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Introduction

Communities of science: the Queen’s Colleges and scientific culture in nineteenth-century provincial Ireland, 1845-1875

The world will be a dull world some hundreds of years hence, when Fancy shall be dead, and ruthless Science (that has no more bowels than a steam-engine) has killed her.

William Makepeace Thackeray, 1843

Here in Ireland we want the rudiments of practical knowledge, and are not yet far enough advanced to gain anything from the amusement of superficial public essayists.

*The Monthly Journal of Progress*, 1854

William Thackeray penned the words above while passing a rainy day in his Galway hotel by reading literature. The fact that Thackeray found himself pondering the march of science in the remotest and least developed portion of Ireland speaks of the degree to which science had infiltrated popular consciousness in the nineteenth-century. Even a town lacking a railway station or significant industrialisation could not prevent Thackeray from seeing the future as one in which science and empiricism would inevitably dominate at the expense of creativity. Others, including many in Ireland, viewed a scientific future with hope, rather than dread. Even in industrially-lagging Ireland, there

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1 W. M. Thackeray, *The Irish sketch book* (Belfast, 1985, [1843]).
were vocal supporters of ‘science for improvement’ who believed that scientific
education and the application of science to agriculture and industry were crucial
to the modernisation and economic improvement of the country. The *Monthly
Journal of Progress* was one of many products of this movement during the
nineteenth century. There was a belief that science would transform society.
Nevertheless, it is only recently that science has been seen as an important
component of Irish intellectual history, worthy of study in its own right.\(^3\) This
dissertation represents a contribution to a growing body of work that considers
the role that science has had in Irish society. However, this dissertation also
takes a different approach than most of these studies, viewing Ireland’s scientific
practitioners not simply as isolated individuals but as members of an intellectual
community that spread throughout Ireland, into Britain and Europe. The science
professors at the Queen’s Colleges in Cork, Galway and Belfast were integral
parts of a network of scientific men in Ireland and beyond. Yet the professors
also became part of local communities through their scientific interests, applying
science to local problems or promoting science as a cultural commodity. By
examining the interaction between Ireland’s scientific culture and the Queen’s
Colleges, I will present science as an integral component of nineteenth-century
Irish political, religious, intellectual and social spheres.

The nineteenth century saw some of the most significant political and cultural
developments with lasting effects on modern Ireland. The century began with
the dissolution of the Irish Parliament by the formation of the legislative Union
with Great Britain and ended with several attempts at passing a Home Rule bill.\(^4\)

\(^3\) Works on specific topics will be discussed below. For general works covering science in
Ireland over relatively long periods see D. Attis (ed.), *Science and Irish culture: volume 1, 2004*
(Dublin, 2004); P. J. Bowler and N. Whyte (eds), *Science and society in Ireland: the social
context of science and technology in Ireland, 1800-1950* (Belfast, 1997); J. W. Foster (ed.),
*Nature in Ireland* (Dublin, 1997); N. McMillan (ed.), *Prometheus’s fire: a history of scientific
and technological education in Ireland* (Kilkenny, 2000); J. R. Nudds, N. McMillan and S.
McKenna-Lawlor (eds), *Science in Ireland, 1800-1930: tradition and reform* (Dublin, 1988). N.

\(^4\) MacDonagh declares the Union to be the most important event in shaping Irish history up to the
general works on nineteenth-century Ireland see W. E. Vaughan (ed.), *A new history of Ireland,
5: Ireland under the Union I, 1801-1870* (10 vols., Oxford, 1989), vol. 5; D. G. Boyce,
*Nineteenth-century Ireland: the search for stability* (Dublin, 2005); R. F. Foster, *Modern Ireland,
In the interim, Ireland experienced a massive demographic and economic change as a result of the Great Famine. While these dramatic events give an indication as to why the study of science in nineteenth-century Ireland has formed a small part of Irish history, they also suggest that the role of science in such a time and place should be of interest. Historians, as well as sociologists of science, have increasingly examined science as both affected by and affecting political, social and cultural developments in human society. Therefore nineteenth-century Irish science promises to be a rich field for exploring the role of science in society.

Much work on Irish science has been biographical and has not substantially examined the role of science in Irish history or related Irish science to the history of science in more researched nations such as Britain. The 1980s and 1990s saw an increasing interest in Irish science, reflected in an output of publications, amongst a mixed group of individuals representing Irish studies, history of science and scientific disciplines. Despite their different disciplinary

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perspectives, many of these authors shared a fascination with the reasons for the neglect of science in Irish history and sought to address the perception of science in Ireland as a Protestant and Anglophile activity, rather than a ‘native’ Catholic one. James Bennett has recently claimed that this inter-disciplinarity in the study of science in Ireland is a strength which ought to be retained. By drawing upon both Irish history and the history of science in this dissertation, I hope to examine science from multiple perspectives. When appropriate, I shall also make comparisons to British and European scientific and cultural developments.

The growing literature on nineteenth-century Irish science has engaged more fully with the larger political and social context. The work which has most

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successfully integrated science into the historical context has been that on government institutions such as the Department of Science and Art, the Geological Survey, the Museum of Irish Industry and its successor, the Royal College of Science.\textsuperscript{12} Institutional histories are currently less dominant in the history of nineteenth-century British science, which has recently developed a wide literature on informal groups of scientific practitioners and popular manifestations of science.\textsuperscript{13} Several authors have suggested that Irish science was more ‘institutionalised’ than British science: and certainly even many of Ireland’s scientific societies received government funds and thus could be considered in some way government institutions.\textsuperscript{14} Irish scientific societies and other informal scientific activities have only recently begun to attract the attention of historians.\textsuperscript{15} This dissertation attempts to integrate institutional with more popular manifestations of science by examining the Queen’s Colleges in


\textsuperscript{14} T. Eagleton, \textit{Scholars and rebels in nineteenth-century Ireland} (Oxford, 1999), Ch. 3; Bennett, ‘Science and social policy in Ireland’; Yearley, ‘Colonial science’; Jarrell, ‘The Department of Science and Art’.

the context of Ireland’s existing scientific culture. This is not an institutional history of science in the Queen’s Colleges, but an effort to show the manner in which institutional scientific culture interacted and overlapped with popular scientific culture and local culture.

The Queen’s Colleges
The Colleges (Ireland) Act, introduced by Sir Robert Peel’s administration, established the Queen’s Colleges in 1845. The colleges, along with many of Peel’s other Irish reforms, caused controversy in Britain and Ireland. Historians have included the colleges in a list of Parliamentary efforts intended to solve the problem of Ireland: the industrially lagging, impoverished, rebellious partner in the Union. The colleges were founded specifically to assuage the grievances of a rising Catholic middle class that had no access to higher education acceptable to their religion within Ireland. Instead, the colleges became the centre of divisive religious and political controversy, and one of several causes of the split between followers of the leading Catholic politician Daniel O’Connell and the Young Ireland movement. The colleges were a significant educational development as they were the first example of non-sectarian higher education in Ireland, along the lines of University College London. Although Catholics and Presbyterians were given the opportunity to endow chairs of divinity privately, this was only taken up for a short period by Presbyterians in Belfast. As will be discussed in the next chapter, some politicians saw this secular context as necessary and useful for Ireland, as well as being particularly appropriate for the teaching of scientific subjects. The majority of the Irish Catholic hierarchy, by contrast, mistrusted Peel’s intentions and feared the colleges would be used as a

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18 Moody and Beckett, *Queen’s Belfast*. 

vehicle for proselytising or fostering infidelity. Peel’s assumption that the Catholic hierarchy would accept the colleges once they were established proved overly optimistic.\footnote{Kerr, *Peel, priests and politics*, Ch. 7; Barr, *Paul Cullen, John Henry Newman, and the Catholic University of Ireland, 1845-1865*, (Leominster, 2003) Ch. 2; Macaulay, *William Crolly, Archbishop of Armagh, 1835-49*, (Dublin, 1994), pp. 348-436.} Partly because Catholic students were discouraged from attending, and partly because of an inadequate secondary education system, enrolment was disappointing throughout the nineteenth century. The colleges, even in their own time, became symbolic of the pitfalls of British solutions to Irish problems. Despite these obstacles, the contribution of the Queen’s College professors to the communities of science in Ireland was significant, as this dissertation will demonstrate.

Debates about higher education, such as those surrounding the Queen’s Colleges, raised questions about the importance of various intellectual disciplines to Ireland’s future. Science was one discipline whose merits for Ireland were urged repeatedly over the course of the century and various programmes of science education were attempted with mixed success. The Queen’s Colleges were part of a programme for the scientific improvement of Ireland, yet most of the studies to date have focussed on their role in contemporary political debates.\footnote{The following PhD theses each briefly deal with science in the Queen’s Colleges: Leaney, “The property of all” pp. 125-75; Kelham, ‘Science education in Scotland and Ireland’ pp. 7.60-7.76.} The Queen’s Colleges were significant not just for offering an educational panacea to the middle classes, but also for emphasising science as a component of the cure. In nineteenth-century Ireland, exactly what could be achieved by scientific education depended on who was asked: ardent Unionists hoped the Irish would grow peaceful with the prosperity that it must surely deliver; Nationalists anticipated that education would increase both desire for independence and the ability to achieve it.

The two most comprehensive studies of science in the Queen’s Colleges to date have been dismissive of their impact. Pointing to the low uptake of science courses, Enda Leaney and Brian Kelham claim that the colleges failed to achieve
their goal of science education. Kelham, for example, blames the higher numbers of scientists in Scotland than Ireland in the years 1750 to 1900 on an ‘environment which was unfavourable to intellectual pursuits’ and Irish education provisions (including the Queen’s Colleges) which were often motivated by religious, political or economic goals. In a period when there were virtually no professional scientists, evaluating the contribution of the colleges by counting the number of scientists produced is too limited. Lack of professional positions for men of science can also explain the low uptake of science courses. In fact, an examination of the Queen’s Colleges in the context of the towns in which they were placed reveals substantial scientific activity in nineteenth-century provincial Ireland. While this did not often produce famous men of science, it no doubt contributed to a scientific culture locally and nationally; a culture of which the Queen’s Colleges were a part.

By examining science in provincial Ireland this dissertation will also help to redress a bias towards the study of Dublin-based institutions and individuals in the history of Irish science. Some of this bias may be explained by the fact that provincials often migrated to the metropolis in search of opportunities, swelling Dublin’s intellectual ranks. The programme of provincial scientific lectures sponsored by the Department of Science and Art has been well-described by Leaney and Frank D’Arcy, but its administrative base was in Dublin and its contemporary proponents assumed the absence of significant scientific expertise in the Irish provinces. The Queen’s College professors quickly became listed lecturers, although they often found themselves speaking to the members of a society to which they already belonged. Outside of Dublin, Belfast has attracted the most attention for its acknowledged scientific culture and a recent thesis on the subject contributes greatly to our understanding of science in nineteenth-

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23 See note 12 for a list of works on Dublin-based institutions. Some exceptions include M. Mulvihill, Ingenious Ireland: a county-by-county exploration of the mysteries and marvels of the ingenious Irish (London, 2003); Foster (ed.), Nature in Ireland.
24 F. D’Arcy, Mandarins and mechanics: the Irish provincial science lecture system 1836-1866 (University of Ulster, 1989), 1-24; Leaney, ‘Missionaries of science’.
Cork, too, has received some notice, albeit not for many years. Two recent histories of Galway have touched on the town’s scientific societies. In addition, institutional histories of the Queen’s Colleges have provided biographical material on their scientific professors. Yet none of these studies have given a broader a picture of the scientific community or of the community use of science in nineteenth-century Ireland, especially outside of Dublin. The Queen’s Colleges are significant for the simple fact that they sent scientific experts to live in the provinces and become a part of local communities (scientific and social), not just to give a brief course of lectures and return to the safety of the pale. Some of these professors were Irish, members of existing scientific circles, but many were English or Scottish and entering the unfamiliar.

Communities of science

By examining science in provincial Ireland through the lens of the Queen’s Colleges, it is possible to gain an understanding of the country’s communities of science in the nineteenth century. This is not limited to communities of scientific practitioners, but also includes the communities in which science was used for cultural or social ends and the imagined communities that some hoped would be created in the future by the scientific improvement of Ireland. The colleges are shown to have contributed to and altered the landscape of science in Ireland during their first thirty years through the actions of individual professors as well as through their collective impact.

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By not limiting itself to the stories of well-known scientific figures, this
dissertation supports the study of science in society.\(^{29}\) Despite the fact that few
of the figures discussed in this dissertation will be familiar to historians, or even
to historians of science, there is much to be gained in recovering their stories. In
fact, historians of science have increasingly eschewed the examination of only
those figures whose careers have appeared most successful in hindsight as
‘Whig’ history. Instead, they have looked to popular manifestations of science
for a more nuanced picture of the way in which science has been a part of public
culture not simply an activity apart. Classic studies such as Steven Shapin’s of
the Pottery Philosophical Society and Arnold Thackray’s of science in
Manchester have opened new avenues of historical research by demonstrating the
use of science for social and cultural ends.\(^{30}\) There has been a recent flowering
of interest in provincial British scientific societies, especially among historians of
the nineteenth century.\(^{31}\) There has also been much interest in popular print
forms of science.\(^{32}\) Yet neither Ireland’s scientific societies nor its numerous

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\(^{29}\) See for example Allen, *The naturalist in Britain*; S. Cannon, *Science in culture: the early
Victorian period* (New York, 1978); J. Golinski, *Science as public culture: chemistry and
enlightenment in Britain, 1760-1820* (Cambridge, 1992); B. Lightman (ed.), *Victorian science in
context* (London, 1997); J. A. Secord, *Victorian sensation: the extraordinary publication,
reception, and secret authorship of Vestiges of the Natural History of Creation* (Chicago and
London, 2000); R. M. Young, *Darwin’s metaphor: nature’s place in Victorian culture*
(Cambridge, 1985).

\(^{30}\) Thackray, ‘Natural knowledge’; Shapin, ‘The Pottery Philosophical Society’.

\(^{31}\) In addition to those already mentioned see S. J. M. M. Alberti, ‘Amateurs and professionals in
one county: biology and natural history in late Victorian Yorkshire’, *Journal of the History of
Biology*, 34 (2001), pp. 115-147; R. J. Morris, ‘Voluntary societies and British urban elites, 1780-

\(^{32}\) R. Barton, ‘Just before Nature: the purposes of science and the purposes of popularization in
some English popular science journals of the 1860s’, *Annals of Science*, 55 (1998), pp. 1-33; W.
H. Brock and A. J. Meadows, *The lamp of learning: two centuries of publishing at Taylor &
Francis* (London, 1998); G. Cantor and S. Shuttleworth (eds), *Science serialized: representations
of the sciences in nineteenth-century periodicals* (London and Cambridge, MA, 2004); G. Cantor,
S. Shuttleworth and J. R. Topham, ‘Representations of science in the nineteenth-century
and salvation: evangelical and popular science publishing in Victorian Britain* (Chicago, 2004);
biography of Sir Norman Lockyer* (London, 1972); A. J. Meadows, ‘Springer-Verlag, history of a
scientific publishing house; part 1, 1842-1945, foundation, maturity, adversity’, *Journal of the
Society of Archivists*, 19 (1998), pp. 253-254; Secord, *Victorian sensation*; S. Sheets-Pyenson,
‘A measure of success: the publication of natural history journals in early Victorian Britain’,
pp. 549-572; E. C. Spary, ‘The world in a box: history of a picture encyclopedia from the
scientific publications have attracted the comparable attention of scholars in the past ten years. This dissertation examines popular and informal communities of science such as voluntary societies and considers perspectives on science from religious and political groups as well as from practitioners of science. Scientific communities demonstrate many of the same dynamics as other human spheres, despite the protestations of scientists to be free from political or cultural influence. Likewise, other types of communities have found a variety of uses for science to meet cultural, social or even political ends. Viewing science in the context of communities links this thesis to a focus on the local that has characterised a group of work in both Irish history and the history of science. However, I think it is important that local perspectives are not examined at the expense of national or international ones.

Historians no longer consider scientific activity to occur in a vacuum which excludes social, political and cultural influences, nor do the stories of many scientific ‘discoveries’ adhere to the old view of the lone scientist generating knowledge about nature in the absence of interference from the outside world. Historians have also moved beyond the idea that only science which achieves international recognition or which turns out to be ‘right’ is worthy of historical attention. It is with this in mind that this thesis has been titled ‘Communities of science’.

The intellectual discipline of science in the nineteenth century had

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33 For exceptions see Bayles, ‘Science in its local context’; Livesey, ‘The Dublin Society’; Rockley, ‘Towards an understanding’.

within itself many communities, some overlapping, ranging from groups of casual devotees to scientific professors and serious researchers. Each of these groups has had different uses for science. Each community of science contributed to collective understandings of what science was and what it could achieve. Thus each of the chapters in this thesis explores different aims and uses of science within different types of communities and contexts.

Chapter Two situates the colleges, and their scientific content, in familiar debates surrounding the role of religion in education and the controversy surrounding their establishment. The colleges are seen to have been crucial in sparking and shaping debates about the relative influences that science and religion should have in Irish life. I argue that the Queen’s Colleges were specifically intended to provide scientific education for the middle classes as part of a larger project to economically improve the country through science. The rejection of the Queen’s Colleges by the Catholic Church, therefore, had lasting effects on the cultivation of science in Ireland, and especially within the Catholic community.

Despite the controversy surrounding the colleges, professors arrived in Cork, Belfast and Galway in 1849. Chapter Three discusses, through the example of Cork, what kind of a community awaited them. Cork’s scientific societies had been integral in the placing of a college in that town, and their roles were changed by the presence of the professors. Some societies were temporarily strengthened by the new members, and the nature of their activities changed. The professors participated in local science popularisation efforts and their presence altered the way in which science was presented and by whom. Their support for the Cuvierian Society, which prioritised the generation of scientific knowledge, led to a temporary fading of the Scientific and Literary Society and its model of scientific socialising.

Aside from participating in scientific societies, the Queen’s College professors were also expected to teach. Chapter Four deals with just how science was taught in these new colleges, and how this education compared with alternatives available. Examining the agriculture diploma in Belfast, this chapter shows how the colleges struggled to fulfil expectations of creating an improving class for
Ireland. Despite the considerable rhetoric devoted to the potential for scientific advancement, there was disagreement in how education could be harnessed to this aim. The agriculture diploma was forced to compete with other private and governmental initiatives for agricultural education and was eventually sacrificed to conflicting demands for practical instruction and theoretical knowledge.

Another manner in which the science professors educated both students and the inquiring public was through museums, examined in Chapter Five. The colleges’ museums were assembled as general collections of objects from across the British Empire and as such presented an image of the museums, and the colleges, as national rather than local institutions. The manner in which the professors added to their collections reveals links between members of Irish and British scientific communities and demonstrates differences between the scientific infrastructure of the three college towns. Chapter Five demonstrates how the museums, much like the colleges themselves, acted as resources for improving the community and also demonstrated to visitors that intellectual culture had arrived in provincial Ireland.

The final chapter of this dissertation turns to the scientific community itself in an account of the controversy over *Eozoön Canadense*, believed to be the oldest fossil organism. Two Galway professors harnessed an invisible scientific community through letters and publication in an effort to resolve the controversy in their favour. Their location was important to the manner in which they participated in the controversy, necessitating a reliance on communication through periodicals and a correspondence. Despite these disadvantages, they successfully stamped their voice on the controversy. The *Eozoön* controversy demonstrates that peripheral locations should not be discarded as centres of scientific activity.

Throughout this dissertation I will show that provincial Ireland had a diverse scientific culture. Science was an intellectual sphere and a cultural activity as well as a set of practices for studying the natural world. The activities of voluntary societies and agricultural improvers, the displays of museums and the views of religious and political communities are just as vital to our understanding
of the role of science in nineteenth-century Ireland as the activities of recognised men of science. By drawing from these different perspectives on science and examining different communities of science, this dissertation will present science as an integral part of life in nineteenth-century provincial Ireland.