‘Treasures Open to the Wise’:
A Survey of Early Mechanics’ Institutes
and Similar Organisations

Séamus S. Duffy

The idea of teaching science to mechanics and artisans originated in the Andersonian Institute in Glasgow under the aegis of Dr. John Anderson, founder of the Institute. Anderson threw open his course in practical philosophy to the general public. In his hands the course developed into one in practical science and anticipated what the Mechanics’ Institutes later called the ‘application of science to the arts’, to the processes of industry and agriculture. By 1791 between 150 and 200 students were attending Anderson’s courses.

In 1799 George Birkbeck joined the Andersonian Institute as Professor of Natural Philosophy. One of the earliest accounts of Mechanics’ Institutes, Mechanics’ Institutes, their Objects and Tendency, includes the story of his attempts to have a certain piece of apparatus manufactured. His instrument maker having failed, Birkbeck had recourse to the workshop of a mechanic. Impressed by their interest in the uses to which the instrument would be put, Birkbeck used his influence to have the artisans admitted to the course of lectures. Apparently, the lectures were too high-brow for the working men so Birkbeck designed a course specially suited to them. In February 1800 the first mechanics’ class was convened. Other courses followed in 1801, for which a fee of one shilling was charged, and a third series was held in 1802.

When Birkbeck moved to London in 1804, his successor, Dr. Andrew Ure, carried on the Mechanics’ lectures. In 1823, a large number of mechanics attending the lectures at the Andersonian Institute seceded to form their own self-governing Glasgow Mechanics’ Institute. Lord Brougham’s influential pamphlet, Practical Observations Upon The Education Of The People, Addressed To The Working Classes And Their Employers, claimed that it was the desire to manage their own affairs that prompted the breakaway.

By 1823, Birkbeck was well established in London, and news of the success in Glasgow and Edinburgh had reached the capital. Two attempts had already been made to form similar establishments in England. In November 1823 the London Mechanics’ Institute was founded, mainly through the efforts of J. C. Robertson, editor of the Mechanics’ Magazine, Thomas Hodgskin, Francis Place and Birkbeck. Lord Brougham was present at the inaugural meeting, as was William Cobbett. The latter contributed £5 to the enterprise and gained the disapproval of Place for warning the mechanics against allowing any but themselves to have a hand in the management. The question of management led to heated debates in most areas where Mechanics’ Institutes were founded.

Thus the idea of forming societies for the scientific education of the artisan – for that was the prime aim of the early societies – developed. Brougham’s pamphlet laid down the objectives for institutes like the Mechanics’. His slim volume became the primer of the movement. At the outset, many commentators felt that he was setting his targets too high, but the combination of lectures, library and discussion classes were to become accepted as the nucleus around which hundreds of working-men’s institutes mushroomed in the two or three years after the publication of Practical Observations.

The Translation of an Idea

Literature on Mechanics’ Institutes in Ireland is sparse. Few minute books have survived and information must, in the main, be gleaned from local newspapers. T. Cliffe Leslie performed
a useful service in 1852 with two papers on the subject of Mechanics' and Literary Institutes, but nearly every study of nineteenth century social history ignores the institutes.

The 'glorious work of national utility', as the Northern Whig styled the mission of the Mechanics' Institutes, experienced the same ups and downs in Ireland as in Great Britain. An initial burst of enthusiasm between 1825 and 1830 saw the foundation and disappearance of several Institutes. Some reappeared in the second phase, which lasted from about 1832 to 1854. It is possible to identify twenty seven centres where Mechanics' Institutes existed between 1825 and 1870. This quite respectable number suggests that over the period in question the concept of educating the artisan attracted some interest. There were two areas where the effort was most sustained. One is south-east Ulster. Here the earliest Institutes were founded in 1825, and the latest in 1854. The former Institutes did not last long, and the later deviated significantly in their aims and objects from the original model.

The Institutes in Munster and Leinster form another well-defined group which also had varying degrees of success and longevity. The Clonmel Institute, for example, begun in 1842, lasted to the end of the nineteenth century. Limerick, on the other hand, folded almost as soon as it started, but it was re-formed in 1829, and met with limited success. The Dublin Mechanics' Institute was in continuous existence from 1824 to 1860, but it too had its troughs and peaks. Waterford's Mechanics' Institute, founded in 1827, had a membership in excess of 300 in 1866, and offered a library, a chess club, a debating society and evening classes in adult education with an enrolment of twenty nine. The concept of Birkbeck and Brougham had crossed the Irish Sea. That it was the same concept can be seen in the speeches at the launching of several Institutes. When James Haughton spoke at the opening of the New Hall of the Dublin Mechanics' Institute in May 1849 he said:

'I trust it will be the aim of every member of this Institution to encourage the attainment of intellectual and moral requirements — that within these walls, which we this evening consecrate to the spirit of harmony, science will be made subservient to the great end of assisting the progress of the human mind towards perfection.'

At the inaugural meeting of the Belfast Mechanics' Institute in March 1825 the Rev. R. J. Bryce of the Belfast Academical Institution expressed the hope that the Institute would:

'bring forward men of genius who would enrich the arts by useful inventions, and although it cannot be expected that every one will turn out a Watt, yet, in this large and flourishing town, there may be many Watts in embryo, and should the Mechanics' Institute only produce one Watt in the course of a century they will be amply rewarded.'

Henry Caulfield, MP, expressed similar sentiments at the first meeting of the Armagh Mechanics' Institute in October 1825. That the ideal was still alive sixteen years later is clear from the first meeting of Downpatrick Mechanics' Institute, where the secretary, Dr. Hodges, urged the members to pursue knowledge 'by holding up to their admiration and imitation a glorious array of names of individuals, who by perseverance and industry in scientific pursuits had raised themselves to affluence and power'. Within these examples can be discerned the dual appeal to the worth of scientific knowledge and the benefits to be accrued by applying oneself to the pursuit of such knowledge. Similar exhortations were heard by the mechanics of Manchester, London and Glasgow. This is not surprising when one considers the men and organisations who were the chief advocates of the Mechanics' Institutes in Ireland. The Northern Whig, as its name would imply, was a firm supporter:

'The manufacturing interests of the north of Ireland render it peculiarly well adapted to the furtherance of the objects which such institutions have in contemplation; and if the thing be entered into here with proper exertion, we have no question of its success.'
In Armagh the patron was the Liberal MP Henry Caulfield, who remained a firm supporter of working-class education long after the local Mechanics' Institute ceased to exist. Among the founders of the Belfast Institute the Presbyterian, and, hence, dissenting influence is noteworthy. The Rev. R. J. Bryce and Professor John Stevelly, both of whom taught at the Belfast Academical Institution, were elected non-operative Directors.21 James Haughton, connected with the Dublin Mechanics' Institute, was a man of decided liberal views who supported all popular reforms and was a staunch advocate of temperance.22 The supporters of the extension of the Mechanics' Institutes to Ireland were in the main, then, of similar mould to their counterparts in Great Britain.

The spread of the Mechanics' Institute movement to Ireland can be attributed to several factors. The Irish MPs who were on the Liberal or Whig side, and, hence, sympathetic to the advocacy of Brougham for the education of the masses, may have brought the idea home to their constituents. In the case of Armagh that is almost certainly true. Local newspapers, through their letter columns and reports culled from British journals, also assisted in the spreading of the word. The interest of the Northern Whig in the movement has already been noted. The other Belfast daily, the News-Letter was, initially, equally encouraging. On 6 May, 1825, it approved the 'zeal and activity of several members of the committee' who had obtained copies of the regulations of the Manchester and Glasgow Institutes.23 There was, then, early contact between the Belfast founders and Institutes in Britain. The Mechanics' Magazine, which was available in Ireland, also played a role in furthering the idea.24

Mechanics' Institutes were begun in most centres of moderate population, with towns on the eastern seaboard predominating. Very few starts were made on the west coast, Galway, Ennis and Limerick being the only examples. Indeed, apart from Tuam and Galway, there is no evidence that the movement gained any foothold in Connacht. Being English inspired in both language and ethos, the Mechanics' Institute movement had the strongest appeal in predominantly English speaking regions.25 Even in Ulster, Irish was still the home language of a sizeable minority.26 One contemporary investigation estimated that about half the people of Tyrone spoke Irish in 1806, while another considered that there were 140,000 Irish speakers in the county in 1821 out of a population of 262,000.27 Before the Famine about five million people were either Irish speakers, or the children of parents who had been Irish speakers.28 While it would be presumptuous to attribute the effects of a language barrier as the sole reason for the failure of the Mechanics' Institutes to gain a hold in many parts of Ireland, the cultural divide cannot be ignored.

Four causes are usually given for the spread of the Mechanics' Institute movement. First, it was felt that in the new technological age skilled workmen needed to know the elements of science; secondly, there was a popular and widespread interest in science; thirdly the Institutes were part of the growing movement for the provision of popular education; finally, they were part of the working class movement for political reform – the 1820s were the seedground for socialism, Chartism and co-operation.29

Of these causes, popular interest in science, and the movement for popular education were crucially important in Ireland. The weakness of the other two causes placed the Irish Mechanics' Institute movement in grave danger of being decidedly middle class and patronage ridden, as an examination of the institutes in Antrim, Armagh and Down bears out. These three most industrialised of Ulster counties contained institutes in Belfast, Glenarm, Portaferry, Armagh, Lurgan, Downpatrick and Newry.30

Mechanics' Institutes in Ulster

A Mechanics' Institute existed in Armagh from 1825 to 1831. Armagh was then a market town, with an agricultural hinterland of small farms, producing, in the main, flax for the
WANTED,
FOR THE SCIENTIFIC SCHOOL OF THE
ARMAGH MECHANICS' INSTITUTE,
A PERSON qualified to give instruction in Arithmetic, Algebra, Geometry, and Trigonometry; and their different applications to Perspective Architecture, Measurment, and Surveying.—None need apply but such as can furnish credentials of Character.—By order of the Committee,
FRANCIS SHERRY, Sec. Com.
Communications (in every case free of expense) to be addressed to that Secretary.

Above: Newspaper advertisement for the Armagh Mechanics' Institute, 1826.
manufacture of linen. There was no large manufacturing concern in the city, though there were the usual service industries. In 1824 fifty-nine trades and professions could be identified. The inspirational figure behind the Mechanics’ Institute in Armagh was Henry Caulfield. The fact that in early 1825 a Mechanics’ Institute was established in Belfast amid much publicity may also have inspired to imitation some other influential figures in Armagh.

The first meeting was held on 12 October, 1825, at which Caulfield outlined the aims and objectives of such institutes. Tréchant opposition to the idea of educating the artisan in science came from the Rev. George Millar, Headmaster of the Royal School. Millar feared that the hours allotted to reading by members of the Institute would be at the expense of their labour or their families. The study of history and biography would change the artisans into ‘assemblies of deliberating politicians’. Millar was joined in his opposition by the Rev. Thomas Romney Robinson, astronomer at Armagh Observatory, an Anglican like Millar. By the time the Institute was finally constituted, the clergy of the Established Church had departed the scene; leaving the field to Dissenters and Catholics, among whom were the local priests. According to the rules of the Armagh Institute, the directors consisted of six operative and seven non-operative members. By the end of its first year Armagh Mechanics’ Institute had a roll-call of 171 members, seventy six being non-operatives. The library contained 227 volumes, and 633 borrowings had been made. The income of the Institute amounted to £290-6s-3d, and there was £131-4s-6d in hand at the end of the year’s operation. An attempt can be made to estimate the religious mix of the members using contemporary street directories. Thirty of the ninety five operative members were probably Catholic. Among the non-operatives we can identify two Catholic priests, the Rev. Henry Campbell, and the Rev. Peter Coleman. During the six years of its existence the Armagh Mechanics’ Institute offered, in a spasmodic fashion, the usual facilities of such establishments. Lectures were never very successful, mainly due to the difficulty in obtaining suitable lecturers. The Scientific School struggled for much of the time, and the one successful enterprise was the library. Lack of elementary education is often put forward as a reason for the failure of courses of lectures. In this Armagh we had no exception. The directors of the Institute did, however, try an interesting experiment when they opened an academy for the general education of the working classes in 1828. This effort faded after a couple of years, but it does show that in Armagh at least, the Mechanics’ Institute was prepared to broaden its educational scope.

The Belfast Institute began with a fanfare of hope from the local press. The attendance at the inaugural meeting was given by the Northern Whig as ‘some hundreds of artisans and mechanics, and a considerable number of our most influential inhabitants’, many from the Belfast Academical Institute. As in Armagh the Presbyterian influence was strong. A feature of the Belfast Mechanics’ Institute was that the directors had a majority of operative members, sixteen as against eight non-operative. In Belfast, then, the working artisan was nominally in charge. The usual ingredients of lectures, library and Science School were to be the means of education. By June 1825, three months after its commencement, the number enrolled in the Institute had risen to 400, according to the News-Letter. However, at the first annual meeting the secretary, Samuel Archer, had a not very encouraging report to present. There had been no increase in the numbers from the early days; in fact, some had withdrawn from the Institute altogether. Archer offered the depressed state of trade as one of the reasons for the decrease in numbers. This same excuse was often given when Mechanics’ Institutes were going through bad times. Lecture courses had been given and had been successful, although in one famous case the Reverend Lecturer used a course on Geography to inculcate his own political philosophy, which was definitely not of the radical variety. Controversy was never far removed from the Belfast Institute; Masters to the Science School were hired and fired with sometimes bewildering rapidity, often, one suspects, on theological grounds. Gifts of books
were refused because of the political leanings of the author.  

By the end of 1827 the Belfast Mechanics' Institute had lost its way, and from then until 1831 the Library and Science School struggled to stay open. The occasional lecture was given, more often than not with an esoteric theme unlikely to attract the artisan. Titles included 'On the Best Means of Improving the Moral and Physical Condition of the Working Classes' and 'The Causes of the Present Distressed Condition of the Working Classes and the Means of Remedy ing It'.  

It is illustrative of the change of character that had occurred in the Belfast Mechanics' Institute that a lecture by Dr. Henry McCormac in 1832 on Chemistry degenerated into a theological argument in the letter columns of the News-Letter. And the cause of the argument? McCormac's espousal of the scientific evidence for the geological age of the Earth. The language in which the arguments were couched would certainly have been way above the heads of the majority of the working mechanics. From 1832 to 1838 the Mechanics' Institute in Belfast was in a state of suspended animation. In the latter year an effort was made to revive it, with limited success. In 1839 a French class for 'young ladies' was commenced, another indication that the Institute was moving away from its original objectives. During 1841 the lectures revived, but again the themes were excessively complex. Some lectures were given in 1842, but from then until 1865 the library constituted the Institute, although the Science School is sometimes mentioned as having been rented to teachers. In 1865, the Mechanics' Institute merged with the People's Reading Rooms, an organisation which took its educational work much more seriously than the Institute did. The People's Reading Rooms grew out of the Working Classes Association, which had been founded in 1846 by a remarkable Belfast doctor, Andrew Malcolm (1818-1856). The object of the Working Classes Association was to encourage a taste for reading and 'mental cultivation' among the working community in Belfast. In June 1846 the People's Reading Rooms were opened. By the end of 1848 there were 2,405 subscribers. During the winter of 1859 classes were held in book-keeping, arithmetic, political economy and French. The People's Literary Institute grew out of the merger between the Mechanics' Institute and the People's Reading Rooms. In 1865 temperance advocates and others who took an interest in the working classes felt that in a town like Belfast, with its large population of industrial workers, it would be desirable to have a good central hall or Working Men's Institute, where, free from the attractions of the public house, the artisan and mechanic could meet their friends socially, read the daily papers, and consult such periodicals or books as referred to their respective trades or occupations. A working committee was set up, and in November 1871 a new Working Men's Institute and Temperance Hall was opened at the corner of Queen's Street and Castle Street. In early 1872 science classes were commenced, and by 1877 it was holding, in connection with the Government Science and Arts Department, classes in mathematics, mechanics, acoustics, light and heat, magnetism and electricity, chemistry, geology, botany and biology. In 1885 the People's Literary Institute merged with the Working Men's Institute. When, in 1901, the Municipal Technical College began its existence, it absorbed the science classes of the Working Men's Institute. During the forty year period from 1825, the Belfast Mechanics' Institute can be said to have functioned continuously for only the first seven. There is a link, however tenuous, between the Mechanics' Institute and its successor organisations, the People's Reading Rooms, the People's Literary Institute, the Working Men's Institute and the Belfast College of Technology of today. Ultimately, then, the labours of pioneers in the cause of the education of the working classes of Belfast were not entirely in vain.

The Mechanics' Institute in Downpatrick is reasonably well documented. There is a minute book covering the second half of its existence extant, and it received good coverage in its local newspaper the Downpatrick Recorder. Founded in 1841, it had the trappings but not the organisation of the traditional Mechanics' Institute. It was managed by a committee without distinction between operatives and non-operatives. Its founder was Dr. John Hodges, who
later was on the staff of Queen’s College, Belfast, and who was also prominent in the Chemico-Agricultural Society of Ulster. The Downpatrick Institute had a library, did not attempt a school, and its main function appears to have been the organisation of lectures. With regard to these, the same criticism must be levelled at them as at the majority of lectures offered in Belfast and other Mechanics’ Institutes — they were too high-brow. Downpatrick also indulged in entertainments such as concerts. In October 1853 the Institute hosted the Barrington Lectures on Political Economy, given by Dr. Moffett of Queen’s College, Galway. In 1858 scientific lectures were given by Thomas A. Bryce, master of the Mathematical School of Belfast Academy. This brought a word of encouragement from the local newspaper, the Down Recorder, which expressed the hope that the committee would continue to encourage scientific lectures. The committee does not seem to have taken that advice, for literary and moralistic themes dominated the programme up until 1870. Of the other institutes, Portaferry was founded in 1828, and gets several mentions in contemporary newspapers. It is also recorded in the Belfast directories up to 1870. By all accounts it had a well stocked library. In 1856, a Charles Todd gave a series of lectures there on Terrestrial Physics. A year previously Dr. Dickie of Queen’s College, Belfast lectured on Botany. In 1854, Dr. March of Edinburgh gave a course of five lectures on Physical Science. Science was not neglected at Portaferry. The Lurgan Institute was inaugurated with much fanfare in March 1859. From the outset it appears to have been devoted entirely to lectures, though it did have a library. In September 1859 it hosted a series of lectures under the auspices of the Committee of Lectures, Dublin Castle, on the ‘Zoology of Great Britain and Ireland’. This Institute is still in existence as a working-class social club. Surprisingly a Mechanics’ Institute existed in the small village of Glenarm in the Glens of Antrim. Dickie of Queen’s College gave a course of lectures here on ‘The Structure and Habits of Fish’, and the Rev. Dr. McCosh of Belfast spoke of his experiences on a tour of Europe. Perhaps the presence of iron ore mining, a mill and a lime works explain the presence of a Mechanics’ Institute in such a small village. The Newry Institute was formed in January 1850 to supply a newsroom, to form a library and to hold popular lectures and evening classes.

Conclusion

What, if anything, did the Mechanics’ Institutes contribute to the education of the working classes? Engel’s charge that the Institutes were organs ‘for the dissemination of science useful to the bourgeoisie’, is one of the many criticisms levelled at them. Contemporary radicals alleged that the bourgeoisie used the Mechanics’ Institutes ‘to exploit the workers technical and inventive powers; to instruct them in the ‘right’ political and economic theories . . . and to divert their minds from independent political activity’. If these were the motives of the founders and patrons, there were many institutes that did belong to working men, and where, even if the middle classes were involved, workers remained predominant. Where middle-class values predominated, as they did in many of the Irish Institutes, it should not be supposed that they were thrust upon the workers from above. Many workers sought instruction to ascend the social scale. The movement was an honest effort on the part of benevolent men — some of them idealists, some philanthropists — to educate the skilled workman in the basic sciences connected with his trade. This work of education took place without benefit of government assistance, against a background of a lack of basic education, opposition to the very idea of educating the lower orders, and the suspicion of those who were to benefit from the project. After early success, came the almost expected reverse. There was a reappraisal of ideas and the second and third periods of expansion saw the original concept broaden out to embrace a more general curriculum, with a developing social element. The milieu of the Institutes developed with the society of which they were a part. The Irish Institutes may not have had the membership or the
continuity of the larger English ones. They may not have enjoyed the continuous development of places like Liverpool and Manchester. But if they started but a few young men on the road to greater understanding of the complexities of the new technological age in which they lived, then they served a useful purpose.

Notes

1. The title is taken from Padraic Colum's poem 'A Poor Scholar Of The Forties'. The second verse reads:
   And I must walk this road that winds
   'Twixt bog and bog, while east there lies
   A city with its men and books,
   With treasures open to the wise,
   Heart words with equals, comrade looks:
   Down here they have but tale and song,
   They talk Repeal the whole night long.
4. ibid., pp. 13-5.
5. The edition referred to here is that of 1971, edited by Morten.
6. In 1821, Leonard Horner founded the Edinburgh School of Arts. Thomas Kelly in his biography of Birkbeck describes how the idea of founding such an institution came to Horner after a conversation with a watchmaker, Robert Bryson, who pointed out how difficult it was for workmen in such trades to secure adequate scientific training. See Kelly, op.cit., p. 71.
7. In 1817, Timothy Claxton founded a society called the Mechanical Institute, which lasted to 1820, when Claxton departed for Russia. In July 1823, the Liverpool Mechanics and Apprentice Library was established. Mechanics and apprentices, who were not members, were allowed use of the library free of charge, on being nominated by any person who would make a donation of two guineas to the library. See J. W. Hudson, History of Adult Education, (London, 1969), pp. 45-7; Kelly, op.cit., p. 75.
8. Thomas Hodgskin was a radical economist, political writer, anticipator of Karl Marx, and an activist in the early Mechanics' Institute movement. He was a co-editor with J. C. Robertson of the Mechanics' Magazine, when it first appeared. He later edited The Chemist. Francis Place (1771-1854) was a self-educated London tailor, champion of radicalism and the right of combination. He contrived the repeal of the Combination Laws in 1824, and was a leading figure in the agitation which brought about the passing of the Reform bill in 1832.
10. Among Irish Institutes for which original material such as minute books survive are Armagh, Belfast, Downpatrick, Clonmel. Cork and Dublin. Local newspapers are reliable source of information.
13. Northern Whig, 6 January, 1825. The Whig's rival, the Belfast News-Letter also welcomed the proposal to found an Institute in Belfast in its edition of 8 March, 1825.
14. For the Mechanics' Institutes of Munster and Leinster see Kieran R. Byrne, Mechanics' Institutes in Ireland before 1855, MEd. University College, Cork, 1976.
20. Northern Whig, 1 January, 1825.
23. The same report also informs us that the Cork Mechanics’ Institute had been requested to forward a copy of their laws to Belfast.


25. For a treatment of the linguistic aspect of the cultural divide in nineteenth century Ireland see Seán de Fréine, The Great Silence, (Dublin, 1965).


27. É O Tuathail, Séilbh Mhuintir Luínigh, (Dublin, 1933) pp. xi-xii. However, Brian Ó Cúiv, Irish Dialects and Irish Speaking Districts, (Dublin, 1971), p. 21 writes that, by the early nineteenth century, Irish was generally spoken only in Munterloney. In the rest of the county there were pockets of Irish speakers. The 1851 census shows that only 5% of the county could be classified as Irish speakers.

28. See de Fréine, op.cit., p. 129.


30. Of these, Belfast, Armagh and Downpatrick are reasonably well documented; Belfast in the Northern Whig and the Belfast News-Letter, Armagh because its complete minute book exists, and Downpatrick because its minutes are extant for the final years of its existence.


34. ibid, p. 136.

35. ibid, pp. 138-51.


37. Belfast News-Letter, 10 June, 1825.

38. Duffy, op.cit., p. 177.

39. ibid, pp. 188-99.

40. idem.

41. ibid, pp. 201-3.

42. Belfast News-Letter, 3, 7, 10 February, 1832.

43. Duffy, op.cit., p. 207.

44. For example, ‘Galvanism and Electromagnetism’ by Professor Thomas Andrews, and ‘The Pulverisation of Light’ by John Gratten.


46. See William Gray, Science and Art in Belfast, (Belfast, 1904), pp. 77-89.


48. ibid, p. 247.

49. Down Recorder, 9 January, 1858.


51. ibid, p. 270.

52. ibid, p. 271.

53. ibid, p. 269.

54. ibid, p. 266.


56. For a brief discussion of the motives attributed to the founders of Mechanics’ Institutes see Duffy, op.cit., pp. 27-9.