



**QUEEN'S
UNIVERSITY
BELFAST**

Catholics, Science and Civic Culture in Victorian Belfast

Finnegan, D. A., & Wright, J. J. (2015). Catholics, Science and Civic Culture in Victorian Belfast. *British Journal for the History of Science*, 48(2), 261-287. <https://doi.org/10.1017/S0007087414000594>

Published in:
British Journal for the History of Science

Document Version:
Peer reviewed version

Queen's University Belfast - Research Portal:
[Link to publication record in Queen's University Belfast Research Portal](#)

Publisher rights
Copyright 2014 British Society for the History of Science

General rights
Copyright for the publications made accessible via the Queen's University Belfast Research Portal is retained by the author(s) and / or other copyright owners and it is a condition of accessing these publications that users recognise and abide by the legal requirements associated with these rights.

Take down policy
The Research Portal is Queen's institutional repository that provides access to Queen's research output. Every effort has been made to ensure that content in the Research Portal does not infringe any person's rights, or applicable UK laws. If you discover content in the Research Portal that you believe breaches copyright or violates any law, please contact openaccess@qub.ac.uk.

CATHOLICS, SCIENCE AND CIVIC CULTURE IN VICTORIAN BELFAST

DIARMID A. FINNEGAN AND JONATHAN JEFFREY WRIGHT*

Abstract

The connections between science and civic culture in the Victorian period have been extensively, and intensively, investigated over the past several decades. Limited attention, however, has been paid to Irish urban contexts. Roman Catholic attitudes towards science in the nineteenth century have also been neglected beyond a rather restricted set of thinkers and topics. This paper is offered as a contribution to addressing these lacunae, and examines in detail the complexities involved in Catholic engagement with science in Victorian Belfast. The political and civic geographies of Catholic involvement in scientific discussions in a divided town are uncovered through an examination of five episodes in the unfolding history of Belfast's intellectual culture. The paper stresses the importance of attending to the particularities of local politics and scientific debate for understanding the complex realities of Catholic appropriations of science in a period and urban context profoundly shaped by competing political and religious factions. It also reflects more generally on how the Belfast story supplements and challenges scholarship on the historical relations between Catholicism and science.

Introduction

There is now a well-established body of scholarship addressing the interaction of science and urban culture in nineteenth-century Britain. Pioneering work in this field, by scholars such as

Arnold Thackray and Ian Inkster, explored the thesis that science was a useful resource for ‘marginal men’ intent on securing social status in contexts where opportunities to engage in formal politics were significantly curtailed. This work underlined the productive links between science and Protestant dissent, particularly of a heterodox kind.¹ Subsequent studies have demonstrated the ways in which other groups, both within and outside established civic elites, developed and deployed science to serve a range of social and political interests. For example, Michael Neve examined the utilisation of science by Bristol’s commercial elite to consolidate their Peelite conservatism and Adrian Desmond uncovered the use Owenite and atheist artisans made of Lamarckian evolution in early nineteenth-century London to buttress radical anti-establishment politics. In the wake of these and other studies, James Secord’s celebrated account of responses to the anonymous bestseller, *Vestiges of the Natural History of Creation*, confirmed the sheer variety of political and cultural meanings attached to scientific debates in British urban society during the nineteenth century.² However, while work on Scottish and Welsh civic science has expanded the geographical coverage of this body of literature, significant gaps remain.³ Two in particular stand out and are addressed by this paper. First, relatively little attention has been paid to the scientific culture of Irish towns and cities.⁴ Second and relatedly, the historical connections between science and Roman Catholicism have been under-researched beyond general surveys and studies of circumscribed scientific controversies.⁵

Bearing these shortcomings in mind, the specific aim of this paper is to examine how public figures from the Roman Catholic community appropriated science in the specific context of Belfast’s civic culture. It has to be immediately noted that describing Belfast as an ‘Irish town’ requires qualification. In many respects, it was an outlier in Ireland in terms of its patterns of growth, industrialisation, political arrangements and dominant cultural influences. As the nineteenth century progressed, Belfast emerged as Ireland’s leading industrial centre

and experienced a demographic explosion remarkable in the Irish context. Standing at an estimated 64,000 in 1834, its population had grown to 349,180 by 1901. The Protestant populace, largely Presbyterian in denominational affiliation, dominated the town throughout the century both demographically and politically and positively identified with Britain, and Scotland in particular, rather than Ireland, in economic, cultural and religious affairs. Yet, as the town's overall population grew a marked expansion in the size of its Catholic constituency took place. Writing in 1813, the travel writer John Gamble numbered Belfast's Catholics at just 4,000 and observed that, just a few years previously, 'there was scarcely a Catholic in the place'. By 1834, however, this figure had risen to 20,000, and by 1901 it stood at 88,000. In percentage terms, Catholics made up an estimated 34.1% of the town's population in 1861, and while this fell to 24.3% in 1901, there was, in absolute terms, a doubling in the number of Belfast's Catholics between 1861 and 1901.⁶ Linked to this overall growth was the emergence of a Catholic middle class, which began to lobby for greater civic influence. This segment of Belfast's rapidly growing population cut against the town's dominant political and cultural grain. In many respects, Catholics prominent in Belfast public affairs took a lead from Catholic Ireland more than from Protestant Britain. Partly because of this, Catholics in Belfast remained disconnected from Belfast's *organised* scientific culture, which remained overwhelmingly Protestant and British throughout the nineteenth century. Yet, as we will argue, this did not mean that Catholics ignored science in their attempts to engage with, or subvert, civic politics and public culture in Belfast.

Beyond meeting the twin empirical aims of the paper, investigating the ways in which Catholics in Belfast engaged with science in the nineteenth century raises additional historiographical concerns that place the paper within a growing literature on the cultural history and geography of science in urban contexts.⁷ Among these are two basic, but fundamental, methodological questions. Which form of science is to be investigated? And

whose town is chosen as the object of study? The difficulties involved in answering these questions are compounded in the case of Belfast because of the particularly sharp political and religious divisions that shaped its development through the Victorian period. Deciding ‘which science’ is investigated matters because certain forms of scientific inquiry proved useful, in particular times and in the hands of certain individuals or institutions, for easing divisions that otherwise threatened to overwhelm any attempt to create a scientific culture independent from local political and religious quarrels. Other kinds of science were mobilised to strengthen rather than diffuse or deflect political and religious agendas. Likewise, deciding ‘whose town’ is investigated is also of considerable importance. The Catholic figures examined here operated with particular perceptions of Belfast that were composite products of their own lived experiences, political and religious beliefs, and civic aspirations. It is those lived and experienced ‘Belfasts’, rather than some independent urban reality, which this paper seeks to excavate and scrutinise. Thus, ‘science’ and ‘Catholic Belfast’ are used here as a convenient shorthand, and should not be taken to refer to a monolithic enterprise or a homogenous urban or religious reality.

The ensuing discussion is not, then, a straightforward attempt to situate ‘science in the city’. Such a project would risk reifying ‘the city’ as a space that can shape, and be shaped by, science in its various forms, a point made helpfully by Charles Withers in his study of the civic geographies of the British Association for the Advancement of Science in the nineteenth century. As Withers suggests, ‘the city or the town is not the necessary unit of analysis for any urban historical geography of science’. Rather, accounting for the geographies of ‘civic’ science ‘demands attention to the relationships between and within given geographical scales and the nature of the activities undertaken there’.⁸ Thus, while it explores the mobilisation of science in Belfast for particular sorts of cultural or political ends, this discussion recognises and seeks to elucidate the complexity of that process; those mobilising science invariably

drew on resources and ideas from beyond the town, but the ways in which they did so were altered by precisely where in the town, and by whom, such mobilisation was carried out.

With these more methodological considerations in mind, the paper will focus on five episodes in a larger – and largely unknown – story of Catholic engagement with science. These are presented in rough chronological order, though this is not meant to suggest obvious continuities or linear developments. The episodes have been chosen primarily because they help to highlight the diverse forms that ‘Catholic science’ could take in nineteenth-century Belfast. Together the episodes show that science mattered to a religious community often implicitly or explicitly placed beyond the pale of scientific culture in Ireland and elsewhere. But they also serve to underline just how much more we need to know about Catholic attitudes to science beyond the formal pronouncements of church authorities or prominent Catholic scientific practitioners.

To begin, the paper explores the experimental ‘civic science’ of Cornelius Denvir, Roman Catholic Bishop of Down and Connor in the period 1832 to 1865. In Denvir we see a leading Catholic who made concerted efforts to participate in Belfast’s scientific institutions. Yet, as the subsequent episodes show, Denvir’s approach was not generally followed by others who, though clearly engaged with science, pursued that interest in ways that either bypassed or actively resisted the more prominent civic institutions and ‘official’ events that fostered public interest in scientific topics and pursuits in nineteenth-century Belfast. The paper’s second section turns to the attempts by the Belfast-based surgeon John McElheran to use ethnological science to unsettle prevailing political and civic arrangements. In McElheran’s hands, science was employed to sharpen political tensions both in and well beyond Belfast. The third section provides another example of an uneasy combination of science, politics and religion this time in the debates around science lectures delivered in Belfast during the 1850s and 1860s by apologists for Catholicism and Irish nationalism. In

the penultimate section, science lectures, this time delivered by prominent figures perceived as anti-Catholic, again feature strongly. Among other things, this section uncovers the vociferous local Catholic reactions to John Tyndall's Belfast address delivered in the Ulster Hall in August 1874. The final section explores some of the reasons why educated Catholics, apart from a handful of leading medical practitioners, remained disengaged from the Belfast's 'official' scientific culture in the final two decades of the nineteenth century. Tyndall's opposition to home rule, aired during a return visit to Belfast in 1890, is used to underline how difficult it was to disentangle science, and its spokespersons, from local political agitation. All five episodes draw attention to the complicated knot of vested and contested interests involved when Catholic causes, science and civic politics overlapped in nineteenth-century Belfast. They also help us sketch an urban geography of Catholic participation in debates about science that supplements the limited work that already exists on the town's scientific culture. Beyond this, they point to some more general conclusions that supplement and complicate received accounts of the historical relations between Catholicism and science.

Cornelius Denvir and the Civic Experiment

In January 1834, the *Belfast News-Letter* reported on a liberal donation of scientific apparatus that had been made to St Malachy's College, the school and seminary established in the town by the Catholic Bishop of Down and Connor, William Crolly. Valued at £600, the apparatus consisted of a 'telescope of extremely high magnifying power', an air pump and 'every article employed in electrical and pneumatical experiments'. Its benefactor, George Matthews, made the gift on discovering that funds for the new school were drying up and in the knowledge that pupils would be admitted according to 'liberal principles and moderate terms'.⁹ What is noteworthy here, beyond a local story of cooperation and interest in science at Belfast's leading Catholic school and seminary, is that it was natural philosophy more than

other branches of science that was given prominent support. Across Europe, natural philosophy had long been established in Catholic educational institutions as a respected subject area and, within Ireland, chairs of natural philosophy had earlier been established in Catholic seminaries at Maynooth, Kilkenny and Carlow.¹⁰ St Malachy's did not follow this pattern to the letter, but if no chair of natural philosophy was established, it did appoint, as Professor of Classics and Mathematics, a scholar with extensive experience in natural philosophy – Cornelius Denvir.¹¹

Having previously held Maynooth's professorship of natural philosophy, Denvir possessed the skills and knowledge necessary both to put Matthews' apparatus to use, and to promote natural philosophy within the context of Catholic Belfast. His opportunities to do so were, admittedly, curtailed when, after just two years in post, he succeeded Croll as Bishop. But it did not follow that St Malachy's well-equipped laboratory fell into disuse. Natural philosophy retained its place on the curriculum, and promotional material announced that the College possessed the 'most extensive, elegant and perfect chemical and philosophical apparatus possessed by any similar establishment in Ireland'. Likewise, extra-curricular lectures in natural philosophy, 'experimentally illustrated' were provided free of charge to pupils and the College library accumulated a significant collection of scientific texts, including standard works by authors such as Joseph Priestley, Charles Lyell and William Buckland.¹² Nor, moreover, did science become entirely irrelevant to Denvir in the years following his ecclesiastical promotion. Preserved today in the Down and Connor Diocesan Library, a number of scientific texts from the library of St Malachy's are inscribed with Denvir's name, highlighting his on-going engagement with science.¹³ As one early biographer put it, '[Denvir] had the scholar's passion for study, and, when his more serious avocations permitted it, his days were spent in his well-stored library or in the laboratory of the Diocesan Seminary, which contained so many evidences of his scientific skill'.¹⁴

The teaching and promotion of natural philosophy in St Malachy's expressed a degree of cross-confessional cooperation. This, at any rate, was Denvir's view and, as well as offering public lectures at St Malachy's, he used his natural philosophical interests to forge civic connections across religious and political divides. At an informal level, his scientific interests enabled him to forge a space for polite conversation with clergymen of other denominations, including the prominent non-subscribing Presbyterian, Rev. John Scott Porter and the Anglican curate (and later Bishop of Down, Connor and Dromore), Rev. William Reeves. Reeves later reported that, 'amongst the pleasantest memories of his life, was the recollection of some evenings at John Scott Porter's house; in particular, one or two meetings at which the Most Rev. Dr. Denvir, Roman Catholic Bishop of Down and Connor, read and discussed papers on scientific subjects.'¹⁵ Similarly, during the 1840s and '50s, Denvir became involved in a number of Belfast's scientific societies. In addition to the Natural History and Philosophical Society, of which was made a member in 1840, he played an active role in the Chemico-Agricultural Society of Ulster (founded 1845), mixing with figures such as Dr Thomas Andrews, vice president of Queen's College Belfast, and the non-subscribing Presbyterian ministers Henry Montgomery and Henry Bruce.¹⁶

Denvir's involvement in associational science, both at the level of an informal coterie and within the context of societies such as the Chemico-Agricultural Society of Ulster, enabled him to develop a public reputation outside of the Catholic church, and to present himself as a moderate and erudite figure, a learned man with whom similarly moderate and erudite Protestants could co-operate. But it was not just associational science that facilitated this process. The impressive scientific apparatus at St Malachy's also provided Denvir with a means to contribute to occasions of civic spectacle. In 1851, for example, Denvir's galvanic battery was used to create 'a splendid display of electric light' to close the festivities organised for the annual Victoria Fete on Queen's Island.¹⁷ The following year,

the battery was used again during the meeting in Belfast of the British Association for the Advancement of Science. As a Vice-President of Section A (the President was William Thomson, later Lord Kelvin), Denvir chaired a paper by the young physicist John Tyndall ‘on Poisson’s theoretic anticipations of magnecrystallic action’. Tyndall’s highly technical paper was illustrated by experimental demonstrations made possible by the galvanic battery ‘kindly lent by Dr Denvir’.¹⁸ Electrical displays of this sort – whether in more scientific or popular arenas – functioned as a particularly effective way of demonstrating commitment to intellectual and civic improvement. As Iwan Morus has argued, by the early nineteenth century electricity had become a ‘potent symbol of progress [and] provided a new way of mastering and reordering nature and society’.¹⁹ This was something that Denvir could exploit in the interests of his own assimilation into Belfast’s civic and scientific culture.

Needless to say, Denvir’s attempts to use natural philosophy to ameliorate civic tensions and increase his own influence in civic affairs were not uncontroversial. While Denvir clearly had some success in establishing himself, outside of the Catholic Church, as a public figure, he was certainly not immune from criticism.²⁰ As well as facing a perennial struggle with anti-Catholic attitudes in Belfast, he came under increasing pressure, during the 1850s, from a Catholic hierarchy unimpressed by the diffidence he displayed in the face of the dominant and, in their estimation, domineering Protestantism of Ulster. He was also roundly condemned for his involvement with the Queen’s Colleges and the Charitable Bequest’s Act, causes that were deeply suspect to a growing number of Irish Catholic Bishops, and his appointment as a Commissioner of National Education in Ireland in 1853 proved controversial to both Catholics and Protestants. While it underlined to his critics his reluctance to act as an uncompromising advocate of Catholic interests, Denvir’s willingness to serve as a commissioner also succeeded in souring his relationship with influential local Protestants. In 1855, for example, his allegation that proselytism had taken place in Belfast’s

Lancasterian Industrial National School created a rift between him and the school's subscribers, including his one-time conversation partner, the Rev. John Scott Porter.²¹ But perhaps the most serious complaint levelled against Denvir was that concerning his reluctance to raise funds for additional, and increasingly necessary, churches and clergy in Belfast. Denvir's prevarication on this score may have been a result of his experience of crippling and personal debt after the construction of St Malachy's Church in the 1840s. Whatever the reason, his failure to promote church growth in Belfast and its surrounds seriously tarnished his reputation in his own church at a time when Paul Cullen was promoting a more aggressive and expansionist Catholicism as Archbishop of Dublin.

None of this prevented Denvir from continuing to promote science as an important component of Catholic education, especially in the training of priests. Addressing members of the Maynooth commission on the subject of the College's curriculum in 1855, for example, he defended the place of natural philosophy, chemistry and geology and argued for a change in arrangements to allow trainee priests more time to digest scientific ideas.²² What little influence he had was, however, waning. Denvir's enthusiasm for science, and his utilisation of it to carve out a space for official Catholic involvement in civic affairs, risked reinforcing the suspicion that he held 'Gallican' conception of relations between church and society that downplayed the authority of Rome in matters temporal and civil.²³ In his critics' eyes, Denvir suffered from a compromising 'timidity' and his science, rather than being a mark of a confident outward-looking Catholicism, could be seen as a retreat from episcopal duties.²⁴ While Denvir regarded his science as a resource with which to conciliate rather than antagonise Belfast's Protestant majority, this was a road not taken by other Belfast Catholics intent on harnessing the cultural and political power of science.

Ethnological Nationalism in mid-Victorian Belfast

During the period when Denvir was attempting – sometimes quite literally – to galvanise cooperation through public experiment, a different form of science was being mobilised in ways that worked against the uneasy equipoise that characterised Belfast’s mid-century civic culture.²⁵ Shortly after the conclusion of the British Association’s 1852 meeting in Belfast a long ‘address’ to its members appeared in the pages of the *Northern Whig*, requesting that they undertake an extensive ethnographical survey of English populations. This, it was argued, was necessary in order to counter the theory ‘that England is Anglo-Saxon and therefore great’.²⁶ The plea also presented some preliminary results of its author’s research, which suggested that England was becoming ‘more Celtic every generation’. Among the findings was the observation that the ‘pure Saxon’ was now only seen among the miners and colliers of the North East, and that this represented a degenerate racial variety, marked by a love of ‘eating, drinking, fighting ... and chief of all gambling’.²⁷

The author of this unofficial address, John McElheran, had not participated in the meeting of the British Association. Nor, indeed, did he have a reputation in anthropological circles. Quite the reverse, as a young surgeon with a fledging practice in Belfast, he was an unknown, making his debut as an ethnologist. But while it was in Belfast, in the early 1850s, that he made his first intervention in the field, it had been in Edinburgh, where he had studied in the 1840s, that McElheran had first developed an interest in ethnology. Although much concerning his early life is unclear, McElheran is known to have gained a license from Edinburgh’s Royal College of Surgeons in August 1845.²⁸ It is likely, too, that McElheran attended the extra-mural classes of the maverick anatomist and racial theorist, Robert Knox. However he became exposed to Knox’s influence, his later writings demonstrate that he accepted Knox’s radical racialism and adopted and internalised its categories and patterns of

thought. Racial difference was, he learned from Knox, fixed, intractable and accounted for by alterations in the ‘generic’ human embryo; it was the primary driver of human history.

McElheran’s enthusiasm for Knox’s transcendental anatomy was, in certain respects, incongruous. Knox’s reputation as a materialist, his aversion to ‘priest craft’ and his characterisations of the Celtic race might all be viewed as putting him at odds with his ‘friend and former student’.²⁹ Certainly, McElheran was quick to distance his ethnology from Knox’s irreverent dismissal of Christian doctrine. Yet, these obvious differences aside, there were a number of affinities, empirical and ideological, between the two men. In particular, Knox’s anti-progressivism provided a way to overturn a racial hierarchy that elevated the Anglo-Saxon and demoted the Celt.³⁰ Although his descriptions of the Saxon race could be read as supremacist – and, indeed, were – Knox had, at least in his earlier work, resisted a straightforwardly hierarchical account of racial difference. Each race had its vices as well as its virtues, and McElheran was able to exploit the negative traits that Knox identified as belonging to the Saxon and build upon the positive characteristics that his teacher discerned in the Celt. McElheran was also able to appropriate Knox’s anti-colonial and republican politics. Knox’s belief that the ‘Celtic race’ in Ireland were by nature unable to submit to British rule – a ‘fact’ that led Knox to propose, late in life, that the only solution to the Irish problem was to ‘force [the Celts] from the soil’ – was used by McElheran to champion the cause of Irish independence.³¹

Significantly, it was in Belfast that McElheran first aired his nascent ethnological nationalism. After completing his training in surgery and racial theory he attempted to establish a surgical practice in Belfast in the vicinity of Hercules Street, ‘the first identifiable Catholic neighbourhood in the town’.³² This proved unsuccessful, something McElheran’s himself attributed to the open support he had given to the Young Ireland movement in 1848 when, as he put it, ‘Belfast was filled with soldiers and secretly-armed Orangemen’.³³

However, while it is certainly true there was little love for Young Ireland in Belfast, there are additional explanations for McElheran's professional difficulties. Not the least of these is the fact that, as well as being a Catholic one, the Hercules Street neighbourhood was associated not with the medical profession, but with butchery and the cattle trade.³⁴ As such, it was scarcely a promising location in which to establish a surgeon's practice. Added to this, McElheran's status as a relative outsider in a profession in which contacts counted for much might also have presented him with difficulties. But, whatever the reason for his initial professional failure, the more important point is that McElheran soon channelled his energies in a different direction, pursuing an occupation that enabled him to promote his political agenda.

In 1850 and 1851, disguised as an itinerant artist, McElheran had travelled extensively in England, compiling a 'complexion census' of the people he encountered.³⁵ The results of this ethnographical survey supplied the material he needed, in the aftermath of the British Association's Belfast Meeting in 1852, to intervene in well-worn discussions about the racial makeup of Britain and Ireland and, more particularly, about the racial comparisons that could be made between Saxon and Celt. A major protagonist in these on-going debates was the *Times* of London, which had, for nearly a decade, promoted a form of racialism that pitted superior Saxon against degenerate Celt in columns devoted to the 'Irish question'. While not adhering to a consistent racial theory, the paper nevertheless published leading articles suggesting that it was the infusion of Saxon blood that made the English industrious and that it was, by contrast, the Celtic character of the Irish that made them abject, lazy and ungovernable.³⁶ A typical example, noted by a number of critics, appeared in an article published in January 1852. Here, in an analysis which departed from conventional commentary, the Irish problem was diagnosed as a racial one: after decades of political

reform, education and state aid, the ‘indelible peculiarities’ of the Irish race had ensured that ‘intolerance, improvidence and recklessness’ still pervaded all classes.³⁷

When he made his ethnological debut in the *Northern Whig* in 1852, McElheran thus took aim at a well-known strand of racial thinking. Unsurprisingly, he was not alone in attacking it. Indeed, in the days immediately preceding the appearance of his address in the *Northern Whig* several other objections to ‘Anglo-Saxon theory’ had been raised in Belfast. In an address to Section F of the British Association, for instance, the English barrister and liberal politician John Locke declared that he looked forward to the day when the ‘invidious distinction of Celt and Saxon’ was forgotten and all in Ireland were ‘bound ... by the links of constitutional loyalty and social order’. Although Locke believed that the English and Scottish settler had invigorated a ‘wayward and procrastinating’ native population, he was convinced that political economy rather than racial politics was the key to solving Ireland’s problems.³⁸ Four days later an article re-printed in the *Belfast News-Letter*, argued that the most ‘absurd’ explanation of the striking disparity between the economic prosperity of the north and south of Ireland was the supposed inferiority of the Celtic race.³⁹ The real explanation lay in the fact that Ulster was Protestant. Where McElheran differed from these critics was in his adherence to the primacy of race. While countering Anglo-Saxonism, he insisted that race would be an important element in any solution to the ‘Irish problem’, adjusting Knox’s racial theory in a manner that permitted him to establish an ethnic basis for an independent Ireland. For McElheran what was open to question was not the importance of race, but the accuracy of the claims that had been made regarding respective strengths and weaknesses of the Saxon and the Celt.

Ostracised by the medical establishment in Belfast, McElheran saw in ethnological science an opportunity to launch a career as a popular lecturer and, in a bid to announce himself to wider metropolitan public, he wrote to the *Times* early in October 1852.

Altogether more vitriolic than the ‘address’ he had published in the *Northern Whig*, his letter denounced the ‘Saxon lie’ that underlay the *Times*’ proposed solutions to Ireland’s woes, in its place arguing that the ‘intellectual and progressive English are Celts of various hues’ and that pure Saxons, which had neither the ‘cranial capacity nor the physical energy’ of the more dominant Celtic race, were an inferior and decreasing minority.⁴⁰ The *Freeman’s Journal* lionized McElheran, and crowed over the attempts made by the *Times* to deny their endorsement of Anglo-Saxonism.⁴¹ Likewise, the *Tipperary Free Press* celebrated McElheran’s efforts, and condemned the *Times*’ response as a ‘snivelling apology’ made from a ‘lying lip’.⁴² Thus, thanks to his polemical letter, McElheran was catapulted into the limelight.

Against this backdrop of growing celebrity, McElheran continued his campaign in Belfast. In a pamphlet, published in the town in November 1852, he argued that Ulster was the most Celtic province of Ireland, a claim designed to establish a racial basis for Irish nationalism.⁴³ Likewise, on St Patrick’s Day, 1853, he took advantage of a public dinner held in Belfast’s Royal Hotel, to underline the Celtic origins and character of Ulster’s population. Amidst toasts to the Pope, the Queen, the Catholic hierarchy and the ‘memory of O’Connell,’ McElheran castigated a local Protestant clergyman who had described Ulstermen with Celtic surnames as Saxons and called on ‘all classes of Irishmen to recognise their common blood and common ancestry’.⁴⁴ Inevitably, not all were happy with such rhetoric. For the *Belfast News-Letter*, M’Elheran’s speech represented a ‘desecration of his favourite study to the purposes of a mischievous agitation,’ it dangerously combined a ‘fierce democracy’ with the ‘ambitious demands of the Romish hierarchy’.⁴⁵

As well as appearing on popular platforms, McElheran also contributed an article to the *Ulster Journal of Archaeology (UJA)*, which had been established following an exhibition of antiquities during the Belfast meeting of the British Association in 1852. Edited by the

manufacturer and antiquary Robert Shipboy Macadam, the journal was designed to function as a forum ‘open to the discussion of all disputed subjects in Irish archaeology’.⁴⁶ It is notable that this was the outlet that McElheran chose to disseminate his ethnological arguments. Macadam had a track record of cooperating with Gaelic specialists of a nationalist and Catholic persuasion and had long fostered an intellectual community of scholars in Belfast that crossed sectarian divides.⁴⁷ The *UJA* was one of the very few forums in Belfast that maintained in any significant way this form of civic cooperation. It is not unreasonable to suppose, then, that McElheran saw the *UJA* as one of the few local publications that would not censure his use of ethnological description to serve a nationalist politics.

McElheran’s paper, which appeared in the 1854 volume of the *UJA*, presented as the first in a series of ‘ethnographical sketches’, explored the racial and cultural characteristics of the fishermen of Claddagh, a small village on Ireland’s west coast, presenting them as a ‘purely Irish’ and ‘ancient Celtic type’. In contrast to the prevailing stereotype, the Celtic fishermen of Claddagh were found to be tall, muscular and peace-loving people, whose religious beliefs set them apart from the ‘despairing infidelity of some parts of England’. The accompanying pictures of the fishermen depicted them as handsome, with facial proportions approaching what the anatomist and artist Charles Bell had described as the ‘antique head’.⁴⁸ The subjects of McElheran’s ethnographic sketch had ‘within them the elements of a great people’ and were ‘of the same race as that found in Belfast and Glasgow’. Although couched in the language of ethnology, the message of McElheran’s article was clear. The ‘infusion of Celtic blood’ into any population brought with it material and social progress.⁴⁹ Saxon influence, on the other hand, had a degenerative effect. More than that, racial difference and its accompanying cultural forms apparently transcended, because it antedated, Ireland’s political divisions. This was an explosive political message both locally and nationally.

Among other things, McElheran's article offered a scientific apologia for increasing the influence of Belfast's Catholic and Irish population.

McElheran's Belfast career was short but significant.⁵⁰ With the exception of his contribution to the *Ulster Journal of Archaeology*, he largely worked outside of the established forums for discussing science in Belfast. Although he managed, initially, to garner some sympathy in the local Protestant press for his argument against the racial rhetoric employed by the *Times*, his stance became increasingly aligned with a political and religious agenda rejected in virtually all quarters in Protestant Belfast. It is clear that for McElheran this was neither unexpected nor unwelcome. He found in Robert Knox's racial theory a resource to pursue a radical and nationalist politics firmly opposed to working within prevailing political arrangements. He did this, however, in cooperation with Catholic leaders and in terms that aligned him to Catholic beliefs. This somewhat surprising amalgam, forged in sectarian Belfast, does not readily fit into received narratives of the relations between science and Catholicism that frame them in terms of conflict or concord. Theological concerns were present, but other priorities dominated the efforts of a layman to keep within the confines of Catholic doctrine while harnessing the political potential of a science that was more commonly used to attack cherished Catholic beliefs and undermine the cause of Irish independence.

Science, Sectarianism and Lecture Culture

McElheran's Belfast-based agitations on behalf of Catholic and Irish nationalist causes clearly contravened the widespread conviction that science was, or ought to be, entirely free from a political or religious bearing. As in other urban centres, this conviction strongly regulated scientific speech, particularly in the form of the science lecture. Perhaps not surprisingly, in mid-Victorian Belfast the neutrality of the science lecture, and of the public

halls in which such lectures were performed, increasingly became a matter of serious public debate. Just how serious is revealed by the experiences of the Catholic priest, polemicist and itinerant science lecturer Daniel William Cahill, whose science lectures were dismissed as little more than a cover for the propagation of a sectarian and seditious agenda.⁵¹

Cahill delivered two courses of science lectures in Belfast's Victoria Hall, the first in February 1855 and the second in April 1856. Notwithstanding his notoriety as a polemicist and pamphleteer, the first course passed off without incident. A letter from the Catholic solicitor Charles Russell (later to become Lord Chief Justice of England and Wales) assuring Protestants that the organisers would not distribute surplus funds from Cahill's lectures to specifically 'Catholic' causes such as church building projects helped to diffuse suspicion, and Cahill was warmly received.⁵² While the *Banner of Ulster*, a voice of politically liberal Presbyterianism declared that they had been 'lucid' and listened to with the 'warmest approbation', the *News-Letter*, a more conservative paper, noted that Cahill had drawn an audience from across Belfast's religious divide and that his lectures had been 'applauded to the echo'.⁵³ Moreover, in addition to lauding Cahill's lectures, the *News-Letter* defended him against the criticism of a Church of Ireland curate who had accused the paper of praising a priest using science to gain the position and prestige necessary to promote Roman Catholic dogma and launch treasonable attacks against the British state. After all, what other reason could a Catholic priest have for coming in the guise of a science lecturer to a town 'abounding in scientific and literary institutions' and not therefore requiring outside instruction? Against these charges, the *New-Letter* maintained that it was possible to separate the scholar from the polemicist and listen to Cahill's science lectures with the same impartiality due to 'a Mahometan, a Jew or a Brahmin' who, avoiding theological matters, disseminated edifying knowledge. Cahill's abilities as a science lecturer were not in doubt

and ‘no Protestant could listen to him with any other feelings than those of admiration of his genius’.⁵⁴

Against this backdrop, the reception Cahill received when he returned to Belfast in April 1856 stands in sharp contrast. Context, here, was everything. On the occasion of Cahill’s second visit reports of his lectures appeared alongside renewed discussion of the Maynooth grant question and Cahill had, in the interim, courted further notoriety by publishing a series of letters for the Dublin-based *Weekly Telegraph*, attacking the established Church of England and Ireland. Aware of this, the *News-Letter* now wondered whether Cahill’s ‘curious apparatus, pleasing experiments and chastened and eloquent language’, were, after all, a ploy.⁵⁵ In the run-up to the lectures, it published, without comment, an anonymous letter warning readers that Cahill’s qualifications to talk on science were doubtful, and in their aftermath called for a local champion of Protestantism to ‘bring Cahill to the tribunal of intelligent public opinion’.⁵⁶ Most likely provoked by the publication of another of Cahill’s inflammatory letters in the *Telegraph*, this call was answered by the Revd William MacIlwaine, incumbent of Belfast’s St George’s Church of Ireland, who challenged Cahill to a public debate, noting that ‘while the walls of this town are pompously placarded with your name as a Lecturer on Science those of the Metropolis are covered with advertisements of your letters on ... the spoliation, cruelty, banishment, woe and blood inflicted by the Church, of which I am a minister, on the people of Ireland’.⁵⁷ Such conduct was a ‘ruse’ and MacIlwaine’s aim was to expose Cahill’s duplicity. To fulfil this aim, he hired the Victoria Hall and called on Cahill to rebut the proposition that the Protestant Reformed Irish Church is the true successor of the ancient Irish church.⁵⁸ Cahill did not attend, but MacIlwaine proceeded with the event. Accompanied by ‘a large number of clergymen of all Protestant denominations’, he was welcomed by a large audience with

‘Kentish fire’, and through mockery and mimicry, he delighted this audience and poured scorn on Cahill.

Needless to say, not all Belfast Protestants were impressed by MacIlwaine’s antics. Although it decried Cahill’s ‘wild rhapsodies’ in the *Weekly Telegraph*, in what was, perhaps, a reflection of intra-Protestant tensions, the Presbyterian *Banner of Ulster* dismissed the counter-arguments mobilised by the Anglican MacIlwaine.⁵⁹ By contrast, the *Northern Whig* stood largely aloof from the controversy. Condemning MacIlwaine, or opting out of the controversy, was not, however, the same as supporting Cahill, and it was left to the *Ulsterman*, Belfast’s only Catholic newspaper, to defend his reputation. Against the accusation that, in science, Cahill was an impostor, the *Ulsterman* declared that ‘there is no man of the age ... who can approach Dr. Cahill in the power of popularising science’, and, in response to MacIlwaine’s attack on Cahill’s credentials and integrity, it urged its readers to attend his final lecture on astronomy.⁶⁰

The storm provoked by Cahill’s second lecture series created a lasting suspicion of visiting Catholic lecturers among certain segments of Belfast’s Protestant community. In 1858, for example, the Working Classes Association (WCA) invited Francis J. Maguire, MP for Dungarvon and member of the nationalist Independent Party, to give a lecture in Belfast. His subject, ‘self-culture and its heroes’, was innocuous enough. Maguire was well known for his support for industrial progress in Ireland and his promotion of technical education. Taking up a well-worn and uncontroversial theme, Maguire wedded science to self-culture in service of Irish industry. His presence on the WCA platform was, however, sufficient to enrage the editor of the *News-Letter*. In a leading article, the committee of the WCA was accused of dragging the society into outright sectarianism. The lecture, according to a letter published in the same issue, had been poorly attended; the Association had lost money and would likely lose members. The presence of several Roman Catholic priests in the audience

and of leading Catholic laymen on the platform confirmed the partisan nature of the event. Maguire's well-known support not just for nationalist causes but also for Pope Pius IX made him a *persona non grata* in Protestant Belfast.

The *Newsletter* worried, too, that Maguire's lecture would lead to something worse: a course of lectures on astronomy by Daniel William Cahill delivered under the auspices of the WCA. If that occurred, it would be 'fatal to the harmony, and therefore to the existence' of the Association. As portrayed by the *News-Letter*, Cahill, even in the guise of a science lecturer, was now wholly without credibility. If he was to return, the only appropriate place for him, as for Maguire, was 'the old repeal hall in Chapel Lane', a decidedly Catholic venue and location.⁶¹ Ostensibly, the WCA was ruled out of bounds in the interests of preserving its non-sectarian character but it was hard to avoid the conclusion from the *News-Letter's* assault that being a devout Catholic and nationalist precluded participation in one of Belfast's largest societies devoted to the dissemination of useful knowledge. The committee that had invited Maguire did not, of course, share this view. It defended its actions by noting that nearly 50 'of the most respectable gentlemen in Belfast of all creeds and parties' had forwarded Maguire a memorial fifteen months before his visit inviting him to lecture. But for the *News-Letter*, this attempt to deny the violation of the rule prohibiting sectarianism was contrary to the opinion of a 'large majority of members'.⁶²

The efforts of Belfast Catholics to make the Working Classes Associations more congenial to their religious and political views immediately preceded a move to create a similar body that was explicitly Catholic in its aims and ethos. In 1858, this came to fruition with the formation of the Belfast Catholic Institute. Forming such a body was not unprecedented. A similar society had been established in Liverpool in 1853, and by 1864 one estimate put the number of Catholic Institutes in British and Irish towns at 36.⁶³ For the Belfast venture, a large house owned by the prominent Belfast liberal and one-time MP

Robert James Tennent was purchased and subscribers were invited to contribute to an Institute that would provide a reading room, a lecture hall and accommodation for Belfast's Catholic population.⁶⁴ The hall would host lectures on scientific and literary subjects, and classes on chemistry and agriculture were also planned. From the start, however, the Institute became enmeshed in local politics, and it was soon destabilised by internal divisions. The *News-Letter* took every opportunity to paint the Institute as a self-consciously sectarian society. In an editorial written soon after a prospectus for the Institute appeared it employed language which was heavily loaded in the aftermath of the recent Indian Mutiny, warning that the 'lecture halls will not merely exhibit the pleasing and instructive experiments by which young science delights to commend itself but may occasionally echo the sounds of Sepoyism and scarcely veiled sedition'.⁶⁵ Protestant fears aside, the Institute also failed to draw support from Cornelius Denvir and its political character and perceived associations with Fenianism drew criticism from all across the Belfast's religious and social spectrum.⁶⁶ Given this, it is scarcely surprising that the Institute survived for just 6 years and collapsed after a much-publicised disagreement between directors and Patrick Dorrian, Denvir's successor as Bishop of Down and Connor. For Dorrian, the Institute was a hothouse for 'presbyterianism' or anti-prelacy, a threat to his own authority that he was unwilling to tolerate.⁶⁷ Thus, while Dorrian opposed Denvir's political quietism, he remained deeply concerned about the Institute's support for political radicalism.

Although short-lived, the Catholic Institute signalled the influence of a separatist sentiment among Belfast's Catholic middle classes. Among other things, the Institute represented a rejection of the conditions set for full participation in the town's associational science. In certain respects, it was offered as an alternative to Belfast's other voluntary societies which, though officially eschewing political or religious agendas, could be understood as buttressing a Protestant and unionist hegemony. That the Institute wished to

continue the more *ad hoc* efforts to promote science through lectures delivered by Catholic notables is also worth underlining. This did little, however, to ease sectarian tensions. For some Protestant observers, the controversies sparked by Cahill, Maguire and the Catholic Institute gave sufficient reasons to debar science lectures by Catholic speakers in Belfast's public halls.

Millworkers and Materialists: Catholic Reactions to Tyndall's Belfast Address

The contested and marginal nature of Catholic involvement in Belfast's scientific institutions meant that when the British Association for the Advancement of Science visited the town in 1874 there was little evidence of the participation of Catholics in its formal business. That did not mean that the meeting attracted no Catholic attention. On the contrary, reaction to it in Belfast's Catholic newspapers appeared quickly and, in one paper in particular, was sustained over a period of months. Given what is known about the 1874 meeting it comes as little surprise that John Tyndall's Presidential address in the Ulster Hall provoked a highly critical but also deliberately strategic local Catholic response. This ran parallel to, and later interacted with, better-known Protestant reactions.⁶⁸ Examining this episode shows once again that the absence of Catholics from 'official' scientific events and institutions in Belfast did not arise because of a lack of concern with the cultural significance and political utility of scientific discourse. It also further highlights the ways in which 'public science' remained thoroughly enmeshed in local civic politics through the 1870s.

In the days preceding the British Association's meeting, the build-up in Belfast's Catholic newspapers was somewhat lacklustre. A leading article in the *Morning News*, a paper owned by Catholics but aimed at a more diverse readership, expressed the hope that 'the present Belfast session will prove to one of interest and importance to the world, and the strangers who have come here will be satisfied with, and gratified by, their visit.' There was

also opportunity, however, for some political point scoring. If 'British' in the Association's title seemed exclusive, readers were asked to note that, unlike the Parliament of the United Kingdom, the 'parliament of science' at least granted the occasional Irish session.⁶⁹ The *Ulster Examiner*, a newspaper more explicitly tied to Catholic causes and concerns, adopted a more strident tone. An editorial noted the planning of dinners, excursions and soirees, with 'expenses defrayed'. Such lavish spending was judged in poor taste while forty thousand millworkers were being 'starved out' by Belfast's (overwhelmingly Protestant) labour aristocracy on account of a strike over poor pay. The strike was already in its fourth week and the paper had consistently sided with the workers. According to the *Examiner*, the spectacle of 'the sickly and pining child, the pale and emaciated mother', rather than the bombast of civic pageantry, ought to be the one attracting the Association's full attention.

As well as decrying attempts to cover up the millworkers strike, Catholics in Belfast argued that the British Association was presented with a vision of the town almost wholly Protestant in appearance. On the Saturday before the meeting, the *Ulster Examiner* complained bitterly about the list of Belfast's leading institutions that appeared on the Association's programme. A number of Protestant schools and orphanages were included but Catholic equivalents were omitted. As a result, the programme was condemned as 'defective and absurd'.⁷⁰ Shortly after the meeting, the parish priest and former Dean of St Malachy's College James O'Laverty wrote to the *News-Letter* to issue a similar complaint about the guide to Belfast produced by the Naturalists' Field Club for visiting members of the Association. It was, O'Laverty complained, patently prejudiced in its depiction of Belfast's leading educational and charitable institutions. The Queen's Colleges, Royal Academical Institution and the Model School were given pride of place. St Malachy's College, along with the Christian Brothers' schools and the Conventual schools were not even mentioned. The guide, along with a supplement to the Association meeting produced by the *Graphic*, left

Catholics in Belfast looking like ‘an obscure sect’ who sent ‘their children to hedge schools and ... heard mass behind ditches’.⁷¹

It was, however, the local labour dispute that dominated the initial reaction to Tyndall’s Presidential address. In the *Ulster Examiner*, an editorial published the day after Tyndall’s Ulster Hall performance – written, in all probability, by Michael Cahill, curate at St Patrick’s and the newspaper’s editor – satirised Tyndall’s metaphysics by speculating as to what would happen if it was applied to the millworkers’ strike. Could Professor Tyndall, he asked, devise ‘any scheme so to direct the managing directors of the flax-spinning limited liability companies that the unfortunate molecule workers, who have but a paltry few shillings-a-week, could be so devoted in infinite space that their atoms could get twelve shillings-a-week instead of nine.’⁷² Underlying this sarcasm was the suggestion that if the disagreement between millworkers and their managers was simply due to the arrangement of molecules, justice had nothing to do with it. The idea that Tyndall’s Belfast address threatened the moral fabric of civil society was a typical response among religiously motivated critics.⁷³ In the pages of the *Ulster Examiner*, however, it was given a uniquely local twist.

The *Morning News* took a different approach. In its leading article describing Tyndall’s address it chose not to comment directly on the content of his discourse. This was in line with reports of the address which appeared in other Belfast newspapers and which, perhaps guided by the tacit rules of civic decorum, did not immediately take issue with the address.⁷⁴ In the same article, however, the *Morning News* stressed that the ‘happy termination of the linen trade dispute’ would render the Association’s visit to Belfast memorable.⁷⁵ This message was repeated again in later reports of the meeting. Thus, one report directed readers’ attention to posters on Belfast’s ‘dead walls’ and appealed directly to the Association ‘in the name of the starving women and children’ to consider the urgent

problem playing out in the background to the meeting.⁷⁶ Tyndall's announcement on the last day of the Association's visit that the trade dispute had ended was, for the *Morning News* at least, his most momentous utterance.⁷⁷

Civic decorum was not, however, the guiding principle of the *Ulster Examiner*. Devoting at least eight additional editorials to Tyndall's address and its fall out, the views of the Association's President became for the *Examiner* a weapon to attack materialism, Protestantism and unconstrained capitalism, polemical abstractions which invariably masked more local and concrete targets. The first person singled out for criticism was the Mayor of Belfast, James Henderson. Henderson's vote of thanks delivered after Tyndall's address provided the *Examiner* with another occasion to deplore the lack of attention being given to the millworkers strike. To the *Examiner*, the Mayor had played the fool, throwing out bad jokes and puffing up Belfast's achievements. All the while, Belfast's streets were strewn with the 'sickly and pining child, the pale and emaciated mother, the barefoot and poorly clad maiden hiding her wretchedness in the thin rag that covers her pallid face'. The lack of concern of the town's 'chief magistrate' was all of a piece with Tyndall's 'demolishing' of the 'great plan of creation', which similarly rendered such 'suffering atoms' or starved workers of no account.⁷⁸

A more nebulous local target appeared in a leading article appearing in the *Examiner* just a few days later. Here the leader writer compared the welcome Tyndall had received with local support for Belfast's 'Scotch colonists' who had 'made a trade of vilifying and defaming Ireland and Irishmen'. In both cases, the result was a form of intellectual and cultural suicide: subscribing to Tyndall's metaphysics 'sounded the knell' for the British Association by turning it into 'a collection of learned baboons'; sponsoring the 'colony of north Briton' recently established in Belfast lent backing to a group committed to 'methodical and dastardly attacks on the Irish nation' and who made the labouring classes 'toil without

mercy for the merest pittance daily'.⁷⁹ The comparison was a deliberately invidious one, and it hinted pointedly at a causal relationship between Tyndall's supposed materialism and the heartless capitalism of Belfast's 'Scotch' industrialists.⁸⁰

A wholly negative view of Tyndall's address, and the tactic of striking out at local adversaries, was also in evidence in the *Ulster Examiner's* assessment of Thomas Henry Huxley's evening discourse 'on the hypothesis that animals are automaton'. In contrast to Tyndall's address, Huxley's controversial discourse was heaped with praise. Huxley's paper had been, the editorial announced, 'incomparably the clearest, the fullest, the most exhaustive, and best-reasoned of the session', and stood in complete contrast to Tyndall's 'hazy' and unoriginal enunciations. Although not prepared to endorse all of Huxley's arguments, it was conceded that the question as to whether 'animal life was nothing more or less than physical phenomena' was an open and 'merely' scientific one. In addressing this question, Huxley had offered a 'scientific *expose* buttressed with proof of a definite opinion' that was both sincere and masterful.⁸¹ Such praise contrasted with local Presbyterian reactions to Huxley, which portrayed his evening lecture as a manifesto for materialism, and was, in part at least, tactical.⁸² Prior to the appearance of the *Examiner's* positive appraisal of Huxley's address, a leader had been published in the *Northern Whig* accusing all three of Belfast's major denominations (Presbyterian, Anglican and Roman Catholic) of encouraging an atmosphere of intolerance toward intellectual progress. To the *Examiner*, this was a calumny. Against the libel issued by 'the shallow mind of the automaton that guides the *Whig*' its editorial declared that, 'there is not in Belfast a single Catholic clergyman that will not discuss publicly ... any question mathematical, philosophical, or scientific'.⁸³ Heaping praise upon Huxley and offering a detailed assessment of his arguments was one way to substantiate this claim.

Rival newspaper editors, mill directors and Belfast's mayor did not exhaust the list of local antagonists that the *Examiner* targeted using Huxley and, more frequently, Tyndall as the weapon of choice. The most blatant attempt to infer guilt by association appeared in an editorial published three days after the British Association meeting had concluded. On this occasion, the *Examiner* reflected on the compatibility of Tyndall's 'atomic theory' with the typically Protestant elevation of 'individual reason' over the 'aggregate' of authority. In Protestant Belfast, where 'private judgement claims a dictatorship in theological reasoning', Tyndall's 'dicta' were, in fact, quite reasonable. After all, Tyndall's 'assumption that matter is eternal, that nature is eternal, that space is infinite, and that mind is but a mode or form of matter, and that no great intelligence created all things is the natural outcome of the deification of private judgement.'⁸⁴ The conclusion was clear: the religious beliefs of the majority of Belfast's citizens led, logically and inexorably, to Tyndallism.

The *Examiner's* use of Tyndall's address to push against Protestantism continued in the months that followed. On 16 September, for example, the paper reviewed a sermon combating Tyndall written by the Rev. John MacNaughtan, a Belfast-based Presbyterian minister. While MacNaughtan's arguments against Tyndall were commended, exception was taken to his accusation that the Catholic Church had condemned Galileo's science and had, more generally, opposed scientific progress. In reply, the review noted that Copernican science, far from being hindered by the Catholic Church, had been 'respected and encouraged', and that Galileo had been rightly condemned for making the precisely the same error as Tyndall, namely 'travelling outside the legitimate bounds of science'.⁸⁵ Several months later the paper, prompted by the appearance of a new edition of Tyndall's address, again pointed out the congruencies between Protestantism and Tyndall's metaphysics. This time it was the Protestant rejection of contemporary reports of miracles that indicated a dangerous drift towards a Tyndall-style rationalism.⁸⁶

The *Examiner's* strategic response to Tyndall and Huxley was clearly shaped by sectarian rivalry and the well-worn practices of press controversy. Although the *Examiner* detected in Tyndall's cosmogony a threat to Catholic theology, the apparent dangers of his address were quickly eclipsed by more local troubles. Tyndall, in other words, quickly became not only the target of Catholic criticism but also ammunition in the struggle for Catholic interests in Belfast. This strategy mirrored the use made of Tyndall in the pastoral address written by the Catholic Archbishops and Bishops of Ireland and communicated to the faithful in late October 1874.⁸⁷ The hierarchy found in Tyndall's declarations against religious dogma the vindication of their fight for Catholic-controlled education in Ireland. This particular battle, however, was not much in evidence in the *Examiner's* editorial interventions. Instead, Tyndall was wielded to wage a more local and personal war of words. Science lectures had become not only politically-charged or politically suspect but also a key arena for the playing out of local religious and political antagonisms. Yet, more than this, there was also in Catholic responses a display of enthusiasm for science, a defence of the compability of Catholicism and science and an attack on the metaphysical blunders (as they saw it) of one prominent scientific spokesperson. It is notable that the *Examiner* did not attempt to critique Darwinism or deal with the theological ramifications of a theory of evolution but reserved its editorial space for a consideration of Tyndall's more philosophical claims. In a town in which Catholicism was routinely dismissed as superstitious and anti-scientific, such a response made perfect sense.

Science and Home Rule in Late-Nineteenth-Century Belfast

For all the politicisation of science in late-Victorian Belfast, it is in fact possible to find forms of Catholic participation in science that resembled the approach adopted by Cornelius Denvir. Medical science in particular seems to have provided an unprecedented opportunity for

Denvir-style civic cooperation. James Cuming, Professor of Medicine at Queen's College Belfast for over thirty years, provides a particularly pertinent example. In the early 1860s, Cuming had supported the Catholic Institute and the efforts of prominent Belfast Catholics to widen the franchise and reform the town council.⁸⁸ After his appointment as Professor of Medicine in 1865 he took no further part in political initiatives. The privatisation of his political and indeed religious convictions went hand in hand with his rise to prominence in Belfast and beyond. As well as his involvement in Belfast's medical societies, he was a member of the Belfast Natural History and Philosophical Society (elected 1862) and twice served as president of the Belfast Literary Society (in 1876 and in 1882). Moreover, when the British Medical Association visited Belfast in 1884 Cuming was elected President: in many respects he represents a continuation of Denvir's earlier attempts to work within, rather than outside, the town's scientific institutions.

Cuming was not alone in pursuing this more assimilationist line. Other Catholic doctors also became fully involved in Belfast medical circles. Alexander Harkin, educated at St Malachy's College Belfast and at King's College Aberdeen, became President of the Ulster Medical Society (UMS) in 1878-79 and was consultant physician at the Mater Infirmorum Hospital from its inception in 1883.⁸⁹ John Fagan, surgeon from 1874 to 1897 at Belfast's Royal Hospital, became President of the UMS in 1884-86 and was elected as a member of the Natural History and Philosophical Society in 1875. Alexander Dempsey, educated at St Malachy's, Queen's College Galway and the Catholic University Medical School in Dublin, began practicing in Belfast in 1874 and became President of the UMS in 1890. Dempsey was, in turn, instrumental in the career of Peter O'Connell, who arrived in Belfast in 1882 to take up a post of assistant surgeon at the Mater. Unlike Cuming, both Dempsey and O'Connell became active in Belfast politics: O'Connell had most success, and

was elected an alderman in 1897 with the backing of the Catholic Association, an organisation set up in 1895 by the Catholic Bishop of Down and Connor, Dr. Henry Henry.⁹⁰

Beyond Belfast's medical fraternity, however, there is relatively little evidence that Catholic involvement in the town's scientific societies increased after 1874 or that science was used to ease rather than energise political and religious dissension. One society in which growth in the number of Catholic members might have been expected, the Belfast Naturalists' Field Club, confirms this. During the 1870s, the Field Club's reputation militated against Catholic involvement. O'Laverty's complaint about the anti-Catholic character of the Field Club's celebrated guide to Belfast hinted at a deeper difficulty for Catholics who might otherwise have joined the Club. The Club's President, William MacIlwaine, had, as we have seen, a track record of anti-Catholic polemics and, as recently as 1865, he had entered into a bitter public dispute with Patrick Dorrian, then the Bishop of Down and Connor. Once MacIlwaine's influence began to ebb, however, the Field Club became, in political terms at least, more amenable to a Catholic public. The election of William James Smythe as president in 1882 had the potential to communicate more forcibly the Field Club's non-sectarian ethos. A supporter of Home Rule and an enthusiast for Irish language and traditional music, Smythe could be regarded as a political and cultural ally of at least a portion of Belfast's Catholic middle classes. As a Member of the Royal Irish Academy and a Fellow of the Royal Society, Smythe was also among the Field Club's most distinguished Presidents, but his presidency was short-lived, and he was absent for much of the time he was in office on account of fulfilling duties elsewhere. That said, Smythe did establish a precedent, and his presidency almost certainly facilitated the much more significant involvement of Francis Joseph Bigger in the Field Club from the late 1880s. Bigger's influence allowed the Field Club, for a short period, to become a leading participant in the northern Gaelic revival. Although the Gaelic section of the Field Club did not last

more than a few years, Bigger himself remained a very influential figure into the 1900s and, as a close acquaintance of the antiquarian and Catholic Priest, James O'Lavery, he was undoubtedly a more congenial figure for Catholics than someone like William MacIlwaine. Yet despite all of this, no Catholic members can be identified on the Field Club's membership of 1901.⁹¹

One possible explanation for the absence of Catholics from societies such as the Belfast Naturalists' Field Club is that they lacked the educational opportunities necessary to develop an interest in natural history, archaeology or other scientific subjects. Yet this was not, in fact, the case. In 1874, notices for St Malachy's, and for St. Mary's Dominican Convent, advertised scientific subjects among the longer list of classes offered to pupils. Botany and astronomy were, for example, included alongside needlework and painting at St Mary's.⁹² Likewise, a report by the Science and Art Department published in 1882 recorded that St Malachy's was teaching pupils courses that included topics such as 'theoretical mechanics', 'sound, light and heat', 'electricity and magnetism' and 'physiography'.⁹³ Biology and geology were not on the curriculum, but this was typical of the majority of the schools surveyed. Equally, opportunities for further academic studies are known to have been slowly opening up. From 1881, students at St Malachy's could matriculate in the Royal University of Ireland and, according to the Royal Commission on University Education in Ireland, 249 students from St Malachy's had made use of this provision by 1900.⁹⁴

It seems fair to conclude, then, that there was, in Belfast, a cohort of educated Catholics capable of engaging with the Field Club or other scientific societies. That is not to deny that education provision for Catholics remained a significant and highly political issue. Until his death in 1885, Dorrian had vigorously pursued the goal of creating a Catholic University College in Belfast. This was a local expression of the long-running national dispute over the Queen's Colleges and university education in Ireland. In the Belfast context,

Queen's College remained subject to considerable Catholic suspicion and official ecclesiastical censure. Thus, there was only a very small number of Catholics willing to participate or enrol in the College. Reflecting wider trends, Dorrian's local efforts to establish a local alternative failed, and by 1902 the situation for Catholics looking for a religiously-acceptable substitute to Queen's College remained far from satisfactory.⁹⁵ That year, the Rev. Henry Laverty, President of St Malachy's College, as well as repeating the call for a Catholic University College, complained of inadequate Catholic representation on the Belfast Technical Education Committee (typical, he suggested, of 'mixed education' initiatives in Belfast) and argued for the opening of a Catholic medical school in association with the Mater Infirmorum Hospital.⁹⁶

This lack of participation in voluntary scientific societies or in Queen's College cannot simply be put down to religious anxieties about 'godless' institutions. For Belfast Catholics, claims about the neutrality of science continued to ring hollow, not least in light of events which transpired early in 1890. In January of that year, Catholic perceptions of the politicised character of scientific initiatives in Belfast were dramatically reinforced with the return visit of John Tyndall to Belfast. Invited by the Presbyterian President of Queen's College, the Rev. Thomas Hamilton, Tyndall travelled to Belfast to deliver the inaugural lecture in a series organised by the Belfast Society for the Extension of University Teaching. On January 21st, Tyndall spoke once again to a packed Ulster Hall on the subject of contagious diseases. This time, the topic and the tone did little to offend the religious sensibilities of the audience. To the organisers, the lecture was a resounding success that helped to cement the relations 'between Queen's College and the people of Belfast'.⁹⁷ However, this celebratory attitude was much harder to sustain among Belfast's Catholic population. As we have seen, Queen's College remained under deep suspicion and there was profound scepticism among the Church hierarchy about whether it could ever prove

acceptable to Catholics. Extending the influence of Belfast's 'university' meant, for many Catholics, extending the influence of a Protestant-come-secular establishment opposed to their political and religious beliefs. Moreover, any possibility that Catholics might be reconciled to the Queen's College were dealt a further blow when, just a few days after his lecture, Tyndall took a prominent part in a 'great unionist demonstration' held, once again, in the Ulster Hall. Tyndall's outspoken support of Ulster Loyalism and his attack on Archbishop Croke and 'the ignorant and excitable peasantry of the South' provided corroboration of Catholic cynicism. According to Tyndall, of all the perils posed by the sceptre of Home Rule, the thought of 'Croke and his myrmidons' taking control of Queen's College, Belfast's bastion of intellectual progress, was among the worst. Against the threat of such a calamity, Tyndall was comforted by the thought that his large Ulster Hall audience would not shrink from taking up the sword, an act of defence that would draw immediate support from 'tens of thousands of British men'.⁹⁸

The reaction in the Catholic and nationalist *Belfast Morning News* – by then more closely aligned with a Catholic and nationalist constituency – was predictable enough. It excoriated Tyndall for crossing the line between science and politics and found his 'politico-scientific speech' filled with 'blatant balderdash and ill-concealed vanity'.⁹⁹ The paper also reminded its readers that when Tyndall had last been in Belfast he had 'flung the epithet of pigmies at the whole body of the Presbyterian Clergymen'.¹⁰⁰ Perhaps, it speculated, this was one reason why so few Presbyterian ministers were present to hear Tyndall denounce Gladstone, Home Rule and Catholic Ireland, an absence otherwise hard to explain. The *Northern Whig* countered this attempt to divide unionist opinion with its own explanations. Tyndall's bitter contest with 'a section of the Church' had now largely subsided. The fact that he was a guest of the Rev. Thomas Hamilton was evidence of an 'altered state of affairs'; there was no longer any cause for 'backbiting' or differences, a fact that delighted Tyndall's

‘many friends and admirers in the Northern capital of Ireland’. Further, the absence of a significant section of Belfast’s Protestant community from the demonstration was due to an invitation being extended to liberal unionists ‘only at the very last moment’.¹⁰¹ The situation was, needless to say, more complicated than either the *Morning News* or the *Northern Whig* allowed. In reality, there was still considerable resistance to Tyndall-style science among leading Presbyterians in Belfast.¹⁰² But it is not clear that this was the reason why so few attended the Ulster Hall demonstration. Among Catholics, however, there could be little doubt that Tyndall’s visit demonstrated again the ease with which the reputation that scientific expertise conferred could be commandeered to serve an anti-Catholic and pro-unionist agenda. It confirmed, too, the suspicion that Protestantism and Tyndallism were cut from the same cloth and were united in their opposition to Catholicism and Irish nationalism. Once again, in Catholic Belfast the conclusion that it was only when science was pursued in an explicitly religious context that such dangerous alliances could be stymied seemed necessary and irresistible.

Conclusion

Exceptions aside, it is evident that Catholics active in Belfast’s civic culture throughout the nineteenth century remained, in the main, absent from the scientific societies that formed the mainstay of Belfast’s ‘official’ scientific culture. What is also clear, however, is that this did not mean that science was ignored or devalued. Among those Catholics concerned with representing their community to a wider public, science was increasingly viewed as a resource useful for increasing social and civic influence. Of course, what counted as ‘science’ and who was qualified to interpret and communicate its cultural and theological ramifications were crucial and highly politicized matters of local debate. What is clear, however, is that measuring the extent to which certain marginalized groups engaged with science by their

presence or absence in formal scientific bodies or by their attitudes towards certain prominent scientific figures like Tyndall is, in many respects, wrongheaded. To oppose Tyndall or to local society did not mean snubbing science as such. On the contrary, science could be regarded as a valuable form of knowledge and a useful cultural resource.

When Catholics in Belfast engaged with science and scientific institutions they did so in ways that invariably became embroiled in civic politics. Cornelius Denvir's use of natural philosophy to aid efforts to integrate rather than isolate Catholics from Belfast's intellectual culture was part of his maligned attempt to placate the town's Protestant majority. John McElheran saw in ethnology a set of claims useful for troubling the unstable mid-Victorian equipoise between Belfast's different religious and political constituencies. While civic harmony was, ostensibly, the aim of McElheran's 'ethno-nationalism', in reality his racial theories polarised opinion in and beyond Belfast. According to their critics rather more than their supporters, a similarly subversive tactic was employed by Cahill, Maguire and, later, the Catholic Institute in the late 1850s and early 1860s. In the view of some, science lectures, widely supposed to be non-partisan by definition, allowed Catholic lecturers to push a political agenda that otherwise would have been excluded from Belfast's public halls and educational associations. On the other hand, Tyndall's Belfast addresses, in 1874 and in 1890, confirmed to many Catholics that a scientific reputation could all too readily provide a license to publicly oppose their most cherished theological and political convictions. Tyndall-style science was simply the logical outworking of Protestantism and unionism.

Each of the episodes recounted above represents Catholic attitudes towards science and articulated in Belfast's 'public sphere'. The point of sketching these episodes has not been to construct an over-arching narrative about Catholic-science relations in the nineteenth century whether in Belfast or elsewhere. While it might be possible to detect certain long-term trends linking the 'small stories' told here, there are also indications of counter-currents

that complicate any settled conclusions. For example, a case can be made that as the nineteenth century progressed, Catholics involved in civic debates about science in Belfast became increasingly polemical and, partly as a consequence, more fully marginalised from ‘official’ scientific culture. Yet there is also some evidence that suggests a countervailing trend within Belfast’s medical community and a lack of evidence that any more than a handful of Catholics were involved in the town’s scientific societies at any point in the nineteenth century.

One of the key aims of this paper has been to keep in close view the local circumstances that shaped Catholic attitudes towards, and involvement in, science in Victorian Belfast. On that very basis it is possible to offer some more general observations and suggestions for further study. The first is that Catholics in Belfast were more engaged in discussion and debate about science than might have been expected and that this only came to light by looking beyond the town’s established scientific societies or organised scientific culture. It is likely that the same holds true in other civic contexts where Catholics were politically marginalised in this period. Second, the range and variability of opinions and attitudes is also worth underlining. Too often, the existing literature on the historical relations between Catholicism and science has focused narrowly on a limited number of scientific topics and on a restricted set of Catholic spokespersons. A fresh look, with a wider angle, will undoubtedly disrupt and complicate received accounts. Finally, the highly politicised nature of nearly all the episodes covered is worth stressing once again. Catholic encounters with science did not involve the bloodless or disembodied clash of theological and scientific ideas. Instead, they were fully saturated with political aspirations in ways that generated unexpected alliances, as well as tensions, between science, politics and religious belief.

We commend to others the task of ascertaining whether Catholics in other civic contexts were engaged in comparable efforts to mobilise science to serve a similarly varied set of political, religious or cultural interests.¹⁰³ Undoubtedly, addressing this neglected line of inquiry will move work on the historical relations between Roman Catholicism and science beyond studies of high-level debates over Galileo and evolution. It will also, as this paper has sought to do, bring into view a religious group whose encounters with science in a variety of Irish urban contexts have been largely overlooked by scholars concerned with the relations between scientific and civic culture in the nineteenth century.

* School of Geography, Archaeology and Palaeoecology, Queen's University Belfast, BT7 1NN. E mail d.finnegan@qub.ac.uk

We are grateful to the anonymous reviewers for their incisive and thoughtful comments. The paper is based on research supported by the Arts and Humanities Research Council [grant number AH/J004952/1].

¹ See Arnold Thackray, 'Natural knowledge in cultural context: the Manchester model', *American Historical Review* (1974) 79, pp. 672-709; essays in Ian Inkster, *Scientific Culture and Urbanisation in Industrialising Britain*, London: Ashgate, 1998; and Paul Elliott, 'Origins of the creative class: provincial urban society, scientific culture and socio-political marginality in Britain in the eighteenth and nineteenth centuries,' *Social History* (2003) 28, pp. 361-387.

² Michael Neve, 'Science in a commercial city: Bristol 1820-1860', in Ian Inkster and Jack Morrell (eds.), *Metropolis and Province: Science and British Culture, 1780-1850*, London: Hutchison, 1983, pp. 179-204; Adrian Desmond, *The Politics of Evolution: Morphology, Medicine and Reform in Radical London*, Chicago: University of Chicago Press, 1990; James A. Secord, *Victorian Sensation: The Extraordinary Publication, Reception, and Secret Authorship of Vestiges of the Natural History of Creation*, Chicago: University of Chicago Press, 2001.

³ See, for example, Louise Miskell, *Intelligent Town: An Urban History of Swansea, 1780-1855*, Cardiff: University of Wales Press, 2006; Diarmid A. Finnegan, *Natural History Societies and Civic Culture in Victorian Scotland*, London: Pickering & Chatto, 2009.

⁴ Notable exceptions include Juliana Adelman, *Communities of Science in Nineteenth-Century Ireland* (London: Pickering and Chatto, 2009); essays in Juliana Adelman and Éadaoin Agnew (eds.), *Science and Technology in Nineteenth-Century Ireland*, Dublin: Four Courts Press, 2010; Ruth B. Bayles, 'The Belfast Natural History Society in the nineteenth century: a communication hub', *Belfast: The Emerging City 1850-1914*, Dublin: Irish Academic Press, 2012, pp. 105-124, and Elizabeth Neswald 'Science, sociability and the improvement of Ireland: the Galway Mechanic's Institute, 1826-51,' *British Journal for the History of Science* (2006) 39, pp. 503-534.

⁵ For an overview of the relations between Catholics and science in Ireland, see Don O'Leary, *Irish Catholicism and Science: From "Godless Colleges" to the Celtic Tiger*, Cork: Cork University Press, 2012. For additional perspectives, see Greta Jones, 'Catholicism, Nationalism and Science', *Irish Review* (1997) 20, pp. 40-61; James H. Murphy, 'The Irish-Catholics-in-science debate', Adelman and Agnew (eds.), *Science and Technology* pp. pp. 127-135 and Nicholas Whyte, *Science, Colonialism and Ireland*. Cork: Cork University Press, 1999, pp. 153-161; The scholarship on the relations between science and Catholicism in the nineteenth century beyond Ireland has tended to focus on debates about human origins. See for example, Mariano Artigas, Thomas F. Glick and Rafael A. Martínez (eds.), *Negotiating Darwin: The Vatican Confronts Evolution 1877-1902*, Johns Hopkins University Press, 2006; William J. Astore, 'Gentle skeptics: American Catholic encounters with polygenism, geology and evolutionary theory, 1845-1875.' *Catholic Historical Review* (1996) 82, pp. 40-76.

⁶ John Gamble, *Society and Manners in Early Nineteenth-Century Ireland*, ed. Breandán Mac Suibhne, Dublin: Field Day, 2011, p. 268. Figures taken from Anthony C. Hepburn, *A Past Apart: Studies in the History of Catholic Belfast*, Belfast: Ulster Historical Foundation, 1996, p. 4.

⁷ Sven Dierig, Jens Lachmund and J. Andrew Mendelsohn, 'Toward an urban history of science', *Osiris* (2003) 18, pp. 1-19; Thomas F. Gieryn, 'City as truth spot', *Social Studies of Science* (2006) 38, pp. 5-38; Antonio Lafuente and Tiago Saraiva, 'The urban scale of science and the enlargement of Madrid (1851-1936)', *Social Studies of Science* (2004) 34, pp. 531-569; Louise Miskell, *Meeting Places: Scientific Congresses and Urban Identity in Victorian Britain*. Aldershot: Ashgate, 2013.

⁸ Charles W. J. Withers, 'Scale and the geographies of civic science', in David N. Livingstone and Charles W. J. Withers (eds.), *Geographies of Nineteenth Century Science*, Chicago: University of Chicago Press, 2011, p. 117.

⁹ *Belfast News-Letter*, 7 January 1834.

¹⁰ On Roman Catholic patronage of natural philosophy, see John Heilbron, *The Sun in the Church: Cathedrals as Solar Observatories*, Cambridge, Mass.: Harvard University Press, 1991. For works indicating the existence

of chairs of natural philosophy at the three Irish seminaries mentioned above, see Patrick J. Corish, *Maynooth College, 1795-1995*. Dublin: Gill & Macmillan, 1995; John McEvoy, *Carlow College, 1793-1993*. Carlow: St Patrick's College, 1993; Fearghus Ó Fearghail, *St Kieran's College, 1782-1982*. Kilkenny: St Kieran's College, 1982.

¹¹ Norman J. Atkinson, *Irish Education: A History of Educational Institutions*. Dublin: Allan Figgis, 1969, p. 59.

¹² *Catholic Directory, Almanac and Registry for 1851*, Dublin: W. J. Battersby, 1851, p. 256. As late as 1882 Bishop Dorrian, Denvir's successor, was claiming that the school had the 'finest collection of instruments for the study of physical science in Ulster'. See *Belfast Morning News*, 24 July 1882.

¹³ The authors are grateful to Mr. Gerry McNamee archivist at the Down and Connor Diocesan Library (located, appropriately enough, in St Malachy's College) for providing access to these books.

¹⁴ James O'Laverty, *The Bishops of Down and Connor*. Dublin: James Duffy & Co., 1895, p. 605.

¹⁵ *Belfast Literary Society 1801-1901*. Belfast: Linenhall Press, 1902, p. 96.

¹⁶ See, for example, 'Chemico-Agricultural Society of Ulster', *Belfast News-Letter*, 8 December 1855.

¹⁷ 'The Victoria fete', *Belfast News-Letter*, 10 September 1851. Denvir was a vice-patron of the Fete, established to commemorate the visit of Queen Victoria to Belfast in August 1849.

¹⁸ 'Annual meeting of the British Association: Third day,' *Belfast News-Letter*, 6 September 1852. The same session included a paper by Henry Hennessy, librarian at Queen's College Cork and one of the few Catholics who participated in the Belfast meeting. The (then) Catholic Frederick M'Coy, for a short period Professor of Geology and Mineralogy at Queen's College Belfast, was also involved in the meeting. M'Coy converted to Anglicanism shortly afterwards and moved to Australia in 1854. See Thomas A. Darragh, 'Frederick McCoy: the Irish years', *Victorian Naturalist* 118(5), pp. 160-164.

¹⁹ Iwan R. Morus, *Frankenstein's Children: Electricity, Exhibition and Experiment in Early-Nineteenth-Century London*, Princeton: Princeton University Press, 1998, p. 3.

²⁰ For detailed accounts of these criticisms, see Ambrose MacAuley, *Patrick Dorrian, Bishop of Down and Connor* (Dublin: Irish Academic Press, 1987), pp.26-64; 87-112 and Sean J. Connolly, 'Paul Cullen's other capital: Belfast and the devotional revolution,' in Dáire Keogh and Albert McDonnell, *Cardinal Paul Cullen and His World*. Dublin: Four Courts Press, 2011, pp. 289-307.

²¹ See Porter's criticisms of Denvir in, 'Industrial National School', *Belfast News-Letter*, 10 November 1855. Denvir's charges against the school are found in, *National School (Belfast)*, HC 1856 (88), LIII.

-
- ²² *Report of Her Majesty's Commissioners appointed to inquire into the management and government of the College of Maynooth*, HC 1854-55 (355), XXII, p. 53.
- ²³ Suspicions that Irish priests and bishops harboured at least some aspects Gallicanism was a live issue at the time. See Michael Turner, 'The French connection with Maynooth College, 1795-1855', *Studies: An Irish Quarterly Review* (1981) 70, pp. 78-87.
- ²⁴ MacAuley, *Patrick Dorrian*, pp. 87ff. See also Patrick J. Corish, 'Irish College Rome: Kirby papers', *Archivium Hibernicum* (1972) 30, p. 36.
- ²⁵ On the uneasy civic harmony in Belfast at this time, see Sean J. Connolly, "'Like an old cathedral city": Belfast welcomes Queen Victoria, August 1849', *Urban History* (2012) 39, pp. 571-589.
- ²⁶ Anon, 'The Anglo-Saxon theory', *Freeman's Journal*, 15 September 1852. McElheran's 'address' was not an official one and was not part of the proceedings of Section E (Geography and Ethnology).
- ²⁷ *Northern Whig*, 14 September 1852.
- ²⁸ We are grateful to Marianne Smith, College Librarian, Royal College of Surgeons of Edinburgh, for providing this information.
- ²⁹ In different places, Knox and McElheran refer to each other as 'friend'. See Robert Knox, 'New theory of race: Celt v. Saxon', *The Lancet* (1857) 2, p. 343, and John McElheran, 'Comparative anatomy of human crania', *New York Journal of Medicine* (1857) 2, p. 100.
- ³⁰ See Evelleen Richards, 'The "moral anatomy" of Robert Knox: the interplay between biological and social thought in Victorian scientific naturalism', *Journal of the History of Biology* (1989) 22, pp. 373-436.
- ³¹ James Hunt, 'Knox on the Celtic race', *Anthropological Review* (1868) 6, p. 186.
- ³² Hepburn, *A Past Apart*, p. 1.
- ³³ See McElheran's remarks in Anon, 'Escape of John Mitchel', *Freeman's Journal*, 24 January 1854.
- ³⁴ Hepburn, *A Past Apart*, p. 1.
- ³⁵ John McElheran, *Celt and Saxon*, Belfast: R & D Read, 1852, p. 6.
- ³⁶ On the racialism of the *Times* and 'Celtic' challenges to it, see Robert J. C. Young, *The Idea of English Ethnicity*, Oxford: Blackwell, 2008, pp. 94-139.
- ³⁷ *Times*, 9 January 1852, p. 4.
- ³⁸ 'The British Association in Belfast', *Belfast News-Letter*, 6 September 1852.
- ³⁹ 'Why is the north more prosperous than the south', *Belfast News-Letter*, 10 September 1852.
- ⁴⁰ 'Irish impudence', *Times*, 7 October 1852, p. 5.

-
- ⁴¹ ‘The Celt and the Saxon’, *Freeman’s Journal*, 8 October 1852.
- ⁴² McElheran, *Celt and Saxon*, p. 21.
- ⁴³ McElheran, *Celt and Saxon*, p. 17.
- ⁴⁴ ‘St Patrick’s Dinner in Belfast’, *Belfast News-Letter*, 21 March 1853.
- ⁴⁵ ‘Patrick’s day in Belfast’, *Belfast News-Letter*, 21 March 1853.
- ⁴⁶ Anon, ‘Prospectus’, *Ulster Journal of Archaeology* (1853) 1, no pagination.
- ⁴⁷ Arthur J. Hughes, *Robert Shipboy MacAdam(1808-1895): His Life and Gaelic proverb Collection*, Belfast: Queen’s University Institute of Irish Studies, 1998
- ⁴⁸ Charles Bell, *Essays on the Anatomy and Philosophy of Expression*, London: J. Murray, 1824, pp. 153ff. Charles Bell was Professor of Surgery at Edinburgh University when M’Elheran was a student in the city.
- ⁴⁹ John McElheran, ‘The fisherman of the Claddagh, at Galway’, *Ulster Journal of Archaeology* (1854) 2, pp. 160-167.
- ⁵⁰ For a fuller discussion of McElheran’s career, see Diarmid A. Finnegan, ‘Race, space and politics in mid-Victorian Ireland: the ethnologies of Abraham Hume and John McElheran’, *Historical Geography* 42 (2014) forthcoming.
- ⁵¹ For more on Cahill, see Diarmid A. Finnegan, ‘Daniel Willaim Cahill (1796- 1864) and the rhetorical geography of science and religion’, in Joe Kember, Jill Plunkett and John A. Sullivan (eds.), *Popular Exhibitions, Science and Showmanship, 1840–1910*, London: Pickering & Chatto, 2012, pp. 97-114.
- ⁵² ‘Dr. Cahill’s lectures’, *Belfast News-Letter*, 5 February 1855.
- ⁵³ ‘Dr. Cahill’s Scientific Lectures’, *Banner of Ulster*, 8 February 1855; ‘The Rev. Dr. Cahill’, *Belfast News-Letter*, 15 April 1856.
- ⁵⁴ ‘Dr Cahill’s lectures in Belfast’, *Belfast News-Letter*, 19 February 1855.
- ⁵⁵ ‘The Rev. Dr. Cahill’, *Belfast News-Letter*, 15 April 1856.
- ⁵⁶ ‘Dr Cahill’s Scientific Attainments’, *Belfast News-Letter*, 16 April 1856.
- ⁵⁷ ‘Doctor Cahill Challenged’, *Belfast News-Letter*, 24 April 1856.
- ⁵⁸ ‘The Rev. William M’Ilwaine and Dr. Cahill’, *Belfast News-Letter*, 3 May 1856.
- ⁵⁹ ‘Challenge to the Rev. Dr. Cahill’, *Banner of Ulster*, 26 April 1856.
- ⁶⁰ ‘Dr. Cahill’s Lectures’, *Ulsterman*, 18 April 1856; ‘Challenge and its Answer’, *Ulsterman*, 25 April 1856. If audience figures cannot now be recovered it is safe to assume that Cahill attracted large crowds, as he did

elsewhere. Cahill's remarkable popularity can be taken as one indication that there was a widespread appetite among educated Irish Catholics for science. For further discussion, see Finnegan, 'Daniel William Cahill'.

⁶¹ 'The Working Classes Association', *Belfast News-Letter*, 30 January 1858. This was the last notice in the paper of the Association's activities. Three weeks later the Association's name was changed to the 'People's Reading Room', *Belfast News-Letter*, 20 February 1858.

⁶² 'Mr J. F. Maguire, MP in Belfast', *Belfast News-Letter*, 2 February 1858.

⁶³ 'The destiny of the Irish nation', *Freeman's Journal*, 16 January 1864.

⁶⁴ For a detailed account of the Institute, see MacAuley, *Dorrian*, pp. 140-152.

⁶⁵ *Belfast News-Letter*, 12 October 1858.

⁶⁶ 'Roman Catholic Institute Association', *Belfast News-Letter*, 14 July 1859.

⁶⁷ MacAuley, *Dorrian*, p. 150.

⁶⁸ See David N. Livingstone, 'Darwin in Belfast: the evolution debate', in John W. Foster (ed.) *Nature in Ireland*, Dublin: Lilliput Press, 1997, pp. 403-405. For Presbyterian reaction, and its intellectual lineages, see Andrew R. Holmes, 'Presbyterians and science in the north of Ireland before 1874', *British Journal for the History of Science* (2008) 41, pp. 541-565. On the response among the Roman Catholic hierarchy in Ireland, see Don O'Leary, *Roman Catholicism and Modern Science: A History*, New York: Continuum, 2006, pp. 31-39. For commentary beyond Ireland, see Bernard Lightman, 'Scientists as materialists in the periodical press: Tyndall's Belfast address', in Geoffrey Cantor and Sally Shuttleworth (eds.) *Science Serialized: Representations of the Sciences in Nineteenth-Century Periodicals*. Cambridge, Massachusetts: M.I.T. Press, 2004, pp. 199-237.

⁶⁹ *Belfast Morning News*, 20 August 1874.

⁷⁰ *Ulster Examiner*, 15 August 1874.

⁷¹ 'The "Belfast Guide" and the Roman Catholics', *Belfast News-Letter*, 26 August 1874.

⁷² *Ulster Examiner*, 20 August, 1874.

⁷³ See footnote 80 below.

⁷⁴ It was not in the interests of those wishing to support Belfast's town council and leading civic institutions to openly criticise the President of the British Association.

⁷⁵ *Belfast Morning News*, 20 August 1874.

⁷⁶ *Belfast Morning News*, 21 August 1874.

⁷⁷ It was widely acknowledged that the Association, through discussions in the economic section, had played a part in resolving the dispute.

⁷⁸ *Ulster Examiner*, 21 August 1874.

⁷⁹ *Ulster Examiner*, 24 August 1874.

⁸⁰ Ruth Barton has argued that Tyndall's metaphysics is best described as a form of 'lower pantheism'. R. Barton, John Tyndall, Pantheist: A Rereading of the Belfast Address, *Osiris* (1987) 3, pp. 111-134. We are interested here, however, in how Tyndall was interpreted by Catholic commentators.

⁸¹ *Ulster Examiner*, 27 August 1874.

⁸² See, for example, 'Belfast Presbytery', *Belfast News-Letter*, 3 September 1874. See also, Robert Watts, 'On the hypothesis that animals are automaton', in *Problems of Faith*, London: Hodder and Stoughton, 1875, pp. 57-133.

⁸³ *Ulster Examiner*, 27 August 1874.

⁸⁴ *Ulster Examiner*, 29 August 1874.

⁸⁵ *Ulster Examiner*, 16 September 1874.

⁸⁶ *Ulster Examiner*, 8 December 1874.

⁸⁷ On the pastoral address, see O'Leary, *Irish Catholicism and Science*, pp. 28-32.

⁸⁸ Cuming is listed among the founding directors of the Catholic Institute. See Jack Magee, *Bernard Hughes of Belfast, 1808-1878*, Belfast: Ulster Historical Foundation, 2001, pp. 131ff.

⁸⁹ Although he was enrolled at St Malachy's, Harkin took the anatomy and physiology exams at the Royal Belfast Academical Institution. See *Quarterly Journal of Education* (1835) 10 p. 200. For further details of his training and career, see *British Medical Journal*, 18 March 1882, p. 407.

⁹⁰ Jack Magee, 'Anatomy of a Belfast surgeon: Sir Peter Reilly O'Connell (1860-1927)', *Breifne*, 41 (2005), pp. 20-58.

⁹¹ Using the 1901 Census of Ireland, available online at <http://www.census.nationalarchives.ie/search/>, it is possible to identify the denominational affiliations of the Club's members.

⁹² *Ulster Examiner*, 2 July 1874.

⁹³ *Twenty-ninth Report of the Science and Art Department of the Committee of Council on Education*, HC, 1882, (3271), XXVI, p. 192. More needs to be done to determine the level of science teaching in Catholic schools and seminaries during the nineteenth century.

⁹⁴ *Royal Commission on University Education in Ireland. Appendix to Third Report*, HC, 1902, (1229), XXXII, p. 91.

⁹⁵ We have not considered Catholic participation in Queen's College, Belfast here in any detail largely because of our concern with science and civic culture outside the confines of state-administered institutions and because of our desire to look beyond national-level debates about education. On Queen's College, Belfast and science, see Juliana Adelman, *Communities of Science in Nineteenth-Century Ireland*, London: Pickering and Chatto, 2009.

⁹⁶ *Royal Commission, Appendix*, pp. 96-98.

⁹⁷ 'Our invisible friends and foes', *Belfast News-Letter*, 22 January 1890.

⁹⁸ 'Great Unionist demonstration', *Belfast News-Letter*, 29 January 1890. On the anti-home rule politics of leading Irish scientists in this and a later period, see Greta Jones, 'Scientists against home rule', in D. George Boyce and Alan O'Day (eds.), *Defenders of the Union*. London: Routledge, 2002, pp. 188-208.

⁹⁹ *Belfast Morning News*, 29 January 1890

¹⁰⁰ *Belfast Morning News*, 30 January 1890. It was, in fact, Thomas Henry Huxley who had referred to his Protestant detractors 'pigmies'.

¹⁰¹ *Northern Whig*, 2 January 1890.

¹⁰² See Livingstone, 'Darwin in Belfast', pp. 403-405.

¹⁰³ For one interesting example, see Ciaran Toal, 'Protestants, Catholics and Masonic Conspiracies: the British Association in Montreal', *Isis* forthcoming.