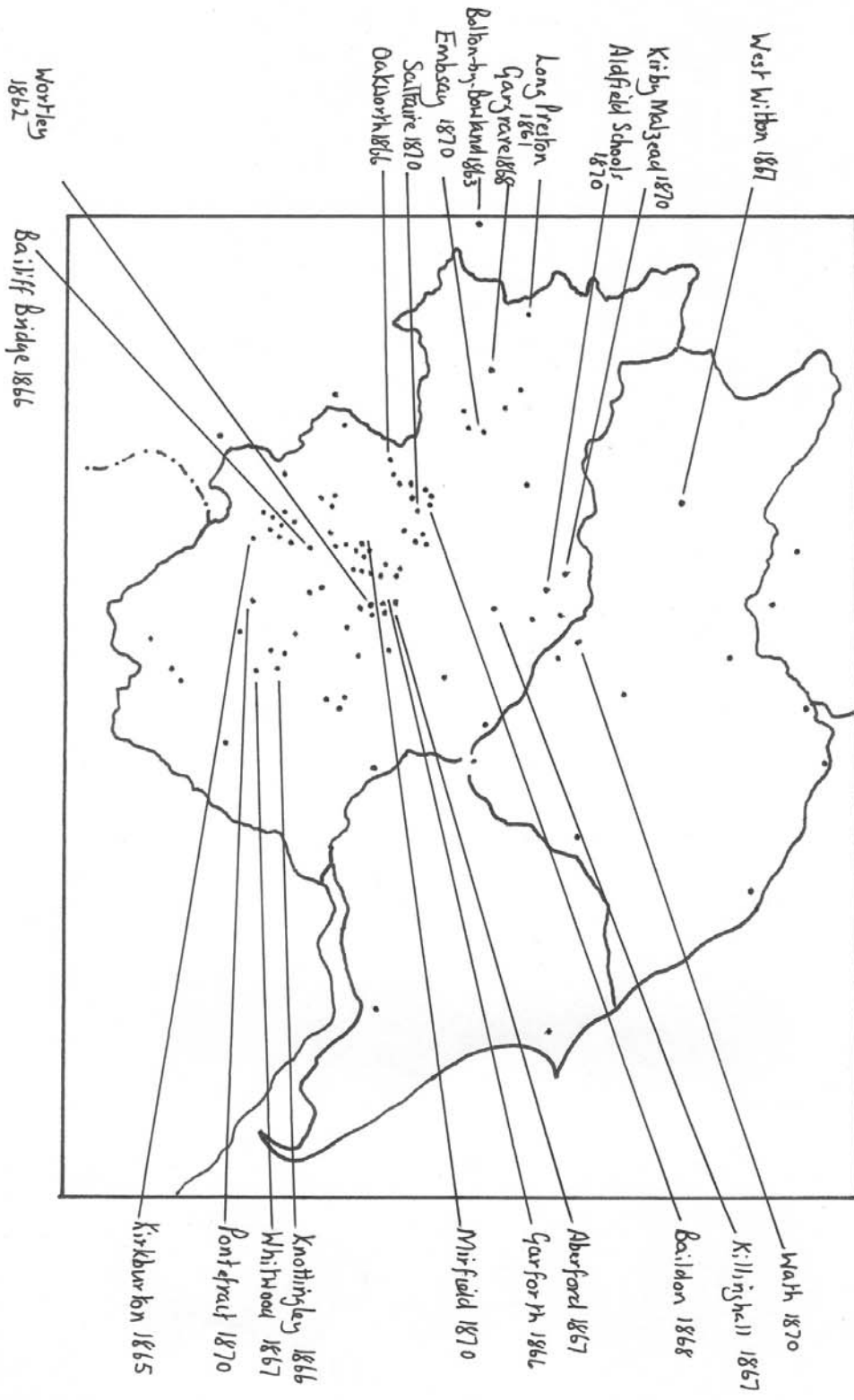
Map 5.4 1841 – 1850 Yorkshire Union of Mechanics' Institutes



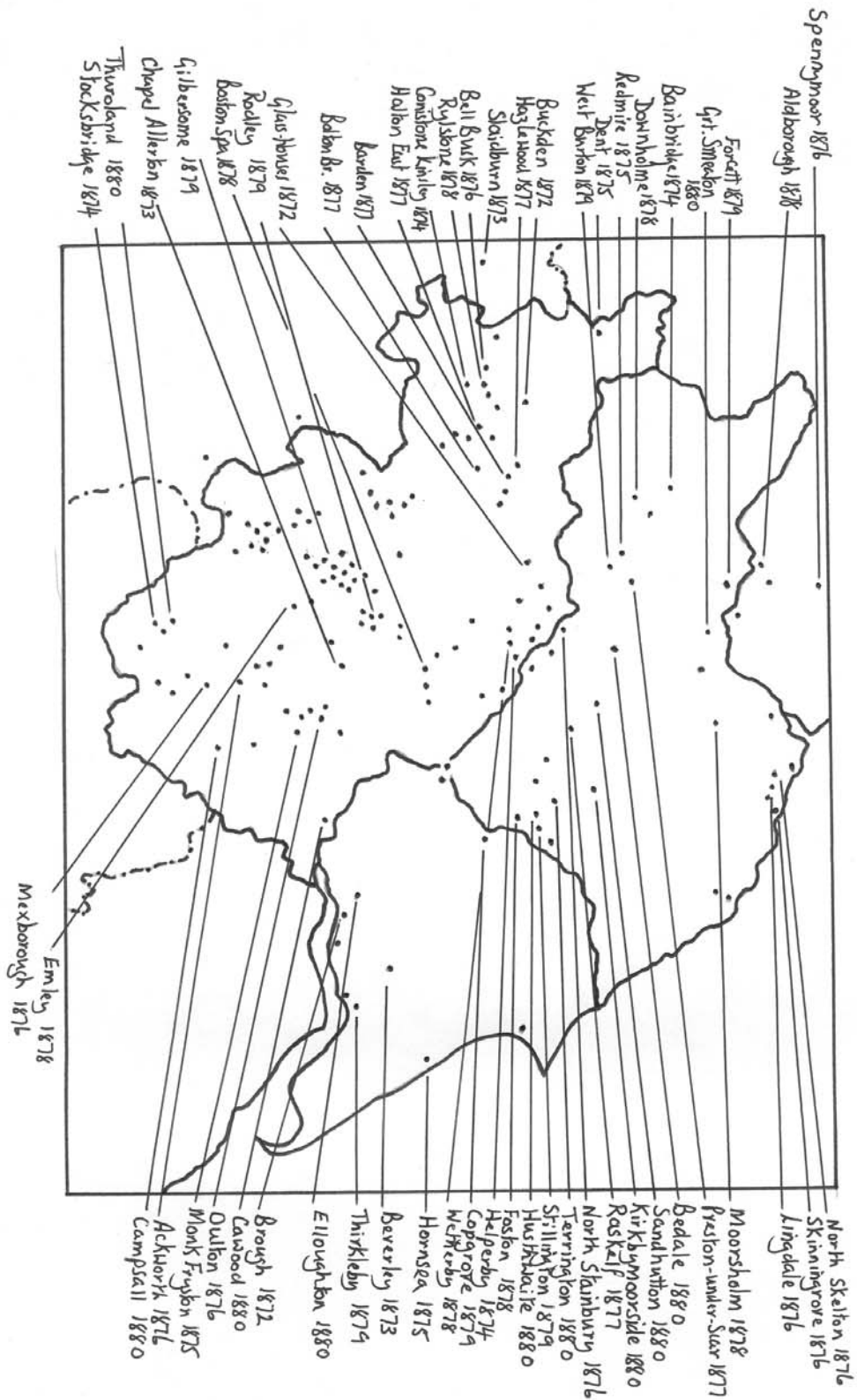
Map 5.5 1851 – 1860 Yorkshire Union of Mechanics' Institutes



Map 5.6 1861 – 1870 Yorkshire Union of Mechanics' Institutes

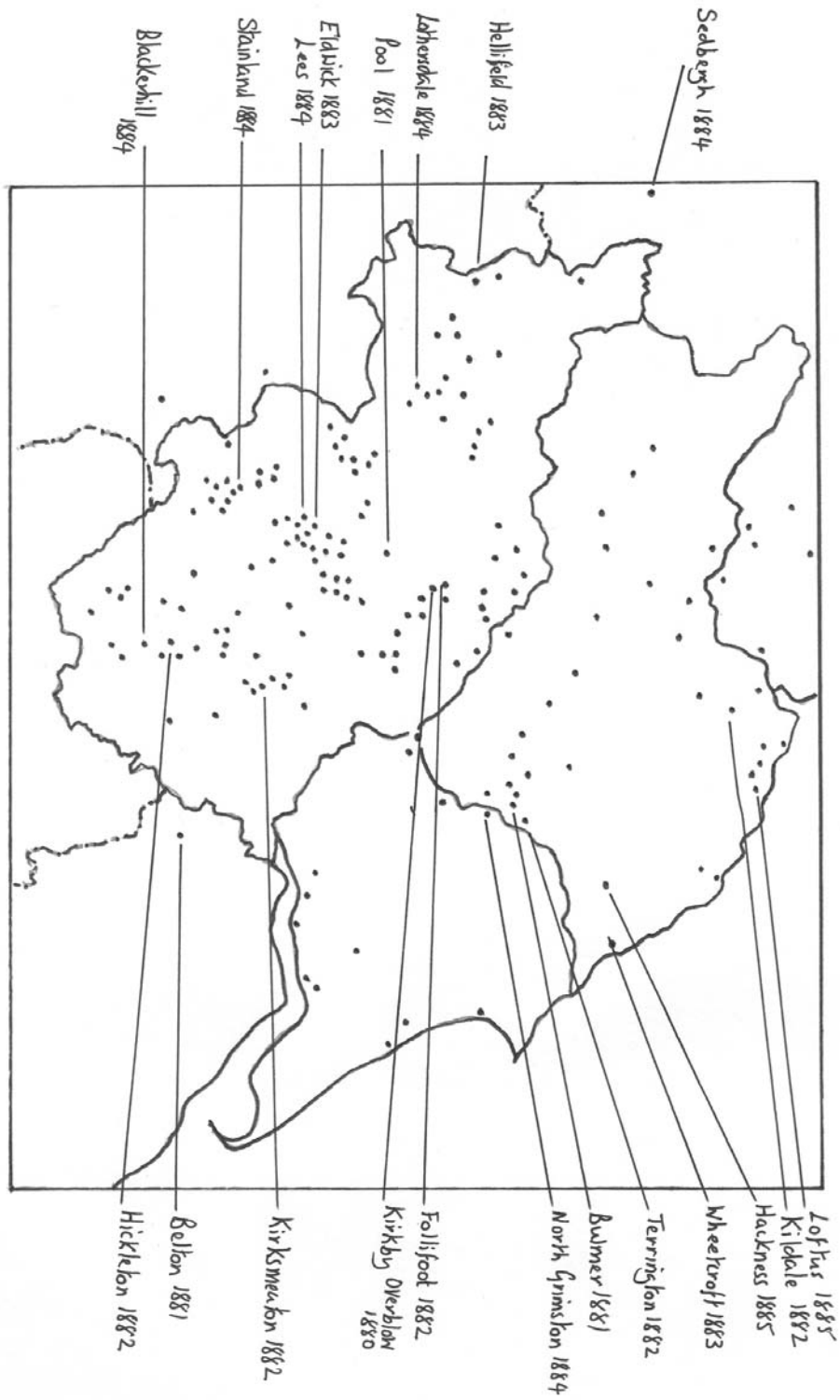


Map 5.7 1871 – 1880 Yorkshire Union of Mechanics' Institutes





Map 5.8 1881 – 1890 Yorkshire Union of Mechanics' Institutes



## **Membership Patterns of Mechanics' Institutes across the Yorkshire Union**

The Yorkshire Union of Mechanics' Institutes Statistical Tables, as well as listing the mechanics' institutes provides valuable information in relation to membership. Combined with census data, they can be even more revealing.<sup>554</sup> It is, for example, possible to analyse the ratio between population and membership in a number of institutes because of the existence of records covering over 65 years. The most appropriate method of presentation of this material is through graphically produced maps.<sup>555</sup> Membership data for all census years has been compared with census returns to gain a comparison between local population and membership.<sup>556</sup>

The analysis of the statistical data provides evidence of development and success over the period of study for several institutes, where such data had been presented to the Yorkshire Union on a regular basis. This does not only include membership patterns of the larger institutes but also the patterns of those in more rural areas. Collating the data from the annual reports of the Yorkshire Union in relation to membership to population provides unique evidence of the success of many mechanics' institutes in the Yorkshire Union. This thesis looks at two mechanics' institutes, Leeds and Sheffield, where in both cases, but for different reasons, membership in relation to population was low. It then analyses the membership patterns of several mechanics' institutes in the North East, Dales and Pennines and in and around Huddersfield.

Leeds is discussed first because it had the largest membership in the Yorkshire Union by 1850 with 1,852 members. Yet no more than three per cent of the town's

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<sup>554</sup> Annual Report of the Yorkshire Union of Mechanics' Institutes, 1838 – 1890, Statistical Tables and Population data (Census) for selected towns with mechanics' institutes.

<sup>555</sup> Data provided for the *Annual Reports* where reported, is available separately from the main thesis for examination, as is the census data for all towns and townships which had Yorkshire Union institutes.

<sup>556</sup> Census returns and data extracted from the Annual Reports are available separately in statistical form which was used to produce the maps in this Chapter.

population attended the Institute, which is significant when considering the expansion of the town's population (Graph 5.1). This was due to the fact that apart from the Mechanics' Institute, which was also the Headquarters of the Yorkshire Union, there was also the Edgar Street Industrial School, the Czar Street Day Industrial School and the York Road Institute. All these were offering adult education classes, as were other local institutes such as those at Armley, Hunslet and Holbeck, all of which were members of the Yorkshire Union. There were other mechanics' institutes located within only a few miles of Leeds including one at Rothwell (Graph 5.2) and one at Yeadon (Graph 5.3), both had strong membership, despite being relatively close to Leeds itself. It was practical and convenient for smaller communities and the suburbs of towns to establish their own mechanics' institutes. This helps explain why the actual membership at Leeds was so small per head of population.<sup>557</sup>

The Sheffield Mechanics' Institute membership was disappointing despite expansion of the town as a result of its growth associated with heavy engineering and steel (Graph 5.4). As with Leeds, there were other institutes in the town. Sixteen were members of the Yorkshire Union, including a Working Men's College. Yet this was also true of other towns such as Darlington, Hartlepool, Halifax, Huddersfield, Leeds and Middlesbrough, all of which had higher membership per population than Sheffield.<sup>558</sup> Sheffield had a poor reputation for providing education, as Frederick Engels observed in 1844:

Education in Sheffield is upon a very low plane; a clergyman, who has occupied himself largely with statistics of education, was of the opinion that 16,500 working class children are in a position to attend school, scarcely 6,500 can read...the teachers are good for nothing; one was a convicted thief who found no other way of supporting himself after being released from jail than teaching.<sup>559</sup>

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<sup>557</sup> Hudson, *Adult Education*, p.235. Annual Reports of the Yorkshire Union, Appendices.

<sup>558</sup> Annual Reports of the Yorkshire Union.

<sup>559</sup> F. Engels, *The Condition of the Working Class in England in 1844* (London, 1845), p.204.

Thus, not only did this mean that few of the potential children would be able to take up technical education at the mechanics' institute following their elementary education, but also the Institute was unable to expand through offering school-age elementary education, due to lack of interest.<sup>560</sup>

The local statistician G. C. Holland, writing before Engels, had identified several reasons as to why the Sheffield Mechanics' Institute was a 'failure'. The institution was too 'dependent on irregular, gratuitous teachers', secondly, the local and national economic cycles affected working-class participation and thirdly, the instruction was too scientific.<sup>561</sup> These factors, along with competition from other institutes and night schools, contributed to low membership at some institutes after 1850.

The case of Sheffield supports the argument of failure put forward by Hudson and other later historians. Yet Sheffield Mechanics' Institute was different in so far as its membership was so low. Other institutes continued to expand their membership.<sup>562</sup> Sheffield was an exception, seemingly concentrating on scientific education for a more restricted middle-class membership rather than offering more general subjects that other local institutes offered. While there were other examples with a low membership, such as Harrogate, where there was a drop in membership by 1880, and Castleford, which saw some decline by 1890, in most mechanics' institutes across the Yorkshire Union there was steady growth through the second half of the nineteenth century, even in towns where there was more than one institute, such as Bradford, Halifax and Huddersfield.

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<sup>560</sup> *Thirteenth Report of the Yorkshire Union of Mechanics' Institutes*, 1850, p.112.

<sup>561</sup> G. C. Holland, *The Vital Statistics of Sheffield* (Sheffield, 1843) p.234.

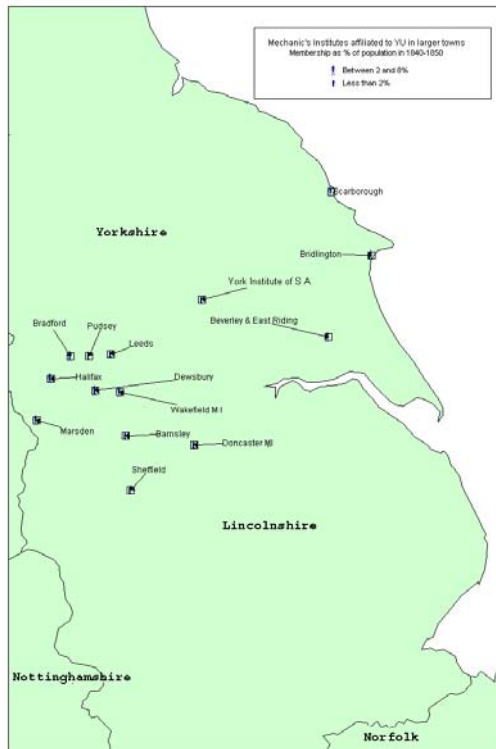
<sup>562</sup> *Eighteenth Report of the Yorkshire Union of Mechanics' Institutes*, 1855, p.104.

**Table 5.1 Selected Institutes across the Yorkshire Union showing ten-year membership**

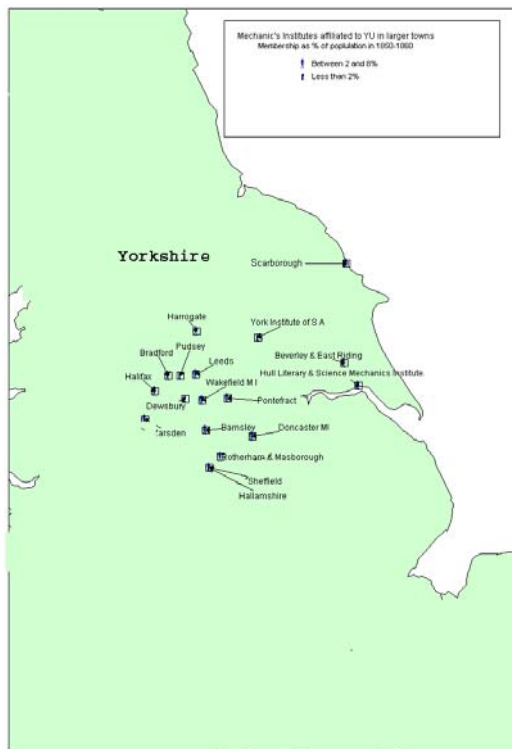
<b>Mechanics' Institute</b>	<b>1840</b>	<b>1850</b>	<b>1860</b>	<b>1870</b>	<b>1880</b>	<b>1890</b>
Barnsley		256	316	318	576	
Beverley		342	210		56	
Castleford		94	154	120	204	129
Harrogate		156			96	
Horsforth		150	67	76		126
Leeds	220	1,873	1,548	2,648	3,520	4,356
Northallerton		190	155			
Pudsey	126	149	180	250	542	544
Sheffield		390	300	208	430	
Wakefield		547	1,063	903	763	814
Yeadon					400	551
York	400	506	419	488	710	1,036

*Annual Reports for the Yorkshire Union, Appendices.*

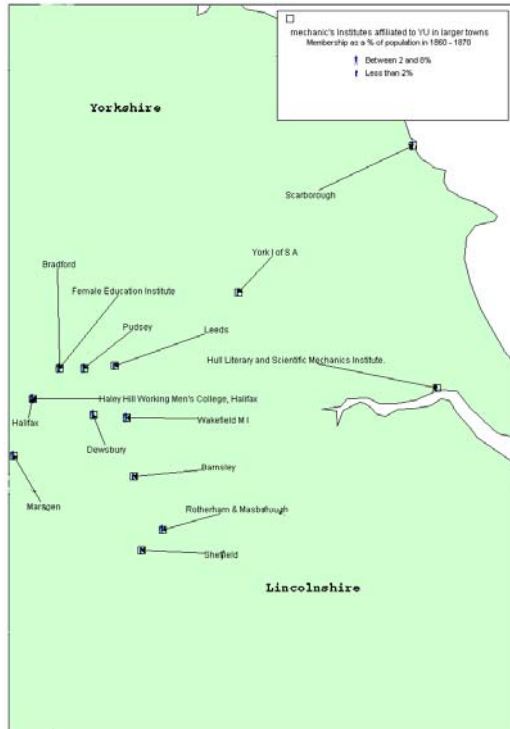
## Membership as Percentage of Population in relation to Mechanics' Institutes across the Yorkshire Union



Map 5.9 1840 – 1850



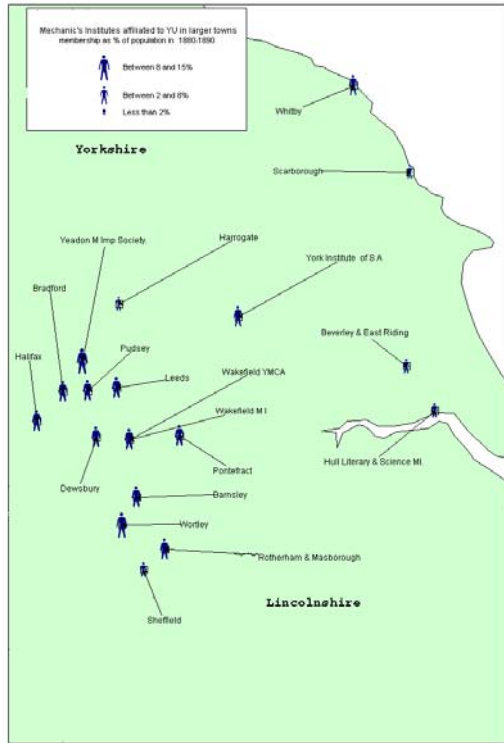
Map 5.10 1851 - 1860



Map 5.11 1861 - 1870



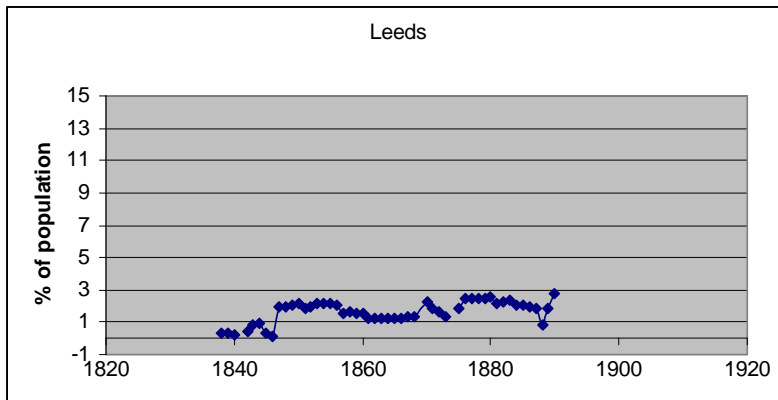
Map 5.12 1871 - 1880



**Map 5.13 1881 – 1890**

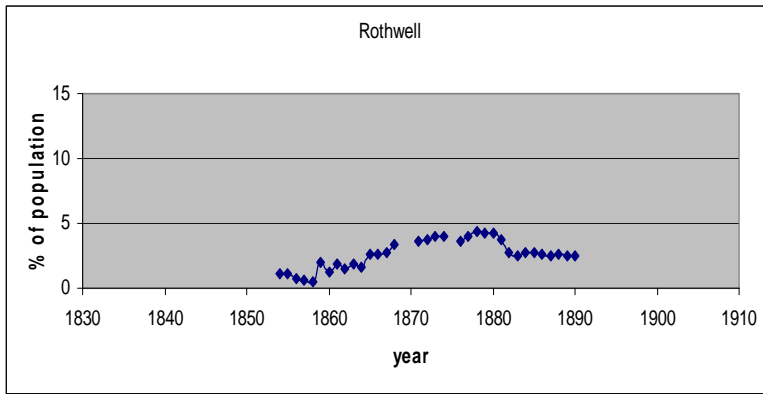
Data is taken from the Appendices of the Annual Reports of the Yorkshire Union, 1838 – 1891 and Census Returns 1841 - 1891

**Mechanics' Institute Membership as a Percentage of Population**

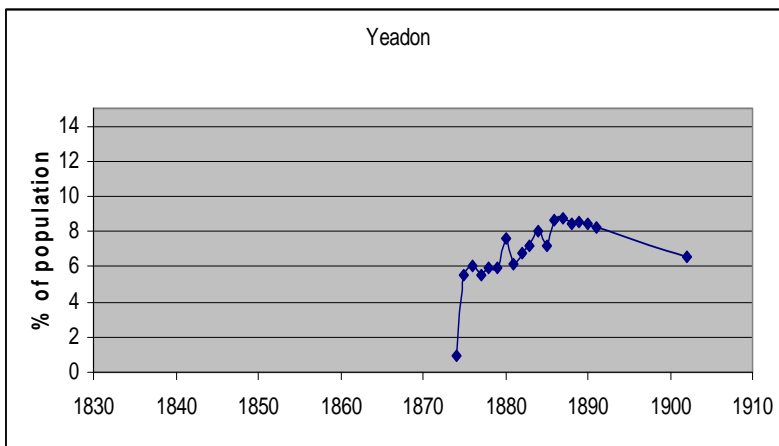


**Graph 5.1 Leeds**

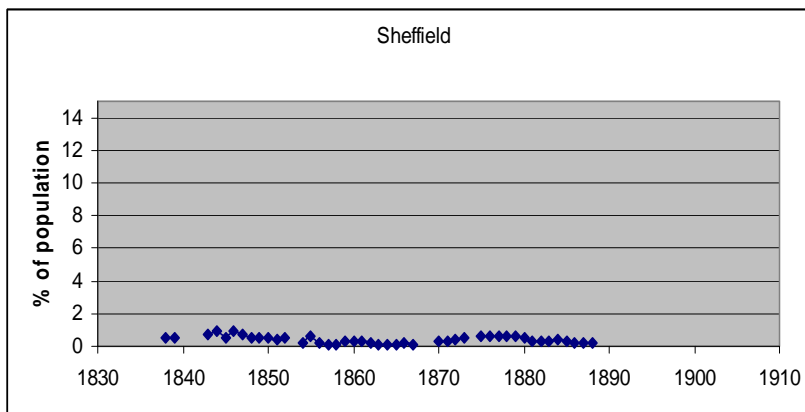




**Graph 5.2 Rothwell**



**Graph 5.3 Yeadon**



**Graph 5.4 Sheffield**

Data is taken from the Appendices of the Annual Reports of the Yorkshire Union, 1838 – 1891

### **Growth and Membership patterns at Mechanics' Institutes in Three Clusters**

Yorkshire was a large and varied county and the character of mechanics' institutes varied across it. This research has identified three distinct clusters within the Yorkshire Union; the North East (County Durham and the North Riding of Yorkshire), the Yorkshire Dales and Pennines and Huddersfield and District (West Riding of Yorkshire). The North East was chosen for its rapid growth in the number of Yorkshire Union institutes, many of which were specifically mining institutes established and funded by the Joseph Pease Mining Company, which had invested heavily in both iron ore and coal mining exploration.<sup>563</sup> There were several other mechanics' institutes in County Durham, but they were members of the Northumberland and Durham Union. It therefore seems likely that it was a personal choice of the Pease and Partners Mining Company to be associated with the Yorkshire Union. The second cluster was made up of mechanics' institutes which provided education for adults in developing textile towns and communities of the Dales and Pennines as well as in rural areas for agricultural workers. Finally, the Huddersfield and district cluster was chosen to analyse the impact that the town's male and female institutes might have had on the 41 institutes located within only a few miles of them. All three clusters have one thing in common; they were influenced by local socio-economic circumstances.

#### **The North East**

This cluster was chosen not only because of its high density of mechanics' institutes, but because several were actually in the catchment area of the successful Northumberland and Durham Mechanics' Institutes Union. Several mechanics'

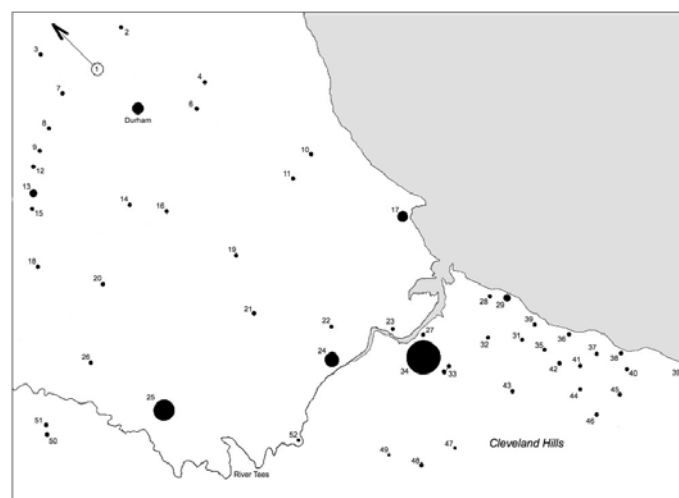
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<sup>563</sup> The Pease Company also established separate day schools for children in their mining communities.

institutes situated in County Durham were members of the Yorkshire Union, despite its headquarters being 90 miles south of Stanley, the farthest northern Yorkshire Union Institute, near Durham. This may have been due to the personal preference of the Pease family, several members of whom were on the committees of established institutes, and who were also involved with founding their own in both County Durham, in coal mining communities, as well as in the ironstone communities of the North Riding of Yorkshire.

The North East clusters of institutes north of the River Tees in County Durham were established in the coal mining communities, and those south, in the iron stone communities. It was the discovery of iron ore in the Cleveland Hills in 1850 which contributed much to the expansion of Middlesbrough. As Maurice Kirby points out, ‘what happened to the economy of Teesside after 1850 hardly counted as a revival in prosperity; it was regional economic growth of an altogether different pace and magnitude’.<sup>564</sup> The number of mechanics’ institutes established in this cluster, many in the newly developing mining communities, reflects this growth (Map 5.14 and Table 5.2).

**Map 5.14 The North East Cluster of the Yorkshire Union of Mechanics’ Institutes**



<sup>564</sup> M. W. Kirby, *Men of Business and Politics: the Rise and Fall of the Quaker Pease Dynasty of North East England, 1700 – 1943* (London, 1984), p.32.

**Table 5.2 The North East Cluster Names of Yorkshire Union Mechanics' Institutes**

1	*Stanley	14	Spennymoor	27	South Bank	40	Loftus
2	Chester-le-Street	15	Howden-le-Wear	28	Coatham	41	North Skelton
3	Lanchester	16	Ferry Hill	29	Redcar	42	Seklton
4	Pittington (not YUMI)	17	Hartlepool	30	Marske-by-the-Sea	43	Guisborough
5	Durham (not YUMI)	18	Etherley	31	New Marske	44	Lingdale
6	Sherburn	19	Sedgefield (not YUMI)	32	Kirkleatham	45	Liverton
7	Esh	20	Shildon	33	Eston & Normanby	46	Moorholm
8	Waterhouses	21	Stillington	34	Middlesbrough	47	Great Ayton
9	Sunnside	22	Norton	35	Upleatham	48	Stokesley
10	Castle Eden	23	Port Clarence	36	Saltburn	49	Seamer
11	Hutton Henry	24	Stockton-on-Tees	37	Brotton	50	Forcett
12	Billy Row	25	Darlington	38	Skinningrove	51	Eppleby
13	Crook & Peases West	26	Denton	39	Staites	52	Yarm

\*Stanley, located 10 miles south west of Newcastle was the most northern mechanics' institute in the Yorkshire Union

The early institutes were general ones, such as those at Darlington, Hartlepool, Middlesbrough, Redcar and Stockton, and which were founded during the period 1825 – 1840. During the 1850s, new institutes were established such as those at Darlington (railway), Crook (coal) and Eston (ironstone). Further developments took place from the 1860s and several institutes reflect the advanced industrial developments along the River Tees such as the Cleveland Ironworks and Middlesbrough South Bank Institutes. Those institutes established during the 1870s and 1880s were all associated with mining, such as those at Peases West. Tanfield and Stanley in County Durham, and Upleatham, Liverton Mines and Brotton in the Cleveland foothills, as well as several, including Skinningrove, along the coast of the North Riding of Yorkshire. Several Durham institutes in this cluster went on to become Science and Art Schools (Appendix 13). It was not just the general institutes at Darlington and Stockton that became science and art schools but also several former institutes in the mining communities such as those at Esh and Crook.<sup>565</sup> The

<sup>565</sup> Annual Reports of the Yorkshire Union of Mechanics' Institutes, Appendix.

Pease Company also introduced a circulating library which supported their institutes, a similar arrangement to that established by the Yorkshire Union.<sup>566</sup>

The coal mining institutes offered elementary education to the children of miners, in areas where schools were not yet established. As a result of Lord Ashley's 'ten hours' bill in 1833 to reduce the working hours of children, Parliament set up a Royal Commission of Inquiry into Children's Employment. The Commission produced two reports, one on Children in Mines, published in May 1842.<sup>567</sup> It led to the 1842 Coal Mines Act which included prohibiting the employment of all female labour and boys under 10 years old from working underground.<sup>568</sup> In 1864, under the *Inspection of Mines Report*, it was proposed that boys under the age of 12 should not work in the mines unless they could prove that they could read and write.<sup>569</sup> These institutes were therefore able to offer education to children several years before the passing of the Education Act of 1870 (Appendix 14).

Mining developments also had impact on adult education. With technological advancements in the mining industry, there was the growing need for miners to be able to read and write, as there was a necessity for them to be trained to operate machinery correctly and safely. In a newspaper article entitled *Educate the Miners* a strong argument was put forward that miners who had no basic education should not be allowed down the pits as operators due to the expense of replacing misused machinery.<sup>570</sup> The Malicious Damage Act of 1861 threatened the prosecution of miners who damaged mining machinery, even if unintentionally, as a result of not

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<sup>566</sup> The Pease Family purchased land by the River Tees and built an industrial settlement that went on to develop into Middlesbrough.

<sup>567</sup> The second report, published early the following year (though dated 1842), covered other trades and manufactures.

<sup>568</sup> [www.opsi.gov.uk](http://www.opsi.gov.uk)

<sup>569</sup> *Rules and Regulations of the Seghill Colliery School. The 1864 Inspectors of Mines Report* makes reference to a society being set up to establish a day school for boys, a day school for girls and a night school. Contributions were to come from the Colliery, every householder, and every man not a householder but over eighteen. [www.durhamminingmuseum.org.uk](http://www.durhamminingmuseum.org.uk).

<sup>570</sup> <http://freepages.genealogy.rootsweb.com/~tynesidehistory/education.htm>.

receiving the required training.<sup>571</sup> The mining institutes were therefore able to offer both elementary and mining-related education.

In summary, apart from the general urban mechanics' institutes such as those at Darlington, Hartlepool, Middlesbrough and Stockton, the North East Cluster was associated with the mining institutes founded by Pease and Partners. These institutes were established later in the mechanics' institute movement history and, with several members of the Pease family being on committees of the urban ones, they realised the importance of relevant education for the mining working class communities. Several of these institutes, which would later become mining and technical colleges, did offer mining subjects and provided elementary education, the latter supporting boys prior to working underground.<sup>572</sup>

The cluster of institutes in the North East provides substantial evidence that the Yorkshire Union institutes were not only successful in respect of their numbers but also that many smaller communities, often mining ones, had strong membership numbers in relation to their local population (Table 5.3). As was the case in relation to the Yorkshire Union as a whole, it was the larger mechanics' institutes that had a lower per cent of membership to those of the smaller ones (Maps 5.15 – 5.19). In the case of the Darlington, for example, membership declined after 1860, as a result of additional mechanics' institutes being established in or near the town. By 1890, it had its lowest membership, likely as a result of new school-age institutions being well established, many of which offered night school classes (Graph 5.5).

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<sup>571</sup> [www.opsi.gov.uk](http://www.opsi.gov.uk),

<sup>572</sup> M. A. Walker, "The Rules of Thumb no longer Suffice": Mining Education and Training on the Lancashire and Yorkshire Coalfields' (unpublished paper).

**Table 5.3 Selected Institutes for the North East showing ten-year membership**

<b>Mechanics' Institute</b>	<b>1850</b>	<b>1860</b>	<b>1870</b>	<b>1880</b>	<b>1890</b>
Castle Eden Colliery				165	
Coatam Institute		150			
Crook Colliery				156	
Darlington Institute	434	461	430	554	68
Esh Miner's Institute				230	
Hartlepool Institute		284			
Liverton Mines			108		
Marske Institute		74	34	100	
Middlesbrough Institute	477	914	590	250	
Peases' West Colliery				400	660
Redcar Institute				218	
Skinningrove Colliery				360	350
Stockton Institute	260	336	334		
Tanfield Institute				45	
Upleatham Institute		21	23		

*Annual Reports for the Yorkshire Union, Appendices.*

Another large mechanics' institute, Middlesbrough, also declined after 1860 when the Institute Library was taken into public ownership. Many members may well have only been interested in the library facilities and were able to join the new public library for free. There was also competition from other local institutes, including one at Port Clarence and another at the Cleveland Iron Works, both of which were members of the Yorkshire Union (Graph 5.6). It was not uncommon where there was more than one mechanics' institute close together, having been established at different times for different reasons, becoming one establishment when membership declined. The town of Hartlepool, for example, had two institutes, both of which had memberships of less than five per cent of the total population. They merged to become the Hartlepool Literary, Scientific and Mechanics' Institute in 1875 and continued to offer education until the 1890s (Graph 5.17).

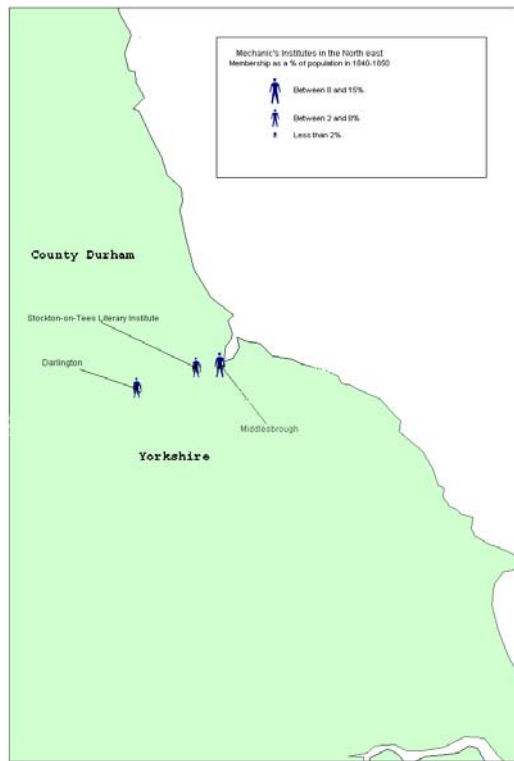
In the case of rural mechanics' institutes in the north east, membership patterns were different. At Upleatham, eight per cent of the population were members in 1860, although numbers subsequently declined (Graph 5.8). Membership at the Marske Mental Improvement Society was initially over ten per cent of the population, peaking

at thirteen per cent in 1860 (Graph 5.9). Other mechanics' institutes on the coast were easily accessible by rail and being larger were offering more subjects at different levels, among them Redcar.

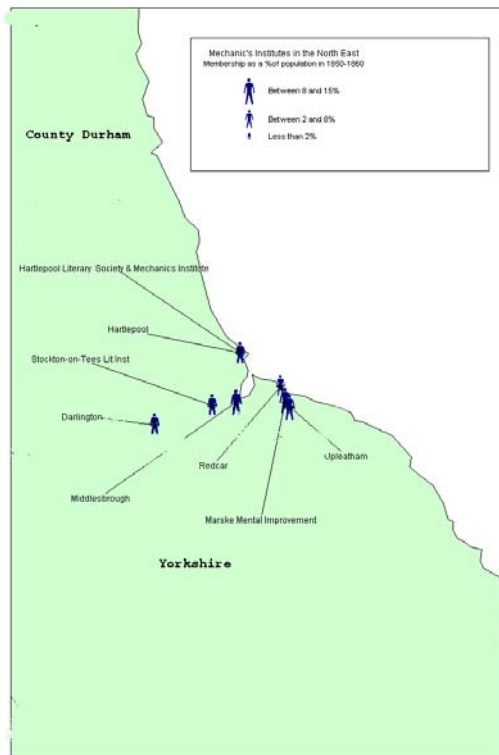
The average membership of the mechanics' institutes over time in the North East indicates that by 1850 membership was still increasing and that there was a second peak by 1875. They declined only during the late 1880s with the introduction of state education. The larger mechanics' institutes peaked between 1870 and 1880 but there were other periods when there was some positive activity. The smaller institutes tended to have steady membership throughout the period of study, serving their communities well regarding adult education. Decline in membership overall came late in the nineteenth century and seems to have been due to the development of technical and adult education in the locality. This was certainly true for Darlington and Middlesbrough. Their contribution to education continued but with state support, rather than that of the Yorkshire Union.



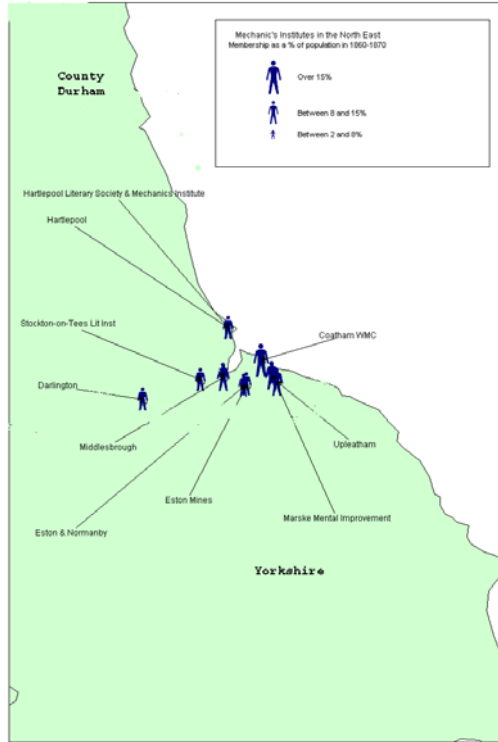
## Membership to Population Patterns in relation to several Mechanics' Institutes in the North East Cluster of the Yorkshire Union



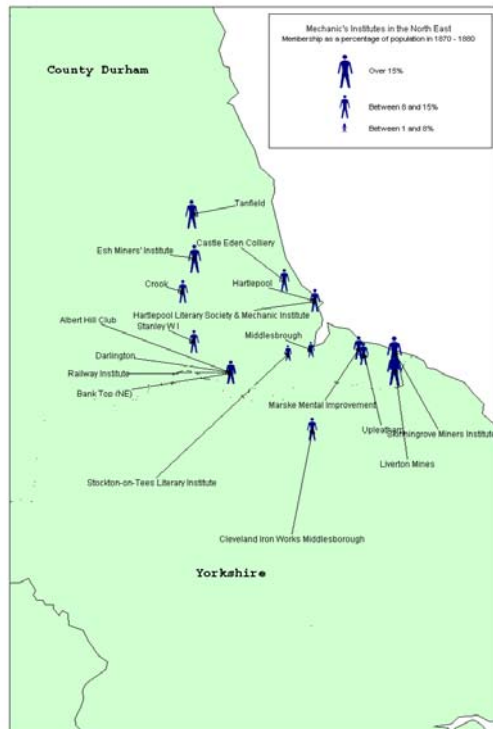
Map 5.15 1840 – 1850



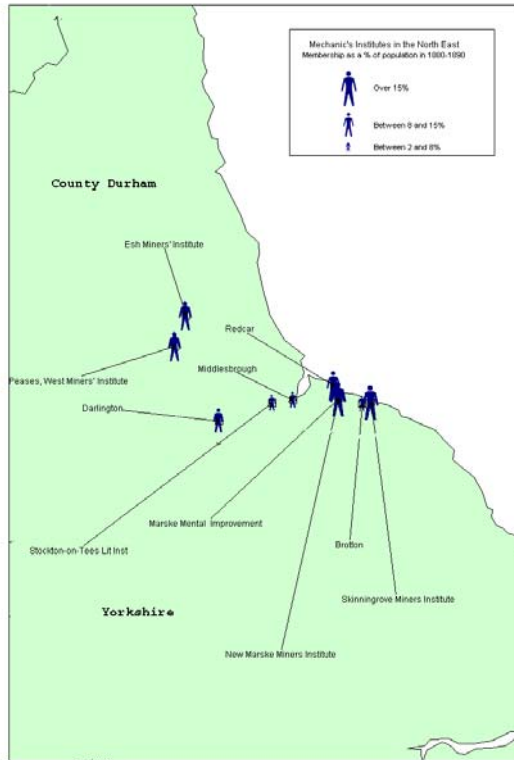
Map 5.16 1851 – 1860



**Map 5.17 1861 – 1870**



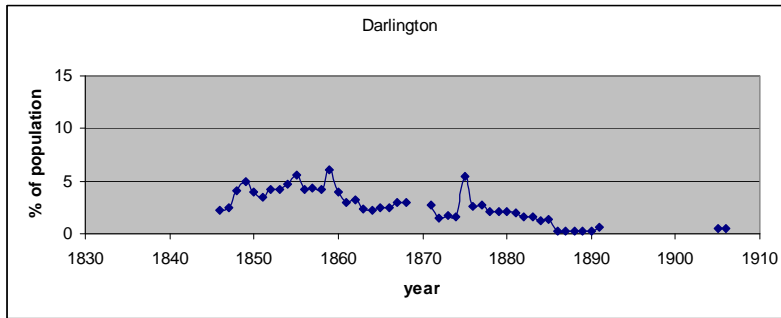
**Map 5.18 1871 – 1880**



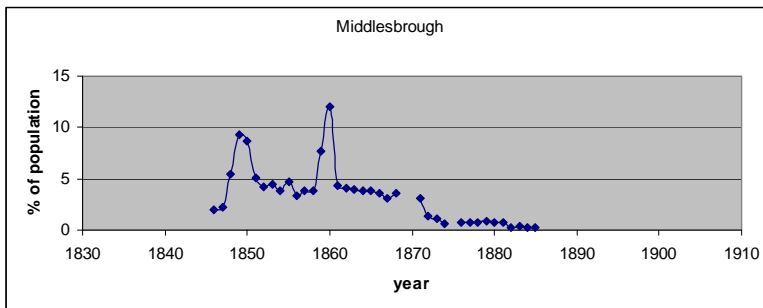
**Map 5.19 1881 – 1890**

Data is taken from the Appendices of the Annual Reports of the Yorkshire Union, 1838 – 1891 and Census Returns 1841 - 1891

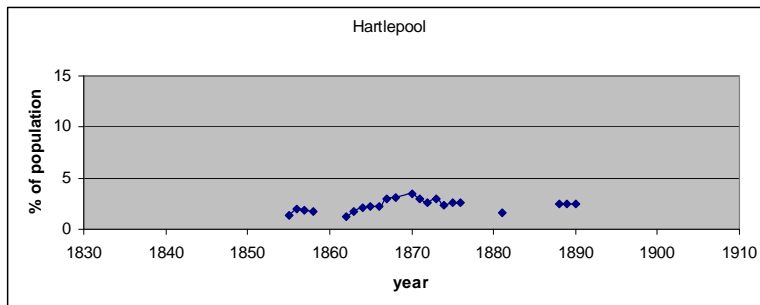
## Sample North East Mechanics' Institute Membership as a Percentage of Population



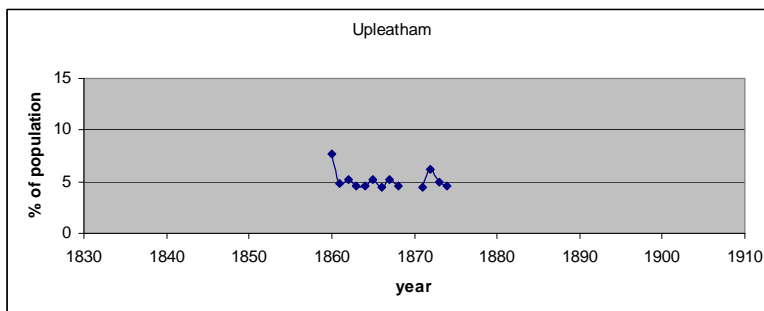
Graph 5.5 Darlington



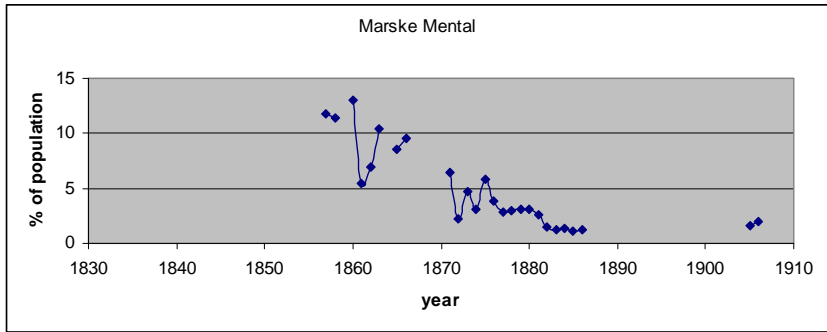
Graph 5.6 Middlesbrough



Graph 5.7 Hartlepool



Graph 5.8 Upleatham



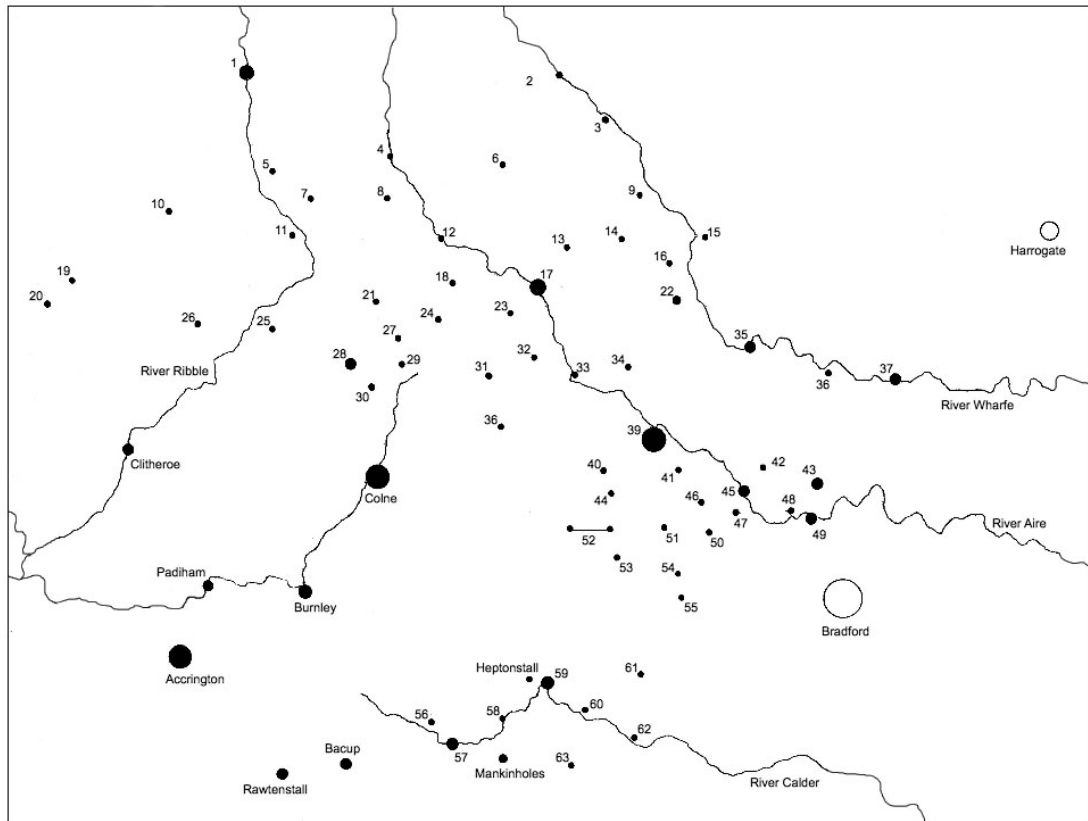
**Graph 5.9 Marske**

Data is taken from the Appendices of the Annual Reports of the Yorkshire Union, 1838 – 1891

### The Dales and Pennines

What made the Dales and Pennines cluster unique was that many of them were in rural or semi-rural areas and yet were able to continue despite the challenges they faced in relation to rural de-population and the impact of textile trade depressions on their membership (Map 5.20 and supporting Table 5.4).

### Map 5.20 The Dales and Pennines Cluster of Yorkshire Union of Mechanics' Institutes



**Table 5.4 The Dales and Pennines Cluster Names of Yorkshire Union of Mechanics' Institutes**

	Clitheroe	10	Tosside	28	Barnoldswick	46	Harden
	Colne	11	Halton West	29	Earby	47	Cottingley
	Padiham	12	Gargrave	30	Salterforth	48	Saltaire
	Burnley	13	Emsay	31	Lothersdale	49	Shipley
	Accrington	14	Halton East	32	Cononley	50	Wilsden
	Bacup	15	Hazlewood	33	Kildwick	51	Cullingworth
	Rawtenstall	16	Bolton Bridge	34	Silsden	52	Haworth & Stanbury
	Mankinholes	17	Skipton	35	Ilkley	53	Oxenhope
	Heptonstall	18	Broughton	36	Burley-in-Wharfedale	54	Denholme
1	Settle	19	Slaidburn	37	Otley	55	Denholme Clough
2	Grassington	20	Newton	38	Cowling	56	Lydgate
3	Burnstall	21	West Marton	39	Keighley	57	Todmorden
4	Airton	22	Addingham	40	Laycock	58	Eastwood
5	Long Preston	23	Carleton	41	Thawaites Brow	59	Hebden Bridge
6	Rylstone	24	Elslack	42	Eldwick	60	Mytholmroyd
7	Hellifield	25	Gisburn	43	Baildon	61	Wainstalls
8	Bell Busk	26	Bolton-by-Bowland	44	Oakworth	62	Luddenden Foot
9	Barden Scale	27	Thornton-in-Craven	45	Bingley	63	Cragg Vale

Clitheroe to Heptonstall Mechanics' Institutes were not members of YUMI but were part of the Lancashire and Cheshire Union.

As well as several first generation institutes, such as those at Halifax, Keighley, Skipton and Todmorden, additional mechanics' institutes were established throughout the second half of the nineteenth century in the rural areas. These included those at Kettlewell, Kildwick, Long Preston and Otley. The majority of the population were involved in agriculture and textiles, and in the case of Long Preston, also railway employment.

The first phase included Keighley, Skipton,<sup>573</sup> Bingley and Otley. These were semi-rural institutes which were located in the newly developing textile towns. The second phase of the 1850s and 1860s included a majority of institutes that were to be found in the rural areas of the Dales and Pennines. These included Bentham near Settle, Carlton near Skipton and Oakworth near Keighley. By 1870 there had been further

<sup>573</sup> Skipton Mechanics' Institute was one of several that closed and re-opened when economic and membership conditions allowed. However, after re-opening in 1848, it continued until finally becoming a further education college in the twentieth century. Annual Reports of the Yorkshire Union.

growth in the number of institutes. In the Pennines, these included ones at Earby, a small lead mining and textile settlement in East Lancashire, as well as at Shipley, Cottingley, and Saltaire, the latter established by Sir Titus Salt. Institutes were founded along the Calder Valley, at Todmorden, Hebden Bridge, and Luddenden Foot, all associated with the textile industry.

A third phase of institute development was during the 1870s and 1880s and included several that were located in more rural areas of the Dales such as the ones at Radcliffe, Broughton with Elslack, near Skipton, Coniston Kinsey and Haworth. Finally, between 1881 and 1890 further institutes were founded including those at Dent, Grassington, Rylstone, Slaidburn, Salterforth near Barnoldswick, Sedbergh near Settle. The mechanics' institutes in this cluster provided education for those living in the small valleys and isolated settlements as well as in the growing textile larger towns.

The mechanics' institutes benefited from the growth and needs of the textile industry and courses were offered that were relevant to the needs of the working-class employees and their employers. At Oxenhope, for example, the Institute had the loan of a building, the rent of which was paid for by 'a few gentleman [who were] heartily supported by the manufacturers and others' who funded the venture and obviously identified the potential regarding education and training in relation to their workforce.<sup>574</sup> Several went on to become schools of art, technical and evening schools and libraries that were still in use in 1910 (Appendices 15 and 16)). The science and art schools in the Yorkshire Dales provide evidence that many of these institutes continued to be successful into the early years of the twentieth century and several of

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<sup>574</sup> *Forty-Second Report of the Yorkshire Union of Mechanics' Institutes*, 1879, p.98.

them became further education colleges, including those at Bingley, Skipton, and Keighley.

While the textile industry supported institute development, it did mean that institutes were vulnerable during the trade depressions of the 1870s and 1880s and subsequent de-population. The impact was felt by both mechanics' institutes in the industrialising towns, and particularly those in the rural ones. This did mean institutes sometimes closed but in most cases they opened again when trade and employment had recovered. Addingham, a rural community located between Skipton, which also closed and re-opened twice, and Ilkley in the Wharfe Valley, was opened in 1845. However, by 1851, membership had declined from 55 to 41, as people moved out of the village in search of work:

owing to the stoppage of the large *cotton* mills connected with this place, which has had a ruinous effect on the village at large. The number of houses in the village is somewhere about 500, of which not less than 150 are unoccupied and there does not appear to be the slightest chance of any improvement taking place soon.<sup>575</sup>

The 'commercial depression' continued to have a severe impact on Addingham as two cotton mills stopped producing cotton and worsted in 1850 with the result that the population in the village and surrounding areas fell from 2,200 to 1,559. Families who stayed in the village were either unemployed or struggled on in part-time work such as agriculture.<sup>576</sup> Yet Addingham Mechanics' Institute did survive and indeed it expanded to such an extent that additional accommodation had to be found by the 1870s. It only finally closed in 1930.

It was also hoped that once trade improved in Settle more people would have the income to pay the fees to attend the Institute.<sup>577</sup> In 1860 Settle Institute 'was pleased to report that there had been a vast improvement in the state of the Institute'. It had

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<sup>575</sup> *Fourteenth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1851, p.26.

<sup>576</sup> *Fifteenth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1852, p.39.

<sup>577</sup> *Twentieth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1857, p.112.



only been twelve months earlier that it had been ‘seriously thinking of closing its doors due to rural de-population’. A female class was established which seemed to have saved it from closing and it went on to offer Society of Arts examinations, which was an attraction for members. These events indicate that committees were adapting to trade cycles by offering wider relevant curricula to a broader membership.<sup>578</sup>

This was also true at Todmorden, where the Committee reported in 1862 that membership was in decline owing ‘to the very depressed state of the staple trade of the district...one of those places so severely afflicted by the dire disease, the cotton famine’.<sup>579</sup> Due to the trade depression, boys whose families were unable to pay the membership were admitted for free, as were the unemployed to the Reading Room, thus, maintaining loyalty during the period of depression in the hope that they would pay their membership once there was an improvement in the economy.<sup>580</sup>

The following year, the Committee reported that it was more optimistic than previously and that ‘on the whole they [Committee] consider the undertaking to be in a healthy and satisfactory state. The Institute was ‘doing a considerable amount of good amongst the labouring population’.<sup>581</sup> The town was still in a depressed state and had been ‘one of those places severely afflicted by the dire disease of the cotton famine’. Nevertheless, there had been sixteen lectures and six readings at the Institute, ‘filling the room on all occasions’ as well as clearing some debt.<sup>582</sup>

Four miles down the Calder Valley from Todmorden the Committee at Hebden Bridge Institute also reported in 1863 that ‘although the general prevalence of distress has severely tested the Institution, it continues to fulfil its useful office’, of offering

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<sup>578</sup> *Twenty - Third Annual Report of the Yorkshire Union of Mechanics’ Institutes*, 1860, p.119.

<sup>579</sup> *Twenty-Fifth Annual Report of the Yorkshire Union of Mechanics’ Institutes*, 1862, p.132.

<sup>580</sup> *Ibid.*

<sup>581</sup> *Twenty-Sixth Annual Report of the Yorkshire Union of Mechanics’ Institutes*, 1863, p.138.

<sup>582</sup> *Ibid.*

relevant subjects.<sup>583</sup> In 1865, however, the Institute was struggling due to ‘the depression of trade resulting from the continuance of the war in America’.<sup>584</sup>

A decade later, mechanics’ institutes in the cluster were feeling the effects of further economic decline. At Grassington in 1876, for example, the Institute Committee reported that ‘the work is reviving here’ following the depression in trade. An additional room was being built for evening classes and although many of the young people had moved away to the ‘more populous places’, it was confident that new members would be found.<sup>585</sup> Otley Institute was also susceptible to the trade depressions. Nevertheless it provided the facilities of a library, reading room and public lectures to both male and female members and education.<sup>586</sup> Bingley, despite being a semi-urban Institute, was affected by trade depressions associated with textiles.<sup>587</sup> The Dales and Pennines institutes were seemingly affected by trade depressions over two decades or so, being susceptible to trade depressions in both the wool and cotton industries.

**Table 5.5 Selected Institutes for the Dales and Pennines showing ten-year membership.**

<b>Mechanics’ Institute</b>	<b>1840</b>	<b>1850</b>	<b>1860</b>	<b>1870</b>	<b>1880</b>	<b>1890</b>
Guisburn Institute		42	39		20	
Grassington Institute		25	66			65
Halifax Institute	401	396	835	700		928
Hebdon Bridge Institute			142	154	130	75
Keighley Institute	102	420	380	658	1,973	1,845
Kettlewell Institute			28		36	
Long Preston Institute			43		101	91
Skipton Institute	100	137	130	168	206	
Todmorden Institute	100		377			

*Annual Reports for the Yorkshire Union, Appendices.*

<sup>583</sup> *Ibid.*, p.100.

<sup>584</sup> *Twenty-Eighth Annual Report of the Yorkshire Union of Mechanics’ Institutes*, 1865, p.100. Although Yorkshire is associated with woollen textiles, there were hundreds of cotton mills in the country, from Sheffield in the south to Sedbergh in the north. In the Todmorden and Hebden Bridge areas alone, there were over 40 mills that were producing cotton textiles at one time or another. G. Ingle, *Yorkshire Cotton* (Carnegie Publishing, 1997), pp.261-262.

<sup>585</sup> *Thirty-Ninth Annual Report of the Yorkshire Union of Mechanics’ Institutes*, 1876, p.148.

<sup>586</sup> *Ibid.*, p.189.

<sup>587</sup> *Forty-Second Report of the Yorkshire Union of Mechanics’ Institutes*, 1879, p.143.

In the case of the larger mechanics' institutes, Keighley Institute, located in an expanding textile town, reached a membership to population ratio of ten per cent in 1877 and again in 1890; afterwards there was a substantial decrease when the Institute became a smaller part of the government-funded technical school and several state schools were established in the town. The returns for Skipton seem to indicate that like other medium-sized towns, membership rarely exceeded ten per cent. Nevertheless, it continued as a technical school after 1890 and the Institute building today is part of the local further education college town campus.

As was the case in the North East, it was mechanics' institutes in the more isolated townships that provided education to higher percentages of the population. Among smaller rural mechanics' institutes, Guisburn for example, had five per cent of the population attending its institute by 1843 and reached eleven per cent by the 1850s. There was a steady decline, perhaps as a result of de-population or fall in trade, until 1861 when membership increased again, finally falling to under five per cent by 1882. The Guisburn Institute membership per person was substantially higher than the larger institutes that were members of the Yorkshire Union (Graph 5.10). At Grassington, another rural community, supported by the dual economy of farming and lead mining, the membership of the Institute fluctuated during its lifetime. From 1843 the number of members increased sharply from five per cent to thirteen per cent and then recruited between five and ten per cent, until 1890 when it reached fourteen per cent before falling to ten per cent by 1905 (Graph 5.11). Long Preston was closely associated with farming and later became an important junction on the Leeds to Carlisle Railway and lines into Lancashire. Membership at the Institute reached seventeen per cent after increasing from ten per cent in 1840. As late as 1879 recruitment to population was at twelve per cent, after which no further returns were

sent to the Yorkshire Union. The membership pattern at Long Preston is particularly remarkable when the size of the community is taken into account (5.12).

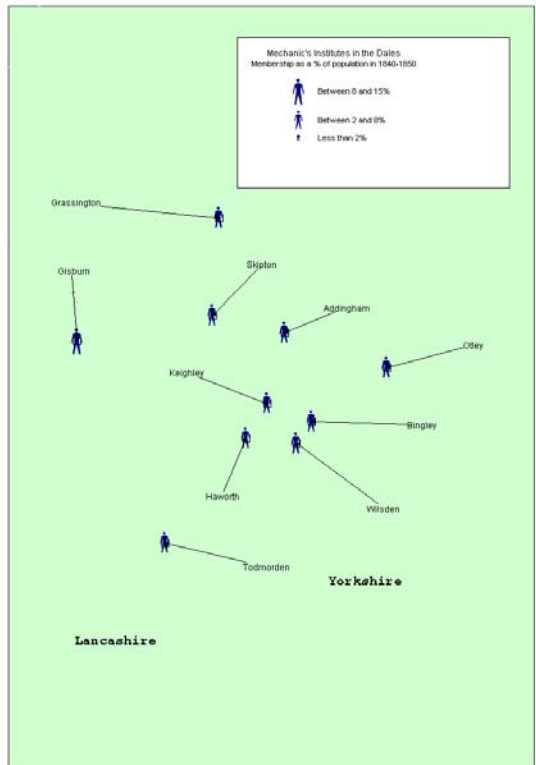
The Dales and Pennines Cluster did have several large institutes for the size of population, including Keighley (Graph 5.13), but more surprisingly, the smaller rural institutes had more members per head of population than was assumed, including Skipton (5.14). Secondly, many of the rural institutes continued to operate until almost the end of the nineteenth century when most became public libraries and easier travel meant that both children and adults could attend the technical schools such as those at Skipton, Keighley, Halifax and Todmorden.<sup>588</sup>

The institutes in the Dales and Pennines were responsive to the needs of the rural and semi-rural industries, offering relevant curricula. They responded to trade depressions, and subsequent de-population, through offering elementary education and encouraging boys and girls, as well as females, to attend relevant courses being offered and keep membership at viable levels. Several former rural mechanics' institutes located in the Dales and Pennines, continued as public libraries and evening schools, supporting their communities' educational needs, until well into the twentieth century.

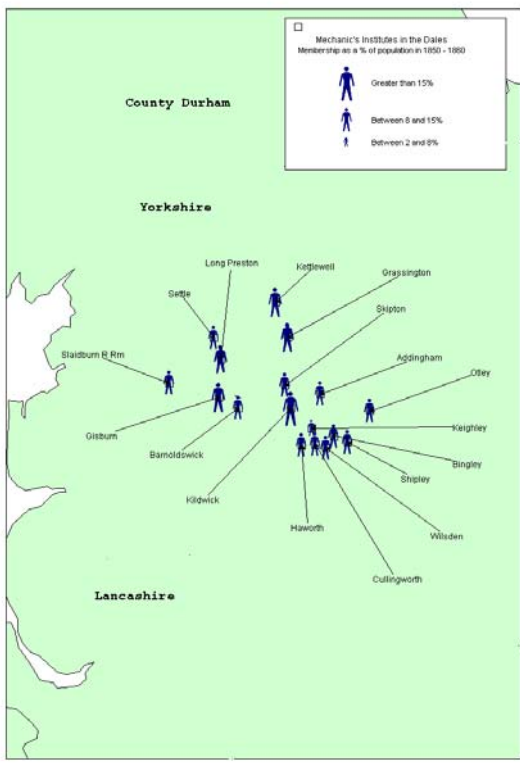
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<sup>588</sup> Annual Reports of the Yorkshire Union, Statistical Tables.

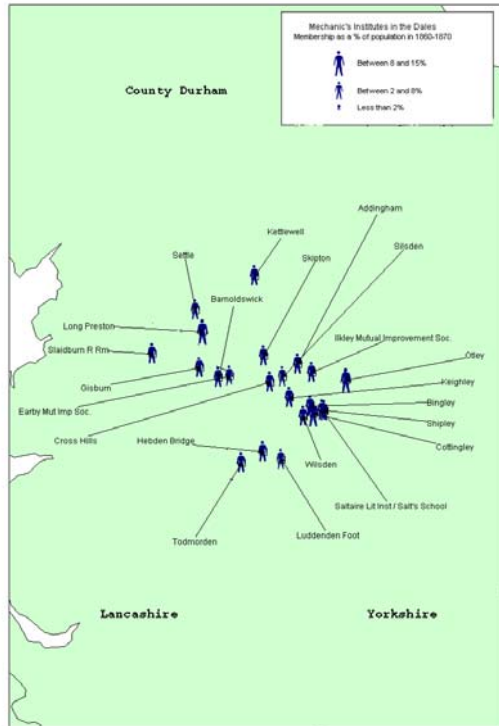
## Membership to Population Patterns in relation several Mechanics' Institutes in the Dales and Pennine Cluster of the Yorkshire Union



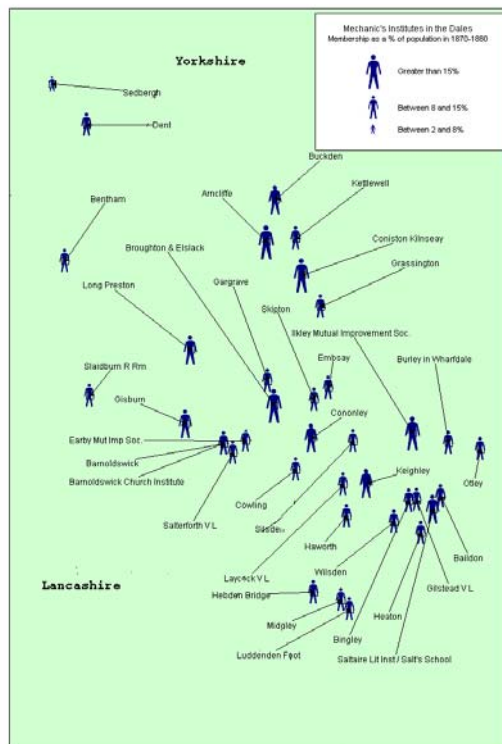
Map.5.21 1840 - 1850



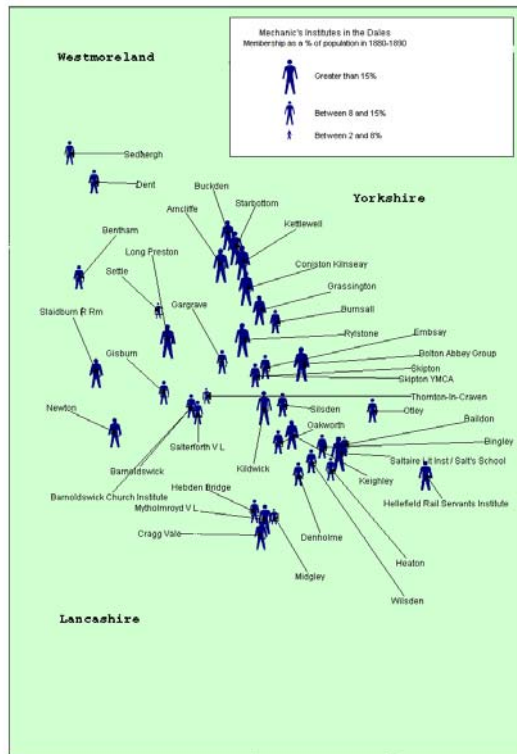
Map 5.22 1851 - 1860



Map 5.23 1861 - 1870

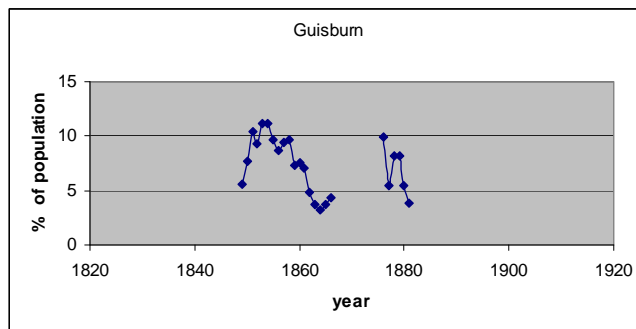


Map 5.24 1871 - 1880

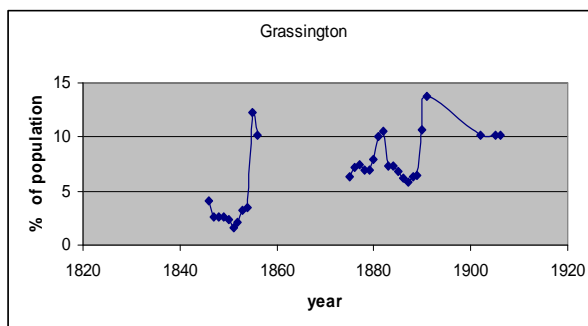


**Map 5.25 1881 – 1890**

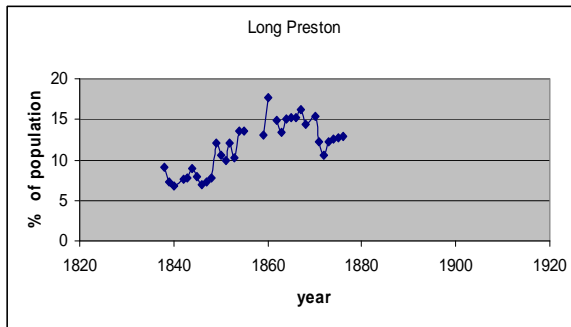
Data is taken from the Appendices of the Annual Reports of the Yorkshire Union, 1838 – 1891 and Census Returns 1841 - 1891



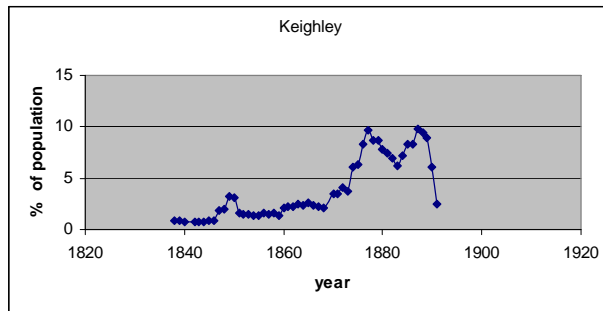
**Graph 5.10 Guisburn**



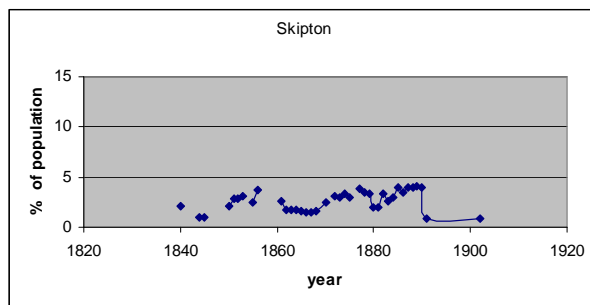
**Graph 5.11 Grassington**



**Graph 5.12 Long Preston**



**Graph 5.13 Keighley**



**Graph 5.14 Skipton**

Data is taken from the Appendices of the Annual Reports of the Yorkshire Union, 1838 – 1891

### **The Huddersfield and District Cluster**

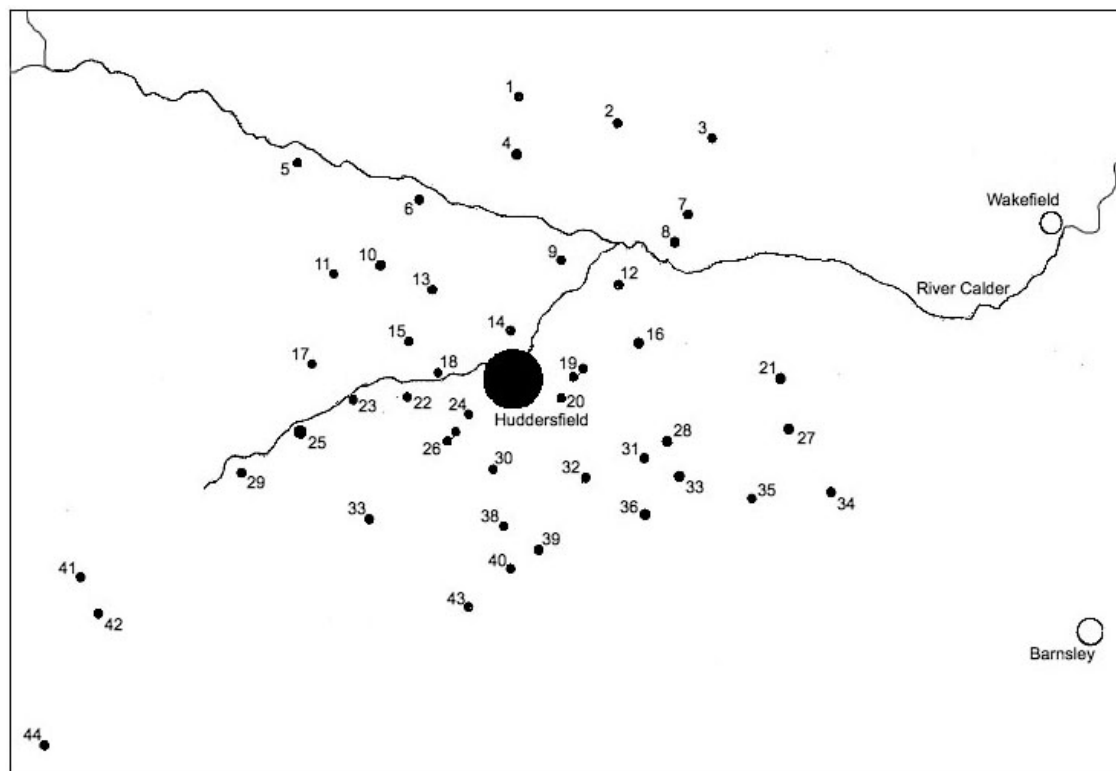
A cluster around Huddersfield was chosen to examine to the extent to which local developments were influenced or restricted by having a larger successful mechanics' institute nearby. There were 43 mechanics' institutes established within a ten-mile radius of Huddersfield between 1830 and 1891 and unlike those in the North East and Dales and Pennines, the institutes in this cluster were closely located to each other, in several cases only two or three miles apart (Map 5.26 and Table 5.6).

Evidence from the Committee Reports indicates that the institutes in and around Huddersfield benefited from their close geographic locations, supporting each other



with the skills and expertise of teachers, as previously mentioned in Chapter Four, in relation to Shelley and Honley Mechanics' Institutes.<sup>589</sup>

**Map 5.26 Huddersfield and District Cluster of Yorkshire Union of Mechanics' Institutes**



**Table 5.6 Huddersfield and District Cluster Names of Yorkshire Union of Mechanics' Institutes**

1	Hipperholm	12	Kirkheaton	23	Milnsbridge	34	Clayton West
2	Liveredge	13	Holywell Green	24	Crossland Moor	35	Skelmanthorpe
3	Heckmondwike	14	*Huddersfield College	25	Slaithwaite	36	Shepley
4	Brighouse	15	Lindley	26	Netherton & Armitage Bridge	37	Meltham & Meltham Mills
5	Sowerby Bridge	16	Lascelles Hall	27	Emley	38	Netherthong
6	Elland	17	Clough Head	28	Dogley Lane	39	Wooldale
7	Ravensthorpe	18	Lockwood	29	Marsden	40	Holmfirth
8	Mirfield	19	Almondbury & Hillhouse	30	Honley	41	Delph
9	Deighton	20	Longwood	31	Kirkburton	42	Dobcross
10	Greetland	21	Linthwaite	32	Farnley Tyas	43	Hinchcliffe Mill
11	Stainland	22	Golcar	33	Shelley	44	Mossley

\* Huddersfield College was a private establishment providing several staff, who taught at a number of mechanics' institutes in the area.

<sup>589</sup> *Thirty-Seventh Report of the Yorkshire Union of Mechanics' Institutes*, 1874, p.158.

Competition, though, was a problem at some of the institutes. While staffing supporting local institutes was a positive result of being close by, there was the potential problem of offering similar courses. The Committee at Dogley Lane Institute, some two miles south of Huddersfield for example, noted that membership had increased by over 100 in 1847 and they saw this as quite an achievement as there was ‘another institution about a mile and half distant, which has rapidly increased in its numbers; showing fully the anxiety that prevails amongst the working classes in this neighbourhood for education’. That other ‘institution’ referred to was probably Almondbury.<sup>590</sup> This suggests that institutes in the Huddersfield area were not under threat from competition as there were so many working-class adults anxious to have the opportunity to attend. Indeed, the Committee at Dogley Lane was particularly grateful to the Huddersfield Mechanics’ Institute for allowing some of their members to attend its elocution classes, as presumably, Dogley Lane had not enough students to offer additional subjects other than elementary ones.<sup>591</sup>

There was competition from school-building that had taken place by the 1840s which was affecting some mechanics’ institutes. At Lockwood, for example, located in a southern suburb of Huddersfield, by 1847 there had been a decline in membership, due to a ‘school being opened up in the neighbourhood’. The Institute’s membership was also affected as ‘the Huddersfield Institute being near; having a greater variety of classes’ attracted members away from the suburb.<sup>592</sup> The Committee did, however, report in 1849 that there had been an increase in membership and volumes in the Library despite the success of the nearby Huddersfield Institute.

Yet when we take into consideration that our Institute is situated within about one mile of Huddersfield, whose flourishing Institution offers advantages which we do not possess, and that ours is composed entirely of working men,

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<sup>590</sup> *Tenth Annual Report of the Yorkshire Union of Mechanics’ Institutes*, 1847, p.35.

<sup>591</sup> *Ibid.*

<sup>592</sup> *Ibid.*, p.61.

we do not wonder that our increase is small, nether do we regret young men going to the Institution which offers them the greatest advantages.<sup>593</sup>

Thus, Lockwood, while it accepted that there was a larger institute in the town, and could never compete with the Huddersfield Institute, was content to provide elementary education and accepted that its successful students could then progress to advanced-level courses offered in Huddersfield.<sup>594</sup>

The Institute had seen a fall in membership due to the ‘commercial depression’ in 1862<sup>595</sup> and again in 1877 when, despite ‘the great commercial depression’ it continued to be successful with a total membership of 305 males and females. This was probably as a result of offering relevant subjects, especially for men, as the most successful and popular subject was inorganic chemistry which the Committee had decided to offer at advanced level ‘anxious to encourage the study of this useful science, and wishing to keep the young men connected with the Institution, they felt justified in going to the expense of the necessary apparatus’.<sup>596</sup> Thus, the Lockwood Mechanics’ Institute had taken the strategic approach that in order to keep members during economic downturns it was important to offer attractive and relevant subjects which would support their members’ employability.

In order to support advanced relevant subjects at smaller institutes, committees had to rely on experienced teachers from larger institutes. In 1880 a freehand drawing class offered at Lockwood was delivered by Henry Burrows, and a chemistry class by James Allot, both from the Huddersfield Mechanics’ Institute. Allot also taught magnetism and electricity, as well as Sound and Light at the same institute.<sup>597</sup> Being in a suburb of Huddersfield, staff from the Mechanics’ Institute in the town involved

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<sup>593</sup> *Twelfth Annual Report of the Yorkshire Union of Mechanics’ Institutes*, 1849, p.68.

<sup>594</sup> *Ibid.*

<sup>595</sup> *Twenty-Fifth Annual Report of the Yorkshire Union of Mechanics’ Institutes*, 1862, p.116.

<sup>596</sup> *Fortieth Annual Report of the Yorkshire Union of Mechanics’ Institutes*, 1877, p.138.

<sup>597</sup> *Forty-Third Report of the Yorkshire Union of Mechanics’ Institutes*, 1880, p.113.

in teaching at the smaller ones would not have had far to travel, making this a convenient arrangement without too much additional time or expense.

It was not only the male mechanics' institute in Huddersfield that attracted some members away from other institutes. The Committee at Almondbury, another institute located in a suburb of Huddersfield, reported in 1865 that while the Institute continued to be prosperous it was disappointed that more females did not attend the classes. The Institute was, however, within walking distance from the Female Institution in Huddersfield, which was successful.<sup>598</sup>

The exchange of teachers was a common feature of the district. At Lindley, four miles north of Huddersfield with a population of 4,000 inhabitants in 1861, the Committee reported in 1873 that the Institute was in a prosperous state and that 'the educational work has been carried out with vigour and the results quite gratifying'. The evening classes were delivered by 'certificated teachers, the success of the students being as a result of their [teachers] experience', many of them taught at other institutes, including at Huddersfield. The Lindley Committee, however, noted that students, on completing successfully elementary level examinations, were then 'continuing their studies in the advanced and practical work at the Huddersfield Mechanics' Institute', as had been the case at Lockwood some years previously. Obviously, the growth of the Huddersfield Institute had now a sphere of influence outside its immediate environs. In any case, realistically, Lindley would not have been able to offer advanced-level courses with such a small population, and therefore membership, and a nationally-recognised institute some four miles away which had some of the most advanced science laboratories and curricula in the Country.<sup>599</sup>

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<sup>598</sup> *Twenty-Eighth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1865, pp.82 – 3.

<sup>599</sup> *Fifty-First Report of the Yorkshire Union of Mechanics' Institutes*, 1888, p.61.

Despite the success of the Huddersfield Technical School and Mechanics' Institute, including its predecessor, the surrounding textile communities seem to have been vibrant enough to support a mechanics' institute, varying in membership size and success. The Huddersfield Institute, in particular, supported several of these through providing the services of both its staff and committee members. It also provided advanced-level courses, particularly in design and science, for those students who came from smaller establishments where there would not have been enough students to make these classes viable or have the staff expertise. There was some competition but this seems to have been rather isolated in only one or two examples.

As was the case of the institutes in the surrounding villages and suburbs, trade depressions affected the well established male Huddersfield Mechanics' Institute. The Committee reported in 1859 that there had been a decrease in numbers due to a trade depression. As there had been a fall in revenue from £426 to £353 there had not been the finances to purchase books either for the classes or the library.<sup>600</sup> By 1862, the Committee had decided to introduce fortnightly fees, so members could pay in small regular instalments and not feel committed to paying quarterly, if they could no longer pay large amounts at one time.<sup>601</sup> However, the town and institute were not affected to the same extent as the smaller communities due to the diversification of industry and therefore members.

The following year, however, with an improvement in trade taking place, the Huddersfield Female Mechanics' Institute Committee identified that the fall in membership was due to 'the large demand for female labour' which had been 'the most influential and immediate of the causes' as there was demand to increase

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<sup>600</sup> *Twenty-Second Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1859, p.89. The reason given for the fall in attendance was the shortage of female labour which was discussed at the management meeting in 1860, *Huddersfield Female Education Institute Minutes of the General Committee for 1860*, p.4.

<sup>601</sup> *Twenty-Fifth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1862, p.132.

production in the local mills.<sup>602</sup> In 1879 there was a further decline in membership at the Institute ‘as a result of the continued depression’. This had meant that many of the females still attending had their fees paid by benefactors, among them Mrs Frederic Schwann, the wife of the President of both Huddersfield Institutes.<sup>603</sup>

While those institutes in and around Huddersfield were affected by trade cycles, smaller mechanics’ institutes some miles outside were also affected. Heckmondwike in 1844 had declined in comparison to previous years and this was contributed to ‘the state of the trade’.<sup>604</sup> The New Heckmondwike Mechanics’ Institute, opened in 1873, was also affected by the ‘bad state of trade,’ in 1876 and had debts of £150. However, much of it was paid off by benefactors including the Heckmondwike Industrial Co-operative Society, which donated £20.<sup>605</sup> The Committee reported again in 1880 that due to the ‘long continued trade depression’, membership had fallen again and the result was that all classes had to close, with the exception of English, writing and art.<sup>606</sup>

As was the case in the Dales and Pennines, some of the smaller institutes had been affected due to rural de-population. In 1847, for example, Honley Institute was continuing to expand but the Committee reported that several members had left due to not having the commitment to persevere with their studies while others had left as a result of ‘the want of employment, which has unhappily prevailed to some extent in this neighbourhood, depriving many of the labouring class of the means by which they might obtain the advantages of this Institution’.<sup>607</sup> Rural depopulation was common during this period as families left the rural areas looking for work and this

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<sup>602</sup> *Twenty-Sixth Annual Report of the Yorkshire Union of Mechanics’ Institutes*, 1863, p.94.

<sup>603</sup> Mrs Schwann’s Unitarian upbringing in Birmingham must have contributed to her support of female adult education. *Report of the Huddersfield Female Education Institute*, 1879, p.1.

<sup>604</sup> *Seventh Annual Report of the Yorkshire Union of Mechanics’ Institutes*, 1844, pp.25 – 6.

<sup>605</sup> *Thirty-Ninth Report of the Yorkshire Union of Mechanics’ Institutes*, 1876, p.153.

<sup>606</sup> *Forty-Third Report of the Yorkshire Union of Mechanics’ Institutes*, 1880, p.100.

<sup>607</sup> *Tenth Annual Report of the Yorkshire Union of Mechanics’ Institutes*, 1847, p.44.

contributed to the fall in membership of the rural institutes during periods of depression.

The Committee at Holmfirth had reported in 1848 that the majority of its members were working class and therefore, due to the 'severe commercial depression', there was a sharp decline in numbers from 162 to 98.<sup>608</sup> In 1860, however, with improvement in trade, the Committee reported that attendance and membership were both encouraging but, as in the case of the female institute in Huddersfield, 'owing to the commercial prosperity of our manufacturers, many of that class are debarred from the benefits of such institutions by having to work overtime'. In other words, when times were good employees were expected to stay on and work, indicating that membership was affected negatively in good times as well as bad.<sup>609</sup>

Thus, despite the growth in the number of mechanics' institutes during the period of study, not only did the first generation of institutes (pre-1850) continue to be successful but also new ones that were established within a few miles of Huddersfield. Many continued to operate as institutes and libraries into the early twentieth century despite being close geographically to Huddersfield, despite being affected by trade depressions and competition. Indeed, having a particularly well established and successful institute in the town, provided the opportunity for members attending other institutions, to benefit from specialist teachers who taught in more than one and an opportunity to progress to higher level subjects if their own institute was not large enough to do so.

The purpose of selecting such a cluster as the one developed around Huddersfield was to examine a densely populated area of mechanics' institutes and identify what the impact was on membership patterns. It was assumed that membership numbers in

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<sup>608</sup> *Eleventh Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1848, p.48.

<sup>609</sup> *Twenty-Third Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1860, p.90.

the areas around Huddersfield would be quite small, as the town's institutes were dominant. In fact those that were located only a few miles from Huddersfield had healthy numbers in comparison to those in larger towns in the other two clusters. Those mechanics' institutes located within only a few miles of Huddersfield are listed in Table 5.7 below.

**Table 5.7 Selected Mechanics' Institutes for Huddersfield and district showing ten-year membership**

<b>Mechanics' Institute</b>	<b>1850</b>	<b>1860</b>	<b>1870</b>	<b>1880</b>	<b>1890</b>
Almondbury Institute		90			
Brighouse with Rastrick Inst.	142	89	216	209	
Dogley Lane Institute	82				
Elland Institute	61				
Gomersal Institute	108	239	227	86	
Greetland and West Vale				99	224
Heckmondwike Institute	86	20		100	
Holywell Green Institute			84	200	110
Holmfirth Institute	172	163			274
Honley Institute	105	94	30		
Huddersfield (Male) Inst.	887	1,207	1,453	1,651	1,255
Huddersfield (Female)	127	254			
Kirkburton					88
Kirkheaton	48				
Lindley		175	119	87	135
Lockwood	51	213	327	296	210
Longwood		147		29	95
Marsden	147	150	120		
Meltham	154	120	176		74
Shelly		126	84	105	
Slaithwaite		45	70	80	550

Annual Reports for the Yorkshire Union, Appendices.

Almost all institutes sampled in this cluster increased in size relative to population whether they were close to Huddersfield or a few miles outside, which inevitably meant rural areas. The male and female institutes in the town, on the other hand, did not.

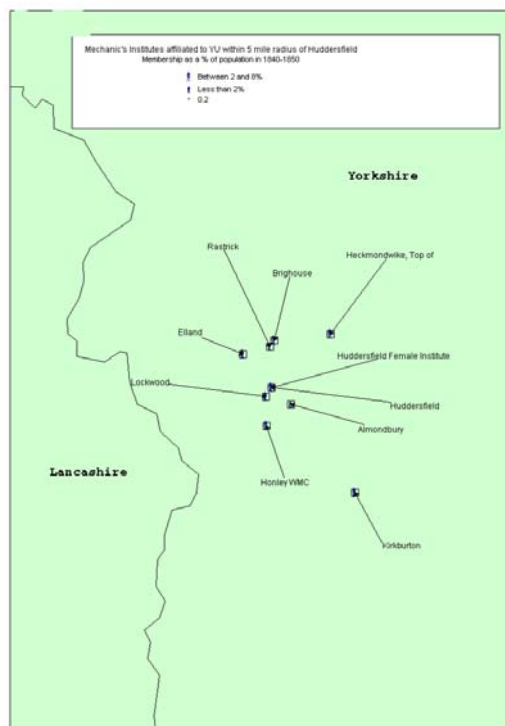
None of the institutes seem to have increased in size in relation to population growth between 1850 and 1860. However, there was an increase in the membership of several institutes in and around Huddersfield including those at Slaithwaite, Brighouse and Shelley between 1860 and 1870. Several institutes close to Huddersfield had



increased in membership between 1870 and 1880 from eight per cent to almost fifteen per cent, including Holywell Green, Longwood, and Lockwood. The growth pattern continued through to 1890 when most institutes had a membership to population ratio of around 15 per cent.<sup>610</sup> Other local institutes included Holmfirth and Marsden<sup>611</sup>.

The average membership for Huddersfield and district, especially in the case of the larger institutes, was more erratic than for the other clusters though it remained on an upward trend. The smaller institutes had similar membership patterns to those in the North East, the Dales and Pennines.<sup>612</sup>

**Membership to Population Patterns in relation to several Huddersfield and District Mechanics' Institutes in the Dales and Pennine Cluster of the Yorkshire Union**

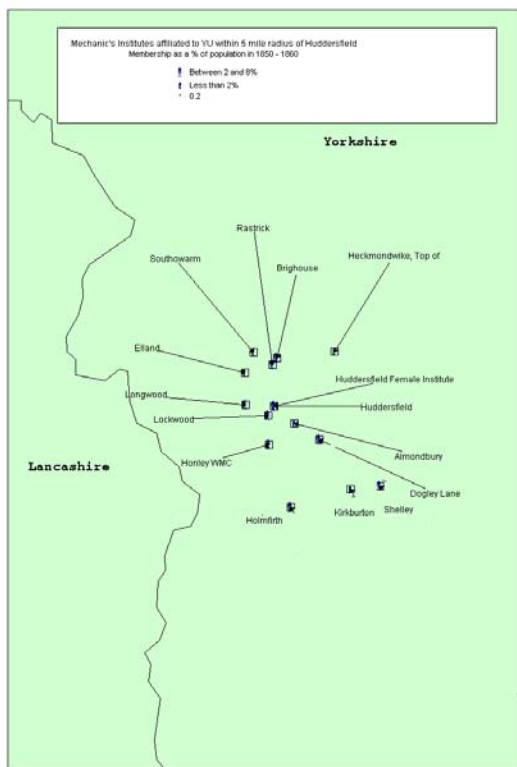


**Map 5.27 1840 – 1850**

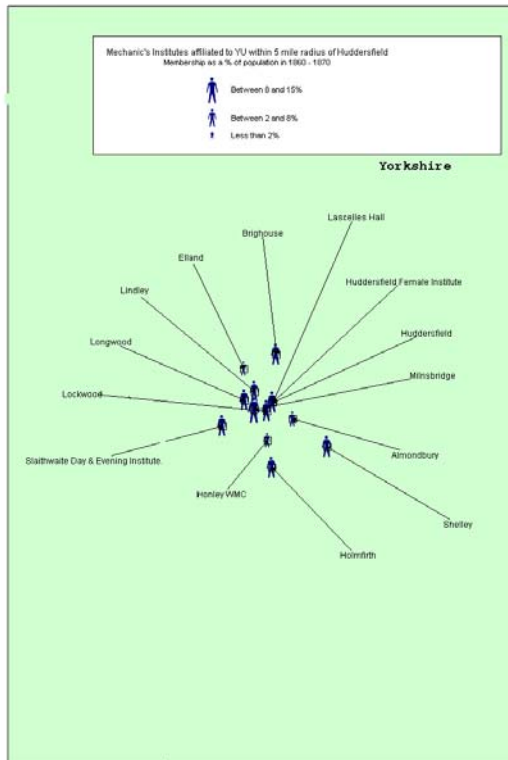
<sup>610</sup> Annual Report of the Yorkshire Union of Mechanics' Institutes, 1838 – 1890.

<sup>611</sup> Almondbury, Lindley, Lockwood and Longwood were medium-size institutes relatively close to the town of Huddersfield and offered similar subjects for both males and females.

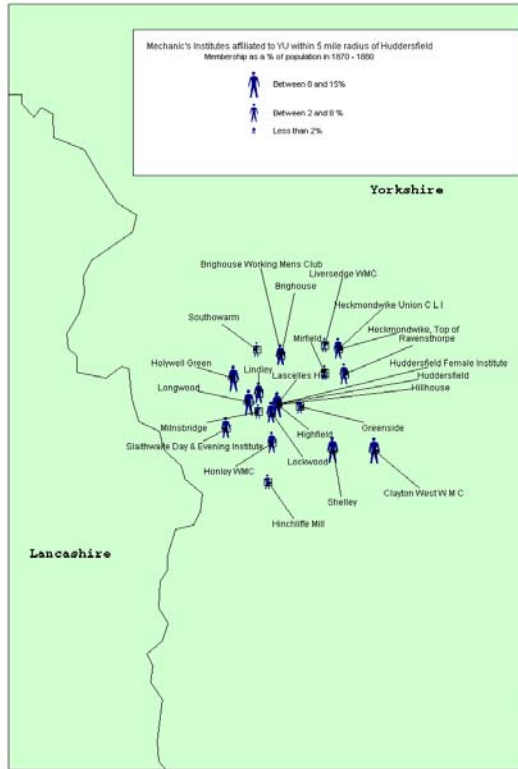
<sup>612</sup> The most comprehensive statistical returns were from institutes within a five-mile radius of Huddersfield and therefore these are the ones used.



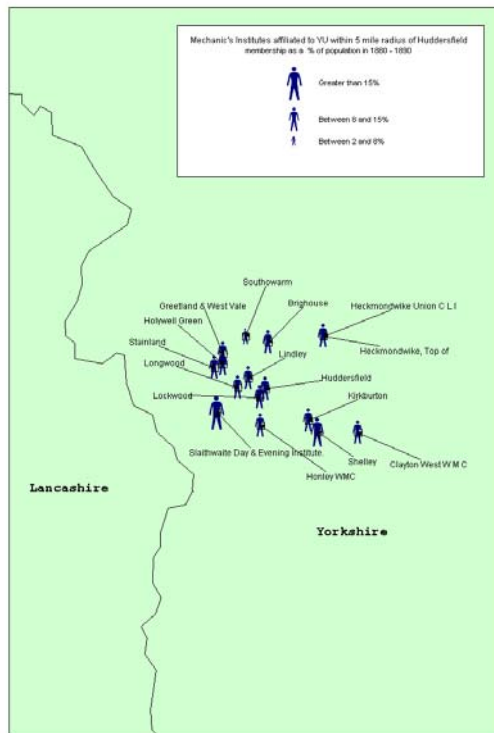
Map 5.28 1851 - 1860



Map 5.29 1861 - 1870



**Map 5.30 1871 – 1880**



**Map 5.31 1881 - 1890**

Data is taken from the Appendices of the Annual Reports of the Yorkshire Union, 1838 – 1891 and Census Returns 1841 – 1891

To summarise, further evidence has been included to support the view that there was continuing success of the mechanics' institute movement in the second half of the nineteenth century. The growth and distribution continued after 1850, with many later institutes being located in smaller communities. The sample of institutes membership researched for this thesis provides strong evidence that mechanics' institutes, both those in towns and in the rural communities, continued to be successful throughout the second half of the nineteenth century, with the exception of Sheffield. In towns there were often more than one within the urban localities and these served an immediate population. In the case of the small rural communities, institutes served a larger proportion of the population, often at least 10 per cent, strongly indicating that they were popular and supportive of education. Membership patterns overall, at both town and rural institutes, provide evidence that they continued to offer education until the end of the nineteenth century. The data analysed, has indicated that there were fluctuations in attendance over several years and this was due to economic conditions which had impact on membership. Ultimately, there were more mechanics' institutes established after 1850 and overall few, if any closed prematurely.

Overall, the research carried out into these particular clusters, has provided evidence that several urban, semi-urban, rural and mining communities were supported by mechanics' institutes of the Yorkshire Union, in relation to adult working-class education. While the three clusters had similar features, which were often the same as those across the Union, they also had significant differences and their adaptability to the needs of their particular communities in relation to their socio-economic environments was substantial.

## **Mechanics' Institute Accommodation and Building Development across the Yorkshire Union**

At first mechanics' institutes mostly used rented buildings and it was not until the mid-nineteenth century that some began to build their own with library and classrooms. Such expansion of accommodation through the use of a dedicated building adds further evidence of the development of the movement from the mid-nineteenth century. When financial conditions allowed, there was eagerness amongst committees to build institutes, contributing to the general public and civic building programme of the mid-and late-nineteenth century. Jon Stobart sums this up well. 'Civic culture, the construction of town halls, museums, libraries, concert hall, and the like – was central to identity and image of both the town and its elite'.<sup>613</sup> By the mid-nineteenth century a 'new network of voluntary associations and public institutions aimed at cultural and moral improvement' were being planned and built in many towns, including the 'foundation of learned societies and the construction of libraries and newsrooms'. There was an 'emphasis on public visibility and display, on ritual and performance, and on select conviviality'. Above all, 'this was reflected in the increasingly grandiose public buildings'. In many towns, post 1850 purpose built mechanics' institutes would contribute to this 'cultural and moral improvement'.<sup>614</sup> Stobart also suggests that Victorian civic culture was an instrument of social control. It was, he believes, a concerted effort by the middle-class 'to (re)create the towns and cities of industrial Britain in their own image'. They believed that it 'would help to create model citizens – rational, self- improving and public spirited – imbuing the working classes with middle-class values and bringing them within the city as a social

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<sup>613</sup> J. Stobart, 'Building an Urban Identity. Cultural Space and Civic Boosterism in a 'new' Industrial Town: Burslem, 1761-1911', *Social History*, 29:4, November 2004, 485.

<sup>614</sup> *Ibid.*, 486.

construct and social ideal'. It was in 'this spirit that we see the spread of mechanics' institutes, and of public parks', town halls, libraries and theatres.<sup>615</sup>

Most early institutes throughout the country and across the Yorkshire Union had been established in hired rooms or halls. By the late 1840s many began to build their own premises, and some, notably Huddersfield, funded more than one purpose-built institute during their lifetimes. Later developments were often located near town halls and other public buildings and were designed in the neo-gothic style of Victorian municipality, such as at Leeds, Manchester, Bradford, Huddersfield and York. These later purpose-built mechanics' institutes were often influenced by a variety of architectural styles based on chapels, schools and, in the case of Dewsbury, Huddersfield, Keighley, Pudsey, Yeadon and York, their architects were influenced by the Gothic School of the second-half of the nineteenth century. This 'quintessential style of the Middle Ages was revived through church building, quasi-monastic colleges of Oxford and Cambridge and government and civic buildings, such as town halls and mechanics' institutes'.<sup>616</sup> Others were influenced by the School Board designs such as those at New Marske and Slaithwaite and non-conformist chapel designs, such as the one at Eccleshill near Bradford.<sup>617</sup>

Contribution to the civic landscape was another important indicator of the success of institutes. Committees measured their success not only by the number of members, and the volumes in their libraries but also in the development of the physical environment in which teaching and learning took place. The success of some institutes meant that there were times when an institute outgrew its original building, further emphasising the civic contribution of adult education.

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<sup>615</sup> *Ibid.*, 487.

<sup>616</sup> S. Bradley, *St Pancras Station* (London, 2007), p.23.

<sup>617</sup> Illustrations produced in the Annual Reports to the Yorkshire Union.

Bradford Mechanics' Institute's first building was established in 1839, relying on rented premises.<sup>618</sup> In 1845 this building was described in *Ibbetson's Directory* as a 'large and commodious'<sup>619</sup> but with the annual increase in members, the classrooms had become cramped by the 1860s. A building fund was started to raise the £9,500 required for a new larger Institute and the industrialists Salt and Ripley contributed to it.<sup>620</sup> In 1871 a new mechanics' institute was built in what was then referred to as the 'Bradford-Italianate style' at a cost of £23,500. The town's 'elite built in the Venetian style, adding symbols of their own history to those of the historic trading empire'. In this way, the construction and rhetoric of civic culture could simultaneously link the past with the present, modernity with morality, industry with the arts'.<sup>621</sup> The Mechanics' Institute, just one of several buildings constructed in this style, was opened by W.E. Forster.<sup>622</sup> The new building could accommodate 700 students and the lecture room held 1,500. The library had 9,935 books.<sup>623</sup>

Nearby at Keighley, the continuing success of the Institute produced pressure for more accommodation.<sup>624</sup> A Building Committee was formed in 1865 to put together plans and identify a location for a new Institute, supported by the Duke of Devonshire's estate agents.<sup>625</sup> In 1866, a building fund was established for a new Institute. Important considerations were in planning the new building was that that the Mechanics' Institute must have a lecture hall, library, reading and club rooms and

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<sup>618</sup> *Second Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1839, p.128.

<sup>619</sup> *Eighth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1845, p.131.

<sup>620</sup> *Thirtieth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1867, p.129.

<sup>621</sup> Stobart, 'Building an Urban Identity. Cultural Space and Civic Boosterism in a 'new' Industrial Town: Burslem, 1761-1911', 486.

<sup>622</sup> Forster was sometime President of the Bradford Mechanics' Institute.

<sup>623</sup> F. J. Adams, (ed.), *Education in Bradford since 1870* (Bradford Corporation, 1970), p.203.

<sup>624</sup> At least 18 mechanics' institutes in the Dales and Pennines were known to have had a shortage of accommodation for their membership. Annual Reports of the Yorkshire Union.

<sup>625</sup> At Keighley in 1873 Models and statuettes for student use had been donated by Lord Frederick Cavendish, MP, eldest son of the Duke of Devonshire. *Thirty-Sixth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1873, p.90. At Grassington in 1880 new premises, funded by the Devonshire Estate, had supported 'the requirements of the district'. *Forty-Third Report of the Yorkshire Union of Mechanics' Institutes*, 1880, p.95.

accommodation for evening classes.<sup>626</sup> In 1871, the new building was opened at a cost of £15,000.<sup>627</sup> There was very little money in the building fund due ‘to the monetary crisis and dullness of trade’ and it would be several years before the debt was paid off.<sup>628</sup> Despite the continuing building programme, the Institute was still expanding faster than accommodation would allow, even with the extra space of the new wing which was opened in 1889 and partly funded by the Worshipful Company of Clothworkers.<sup>629</sup> By 1890 ‘the extensive accommodation supplied by the new wing is now all utilised to the fullest capacity of the building, and if there were more classrooms they could be filled, so great is the response to the efforts of the Council and teachers to attract students to the Institute’.<sup>630</sup>

Some towns were not able to re-build or extend their institutes quickly. At Skipton Institute, for example, the major obstacle in 1852 had become the shortage of accommodation and it was seriously looking at funding a new building.<sup>631</sup> In 1863 the then new Town Hall was used as an overspill for the Institute in order to hold a series of public lectures.<sup>632</sup> By 1882, however, with the continual increase in the number of students, the accommodation issue had still not been solved. Some evenings classes had doubled up and there were particular difficulties in the elementary classes which were ‘overcrowded with boys’.<sup>633</sup> It was believed that if more space was available, then girls could receive an elementary education, as teaching single-sex classes would encourage additional numbers. The Committee identified this as an issue of equal opportunities.

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<sup>626</sup> *Twenty-Ninth Annual Report of the Yorkshire Union of Mechanics’ Institutes*, 1866, p.27.

<sup>627</sup> Original estimates put the cost at £6,000. *Thirty-Fourth Annual Report of the Yorkshire Union of Mechanics’ Institutes*, 1871, p.95.

<sup>628</sup> *Thirtieth Annual Report of the Yorkshire Union of Mechanics’ Institutes*, 1867, p.34.

<sup>629</sup> *Fifty-Second Report of the Yorkshire Union of Mechanics’ Institutes*, 1889, pp.84-5. See also Appendix 9

<sup>630</sup> *Fifty-Third Report of the Yorkshire Union of Mechanics’ Institutes*, 1890, p.114.

<sup>631</sup> *Fifteenth Annual Report of the Yorkshire Union of Mechanics’ Institutes*, 1852, p.111.

<sup>632</sup> *Twenty-Sixth Annual Report of the Yorkshire Union of Mechanics’ Institutes*, 1863, p.115.

<sup>633</sup> *Forty-Fifth Annual Report of the Yorkshire Union of Mechanics’ Institutes*, 1882, p.124.



There is urgent need for extended class-room accommodation for the youths of Skipton, but the necessity for giving equal educational facilities to the girls is quite as pressing. The Committee are glad to notice that a considerable number of females have entered the Science and Art Classes this year.<sup>634</sup>

With the introduction of government examination grants and sponsors, such as the Worshipful Company of Clothworkers, several institutes were able to afford to build or expand their accommodation. Without the opportunity to do so, the movement would have been seriously restricted, not only in the industrial towns but also in the rural areas.<sup>635</sup> For some institutes, new accommodation developments were ill-timed. At Kettlewell no sooner had new accommodation been provided than the population began to leave, looking for work in the growing towns several miles away indicating that institutes were vulnerable to population decline.

In the case of Huddersfield Mechanics' Institute, by 1859 the building fund had raised £3,700 from bazaars, the Annual Soirées, and the workmen in one mill alone had raised £30 during the year. A further £1,200 was required before building could commence, replacing four separate buildings which were costing in total £80 a year to run.<sup>636</sup>

In 1869 one of the Institute's classrooms was 'used for the application of design to the loom, and every seat is filled'. For the first time since chemistry had been introduced, the maximum number of 15 students had been reached and two were put on the waiting list. The lack of accommodation was seen as being very important, as it highlighted the need for more space so that the institute could take more students and thus expand. The new purpose-built Institute was located in Northumberland Street.<sup>637</sup>

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<sup>634</sup> *Ibid.*

<sup>635</sup> Including Otley, Burley, both of which W. E. Forster donated £5 to their building funds. Grassington, Haworth, Hebden Bridge, Long Preston, Slaidburn, Addingham, Cottingley, Gargrave, Baildon, Barnoldswick, Bentham and Kettlewell all suffered from an accommodation crisis. Kettlewell was the one and only which after moving into a new Institute, found its membership had declined and did not require the additional space.

<sup>636</sup> *Twenty-Second Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1859, p.92.

<sup>637</sup> *Thirty-Second Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1869, pp.101 – 2.

Nevertheless, the Institute was still not large enough for the number of members it was attracting. In 1857, for example, the Society of Arts Examinations for the North of England took place in the Riding School some five minutes walk away where 248 students from several institutes, including Huddersfield, sat examinations.<sup>638</sup> The plans for a new Mechanics' Institution and Technical School at Huddersfield were agreed at a Joint Committee meeting in 1881:

while providing for the extension and full development of the technical classes connected with the staple trade of the district, far better accommodation is provided also for the School of Art and the Science School and at the same time the requirements of the Penny Bank, Reading Room and Library. The Evening School and advanced classes, carried on in the present Institution, will be found to have been carefully considered.<sup>639</sup>

The new building was financially supported by the Company of Clothworkers and the Schwann family and was opened in 1884, and the building became the Technical College in 1896.<sup>640</sup>

The Huddersfield Female Education Institute also had a shortage of accommodation caused by demand and was highlighted in the Committee's *Report* of 1860, 'in consequence of not having a room sufficiently large in which to collect all the pupils of the Institution, the committee have been unable to make those arrangements for lectures and addresses they could have wished'.<sup>641</sup>

The accommodation at the time was located in the Netherwood's Buildings in King Street.<sup>642</sup> By 1869 the Institute moved into the Gladstone Buildings, which were more suitable and finally by 1875 it moved for the final time into the Board School on Beaumont Street, never actually owning its own building as numbers of students were

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<sup>638</sup> *Huddersfield and Holmfirth Examiner*, 1 August 1857.

<sup>639</sup> *Forty-Fourth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1881, p.100.

<sup>640</sup> £13,000 was raised in donations, including the Worshipful Company of Clothworkers who visited Huddersfield in June 1880 and were impressed with the teaching quality. *Huddersfield Chronicle*, 18 June 1880.

<sup>641</sup> *Annual Report of the Huddersfield Female Education Institute*, 1860, p.6.

<sup>642</sup> *Annual Report of the Huddersfield Female Education Institute*, 1858, p.2.

far lower than its male counterpart.<sup>643</sup> The Inspector visiting in the same year commented on the larger and better accommodation the Institute now had.<sup>644</sup> In 1883 the Female Institute moved into the new Technical School and Mechanics' Institute which it shared with its male counterpart and the two Institutions became one. Other mechanics' institutes which had a shortage of accommodation across the Yorkshire Union included those at Bradford, Bridlington Quay, Brighouse, Greetland and West Vale, Halifax, Leeds, Ripon, and York.<sup>645</sup>

There is no doubt that in many cases the shortage of space resulted in restrictions of growth in membership and not just in the larger towns.<sup>646</sup> Many institutes relied on donations and income from galas and annual soirées to establish a building fund as well as increased fees from growing membership.<sup>647</sup> The Worshipful Company of Clothmakers supported several institutes in the woollen districts of Yorkshire, such as Bradford, Huddersfield, Keighley and Leeds. As in other sectors, the increase in the size of accommodation and often purpose-built institutes reflected the success of the Yorkshire Union and the movement as a whole.

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<sup>643</sup> *Annual Report of the Huddersfield Female Education Institute*, 1869, p.5.

<sup>644</sup> *Annual Report of the Huddersfield Female Education Institute*, 1875, p.4.

<sup>645</sup> At York, for example, the Institute started in a small house in Bedern in the centre of the old city in 1827 but a year later it had moved into larger premises in St Saviourgate, the premises of which were extended in 1846 at a cost of £765. In 1883 new large premises were opened in Clifford Street, at a cost of £7,500, to a 12th century French design. T. Gardiner, 'The York Institute and Masonic Jar', (Unpublished paper, 1991), p.4.

<sup>646</sup> Some institutes continued to meet in rented rooms or buildings which were used for other purposes and therefore have been difficult to locate. This was a national phenomena and Hudson recalls that the Wellingborough Institute was held in the workhouse for ten years, Hudson, *Adult Education*, p.195.

<sup>647</sup> Accommodation was a major problem in other parts of the country. Burnley Institute, founded in 1834, used a variety of rented rooms, a local school, chapel and in an end terraced house in King Street. The purpose-built Mechanics' Institute was opened in 1855 and extended in 1888 as a result of the expansion of art, science and technical subjects. Shortly afterwards it became a Mechanics' Institute and Technical School. A. Lloyd-Davis, 'Burnley Mechanics Institute in the Nineteenth Century' unpublished MEd Dissertation, (University of Leeds, 1978), pp.14 – 16.

## **Mechanics' Institute Libraries**

Samuel Smiles gave evidence before the Select Committee on Libraries in 1849 stating that 'it is necessary (for a mechanics' institute) to have a library in order to keep the institution together'. At the same meeting another witness, J. B. Langley, reported that without libraries the mechanics' institutes would not exist and the then Secretary of the Yorkshire Union of Mechanics' Institutes made it clear that the poor had only access to the institute libraries.<sup>648</sup> As part of the development of mechanics' institutes, libraries became an important component and one could not survive without the other. Thus, a history of the institutes must also include libraries. But, as Jonathan Rose indicates, the cost of books and literary periodicals was an obstacle to the working-class reader when they were first published.<sup>649</sup> The works of Shelley, Coleridge, Wordsworth and Tennyson, for example, were beyond the reach of the working man until the late 1870s.<sup>650</sup> Thus, institutes relied on book donations until their income increased as membership rose, often providing the only available access to books for the working classes. As Edward Royle suggests, up to the 1850s and 1860s, 'most working people had to rely upon literature largely donated for (or discarded) to libraries of mechanics' institutes, and the self-taught working man was left to scrape around second-hand bookshops.<sup>651</sup>

The access by members to their libraries and reading rooms, was therefore often the only opportunity for many to read books and periodicals. In 1850 the 600 or so English institutes had almost 700,000 volumes and circulated 1,820,000 books a year. Liverpool had the largest number with 15,300 but on average most had between 2,000

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<sup>648</sup> *Report of the Select Committee on Libraries, 1849*, p.124.

<sup>649</sup> J. Rose, *The Intellectual Life of the British Working Classes* (Yale, 2001), p.120.

<sup>650</sup> Rose, *The Intellectual Life*, pp.120 – 2.

<sup>651</sup> Royle, *Modern Britain, A Social History*, p.250.

and 8,000. The Yorkshire Union had on average 900 books per institute as it had both large and small ones.<sup>652</sup>

In 1852 James Hole, Honorary Secretary of the Yorkshire Union, wrote a letter to the *Leeds Mercury*, quoting the third *Report of the Northern Union of Literary, Scientific and Mechanical Institutions* which had recently founded a Union Itinerating Library. He cited the successful example of the United Villages Perambulating Library which had 300 volumes supplying nine Cumberland villages. Hole stated ‘small populations often had neither the inclination nor the means to organise an institution and therefore some external force ought to intervene to offer assistance’. Hole, of course, was indicating that the Yorkshire Union would be ideally suited to be that external force. Yorkshire Union Committee Members, including Hole, had identified that such libraries were both cheap and simple to run and organise. He saw no difficulty in raising money for volumes and to set up a local reading room or library which would become self-supporting and become a centre for lectures and classes; in effect a small scale mechanics’ institute.<sup>653</sup>

The Yorkshire Union was set up with no specific objective to establish and manage village libraries but it was able to do so through its general aims of supporting ‘mental improvement’ of the working classes. It does indicate strongly that the Union was responding to a new initiative which would support the mechanics’ institutes and support an increase in membership. In order for a village library to be affiliated to the Yorkshire Union, there had to be at least 25 subscribers, paying one penny a week or one shilling per quarter. The Union then selected 50 books which were packed in a

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<sup>652</sup> Hudson, *Adult Education*, pp. vi – viii and pp. 222 – 36.

<sup>653</sup> *Ibid.*, p.137.

box that served as a bookcase in the library. Over several years the number of books on loan was increased.<sup>654</sup>

By 1852, many institutes had seen a drop in membership, as Hudson had stated, and the Yorkshire Union encouraged them to exchange books between themselves as there was not the money to purchase additional volumes. As a result, the Yorkshire Union Itinerating Village Library was established and amongst the supporters were Baines and the Earl of Carlisle. Individuals and mechanics' institute committees contributed by donating up to £5 towards establishing the Yorkshire Union Village Library scheme and as a result many smaller institutes, which otherwise would not have had a selection of books, found a new life as former members returned. Institutes which particularly benefited included, Bridlington and the Quay, Brunswick, Filey, Garton, Hornsea and Leven Foresters' Literary Society, North Dalton and Weaverthorpe.<sup>655</sup>

A smaller version of the Yorkshire Union of Village Libraries was established in the Yorkshire Dales. The Bolton Abbey Group of Libraries was founded in 1877 and was supported by the Duke of Devonshire who provided rent-free land which included the villages of Barden, Halton East, Hazlewood and Bolton Bridge. The libraries were unique both locally and within the Yorkshire Union, being a cluster supporting a wide rural area. Although there is no evidence in their *Reports* sent to the Yorkshire Union that they were offering classes, the Abbey Group did provide the opportunity for the scattered communities to use their libraries for reading and discussion. There were 'four stations (centres) in this lovely district, Bolton Abbey being the chief and central one'.<sup>656</sup>

In 1880 the Committee for the Bolton Abbey Group stated that 'each village depends upon the Yorkshire Union for their successive boxes of books and the

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<sup>654</sup> Annual Reports of the Yorkshire Union of Mechanics' Institutes, Statistical data.

<sup>655</sup> *Sixteenth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1853, p.76.

<sup>656</sup> *Fortieth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1877, p.105.

circulation of volumes is most encouraging'.<sup>657</sup> Four years later the Bolton Abbey Group had 64 members covering 10,000 acres with a total population of 700 and while there was no evidence of classes being taught, both fiction and non-fiction books were available to the farming community, either on loan from the Yorkshire Union or were purchased by them.<sup>658</sup>

The libraries established in the Dales and Pennines provided much-needed education to the rural adult population. Several became institutes while others supported mental improvement through their books, either purchased or donated, as well as those on loan from the Yorkshire Union. While several were specifically lending libraries they did contribute to the mental improvement and general education of their members, even if they did not actually provide formal classes and qualifications. Itinerating libraries were particularly popular in the Dales and Pennines. Crosshills and Dent, for example, were able to use their income from the loan of books and membership to establish their own Mechanics' Institutes. Hebden Bridge Institute charged one penny a visit to encourage the locals to become members of the Institute and have the added advantage of attending classes. Long Preston established libraries in the surrounding villages. Similar examples have been identified across the Yorkshire Union. Throughout the Yorkshire Union books were made available to all mechanics' institutes on a loan basis which was circulated every few months.

Following the passing of the Public Libraries Consolidation Act, local authorities had the power of raising a penny rate for the purpose of establishing local public libraries, in many cases these were former mechanics' institute libraries. Skipton, like

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<sup>657</sup> *Forty-Third Report of the Yorkshire Union of Mechanics' Institutes*, 1880, p.88.

<sup>658</sup> *Forty-Eighth Report of the Yorkshire Union of Mechanics' Institutes*, 1885 p.97.

several other towns, was sponsored by Andrew Carnegie,<sup>659</sup> who provided £3,000 in 1903 to build and furnish a local library, which was located in the Institute.<sup>660</sup> Carnegie also donated £10,000 to establish a public library in Keighley following a meeting with Swire Smith, who convinced him that even though the town's mechanics' institute was being used there was the desperate need to have a public library.<sup>661</sup> Under the Free Library Act the Borough of Keighley was able to give land for the building which was located directly across the road from the Institute.<sup>662</sup> Carnegie donated money to towns where towns were enthusiastic about setting up their own libraries (Appendix 12).

Of the 660 Carnegie libraries built in the British Isles, 197 (or 33.5 per cent), were to be found in towns which had mechanics' institutes or similar establishments, with 463 found distributed in towns which did not have mechanics institutes.<sup>663</sup> Some towns, which had free libraries, such as Middlesbrough,<sup>664</sup> were also supported by the Carnegie Foundation.

## Summary

Of the 633 mechanics' institutes identified as members of the Yorkshire Union at various times between 1838 and 1891, over ten per cent are known to have been still

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<sup>659</sup> Andrew Carnegie was born in 1837 and his father was a Chartist. He started as a bobbin boy in a cotton factory in America. Later he became a telegraph clerk, railway superintendent in the USA, and worked in the oil industry. Carnegie became an oil and steel magnate making a fortune of £10,000,000 which was used for establishing and supporting libraries both in America and the UK. In total, Carnegie established 2,811 libraries in Scotland, England and America. *100 Years of Keighley Library*, p.5.

<sup>660</sup> A. M. Gibbon, *Skipton Mechanics' Institute* (Craven Herald, 1958), p.6.

<sup>661</sup> Smith was a close friend of Carnegie and while staying at his Scottish home, Skibo Castle, convinced him of the need for a public library in Keighley. *100 Years of Keighley Library*, p.13.

<sup>662</sup> *100 Years of Keighley Library 1904 – 2004*, (Keighley News, 2004), p.5.

<sup>663</sup> Data supplied by the Carnegie Trust.

<sup>664</sup> Middlesbrough Mechanics' Institute Library was taken over by the town in 1873 under the Public Libraries Act of 1850. Although it did mean that the number of issues of books at the Institute were significantly less than before, the Committee accepted that there was now more choice of books for all residents in the town. *Thirty-sixth Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1873, p.102.



in existence, and providing adult education, beyond 1890. In all, five per cent of towns in the Yorkshire Union have technical and further education colleges which can trace their origins back to the institute movement, clearly indicating that they were successful in providing a foundation for adult education.<sup>665</sup> With the passing of the educational acts, government became more directly involved through the local authorities and once taxation was raised it was only a matter of time before the movement was replaced by public libraries and technical schools, the forerunners of further education colleges.

The mechanics' institutes contributed considerably to the local socio-economic developments of their locality, including coal and ironstone mining, and in particular textiles. Despite several trade depressions, committees were attentive to the needs of the working-class membership supporting them in various ways including fortnightly payments or in some cases reducing the fees. The movement while affected by the fall of membership survived, again indicating the movement's long-term success.

The participation of the working class in the mechanics' institutes was the crucial factor in their continued success across the middle and late nineteenth centuries. Membership across the Yorkshire Union continued to increase, both in towns where there was often more than one institute and in the rural areas where there were institutes, but with small populations. In many areas, more than ten per cent of the local population were members of the institutes. This suggests that mechanics' institutes continued to flourish, wherever they were and, in the case of the rural communities, provides further evidence of varied working-class membership, whether in agricultural, textile or mining communities.

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<sup>665</sup> *Annual Reports of the Yorkshire Union of Mechanics' Institutes.*

There is clear evidence that the mechanics' institutes of the Yorkshire Union were successful, as indicated in the growth in size of many institutes in order to accommodate more students. Limited or inadequate accommodation for many, both in the towns and the rural areas, became an issue which in several cases meant that recruitment was difficult. Many institutes purchased accommodation or built a purpose-built institution and several, including Keighley, Huddersfield and York Institutes built larger ones. Later buildings were often located near to the town halls and were often gothic in style, adding significantly to the statement of civic pride expressed in other public buildings. Mechanics' institutes across the Yorkshire Union contributed significantly to their localities.

## Conclusion

In 1851 J. W. Hudson published his findings into the state of the mechanics' institute movement and generally he believed that the institutes were not supporting working-class education and that many were in decline or had closed.<sup>666</sup> In relation to Hudson's view it should be remembered that he was not in a position to follow developments in the mechanics' institute movement up to and including the passing of the Technical Instruction Act of 1891, and his pioneering work will always be highly regarded when looked at in the context of mid-nineteenth century scholarship. Putting Hudson's contributions in perspective is helpful. When Hudson published his work in 1851 he had identified 610 mechanics' institutes across the whole of the British Isles.<sup>667</sup> Over its seventy years, the Yorkshire Union had a total of 635 institutes affiliated as members at one time or another.<sup>668</sup> Barnet Blake, an agent for the Yorkshire Union had noted in 1859, that in the county most institutes 'not only supplied the educational wants of working men', but were also 'supported, and in many instances, managed by them'.<sup>669</sup> This statement was made in response to the belief that nationally mechanics' institutes had lost their way and were organised by, and on behalf of, the middle class.

Historians, among them Roderick and Stephens, think that the golden age of mechanics' institutes was between 1830 and 1840.<sup>670</sup> They failed to identify that in many ways there was a second golden age during the 1880s, following sustained growth after 1860. This was the case in relation to the Yorkshire Union and indeed across the country as a whole where institutes responded to the demands of educating

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<sup>666</sup> Hudson, *The History of Adult Education*.

<sup>667</sup> Barnard, *A History of English Education*, p.91.

<sup>668</sup> Annual Reports of the Yorkshire Union of Mechanics' Institutes, Statistical data.

<sup>669</sup> B. Blake, 'The Mechanics' Institutes of Yorkshire', *Transactions of the National Association for the Promotion of Social Science* (1859), p.335.

<sup>670</sup> Roderick and Stephens, 'Mechanics' Institutes and the State'.

the working class and left their legacy in the foundation of technical education, free and Carnegie libraries.

Royle, as well as other historians including Luckhurst, Roderick and Stephens, have argued that mechanics' institutes failed to meet the needs of the working class but this study provides many examples of institutes that responded to the needs of the working classes by providing relevant subjects and charging fees that were realistic, reduced or even suspended during trade depressions.<sup>671</sup> There is no doubt that the institutes were responsive to the needs of the working classes, some offering fortnightly or even weekly payments rather than committing members to paying fees quarterly.

Norman Lucas stated as recently as 2004 that mechanics' institutes did not gain credibility as mass adult education providers until the late 1880s. This study has proved the statement untenable.<sup>672</sup> Lucas researched the London institutes, of which there were many, and found that their impact was variable. However, his work has a national perspective and on that basis he should, ideally, have researched the movement nationally, aware that London may not have reflected the national picture.

Thomas Kelly believes that the mechanics' institutes' movement was badly affected by economic depression.<sup>673</sup> However, institutes responded to the periodic falls in membership by offering more relevant courses, particularly elementary and industrial-based subjects and reducing membership fees. Some closed but often reopened and continued at least until the end of the nineteenth century. In other words, the committees were responsive to both relevant curriculum and economic conditions, as identified in this study.

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<sup>671</sup> Royle, 'Mechanics' Institutes and the Working Classes'.

<sup>672</sup> N. Lucas, 'Teaching in Further Education'.

<sup>673</sup> T. Kelly, *A History of Education in Great Britain*.

This study has revisited the debate that mechanics' institutes were short-lived, were organised by, and for, the professional classes, and that they had failed by 1850 in their principal aim of providing education to the working class. This was not the case (Appendix 3). The debate has shown, through analysing occupations of members at various mechanics' institutes, both nationally and within the Yorkshire Union, that there is enough evidence to substantiate the view that by the 1840s onwards at least, they were mainly patronised by this class. Indeed, this research has highlighted that in several cases, working men themselves were behind the initiative to establish and operate mechanics' institutes.

The work of historians in relation to social class, and particularly the work of Hobsbawm and Neale, has provided solid evidence that where lists of occupations have survived, the majority of members were working class. This puts beyond doubt that the movement did support working-class adult education.

Historians have been proved incorrect in their assertion that many institutes failed, and that in any case they only served the lower-middle classes educationally.<sup>674</sup> This study has clearly shown that the working classes, both men and women, attended the institutes in significant numbers and that the social activities were provided to encourage additional members and generate more income. This active involvement of the working classes in the establishment and decision making on institute committees contradicts the view of Harold Silver, writing in 1975, who thought that members were middle class, who debarred the working classes from leading and managing the institutes.<sup>675</sup> This is not to say, however, that middle-class patrons were not required or had no involvement, without which there would not have been the funding to establish institutes.

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<sup>674</sup> Barnard, *A History of English Education*, p.180.

<sup>675</sup> H. Silver, *English Education and the Radicals 1780 – 1850* (1975, London), p.41.

Many institutes had working-class committee members and, in some cases, working-class founders. It is true that the gentry, in particular the Duke of Devonshire in the case of the Yorkshire Union, provided land and financial support but there is no firm evidence to suggest they took direct control of the institutes with which they were involved. They generally left decision making to the committee members which turned out to be a very wise decision. In the North East, for example, the Pease family built and funded several institutes as part of their mining villages reflecting what they believed to be important educational establishments for adults.<sup>676</sup> They did not, however, directly manage the operation of these foundations. The crucial point here is that without their support in various ways it is unlikely that so many institutes would have been established. Local MPs were often co-opted on to committees and some, particularly Forster, were heavily involved in education at government level. Yet there is no firm evidence of national politics influencing decision making, despite MPs often being committee members or presidents of institutes.

Research has also involved examining female education in relation to the mechanics' institute movement. The research has identified that many Yorkshire Union mechanics' institutes accepted women and offered courses for them, particularly after 1850. Although their numbers were nowhere as high as for their male counterparts, they nevertheless had the opportunity to attend without discrimination. Indeed, two towns, Bradford and Huddersfield, established their own very successful women-only institutions, both of which were in the Yorkshire Union.

The 1850s was a crucial decade for the mechanics' institute movement. It was when Hudson believed that there was a decline in their importance and relevance with

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<sup>676</sup> Edward Pease founded the Bewdley Institute in Worcestershire in 1875 in some former domestic dwellings. His wife's family had come from Birmingham and it may have been her family connections which encouraged him to found the institution so far away from the North East, S. Brown, *Bewdley Institute 21 – 23 Lord Street: A Sketch From c1875 – c1950* (Private Publication, 2003), p.3.

regard to working-class adult education. However, evidence suggests the opposite with them responding to the needs of elementary education for working-class men and women. Secondly, the Great Exhibition of 1851 aroused not only interest in industrialisation through the displays put on at Hyde Park, but also demonstrated the importance of skilled men to support Britain's manufacturing base and to combat foreign competition. Well-organised support for visitors, cheap rail travel, positive support from many employers and the enthusiasm of the working class to visit the Exhibition resulted in an enthusiasm to learn skills for the 'Golden Age'. Mechanics' Institutes responded by providing not only elementary education but advanced courses in science and engineering drawing which provided the condition required for technical education.

The contribution made by the Great Exhibition and mechanics' institutes to industrial and technical education cannot be overstated. The number of patents approved in some of the towns of Lancashire and Yorkshire has highlighted that per head of population, some of the medium to smaller towns did substantially better than the larger ones, such as Manchester. Those same towns had one thing in common, their vibrant mechanics' institutes. Examples include Accrington, Huddersfield and particularly Keighley. It was no coincidence that the subsequent increase in patents at several towns in Lancashire and Yorkshire, for example, were the same ones as had successful mechanics' institutes. This indicates that they were ideally positioned to respond to the needs of an industrialising society, through offering relevant subjects.

Further development from the success of the Great Exhibition was the support given by Prince Albert to the Society of Arts. Under the stewardship of James Booth, the Society became established as a national examinations centre for technical education. So successful was it, in partnership with mechanics' institutes throughout

the country, that in 1857 Huddersfield Mechanics' Institute became the Northern Centre for sitting examinations. The Society provided much needed credibility to the educational importance of the mechanics' institute movement as well as establishing the idea of regional examination centres outside London. Towards the end of the nineteenth century, by which time mechanics' institutes had increased substantially in number, the City and Guilds Institute of London was offering more technical examinations, a tradition which continues today through further education colleges, the successors of the institutes and Schools of Design.

This research has identified that there were gradual developments in working-class adult education through the introduction of relevant subjects in response to both competition from abroad and industrial growth in Britain. There was an acceptance by governments that funding through grants should be available for institutes in respect of good quality teaching and successful public examination results which, in turn, gave them both public recognition and continued to support the Movement. Opposition, first identified in the early stages of institute development during the 1820s, seems to have become insignificant by 1840s.

There is also much evidence to demonstrate that the mechanics' institutes in the Yorkshire Union realised that it was important to offer elementary education in addition to advanced courses associated with local trades and technical education, and to encourage working-class men and women to attend. What many mechanics' institute committees realised was, that by establishing elementary education, they supported the needs of the working classes and later provided progression on to more advanced subjects, particularly in relation to the needs of local industry. This is backed up with evidence from registers and lists of occupations of members. Added to this was the fact that many institutes' committees were served by working-class men



who were able to identify what educational needs were to be met, what implications a rise in fees would have on the members, and how best to promote payment methods. Several institutes, such as at Slaithwaite near Huddersfield, opened their doors to younger members, including children, until school boards took over the responsibility after the passing of the 1870 Education Act, and several continued to provide an elementary education for this age group for several years.

A previous misunderstanding in historical accounts is that only the larger institutes in Lancashire and Yorkshire were successful after the 1850s.<sup>677</sup> This was not the case as all three study areas, the North East, Dales and Pennines and Huddersfield and District, had small institutes which were successful; many in rural areas were established after 1850 and were part of the Yorkshire Union. While across the Yorkshire Union the earliest mechanics' institutes were to be found in the larger industrialising towns, by the 1840s onwards many smaller industrial and agricultural communities established their own on similar lines. Research carried out for this thesis using census returns and membership data has proved beyond doubt that per head of population, smaller institutes were often more successful than their counterparts in the larger towns, albeit that the latter had often more than one institution of some kind in the town.

The North East cluster includes the smaller coal and iron stone mining institutes, most of which were founded or at least supported by the Pease Family. Others were smaller mechanics' institutes. Some were along the coast, others inland, providing elementary education and most specialising in geology because of the composition of the membership.

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<sup>677</sup> J. Laurent, 'Science, Society and Politics in Late Nineteenth Century England: A further look at Mechanics' Institutes in *Social Studies of Science*, Vol. 14, 1984.

The Dales and Pennines cluster had a number of institutes, often in isolated valleys, which were successful. It must be conceded that some institutes were unable to offer a full range of subjects at advanced level but many offered elementary education. Those who wished to progress could do so by enrolling at the larger institutes which were seldom far away. Membership of rural institutes fell with the establishment of the later mechanics' institutes and technical schools, but this was due to students attending these in the towns using public transport and in many cases the former institutes continued to serve education through being transformed into public libraries.<sup>678</sup>

Huddersfield and District was chosen for research to identify if mechanics' institutes located within a catchment area of a large and successful one might be less important, decline or even close. This study had shown that those within a 10-mile radius actually continued to expand, providing elementary education in many cases not only to adults but also children, such as Slathwaite. Indeed, students within walking distance travelled to Huddersfield to complete advanced studies. Tutors from this Mechanics' Institute also supported outlying institutes with their teaching, particularly chemistry which was highly regarded in supporting the dye industry locally. Thus, rather than declining, clusters of institutes seem to have supported each other as well as their own communities.

Mechanics' Institutes had libraries which were further enhanced across the country, as well as within the Yorkshire Union, by the establishment of public libraries; in particular the Carnegie Libraries. It was the success of several, including Keighley and Skipton that encouraged Andrew Carnegie to put up his own money to build public libraries, knowing that the population was eager to learn.

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<sup>678</sup> Dogley Lane, Eccleshill, Grassington and Lindley are examples of institutes which became public libraries.

Government provided funding conditional upon the successful inspection and examination of students attending the institutes. The latter was supported by the Society of Arts, City and Guilds and regionally the Yorkshire Union of Mechanics' Institutes. To gain as much funding as possible most institutes offered these public examinations and, in some cases, university extension courses, as well as working towards receiving good inspection reports. The need for positive inspection reports, the shortage of teachers, and the government preventing school-trained teachers from working in the institutes full-time, were instrumental in some institutes establishing their own technical teacher training courses.

Government intervention was positive in support of the institutes until the majority were taken into state education as technical schools or colleges. There is no evidence of institute committees fearing state control; rather they accepted that realistically they could not continue to fund adult education once the Technical Instruction Acts had been passed providing the opportunity for more and more working-class young men and women, as well as mature adults attending college to gain technical qualifications. As late as 1901 the Technical Instruction Acts were having a positive impact on adult education.

Many institutes encouraged women to enrol with the opportunity to use the libraries and attend women-only classes. In the Yorkshire Union, Bradford and Huddersfield had their own Female Institutes, both of which eventually merged with their male counter-parts during the 1880s when they went on to become Mechanics' and Technical Schools. Finally, the town of Halifax and the city of Sheffield had People's Colleges, supporting the working-class population by offering university extension courses as alternatives to the élite university education for the middle and upper classes, which they had no hope of entering. Several mechanics' institutes also offered

university extension courses. These were tremendous achievements and clearly support the argument made in this research that the committees of institutes were responsive to the needs of working-class adults, men and women by providing elementary to degree-level education.

Accommodation, or the lack of it, was a barrier to the success of many institutes. Almost all institutes in the region reported to the Yorkshire Union that if they had more space they could take more students and offer more subjects. Most started in humble circumstances, usually renting rooms or cottages, and developed their institute into the Victorian gothic civic buildings that many towns still have. Building funds were set up and income from entertainments and renting out rooms and parts of buildings supported continual expansion and redevelopment. This was quite an achievement when it is considered that there were no government funds for building. In many cases the buildings were finally taken into state ownership as Technical Schools or public libraries, some still being used for an educational purpose today.

Further factors potentially restricting the expansion of institutes included both the shortage of qualified teachers and the lack of finance to employ them. In response, several institutes established their own teacher-training programmes for student-pupils to embark upon, and specialist teachers taught at more than one institute, many delivering public lectures. In many cases school teachers taught night classes at the institutes. Government encouraged good quality teaching and learning by implementing inspections and providing additional funding for those institutes that accepted the inspectorate. Most did, and inspectors' reports were often very favourable.

Education for the working classes was available in the mechanics' institutes in towns, in rural areas, and in the new industrialising settlements, such as those found in

the North East. The mechanics' institutes that were members of the Yorkshire Union made a huge contribution to working-class adult and, in many instances, school-age education. The institutes were generally well-managed, provided subjects, and qualifications, that were both relevant to and supportive of the industrial age, and there is overwhelming evidence that teaching and learning were of a high standard, as they were government inspected.

Individuals, in particular Andrew Carnegie, who funded former Yorkshire Union institute libraries, such as Skipton and Keighley, the Pease family who established institutes and circulating libraries in the North East, and Swire Smith, Henry Brougham, Edward Baines, William Forster, the Earl of Ripon, George Birkbeck, James Hudson and the Duke of Devonshire all supported the movement, both within the Yorkshire Union and nationally. Other individuals, such as Frederic Schwann at Huddersfield, supported their local mechanics' institute and influenced adult education in the locality. Schwann founded both the male and female institutes in the town and encouraged the working class to attend through appointing members to the committee and arranging cheaper fortnightly payment of fees. Their contribution and that of others must not be underestimated.

This regional study has shown that the mechanics' institutes provided a 'solid and practical education' to the working classes for over eighty years, from elementary to advanced levels. Robert Elliot wrote in 1861 that 'the banquet was prepared for guests who did not come', highlighting the view that the mechanics' institutes were founded for the working classes but few attended.<sup>679</sup> In fact, from the 1840s, the banquet was prepared for guests, who did come as the fare offered was appetising educationally, healthy through mental improvement and at a price they could afford. The

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<sup>679</sup> R. Elliot, 'On the Working Men's Reading Rooms, as established in 1848 at Carlisle', *Transactions of the National Association for the Promotion of Social Science* (1861) 117.

Huddersfield Mechanics' Institute Committee was ahead of its time when in 1859 it stated on behalf of the movement that 'You have provided an intellectual banquet which all may taste, but through you, invitations are general to all ranks, the choice welcome is reserved for the lowly'. This study has, through a regional perspective, analysing individual *Annual Reports* which were sent to the Yorkshire Union in Leeds, emphasised that this was certainly the case, providing a foundation in the nineteenth century for government to establish state-funded adult further education.<sup>680</sup>

As the Yorkshire Union Committee in 1860 stated, 'mechanics' institutes provide a sound education amongst the industrial classes'. This study had provided evidence that this was the case until the 1890s by which time the state had taken over responsibility.<sup>681</sup> How far this success can be put down to the organisation of the Yorkshire Union is difficult to establish. However, the support given included annual conferences, the loan of lecturers and books and the support for national recognition is not questionable. What is beyond doubt is that this research has proved that the mechanics' institutes provided elementary and advanced technical education which was accessible to the working class, or at the very least the upper working class, and provided a firm foundation on which, through the Technical Instructions Acts, state-funded adult education was possible. Thus, 'a solid and practical education was within the reach of the humblest means' both nationally and regionally, in the case of the Yorkshire Union of Mechanics' Institutes between 1838 and 1891.

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<sup>680</sup> *Report of the Huddersfield Mechanics' Institute, 1858*, p.8. The quote was first mentioned in 1832, some 29 years before Robert Elliot's quote in 1861.

<sup>681</sup> Annual Reports of the Yorkshire Union of Mechanics' Institutes.

## Appendices

## Appendix 1

### Distribution Membership of Mechanics' Institutes by County in 1850

County	Institutions	Membership	Vol. in the Libraries
Bedfordshire	3	197	1450
Berkshire	6	1,191	5430
Buckinghamshire	3	238	550
Cambridgeshire	5	653	6,451
Cheshire	16	2,733	15,173
Cornwall	24	3,068	11,091
Cumberland	10	1,530	8,974
Derbyshire	10	1,248	1,079
Devon	24	4,953	16,600
Dorset	9	789	3,783
Durham	27	3,313	24,025
Essex	8	1,675	6,453
Gloucestershire	6	751	5,750
Hampshire	10	1,885	7,443
Hereford	5	686	2,850
Hertfordshire	5	629	2,256
Huntingdonshire	2	260	2,000
Kent	26	4,757	35,714
Lancashire	68	13,359	109,338
Leicestershire	3	1,264	4,510
Lincolnshire	11	1,476	14,290
Middlesex (inc. London)	28	8,534	132,850
Monmouthshire	3	419	850
Norfolk	8	1,380	17,105
Northumberland	17	2,634	24,026
Nottinghamshire	5	1,510	8,393
Oxford	1	150	1,400
Rutland	0	0	0
Shropshire	9	966	3,790
Somerset	11	1,730	13,500
Staffordshire	20	3,228	22,648
Suffolk	6	1,002	10,010
Surrey	11	2,621	14,750
Sussex	10	1,926	12,880
Warwickshire	11	5,791	9,640
Westmoreland	2	214	2,616
Wiltshire	10	1,788	6,686
Worcestershire	11	1,099	6,329
Yorkshire	151	25,506	34,781

Source: Hudson, *Adult Education*, pp. 222 – 234.



## Appendix 2 Rank Order of Mechanics' Institutes by membership in 1850

Location	Institution	Membership	County	Number	Rank Order
Edinburgh	Philosophical Institute	2035	Scotland	1	1
Leeds	Mechanics' Institute & Literary Soc.	1852	Yorkshire	2	2
Manchester	Mechanics' Institute	1614	Lancashire	3	3
London	Whittington Mechanics' Institute	1510	Middlesex	4	4
Manchester	Athenaeum	1254	Lancashire	5	5
Glasgow	Athenaeum	1204	Scotland	6	6
Greenwich	Soc of Dif of Useful Knowledge	1200	Kent	7	7
Belfast	Work Association	960	Ireland	8	8
Bristol	Athenaeum	934	Somerset	9	9
Huddersfield	Mechanics' Institute	887	Yorkshire	10	10
Bradford	Mechanics' Institute	876	Yorkshire	11	11
Devonport	Mechanics' Institute	837	Devon	12	12
Nottingham	Mechanics' Institute	815	Nottinghamshire	13	13
Hull	Mechanics' Institute	809	Yorkshire	14	14
Plymouth	Mechanics' Institute	800	Devon	15	15
Liverpool	Mechanics' Institute	800	Lancashire	16	15
London	London Institute	800	Middlesex	17	15
Chelmsford	Literary Mechanics' Institute	750	Essex	18	18
Newcastle	Literary Society & Mechanics' Inst.	747	Northumberland	19	19
Brighton	Athenaeum	732	Sussex	20	20
London	City Literary & Scientific Institute	700	Middlesex	21	21
London	Russell Mechanics' Institute	700	Middlesex	22	21
Edinburgh	School of Arts	700	Scotland	23	21
Exeter	Literary Society	650	Devon	24	24
Preston	Institute for the Dif of Knowledge	602	Lancashire	25	25
Northampton	Mechanics' Institute	600	Northamptonshire	26	26
Bilston	Institute	600	Staffordshire	27	26
Glasgow	Mechanics' Institute	600	Scotland	28	26
Greenock	Mechanics' Institute	600	Scotland	29	26
London	Mechanics Institute	599	Middlesex	30	30
London	Westminster Mechanics' Institute	598	Middlesex	31	31
Wakefield	Mechanics' Institute	576	Yorkshire	32	32
Macclesfield	Useful Knowledge Society	570	Cheshire	33	33
Halifax	Mechanics' Institute	551	Yorkshire	34	34
Ipswich	Mechanics' Institute	550	Suffolk	35	35
Swindon	Mechanics' Institute	550	Wiltshire	36	36
Birmingham	Polytechnic	547	Warwickshire	37	37
Leicester	Mechanics' Institute	502	Leicestershire	38	38
Liverpool	Northern Mechanics' Institute	500	Lancashire	39	39
London	Islington Mechanics' Institute	500	Middlesex	40	39
Southwark	Literary Institute	500	Surrey	41	39
Walworth	Literary & Scientific Institute	500	Surrey	42	39
Birmingham	Philosophical Society	500	Warwickshire	43	39
Glasgow	Calton Mechanics' Institute	500	Scotland	44	39
Dublin	Library Society	500	Ireland	45	39
York	Institute and Philosophical Society	492	Yorkshire	46	46
Middlesbrough	Mechanics' Institute	477	Durham	47	47
Aberdeen	Mechanics' Institute	459	Scotland	48	48
Southampton	Polytechnic Institute	450	Hampshire	49	49
Maidstone	Mechanics' Institute	450	Kent	50	49
Coventry	Mechanics' Institute	450	Warwickshire	51	49
Sterling	School of Art	450	Scotland	52	49
Stockport	Mechanics' Institute	445	Cheshire	53	53
Paisley	Artisans Institute	445	Scotland	54	54
Ashton	Mechanics' Institute	420	Lancashire	55	55
Carlisle	Literary & Mechanics' Institute	416	Cumberland	56	56
Reading	Literary Society and Mechanics' Inst	400	Berkshire	57	57
Wadebridge	Literary & Scientific. Institution	400	Cornwall	58	57
Warrington	Mechanics' Institute	400	Lancashire	59	57
London	Marylebone Mechanics' Institute	400	Middlesex	60	57

London	Jews Mechanics' Institute	400	Middlesex	61	57
Salisbury	Literary & Scientific Institute	400	Wiltshire	62	57
Brechin	M L S I	400	Scotland	63	57
Dukinfield	Village Library	396	Cheshire	64	64
Derby	Mechanics' Institute	392	Derbyshire	65	65
Winchester	Mechanics' Institute	384	Hampshire	66	66
Chichester	Literary Society & Mechanics' Inst	382	Sussex	67	67
Falmouth	Polytech. Scientific	380	Cornwall	68	68
Chester	Mechanics' Institute	363	Cheshire	69	69
Woolwich	Literary Society & Mechanics' Inst	360	Kent	70	70
Bingley	Mechanics' Institute	358	Yorkshire	71	71
Oldham	Lyceum	355	Lancashire	72	72
Penzance	Literary Institute	353	Cornwall	73	73
Darlington	Mechanics' Institute	350	Durham	74	74
Durham	Mechanics' Institute	350	Durham	75	74
Blackheath	Literary Society	350	Kent	76	76
Sheffield	Athenaeum	350	Yorkshire	77	76
Kilmarnock	Athenaeum	350	Scotland	78	76
Gateshead	Mechanics' Institute	349	Durham	79	79
Rochdale	People's Institute	340	Lancashire	80	80
Sunderland	Literacy and Philosophical Society	337	Durham	81	81
Norwich	Athenaeum	335	Norfolk	82	82
Sheffield	Mechanics' Institute	334	Yorkshire	83	83
Lincoln	Mechanics' Institute	333	Lincolnshire	84	84
London	West Chelsea Mechanics' Institute	333	Middlesex	85	84
Barnstable	Literary & Scientific Institute	326	Devon	86	86
Oldham	Hartworks Institute	326	Lancashire	87	86
Lynn	Institute	320	Norfolk	88	88
Norwich	Literary Institute	312	Norfolk	89	89
Guernsey	Mechanics' Institute	309	Wales	90	90
Newport	Mechanics' Institute	303	Monmouthshire	91	91
Hereford	RA	300	Herefordshire	92	92
Bedlington	Walker's Institute	300	Northumberland	93	92
Keighley	Mechanics' Institute	300	Yorkshire	94	92
Sheffield	Athenaeum	300	Yorkshire	95	92
Stockton	Mechanics' Institute	300	Yorkshire	96	92
Waterford	Mechanics' Institute	300	Ireland	97	92
Dundee	Literary Institute	295	Scotland	98	98
Camberwell	Athenaeum	285	Surrey	99	99
Bolton	Mechanics' Institute	282	Lancashire	100	100
Burnley	Mechanics' Institute	280	Lancashire	101	101
Bury	Mechanics' Institute	280	Lancashire	102	101
Thornton	Mechanics' Institute	280	Yorkshire	103	101
Windsor	Literary Soc and Mechanics' Institute	276	Berkshire	104	104
London	Beaumont Mechanics' Institute	276	Middlesex	105	104
Beverley	Mechanics' Institute	276	Yorkshire	106	104
Cardiff	Athenaeum	272	Wales	107	107
Portsmouth	Athenaeum	270	Hampshire	108	108
Gravesend	Mechanics' Institute	270	Kent	109	108
Lewes	Mechanics' Institute	270	Sussex	110	108
Cork	Mechanics' Institute	270	Ireland	111	108
Bradford	Odd-fellows	269	Yorkshire	112	112
Otley	Mechanics' Institute	264	Yorkshire	113	112
Liskeard	Institute	263	Cornwall	114	114
Kentishtown	Literary Institute	260	Middlesex	115	115
Wolverhampton	Athenaeum	260	Staffordshire	116	115
Southwark	KRL & SI	260	Surrey	117	115
Leamington	R L & S L	260	Warwickshire	118	115
Barnsley	Mechanics' Institute	256	Yorkshire	119	119

Braintree	Literary Mechanics' Institute	255	Essex	120	120
Newark	Mechanics' Institute	255	Nottinghamshire	121	120
Knareborough	Literary Institute	252	Yorkshire	122	122
Exeter	Scientific & Literary Society	250	Devon	123	123
Stonehouse	Literary and Mechanic's Institute	250	Devon	124	123
Cheltenham	Literary and Philosophical Society	250	Gloucestershire	125	123
Lancaster	Mechanics' Institute	250	Lancashire	126	123
London	City Mechanics' Institute	250	Middlesex	127	123
Guildford	Literary & Scientific Institute	250	Surrey	128	123
Huddersfield	Philosophy Society	250	Yorkshire	129	123
Carmarthen	Literary & Scientific Institute	250	Wales	130	123
Airdrie	Mechanics' Institute	250	Scotland	131	123
Greenock	Watt Institute	250	Scotland	132	123
Dublin	Mechanics' Institute	250	Ireland	133	123
Leek	Mechanics' Institute	247	Staffordshire	134	134
Wilsden	Mechanics' Institute	244	Yorkshire	135	135
Camberwell	Literary & Scientific Institute	243	Surrey	136	136
Glasgow	Cowaddens Mechanics Institute	240	Scotland	137	137
Northshields	Mechanics' Institute	235	Northumberland	138	138
Stourbridge	Mechanics' Institute	232	Worcestershire	139	139
Cambridge	Mechanics' Institution	229	Cambridge	140	140
Ripon	Mechanic's Institute & L P	224	Yorkshire	141	141
Scarborough	Mechanics' Institute	224	Yorkshire	142	141
Uttoxeter	Literary & Scientific Institute	222	Staffordshire	143	143
Poole	Literary Soc & Mechanics' Institute	220	Dorset	144	144
Driffield	Mechanics' Institute	220	Yorkshire	145	144
Vale of Leven	Mechanics' Institute	220	Scotland	146	144
Basingstoke	Mechanics' Institute	219	Hampshire	147	147
Whitby	Mechanics' Institute	214	Yorkshire	148	148
Workington	Mechanics' Institute	211	Cumberland	149	149
Highgate	Literary & Scientific Institute	210	Middlesex	150	150
Ayr	Mechanics' Institute	210	Scotland	151	150
Shrewsbury	Mechanics' Institute	209	Shropshire	152	152
Stamford	Mechanics' Institute	207	Lincolnshire	153	153
Hexham	Mechanics' Institute	207	Northumberland	154	153
Devizes	Literary & Scientific Institute	204	Wiltshire	155	155
Northallerton	Mechanics' Institute	204	Yorkshire	156	155
Dundalk	Mechanics' Institute	204	Ireland	157	155
Liverpool	Brougham Mechanics' Institute.	203	Lancashire	158	158
Darwen	Mechanics' Institute	201	Lancashire	159	159
Colchester	Mechanics' Institute	200	Essex	160	160
Ryde	Literary & Scientific Institute	200	Hampshire	161	160
Ware	Mechanics' Institute	200	Hertfordshire	162	160
Oldham	Lowmoor Mechanics' Institute	200	Lancashire	163	160
Preston	Literary and Philosophical Institute	200	Lancashire	164	160
Grantham	Philosophical Institute	200	Lincolnshire	165	160
Louth	Mechanics' Institute	200	Lincolnshire	166	160
East Retford	Literary & Scientific Institute	200	Nottinghamshire	167	160
Stratford	Literary & Scientific Institute	200	Warwickshire	168	160
Warminster	Athenaeum	200	Wiltshire	169	160
Doncaster	Mechanics' Institute	200	Yorkshire	170	160
Dumfries	Mechanics' Institute	200	Scotland	171	160
Paisley	Mechanics' Institute	200	Scotland	172	160
Paisley	Athenaeum	200	Scotland	173	160
Belfast	Mechanics' Institute	200	Ireland	174	160
Whitehaven	Mechanics' Institute	191	Cumberland	175	175
Falmouth	Mechanics' Institute	190	Cornwall	176	176
Kensington	Literary Society	190	Middlesex	177	176
Mansfield	Library and R	190	Nottinghamshire	178	176

Crewe	Mechanics' Institute	182	Cheshire	179	179
Falmouth	Athenaeum	180	Cornwall	180	180
Teignmouth	Useful Knowledge Society	180	Devon	181	180
Huntingdon	Literary & Scientific Institute	180	Huntingdon	182	180
Wellington	Mechanics' Institute	180	Shropshire	183	180
Stoke	Athenaeum	180	Staffordshire	184	180
Howden	Mechanics' Institute	180	Yorkshire	185	180
Manchester	Salford Literary Institute	178	Lancashire	186	186
Bromley	Literary Institute	177	Kent	187	187
Gloucester	Literacy & Scientific Association	175	Gloucestershire	188	188
Penzance	Mechanics' Institute	174	Cornwall	189	189
Redruth	Useful Knowledge Society	174	Cornwall	190	189
Morley	Mechanics' Institute	173	Yorkshire	191	191
Leigh	Mechanics' Institute	172	Lancashire	192	192
Congleton	Mechanics' Institute	171	Cheshire	193	193
Maidenhead	Literary & Mechanics' Institute	170	Berkshire	194	194
Hereford	Mechanics' Institute	170	Herefordshire	195	194
Blackburn	Mechanics' Institute	170	Lancashire	196	194
Shelton	Mechanics' Institute	170	Staffordshire	197	194
Sheffield	Peoples College	170	Yorkshire	198	194
Tamworth	Library & Reading Room	166	Staffordshire	199	199
Newbury	Literary & Scientific Institute	165	Berkshire	200	200
Malton	Mechanics' Institute	165	Yorkshire	201	200
Dawlish	Literary Knowledge Society	164	Devon	202	202
Hitchin	Mechanics' Institute	164	Hertfordshire	203	202
Pudsey	Mechanics' Institute	164	Yorkshire	204	202
Morpeth	Mechanics' Institute	162	Northumberland	205	205
Cambridge	Philosophical Union society	160	Cambridge	206	206
Rawtenstall	Mechanics' Institute	160	Lancashire	207	206
Ulverstone	Athenaeum	160	Lancashire	208	206
Boston	Mechanics' Institute	160	Lincolnshire	209	206
Hanley	Pottery Mechanics' Institute	160	Staffordshire	210	206
Newcastle	Literary & Scientific Institute	160	Staffordshire	211	206
Woodhouse	Mechanics' Institute	160	Yorkshire	212	206
Galway	Mechanics' Institute	160	Ireland	213	206
Limerick	Mechanics' Institute	160	Ireland	214	206
Bakewell	Peak Mechanics' Institute	158	Derbyshire	215	215
Yeovil	Mutual Improvement Society	156	Somerset	216	216
Manchester	Miles Platting Institute	154	Lancashire	217	217
Meltham	Mechanics' Institute	151	Yorkshire	218	218
Cockermouth	Mechanics' Institute	150	Cumberland	219	219
Maryport	Mechanics' Institute	150	Cumberland	220	219
Belper	Mechanics' Literary Scientific	150	Derbyshire	221	219
Tiverton	Literary & Scientific Institute	150	Devon	222	219
South Shields	Mechanics' Institute	150	Durham	223	219
Hereford	Natural History Literacy Society	150	Herefordshire	224	219
Rochester	Philosophical and Literacy Society	150	Kent	225	219
Haslingdon	Mechanics' Institute	150	Lancashire	226	219
Ramsbottom	Mutual Improvement Society	150	Lancashire	227	219
Rochdale	Athenaeum	150	Lancashire	228	219
Stalybridge	Mechanics' Institute	150	Lancashire	229	219
Hamstead	Mechanics' Institute & Library	150	Middlesex	230	219
Lynn	Society of Arts Institute	150	Norfolk	231	219
Alnwick	Scientific Mechanics' Institute	150	Northumberland	232	219
Banbury	Mechanics' Institute	150	Oxfordshire	233	219
Bath	Athenaeum	150	Somerset	234	219
Bridgewater	Literary & Scientific Institute	150	Somerset	235	219
Taunton	Mechanics' Institute	150	Somerset	236	219
Burton	Literary Society	150	Staffordshire	237	219
Beccles	Library and Scientific Institute	150	Suffolk	238	219
Bury St Edmunds	Mechanics' Literary & Sci Institute	150	Suffolk	239	219
Bermondsey	Literary Institute	150	Surrey	240	219
Hastings	Literary & Scientific Institute	150	Sussex	241	219
Harrogate	Mechanics' Institute	150	Yorkshire	242	219
Holmfirth	Mechanics' Institute	150	Yorkshire	243	219
Marsden	Mechanics' Institute	150	Yorkshire	244	219
Wortley	Youths' Guardian Society	150	Yorkshire	245	219
Campsie	Mechanics' Institute	150	Scotland	246	219

Dumbarton	Mechanics' Institute	150	Scotland	247	219
Glasgow	Parkhead Institute	150	Scotland	248	219
Jerdburgh	Mechanics' Institute	150	Scotland	249	219
Kilmarnock	Philosophical Institute	150	Scotland	250	219
Ardee	Mechanics' Institute	150	Ireland	251	219
Drogheda	Mechanics' Institute	150	Ireland	252	219
Denton	Mechanics' Institute	148	Lancashire	253	253
Chesterfield	Mechanics' Institute	146	Derbyshire	254	254
Heywood	Mechanics' Institute	145	Lancashire	255	255
Tottenham	Literary & Scientific Institute	144	Middlesex	256	256
Redditch	Literary & Scientific Institute	144	Worcestershire	257	256
Armley	Mechanics' Institute	144	Yorkshire	258	256
Skipton	Mechanics' Institute	144	Yorkshire	259	256
Holbeck	Mechanics' Institute	143	Yorkshire	260	260
Holbeck	Adult Scientific Institute	143	Yorkshire	261	260
Fleetwood	Mechanics' Institute	142	Lancashire	262	262
Crediton	Mutual Improvement Society	141	Devon	263	263
Newton Abbot	Useful Knowledge Society	140	Devon	264	264
Brentford	Mechanics' Institute	140	Middlesex	265	264
Peterborough	Mechanics' Institute	140	Northamptonshire	266	264
Longton	Athenaeum	140	Staffordshire	267	264
Stafford	Mechanics' Institute	140	Staffordshire	268	264
Rugby	Mechanics' Institute	140	Warwickshire	269	264
Boston Spa	Mechanics' Institute & Literary Soc.	140	Yorkshire	270	264
Brighouse	Mechanics' Institute	140	Yorkshire	271	264
Huddersfield	Female Education Institute,	140	Yorkshire	272	264
Masham	Mechanics' Institute	140	Yorkshire	273	264
Stanningley	Mechanics' Institute	140	Yorkshire	274	264
Swansea	Peoples' Institute	140	Wales	275	264
Anan	Mechanics' Institute	140	Scotland	276	264
Coatbridge	Mechanics' Institute	140	Scotland	277	264
Tunbridgewells	Useful Knowledge Society	137	Kent	278	278
Honley	Mechanics' Institute	137	Yorkshire	279	278
Pontefract	Mechanics' Institute	137	Yorkshire	280	278
Richmond	Mechanics' Institute	136	Yorkshire	281	281
Ashford	Mechanics' Institute	135	Kent	282	282
Selby	Mechanics' Institute	135	Yorkshire	283	282
Saltash	Mechanics' Institute	134	Cornwall	284	284
Manchester	Middleton Mechanics' Institute	134	Lancashire	285	284
Merthyr Tydvil	Mechanics' Institute	134	Wales	286	284
Worsley	Mechanics' Institute	131	Lancashire	287	287
Wallingford	Mechanics' Institute	130	Berkshire	288	288
Witham	Literacy Institute	130	Essex	289	289
Royston	Mechanics' Institute	130	Hertfordshire	290	289
Chatham	Mechanics' Institute	130	Kent	291	289
Colne	Mechanics' Institute	130	Lancashire	292	289
Lees	Literary Institute	130	Lancashire	293	289
Ossett	Mutual Improvement Society	130	Yorkshire	294	289
Falkirk	School of Arts	130	Scotland	295	289
Downpatrick	Mechanics' Institute	130	Ireland	296	289
Walden	Literary & Mechanics' Institute	127	Essex	297	297
Canterbury	Literary & Scientific Institute	127	Kent	298	297
Farnworth	Mechanics' Institute	126	Lancashire	299	299
Kendal	Mechanics' Institute	126	Warwickshire	300	299
Thirsk	Mechanics' Institute	126	Yorkshire	301	299
Manchester	Ancoats Literary Institute	125	Lancashire	302	302
Bedale	Mechanics' Institute	125	Yorkshire	303	302
Ulverstone	Improvement Society	124	Lancashire	304	304
Wrexham	Workman Literary Society	124	Wales	305	304
Wigton	Mechanics' Institute	123	Cumberland	306	306
Kirkstall	Mechanics' Institute	122	Yorkshire	307	307
Ely	Mechanics' Institution	121	Cambridge	308	308
Altringham	Literary Institute	121	Cheshire	309	308
Coggleshall	Literary Mechanics' Institute	121	Essex	310	308
Great Ayton	Mechanics' Institute	121	Yorkshire	311	308
Penryn	Mechanics' Institute	120	Cornwall	312	312
Penrith	Mechanics', Lib & Reading Room	120	Cumberland	313	312
Torquay	Mechanics' Institute	120	Devon	314	312

Tewkesbury	Mechanics' Institute	120	Gloucestershire	315	312
Liverpool	Bootle Mechanics' Library	120	Lancashire	316	312
Bridgenorth	Mechanics' Institute	120	Shropshire	317	312
Oswestry	Young Men's Institute	120	Shropshire	318	312
Frome	Literary & Scientific Institute	120	Somerset	319	312
Worcester	Mechanics' Institute	120	Worcestershire	320	312
Calverley	Mechanics' Institute	120	Yorkshire	321	312
Batley	Literary Society	119	Yorkshire	322	322
Low Moor	Mechanics' Institute	118	Yorkshire	323	323
Yarmouth	Young Men's Institution	113	Norfolk	324	324
Cheadle	Mechanics' Institute	113	Staffordshire	325	324
Bridport	Mechanics' Institute	111	Dorset	326	326
Haworth	Mechanics' Institute	111	Yorkshire	327	326
Gloucester	Athenaeum & Mechanics' Institute	110	Gloucestershire	328	328
Newport	Athenaeum	110	Hampshire	329	328
Faversham	Literary & Scientific Institute	110	Kent	330	328
Clitheroe	Mechanics' Institute	110	Lancashire	331	328
Grimsby	Mechanics' Institute	110	Lincolnshire	332	328
Yeadon	Mutual Improvement Society	110	Yorkshire	333	328
Tavistock	Literary & Scientific Institution	108	Devon	334	334
Bromsgrove	Literary & Scientific Institute	108	Worcestershire	335	334
Wednesbury	Mechanics' Institute	107	Staffordshire	336	336
Middlewich	Literary & Scientific. Institute	105	Cheshire	337	337
Padiham	Mechanics' Institute	105	Lancashire	338	337
Brampton	Mechanics' Institute	104	Cumberland	339	339
Droylsden	Mechanics' Institute	103	Lancashire	310	310
Burslem	Mechanics' Institute	103	Staffordshire	311	310
Wimborne	Science and Art Institute	102	Dorset	312	312
Bacup	Mechanics' Institute	102	Lancashire	313	312
Launceston	Mutual Improvement. Society	101	Cornwall	314	314
Margate	Literary & Scientific Institute	101	Kent	315	314
St. Just	Mechanics' Institute	100	Cornwall	316	316
Ashbourne	Newsroom	100	Derbyshire	317	316
Bideford	Literary & Scientific Institute	100	Devon	318	316
Plymouth	Workingman's Association	100	Devon	319	316
Tavistock	Mechanics' Institute	100	Devon	320	316
Hartlepool	Literary & Scientific & Mechanics' In	100	Durham	321	316
Shildon	Mechanics' Institute	100	Durham	322	316
Portsmouth	Literary Philosophical Institute	100	Hampshire	323	316
Dover	Philosophical Institution	100	Kent	324	316
Wigan	Mechanics' Institute	100	Lancashire	325	316
Woolton	Mechanics' Institute	100	Lancashire	326	316
Horncastle	Mechanics' Institute	100	Lincolnshire	327	316
London	Finsbury Mechanics' Institute	100	Middlesex	328	316
Staines	Literary & Scientific Institute	100	Middlesex	329	316
Northampton	Athenaeum	100	Northamptonshire	330	316
Bedlington	Mechanics' Institute	100	Northumberland	331	316
Newcastle	Arthurhill Institute	100	Northumberland	332	316
Newcastle	Nelson Street Institute	100	Northumberland	333	316
Northshields	Tynemouth Library	100	Northumberland	334	316
Bath	Com & Literary Institute	100	Somerset	335	316
Weston	Mechanics' Institute	100	Somerset	336	316
Lowestoff	Mechanics' Institute	100	Suffolk	337	316
Reigate	Mechanics' Institute	100	Surrey	338	316
Worthing	Institute	100	Sussex	339	316
Birmingham	Scientific and Arts Society	100	Warwickshire	340	316
Birmingham	Odd Fellows Institute	100	Warwickshire	341	316
Marborough	Mutual Improvement Society	100	Wiltshire	342	316
Stourbridge	Mechanics' Institute	100	Worcestershire	343	316
Dewsbury	Mechanics' Institute	100	Yorkshire	344	316
Market Weighton	Mechanics' Institute	100	Yorkshire	345	316
Peniston	Mechanics' Institute	100	Yorkshire	346	316
Saddleworth	Mechanics' Institute	100	Yorkshire	347	316
Sowerby Bridge	Mechanics' Institute	100	Yorkshire	348	316
Wetherby	Literary Institute	100	Yorkshire	349	316
Brymbo	Mechanics' Institute	100	Wales	350	316
Swansea	Literary Society	100	Wales	351	316
Dundee	Watt Institute	100	Scotland	352	316

Forfar	Mechanics' Institute	100	Scotland	353	316
Glasgow	Gorbals Institute	100	Scotland	354	316
Hamilton	Mechanics' Institute	100	Scotland	355	316
Montrose	Literary Society	100	Scotland	356	316
Wareham	Mutual Improvement Society	97	Dorset	357	357
Camberwell	Institute of. Industry.	97	Surrey	358	357
Sleaford	Mechanics' Institute	96	Lincolnshire	359	358
Castleford	Mechanics' Institute	96	Yorkshire	360	358
Hunslet	Mechanics' Institute	96	Yorkshire	361	358
Merthyr Tydvil	Young Men's Improvement Society	96	Wales	362	358
Neath	Mechanics' Institute	96	Wales	363	358
Shipley	Mechanics' Institute	95	Yorkshire	364	364
Lindley	Mechanics' Institute	94	Yorkshire	365	365
Chepstow	Literary Institute	93	Monmouthshire	366	366
Woodlesford	Mechanics' Institute	93	Yorkshire	367	366
Sedgefield	Institute and Literary and Scientific	92	Durham	368	368
Malmesbury	Mutual Improvement Society	92	Wiltshire	369	368
Dorchester	County Museum	91	Dorset	370	370
East Looe	Mechanics' Institute	90	Cornwall	371	371
Blaydon	Reading Room	90	Durham	372	371
Winlaton	Literacy and Mechanics' Society	90	Durham	373	371
Bridgehall	Mechanics' Institute	90	Lancashire	374	371
London	Poplar Literary & Scientific Institute	90	Middlesex	375	371
Blyth	Mechanics' Institute	90	Northumberland	376	371
Corbridge	Library and Reading Room	90	Northumberland	377	371
Howden	Mechanics' Institute	90	Northumberland	378	371
Birmingham	Athenaeum	90	Warwickshire	379	371
Greetland	Mutual Improvement Society	90	Yorkshire	380	371
Cork	Royal Institute	90	Ireland	381	371
Tunbridge	Literary Society	89	Kent	382	382
West Bromwich	Society of Advanced Knowledge	89	Staffordshire	383	382
Appleby	Mechanics' Institute	88	Warwickshire	384	384
Guiseley	Mutual Improvement Society	88	Yorkshire	385	384
Shiffnal	Mechanics' Institute	87	Shropshire	386	386
Egham	Mechanics' Institute	86	Surrey	387	387
Bedford	Literary & Scientific. Institute	85	Bedfordshire	388	388
Camborne	Dif. Useful Knowledge Society	85	Cornwall	389	388
Pershore	Mechanics' Institute	85	Worcestershire	390	388
Pendleton	Mechanics' Institute	84	Lancashire	391	391
Upton	Mechanics' Institute	84	Worcestershire	392	391
Bramley	Mechanics' Institute	83	Yorkshire	393	893
Pateley-Bridge	Mechanics' Institute	83	Yorkshire	394	893
Bridge	Literary and Science Association	82	Kent	395	395
Patricroft	Mechanics' Institute	81	Lancashire	396	396
Chesham	Mechanics' Institution	80	Buckinghamshire	397	397
Newport Pagnal	Literary & Scientific. Institute	80	Buckinghamshire	398	397
Totnes	Mechanics' Institute	80	Devon	399	397
Pittington	Literary & Scientific Institute	80	Durham	400	397
St. Ives	Useful Knowledge Society	80	Huntingdon	401	397
Rhodes	Mechanics' Institute	80	Lancashire	402	397
Uxbridge	Mechanics' Institute	80	Middlesex	403	397
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Wellingborough	Mechanics' Institute	80	Northamptonshire	405	397
Ludlow	Literary Association	80	Shropshire	406	397
Shrewsbury	Literary & Scientific Institute	80	Shropshire	407	397
Wells	Literary & Scientific Institute	80	Somerset	408	397
Chichester	Literary & Philosophical Society	80	Sussex	409	397
Troubridge	Mechanics' Institute	80	Wiltshire	410	397
Leeds	York Road Mechanics' Institute	80	Yorkshire	411	397
Longwood	Mechanics' Institute	80	Yorkshire	412	397
Pocklington	Mechanics' Institute	80	Yorkshire	413	397
Newtown	Mechanics' Institute	80	Wales	414	397
Dunse	Mechanics' Institute	80	Scotland	415	397
Kilmarnock	Mechanics' Institute	80	Scotland	416	397
Wycomb	Literary Institute	78	Buckinghamshire	417	417
Nantwich	Mechanics' Institute	78	Cheshire	418	417
London	Cripplegate Mechanics' Institute	78	Middlesex	419	417
Gomersal	Mutual Improvement Society	78	Yorkshire	420	417

Milngavie	Mechanics' Institute	78	Scotland	421	417
Facit	People's Institute	76	Lancashire	422	422
Buntingford	Literacy Institute	75	Hertfordshire	423	423
Bexley	Useful Knowledge Society	75	Kent	424	423
Evesham	Literacy Society & Mechanics' Inst	75	Worcestershire	425	423
Netherton	Mechanics' Institute	75	Yorkshire	426	423
Stonehaven	Literary Institute	75	Scotland	427	423
Whitley	Mechanics' Institute	73	Cambridge	428	428
Bodmin	Literary Institute	73	Cornwall	429	428
Biggleswade	Mechanics' Institute	72	Bedfordshire	430	430
Romford	Literary & Scientific Institute	72	Essex	431	430
Fordingbridge	Literary & Scientific Mechanics' Inst	72	Hampshire	432	430
Manchester	Hrpurhey Institute	72	Lancashire	433	430
Pilkinton	Parklane Institute	72	Lancashire	434	430
London	North London Mechanics' Institute	72	Middlesex	435	430
Burley	Mechanics' Institute	72	Yorkshire	436	430
March	Mechanics Institute	70	Cambridge	437	437
Tarporley	New (1851) Mechanics' Institute	70	Cheshire	438	437
Colyton	Mutual Improvement Society	70	Devon	439	437
Bernard Castle	Mechanics' Institute	70	Durham	440	437
Bishop Wermouth	Mechanics' and Library	70	Durham	441	437
Tunbridgewells	Literary & Scientific Institute	70	Kent	442	437
Loughborough	Library Institute	70	Leicestershire	443	437
Tean	Literary Institute	70	Staffordshire	444	437
Rugby	Mechanics' Institute	70	Warwickshire	445	437
Worcester	Literary & Scientific Institute	70	Worcestershire	446	437
Bridlington	Mechanics' Institute	70	Yorkshire	447	437
Guiseley	Mutual Improvement Society	70	Yorkshire	448	437
Headingley	Mechanics' Institute	70	Yorkshire	449	437
Kippax	Mechanics' Institute	70	Yorkshire	450	437
Kirkburton	Mechanics' Institute	70	Yorkshire	451	437
Dalkeith	Science Association	70	Scotland	452	437
Lanark	Mechanics' Institute	70	Scotland	453	437
Wentworth	Mechanics' Institute	69	Yorkshire	454	454
Glossop	Mechanics' Institute	67	Derbyshire	455	455
Hawick	Literary & Scientific Institute	67	Scotland	456	455
Leyburn	Mechanics' Institute	66	Yorkshire	457	457
Belper	Mechanics' Institute Library	65	Derbyshire	458	458
Royton	Mechanics' Institute	65	Lancashire	459	458
Borobridge	Mechanics' Institute & Literary Soc	65	Yorkshire	460	458
Churwell	Mechanics' Institute	65	Yorkshire	461	458
London	Pimlico Mechanics' Institute	64	Middlesex	462	462
Castle Eden	Library and Reading Room	63	Durham	463	463
Lockwood	Mechanics' Institute	63	Yorkshire	464	464
Ferryhill	Literary Society	62	Durham	465	464
Chippenham	Literary & Scientific Institute	62	Wiltshire	466	464
Adwalton	Mechanics' Institute	62	Yorkshire	467	464
Meltham Mill	Mechanics' Institute	62	Yorkshire	468	464
Tunstall	Literary & R S	61	Staffordshire	469	469
Birkenshaw	Mechanics' Institute	61	Yorkshire	470	469
Elland	Mechanics' Institute	61	Yorkshire	471	469
St. Stephen's Comb	Institute	60	Cornwall	472	472
Codnor Park	Artisan's Library	60	Derbyshire	473	472
Melborne	People's College	60	Derbyshire	474	472
Modbury	Literary & Scientific Institute	60	Devon	475	472
Etherley	Mechanics' Institute	60	Durham	476	472
Shotlybridge	Mechanics' Institute	60	Durham	477	472
Ware	Reading Room	60	Hertfordshire	478	472
Tenterden	Mutual Improvement Society	60	Kent	479	472
Tyldesley	Mechanics' Institute	60	Lancashire	480	472
Hinchley	Mechanics' Institute	60	Leicestershire	481	472
Hastings	Mechanics' Institute	60	Sussex	482	472
Cleckheaten	Mechanics' Institute	60	Yorkshire	483	472
Dogley Lane	Mechanics' Institute	60	Yorkshire	484	472
Levern	Mechanics' Institute	60	Scotland	485	472



Dungannon	Literary Society	60	Ireland	486	472
Blackley	Mechanics' Institute	57	Lancashire	487	487
Prescot	Educational Institute	57	Lancashire	488	487
Ormskirk	Literary & Scientific Institute	56	Lancashire	489	489
Honiton	Literary Institute	55	Devon	490	490
Radcliffe	Mutual Improvement Society	55	Lancashire	491	490
St. Agnes	Miners' Mechanics' Institute	54	Cornwall	492	492
Chester-le-Street	Mechanics' Institute	54	Durham	493	492
Towcester	Literary Institute	54	Northamptonshire	494	492
Cullingworth	Mechanics' Institute	54	Yorkshire	495	492
Gisburn	Mechanics' Institute	54	Yorkshire	496	492
Wortley	Mutual Improvement Society	54	Yorkshire	497	492
St Andrews	Literary & Philosophical Society	53	Scotland	498	498
Horsham	Mechanics' Institute	52	Sussex	499	499
Birstal	Mutual Improvement Society	52	Yorkshire	500	499
Farnley Tyas	Mechanics' Institute	51	Yorkshire	501	501
Leeds	Mutual Improvement Society	51	Yorkshire	502	501
Wantage	Literary & Scientific. Institute	50	Berkshire	503	503
Dinting Vale	Library	50	Cheshire	504	503
Northwich	Mechanics' Institute	50	Cheshire	505	503
Runcorn	Church Institute	50	Cheshire	506	503
Truro	Literary & Scientific. Institution	50	Cornwall	507	503
Chapel-le-Frith	Improvement Society	50	Derbyshire	508	503
Cullompton	Mutual Improvement Society	50	Devon	509	503
Kingsbridge	Literary & Scientific Institute	50	Devon	510	503
Ottery	Mutual Institute Society	50	Devon	511	503
Tavistock	Mutual Society	50	Devon	512	503
Blandford	Mechanics Institute	50	Dorset	513	503
Dorchester	Literary Institute	50	Dorset	514	503
Crook	Mechanics' Institute	50	Durham	515	503
Ledgate	Polytechnic Institute	50	Durham	516	503
Kelvedon	Mutual Improvement Society	50	Essex	517	503
Newnham	Mechanics' Institute	50	Gloucestershire	518	503
Lymington	Literary Institute	50	Hampshire	519	503
Canterbury	Mental Improvement Society	50	Kent	520	503
Dartford	Mechanics' Institute	50	Kent	521	503
Folkstone	Literary Institute	50	Kent	522	503
Hythe	Reading Society	50	Kent	523	503
St Mary's Cray	Education Institute	50	Kent	524	503
Levenshulme	Mechanics' Institute	50	Lancashire	525	503
Manchester	Rusholme Institute	50	Lancashire	526	503
London	Red Lion Square Mechanics' Institute	50	Middlesex	527	503
Bellingham	Mechanics' Institute	50	Northumberland	528	503
Edwinstowe	Mechanics' Institute	50	Nottinghamshire	529	503
Bristol	Young Men's Institute	50	Somerset	530	503
Great Bridge	Mechanics' Institute	50	Staffordshire	531	503
Battle	Mechanics' Institute	50	Sussex	532	503
Horsham	Literary & Scientific Institute	50	Sussex	533	503
Warwick	Athenaeum	50	Warwickshire	534	503
Corsham	Literary & Scientific Institute	50	Wiltshire	535	503
Warminster	Literary & Scientific Institute	50	Wiltshire	536	503
Dudley	Mechanics' Institute	50	Worcestershire	537	503
Ackworth	Mechanics' Library	50	Yorkshire	538	503
Denby	Mechanics' Institute	50	Yorkshire	539	503
Dob Cross	Young Men's Improvement Society	50	Yorkshire	540	503
Goole	Literary & Scientific Society	50	Yorkshire	541	503
Guisbro	People's Institute	50	Yorkshire	542	503
Horsforth	New Mechanic's Institute	50	Yorkshire	543	503
Idle	Mutual Improvement C	50	Yorkshire	544	503
Longley	Mechanics' Institute	50	Yorkshire	545	503
New York	Mechanics' Institute	50	Yorkshire	546	503
Rotherham	Mechanics' Institute	50	Yorkshire	547	503
Spofforth	Mechanics' Institute	50	Yorkshire	548	503
Todmorden	Athenaeum	50	Yorkshire	549	503
Almwch	Literary & Scientific Institute	50	Wales	550	503
Dunferline	Science Association	50	Scotland	551	503
Girvan	Mechanics' Institute	50	Scotland	552	503
Glasgow	Anderton Institute	50	Scotland	553	503
Rothsay	Young Men's Institute	50	Scotland	554	503

Wishaw	Science Institute	50	Scotland	555	503
Clonmel	Mechanics' Institute	50	Ireland	556	503
Ennis	Mechanics' Institute	50	Ireland	557	503
Wolsingham	Library	48	Durham	558	558
Haltwistle	Mechanics' Institute	47	Northumberland	559	559
Thorne	Literary Society	47	Yorkshire	600	559
Stroud	Athenaeum	46	Gloucestershire	601	601
Haydonbridge	Newspapers and Library	46	Northumberland	602	601
Hunmanby	Mechanics' Institute	46	Yorkshire	603	601
Ellesmere	Institute	45	Shropshire	604	604
Ironbridge	Mechanics' Institute	45	Shropshire	605	604
Horsforth	Mechanics' Institute	45	Yorkshire	606	604
Rastrick	Mechanics' Institute	45	Yorkshire	607	604
Banff	Literary Society	44	Scotland	608	608
Benenden	Mutual Improvement Society	43	Kent	609	609
Beeston	Mutual Improvement Society	43	Yorkshire	610	609
Granpound	Literary Institute	42	Cornwall	611	611
Royton	Mechanics' Institute	42	Lancashire	612	611
Hoyland	Mechanics' Institute	42	Yorkshire	613	611
Addingham	Mechanics' Institute	41	Yorkshire	614	614
Luton	Literary Institute	40	Bedfordshire	615	615
Newquay	Institute	40	Cornwall	616	615
Sturminster	Literary & Scientific Institute	40	Dorset	617	615
West Auckland	Mechanics' Institute	40	Durham	618	615
Failsworth	Mechanics' Institute	40	Lancashire	619	615
Manchester	Mosley Mechanics' Institute	40	Lancashire	620	615
Wavertree	Mechanics' Institute	40	Lancashire	621	615
Gainsborough	Mechanics' Institute	40	Lincolnshire	622	615
Highgate	Artisan's Reading Room	40	Middlesex	623	615
Diss	Literary & Scientific Institute	40	Norfolk	624	615
Kettering	Useful Knowledge Society	40	Northamptonshire	625	615
Northampton	Useful Knowledge Society	40	Northamptonshire	626	615
Ilminster	Mutual Improvement Society	40	Somerset	627	615
Walsall	Mechanics' Institute	40	Staffordshire	628	615
Doncaster	Franklin Society	40	Yorkshire	629	615
Filey	Mechanics' Institute	40	Yorkshire	630	615
Garforth	Mechanics' Institute	40	Yorkshire	631	615
Horbury	Mechanics' Institute	40	Yorkshire	632	615
Kirkheaton	Mutual Improvement Society	40	Yorkshire	633	615
Kirkby Mlzd	Mechanics' Institute	40	Yorkshire	634	615
Couper Angus	Mutual Improvement Society	40	Scotland	635	615
Sheerness	Mechanics' Institute	38	Kent	636	636
Arbroath	Mechanics' Institute	36	Scotland	637	637
St. Columb	Mechanics' Institute	35	Cornwall	638	638
Alston	Mechanics' Institute	35	Cumberland	639	638
Elswick	Literary and Mechanics' Institute	35	Durham	640	638
Westgate	Weardale Literacy	35	Durham	641	638
Anstonley	Mechanics' Institute	35	Yorkshire	642	638
Birstal	Mechanics' Institute	35	Yorkshire	643	638
Gomersal	Mechanics' Institute	35	Yorkshire	644	638
Ballymoney	Mechanics' Institute	35	Ireland	645	638
Hedon	Mechanics' Institute	34	Yorkshire	646	646
Kidderminster	Athenaeum	31	Worcestershire	647	647
Sandbach	Literary & Scientific Institute	30	Cheshire	648	648
Tintwistle	Young Men's Institute	30	Cheshire	649	648
St. Ives	Literary Institute	30	Cornwall	650	648
Keswick	Young Men's Improvement Society	30	Cumberland	651	648
Corfe Castle	Mechanics' Institute	30	Dorset	652	648
Yarm	Mechanics' Institute	30	Durham	653	648
Romsey	Literary & Scientific Institute	30	Hampshire	654	648
Ledbury	Mechanics' Institute	30	Herefordshire	655	648
Epworth	Mechanics' Institute	30	Lincolnshire	656	648
Diss	Library	30	Norfolk	657	648
Saxmundham	Mechanics' Institute Society (MIS)	30	Suffolk	658	648
Almondbury	Mechanics' Institute	30	Yorkshire	659	648
Barnoldswick	Mechanics' Institute	30	Yorkshire	660	648
Barnsley	Franklin Society	30	Yorkshire	661	648
Berrybrow	Mechanics' Institute	30	Yorkshire	662	648
Esholt	Mechanics' Institute	30	Yorkshire	663	648

Selby	People's Institute	30	Yorkshire	664	648
Anglesey	Literary & Scientific Institute	30	Wales	665	648
Castle Bellingham	Work C Association	30	Ireland	666	648
Tuam	Mechanics' Institute	30	Ireland	667	648
Chadderton	Literary Institute	28	Lancashire	668	668
Hoddlesdon	Mechanics' Institute	28	Lancashire	669	668
Ripley	Literary Institute	26	Yorkshire	670	670
Stainland	Mechanics' Institute	24	Yorkshire	671	671
Irvine	Mechanics' Institute	24	Scotland	672	671
Altarnun	Mutual Improvement Society	23	Cornwall	673	673
Hollingworth	Young Men's Association	22	Cheshire	674	674
Bungay	Mechanics' Institute	22	Suffolk	675	674
Hamsterley	Mechanics' Institute	21	Durham	676	676
Methley	Mechanics' Institute	21	Yorkshire	677	676
Torpoint	Literary & Scientific. Institution	20	Cornwall	678	678
Monmouth	Useful Knowledge Society	20	Monmouthshire	679	678
Ovingham	Mechanics' Institute	20	Northumberland	680	678
High Green	Mechanics' Institute	20	Yorkshire	681	678
Carluke	Useful Knowledge Society	20	Scotland	682	678
Forres	Literary Society	20	Scotland	683	678
Johnstone	Mechanics' Institute	20	Scotland	684	678
Garvagh	Young Men's Institute	20	Ireland	685	678
Kilrea	Young en's Institute	20	Ireland	686	678
Grassington	Mechanics' Institute	18	Yorkshire	687	687
Farnley	Mutual Improvement Society	16	Yorkshire	688	688
Potaferry	Mechanics' Institute	16	Ireland	689	688
Newry	Mechanics' Institute	10	Ireland	690	690
Ross	Mental Improvement Society	3	Herefordshire	691	691
Chudleigh	Literary Society	New	Devon	692	No info
Dunmow	-	-	Essex	693	No info
Halstead	-	-	Essex	694	No info
Crawshawbooth	Mechanics' Institute	New	Lancashire	695	No info
Spalding	Literary Society	New	Lincolnshire	696	No info
Hackney	Literary Institute	New	Middlesex	697	No info
Kensington	Literary & Scientific Institute	New	Middlesex	698	No info
Croydon	Literary & Scientific Institute	New	Surrey	699	No info
Batley	Mechanics' Institute	No figures	Yorkshire	700	No info
Bradford	Philosophical Society	No figures	Yorkshire	701	No info
Bradford	Eccleshill Mechanics' Institute	No figures	Yorkshire	702	No info
Bradford	Baildon Mechanics Institute	No figures	Yorkshire	703	No info
Eccleshill (B'ford)	Mechanics' Institute	No figures	Yorkshire	704	No info
Halifax	Eastwood Mutual Improvement Soc	Not known	Yorkshire	705	No info
Halifax	Mankinholes Mutual Improve Soc	Not known	Yorkshire	706	No info
Halifax	Stones Mutual Improvement Society	Not known	Yorkshire	707	No info
Halifax	Walshaw Mechanics' Institute	Not known	Yorkshire	708	No info
Halifax	Northowram Mechanics' Institute	Not known	Yorkshire	709	No info
Halifax	Stainland & Hollywell Green Mech	Not known	Yorkshire	710	No info
Halifax	Young Men's' Mutual Improve Soc	Not known	Yorkshire	711	No info
Halifax	Ovenden Women's' Adult School	Not known	Yorkshire	712	No info
Halifax	Siddal Strict Baptist Mutual Impr Soc	Not known	Yorkshire	713	No info
Halifax	Mytholmroyd Mutual Improve Soc	Not known	Yorkshire	714	No info
Halifax	Gomersal Mechanics' Institute	Not known	Yorkshire	715	No info
Heckmondwike	Mechanics' Institute	Not known	Yorkshire	716	No info
Holbeck	Junior Technical Evening School	Not known	Yorkshire	717	No info
Keighley	Mechanics' Institute	Not known	Yorkshire	718	No info
Knottingley	Mechanic's Institute	New	Yorkshire	719	No info
Leeds	Czar St Day Industrial School	Not known	Yorkshire	720	No info
Leeds	Edgar St Day Industrial School	No known	Yorkshire	721	No info
Norton	Mechanics' Institute	New	Yorkshire	722	No info
Oakworth	Mechanics' Institute	Not known	Yorkshire	723	No info
Stokesley	Mechanics' Institute	New	Yorkshire	724	No info
Shelley	Mechanics Institute	Not known	Yorkshire	725	No info

Slaithwaite	Mechanics' Institute	New	Yorkshire	726	No info
Swillington	Mechanics' Institute	New	Yorkshire	727	No info
Todmorden	Todmorden Mechanics' Institute	Not known	Yorkshire	728	No info
Todmorden	Weavers Institute	Not known	Yorkshire	729	No info
Todmorden	Mutual Improvement Society	Not known	Yorkshire	730	No info
Topcliffe	Athenaeum	New	Yorkshire	731	No info
Wakefield	Scientific and Literary Societies	Not known	Yorkshire	732	No info
Stranraer	Mechanics' Institute	Suspended	Scotland	733	No info
Belfast	Mechanics' Institute	Suspended	Ireland	734	No info

Data extracted from Hudson, *Adult Education*, pp. 222 – 236 and put into rank order for the whole of Britain.

### Appendix 3 Yorkshire Union of Mechanics' Institutes 1838 – 1900 with dates where known

	Name	Opened	Reopened	Closed		Location	Map ref.
1	Aberford	1867	1876	1884	FE College	Wetherby	10 J
2	Acomb	-	-	-	-	York	8 K
3	Ackworth	1845	1876	-	-	York	12J
4	Addingham	1845	-	1930	-	Leeds	9 E
5	Adel W M Club	1878	-	-	-	Leeds	10H
6	Adwalton	1842	1846	1905	-	Bradford	11G
7	Aldborough	1878	-	-	-	Darlington	7J
8	Almondbury	1845	1850	1884	-	Huddersfield	12F
9	Amotherby Vill Lib	-	-	-	-	Malton	6M
10	Ampleforth R Room	1879	-	-	-	Helmsley	6K
11	Airmyn V L	1870	1882	-	-	Goole	11M
12	Aldfield Schools	1870	-	-	-	Ripon	7G
13	Allerston V L	1886	-	-	-	Pickering	5N
14	Anlaby	1870	-	-	-	Hull	11Q
15	Apperley Bridge	1849	-	1881	-	Horsforth	10G
16	Appleton Wiske Lit & M Inst.	1849	-	-	-	Northallerton	3H
17	Ardsley WM Club	-	-	-	-	Barnsley	13H
18	Arkendale	1877	-	-	-	Knaresborough	7H
19	Armitage Bridge	-	-	-	-	Huddersfield	12F
20	Armitage Fold	-	-	-	-	Huddersfield	12F?
21	Armley	-	-	-	-	Leeds	10G
22	Arncliffe	1873	-	-	-	Kettlewell	6D
23	Austonley	1851	-	-	-	Holmfirth Hudd' field	13F
24	Baildon	1868	-	circa 1910	-	Shipley	10F
25	Baldesby	-	-	-	-	Thirsk	6H
26	Baliffe Bridge	1866	-	-	-	Brighouse	11F
27	Balk	-	-	-	-	Thirsk	5J
28	Bainbridge	1874	1882	-	-	Hawes	4D
29	Barnard Castle	1832	-	1925	-	Barnard Castle	2E
30	Barmby Moor	-	-	-	-	Scunthorpe	13L
31	Barnoldswick	-	-	circa 1910	-	Colne	9C
32	Barnoldswick Church Institute	1856	-	-	-	Colne	9C
33	Barnsley	1831	1848	1890	FE College	Barnsley	13H
34	Barnsley Village Library	-	-	-	-	Barnsley	13H
35	Barnsley Franklinian	-	-	-	-	Barnsley	13H
36	Barwick	-	-	-	-	Leeds	10H
37	Batley	1843	-	-	FE College	Batley	11G
38	Batley Mental Improvement Soc	1852	-	-	-	Batley	11G
39	Batley W M Club	-	-	-	-	Batley	11G
40	Bedale Y M I	1849	1880	-	-	Bedale	5G
41	Bedale R Room	1873	-	-	-	Bedale	5G
42	Bedale Memorial School	-	-	-	-	Bedale	5G
43	Beeston Royds	1849	-	-	-	Leeds ?	10G
44	Beeston	-	-	-	-	Leeds	10G
45	Bell Busk	1876	-	-	-	Skipton	8D
46	Belton	1881	-	1884	-	Scunthorpe	13M
47	Bentham	1856	-	-	-	Settle	7C
48	Beverley & East Riding	1833	1873	1890	FE College	Beverley	10Q

49	Beverley Village Library	-	-	-	-	Beverley	10Q
50	Bierley	-	-	-	-	Bradford	10F
51	Bingley	1825	1849	1898	FE College	Keighley	10F
52	Birkenshaw MI	1848	-	-	-	Bradford	11G
53	Birkenshaw W M Inst.	1879	-	-	-	Bradford	11G
54	Birstal	-	-	-	-	Batley	11G
55	Birstal Mutual Imp.?	-	-	-	-	Batley	11G
56	Bishop Monkton	1859	-	-	-	Ripon	7H
57	Blacker Hill	1884	-	-	-	Barnsley	13H
58	Boltby	-	-	-	-	Thirsk	5J
59	Bolton By Bowland	1863	-	-	-	Clitheroe	9B
60	Bolton Abbey Group	-	-	-	-	Bolton Abbey	8E
61	Barden	1877	-	-	-	Bolton Abbey	4F
62	Halton East	1877	-	-	-	Bolton Abbey	8E
63	Hazlewood	1877	-	-	-	Bolton Abbey	8E
64	Bolton Bridge	1877	-	-	-	Bolton Abbey	8E
65	Boroughbridge	1860	-	-	-	Ripon	7H
66	Boston Spa	1850	1878	-	-	Wetherby	9J
67	Bowden Close Miners' Institute	1883	-	-	-	Durham	C'Durham
68	Boynton	-	-	-	-	Bridlington	7R
69	Bradford	1825	1832	1958	FE College	Bradford	10F
70	Female Education Institute	-	1857	-	-	Bradford	10F
71	Oddfellows	-	-	-	-	Bradford	10F
72	Long Pledged Teetotal	-	-	-	-	Bradford	10F
73	Westgate Hill M I S	-	-	-	-	Bradford	10F
74	Bramham	-	-	-	-	Wetherby	9J
75	Bramhope	-	-	-	-	Yeadon	9G
76	Bramhope	-	-	-	-	Yeadon	9G
77	Bramley	-	-	-	-	Leeds	10G
78	Bramley Mutual Improvement	-	-	-	-	Leeds	10G
79	Bramley Haste & Brown Inst.	-	-	-	-	Leeds	10G
80	Brandesburton	-	-	-	-	Beverley	9R
81	Bridlington	1838	-	-	FE College	Bridlington	7R
82	Bridlington Quays	1848	-	-	-	Bridlington	7R
83	Brighouse (with Rastrick)	1845	-	1907	-	Halifax	11F
84	Brighouse W M Club	1865	-	-	-	Halifax	11F
85	Brotherton Vill Lib	-	-	-	-	Castleford	11J
86	Brotton	-	-	-	-	Saltburn	1L
87	Brough Lib and R R	1878	-	-	-	Brough	11P
88	Bruntcliffe	-	-	-	-	Morley	11G
89	Brompton-on-Swale	1883	-	-	-	Catterick	4G
90	Broughton & Elslack	-	-	-	-	Skipton	8D
91	Bubwith	1872	-	-	-	Selby	10M
92	Buckden	1872	-	-	-	Kettlewell	6D
93	Bulmer V L	1881	-	1884	-	Malton	7L
94	Burley	1845	-	1870	-	Leeds	10G
95	Burton Agnes	-	-	-	-	Bridlington	7R
96	Burton Leonard	-	-	-	-	Harrogate	7H
97	Burnsall	1879	-	-	-	Grassington	7E
98	Buttershaw	1876	-	-	-	Bradford	11F
99	Burley in Wharfedale	-	-	-	-	Ilkley	9F

100	Calverley	1851	-	1935	Now Library	Horsforth	10G
101	Campsall Village Library	1880	-	-	-	Doncaster	12K
102	Carlton Village Library	1878	-	-	-	Pontefract	11J
103	Catton & Stamford Bridge	-	-	-	-	York	9D?
104	Carlton	1830	1851	-	-	Skipton	8D
105	Carlton	1878	-	-	-	Wakefield	11H
106	Carthorpe	1864	-	-	-	Bedale	5H
107	Castle Eden Colliery	-	-	-	-	Darlington	2G
108	Castleford	1851	-	-	-	Castleford	11J
109	Castle Howard Vill Library	-	-	-	-	9 villages in locality	
110	Cawood V L	1880	-	-	-	Selby	10K
111	Cayton	1881	-	1884	-	Scarborough	5Q
112	Church Fenton	-	-	-	-	Selby	10K
113	Cleckheaton	1838	1877	1900	-	Dewsbury	11F
114	Cleckheaton Christian Assoc.	-	-	-	-	Dewsbury	11F
115	Cleveland Iron Works	-	-	-	-	Middlesboro'	J2
116	Chapel Allerton & Potternewton	1873	-	-	-	Leeds	10H
117	Chapeltown	1848	-	1851	-	Barnsley	14H
118	Churwell Mental Impro Society	-	-	-	-	Leeds	11G
119	Clayton	1880	-	-	-	Bradford	10F
120	Clayton West W M C	1879	-	-	-	Barnsley	12G
121	Cloughton	1891	-	-	-	Scarborough	4Q
122	Clough Head	1866	-	-	-	Huddersfield?	11D
123	Coatham WMC	-	-	-	-	Redcar	1K
124	Collingham V L	1882	-	-	-	Wetherby	9H
125	Cottingley	1852	-	-	-	Bradford	10F
126	Coneysthorpe	1880	-	-	-	Malton	6M
127	Copgrove with Burton Leonard	1879	-	-	-	Richmond	4F
128	Coniston Kilnseay	1874	-	-	-	Skipton	8D
129	Cononley	-	-	-	-	Skipton	9D
130	Crakehall	1880	-	-	-	Bedale	6J?
131	Cowling	-	-	-	-	Keighley	9D
132	Cragg Vale	1868	-	-	-	Mytholmroyd	11E
133	Crook	1848	-	-	-	Durham	Durham
134	Crowle	1878	-	-	-	Goole	12M
135	Cross Hills	-	-	-	-	Leeds	9E
136	Cross Hills Sutton Mill	-	-	-	-	Leeds	9E
137	Crosland Moor	-	-	-	-	Huddersfield	12F
138	Crigglestone WMC	-	-	-	-	Wakefield	12H
139	Cullingworth	-	-	-	-	Keighley	10E
140	Cundall V L	1879	-	-	-	Ripon	6J
141	Castleton ?	-	-	-	-	NYksMoors	3L
142	Danby Wiske	1885	-	-	-	Northallerton	4H
143	Dane V Lib	-	-	-	-	Cheshire	Cheshire
144	Dacre	-	-	-	-	Harrogate	7F
145	Darlington	1825	1840	-	FE College	Darlington	2G
146	Albert Hill	-	-	-	-	Darlington	2G
147	North Eastern Inst.	-	-	-	-	Darlington	2G
148	Railway Institute	-	-	-	-	Darlington	2G

149	Deighton Grove	-	-	-	-	Huddersfield	12 F
150	Delph	1855	-	-	-	Saddleworth	13D
151	Denholme	1840	1860 & 1878	1898	-	Bradford	10E
152	Denholme Clough	-	-	1882	-	Bradford	10E
153	Dent	1875	-	-	-	Cumberland	5B
154	Denton	1850	1876	1888	-	Darlington	9F
155	Dewsbury	1825	-	1893	FE College	Dewsbury	11G
156	Dodsworth	1879	-	-	-	Barnsley	13H
157	Dogley Lane	1846	-	-	-	Kirkburton	12G
158	Doncaster MI	1826	-	1869	FE College	Doncaster	13K
159	Doncaster GNRFree Inst.	1853	-	-	-	Doncaster	13K
160	Doncaster Franklinian	-	-	-	-	Doncaster	13K
161	Downholme	1878	-	1885	-	Richmond	4F
162	Drifffield	1837	-	1951	-	Drifffield	8Q
163	Dunsforth Village Library	1879	-	1883	-	Boroughbridge NYk	7H
164	Earby Mut Imp Soc.	1859	-	-	-	Skipton	9D
165	Easingwold	1881	-	-	-	York	7K
166	East Ardsley	1887	-	-	-	Leeds	11H
167	East Hardwick	1878	-	-	-	Pontifract	12J
168	East Heselerton	1890	-	-	-	Malton	6P
169	East Howle	1878	-	-	-	Durham	C'Durham
170	East Keswick	1880	-	-	-	Wetherby	9H
171	East Witton	1875	-	-	-	Layburn	5F
172	Ebberston V L	1886	-	-	-	Pickering	5N
173	Eccleshill	1837	1851	1951	-	Bradford	10F
174	Eccup	1878	-	-	-	Bramhope	9G
175	Elland	1845	1851	1901	-	Halifax	11F
176	Emley	1878	-	-	-	Huddersfield	12G
177	Embsay	1870	-	-	-	Skipton	8E
178	Elloughton	1880	-	-	-	Hull	11P
179	Eldwick V L	1883	-	-	-	Otley	9F
180	Eppleby RR	1886	-	-	-	Darlington	2F
181	Escrick V L	1888	-	-	-	York	9L
182	Esh Miners' Institute	-	-	-	-	Durham	Durham
183	Etherley L I	1889	-	-	-	Durham	Durham
184	Esholt	1845	1891	1901	-	Bradford	10F
185	Eston Mines	-	-	-	-	Middlesboro'	2K
186	Eston & Normanby	1850	-	-	-	Middlesboro'	8D
187	Fairburn V L	1887	-	-	-	Pontifract	11J
188	Farnhill V L	1883	-	-	-	Skipton	9E
189	Farsley	1853	-	1883	-	Leeds	10G
190	Fartown	-	-	-	-	Pudsey	12F
191	Ferrybridge	1882	-	-	-	Castleford	11J
192	Filey	1848	-	-	-	Filey	5R
193	Flockton	-	-	-	-	Huddersfield	12G
194	Forcett	1879	-	-	-	Darlington	2F
195	Foston V L	1878	1890	-	-	Drifffield	8R
196	Follifoot V L (Pannal)	1882	-	-	-	Harrogate	8H
197	Frodingham	-	1888	-	-	Drifffield	12P
198	Fulneck	1856	-	-	-	Pudsey	Pudsey
199	Garforth Club and Institute	1848	1865	-	-	Leeds	10J



200	Gargrave	1868	-	-	-	Skipton	8D
201	Garton V L	1887	-	-	-	Hull	ER
202	Gildersome	1851	1878	1884	-	Wakefield	11G
203	Gilthead Village Library	1888	-	-	-	Bingley	10F
204	Gilling	1877	1887			Richmond	6L?
205	Gisburn	1840	-	-	-	Barrowford	9C
206	Glass-Houses	1872	-	-	-	Pateley Bridge	7F
207	Goldsborough	1880	-	-	-	Harrogate	8H
208	Gomersal M I	1849	1852	1962	-	Dewsbury	11G
209	Gomersal W M C	1880	-	-	-	Dewsbury	11G
210	Goole	1839	1856	-	-	Goole	11M
211	Goole YMCA	1883	-	-	-	Goole	11M
212	Grassington	1845	1853	1905	-	Kettlewell	7E
213	Great Ayton	1850	-	short lived	-	Cleveland	2K
214	Great Smeaton	1880	-	-	-	Northallerton	3H
215	Green Hammerton	1872?	-	-	-	Knaresborough	8J
216	Greetland & West Vale	1874	-	-	-	Halifax	11E
217	Great Ouseburn	1880	-	-	-	Knaresborough	7J
218	Great Preston MI	1875	-	-	-	Pontefract	11J
219	Grewelthorpe	1876	-	1879	-	Ripon	6G
220	Grosmont	1856	-	-	-	Whitby	3N
221	Groves Men's Mutual	1890	-	-	-	Sunderland	C'Durham
222	Guiselley, Leeds	1845	1850	1913	-	Leeds	9F
223	Guisborough	1849	-	-	-	Redcar	2L
224	Hackness	1885	-	-	-	Scarborough	4P
225	Halifax	1825	-	1932	FE College	Halifax	11E
226	Haley Hill W Men's College	-	-	-	-	Halifax	11E
227	Northowram	1852	-	1933	-	Halifax	11E
228	Southowarm	1856	1878	-	-	Halifax	11E
229	Illingworth	1876	-	-	-	Halifax	11E
230	Halton RR	1880	-	-	-	Leeds	10H
231	Hambleton	-	-	-	-	Selby	10K
232	Harden	-	-	-	-	Keighley	10E
233	Harpham V L	1885	-	-	-	Drifffield	7Q
234	Harrogate	1841	1847 & 1874	1882	-	Harrogate	8H
235	Harton Reading Room	1880	-	-	-	Malton	7M
236	Hartlepool Working Men's Inst	-	-	-	-	Hartlepool	Durham
237	Hartlepool West Athenaeum	-	-	-	-	Hartlepool	Durham
238	Hartlepool L Soc. & M Institute	1833	1844	1858	-	Hartlepool	Durham
239	Haworth	1844	1848	1906	-	Keighley	10E
240	Halton West	-	-	-	-	Leeds	8C
241	Headingley & Meanwood	1848	-	-	-	Leeds	10G
242	Healaugh Vill Inst.	-	-	-	-	Leyburn	4E
243	Healey R Room	-	-	-	-	Leyburn	5F
244	Heaton	-	-	-	-	Bradford	10F
245	Hebden Bridge	1854	-	-	-	Hebden Bridge	11D
246	Heckmondwike, Top of	1841	1873	C20th	-	Dewsbury	11G
247	Heckmondwike Union C L I	1878	-	-	-	Dewsbury	11G
248	Hedon and Holderness	1844	1883	-	-	Hull	11R
249	Helmsley Lit Institute	1844	1851			York	5L

250	Hepworth	-	-	-	-	Holmfirth	13F
251	Helperby	1874	-	-	-	Ripon	7J
252	Hickleton	-	-	-	-	Barnsley	13J
253	High Grange Reading Room	-	-	-	-	-	-
254	High Green	-	-	-	-	Bradford	12F
255	Hightown	-	-	-	-	Halifax	12E
256	Hinderwell V L	1887	-	-	FE College	Redcar	2M
257	Holme Lane	1855	-	-	-	Bradford	13F
258	Holywell Green	1850	-	1933	-	Halifax	12E
259	Hessle	1881	-	-	-	Hull	11Q
260	Hessle	1890	-	-	-	Hull	11Q
261	Holmfirth	1844	-	-	Technical Sch	Holmfirth	13F
262	Hollycroft Soldier's Wives'	1887	-	-	-	Scarborough ?	5Q
263	Hopetown Reading Room	1845	1865	-	-	Wakefield	11H
264	Hopetown Young Men's Ass.	-	-	-	-	Wakefield	11H
265	Hornby	-	-	-	-	Appleton Wisk, NY	3H
266	Hornsea	1875	-	-	-	Hornsea	9S
267	Horsforth MI	1850	-	1917	Library	Leeds	10G
268	Horsforth Mut Improv.	1860	-	-	-	Leeds	10G
269	Horsforth Woodside	1855	-	-	-	Leeds	10G
270	Howden	1848	1855	1872	-	Goole	11M
271	Howden-Le-Wear	-	-	-	-	Durham	Durham
272	Hoyland	1840	-	1876	-	Huddersfield	13H
273	Huddersfield	1838	-	1903	FE College	Huddersfield	12F
274	Huddersfield Female Institute	1840	-	-	"	Huddersfield	12F
275	Huddersfield YMCA	1875	-	-	-	Huddersfield	12F
276	Greenside	-	-	-	-	Huddersfield	12F
277	Highfield	-	-	-	-	Huddersfield	12F
278	Hillhouse	-	-	-	-	Huddersfield	12F
279	Hinchliffe Mill	1880	-	-	-	Huddersfield	12F
280	Honley	1845	1880	1885	-	Huddersfield	12F
281	Lindley	1845	1860	1900	-	Huddersfield	12F
282	Lockwood	1844	-	1904	-	Huddersfield	12F
283	Longwood	1842	-	-	-	Huddersfield	12F
284	Lascelles Hall	-	-	-	FE College	Huddersfield	12F
285	Lower Houses WMC	1871	-	-	-	Huddersfield	12F
286	Lydgate	1881	-	-	-	Huddersfield	11D
287	Sheepbridge	-	-	-	-	Huddersfield	12F
288	Wessenden W M I	-	-	-	-	Huddersfield	11D
289	Hull Athenaeum	-	-	-	-	Huddersfield	11D
290	Hull Lit & Sc. M Inst.	1825	1830	1899	FE College	Hull	11Q
291	Hull Reading Room	-	-	-	-	Hull	11Q
292	Hull Young Men's Institution	-	-	-	-	Hull	11Q
293	Hundhill	1886	-	-	-	Hull	11Q
294	Hunmanby Lit Soc	-	1886	-	-	Filey	6Q
295	Hutton Bouville	1878	-	-	-	Appleton Wiske, NY	3H
296	Hutton Rugby V L	1850	-	-	-	Darlington	3J
297	Hutton Henry	1834	-	-	-	North Yorkshire	4L
298	Huttons Ambo V L	1890	-	-	-	Malton	7M
299	Hustwaite	1880	-	-	-	Thirsk	6K
300	Huntingdon	1880	-	-	-	York	8L

301	Hellifield Rail Servants Institute	1885	-	-	-	Long Preston	8C
302	Hickleton	1882	-	-	-	Doncaster	13J
303	Idle	1849	1856	-	-	Leeds	10F
304	Ilkley Mutual Improvement Soc.	-	-	-	FE College	Ilkley	9F
305	Keighley	1825	-	1944	-	Keighley	9E
306	Kettlewell	1855	-	-	-	Kettlewell	6D
307	Kildwick	1851	1879	-	-	Keighley	9E
308	Kippax	1849	-	1866	-	Leeds	10J
309	Kirkhammerton	1887	-	-	-	Knareborough	8J
310	Kirkhamgate V L	1887	-	-	-	Wakefield	11G
311	Kirkheaton	1825	1848	-	-	Hull	12F
312	Kirk Smeaton	1882	-	-	-	Pontefract	12K
313	Kirkstall	1825	1845	-	-	Leeds	10G
314	Kirbymoorside Self Help Soc.	1880	-	-	-	Pickering	5L
315	Kirby Hill V L	1887	-	-	-	Ripon	7H
316	Kirby Malzeard	1848	1870	C20th	-	Ripon	6G
317	Kirby Overblow	1884	-	-	-	Wetherby	9H
318	Kirkleatham & Yearby	1878	-	-	-	Middlesbrough	1K
319	Kirkburton	1850	1865	-	-	Huddersfield	12G
320	Kirk Deighton	1848	1880	-	-	Wetherby	8J
321	Killinghall	1867	-	1884	-	Skipton	8G
322	Kildale	1882	-	-	-	North Yks Moors	3L
323	Knapton	-	-	-	-	York	8K
324	Knareborough Church	-	-	-	-	Knareborough	8H
325	Knareborough Lit Soc.	1843	-	1877	-	Knareborough	8H
326	Knareborough	-	-	-	-	Knareborough	8H
327	Knottingley	1855	1866	-	-	Pontefract	11J
328	Lanchester V L	1887	-	-	-	Durham	Durham
329	Langtoft V L	1886	-	-	-	Driffield	7Q
330	Langton V L	1890	-	-	-	Northallerton	7M
331	Laxton School V L	1890	-	-	-	Goole	11M
332	Laycock V L	1889	-	-	-	Leeds	9E
333	Leeds	1825	-	1939	Theatre	Leeds	10G
334	Call Lane Leeds	-	-	-	-	Leeds	10G
335	Co-op. Society	-	-	-	-	Leeds	10G
336	East Ward	1856	-	-	-	Leeds	10G
337	Headingley Hill	-	-	-	-	Leeds	10G
338	Holbeck and New Wortley	1858	-	-	-	Leeds	10G
339	Holbeck Adult Improve'nt Soc.	-	-	-	-	Leeds	10G
340	Holbeck Old	1846	-	-	-	Leeds	10G
341	Holbeck New	-	-	-	-	Leeds	10G
342	Hunslet	1846	-	1920	-	Leeds	10G
343	Hunslet Pottery Field	1851	-	-	-	Leeds	10G
344	Jewish YMMIS	1874	-	-	-	Leeds	10G
345	Leeds Hill Wesleyan Chapel	-	-	-	-	Leeds	10G
346	Lower Wortley	-	-	-	-	Leeds	10G
347	Mutual Improvement Society	-	-	-	-	Leeds	10G
348	Odd Fellows	-	-	-	-	Leeds	10G
349	St Peter's	-	-	-	-	Leeds	10G
350	St Simon's M I Soc.	-	-	-	-	Leeds	10G
351	West End People's Institute	-	-	-	-	Leeds	10G

352	Wintoun Literary Society	-	-	-	-	Leeds	10G
353	Woodhouse	1850	-	-	-	Leeds	10G
354	Wortley	1862	-	-	-	Leeds	10G
355	Working Men's Hall	1863	-	-	-	Leeds	10G
356	York Road	1849	-	-	-	Leeds	10G
357	Zion Schools	-	-	-	-	Leeds	10G
358	Lees & Cross Roads	1884	-	-	-	Keighley	10E
359	Leven 'Foresters' Library'	-	-	-	-	Hornsea	9R
360	Leyburn Mechanics' Library	-	-	-	-	Leyburn	4F
361	Lingdale Miners' Inst. Guiseb	1876	-	-	-	Guiseborough	2L
362	Liversedge WMC	-	-	-	-	Dewsbury	11F
363	Liverton Mines	-	-	-	-	North Yorks Moors	2M
364	Lofthouse	-	-	-	-	Redcar	6F
365	Lofthouse	-	-	-	-	Cleveland	6F?
366	Lofthouse	1878	-	-	-	Wakefield	11H
367	Lofthouse	1878	-	1884	-	Pateley Bridge	7F
368	Loftus Lit Institute	1855	-	-	-	Loftus, Redcar	2M
369	Lofthouse-in-Cleveland	-	-	-	-	Cleveland	2M
370	Long Preston	1851	1861	-	-	Long Preston	8C
371	Lothersdale	1884	-	-	-	Huddersfield	9D
372	Low Moor	1848	1856	-	-	Brighouse	11F
373	Luddenden Foot	-	1880	-	-	Hebdon Bridger	11E
374	Malton Lit Inst.	1838	-	Short l'd	-	Malton	6M
375	Maltby V L	1862	-	-	-	Rotherham	14K
376	Mapplewell & Staincross	-	-	-	-	Hornsea	9S
377	Mapleton VL	-	-	-	-	Hornsea	9S
378	Marpewell	-	-	-	-	Barnsley	13H
379	Manfield V L	1890	-	-	-	Darlington	2G
380	Manston	-	-	-	-	Leeds	10H
381	Market Weighton	1848	-	-	-	Selby	9N
382	Markington	-	-	-	-	Ripon	7G
383	Marton-Cum-Grafton	1877	-	-	-	Bridlington	7R
384	Marr V L	-	-	-	-	Doncaster	13K
385	Masham	1849	-	1867	-	Ripon	5G
386	Marske Ment Improvement	1854	-	-	-	Redcar	1L
387	Marsden	1842	-	1881	-	Huddersfield	12E
388	Marske R Room	-	-	-	-	Redcar	1L?
389	Masborough Odd Fellows	-	-	-	-	Rotherham	14J
390	Marske V Library	1882	-	-	-	Marske	3F
391	Marton	1878	-	1884	-	Pickering	5M
392	Melsonby	-	-	-	-	Darlington	3F
393	Meltham	1849	-	1898	-	Huddersfield	12E
394	Meltham Mills	1851	-	-	-	Huddersfield	12F
395	Menston-in-Wharfedale	1882	-	-	-	Baildon	9F
396	Methley Junction	1874	-	-	-	Castleford	11H
397	Mexborough	1876	-	1884	-	Doncaster	13J
398	Middlesbrough	1836	-	1911	-	Middlesbrough	1J
399	South Bank MI	-	-	-	-	Middlesbrough	1J
400	Tees Side Iron Works	-	-	-	-	Middlesbrough	1J
401	Middleton V L	1890	-	-	-	Middlesbrough	11H
402	Middleton Tyas	-	-	-	-	Darlington	3G

403	Midgley	1877	-	-	-	Sowerby Bridge	11E
404	Milnsbridge		-	-	-	Huddersfield	12F
405	Mirfield	1870	-	-	-	Dewsbury	12G
406	Mirfield Battieford W M C	1870	-	1884	-	Dewsbury	12G
407	Monk-Bretton Club	1888	-	-	-	Barnsley	13H
408	Monk Fryston	1875	-	-	-	Knottingley	11K
409	Moorbottom	-	-	-	-	Cleckheaton	1F
410	Moorgate Lit Soc.	-	-	-	-	Rotherham	14J
411	Moorsholm	1878	-	1884	-	Redcar	2L
412	Morley	1849	1878	-	-	Leeds	11G
413	Morley Carr	1884	-	-	-	Leeds	11G?
414	Mossley	1840	-	-	-	Manchester	13D
415	Mytholmroyd V L	1849	1852 & 1875	1962	-	Mytholmroyd	11E
416	Midhope	1882	-	-	-	Derbyshire	Peak Dist.
417	Nafferton	1848	-	Short l'd	-	Huddersfield	8Q
418	Netherton	1846	-	1900	-	Huddersfield	12F
419	New Marske Miners Institute	1876	-	-	-	Marske	1L
420	New Shildon	-	-	-	-	Durham	CoDurham
421	Newton	1886	-	-	-	Rillington	8B
422	Newton	1876	-	-	-	Clitheroe	9B
423	Newton-in-Bowland	1877	-	-	-	Clitheroe	9B
424	Newton Lane End	1878	-	-	-	-	-
425	Normanton	-	-	-	-	Wakefield	11H
426	Normanton Joint Station L	1890	-	-	-	Wakefield	11H
427	Northallerton	1848	1874	1890	-	Northallerton	4H
428	North Grimston	1884	-	-	-	Malton	7N
429	North Stainley	1876	-	-	-	Ripon	6G
430	Nortonthorpe W M C	1873	-	-	-	Denby	Hudd' field
431	North Cave R Room		-	-	-	Hull	10N
432	North Skelton	1876	-	-	-	Redcar	2L
433	Norton Ment & Mor I S	-	-	-	-	Stockton	1J
434	Norton	1875	-	-	-	Sheffield	15H
435	Nidd V L	1881	-	-	-	Ripon	7H
436	Oakworth	1850	1866	1911	-	Keighley	10E
437	Old Malton	1883	-	-	-	Malton	6M
438	Orton V L	1890	-	-	-	Durham	CoDurham
439	Ossett	1851	-	-	-	Wakefield	11G
440	Otley	1839	-	-	Library 1959	Otley	9G
441	Oulton	1876	-	-	-	Wakefield	11H
442	Outwood Church Inst. / WMC	1878	-	-	-	Wakefield	11H
443	Oxenhope	1879	-	-	-	Keighley	10E
444	Oxspring	1890	-	-	-	Huddersfield	12G
445	Partington Village Library	1886	-	-	-	Manchester	Lancashire
446	Pateley Bridge	1839	-	1904	-	Harrogate	7F
447	Peases', West Miners' Institute	1876	-	-	-	Durham	Durham
448	Penistone	1849	-	Short l'd	-	Barnsley	13G
449	Pickering Adult School	1886	-	-	-	Pickering	5M
450	Pocklington	1847	-	Short l'd	-	York	9N
451	Pontefract	1843	1870	1872	-	Pontefract	11J
452	Pontefract Girls' Soc.	1880	-	-	-	Pontefract	11J

453	Pontefract	1872	-	-	-	Pontefract	11J
454	Poole	1883	-	-	-	Pontefract	11J
455	Port Clarence	-	-	-	-	Middlesbrough	1J
456	Preston-Under-Scar	1877	-	-	-	Leyburn	4E
457	Pudsey	1833	1847	1899	-	Leeds	10G
458	Purston with Featherstone	1886	-	-	-	Pontefract	12J
459	Queensbury	-	-	-	-	Halifax	11F
460	Queenshead Black Dike Mills	-	-	-	-	Halifax	11F
461	Ravensthorpe	-	-	-	-	Dewsbury	11G
462	Rawdon	1848	-	1886	-	Rawdon	10G
463	Church Institute	-	-	-	-	Rawdon	10G
464	Rawdon Low Mill	-	-	-	-	Rawdon	4L
465	Raskelf	1877	-	-	-	Thirsk	6J
466	Rastrick (with Brighouse)	1845	1860/1877	-	-	Huddersfield	11F
467	Rawmarsh	1875	-	-	-	Sheffield	14J
468	Redcar	1851	1878	-	-	Redcar	1L
469	Redmire Reading Room	1875	-	-	-	Leyburn	4E
470	Reeth	-	-	-	-	Richmond	4E
471	Ribston Village Library	1880	-	-	-	Harrogate	8H
472	Richmond	-	-	-	-	Richmond	3F
473	Rillington Village Library	1888	-	-	-	Malton	6N
474	Ripley	-	-	-	-	Harrogate	7G
475	Ripon	1831	-	1891	-	Ripon	6H
476	Robin Hood's Bay Village L'y	1890	-	-	-	Whitby	3P
477	Rodley Mechanics' Institute	1879	-	1884	-	Leeds	10G
478	Rotherham & Masborough	1825	1853	-	-	Rotherham	14J
479	Rothwell	1853	-	-	-	Leeds	11H
480	Rothwell W M C	1878	-	-	-	Leeds	11H
481	Roundhay Library	1873	-	-	-	Leeds	10G
482	Rowley Village Library	1889	-	-	-	Hull	10P
483	Rufforth	-	-	-	-	York	8K
484	Rylstone	1878	-	-	-	Skipton	8D
485	Saddleworth	1841	-	1930	-	Rochdale	13D
486	Sand Hutton	1880	-	-	-	York	8L
487	Saltire Lit Inst / Salt's School	1870	-	-	-	Shipley	10F
488	Saltburn and Cleveland (WM)	1874	-	-	-	Saltburn	1L
489	Salterforth V L	-	-	-	-	York	9C
490	Scalby	-	-	-	-	Scarborough	4Q
491	Scarborough	1825	-	1929	-	Scarborough	5Q
492	Scarborough St Martin's Club	-	-	-	-	Scarborough	5Q
493	Scholes	-	-	-	-	Batley	10H
494	Scotton	1888	-	-	-	Catterick, North Yks	3G
495	Seamer	-	-	-	-	Stockton	2J
496	Seacroft MI	-	-	-	-	Leeds	10G
497	Seacroft V Library	1880	-	1884	-	Leeds	10G
498	Sedbergh	1884	-	-	-	Cumberland	4A
499	Selby	1845	-	1897	-	Selby	10L
500	Settle	1831	-	1884	-	Settle	7C
501	Settrington V L	1886	-	-	-	Malton	6N
502	Sharleston	-	-	-	-	Wakefield	12H
503	Sheffield	1832	-	1890	-	Sheffield	15H

504	Adult Deaf & Dumb Institute	-	-	-	-	Sheffield	15H
505	Eccleshall Mechanics' Institute	-	-	-	-	Sheffield	15H
506	Hallamshire Institute	-	-	-	-	Sheffield	15H
507	Oughti Bridge	-	-	-	-	Sheffield	14H
508	Working Man's College	1856	-	-	-	Sheffield	15H
509	Wortley	-	-	-	-	Sheffield	10H
510	Shelf	-	-	-	-	Halifax	11F
511	Shildon	-	-	-	-	Darlington	1G
512	Shipley	1851	-	-	-	Leeds	10F
513	Shipton Reading Room	1887	-	-	-	Knarsborough	8K
514	Shelley	1848	-	1898	-	Huddersfield	12G
515	Sherburn	-	-	-	-	Scarborough, Wolds	6P
516	Silsden	1860	-	1876	-	Keighley	9E
517	Skeeby V L	1889	-	-	-	Richmond	3F
518	Skinningrove Miners Inst	1876	-	-	-	Loftus, Redcar	1M
519	Skelmanthorpe	-	-	-	-	Huddersfield	12G
520	Skelton-in-Cleveland	-	-	-	-	Guisborough	2L
521	Skelton-cum-Newby	-	-	-	-	Richmond	3E
522	Skelton-On-Ure Reading Room	1876	-	-	-	Harrogate	7H
523	Skipton	1825	1845/1848	1910	-	Skipton	8D
524	Skipton YMCA	1889	-	-	-	Skipton	8D
525	Skirlaugh Village Library	1887	-	-	-	Hull	10R
526	Slaidburn Reading Room	1851	1873	-	-	Clitheroe	8B
527	Slaitthwaite Day & Evening Inst.	1847	1855	1906	-	Huddersfield	12E
528	Slingsby	1881	-	-	-	Helmsley, NY Moors	6L
529	Snaith	1873	-	-	-	Selby	11L
530	Snape Village Library	1885	-	-	-	Leyburn – Thirsk	5G
531	Spennymoor	1876	-	-	-	Darlington	Durham
532	South Cave Temp. Soc.	-	-	-	-	Hull	10P
533	South Kirby	1882	-	-	-	Wakefield	12J
534	Sowerby Bridge	1838	-	1880	-	Halifax	11E
535	Spink Well	-	-	-	-	-	-
536	Staincliffe W. M. Club	-	-	-	-	Halifax	11G
537	Spennithorne	-	-	-	-	Leyburn	5F
538	Spofforth	1850	-	1898	-	Wetherby	8H
539	Stainland	1859	1884	-	-	Halifax	12E
540	Stairfoot	-	-	-	-	Barnsley	13H
541	Stanbury	-	-	-	-	Keighley	10E
542	Stanley	1889	-	-	-	Durham	Durham
543	Stanningley	1821	1847	1903	-	Leeds	Leeds
544	Stanningley Village Library L	1890	-	-	-	Leeds	Leeds
545	Stannington Working Men's C.	-	-	-	-	Sheffield	15H
546	Starbottom	-	-	-	-	Kettlewell	6D
547	Staites	1888	-	-	-	Loftus, Cleveland	2M
548	Staveley V L	1830	-	-	-	Ripon	7H
549	Stillington	1875	-	-	-	Darlington	1H
550	Stillingfleet V L	1875	-	-	-	Wetherby	9K
551	Stocksbridge	1857	-	-	-	Sheffield	14G
552	Stocksbridge Co-op	1874	-	-	-	Sheffield	14G
553	Stockton-on-Tees Lit Inst	1825	1882	-	-	Stockton	2J

554	Stockton-On-Forrest	1889	-	-	-	York	8L
555	Sutton Mill & Village Library	1885	-	-	-	Pontefract	12K
556	South Stockton	-	-	-	-	Stockton	2J
557	Stokesley	-	-	-	-	North Yorks Moors	3K
558	Streethouses	-	-	-	-	Dewsbury	12H
559	Streeton	-	-	-	-	-	-
560	Sunfield Institute	1889	-	-	-	Durham	Durham
561	Swanland	-	-	-	-	Hull	11P
562	Swillington	-	-	-	-	Leeds	10H
563	Strensall	1878	-	-	-	York	7L
564	Summerbridge	1881	-	-	-	Harrogate	7G
565	Tanfield	-	-	-	-	Durham	Durham
566	Tadcaster	1835	1850	-	-	Tadcaster	9J
567	Terrington Reading Room	1882	-	-	-	Malton	6L
568	Terrington V L	1879	-	-	-	Malton	6L
569	Thirkleby	1879	-	-	-	Hull	10R?
570	Thorne	-	-	-	-	Doncaster	12L
571	Thorner M I	1881	-	-	-	Wetherby	9H
572	Thorpe	1834	-	-	-	Beverley	9P
573	Thirsk M I	1846	-	1905	-	Thirsk	5J
574	Thirsk Church Inst.	1877	-	-	-	Thirsk	5J
575	Thornton	1834	-	1999	-	Bradford	10E
576	Thornton-In-Craven	1870	-	-	-	Skipton	9D
577	Thornton Watlass	1877	-	-	-	Bedale	5G
578	Thorncliffe	1871	-	-	-	Dewsbury	11G
579	Thurgoland	1880	-	-	-	Huddersfield	13G
580	Thwaites Brow M I	1886	-	-	-	Skipton	9E
581	Tickhill	-	-	-	-	Doncaster	14K
582	Tockwith VL	-	-	-	-	Harrogate	8J
583	Todmorden	1836	1860	1880s?	-	Todmorden	11D
584	Topcliffe	1850	-	Short l'ed	-	Todmorden	11G
585	Ulleskelf	1882	-	-	-	Selby	10K
586	Undercliffe	-	-	-	-	Keighley	10F
587	Upleatham	-	-	-	-	Redcar	2L
588	Utley Lit Int.	-	-	-	-	Keighley	9E
589	Wainstalls Reading Room	1877	-	-	-	Wakefield	11E
590	Wakefield M I	1825	1839	1936	-	Wakefield	11H
591	Wakefield YMCA	1887	-	-	-	Wakefield	11H
592	Warter Reading Room	1878	-	-	-	Pocklington	8N
593	Waterhouses	-	-	-	-	Near Leek	Staffs
594	Wath	1870	-	-	-	Ripon	6H
595	Wath-upon-Deane	1828	1850	1914	-	Rotherham	14J
596	Wath & district	1840	-	-	-	Rotherham	14J
597	Weaverthorpe	-	-	-	-	Scarborough	6P
598	Well Village Library	1887	-	-	-	Tanfield	5G
599	Wellburn	1878	-	-	-	Kirbymoorside	5L
600	Welton Village Library	1887	-	-	-	Hull	11P
601	Wentbridge Village Library	1887	-	-	-	Wakefield	12 J
602	Wensley Village Library	-	-	-	-	Leyburn	5E
603	Wentworth	1825	-	C20th	-	Rotherham	14H



604	Wetherby	1847	1878	-	-	Wetherby	9J
605	Wetherby Working Men's Club	1882	-	-	-	Wetherby	9J
606	West Witton Reading Room	1867	-	-	-	Leyburn	5E
607	West Burton Reading Room	1879	-	-	-	Leyburn	5E
608	West Marton Village Library	1885	-	-	-	Long Preston	8C
609	Weston Village Library	1889	-	-	-	-	-
610	Westow	1882	-	-	-	Northallerton	7M
611	Wheatcroft	1883	-	-	-	Scarborough	7Q
612	Whitby	-	-	-	-	Whitby	2N
613	Whitwood Reading Room & Lib	1867	-	-	-	Castleford	11J
614	Whitwell	-	-	-	-	Catterick NR	4G
615	Whixley Village Library	1887	-	-	-	Harrogate	8J
616	Wilsden	1826	1883	1905	-	Bingley	10E
617	Wincobank library	-	-	-	-	Sheffield	15H
618	Wighill Village	1890	-	-	-	Wetherby	9J
619	Wike Village Library	1890	-	-	-	Otley	9H
620	Womersley	1876	-	-	-	Ackworth	12K
621	Woodlesford & Oulton	1847	1854	1881	-	Leeds	11H
622	Wooldale W M C	1882	-	-	-	Huddersfield	13F
623	Wortley	1876	-	-	-	Sheffield	14H
624	Wortley Youths' Guardian	-	-	-	-	Sheffield	14H
625	Wortley Mutual Improvement	-	-	-	-	Sheffield	14H
626	Worsboroughdale	1879	-	1883	-	Barnsley	13H
627	Yarm	-	-	-	-	Stockton	2J
628	Yeadon M Imp Soc.	1832	1846	-	-	Yeadon	9G
629	York I of Science, Art & Lit	1827	-	1890	FE College	York	8L
630	York Minster WM Inst.	-	-	-	"	York	8L
631	York Young Men's Inst.	-	-	-	"	York	8L
632	York Union of C of E	-	-	-	"	York	8L
633	York Foundry Library	1883	-	-	"	York	8L

Sources: J. W. Hudson, (1851), *The History of Adult Education*, London (pp 222 – 238), Kelly, *Birkbeck*, pp. 303 – 28, *Annual Reports of the Yorkshire Union of Mechanics' Institutes*, Appendix, Statistical Tables.

NB \*\*\* Stanningley date of opening given by YUMI as 1821 but is an error. This was also identified by Kelly in *Birkbeck* as being 'improbable'.

Dates, other than those for the Yorkshire Union, are provided by R. Alston but mainly Kelly in *Birkbeck*, pp. 303 – 28. [www.leodis.net/display](http://www.leodis.net/display) for present day use of some of the Leeds mechanics' institutes.

## Appendix 4

### List of the Union Institutions recognised by the Society of Arts 1851 - 1856

Aberdeen Mechanics' Institute	“ Domestic Mission
Aberystwyth Literary, Science Mechanics' Institutes	“ Mechanics' Institute
Accrington Mechanics' Institute	“ Cripplegate
Annan Mechanics' Institute	“ Hackney Literary and Scientific Institute
Ashbourne Mechanics' Institute	“ Edgware Road Literary and Scientific Institute
Ashford Mechanics' Institute	“ Marylebone & Paddington Literary Institute
Bacup Mechanics' Institute	“ St. George's Lending Library & Reading Room
Bakewell and High Peak Institute	“ St. Michael's Lit, Scientific & Mechanics' Inst.
Barkhamstead	“ Walworth Literary and Scientific Institute
Barking Mutual Improvement Society	“ Westminster Literary, Scientific & Mechanics'
Barnet Institute	London, Brighton & South Coast Railway
Barnsley Mechanics' Institute	London, North Western Railway
Barnstable Literary and Scientific Society	Longton Athenaeum and Mechanics' Institute
Basingstoke Mechanics' Institute	Lockwood, Huddersfield
Bath Commercial and Literary Institute	Loughborough Literary and Philosophical Society
Battersea	Ludlow Literary Association & Mechanics' Inst.
Battle Mechanics' Institute	Lymington Literary Institute
Beccles Public Library and Scientific Institute	Lynn Conversazione and Society of Arts
Bedford Literary and Scientific Institute	Limerick
Belfast Workers Association	Liverpool Collegiate Institute
Belmont	Macclesfield Society of Acquirement & Useful Know.
Belmont, Vauxhall	Maidenhead Mechanics', Literary and Scientific Inst.
Bexley Health Soc. of Promotion of Useful Knowledge	Maldon
Bilston Institute	Malton Literary Institute
Biscester	Manchester Mechanics' Institute
Bishop Stortford Literary Institute	Manningtree and Mistley Mechanics' Institute
Blackburn	Margate Literary and Scientific Institute
Blandford Institute	Market Drayton
Bodmin	Marlborough Reading and Mutual Improvement Soc.
Bolton	Masham
Bootle	Melbourne, Derbyshire
Boston Athenaeum	Middlesbrough
Bradford, Yorkshire	Modbury, Ermebridge, Institute
Bradford, Wiltshire	Morpeth Mechanics' and Scientific Institute
Braintree and Barking Literary & Mechanics' Institute	Muchwenlock (Agriculture)
Brassingham	Newark Mechanics' Institute
Brechin Mechanics' Institute	Northampton Religious & Useful Know. Society
Brentford Literary and Scientific Society	Nottingham Mechanics' Institute
Bridgend	Oakham
Bridgenorth	Oldham Lyceum
Bridgeport	Oswestry Young Men's Improvement Society
Bridgewater Literary and Scientific Society	Oxford
Brig, Lincolnshire	Particroft, Manchester, Mechanics' Institute
Brighton Mechanics' Institute	Pendleton, Manchester, Mechanics' Institute
Brighton Athenaeum & Young Men's Literary Union	Pershore Mechanics' Institute
Bristol Athenaeum	Peterborough Mechanics' Institute
Bromley Literary Institute	Plymouth Mechanics' Institute
Bromsgrove Literary and Scientific Institute	Poole Town & Country Library & Literary Society
Brosley, Shropshire	Portaferry Mechanics' Institute
Buckingham	Portsmouth & Portsea Literary & Philosophical Society
Burnley Mechanics' Institute	Princetown, Dartmoor, Literary Institute

Bury St Edmunds Mechanics', Lit & Scientific Institute	Preston Institute
Burton-on-Trent	Penzance
Colne Literary Institute	Pillington
Cambridge Philo-Union Literary Society	Portsea
Cambridge and Cambridgeshire Mechanics' Institute	Pembleton Dock
Cardiff Athenaeum	Radcliffe Bridge and Pilkington Lyceum and MI.
Carlisle Literary, Scientific & Mechanics' Institute	Rawtenstall Mechanics' Institute
Carmarthen Literary and Scientific Institute	Reading Literary, Scientific and Mechanics' Inst.
Chatham, Rochester, Stroud & Brompton Mechanics' In	Redditch Literary and Scientific Institute
Cheadle (Staffordshire) Mechanics' Institute	Reigate Mechanics' Institute
Cheltenham Literary and Philosophical Institute	Romford Literary and Mechanics' Institute
Chepstow Literary Institute	Royston Mechanics' Institute
Chester Mechanics' Institute	Ryde, Isle of Wight, Literary & Scientific Institute
Chesterfield & Brampton Mechanics' Institute	Repton
Chichester Literary Society	Radway
Clitheroe Mechanics' Institute	Redhill
Corfe Castle Mutual Improvement Society	Richmond
Cork Royal Institution	Saffron Walden Literary and Scientific Institute
Crewkerne Literary and Scientific Institute	St Austell
Cupar Angus Mutual Improvement Society	St. Ives, Cornwall, Institute
Coggeshall	St. Just, Penzance, Institute
Chelmsford	St. Leonard's Mechanics' Institute
Coalclough	Salisbury Literary and Scientific Institute
Coventry	Saltash, Plymouth, Institute
Coalbrookdale	Sevenoaks Literary and Scientific Institute
Colchester	Sheerness Mechanics' Institute
Cirencester	Sheffield Mechanics' Institute
Chippenham	Sheffield People's College
Clonnel	Sheffield Public Library
Caister, Lincolnshire	Shelton, Staffordshire, Potteries Mechanics' Institute
Darlington Mechanics' Institute	Sherborne Literary Institute
Dartford Literary Institute	Shiffnall Mechanics' Institutes
Dawlish Literary and Scientific Society	Shrewsbury CofE Literary and Scientific Institute
Denton and Haughton Mechanics' & Literary Institute	Shrewsbury Mechanics' Institutes
Deptford	Skerton, Lancaster, Christian Instruction Society
Derby Mechanics' Institute	Sleaford Public Library
Derby Railway Institute	Southampton
Devizes Literary and Scientific Institute	Stalybridge
Devonport Mechanics' Institute	Stockton-on-Tees
Dover Museum and Philosophical Society	Stoke-on-Trent
Downham Market	Sudbury
Down Patrick Mechanics' Institute	Swindon
Dudley	Salford
Dumfries and Maxweltown Mechanics' Institute	Stowbridge
Dundall Mechanics' Institute	Spalding
Dunmow, Essex Literary and Scientific Institute	Swansea (Royal Institute of South Wales)
Dublin	South Maldon
Durham Mechanics' Institute	Shotley Bridge
Eastbourne Literary Society	Swindon
Ely Mechanics' Institute	Stanhope, Durham
Epsom	Stafford
Eton	Stratford
Exeter Literary Society	Sidmouth
Falkirk School of Arts	Slough Mechanics' Institutes
Falmouth Mechanics' Institute	Southampton Polytechnic Institute
Faversham Literary and Scientific Institute	Staines Literary and Scientific Institute
Fenton	Stalybridge Mechanics' Institutes

Folkestone Harveian Institute	Stamford Institute
Fordingbridge Literary, Scientific & Mechanics' Inst.	Stirling School of Art
Gainsborough Literary, Scientific & Mechanics' Inst.	Stockton-on-Tees Mechanics' Institutes
Gateshead Mechanics' Institute	Stoke upon Trent Athenaeum
Glasgow Athenaeum	Stonehouse, Plymouth, Literary & Scientific Society
Glasgow Mechanics' Institute	Sudbury Literary Institute
Gloucester Literary and Scientific Institute	Tamworth
Grantham Philosophical Society	Tenterden Mutual Improvement Society
Grantham Public Literary Institute	Tewkesbury Mechanics' Institutes
Gravesend and Milton Mechanics' Institute	Thame Mutual Improvement Society
Greenock Mechanics' Institute	Tiverton Literary and Scientific Institute
Greenwich Useful Knowledge Society	Tollington, Bury
Guernsey Mechanics' Institute	Trowbridge Mechanics' Institutes
Guildford Institute	Truro Literary and Scientific Society
Hailsham Mutual Improvement Society	Tunbridge Wells Society of Literary Institute
Halifax Mechanics' Institute	Tunbridge Wells Useful Knowledge Society
Halstead Mechanics', Literary and Scientific Inst.	Tyldesley, Manchester, Mechanics' Institutes
Harley Hill, Halifax	Utoxeter
Hartlepool West	Uxbridge Literary and Mechanics' Institutes
Hastings Mechanics' Institute	Wandsworth Literary and Scientific Institute
Hereford Philosophical, Antiquarian & Lit. Soc.	Wantage, Alfred Literary and Scientific Institute
Hexham	Ware Institute
High Green (Sheffield) Mechanics' Institute	Wareham Mutual Improvement Society
Highgate Literary and Scientific Institute	Warminster Athenaeum
Hitchin	Warrington Mechanics' Institutes
Hobart	Warrington Museum and Library
Holmfirth	Warwick Athenaeum
Horncastle Mechanics' Institute	Wednesbury Mechanics' Institutes
Horsham Literary and Scientific Institute	Wellingborough Mechanics' Institutes
Huddersfield Mechanics' Institute	West Bromwich Inst for the Advancement of Knowl.
Huddersfield Philosophical Society	Westminster
Hull	Whitehaven Mechanics' Institutes
Huntingdon Literary and Scientific Institute	Windborne Minster Soc for the Acquirement of Use K.
Hyde	Winchester and Eton Literary, Scientific and M Inst.
Hythe Reading Society	Woburn Literary and Scientific Institute
Ipswich Mechanics' Institute	Wolverhampton Athenaeum & Mechanics' Inst.
Kilvedon	Woolwich Literary, Scientific and Mechanics' In.
Kendal	Workington Mechanics' Institutes
Kingston on Thames	Wrexham Literary Institute
Kingscliff, Wexford	Wesrington, Bristol, Literary Society
Lancaster Mechanics' Institute	Whitby
Leamington, Royal Literary & Scientific Inst.	Welshpool
Lees	Wenlock
Leeds Philosophical and Literary Society	Warksworth
Leeds Mechanics' Institute	Wisbech
Leeds Yorkshire Union of Mechanics' Institutes	Whitchurch
Leek Mechanics' Institute	Wallington, Northumberland
Leicester Mechanics' Institute	Worksop
Leiston, near Saxmundham Mechanics' Institute	Weaverham
Levern, Vale of, Mechanics' Institute	Worsley
Lewes Mechanics' Institute	Wells
Lincoln and Lincolnshire Mechanics' Institute	Waterford, Ireland
Liskeard Institute	Wigan
Liverpool Mechanics' Institute	Witham
Liverpool Bootle Educational Society	Walton,

London Bank of England	Wakefield
“ Camberwell Athenaeum	Yarmouth, Great and Southtown Young Men’s Institute
“ Camberwell Institute for the Industrial Classes	Yeovil Mutual Improvement Society
“ City of London Literary and Scientific Institute	York
“ Jews’ & General Literary and Scientific Institute	
“ London and South Western Lit & Scientific Inst.	

Institutions had to be members in order to offer the Society’s examinations.

Sources: Society of Arts Manuscript Subscription Books 1852 – 185. List of Institutions in Union with the Society of Arts November 3 1852. Royal Society of Arts Archives.

## Appendix 5 The City and Guilds of London Technological Examination Centres 1879 – 1900

The City and Guilds of London (CGLI) was founded in 1878 along similar lines to that of the Society of Arts. Notice particularly the rapidly growing number of centres, subjects being offered and the number of candidates after 1880. Between 1881 and 1882 there were 134 centres offering their examinations including those at Peases West and Esh Colliery Crook Miners' Institutes.<sup>682</sup>

Year	No of centres	No of Subjects	No of Candidates
1879	23	7	202
1880	85	24	816
1881	115	28	1,563
1882	147	37	1,972
1883	154	37	2,397
1884	164	43	3,635
1885	167	42	3,968
1886	192	48	4,764
1887	216	48	5,508
1888	240	49	6,166
* 1889	231	46	6,606
1890	219	49	6,781
* 1891	245	53	7,416
1892	265	55	8,534
1893	288	55	9,179
1894	346	54	9,907
1895	353	58	10,293
1896	380	58	10,874
1897	406	62	11,868
1898	369	63	13,062
1899	397	63	14,004
1900	390	64	14,551

\* Impact of the Technical Instruction Act of 1889 and 1891 seem to have taken immediate effect from 1891.

## Appendix 6 Type of Institutions offering City and Guilds Examinations for 1881 and 1882

Centre	1881	1882
Mechanics' and Working Men's Institutes	110	134
Schools of Science and Art	25	21
Technical Colleges	9	20
Literary, Scientific or Library Institutes	7	9
Institutes (not above)	6	7
Training College (Exeter)	1	1
Schools	25	23
Board Schools	11	11
National Schools	7	5

Source: *City and Guilds of London, A short History*, p. 28.

The majority of centres were mechanics' institutes and technical schools

<sup>682</sup> *City and Guilds of London, A short History, 1878 – 1992*, (City and Guilds, 1993), pp.28-37.

## Appendix 7 List of Mechanics' Institutes in the Yorkshire Union that were part of the University Extension Scheme

Barnsley	Hartlepool, & West Hartlepool	Pontefract	Sunderland
Bradford	Hebden Bridge	Ripon	Thirsk
Cleckheaton	Heckmondwike	Rotherham	Todmorden
Doncaster	Huddersfield	Scarborough	Whitby
Dewsbury	Hull	Sheffield	York & Railway Institute
Doncaster	Ilkley	Shipley	
Filey	Keighley	Skipton	
Halifax	Leeds	Sowerby Bridge	
Harrogate	Middlesbrough	Stockton	

N. A. Jepson, *The Beginnings of English University Adult Education*, London (1973), p.138.

The centres associated with the working classes connected with Oxford seem to have been in Lancashire and Yorkshire between 1885 and 1902. It was often the Co-operative movement that was behind their establishment and they were in towns which had established institutes. Barnsley, Doncaster, Hebden Bridge, Rotherham, Shipley and Sowerby Bridge laid claim, rightly, to being strictly working class. At Ilkley, Halifax, Cleckheaton, Keighley and Bradford the majority were not working men, but it would be unfair to indicate exclusively not so.<sup>683</sup> Huddersfield Technical School provided University Extension Courses.<sup>684</sup> By 1892 there were over fifty Oxford centres and Hebden Bridge, Huddersfield and Ilkley were the most established, but not the only ones in Yorkshire.<sup>685</sup>

### Other Centres outside Yorkshire

Accrington	Bury	Manchester	Runcorn
Alderley Edge	Camborne	Matlock	Southampton
Altrincham	Cheltenham	Moston	South Shields
Ancoats	Chester	Nantwich	Stafford
Ashton	Colchester	Oldham	Tunbridge Wells
Bath	Darlaston	Pontypool	Warrington
Birmingham	Gloucester	Pucklechurch	Whitehaven
Bolton	Guildford	Reading	Winton
Bournemouth	Hove	Redruth	Workington
Brighton	Hyde	Rhyl	Co-operative Society
Bristol	Lewes	Rochdale	

N. A. Jepson, *The Beginnings of English University*, pp.164 – 5.

<sup>683</sup> N. A. Jepson, *The Beginnings of English University Adult Education*, London (1973), p.138.

<sup>684</sup> *Ibid.*, p.269.

<sup>685</sup> *Ibid.*, p.318.

## Appendix 8 Sample External Examination Questions

### City and Guilds of London Institute Examination for 1879 Cloth Manufacture held at Huddersfield Mechanics' Institute.

1. Nature and properties of the various kinds of wool,
2. The nature and character of other materials, animal and vegetable, used in the manufacture of woollen and union clothes,
3. The mode of sorting and classifying the raw material,
4. The process of souring dyeing, and drying the wool,
5. The process of teasing, burring and extracting,
6. The nature and properties of various kinds of oils, oiliness, and extracts from refuse, waste and shoddy,
7. The processes of scribbling, carding, and condensing,
8. The processes of roving, spinning, and doubling or twisting, upon the mule, and doubling frame,
9. Warping, sizing, drying, beaming and preparation for loom,
10. Weaving by hand and power,
11. Knotting, scouring, burling, and fulling, or milling,
12. Raising, cutting, and finishing cloth,
13. The various kinds of woven woollen fabrics, such as plain cloths, doeskins, buckskins, pilots, beavers, fancy coatings, trouserings,
14. Processes by which waste products can be utilised.

A Chemistry Class in relation to Cloth manufacture was delivered to students studying the above subjects in relation to Cloth Manufacture.

Source: *Forty-Second Report of the Yorkshire Union of Mechanics' Institutes*, 1879, p. 110.

### Yorkshire Union of Mechanics' Institutes Special Technical Examination in Textile Fabrics (1879)

Work to be sent to Centre Office of the Yorkshire Union via Chambers, Leeds by Saturday May 3 1879.

- I An essay on the utilization of the waste products of the woollen cloth trade.
- II For the best design in relation to the manufacture of fancy woollen cloth.
- III For the best and most artistic design for a table cover in linen cloth (size 8 feet by 6feet).
- IV For the most artistic design in worsted goods for ladies dresses.
- V For the most artistic design for a hearth-rug or carpet.
- VI For a useful and artistic design for a material in worsted and silk, suitable for a window curtain.

#### Conditions

At least three months attendance at a Mechanics' Institute of the Yorkshire Union. Designs should be in colour and an explanatory description must be given with the design. Essays and design must be original.

Source: University of Huddersfield Archives, HM1/9/5 YUMI Textile Examination for 1879.



## **Yorkshire Union of Mechanics' Institutes<sup>686</sup>**

Weaving Test Examinations (1883).

Four hours allowed

Plot out on pattern paper a design for similar fabric to any one of those in the class in which you have completed. The design must not be the same as that already sent in for competition, but of such a nature that it can be practically reproduced in woven fabric.

State the respective weights of materials used and approximate the cost.

Dyeing Test Examination (1883)

Four hours allowed

1. Give a general resume of the chemical action of Mordents in fixing colouring matters.
2. State the chemical formulae of Indigo; describe the method of the manufacture of artificial Indigo, and state to what extent it is at present calculated to take the place of natural Indigo, as a commercial commodity.
3. Give an account of the method of producing Aniline Brown and Black, with chemical formulae indicating the changes.

## **City & Guilds of London Institute<sup>687</sup>**

'For the advancement of Technical Education'

Technological Examinations 1883

19A Cloth Manufacture

The Candidate must confine himself to one grade only, the Ordinary or honours, and must state at the top of his paper of answers which grade he has selected. He must not answer questions in more than one grade.

If he has already passed in the subject, either in the first division of the Ordinary Grade (or of the Elementary, or the Advanced Grade), he must select his questions from those of the Honours Grade.

The number of the questions must be placed before the answer in the worked paper.

*Three hours allowed for this paper.*

### Ordinary or Pass Grade

1. Describe the character of the wool found on various parts of a fleece.
2. Why is wool scoured before being used? How is it scoured?
3. Why is wool scribbled? Describe the process.
4. How is the thread, which is first formed on the condenser, made ready for weaving?

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<sup>686</sup> Yorkshire Union of Institutes Examination Papers for Weaving and Dying, 1832. (University of Huddersfield Archives).

<sup>687</sup> Extracts from the City & Guilds of London Institute, 1883, (University of Huddersfield Archives).

5. Of what use are heralds, a temple, and a slay?
6. What will be the width in the loom of a warp of 81 porties of 40 threads each, in a 16 reed, with 3 ends in each reed?
7. Why is cloth boiled?
8. What are burlles? Whence did they come? How are they to be dealt with?
9. What are a doeskin, buckskin, sealskin, melton, cheviot, and pilot?
10. Why is worsted yarn much use in manufacture of trousings and coatings?

From the same year

#### Practical Inorganic Chemistry

1. How would you prepare suppurated hydrogen, and how would you demonstrate experimentally – (a) its combustibility, (b) that water forms when it burns in the air, (c) that sulphur is a constituent of that gas. Give equations of the reactions, and sketches of the apparatus used. (15)
2. Give equations of the reactions which occur (1) when hydrochloric acid acts as a solution of silver nitrate, (2) when suppurated hydrogen is passed through an acid solution of copper sulphate, (3) when ammonium sulphate is added to a solution of ferrous sulphate, and (4) when ammonium carbonate is added to a solution of calcium chloride. (10)
3. By what chemical tests would you ascertain whether the effervescence caused by pouring strong sulphuric acid on to a white salt is due to the escape of carbonic acid gas or of hydrochloric acid gas? (10)

#### **Oxford University Extension**

##### Syllabus of Six Lectures on Mountain Drawing

- I. History
- II. Practice
- III. Theory (Peak and Pennines)
- IV. Theory (The Cambrian Mountains)
- V. Theory (The Limestone of Savoy)
- VI. Theory (The Central Alps)

The Wood Collection, The University of Huddersfield Archives

## Appendix 9 List of the former Mechanics' Institutes supported and recognised by the Worshipful Company of Clothworkers, London.

The following is the list of institutions which received financial support and / or recognition (not assisted) by The Worshipful Company of Clothworkers, London. The earliest reference was in 1875 when support for technical education was being recognised nationally and the relationship with the Company continued until 1914, when government intervention took over responsibility. There were no new centres after 1900. Those highlighted in bold were members of the Yorkshire Union of Mechanics' Institutes.

<b>Institution</b>	<b>Date first mentioned in records.</b>
Yorkshire College of Science (later University of Leeds),	1875
Bristol College of Science,	1875
University College Bristol,	1877
<b>Huddersfield Mechanics Institute and Weaving School</b>	1877
Glasgow Weaving School/Glasgow Technical College,	1877
<b>**Yorkshire Union of Mechanics' Institutes,</b>	1877
<b>Bradford Technical Weaving School</b>	1878
Huddersfield Technical Weaving School,	1878
<b>Barnsley</b>	1878
<b>Hull</b> (not assisted)	1878
<b>Keighley Mechanics Institute and Trade School</b>	1878
<b>Batley Technical School</b>	1878
City and Guilds of London Institute	1879
<b>Saltaire Mechanics Institute and School of Art</b>	1880
<b>Salt Schools, Shipley</b>	1880
Kings College London School of Fine Art	1881
<b>Keighley Weaving School *</b>	1882
Harris Institute, Preston	1882
Bolton Technical Classes	1883
<b>Dewsbury Technical School</b>	1883
<b>Halifax Technical School</b>	1883
Macclesfield	1883
<b>Bingley Technical School</b>	1884
Bristol Trade Schools	1885
Hawick	1886
<b>Morley (near Leeds) Technical School</b>	1886
Leicester	1886
Onslow College of Science	1886
Blackburn Technical School	1887
Victoria University, Manchester	1888
Durham College of Science (not assisted)	1888
Dundee Technical Institute (not assisted)	1888
Galashiels Science Schools (apparently not assisted)	1888
Nicholson Institute, Leek	1889
<b>Ossett Technical School</b>	1889
Islington Polytechnic	1889
<b>Wakefield Technical School</b>	1890
Stroud Technical School (had been assisted before as part of University College Bristol)	1891
Trowbridge Technical School	1891
Westbury and Whorwellsdown	1891
<b>Holmfirth Technical Institute</b>	1893
Swansea (preliminary enquiry only)	1893
<b>Guisburn Institute</b>	1893
<b>Cleckheaton School of Science and Art</b>	1894
Bradford on Avon Textile and Technical School	1895
Cowper Street Commercial Classes	1895
Hackney Technical Institute	1896
<b>Lindley Mechanics' Institute</b>	1896
Congleton Technical Institute	1897
University College of Wales Aberystwyth (not assisted)	1899

There were other mechanics' institutes and technical schools not listed specifically in the Trusts and General Superintendence Minutes, 1875 – 1914 but fell under the heading of the Yorkshire Union of Mechanics' Institutes. Among them was Emsay Institute which was supported to the amount of £5 for a prize for the best design on fabric in 1879.<sup>688</sup>

\* Schools attached to the Mechanics' and Technical Schools.

\*\* The Worshipful Company Clothworkers donated 100 copies of *The Dyeing of Textile Fabrics* by J.J. Hummell in 1885 to the Yorkshire Union for the Circulating Library.<sup>689</sup>

Source: The Clothworkers' Company, Trusts and General Superintendence Minutes 1875 – 1914.

## Appendix 10 Evening Class Subjects being offered during the 1886 -7 Session at the Huddersfield Technical School and Mechanics' Institute

### Technical School

Cloth Manufacture  
Weaving  
Dyeing  
Cotton Manufacture  
Electrical Engineering  
Light, Transmission of Power &c  
Mechanical Engineering  
Carpentry and Joinery  
Photography

### Language, Lit & Commercial.

German  
Latin  
Greek  
Political Economy  
Oxford Univ. Extension Lectures  
English  
English Literature  
Commercial Geography and  
History  
Arithmetic

### Commercial Group

Shorthand  
Book-Keeping  
Commercial Arithmetic, Geometry and Algebra  
Music  
Singing and Theory

### Science School

All classes open to ladies  
Chemistry (Organic / Inorganic)  
Engineering and Building Trades  
Machine Construction  
Drawing  
Applied Mechanics  
Steam  
General (introduction to courses, text-books, methods of teaching prior to starting a course.  
Physical Science  
Mathematics  
Theoretical Mechanics'  
Sound, Light and Heat  
Magnetism and Electricity  
Discussion Class  
Animal Physiology  
Hygiene (air, food, drink, houses, Law of Health)  
Geology  
Physiography (Earth, Sea, Air)  
Botany

### School of Art

Elementary Classes  
Advanced Classes

Source: Huddersfield Technical School and Mechanics' Institute, *Prospectus of Evening Classes, Sessions 1885–6 and 1886–7*, University of Huddersfield Archives.

<sup>688</sup> *Forty - Second Report of the Yorkshire Union of Mechanics' Institutes*, 1879, p.98.

<sup>689</sup> *Forty - Eighth Report of the Yorkshire Union of Mechanics' Institutes*, 1885, p.94.

## **Appendix 11 Pupil Teachers' Classes delivered on behalf of the Huddersfield School Board through the Technical School and Mechanics' Institute**

1. Classes were offered for Pupil Teachers' in English Literature, Botany, Latin, French, and Singing.
2. Classes met weekly on Saturday Mornings and Wednesday Evenings.
3. It was obligatory upon Pupil Teachers in the Board Schools to attend the classes.
4. A Head or Assistant Teacher will be present at each meeting to record attendances.
5. Pupil Teachers are expected to be in their places five minutes before the time for commencing, in order that the lectures may begin punctually at the time stated.
6. A separate notebook must be kept for each subject and on Thursdays of each week Pupil Teachers' should have their note-books at their respective schools, in order that they may be seen by the Board's Inspector, should he call for them.
7. Two Examinations will be held during the year (June and December) on the work of various classes and a report with lists of marks will be sent to the Board.
8. Head Teachers should not detain the Pupil Teachers past 4.30 on Wednesday afternoons nor set them any lessons to prepare for the following day, the time for instruction of Pupil Teachers on the Thursday being devoted to oral teaching.
- 9.

Source: Huddersfield School Board Pupil Teachers' Classes Poster, 1880, University of Huddersfield Archives.

### **Teacher Training Certificate and Matriculation Classes at Huddersfield**

The Government invite attention to the following scheme of classes especially arranged for preparing students for the Elementary Teachers' Certificate Examination: A three year course under Article 110 of the New Code without the loss of time involved in going to Training College.

The Scheme has been approved by the Education Department and Huddersfield School Board, and managers of schools should have little difficulty in seeing its benefits for any school.

The following inclusive fee will be £3 per session but the grant of £10 or £15 under Article 110, would be more than refund this amount.

The attention of Certificated Teachers wishing to matriculate at London University is also invited to the fact that the subjects marked LM (London Matriculated) in the scheme are included and in addition to these only Greek and German and an elementary knowledge of chemistry and physics are required. Classes for the study of all these subjects are regularly carried on'.

Thus, a student could work with the double object of sitting for his certificate, and shortly afterwards matriculating, without very materially increasing his hours of study; or each examination could be worked for separately.<sup>690</sup> The total fee for taking the Certificate and Matriculation course combined would be £4 per session, or either course separately £3 per session.

Source: Huddersfield Technical School and Mechanics' Institute, *Prospectus of Evening Classes Sessions 1886 – 7*, (Broadbent, Huddersfield), p.79, University of Huddersfield Archives.

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<sup>690</sup> Women had to attend separate female training colleges.

## Appendix 12 Towns with Mechanics' Institutes and Carnegie Libraries

County / Place	Institution
<b>Bedfordshire</b>	
Luton	Literary Institute
<b>Berkshire</b>	
Maidenhead	Literary & Scientific Institute
Newbury	Literary & Scientific Institute
Reading	Mechanics' Institute
<b>Buckinghamshire</b>	
Chesham	Mechanics' Institution
<b>Cambridgeshire</b>	
<b>Cheshire</b>	
Birkenhead	Mechanics' Institute
Dukinfield	Village Library
Hyde	Mechanics' Institute
Runcorn	Church Institute
Stockport	Mechanics' Institute
<b>Cornwall</b>	
<b>Cumberland</b>	
Cockermouth	Mechanics' Institute
Penrith	Mechanics' Institute
Whitehaven	Mechanics' Institute
Workington	Mechanics' Institute
<b>Derbyshire</b>	
Wirksworth	Mechanics' Institute
<b>Devon</b>	
Exeter	Scientific & Literary Society
Plymouth	Mechanics' Institute
Tiverton	Literary & Scientific Institute
Torquay	Mechanics' Institute
<b>Dorset</b>	
<b>Durham</b>	
Chester-le-Street	Mechanics' Institute
Sildon	Mechanics' Institute
Sunderland	Literacy and Philosophical Soc.
<b>Essex</b>	
Chelmsford	Literary Mechanics' Institute
Harwich	Mechanics' Institute
<b>Gloucestershire</b>	
<b>Hampshire</b>	
Portsmouth	Literacy Phil. later MI
<b>Herefordshire</b>	
<b>Hertfordshire</b>	
Hemel Hamstead	Mechanics' Institute
Hertford	Literary & Scientific Institute
St Albans	Mechanics' Institute
<b>Huntingdonshire</b>	
<b>Kent</b>	
Bromley	Literary Institute
Dover	Philosophical Institution
Folkstone	Literary Institute
Gravesend	Mechanics' Institute
Greenwich	S D U K

Sevenoaks	Literary & Scientific Institute
Tonbridge	Mechanics' Institute
<b>Lancashire</b>	Institution
Accrington	Mechanics' Institute
Ashton & Dunkinfield	Mechanics' Institute
Atherton	Mechanics' Institute
Barrow-In-Furness	Mechanics' Institute
Bolton	Mechanics' Institute
Chadderton	Literary Institute
Clitheroe	Mechanics' Institute
Colne	Mechanics' Institute
<i>Crompton</i>	<i>Athenaeum</i>
Darwen	Mechanics' Institute
Failsworth	Mechanics' Institute
Farnworth	Mechanics' Institute
Great Harwood	Mechanics' Institute
Haslingdon	Mechanics' Institute
Heywood	Mechanics' Institute
Levenshulme	Mechanics' Institute
Liverpool	Mechanics' Institute
Liverpool	Northern Mechanics' Institute
Manchester	Mechanics' Institute
Newton	Mechanics' Institute
Prescot	Mechanics' Institute
Radcliffe	Mutual Improvement Society
Rawtenstall	Mechanics' Institute
Rochdale	Athenaeum
Rochdale	People's Institute
Royton	Mechanics' Institute and School
<i>St Helens</i>	<i>Mechanics' Institute</i>
Tyldesley	Mechanics' Institute
Warrington	Mechanics' Institute
Wigan	Mechanics' Institute
<b>Leicestershire</b>	
Leicester	Mechanics' Institute
Loughborough	Library Institute
Melton Mowbray	Mechanics' Institute
<b>Lincolnshire</b>	
Boston	Mechanics' Institute
Gainsborough	Mechanics' Institute
Lincoln	Mechanics' Institute
Spalding	Literary Society
Stamford	Literary & Scientific Institute
<b>Middlesex</b>	
Brentford	Mechanics' Institute
Hackney	Literary Institute
<i>Hammersmith</i>	<i>Mechanics' Institute</i>
Hamstead	Literary & Scientific Institute
London	Deptford Mechanics' Institute
London	Finsbury Lit, Sc, & Mech. Inst.
London	Finsbury Mechanics' Institute
London	Greenwich S. D. U. K.
London	Hackney Lit & Mech. Institute
London	Hackney Lit & Sc. Institute

London	Hammersmith, Ken & Chiswick
London	Hammersmith Lit, Sc. & M. Inst.
London	Hammersmith Religious Lit & Sc.In.
London	Islington Literary & Scientific L.
London	Insl'n Ins. for Religious and U. K.
London	Poplar, East London Mech Inst.
London	Poplar Institute for Mut Inst. S, L
London	St Marylebone Lit & Sc. Institute
London	St Marylebone Royal Polytechnic
London	St Marylebone and Paddington M In
London	St Pancras Lit & Sc. Institute
London	Stoke Newington Lit & Sc. Inst.
London	Marylebone Mechanics' Institute
London	Marylebone Royal Polytechnic
London	Poplar Mechanics' Institute
Tottenham	Literary & Scientific Institute
Twickenham	Mechanics' Institute, later Sc. Int
Uxbridge	Y M I S
<b>Monmouthshire</b>	
Newport	Mechanics' Institute
<b>Norfolk</b>	
<b>Northamptonshire</b>	
Kettering	Useful Knowledge Society
Northampton	Mechanics' Institute
Peterborough	Mechanics' Institute
<b>Northumberland</b>	
Wallsend	Mechanics' Institute
<b>Nottinghamshire</b>	
Ilkeston	Mechanics' Institute
Mansfield	Library and R
<b>Rutland</b>	
	No mechanics' institutes
<b>Shropshire</b>	
Ellesmere	Mechanics' Institute
Wellington	Mechanics' Institute
<b>Somerset</b>	
Bath	Mechanics' Institute
Bridgewater	Mechanics' Institute
Taunton	Mechanics' Institute
Yeovil	Mutual Improvement Society
<b>Staffordshire</b>	
Cheadle	Mechanics' Institute
Dudley	Mechanics' Institute
Stafford	Mechanics' Institute
Tamworth	Library & R
Walsall	Mechanics' Institute
West Bromwich	Society of Advanced Knowledge
West Bromwich	Hill top Mechanics' Institute
<b>Suffolk</b>	
Lowestoft	Mechanics' Institute
Croydon	Literary & Scientific Institute
Croydon	Literary, Scientific & M. Inst
Godalming	Mechanics' Institute
<i>Kingston-upon-Thames</i>	<i>Mechanics' Institute</i>
Reigate	Mechanics' Institute



Twickenham	Mechanics' Institute
<b>Sussex</b>	
Horsham	Mechanics' Institute
Littlehampton	Mechanics' Institutes
Worthing	Mechanics' Institute
<b>Warwickshire</b>	
Coventry	Mechanics' Institute
<b>Westmoreland</b>	
Kendal	Mechanics' Institute
<b>Wiltshire</b>	
<i>Calne</i>	<i>Mechanics' Institute</i>
Devizes	Literary & Scientific Institute
Salisbury	Literary & Scientific Institute
Trowbridge	Mechanics' Institute
<b>Worcestershire</b>	
Dudley	Mechanics' Institute
Stourbridge	Mechanics' Institute
<b>Yorkshire</b>	
Almondbury	Mechanics' Institute
Batley	Literary Society
Batley	Mechanics' Institute
Castleford	Mechanics' Institute
Goole	<i>Mechanics' Institute</i>
Harrogate	Mechanics' Institute
Haworth	Mechanics' Institute
Hebden Bridge	Mechanics' Institute
Heckmondwike	Mechanics' Institute
Horbury	Mechanics' Institute
Hull	Mechanics' Institute
Keighley	Mechanics' Institute
Middlesbrough	Mechanics' Institute
Morley	Mechanics' Institute
Ossett	Mutual Improvement Society
Penistone	Mechanics' Institute
Pontefract	Mechanics' Institute
Rothwell, Leeds	Mechanics' Institute
Scarborough	Mechanics' Institute
Settle	Mechanics' Institute
Shipley	Mechanics' Institute
Skipton	Mechanics' Institute
Sowerby Bridge	Mechanics' Institute
Thorne	Literary Society
Wakefield	Mechanics' Institute
York	Mechanics' Institute / Pop. Sc.
<b>Wales</b>	
Aberdare	Mechanics' Institute
Aberystwyth	Literary, Scientific & Mech.
Bridgend	Mechanics' Institute
Cardiff	Mechanics' Institute
Cardiff	Literary & Scientific Society
Denbigh	Mechanics' Institute
Merthyr Tydfil	Mechanics' Institute
Merthyr Tydfil	Young Men's Improvement Soc.
Swansea	Tradesmen Mech. Institute
Swansea	Mechanics' Institute
Swansea	Literary & Scientific Society

Swansea	Society for Acquisition of U Kn.
Swansea	People's Institute
Wrexham	Workman Literary Society
<b>Channel Islands</b>	
<b>Isle of Wright</b>	
<b>Isle of Man</b>	
Douglas	Mechanics' Institute
<b>Scotland</b>	
Aberdare	Mechanics' Institute
Aberdeen	Mechanics' Institute
Airdrie	Mechanics' Institute
Annan	Mechanics' Institute
Arbroath	Mechanics' Institute
Ayr	Mechanics' Institute
Banff	Literary Society
Castle Douglas	Operative Mechanics'
Coatbridge	Mechanics' Institute
Dalkeith	Science Association
Dumbarton	Mechanics' Institute
Dumfries	Mechanics' Institute
Dunbar	Mechanics' Institute
Dundee	Watt Institute
Dunfermline	Science Association
Edinburgh	Philosophical Institute & MI
Edinburgh	School of Arts
Elgin	Mechanics' Library & RR
Glasgow	Mechanics' Institute
Glasgow	Andersonian Institute
Glasgow	Parkhead Institute
Glasgow	Gorbals Institute
Glasgow	Cowcaddens Mechanics' Inst
Glasgow	Calton Mechanics' Institute
Glasgow	Athenaeum
Greenock	Mechanics' Institute
Hamilton	Mechanics' Institute
Hawick	Literary & Scientific Institute
Jerdburgh	Mechanics' Institute
Johnstone	Mechanics' Institute
Kelso	School of Art
Kelso	Literary & Polytechnic Institute
Lauder	Mechanics' Institute
Montrose	Literary Society & MI
Sterling	School of Art
Tranent	Mechanics' Institute
Tain and Easter Ross	Mechanics' Institute
<b>Ireland</b>	
Belfast	Mechanics' Institute
Belfast	Soc for Promotion of Knowledge
Belfast	Working Association
Cork	Mechanics' Institute
Cork	Royal Institute
Downpatrick	Mechanics' Institute
Drogheda	Mechanics' Institute
Dublin	Mechanics' Institute

Dungannon	Literary Society
Limerick	Institute
Waterford	Mechanics' Institute

Source: Andrew Carnegie Trust, Dunfirmlin, *The Endowed Carnegie Libraries, Carnegie Libraries in Britain and Ireland*

### Appendix 13 Science and Art Schools in County Durham: 1879 – 1880

Town	School	Number of subjects taught	
		Arts	Sciences
Bishop Auckland	Temperance Hall	Yes	4
Blydon-on Tyne	National School	No	4
Bolden	Board School	No	1
Consett	Co-operative Store	No	2
<b>Crook (Billy Row)</b>	Peases' West Miner's Institute	Yes	3
Crook (Billy Row)	British School	Yes	3
Crook (Billy Row)	British School, Bowden Close Colliery	No	2
<b>Darlington</b>	The Railway Institute	Yes	No
<b>Darlington</b>	Mechanics' Institute	Yes	No
Durham	School of Art	Yes	No
Durham	Science School	No	5
<b>Esh</b>	Miners' Institute	No	4
Ferry Hill	Chilton Board School	Yes	4
Gateshead	Board School	No	4
Gateshead	Literary Institute	No	2
Gateshead	National School	Yes	4
Hebburn	St Andrew's Institute	Yes	4
Hebburn New Town	Board School	No	1
Hetton-Le-Hole	Colliery School	No	2
Heworth	National School	No	1
Houghton-Le-Spring	National School	No	2
Jarrow-on-Tyne	Mechanics' Institute	Yes	6
Jarrow-on-Tyne	Board School	No	1
Murton Colliery	Girls' School	No	3
Penshaw	Colliery School	No	2
Seaham Harbour	Girls' National School	Art	3
Silksworth	New Tunstall School	Art	4
South Hetton	Colliery School	No	4
South Shields	Public Library	No	2
South Shields	Board School	Yes	No
South Shields	Jarrow Chemistry Co. School	No	2
South Shields	Marine School	No	1
South Shields	Board School	Yes	2
Stanhope	Dr. Hartwell's School	Yes	1
Stockton-on-Tees	Fine Art Class	Yes	1
<b>Stockton-on-Tees</b>	South Stockton Mechanics' Inst.	Yes	No
Sunderland	Bishopwearmouth Nat. School	Yes	5
Sunderland	Workmen's Hall	No	2
Sunderland	School of Art	Yes	3
Sunderland	Y.M.C. Association	No	1
Sunderland	Hendon Church Institute	Art	2
Sunderland	Methodist New Connection Sch	No	1
Sunderland	Industrial School	No	3
Sunderland	School Room, Cumberland St.	Yes	1
Sunderland	Board School	Yes	3
Sunderland	New Herrington Schools	Yes	2
Tudhoe Colliery	Colliery Schools	No	2
<b>West Hartlepool</b>	Athenaeum	Yes	No
Winlaton	Board Schools	No	2

Names in **bold** were members of the Yorkshire Union.

Source: *Forty Third Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1879, p.153.

## Appendix 14 The Pease & Partners' Mining and Mechanics' Institutes 1889

Miners' Institute	
Skinningrove	
Lingdale	
New Marske	
Peases West	
Bowden Close	
Sunnyside	
Waterhouses	
Esh	
South Church	
St. Helens.	
Stanley	
Roddymoor	
Frosterley	
Fylands Bridge	
Total Number of Members 3,134	
There were 60 science and art classes under the supervision of R. Taylor, FGS, and 17 assistants. The classes were attended by 474 individual students.	
Saltburn Mechanics' Institute	
Number of students who passed exams and subjects being offered at the Pease Institute at Saltburn	
65	Mining
30	Geology
28	Hygiene
23	Physiology
19	Geometry
19	Sound, Light and Heat
18	Steam
14	Machine Construction
12	Chemistry
11	Mathematics
11	Agriculture
10	Building Construction
9	Physiography
6	Applied Mechanics
6	Electricity
6	Practical Chemistry
28	Freehand Drawing
28	Model
28	Perspective
Elementary Evening Schools	
206	Reading
184	Writing
165	Arithmetic
19	Geography
18	English Literature
12	Elementary Science

Source: *Fifty Third Annual Report of the Yorkshire Union of Mechanics' Institutes*, 1889, p.93.

## Appendix 15 County Council of the West Riding of Yorkshire Technical and Evening Schools in 1910

Addingham, Ilkley			
Baildon, Shipley	Central	Tong Park	Woodbottom
Barnoldswick	Technical School	Gisburn Road	
Bentham, Settle	High Bentham	Low Bentham	
Bingley	Cottingley	Crossflatts	Cullingworth
	Eldwick	Harden	Mornington Road
	Myrtle Park	Technical School	Wilsden
Burnsall, Skipton			
Carleton, Skipton			
Cononley, Skipton			
Cowling, Skipton			
Denholme, Bingley			
Earby, Skipton			
Embsay, Skipton			
Gargrave, Skipton			
Giggleswick, Skipton			
Gisburn, Clitheroe			
Glusburn, Keighley	Crosshills	Technical School	
Grassington, Skipton			
Haworth, Bingley	Central	Lees & Crossroads	
Hebden Bridge	Central	Stubbings	Technical School
Hellifield			
Hepptonstall, Hebden Bridge			
Ilkley			
Ingleton, Settle			
Keighley	Technical School	Eastwood	Holycroft
	National	Parkwood	Utley
	Wesley Place		
Kildwick, Keighley			
Kirkby Malham, Settle			
Long Preston,			
Lothersdale, Skipton			
Luddenfoot			
Midgely, Luddenfoot			
Mythomroyd, Hebden Bridge			
Oakworth, Keighley	Laycock	Mechanics' Institute	Oldfield
	Stanbury		
Otley	Technical School	North Parade	
Oxenhope, Bingley			
Steeton, Skipton	Easatburn	Steeton	
Todmorden	Cornholme	Eastwood	Roomfield
	Technical School	Walsden	

The left hand column refers to the place with a Technical School or Evening School and Education Division. Where more than one institute exists, the names are mentioned in the right hand columns.  
Source: *Seventy-Third Report of the Yorkshire Union of Mechanics' Institutes*, 1910, pp. 67 – 81.

**Appendix 16 Science and Art Schools in Yorkshire (Dales and Pennines): 1879 – 1880**

Town	School	Subjects Taught	
		Art	Sciences
Baildon	School	Yes	No
<b>Barnoldswick</b>	Mechanics' Institute	Yes	Yes, 4
<b>Bingley</b>	Mechanics' Institute	Yes	Yes, 4
<b>Cottingley</b>	Mechanics' Institute	Yes	No
Cowling	Board School	No	Yes, 2
Crosshills	Temperance Hall	No	Yes, 2
<b>Embsay</b>	Mechanics' Institute	Yes	Yes, 2
<b>Gargrave</b>	Mechanics' Institute	Yes	No
<b>Haworth</b>	Mechanics' Institute	Yes	No
<b>Hebden Bridge</b>	Institute and Club Room	No	Yes, 4
Hebden Bridge	Co-operative	No	Yes, 3
Ilkley	National School	Yes	Yes, 3
<b>Keighley</b>	School of Art	Yes	Yes, 4
Keighley	Co-operative Hall	Yes	No
Keighley	National School	No	Yes, 1
Mytholmroyd	Odd Fellows Hall	No	Yes, 2
Mytholmroyd	Scarbotom School Room	No	1
<b>Oakworth</b>	Mechanics' Institute	Yes	Yes, 2
<b>Otley</b>	Mechanics' Institute	Yes	3
Settle	National School	Yes	1
<b>Shipley</b>	Salt Schools	Yes	5
Silsden	Board School	Yes	No
Skipton	Mechanics' Institute	Yes	Yes, 1
Skipton	British School	Yes	1

Names in **bold** were members of the Yorkshire Union. All towns listed had a mechanics' institute which, if they did not use (or own) their own accommodation, may well have used these institutions.

Source: *Forty-Third Annual Report of the Yorkshire Union of Mechanics' Institutes, 1879*, p.154 - 9.

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