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## APPROACHES TO TECHNICAL EDUCATION IN NINETEENTH- CENTURY IRELAND

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Like all engaging and enduring parodies Thackeray's creation of Mr. Molony's stunned reaction to the spectacle of the Great Exhibition in 1851 was an exaggerated and jocular commentary which was earthed to a particular reality. The object of ridicule celebrated on that occasion was the comical projection of an industrially-backward Ireland. Well indeed might the allegorical Molony, with an obvious agrarian-rural pedigree, have been aghast at the diversity of international exhibits assembled, to say nothing of the Crystal Palace itself. The breezy couplets admitted as much.

Amazed I pass  
From Glass to Glass  
Doloighted I survey 'em;  
Fresh wondthers grows  
Before me nose  
In this sublime Musayyum! 1

Analysed at another level there is a more subtle truth to be found in **Mr. Molony's Account**. For if Molony marvels at a new world and expresses incredulity at the promise of prospects to come there is a certain mocking antipathy to be detected in the tone as well.

There's taypots there  
And cannons rare;  
There's coffins filled with roses;  
There's canvas tints,  
Teeth instrumints,  
And shuits of clothes by Moses. 2

On leaving the Palace Molony is to be found more amused than he is impressed, reflecting in turn an uncertain Irish attitude to the prevailing turmoil of industrialization and urbanization. That attitude was one more suspicious than it was ambitious; one more reticent than responsive.

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# TECHNICAL EDUCATION

ESSAYS

DEDICATED TO  
THE MEMORY OF  
MICHAEL CLUNE

*Dublin 1983*

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For those in Ireland who sought to secure industrial development through educational means that outlook was a matter of frequent commentary. William Hickey (1788-1875), one of the pioneers of Irish utilitarianism, argued provocatively that the classical learning indulged at the hedge schools was a 'bad education I would have you avoid..... it makes a man think the handles of the plough or the business of the counter would disgrace him'.<sup>3</sup> Taking up the same theme at the founding of the Dublin Mechanics' Institute in 1824, one member exclaimed that Ireland had 'her Goldsmith, her Swift, her Burke and her Sheridan, but she had not an Arkwright, a Jameson or a Watt.'<sup>4</sup> Robert Kane (1809-1890), the prince of Irish utilitarianism, was to devote constant attention to that deficiency as well. In his most noted work *The Industrial Resources of Ireland* Kane dwelt at length on the question of industrial education. He argued trenchantly that the advancement of Ireland depended not only upon those who pursued liberal humanistic studies, but more importantly, upon those who could apply the theories of new scientific research towards industrial development.<sup>5</sup> Persuasively presented though these arguments may have been the task of conversion remained difficult and one witness to the Royal Commission on Technical Instruction 1881-1884 could still bemoan the fact that:

**The general impression is that it is degrading to enter anything which smacks of trade or handi-work and great sacrifices are made to put children to College where they will get what is called a profession.... a change in the habits and customs of the people is the first step towards altering that state of things and we can only do that by increased primary education and good sense.**<sup>6</sup>

Notwithstanding the attitudinal obstacle, however, and despite an industrial climate that was both arid in tradition and prospect, a century-long campaign, comprising an aggregate of advocates and a complex of movements, was undertaken to secure for Ireland an educational system that chimed more harmoniously with the country's industrial potential. It will be the purpose of this article to focus and comment on these developments; to trace their origin and track their evolution.

Retrospectively perceived that whole movement may be seen to have evolved over five different but pleated phases. It can be said to have begun with the establishment of the Royal Dublin Society

in 1731. Secondly, and stemming from that initiative, came the growth of regional scientific institutions and these in turn paved the way for the emergence of the more popularly supported mechanics' institutes. Fourthly the Department of Science and Art, 1853, began the process whereby technical education was to become more formally supported for the contribution it had to make towards industrial expansion. But, finally, and most distinctively, there was the 30-year period 1869-1899. Motivated by the bitter disappointment of having the promise of a separate Irish Science and Art Department reneged upon, those years witnessed the expression of more cohesive policy demands for a system of technical education which eventually came to fruition with the passing of the Agriculture and Technical Instruction (Ireland) Act in 1899.

It is essential as well that the broader context of the United Kingdom be taken into consideration in this summation. The campaign for a system of technical education in nineteenth-century Ireland was part of the wider concern for the introduction of an industrially-related educational system which became increasingly manifest in England after the Great Exhibition in 1851. The Irish demand for technical education was trust forward, then, on the current of that more vigorous course of action, and benefited accordingly. Moreover, the expectations of technical education in Ireland were heightened by the glow of what was seen as the exemplar prosperity of the English industrial achievement.

✓ It was for the purpose of 'improving Husbandry Manufacture and useful arts'<sup>7</sup> that the Royal Dublin Society was founded in 1731. Very quickly it was agreed that 'sciences'<sup>8</sup> be appended to the originally stated objectives. With its expressed utilitarian purpose the society marked the beginning of a new departure in the Irish educational tradition while at the same time it signalled an Irish response to the ambitious course charted by the enterprise of the 'new learning'. The society's constitution kept faith with the Baconian creed, with the importance of, and obligation to, experimentation, and the empirical collection of data enshrined in the nineteenth and twentieth rules respectively.<sup>9</sup> Soon the papers and findings of each scientific meeting were to be collected and published throughout the country.<sup>10</sup> In a further attempt to stimulate a native inventive genius a premium system was introduced with awards being made in a growing number of categories, hops, flax, earthenware, malt liquor, lace, new modes of agriculture and 'instruments lately invented'.<sup>11</sup>



In 1749 the society obtained a Charter of Incorporation and was hence known as the Royal Dublin Society. Previous to the incorporation, however, the society was in receipt of government grants. The average annual grant for a number of years amounted to £5,000. After the passing of the Act of Union that sum was increased to £10,000, and in subsequent years it fluctuated between £10,000 and £7,000.<sup>12</sup>

One of the earliest and more direct educational undertakings on the part of the society was the establishment of drawing classes in 1746.<sup>13</sup> To accommodate this new venture premises at Shaws Court in Dublin were procured, and Mr. West of Waterford was appointed first drawing master.<sup>14</sup> The main emphasis was placed on ornamental drawing initially, but subsequently the curriculum was extended to include figure drawing, architectural drawing and modelling in clay.<sup>15</sup> In 1757 a second teacher was employed and a scheme of premiums and scholarships was introduced for promising students.

If the original aim of the Royal Dublin Society, as already observed, was the improvement of husbandry, manufacture and useful arts and sciences, the opening decades of the nineteenth century saw the society alerting itself to the upsurge of interest in scientific matters elsewhere. Conscious, no doubt, of the many newly-founded scientific societies throughout the United Kingdom, the society appointed a committee in 1800 to report on the direction and progress of the London Institution. While the findings of this committee revealed the Royal Dublin Society to be abreast of current developments, a more total approach in the area of science was called for.<sup>16</sup> Motivated by this outcome, immediate reform was initiated in Dublin. Accommodation was set aside for a professor to lecture on hydraulics, mechanics and allied subjects.<sup>17</sup>

Between the years 1800 to 1804 a sum in excess of £17,000 was expended in the renovation of premises at Poolbeg Street (Dublin) to facilitate this new scientific enterprise<sup>18</sup> and the invitation of the noted scientist Sir Humphrey Davy as guest lecturer in 1810 and 1811<sup>19</sup> provides further evidence of the newly placed emphasis on scientific study. Concurrent with this new policy Professor Jameson of Edinburgh<sup>20</sup> was appointed professor of minerology in 1812. Richard Griffith was engaged as mining engineer in the same year,<sup>21</sup> and in 1834 Robert Kane was appointed lecturer in natural philosophy.<sup>22</sup> As subsequent events would prove, this was a prudent appointment, for Kane was to become the leading proponent of technical and scientific education in the nineteenth century.

While cultivating its own enterprise the Royal Dublin Society was active as well in fostering the growth of kindred institutions elsewhere and the establishment of the Royal Cork Institution in 1799 readily attests to that commitment.

Cognizant of the growing interest in scientific inquiry Thomas Dix Hinks (1767-1857), a former pupil of the Dissenting Academy at Hackney, sought to include his adopted city of Cork among the centres where scientific institutions were established.<sup>23</sup> With the financial aid of other interested parties, the first beginnings were made with a course of lectures delivered by Hinks himself in 1802.<sup>24</sup> The syllabus of this course is remarkable for its inclusive content, natural history, astronomy, electricity, hydrostatics and mechanics.<sup>25</sup> Sustained by public subscription and popular interest, the novel venture grew in stature and quickly took on a more permanent appearance. The years between 1803 and 1807 were years marked by expansion and growth.<sup>26</sup> The Royal Dublin Society expressed support for the initiative, furnishing duplicates of specimens held in its museum, the first presentation containing 300 specimens.<sup>27</sup> In an attempt to sustain the initial growth parliament was petitioned with a request to allocate the institution an annual grant. This request was acceded to with an annual grant of £2,000 - £2,500, and in 1807 the institution was incorporated.<sup>28</sup>

The purpose of the institution, it was stated, was to teach 'by courses of Philosophical Lectures and Experiments the application of Science to the common purpose of life...'<sup>29</sup> The syllabus comprised four main areas: chemistry, natural philosophy, natural history and agriculture.<sup>30</sup> In addition to lectures, a library and model room were opened.<sup>31</sup> Attention was also focused on agricultural development. New modes of agriculture were encouraged by awards offered by the institution for new inventions or improved agricultural implements.<sup>32</sup> Inventions and new models were put on display, and this proved a particularly successful strategy. The annual report 1813 recorded that 'the number of workmen who came to examine them, and who may be often seen measuring the particular dimensions so as to copy them is very great.'<sup>33</sup> Samples were also made available on loan.

In keeping with this precedent and consistent with a more widespread pattern of development throughout the United



Kingdom similar regional scientific institutions were founded at Belfast, Galway, Limerick and Waterford. Not surprisingly it was at Belfast that the most prolific growth took shape with the founding of the Belfast Academical Institution in 1807. The original plan of this institution envisaged two departments - a school and a collegiate. The school was to be sub-divided into two sections, with syllabuses for a 'complete English and Mercantile education' and 'Classical Literature' respectively.<sup>34</sup> The syllabus of the collegiate was to constitute mathematics, natural philosophy, logic, metaphysics, *belles lettres*, moral philosophy, chemistry, botany and agriculture.<sup>35</sup> A public appeal for funds to finance the institution met with a generous response and a parliamentary grant of £1,500 *per annum* was acquired.<sup>36</sup> Despite this financial support, however, the institution was insufficiently endowed to carry all of its original objectives into effect and subsequently other societies emerged to fulfil the requirements neglected. In 1821 a Natural History Society was founded while the Art Society, founded in 1836, promoted another original aim of the institution, the fine arts.<sup>37</sup>

Given the record of the scientific institutions that were established in Ireland during the eighteenth and early nineteenth centuries, it will be readily evident that an important basis had been established for the further development of scientific and technical education for the remainder of the nineteenth century. It may also be said that, if this enterprise did not flourish on a national scale, it asserted that Ireland was slowly welcoming the introduction of the utilitarian rationale in educational policy-making. The regional institutions already considered provided a platform from which further initiatives were to be launched. In this regard it may not be altogether insignificant that when centres for the establishment of the utilitarian Queen's Colleges were being considered in the early 1840s Cork, Galway and Belfast were eventually selected. The influence of the scientific institutions already established at these centres, with their combined weight of precedent and tradition may well have legitimised their claims for a university college.

Among the more penetrating forces to contribute to the emergence of a system of technical education in nineteenth-century Ireland was the *mechanics' institute movement*. With its objective of instructing the artizan (mechanic) in the scientific principles

underlying his trade, this departure is noteworthy for a number of reasons. The movement was not of Irish origin, but in an offshoot of the parent movement in Scotland and England and in this way it is indicative of the extent to which educational developments elsewhere were closely monitored in Ireland and converted to meet Irish requirements. Additionally, there is the promptness with which this occurred. Less than one year had elapsed since the inauguration of the London Mechanics' Institute in 1823 when a similar idea was mooted in Dublin, and by 1825 institutes had been established in other urban centres, notably Armagh, Belfast, Cork, Galway, Limerick and Waterford.<sup>38</sup> While the onset of industrialisation in England proved a receptive environment for the movement Ireland was clearly not so fertile. Yet, industrialisation in England served to provoke an Irish response, which became manifest in a fringe resolve that the nation should not be left behind in the drive for industrial prosperity. While an educated work-force was acknowledged elsewhere as a means by which industrial advancement might be sustained, in Ireland it was regarded as a power by which it might be initiated. Consequently, as the pace of industrialisation quickened in England, the potential of education also assumed grander proportions. The impetus, therefore, to establish mechanics' institutes in Ireland sprang more from an act of faith in education, and economic ambition, than it did from any overt industrial need or function.

The original aims of the mechanics' institute movement were primarily devoted to the industrial education of the artizan.<sup>39</sup> This more purist approach, which especially characterised the initial phase of the movement, was gradually abandoned in favour of a more varied programme including literature, drama, poetry, history and geography.<sup>39</sup> The means by which this range of objectives was to be realised was threefold: lectures, library and reading room. In some of the bigger institutes, and closely resembling the Liverpool model,<sup>40</sup> a fourth element in the strategy - a school - was included. In Cork a science school was attached to the institute with a syllabus which included 'Algebra, Geometry and their different applications, particularly to... Architecture, Mensuration, Surveying and Navigation'.<sup>41</sup> The annual fee of ten shillings was to be paid quarterly, in advance. Certificates of merit were awarded pupils who attended the school for a year or more, provided they satisfied a board of examiners.<sup>42</sup> Evidence that the school attracted considerable support will be found in the accompanying table.

**CORK MECHANICS' INSTITUTE: SCIENCE SCHOOL 1836**

**SYLLABUS AND NUMBER OF PUPILS**

43

SUBJECT	NUMBER OF PUPILS
Euclid	56
Algebra	24
Mensuration	21
Land Surveying	14
Conic Sections	16
Navigation	8
Trigonometry	15
Arithmetic	98
Book-Keeping	22
English Grammar	90
Geography	94
Globes	32
Drawing	34
French	19

From a very early date the directors of the Dublin Mechanics' Institute placed a clear emphasis on class teaching as a prologue to attendance at advanced lectures. The annual report for 1841 reveals, for example, that close to 200 pupils were afforded lessons in practical architecture, mechanical, ornamental and figure drawing, natural philosophy, writing, arithmetic, mathematics, English grammar, vocal and instrumental music, French and dancing.<sup>44</sup> Throughout the 1840s the demand continued to grow with 108 pupils attending the drawing class, 100 the mathematics' class and 78 pupils learning French by 1847.<sup>45</sup>

Classes were established at other centres also. A mathematical night school was established in connection with the Galway Mechanics' Institute as early as 1828. For the sons and apprentices of members, instruction in arithmetic, geometry and algebra was available free of charge.<sup>46</sup> At the Ennis Mechanics' Institute pupils were taught arithmetic, euclid and English

grammar.<sup>47</sup> At the Waterford Mechanics' Institute classes were regarded as integral to the success of the institute and comprised reading, writing, arithmetic, practical geometry, navigation, English grammar, euclid, geography, book-keeping and drawing.<sup>48</sup> As an inducement to aspiring pupils it was pointed out how in the past a number of pupils had 'gained certificates in the examinations of the Society of Arts.'<sup>49</sup> At the Clonmel Mechanics' Institute the average attendance at the evening school was stated to be 24. It was declared that 'the proficiency attained by many of them in Mathematical Science would reflect credit on a much higher educational establishment.'<sup>50</sup> In 1854, a school of art, in accordance with the regulations of the Science and Art Department, was opened.<sup>51</sup>

The provincial lecture scheme organised by the Royal Dublin Society in the early 1840s served as a considerable auxiliary to the objectives of mechanics' institutes throughout Ireland.<sup>52</sup> An annual allocation of £500 was set aside by the society to fund this undertaking whereby the society's lecturers were made available to lecture at provincial centres.<sup>53</sup> Demands upon the scheme were never less than pressing with institutes keenly competing for the services of the society's eminent scientists, especially Robert Kane and Edmund Davy. The schedule for the year 1844 provides a typical example of the scheme's popularity. Twelve lecturers addressed institutes at the venues Cork, Portlaoise, Nenagh, Carrick-on-Suir, Waterford, Galway, Killarney, Coleraine and Clonmel.<sup>54</sup>

In tracing the evolution of technical education the role of the mechanics' institute movement in Ireland should not be underestimated. These institutes provided the junction point where theoretical science was translated into practice. They were furthermore a link between the more formal scientific research of the earlier seventeenth and eighteenth centuries and the applied sciences of the nineteenth century. They arrested widespread popular support and due to their influence the interdependence of science and industry, and subsequently art and industry, was consolidated. As a result of this enterprise science became organised in such a fashion as to facilitate its teaching. This was perhaps the most outstanding contribution, since a body of knowledge uncovered to a teaching formula would have made the task of transmission well nigh impossible. All teaching and



lecturing were to be conducted through a rhetoric commonly understood.

It becomes clear, therefore, that the Irish educational response to fresh industrial challenge was prompt and ambitious, and a further advance was secured with the introduction of schools of design under the new Department of Practical Art<sup>55</sup> in the 1850s. The first schools were established in Belfast, Cork and Dublin, and by 1860 that number had increased to include Waterford, Clonmel in association the mechanics' institute, and Limerick in association with the Athenaeum.<sup>56</sup> These schools provided a remarkable impulse for the teaching of industrial art and design and particular care was taken to ensure that the syllabus was signed into the industrial needs of the immediate hinterland. The annual report of the Belfast School in 1850 recorded that:

**The manufacture of 'linen bands' and 'headings' has very greatly increased probably threefold, since the establishment of the school; and the improvement of the quality of these articles in a still greater proportion is directly due to the pupils of the school. The embroidered waistcoat trade is also increasing, and the school has undoubtedly contributed to its advance. 57**

The establishment of the Science and Art Department in 1853 marked the beginning of a more direct involvement on the part of the state towards the promotion of scientific and technical education.<sup>58</sup> The administrative jurisdiction of the department, with its central headquarters at South Kensington, included Ireland. The principal purpose of the department was to supplement scientific and technical education by means of museums, schools, public examinations, payment by results' fees and the compilation of scientific models.<sup>59</sup> The new system was to be largely self-supporting, with the department insisting that local initiative and voluntary aid be a prerequisite for state support.

On appearance at least, the inauguration of this new administration had obvious benefits for Ireland. Under the aegis of the department, Ireland's science and art schools and her other scientific institutions were now afforded greater opportunity to expand under a department established for that specific purpose. Within a decade, however, that policy of developing industrially-related education from the South Kensington institution was seen to have neglected its obligations to Ireland.

It was in evidence to the Inquiry of the Select Committee on Schools of Art 1864,<sup>60</sup> that rumbling Irish discontent became more manifest. In evidence James Brennan, Headmaster of the Cork School of Art, expressed criticism at the lack of sensitivity and enthusiasm of the Science and Art Department. That lack of enthusiasm manifested itself most in the area of financial assistance, he argued. The Cork School was poorly funded since the department did not give a grant equivalent to that raised locally.<sup>61</sup> Furthermore, Brennan argued that the department's payment by results' system served only to provoke cynicism among pupils who readily detected that teachers confined their attention to the prescribed course, since their salary was dependent on the results of the examinations set on that official course.<sup>62</sup>

An inevitable contrast to Brennan's critical remarks was the defensive evidence of Henry Cole, Secretary to the Science and Art Department. He was adamant that the department had served Irish interests well, and that the number of schools of art had increased from 3 to 6 during the period 1853 - 1863.<sup>63</sup> When questioned more closely on these figures, Cole admitted that the Belfast School of Art had closed in the mid-1850s. In response to the suggestion that it was a fault of his department that the Belfast school had lapsed was a clear indication of the department's insistence on 'self-help' he stated bluntly:

**I should say that it was better for the Belfast School to cease to exist than for it to have been maintained upon its former vicious principle of a subsidy of £600 a year from public taxation. ....If Belfast is not alive to its own interest then we have nothing further to say about it.<sup>64</sup>**

At a time in the 1860s when constitutional nationalists in Ireland were turning their attentions increasingly towards the prospect of Home Government,<sup>65</sup> an analogous campaign was being initiated by the champions of technical and scientific education for the establishment of a separate Science and Art Department for Ireland.

Proposals for the establishment of what was entitled the Royal Institute of Science and Art were first considered in Dublin in 1862, when the Dublin Exhibition Palace and Winter Garden Company was floated.<sup>66</sup> The company was to establish in Ireland a voluntary institution similar to the state institution at South Kensington. Through public subscription and with the support of

Dublin's leading merchants and bankers a sum of £50,000 was raised.<sup>67</sup> By 1865, when the palace was formally inaugurated with the hosting of an international industrial exhibition, a sum of £95,000 had been expended. Fortunately, the proceeds of the exhibition proved adequate to offset the difference between seed-fund and expenditure.<sup>68</sup>

By 1867, however, the Exhibition Palace Company was recording a loss of £42,000 and its pleas for further public subscription went unanswered.<sup>69</sup> The resources of the treasury were therefore appealed to.<sup>70</sup> Throughout 1867 a campaign of pressure was orchestrated from Dublin to secure the much needed state funding. Through memorials, memoranda, suggestions and deputations, the Palace Exhibition Committee argued its case as it fought for survival.

The proposed Royal Irish Institute of Science and Art, it was suggested, should be placed under a resident Irish Board, in communication with the Irish Government, and responsible to Parliament. Links with the Science and Art Department were to be severed, and the Irish Institute requested an annual grant of £100,000. Its functions were to be analogous to those of South Kensington: it was to co-ordinate the work of all related science and art institutions in Ireland; opportunities to avail of the institute's resources were to be afforded the nation's schools and colleges; a travelling museum was to be set under way and thus science and art instruction were to be brought to the country in a more practical manner.

By 1868 it seemed as if the Irish demand had been conceded. The *London Times*, 27 March 1868, reported that the Chancellor of the Exchequer had given an undertaking to an Irish deputation that the government was prepared to 'give to Dublin an institution analogous to South Kensington and which should be a sister to and not a subordinate of the English establishment.'<sup>71</sup> The jubilation expressed in Ireland at this announcement was of short duration, however.

In the Autumn of 1868, a Commission of Inquiry on the Science and Art Department was charged with a two-fold brief. Firstly, the commission was to ascertain the best means by which a separate department might be established in Ireland. Secondly, a scheme by which those institutions in Ireland which were grant-aided and by the department might be more effectively

co-ordinated, was sought.<sup>72</sup> Subsequently, however, the commissioners, arguing that they were not in agreement with the decision to grant a separate department to Ireland, requested a more open-ended brief.<sup>73</sup> The objection was conceded and a significantly different set of instructions was issued the commission entitling it to report on the virtue of a separate department for Ireland. The commission found against the proposal<sup>74</sup> and the critical importance of that decision was lost in the vortex of Gladstone's disestablishment measure.

The campaign to have a separate department established in Ireland, which brought the commission into existence in the first instance, had lost the first 'battle', then, but not the 'war', and the claim for 'independence' remained central to subsequent pleas for reform in the sphere of technical education for the remainder of the century.

By the last quarter of the nineteenth century English manufacturing industry had been overtaken by foreign competition. The Paris Exhibition, 1867, had served due notice that Britain was no longer to enjoy primacy of position in the race for industrial prosperity. Lyon Playfair (formerly secretary of the Science and Art Department, science division), a juror at the exhibition openly conceded defeat and demanded:

**an inquiry which should tell the people of England authoritatively what are the means by which the great states are attaining an intellectual pre-eminence among industrial classes and how they are making this to bear on the progress of their national industries.<sup>75</sup>**

The Playfair challenge was not to go unanswered and further goaded by the provocative writings of John Scott Russell<sup>76</sup> the government responded with a major sequence of investigations, two select committees of inquiry and a royal commission. Of this trilogy the one to have most implications for Ireland was the Royal Commission on Technical Instruction 1881-1884 under the chairmanship of Bernard Samuelson, ironmaster and M.P.<sup>77</sup>

The commission was directed to make a comparative analysis between the technical instruction undertaken by the industrial classes of certain foreign countries and that of their counterparts throughout the United Kingdom. Additionally, the effectiveness of technical instruction facilities in relation to industry and



manufacture 'at home and abroad' was to be measured.<sup>78</sup> Judiciously, the commissioners elected to examine the prevailing conditions in Ireland within that frame of reference as an issue separate from the rest of the United Kingdom.

Viewed retrospectively, the evidence presented to the commission represents a major critique of educational provision in Ireland during the last quarter of the nineteenth century. Close scrutiny of that evidence is revealing of a number of persistent themes. It was argued that Ireland, because of her industrially underdeveloped status, must be afforded state support commensurate with her unique underprivileged conditions. The Science and Art Department was yet again singled out for attack as a rigidly centralised institution whose failure to cope with the disparate demands of industrial Ireland was a persistent defect. The failure of the national system of education as a preparatory agent to subsequent technical instruction courses was firmly condemned. The intermediate system of education, with its emphasis on a classically oriented curriculum, was equally criticised. These inadequacies at the lower educational levels, it was asserted, hampered the prospects of higher level institutions which were endeavouring to promote industrially related courses of study. Industrialists, high-lighting their dissatisfaction, related how the dearth of adequately qualified artisans proved a severe handicap to industrial development. Finally, the nature and purpose of technical instruction proved a subject of diversified debate.<sup>79</sup>

In search of a masterplan towards the establishment of a scheme of technical instruction relative to Irish requirements the Royal Commission solicited the views of William Kirby Sullivan, president of Queen's College, Cork, and a noted proponent of technical instruction.<sup>80</sup> This was not the first time that Sullivan addressed himself to this question. In 1855, in conjunction with Tristram Kennedy, M.P., Sullivan compiled a work entitled On the Industrial Training Institutions of Belgium and On the Possibility of Organising an Analogous System in Connection with The National Schools of Ireland.<sup>81</sup> Sullivan's report to the Royal Commission differed only in detail from the original comparative study and reiterated demands for a new coherence in the teaching of art, agriculture and applied science at all levels of the educational system.<sup>82</sup>

Having assembled the evidence the commissioners made a

number of recommendations which proved alert to Irish needs. With regard to the national system of education, a diverse range of reforms was recommended. It was declared that a revision of the text-books used in the teaching of 'industrial processes' and 'rudimentary science' merited immediate attention.<sup>83</sup> Additionally, a programme in the use of tools and manual work was recommended. To properly facilitate that plan it was proposed that teachers be afforded appropriate courses at the central teacher training institution in Dublin to qualify them for their expanded assignment. One of the principal benefits to be derived from that policy, it was believed, was the reinvigoration of 'home industries' and 'handicrafts'.<sup>84</sup>

Predictably, the commission advised 'that the Board of Intermediate Education take steps to ensure the provision of adequate means for the practical teaching of Science in the schools under their direction.'<sup>85</sup> Adverting to a need for a more vigorous commitment to the teaching of science at a popular level, the commission stated that the Royal College of Science ought to play a central role in the preparation of science teachers for Ireland.<sup>86</sup>

The immediate outcome of the findings and recommendations of the Royal Commission on Technical Instruction was the Technical Instruction Act of 1889 which included Ireland. Under its provisions, county councils and borough councils were given authority to raise a 1d in the £ rate in aid of technical instruction. The act placed the control of technical instruction in the hands of the Science and Art Department.<sup>87</sup>

With regard to Ireland, however, the new legislation was less than effective. While the Local Government (England and Wales) Act of 1888 provided a delineated framework for the raising of a rate and for the local administration of technical education, no such facility as yet existed in Ireland. This administrative vacuum robbed the act of much of its impact. Some municipal authorities, notably Cork, Belfast, Limerick and Dublin, did avail of the provisions of the act. In the counties where local authority was under the control of the Boards of Guardians the proportion of finance that might be raised by rate levy was insufficient to fund technical instruction.<sup>88</sup>

One other negative feature of the Technical Instruction Act 1889 must be registered. From Ireland's viewpoint the act failed to

tackle a long standing cause of discontent. Since the mid-nineteenth century it was persistently argued that the Science and Art Department was far too centralised and detached an institution to accommodate the peculiar needs of local industrial requirements.

The Technical Instruction Act, 1889, did little to change this policy. By handing over the control of technical instruction to the Science and Art Department the traditional failing persisted. For Ireland that policy had acute implications. The nature and structure of the Irish industrial framework was uniquely diverse in that few national industries existed and the country's industrial prosperity, such as it was, derived its sustenance from small local industries. In that instance a technical instruction policy that failed to acknowledge the principle of decentralisation as an inherent component of its administrative structure went little way towards meeting Irish requirements.

Over the final decade of the century the quest for an Irish system of technical education intensified. The **Irish Builder** contributed forcefully and consistently to the debate, placing the issued before the public in a frank and plain-speaking manner. Moreover, the **Builder** proved a fertile agent in delineating the varying concepts of technical education which were finding plural expression at that time.<sup>89</sup>

In the political context policy-making was to become more accommodating as well. The strategy of 'coercion and conciliation' under chief secretary Arthur Balfour flanked subsequently by the campaign of 'constructive unionism' combined to secure for Ireland a sequence of reform measures, particularly in the areas of land, local government and education.<sup>90</sup>

It was perhaps Horace Plunkett (1854-1932) who brought the most powerful and distinctive voice to bear on the educational challenges of this period. A man of action, it was his assembly of the Recess Committee (1895)<sup>91</sup> and its report, which quarried the hitherto elusive solution which was to find vital expression in the establishment of a decentralized Department of Agriculture and Technical Instruction for Ireland in 1899.<sup>92</sup> The long-cherished ambition for a separate Irish department had been realized and the bonds with a feudal South Kensington finally severed. Meanwhile, the Belmore<sup>93</sup> and Palles<sup>94</sup> Commissions respectively had insisted that the national and intermediate boards address their curricula to

the area of practical education. The slowly flooding tide had reached its high water point. The ghost of Thackeray's **Molony** was laid as the new department set diligently to work.

#### NOTES

1. Christopher Harvie, Graham Martin, Aaron Scharf (eds.), 'W.M. Thackeray: Mr. Molony's Account of the Crystal Palace,' Industrialization and Culture 1830-1914, (The Open University Press, 1970), pp. 239-241.
2. Ibid.
3. J.J. Holland, The Bannow Farm School 1821-1827, (Dublin: Browne & Nolan, 1932), pp. 19-20.
4. Freeman's Journal, 16 December 1824, 'Mechanics' Institution'.
5. Robert Kane, The Industrial Resources of Ireland, (Dublin: Longman & Co., 2nd ed., 1845), pp. 413-415.
6. Royal Commission on Technical Instruction: Further Reports with Evidence and Appendix; 1884 (C.3981.) XXIX XXX XXXI-Pt.1 Vol. IV, (q) 5230.
7. Minutes of the Meetings of the (Royal) Dublin Society, 25 June 1731.
8. Ibid., 8 July 1731.
9. H.F. Berry, A History of the Royal Dublin Society, (London: Longmans Green & Co., 1915), p. 17.
10. Ibid., p. 11.
11. The Royal Dublin Society, (Dublin: 1965), pp. 3-4. (No Author)
12. Report of the Select Committee appointed to Inquire into the Administration of the Royal Dublin Society with a view to the wider extension of the advantages of the Annual Parliamentary Grant to that Institution and to whom the Return of the Charter, Rules and Regulations of the Dublin Society was referred; 1836 (445) XII, 335, p. iii. Worthy of note also was the unprecedented grant of £12,000 to the society by the Irish Parliament in 1761.
13. Berry, A History of the R.D.S., p. 108.
14. Ibid., p. 111.
15. Ibid., pp. 111-112.
16. Terence de Vere White, The Story of the Royal Dublin Society, (Tralee: The Kerryman Ltd., 1955), p. 81.
17. Ibid.
18. Ibid.



19. Report of the Select Committee....; 1836 (q) 501. Davy's cousin and assistant at the Royal Institution in London, Edmund Davy (1785-1857) was appointed secretary of the Royal Cork Institution (1813-1826) and later took up a post at the Royal Dublin Society.  
Recommending Edmund Davy for the position in Cork Sir Humphrey wrote: Mr. E. Davy was for eight years my assistant and Chemical Operator at the Royal Institution. He is well acquainted with the present state of science and is a very neat manipulator and I have no doubt will make a very pleasing lecturer and I should think in public delivery he will be impressive. He read well and has no defects of enunciation....  
  
I wish he may be successful in his application to your body because I think it will be for the interest of science and of your institution....  
H. Davy to T.D. Hincks, 6 March 1814, (MSS 17800 N.L.I.)
20. de Vere White, The Story of the R.D.S., p. 23.
21. Dictionary of National Biography, (O.U.P.: 1917), Vol. VIII, p. 524.
22. W.H. Brayden (ed.), Royal Dublin Society Bi-Centenary Souvenir 1731-1931, (Dublin: 1931, n.p.), p. 15.
23. Margaret McSweeney, Joseph Reilly, "The Royal Cork Institution, Part 1 1803-1826", Journal of the Cork Historical and Archaeological Society, (Vol. LXII, No. 159, 1957), p.25.
24. S.F. Pettit, "The Royal Cork Institution: a reflection of the cultural life of a city", Journal of the Cork Historical and Archaeological Society, (Vol. LXXXI, Nos. 233 and 234), p. 76.
25. McSweeney and Reilly, "The Royal Cork Institution 1803-1826", pp. 27-28.
26. Margaret McSweeney, Joseph Reilly, "The Royal Cork Institution", Journal of Chemical Education, (Vol. 32), p. 348.
27. An Account of the Progress of the Cork Institution laid before the Dublin Society, (Dublin: pr. Graisberry and Cambell, 1810), p.2.
28. The Charter and Byelaws of the Cork Institution together with a list of the Proprietors. (Cork: pr. Haly, 1808).
29. Ibid., p. 2.
30. McSweeney and Reilly, "The Royal Cork Institution 1803-1826", pp. 26-33.
31. The Annual Report of the Managers and Auditors of the Cork Institution; 1813, (Cork: pr. Stanhope Press, 1813), p. 16.
32. Ibid.
33. Ibid.
34. William Gray, Science and Art in Belfast, (Belfast: pr. Northern Whig, 1904), p.5.
35. Ibid.
36. Ibid., p.6
37. Ibid. p.p. 12-13
38. An incomplete list of Irish mechanics' institutes can be found in J.M. Hudson, The History of Adult Education first published in 1851 and reprinted in Victor E. Neuberg (ed.), The Social History of Education No. 5, (The Woburn Press 1969), p. 236. For information relative to other institutes in Ireland local newspapers are a reliable source of information.
39. See for example Laws and Regulations of the Cork Mechanics' Institute, (Cork: pr. Bolster, 1825). This document was clearly modelled on The Charter and Byelaws of the Cork Institution.
40. Gordon W. Roderick, Michael D. Stephens, "Approaches to Technical Education in Nineteenth-Century England: Part IV. The Liverpool Mechanics' Institution", Vocational Aspect of Education, (vol. XXV, No. 61, Summer 1973), pp. 100-101.
41. Southern Reporter, 5 January 1830, "Cork Mechanics' Institute"
42. Laws and Regulations of the Cork Mechanics' Institute, p.18.
43. Cork Evening Herald, 5 February 1836, "Cork Mechanics' Institute".
44. Report of the Board of Directors of the Dublin Mechanics' Institution, 1842, (Dublin: pr. Dowling & Shea, 1842, p.4
45. Freeman's Journal, 12 January 1847, "Mechanics' Institution".
46. Conaught Journal, 12 June 1828, "Galway Mechanics' Institute."
47. Ennis Chronicle, 6 May 1826, "Ennis Mechanics' Institute".
48. Public Announcement of Waterford Mechanics' Institute, 1846.
49. Ibid.
50. Tipperary Free Press, 24 July 1850, "Clonmel Mechanics' Institute."
51. Minutes of the Meetings of the Clonmel Mechanics' Institute, 25 September 1853.
52. The introduction of provincial lectures by the Royal Dublin Society was one of the central recommendations of the Report of the Select Committee appointed to Inquire into the administration of the Royal Dublin Society....; 1836.
53. Report of the Committee on Provincial Lectures to the Council, Royal Dublin Society: 24 April 1849, (C.S.O.R.P. 91913, S.P.O.I.).
54. Royal Dublin Society, a detail of the expenditure of the sum of £500 granted by Parliament - Session 1844, for defraying the expenses of Professors giving lectures in Provincial Towns in Ireland; 14 February 1845, (C.S.O.R.P. 91913, S.P.O.I.)
55. First Report of the Department of Practical Art; 1852/53, 1853 (1615), LIV.1,
56. Report from the Select Committee appointed to inquire into the constitution and working and into the success of the schools of art wholly or partially supported by Government Grants, or otherwise assisted by Government, and into the system upon which the sums granted by Parliament for the promotion of national education in art are distributed and administered; with Proceedings, Minutes of Evidence, Appendix and Index; 1864 (466), XII, 187, Appendix II, pp. 308-309.

57. Reports and Papers relating to the Head and Branch Schools of Design; 1851 (1423), XLIII.419, p.37.
58. First Report of the Science and Art Department; 1854 (1783), XSVIII.269.
59. Michael Argles, South Kensington to Robbins 1851-1963, (London: Longmans, 1964), p.18.
60. Report of the Select Committee appointed to inquire into ..... schools of art .....; 1864.
61. Ibid, (q) 3072.
62. Ibid, (qq) 3097-3099.
63. Ibid, (q) 357.
64. Ibid, (qq) 362-363.
65. See J.C. Beckett, The Making of Modern Ireland 1603-1923, (London: Faber & Faber, 1966), pp. 376-377.
66. Report of the Commission on the Science and Art Department in Ireland; 1868/69, Vol. II; Minutes of Evidence, Appendix and Index; 1868/69, (4103-1), XXIV.42, p.646.
67. Ibid, p.650.
68. Ibid.
69. Ibid.
70. Ibid, p.651.
71. Ibid, (q) 4099. See also Irish Times.
72. Report of the Commission on the Science and Art Department in Ireland; 1868/69, Vol. I; Report 1868/69, (4103), XXIV.1, p.i.
73. Ibid, p.iii
74. Ibid, p.xxxiii.
75. Report of the Schools Inquiry Commissioners Relative to Technical Education; 1867, /3898), XXIV 261,p.6.
76. John Scott Russell, Systematic Technical Education for the English People, (London: Brandbury Evan & Co., 1869).
77. Royal Commission on Technical Instruction: First Report; 1881, (C.3171), XXVII.153, Further Report with Evidence and Appendix; 1884 (C.3981), XXIX XXX XXI XXXI-Pt.1.
78. Ibid.
79. Royal Commission on Technical Instruction; Further Reports with Evidence and Appendix; Vol. IV, 1884, (C.3987), XXX-Pt.1.
80. William Kerby Sullivan (1822-1890) was born at Dripsey, Co. Cork where his family had a paper mills. In 1844 he was appointed assistant to Robert Kane at the Museum of Economic Geology (later the Museum of Irish Industry and Royal College of Science). When the Catholic University was established in 1856 Sullivan was appointed to the chair of chemistry by Cardinal Newman to whom he was to be a close adviser and confidant.

81. Tristram Kennedy, M.P. and William K. Sullivan, On the Industrial Training Institutions of Belgium and On the possibility of Organizing an analogous system in Connection with the National Schools of Ireland, (Dublin: Brown & Nolan, 1855).
82. Royal Commission on Technical Instruction; Further Reports; Vol. III, "Scheme for Technical Education for Ireland", by W.K. Sullivan.
83. Royal Commission on Technical Instruction; Second Report; Vol. I, p. 530.
84. Ibid, pp. 530-531.
85. Ibid, pp. 503 and 539.
86. Ibid, p. 529.
87. For a contemporary reaction to that arrangement see George Coffey, "The Proposed Technical Instruction Bill and the Science and Art Department", The Journal of the Statistical and Social Inquiry Society of Ireland, (Vol. IX, August 1889).
88. See Herbert M. Thompson, "Technical Education in Ireland", The New Ireland Review, Vol. I, No. 2, 1902).
89. See for example "Technical Education: An Equilateral Triangle", Irish Builder, 1 January 1887.
90. See F.S.L. Lyons, Ireland Since the Famine, (London: Collins/Fontana, rev. ed., 1973), pp. 202-233.
91. Report of the Recess Committee on the Establishment of a Department of Agriculture and industries for Ireland, (Dublin: Browne & Nolan Ltd. 1896.
92. 62 and 63 Vict., C.50 The Agriculture and Technical Instruction (Ireland) Act. 1899.
93. Royal Commission on Manual and Practical Instruction in Primary Schools under the Board of National Education in Ireland; 1898, Final Report of the Commissioners; 1898 (C.8923) XLIV.I.
94. Report of the Commissioners on Intermediate Education (Ireland); 1899 (C.9116, C.9117) XXII 175. Evidence; 1899 (C.9512). XXIII.I.