

Ian B. Stewart

E.E. Fournier d'Albe's *Fin de siècle*: Science, nationalism and monistic philosophy in Britain and Ireland

**Article (Accepted version)
(Refereed)**

Original citation:

Stewart, Ian B. (2017). E.E. Fournier d'Albe's *Fin de siècle: Science, nationalism and monistic philosophy in Britain and Ireland* [Cultural and Social History](#). pp 1-22. ISSN 1478-0038

DOI: [10.1080/14780038.2017.1375721](https://doi.org/10.1080/14780038.2017.1375721)

© 2017 [Taylor & Francis](#)

This version available at: <http://eprints.lse.ac.uk/84274/>

Available in LSE Research Online: September 2017

LSE has developed LSE Research Online so that users may access research output of the School. Copyright © and Moral Rights for the papers on this site are retained by the individual authors and/or other copyright owners. Users may download and/or print one copy of any article(s) in LSE Research Online to facilitate their private study or for non-commercial research. You may not engage in further distribution of the material or use it for any profit-making activities or any commercial gain. You may freely distribute the URL (<http://eprints.lse.ac.uk>) of the LSE Research Online website.

This document is the author's final accepted version of the journal article. There may be differences between this version and the published version. You are advised to consult the publisher's version if you wish to cite from it.

*E.E. Fournier d'Albe's Fin de siècle: Science, Nationalism and Monistic
Philosophy in Britain and Ireland**

Ian B. Stewart

The aim of this article is to reconstruct the intellectual biography of the English physicist Edmund Edward Fournier d'Albe (1868-1933) in order to shed new light on disparate aspects of the British *fin de siècle*. Recent work has emphasised the multiplicity of contexts in which individuals operated and ideas existed, rather than seeking to explain the era through one overarching theme or mentality, such as progress or degeneration.¹ For example, in his exploration of the invention of telepathy, Roger Luckhurst stressed the cross-fertilisation of ideas in different knowledge contexts as a notable feature of *fin-de-siècle* intellectual culture, where interest in telepathy meant it became a site of knowledge exchange for a diverse range of individuals; his study therefore places equal weight on telepathy's development and its contexts, revealing previously unseen connections in *fin-de-siècle* networks and cultures.² This article takes the rather more traditional approach of examining the life of one individual. It shows how, in a period of perceived societal fragmentation, Fournier pulled together seemingly incongruent intellectual, cultural, and spiritual strands from different national backgrounds in the construction of a scientifically rooted monistic philosophy that shaped his life and various achievements, and impacted the different settings in which he lived and worked. Following Fournier

*I would like to thank Heather Jones, Paul Readman, Olivia Ghosh, Christian Melby, Michael Rupp, and the anonymous reviewers for comments on earlier drafts of the article. I would also like to thank the Modern British History Seminar at the IHR and the Modern British History Reading Group at KCL for allowing me to present some of these ideas. Finally, I would like to express my sincere gratitude to Christine Fournier d'Albe for allowing me to access E.E. Fournier d'Albe's papers and quote from them in this article.

¹ Contextual multiplicity has been stressed most obviously in edited collections, e.g., Mikuláš Teich and Roy Porter (eds.), *Fin de siècle and its Legacy* (Cambridge, 1990); Sally Ledger and Scott McCracken (eds.), *Cultural Politics at the Fin de Siècle* (Cambridge, 1995); Sally Ledger and Roger Luckhurst (eds.), *The Fin-de-Siècle: A Reader in Cultural History, c.1880-1900* (Oxford, 2000); Michael Saler (ed.), *The Fin-de-Siècle World* (London, 2015).

² Roger Luckhurst, *The Invention of Telepathy, 1870-1901* (Oxford, 2002), 3-4.

through different intellectual, cultural, and national contexts serves as a reminder that while certain settings undoubtedly helped to give ideas a particular shape, individuals themselves nevertheless played the key role in the cross-pollination of ideas.

Born in England, Fournier was schooled in Germany and spent the first third of his adult life in Ireland. He was a trained physicist but operated across a number of spheres until he was paralysed in 1927. His most lasting achievement was a hierarchical theory of the universe, an early version of the theory of a multiverse, later adapted by the mathematician Benoît Mandelbrot (1924-2010) into his revolutionary idea of fractals.³ Still cited, though critiqued heavily, Fournier's theory earned him a place next to Immanuel Kant (1724-1804), Johann Heinrich Lambert (1728-1777), and Thomas Wright (1711-1786) in the early annals of astrophysics.⁴ Fournier himself was most proud of an invention, the 'optophone', a reading device for the blind that converted text into sound.⁵ He also played a significant role in other fields: as a scientific journalist and populariser, as the leader of the Pan-Celtic movement from 1898 to 1909, and as a devoted psychical researcher from 1907 through the early 1920s. Though a scientific rationalist *par excellence* who rejected traditional religion, Fournier was disdainful of what he perceived to be the dualism inherent in scientific naturalism, and was attracted instead to totalising philosophies – such as Herbert Spencer's (1820-1903) 'synthetic philosophy' – which in one package could explain the phenomena of life, humanity's place in the universe, and its future.

³ E.E. Fournier d'Albe, *Two New Worlds: I. The infra-world II. The supra-world* (London, 1907); Benoît Mandelbrot, *The Fractal Geometry of Nature* (San Francisco, 1977), 84-6, 396.

⁴ John Barrow, *The Book of Universes* (London, 2012), 87; Rudy Rucker, *Infinity and the Mind: The Science and Philosophy of the Infinite* (Princeton, 1982), 139.

⁵ Fournier described the optophone on display at South Kensington Museum as 'my monument', (underlined in letter) Fournier to Castletown, 27 December 1923, National Library of Ireland, Lord Castletown Papers (hereafter, 'NLI, LCP'), MS 35,305 (7).

Fournier makes cameo appearances in histories of science, spiritualism, and Ireland.⁶ His work was appreciated by figures as diverse as Patrick Pearse (1879-1916), Harry Houdini (1874-1926), and H.G. Wells (1866-1946), yet there has been little concentrated scholarly attention on it or his life in general, though he left behind a significant corpus of material, including eleven authored books.⁷ I have also recently located his archive and examined the several hundred letters and personal ephemera contained therein.⁸ A complete picture of Fournier can now be painted, instead of the previous fragmentary approach, where bits and pieces of his *oeuvre* were chiselled off and scrutinised in the context of whichever discipline to which they are now deemed to apply.

Central to his life was a remarkably consistent scientific monism that urged the unity of mind and matter, as opposed to the materialist view of Victorian scientific naturalists. Fournier's philosophy sheds light on virtually all of his various activities and will be outlined in the first section; the subsequent sections will reveal how this philosophy manifested itself in different yet recognisable guises throughout his life, and will situate Fournier in the fields involved. This approach cuts against certain prominent, if tired, historiographical narratives and fleshes out some areas neglected by scholarship. For example, Fournier's Dublin-based Pan-Celticism adds a crucial

⁶ For Fournier's appearances in the history of science see, e.g., Richard Noakes, 'The "World of the infinitely little": connecting physical and psychical realities circa 1900', *Studies in the History of the Philosophy of Science* 39 (2008), 323-34; Peter J. Bowler, *Science for All: The Popularization of Science in Early Twentieth-Century Britain* (Chicago, 2009), 179. For spiritualism see, e.g., Janet Oppenheim, *The Other World: Spiritualism and psychical research in England, 1850-1914* (Cambridge, 1985), 326, 338. For Irish studies see, e.g., Philip O'Leary, *The Prose Literature of the Gaelic Revival, 1881-1921* (University Park, PA., 1994), 380, in this otherwise excellent study Fournier is misidentified as a Breton.

⁷ A short chapter on Fournier gives a Freudian account of his Pan-Celticism, but fails to account for the motivations that underpinned his diverse interests, see K. Nagai, ' "Tis optophone which ontophanes": race, the modern and Irish revivalism', in Len Platt (ed.), *Modernism and Race* (Cambridge, 2011), 58-76.

⁸ The archive resides with Ms. Christine Fournier d'Albe in the southwest of France; it will be cited throughout as 'Fournier d'Albe Papers'.

layer to our understanding of Irish nationalism and its place in the *fin de siècle*. Celticism has generally either been associated with an anti-modern ‘Celtic Twilight’ propelled by W.B. Yeats (1865-1939), or an exclusivist, historically oriented Gaelic nationalism, associated most commonly with Patrick Pearse.⁹ Yet Fournier’s cosmopolitan Pan-Celticism – in which both Yeats and Pearse participated at points – was based on ‘racial cooperation...national specialisation’ and ‘scientific progress’, and provides a substantial qualification to views of cultural movements in the ‘Celtic fringe’, and particularly Ireland, as simply parochial and anti-modern during this time.

Approaching Fournier through an intellectual biography also adds a new layer in the developing study of monism itself. As Todd Weir has pointed out in a recent edited volume, monism is a fruitful area of investigation for the ways in which ‘natural science spilled over into religion, philosophy, politics, and culture’ in the late nineteenth-century.¹⁰ But while there exist good studies of the German biologist Ernst Haeckel (1837-1919) and his Monist League, there is scope for further study of the subject elsewhere, particularly in Britain, where Peter Bowler has drawn attention to some of the British monists, but misses out Fournier.¹¹ Fournier bolsters Weir’s argument that Monism is best understood as a totalising ‘worldview’ (*Weltanschauung*)¹²: the article shows that although Fournier’s interests changed over time, his philosophy remained totally consistent, even in the face of events like the Great War, the Easter Rising of 1916, or the personal hardship of paralysis.

⁹ See, e.g., Murray Pittock and Isla Jack, ‘Patrick Geddes and the Celtic Revival’, in Ian Brown, Susan Manning, Thomas Owen Clancy and Murray Pittock (eds.), *The Edinburgh History of Scottish Literature* (3 vols., Edinburgh, 2007), II, 338-346; Ruth Dudley Edwards, *Patrick Pearse: The Triumph of Failure* (New York, 1977); D. George Boyce, *Nationalism in Ireland* (London, 1982).

¹⁰ Todd Weir, ‘The Riddles of Monism: An Introductory Essay’, in idem (ed.), *Monism: Science, Philosophy, Religion, and the History of a Worldview* (Basingstoke, 2012), 3.

¹¹ Peter J. Bowler, ‘Monism in Britain: Biologists and the Rationalist Press Association’, in Weir, *Monism*, 179-196.

¹² Weir, ‘Riddles’, 4-14.

Relentlessly optimistic, this monism shaped all areas of his interest: the Celtic nations would be joined in a Pan-Celtic Empire; the disparate branches of science would coalesce and recognise the validity of psychology and psychical phenomena; and technological progress would be married with spiritual metaphysics in his inventions.

I

Fournier was born in Bloomsbury in 1868, to a German *émigré* and his English wife. Of Huguenot descent, the family had settled in Prussia following the revocation of the Edict of Nantes in 1685, but there was some family lore about being related to the Duke of Alba and Christopher Columbus.¹³ Fournier's brother Sidney – a Fabian trade-unionist who helped found the New Zealand Communist Party – was born in 1872, a year before their mother passed away. The boys were orphaned in 1874 on the death of their father, though his wish for them to have a 'more thorough and practical' German education was fulfilled by their attendance of the *Königliches Gymnasium*, Düsseldorf.¹⁴ This education was absolutely crucial for Fournier's developing worldview as the school was based around the German pedagogical concept of *Neuhumanismus*, or the idea that the modern fragmentation of man could be most effectively counteracted by a humanist education through the integrating, universal structures of the classical languages, which held together an individual's *Bildung*, or inner and outer unity.¹⁵ His German education therefore not only developed Fournier's linguistic skills – essential to his Pan-Celticism and journalistic career – but laid the foundation for his universalising monistic philosophy.

¹³ Fournier to Castletown, 16 April 1908, NLI, LCP, MS 35,305 (7).

¹⁴ 'At one-tenth the cost of an English public school!' Fournier later gloated (*The Observer*, June 26, 1927); Fournier to Castletown, 16 April 1908, MS 35,305 (7), LCP, NLI.

¹⁵ Bas Van Bommel, *Classical Humanism and the Challenge of Modernity: Debates on Classical Education in 19th-century Germany* (Berlin, 2015).

Upon his return to England, Fournier sat exams in Mental and Moral Science, Chemistry, and Experimental Physics, at the Royal College of Science in London, graduating in 1891.¹⁶ He worked intermittently at Sir Norman Lockyer's (1836-1920) observatory in South Kensington and found journalistic work, compiling columns for the Physical Society, *The Electrician*, and *The Practical Teacher*, wherein he used his linguistic skills to aggregate news of relevant developments from across Europe.¹⁷ In the early 1890s he moved to Dublin, where he worked in the laboratories of the Royal College of Science and Trinity College under the physicists George Francis Fitzgerald (1851-1901) and William Fletcher Barrett (1844-1925).¹⁸

Fournier's rootless early life clearly influenced his approach to systems of thought. The period of his youth in Germany was characterised by the perceived fracturing of universalism in German *Kultur* – a setting described as an 'anarchy of values' by the Protestant historian Ernst Troeltsch (1865-1933).¹⁹ Fournier's *Neuhumanismus* education clearly stuck, as he was mindful of such trends but not taken in by them. In the early 1900s he criticised relativism and certain authors as 'Nietsche mad', a 'disease' causing an author to lack 'full possession of his mental faculties'.²⁰ The Dublin to which Fournier moved in his early twenties was also riven by cultural relativism, compounded by the loss of political momentum in the wake of the leader of the Irish Parliamentary Party, Charles Stewart Parnell's (1846-1891), disgrace and death. Undoubtedly, the perception of fragmentation prefigured his tendency towards the totalising ideas of figures like Spencer and Haeckel, striving for a stabilising

¹⁶ *University of London: The Historical Record (1836-1912)* (London, 1912), 376, 478, 487.

¹⁷ 'Dr. EE Fournier D'Albe Obituary', *Nature* 132 (22 July 1933), 125.

¹⁸ E.E. Fournier d'Albe to George F. Fitzgerald, 2 September 1896, Royal Dublin Society, George Francis Fitzgerald Letters 7/80.

¹⁹ Peter Ghosh, *Max Weber and the Protestant Ethic: Twin Histories* (Oxford, 2014), 277-91.

²⁰ *Celtia I* (1901), 78.

unity. Herbert Spencer popularised his idea of evolution before Charles Darwin's (1809-1882) *On the Origin of Species* (1859), and constructed his entire philosophy around the concept (like Haeckel).²¹ It was this systems-building that Fournier admired most, writing that '[Spencer] took up a word that was in everybody's mouth, and moulded it, first into an idea, and finally into a philosophic system'.²² As will be seen below, he adopted Spencer's ideas on complex systems as applicable to modern society, which progressed from an 'incoherent homogeneity...toward a definite, coherent heterogeneity', where all parts were dependent upon each other for the good of the whole.²³

'Scientific monism' as a philosophical system was popular among a group of German scientists at the *fin de siècle*, foremost among whom was Haeckel, Darwin's leading German devotee.²⁴ Haeckel posited that there was an essential unity of inorganic and organic matter, that mind and matter were inseparable, but that science had shown all of this to be explainable in terms of mechanics and natural laws, or materialism.²⁵ Fournier was himself an evolutionist (though not a 'social Darwinist'), but he criticised Haeckel's materialism – a *bête noire* for his entire life – as a 'radical evil of modern philosophies'.²⁶ Haeckel freely admitted his materialist view, believing that 'the [spiritual] is only part of the [natural]...Our monistic view of the world belongs...to that group of philosophical systems...designated also as mechanical'.²⁷ For Fournier any system that subsumed the spiritual under a materialist view had to

²¹ The two were often equated and still are, see e.g., Oliver Lodge, 'Mind and Matter: A criticism of Professor Haeckel's Solution of the Universe' (Birmingham, 1904), 15.

²² E.E. Fournier d'Albe, 'A Plea for an Organic Philosophy', *Humanitarian* 3 (1893), 219.

²³ Herbert Spencer, *The Principles of Sociology* (3 vols., New York, 1898), I, 434.

²⁴ Robert J. Richard, *The Tragic Sense of Life: Ernst Haeckel and the Struggle over Evolutionary Thought* (Chicago, 2008), 8-9.

²⁵ David H. Degroot, *Haeckel's Theory of the Unity of Nature* (Amsterdam, 1982), 16.

²⁶ E.E. Fournier d'Albe, *New Light on Immortality* (London, 1908), 96, 321.

²⁷ Ernest Haeckel, J. Gilchrist (trans.), *Monism as connecting Religion and Science: The Confession of Faith of a Man of Science* (London, 1903), 4.

‘give way before any kind of consistent monism’.²⁸ As Bowler points out, most British monists subscribed to some sort of materialism; Fournier was therefore atypical in his obstinacy to anything overtly materialist. This might help to explain why he did not engage with Joseph McCabe (1867-1955) – Haeckel’s semi-official English mouthpiece – who nevertheless positively cited Fournier’s work on electrons and spiritualism.²⁹ In his essay, Bowler struggles to find British scientists who used monism by name, though he notes that there were those who ‘regarded monism as a key feature of the emerging scientific attitude to the world’.³⁰ Fournier therefore stands out as a British scientist who was not only aware of the key German developments in monism, but as someone who actually used the term, and conceived of it not as *a* key feature of a scientific attitude, but *the* key feature to a scientific understanding of the world.

Though he did not refer to it by name (in the available evidence) until 1908, Fournier’s earliest ideas were obviously expressed in monistic terms. In the American suffragette Victoria Woodhull-Martin’s (1838-1927) *Humanitarian* magazine, he made his ‘Plea for an Organic Philosophy’ at the precocious age of twenty-five.³¹ This three-page exhortation is no less than a blueprint for his later interests and work, encapsulating ideas and beliefs to which he adhered for the rest of his life. It opens with a recognition of Spencer’s originality in trying to find a ‘consistent theory’, but comes quickly to the crux of Fournier’s interest: whether it is ‘possible...to find, not only the mechanism of life, but its place and *meaning* in the Universe?’³² His answer essentially boiled down to a qualified yes, but first science would have to abandon

²⁸ Fournier d’Albe, *New Light*, 97.

²⁹ Joseph McCabe, *Spiritualism: A Popular History from 1847* (New York, 1847), 226.

³⁰ Bowler, ‘Monism in Britain’, 179.

³¹ Fournier, ‘Organic Philosophy’, 219-22.

³² [original emphasis] *Ibid.*, 219.

materialism, as organic matter could not be understood in terms of mechanical laws and ‘dead matter’: ‘germ plasma and inherited tendencies...no more constitute life than the strings of a violin constitute music’ (references to August Weismann [1834-1917] and Spencer, respectively).³³ Instead, Fournier thought there was a spiritual aspect to life that animated the soul:

Over and above the living organism there is *that* which keeps it going, maintains its laws, struggles for its advancement by adapting itself to surrounding conditions...a Soul, bearing the stamp of immateriality and possibly of immortality.³⁴

The idea of the existence of a soul is crucial and appears in most of his work. In this he was completely typical as virtually every *fin-de-siècle* thinker had some conception of it, from Haeckel’s material-monistic ‘world-soul’ to Oliver Lodge’s liberal-Christian, spiritual soul.³⁵ However, Fournier was atypical in positing the *physical* existence of the soul, composed of particles he called ‘psychomeres’ (discussed further below).³⁶ He finished his plea along these lines, with the declaration that it was this ‘view of the world as an organism, the great body of a greater soul, which must deliver our philosophy from the dreary depths of dead matter, of mechanical law, and of inevitable fate’.³⁷ Fournier retained this optimistic belief his entire life, reiterating these views a few years before his death, in a reply to Arthur Keith’s (1866-1955) controversial materialist address to the British Association in 1927.³⁸

Rather than Haeckel’s philosophy, Fournier’s monism resembled more closely that of the German Nobel Prize winning chemist Wilhelm Ostwald (1853-1932), who took

³³ Ibid., pp. 219-20.

³⁴ [original emphasis] Ibid., p. 220.

³⁵ For Haeckel see his *Monism*; for Lodge see *Immortality and the Soul* (London, 1908); for Harrison see his essay in *A Modern Symposium: The Soul and Future Life* (Detroit, 1878).

³⁶ See Fournier, *New Light on Immortality*.

³⁷ Fournier, ‘Organic Philosophy’, p. 221.

³⁸ *Manchester Evening News*, 7 January 1929.

over as President of the Monist League in 1911. His monism moved away from Haeckel's scientific naturalism to a philosophy where the universe was explainable purely in terms of energy – termed 'energetics'.³⁹ He and Fournier had a mutual friend in the physical chemist William Ramsay (1852-1916), Professor at University College London and the winner of the 1904 Nobel Prize in Chemistry, who discussed Ostwald with Fournier.⁴⁰ The trio clearly drew at the same well of scientific thought, sharing the view that science should permeate society and provide the basis of organisation for nations and the wider world. They also shared interests in spiritualism and supported the use of an international artificial language in the construction of a global society, but Ostwald preferred Ido to Fournier's Esperanto.⁴¹ In 1913, Fournier reviewed Ostwald's latest work in *Nature*, praising his philosophy and lauding his 'spiritual' ideas about the identity of energy and matter as the 'foundation of a system of ethics'.⁴² As Bowler has pointed out,⁴³ monism of any variety was exceptionally rare among British thinkers at this time; Oliver Lodge (1851-1940) and Alfred Russel Wallace (1823-1913) both went out of their way to criticise it as a doctrine.⁴⁴ In so far as it existed, monism tended to overlap with 'idealism' – the dominant philosophical idea during the period, associated with Cambridge and more traditional Christian religious beliefs.⁴⁵ Yet while Fournier disdained Haeckel's materialism, he was also an ardent secularist and avoided idealism; he must therefore be added to the handful of British scientists who

³⁹ Weir, 'Riddles', 6-7.

⁴⁰ William Ramsay to Fournier d'Albe, 13 November 1911, London, in Fournier d'Albe Papers.

⁴¹ Weir, 'Riddles', 7.

⁴² E.E. Fournier d'Albe, review of Wilhelm Ostwald's *Der energetische Imperativ* in *Nature* 91 (1913), 27-8.

⁴³ Bowler, 'Monism in Britain', 179.

⁴⁴ Oliver Lodge, *Life and Matter; A criticism of Professor Haeckel's "Riddle of the Universe"* (London, 1905); Alfred Russel Wallace, *The World of Life: A Manifestation of Creative Power, Directive Mind and Ultimate Purpose* (London, 1910), 4-6.

⁴⁵ Sandra Den Otter, *British Idealism and Social Explanation: A Study in Late Victorian Thought* (Oxford, 1996).

approached their ideas in terms of a genuine monism. He used the word explicitly in the most important work for understanding his thought, *New Light on Immortality* (1908), where he stated that his philosophy, ‘abolishes the dualism of mind and matter, putting in its place what might be called a spiritual monism’.⁴⁶

Scientific optimism underpinned Fournier’s monism, cutting against the prominent characterisation of the era as one of despair or at least ambivalence, perhaps most famously as an ‘interregnum’ by Raymond Williams (1921-1988), before the cultural pessimism exploded during the Great War into a subsequent loss of societal confidence.⁴⁷ Instead, Fournier, like most of his physicist contemporaries, believed in progress *because* of science, both before and after the war.⁴⁸ A seamless connection of past, present, and future as underpinned by scientific progress is discernible in the thought of Fournier and other physicist colleagues like W.H. Bragg (1862-1942) and Oliver Lodge.

Scientific optimism was obviously derived in part from the range of exciting discoveries and the revolution in quantum physics but, particularly in Fournier’s case, also because state sponsorship and the professionalization of science provided unprecedented financial and personal stability. Luckhurst has identified the three major *fin-de-siècle* scientific institutional developments – spurred by British anxiety at falling behind the French and Germans – as the development of the Royal College of Science at South Kensington, the rise of the laboratory for trained experts, and the

⁴⁶ Fournier d’Albe, *New Light*, 208.

⁴⁷ Raymond Williams, *Culture and Society, 1780-1950* (New York, 1983); see also Zygmunt Bauman, *Modernity and Ambivalence* (Cambridge, 1991).

⁴⁸ Helge Kragh, ‘The “new physics”’, in Michael Saler (ed.), *The fin-de-siècle world* (London, 2015), 441-55.

foundation of technical colleges for scientific instruction.⁴⁹ Fournier benefitted from all three of these: as a Free Studentship holder at the Royal College of Science, as an employee in the laboratories of Barrett and Lockyer, and as a lecturer at the University of Birmingham (a former technical college) from 1910 to 1914.⁵⁰ In short, Fournier's career was almost entirely made possible by the increasing state sponsorship of science. He and his scientific network lived in what Luckhurst calls 'Scientised Modernity': a society that was fascinated by science – where scientists could even be celebrities.⁵¹ He became somewhat of a minor scientific celebrity in the 1920s, but the important point here is that the stability he gained through scientific work allowed Fournier to craft his monism and explore different cultural outlets for it. With Fournier's philosophy and its ideological and institutional bases established, I will now turn to its manifestation in different contexts, the first of which is Pan-Celticism.

II

In Dublin, where he moved in the early 1890s, Fournier's scientific monism underpinned his construction of a new breed of nationalist movement – Pan-Celticism – that sought to unite the Celtic nations based on the 'scientific' principles of racial theory. Safely ensconced in his laboratory job at the Royal College of Science, Fournier was able to pursue Celtic revivalism on the side, mixing his scientific outlook and optimism into the Pan-Celtic philosophy of the Celtic Association. With this group Fournier laid the foundations for a cultural movement that still exists today.

⁴⁹ Luckhurst, *Invention*, 17-21. See also John Pickstone, 'Science in Nineteenth-Century England: Plural Configurations and Singular Politics', in Martin Daunt (ed.), *The Organisation of Knowledge in Victorian Britain* (Oxford, 2005), 39-40, 47-51; Frank A.J.L. James (ed.), *The Development of the Laboratory: Essays on the Place of Experiment in Industrial Civilization* (Basingstoke, 1989); James Arthur, 'The First Modern University: the University of Birmingham', *British Journal of Educational Studies* (2016), 1-18.

⁵⁰ Duncombe to Fournier d'Albe, 7 September 1889, London, in Fournier d'Albe Papers.

⁵¹ The term is Luckhurst's [Luckhurst, *Invention*, 60].

As mentioned above, *fin-de-siècle* Dublin was in the midst of social upheaval, famously described by F.S.L. Lyons as ‘anarchy in the mind and in the heart... which forbade “unity of being”’.⁵² Most nationally-minded intellectuals were involved in one of the two major varieties of Irish nationalism. The first was the political nationalism of the Irish Parliamentary Party, which sought increased sovereignty through Home Rule, but struggled in the wake of Parnell’s death. The second variety was the de-centralised cultural nationalism of the Irish revivalist groups, who inspired national pride through cultural revival, which would give the Irish the collective spiritual strength to break away from England.⁵³ The cultural nationalists, while agreeing that language revival and literature were the means to restoring Ireland’s native culture and therefore national soul, can be broken down into two broad groups: The Gaelic movement was led by the Gaelic League and championed the Irish language,⁵⁴ while the ‘Anglo-Irish’ movement operated in English with Yeats as its central figure.

Fournier fell prey to the cultural nationalist fervour and associated with figures like Patrick Pearse and Yeats, but his Pan-Celtic brainchild, the Celtic Association – all but ignored in Irish historiography – stressed the racial kinship among the disparate Celtic nations, combining the cosmopolitan outlook of the Anglo-Irish movement with the racial-linguistic line of the Gaelic movement. Although Pan-Celtic overtures had sounded from each of the major Celtic nations – Ireland, Scotland, Wales, Brittany – throughout the nineteenth century, there was still no unified movement in

⁵² F.S.L. Lyons, *Culture and Anarchy in Ireland, 1830-1939* (Oxford, 1979), 177. Roy Foster, *Vivid Faces: The Revolutionary Generation in Ireland 1890-1923* (London, 2014), endorses a moderated version of Lyons’ thesis.

⁵³ J. Hutchinson, *The Dynamics of Cultural Nationalism: The Gaelic Revival and the creation of the Irish Nation State* (London, 1987), 151-154.

⁵⁴ Timothy G. McMahon, *Grand Opportunity: The Gaelic Revival and Irish Society, 1893-1910* (Syracuse, 2008).

the 1890s. Following a trip to a Welsh *Eisteddfod*, Fournier became interested in holding a Pan-Celtic Congress that would reconcile the various national linguistic and cultural movements – a unifying desire obviously in harmony with his monism. The Congressional committee quickly turned into an organisation unto itself, as Fournier recruited a Gaelic noble with deep pockets – Bernard Fitzpatrick, Lord Castletown (1848-1947) – to serve as President, holding the inaugural meeting in October of 1900.⁵⁵ Composed of some of the foremost Anglo-Irish figures – Yeats, Lady Gregory (1852-1932), Æ (1867-1935) – the Celtic Association’s main goal was native language revival, like the Gaelic League, and it attracted Pearse and Douglas Hyde (1860-1949) before a row within the Gaelic movement forced them to disassociate from Pan-Celticism, due to its more cosmopolitan aims.⁵⁶ In 1901 Fournier founded and edited the Celtic Association journal, *Celtia*, declaring it would be ‘the organ of militant Celticism, directed mainly against the deadening and demoralising influences of modern Anglo-Saxondom, and working to raise the self-respect and strengthen the cohesion of the Celtic race’.⁵⁷

Although he did not subscribe to the same sort of exclusionary racialism as Haeckel, Fournier nevertheless believed in the reality of racial differences, particularly common in continental, especially German, thought. His knowledge of European nationalist movements – specifically the Pan-German movement of which Haeckel was a promoter – inspired his construction of Pan-Celticism, which he combined with a Spencerian commitment to specialisation that benefitted the social whole: ‘There can be little doubt that the root idea of the Pan-Celtic movement – viz., racial

⁵⁵ Celtic Association Circular, 12 October 1900.

⁵⁶ Edwards, *Patrick Pearse*, 31-5.

⁵⁷ *Celtia* I (1901), 15.

cooperation and national specialisation, will be one of the guiding principles in the evolution of future civilisation'.⁵⁸

Unlike most cultural nationalisms, which drew on shared history and culture,⁵⁹ Pan-Celticism was a futurist movement, appealing to history only insofar as the modern racial sciences of philology and ethnology pointed to a pre-historical past when the Celtic race was still united. The inaugural issue of *Celtia* opened with the declaration that the dawn of the twentieth century saw the Celtic '...racial instinct asserting itself in manifold forms',⁶⁰ and that language rejuvenation was the best way of regenerating the Celtic race, which '...when unified...will exert a great influence in the advancement of mankind'.⁶¹ Fournier's monism philosophy merged with more common views of Celticism as he praised the Celtic race for its sensitivity to nature, writing that the Celt was 'so intimately related to the physical elements seen and felt in daily life...which impress the mind with the *close relationship between physical law and spiritual life*'.⁶² For Fournier, the Celtic race seemed to have a natural immunity to materialism, with 'no limit to the mystic and the imaginative'.⁶³

Imperialism precluded an equitable international order. More specifically in this context, *Sassenach* cultural imperialism stymied Celtic national spirit by suppressing native languages: 'The forcible extinction of the language of a conquered people...is the strict equivalent in the world of nations of "murder" in the world of individuals'.⁶⁴

To the threat posed by alien civilisations – read England and France – Fournier

⁵⁸ *Celtia* II (1902), 162-3.

⁵⁹ Boyce, *Nationalism in Ireland*, 15-20; Hutchinson, *Dynamicsm*, *ibid.*

⁶⁰ *Celtia* I (1901), 1.

⁶¹ *Celtia* I (1901), 15.

⁶² [emphasis added] *Celtia*, I (1901), 195.

⁶³ *Celtia* I (1901), 195.

⁶⁴ *Celtia* I (1901), 17.

threatened violence, writing that cultural hegemony would find its ‘automatic antidote’ in the ‘natural law’ of ‘rivalry and war of existing species’.⁶⁵ Spencer’s ‘survival of the fittest’ paradigm was therefore recognised but, like Spencer, Fournier thought that individual liberty was still possible: ‘A strong individual may deprive a weaker one of his possessions...In the life of nations the same thing happens’, but the goal was to ‘replace the doctrine of the Superior Race by that of the Liberty of the Subject Nation’.⁶⁶

Internationalism was the answer to imperialism. In ‘Pan-Celticism and Progress’, Fournier called for a Celtic federation to join other countries in a ‘league of small nations’.⁶⁷ Unlike some contemporary British commentators who argued for a ‘Greater Britain’ based on Anglo-Saxonism,⁶⁸ *anti-imperialism* was the *raison d’être* of this confederation. In Spencerian terms, Fournier proclaimed: ‘Society has been decentralised, “individualised” so to speak, and the fullest liberty is secured to the individual, which is consistent with the safety and liberty of the whole social organism’.⁶⁹ But imperial powers forbade this extension of liberty to the realm of international relations, which were effectively governed by a ‘feudal’ imperial system. He predicted that would soon change: ‘the present century will be the century of the Small Nations, the century in which the principles of justice already secured for individuals will be extended so as to include whole nations’.⁷⁰

⁶⁵ *Celtia* II (1902), 162-3.

⁶⁶ *Celtia* i (1901), 17.

⁶⁷ *Celtia* ii (1902), 99.

⁶⁸ Duncan Bell, *The Idea of Greater Britain: Empire and the Future of World Order, 1860-1900* (Princeton, 2007), 114-115, 235.

⁶⁹ *Celtia* ii (1902), 98.

⁷⁰ *Celtia* ii (1902), 98.

Like monism, Scientific progress underpinned Fournier's Pan-Celticism. The advent of airpower would, in Fournier's opinion, ensure his international democracy of nations. With '...the impending conquest of the air...the Empire which is largest will be the most vulnerable [to bombing], and the richest city will be the easiest prey...Therefore, there will have to be decentralisation or death'.⁷¹ True to his ideals, Fournier ignored the material realities of his predictions, including the fact that the imperial powers also had the greatest manufacturing capacities and technological capabilities, but he was adamant that 'future scientific progress will only accelerate our own'.⁷² His Federation of Small Nations, composed of the 'Celtic federation' as well as 'Central and south America, [the] Balkans, Sweden, Norway, Holland, Denmark, Belgium, Portugal and Greece...would soon become itself the greatest Power in the world'.⁷³ This 'Hansa of small nations' would be united in communication by the international language Esperanto.⁷⁴ Fournier had written in the inaugural *Celtia* that, 'pending the evolution of some Celtic *lingua franca*,' English would be used as 'our chief weapon of war and instrument of propaganda',⁷⁵ but Esperanto was as close to a *lingua franca* as he could get. In this direction *Celtia* frequently featured Esperanto lessons, and in 1907 Fournier co-founded the Irish Esperanto Association with, among others, the future revolutionary Joseph Plunkett (1887-1916).⁷⁶ But Fournier's scientific internationalism seems to have been based more on science fiction than any internationalist ideology, let alone the situation in the Celtic countries.⁷⁷ Citing his work *Around the Moon* (1870), Fournier described Jules Verne (1828-1905) as an example of the 'Franco-Breton' genius, and it seems likely

⁷¹ *Celtia* ii (1902), 162-3.

⁷² *Celtia* ii (1902), 162-3.

⁷³ *Celtia* ii (1902), 99.

⁷⁴ *Celtia* ii (1902), 115.

⁷⁵ *Celtia* i (1901), 15.

⁷⁶ *Freeman's Journal*, 9 September 1907.

⁷⁷ Francis Wheen, 'Introduction', in H.G. Wells, *A Modern Utopia*, Gregory Claeys and Patrick Parrinder (eds.)(London, 2005), xvi.

that Verne's anti-hero *Robur the Conqueror* (1886) and his flying machine the *Albatross* influenced Fournier's ideas on airpower.

Another influence was H.G. Wells, with whom Fournier corresponded later in life and praised as a 'genius' in his own futurist text *Quo Vadimus? Some thoughts on the Future* (1925). The key Wells work that it seems Fournier would have read was *Anticipations*, serialised over the course of 1901.⁷⁸ Particularly similar to Fournier's internationalist expositions were Wells' ideas on technological change and the looming promise of airpower and bombing, the utility of a world language, and a future world government. Crucially, Wells differed markedly on the importance of race, arguing that all races were inextricably intermingled, criticising Pan-Slavism, Pan-Germanism, Pan-Latinism, and 'Pan-this-and-that movements'.⁷⁹ He was particularly disdainful of 'Pan-Kelticism' and may have seen reports of the August Pan-Celtic Conference in Dublin, writing:

Under the intoxication of the Keltic Renaissance the most diverse sorts of human beings have foregathered and met face to face, and been photographed Pan-Keltically, and have no doubt gloated over these collective photographs, without any of them realizing, it seems, what a miscellaneous thing the Keltic race must be.⁸⁰

The tenth issue of *Celtia* – written in October 1901, just as *Anticipations*' serialisation was ending – discussed these subjects and was almost certainly a response to Wells. Its leading editorial justified Pan-Celticism's racial focus as being the only 'racial movement' in Europe based on 'mutual justice, toleration and equality', differentiating it from the assimilationist ideologies of Pan-Germanism and Pan-

⁷⁸ H.G. Wells, *Anticipations of the Reaction of Mechanical and Scientific Progress Upon Human Life and Thought* (London, 1902).

⁷⁹ Wells, *Anticipations*, 248.

⁸⁰ Wells, *Anticipations*, 218, n. 44.

Slavism, though agreeing with Wells on the frivolity of Pan-Latinism.⁸¹ Nevertheless, Wells' ideas seem likely to have been a template from which Fournier organised his federation of Celtic nations and its part in the global association of small nations – his own version of World Government.

Although Fournier's ideas shared a vague symmetry with the liberal internationalism of Spencer, these ideas were held by many contemporary internationalists.⁸² However, they were excessively rare in the Irish nationalist context, and betray Fournier's cosmopolitan intellectual formation in London. Evident here is the cross-pollination of ideas, with Fournier's philosophical grounding aiding him in making a unique contribution to the Irish national fold, and indeed the cultural revivals in Wales and Scotland, where Pan-Celtic Congresses were held in 1904 and 1907. Its unique internationalism helps explain why historians have hardly engaged with the Pan-Celtic movement, having little idea where to situate it within the terrestrial contexts of contemporary political and cultural nationalisms. Pan-Celticism provides an important corrective to Tom Garvin's thesis that the cultural atmosphere of the Irish national revival was suffused with an anti-modern romanticism.⁸³ As should be clear, it was rooted in contemporary scientific ideas and shaped by Fournier's monism. But in the Irish context, the Celtic Association was the exception that proved the rule, as the modern internationalism of Fournier's ideas undoubtedly turned many against it. One Gaelic Leaguer explained his opposition to Pan-Celticism on the basis that the league was trying to build an 'Irish nation...an Irish Ireland',⁸⁴ as opposed to the

⁸¹ *Celtia* i (1901), 149-50.

⁸² See Casper Sylvest, *British Liberal Internationalism, 1880-1930: Making Progress?* (Manchester, 2009), esp. ch. 4, 'Philosophy and internationalist ethnics'.

⁸³ Tom Garvin, 'Priests and Patriots: Irish separatism and fear of the modern, 1890-1914', *Irish Historical Studies*, 25 (1986), 67.

⁸⁴ Cited in O'Leary, *Prose Literature of the Gaelic Revival*, 381.

international sympathy desired by Fournier. Although *Celtia* folded and the Association dissolved in 1909, Pan-Celticism revived in 1917 and continues in more or less the same guise to this day, though now based on culture rather than race. Fournier was its chief architect and deserves to be recognised for having shaped a lasting cultural movement; the echoes of his monistic philosophy and internationalism can still be seen in the writings of its followers.⁸⁵

III

In the mid-1900s Fournier lost interest in Pan-Celticism and turned increasingly to his scientific career, composing some of his most important works. As with Pan-Celticism, Fournier sought to reconcile disparate fields of science and extended scientific treatment to spiritualism, which it seemed could provide the key empirical evidence for his monistic belief in the unity of the material and spiritual realms. This section is concerned with two of those books, *Two New Worlds* (1907) and *New Light on Immortality* (1908) which, though exceptionally original, were (retrospectively) scientifically specious. These were largely works of scientific synthesis punctuated with original ideas. For example, in his capacity as abstract-writer for the Physical Society, Fournier was the first British physicist to engage with the work of Albert Einstein (1879-1955), whose ideas influenced *Two New Worlds*.⁸⁶ He posited that there could be a universe (supra world) that was infinitely large, just as there was a sub-atomic universe that was infinitesimal (infra world). This early manifestation of the idea of a multiverse was cited by Mandelbrot as one of the first ideas of a fractally clustered universe – a universe made up of patterns repeated ad-infinitum across all scales of size (referred to as ‘self-similarity’ in mathematics). At this time the notion

⁸⁵ See, e.g., Peter Berresford Ellis, *Celtic Dawn: The Dream of Pan-Celtic Unity* (London, 1993).

⁸⁶ Andrew Warwick, ‘Cambridge mathematics and Cavendish physics: Cunningham, Campbell and Einstein’s Relativity, 1905-1911, Part 1: Comparing Traditions in Cambridge Physics’, *Studies in History and Philosophy of Science* 24 (1993), 13, n. 43.

of an expanding universe was developing, but Fournier's ideas surpassed most contemporary ideas, and were a stark contrast to the heavyweight Alfred Russel Wallace's *Man's Place in the Universe* (1903), which argued *against* Copernicus. Fournier had a different teleology in mind, predicting that it was man's 'destiny...to govern the solar system, the solar cluster, and finally the new galaxy' and that he would control the sun 'with a switch like an electric lamp', because 'It is pretty certain that nothing will bar the conquering march of human intelligence'.⁸⁷ The book received mixed reviews, but ultimately became his most durable scientific text.

Spiritualism seemed able to bridge the gap between mind and matter, and was therefore a scientific avenue to proving his monism. In *Two New Worlds* Fournier argued that man was possessed of 'spiritual gifts' – like telepathy and clairvoyance – that had become 'occult' due to materialistic dualism.⁸⁸ Things like theosophy and 'Celtic mysticism' did not interest him, though a mutual interest in spiritualism brought him into contact with many of their followers – he investigated a haunted house with W.B. Yeats in 1909, for example.⁸⁹ In Fournier's case, this was therefore not an instance of the 'enchantment' of society as delineated in the work of Alex Owen, if anything the opposite, as he thought that by 'annexing' practices of the 'occult', science was correcting the past excesses of materialism, which had occluded the spiritual realm.⁹⁰ Fournier was interested in the 'scientific' brand of spiritualism inaugurated by the Society for Psychical Research (SPR) – created by a group of Cambridge dons who applied the scientific method to spiritualistic investigations in

⁸⁷ Fournier d'Albe, *Two New Worlds*, 141-43.

⁸⁸ Fournier d'Albe, *Two New Worlds*, 141-44.

⁸⁹ Ella Young, *Flowering Dusk: Things Remembered Accurately and Inaccurately* (London, 1945), 97.

⁹⁰ Michael Saler, 'Modernity and Enchantment: A Historiographic Review', *American Historical Review* 111 (2006), 692-716; Alex Owen, *The Place of Enchantment: British Occultism and the Culture of the Modern* (Chicago and London, 2004).

1882 – and in 1908 co-founded the Dublin branch with his mentor Barrett. It was only a matter of time before psychical research would become a valued field of inquiry: ‘At present all is chaos and guesswork. The Kepler and Newton of the soul are still awaited’.⁹¹ And in a clear snub of Haeckel’s materialism concluded, ‘Not microscopy, but psychology, will solve the “riddle of the universe”’.⁹²

In *New Light on Immortality* Fournier did his best to become the innovator he sought. Calling the work a ‘Physical Theory of Immortality’,⁹³ he combined findings from the tangled web of physics, chemistry, physiology, biology, as well as psychology and psychical research. Justifying this approach to sceptical psychologists – wary of territorial infringement – Fournier identified the crux of the question as the properties of matter, best understood by physicists.⁹⁴ The first two-thirds of the work give a physical account of the phenomena of life and its relationship to matter, but Fournier then proceeded to a contentious section positing that the soul is composed of particles called ‘psychomeres’, or ‘soul-particles’, and weighs around fifty milligrams.⁹⁵ This, Fournier claimed, proved there was ‘life after death’ for all organisms, as these particles left the body in a ‘mist’ and lived in a ‘soul-world’ in the atmosphere for up to thirty thousand years.⁹⁶ For empirical evidence, he provided the records of the chemist William Crookes’ sittings with the medium Florence Cook, who summoned the spirit ‘Katie King’.⁹⁷

⁹¹ Fournier d’Albe, *Two New Worlds*, vi.

⁹² This is a clear reference to the 1901 English translation of Haeckel’s *Die Welträtsel*, [Fournier d’Albe, *Two New Worlds*, 151].

⁹³ Fournier d’Albe, *New Light*, viii.

⁹⁴ Richard Noakes, ‘The “world”’, 324; Oppenheim, *Other World*, 326.

⁹⁵ Fournier d’Albe, *New Light*, 146-8.

⁹⁶ Fournier d’Albe, *New Light*, 166.

⁹⁷ Fournier d’Albe, *New Light*, 203-310.

Richard Noakes has cited the complex overlapping of disciplines, arguing that, for many, psychical research was an extension of physics at the turn of the twentieth century.⁹⁸ This was certainly true for Oliver Lodge, who sought a new experimental science in the confluence of ether, mind and matter, and whose footsteps Fournier followed in.⁹⁹ But even in this context, Fournier's *New Light* was unique, and he thought that even Lodge was too materialistic and had not gone far enough in his 'vitalistic' explanations of mind and matter.¹⁰⁰ Fournier desired a true monism based on the scientific applicability of spiritualism to the study of the phenomena of life. Unlike Barrett's *Psychical Research* or Lodge's *The Immortality of the Soul*, which were both published in 1908 and merely *applied* the scientific method to questions of psychical research, Fournier quite literally *combined* science and psychical research. In one direction, he took scientific ideas on cell theory from Spencer, Weissmann and Darwin and extended them to construct a physical idea of the soul,¹⁰¹ while in the opposite he wrote that science would annex the realms of psychical research '...hitherto regarded as "occult"'.¹⁰² This approach thus substituted a 'philosophic monism for the prevailing philosophic dualism'.¹⁰³ While this work is essential for understanding Fournier's thought, it was also the most controversial, for which the *New York Times* denounced him as a 'crack-brained pseudo-scientist'.¹⁰⁴ A talk on the subject led to a two-page feature in *Punch* where the souls of Judge Jeffreys and Guy Fawkes were summoned by *Punch's* in-house medium.¹⁰⁵ But William Ramsay wrote to Fournier that he found the book 'ingenious' and thought psychomeres plausible,

⁹⁸ Noakes, 'The "world"', 325-6.

⁹⁹ Courtenay Grean Raia, 'From Ether Theory to Ether Theology: Oliver Lodge and the Physics of Immortality', *Journal of the History of the Behavioral Sciences* 43 (2007), 37.

¹⁰⁰ Fournier d'Albe, *New Light*, 166.

¹⁰¹ Fournier d'Albe, *New Light*, 120-1, 146.

¹⁰² Fournier d'Albe, *New Light*, 114.

¹⁰³ Fournier d'Albe, *New Light*, 321.

¹⁰⁴ *New York Times*, 5 December 1908.

¹⁰⁵ *Punch* 134 (December 16, 1908), 440-1.

although he was sceptical of using spiritualism as evidence as it was ‘so overlaid with fraud’ and led to distrust among friends.¹⁰⁶

At this time both spiritualism and monism provided surrogate religions for a secularising society. Turner, Oppenheim, and Bowler have all indicated how scientists interested in spiritualism were likely to have come from a Christian background, or at least be sympathetic to its teachings (Lodge or Barrett).¹⁰⁷ Fournier was not one of these and never got closer than a vague agnosticism, describing ‘theology’ in 1919 as ‘an unfortunate and archaic survival of beliefs from which the human race has emerged after much blood and many tears’.¹⁰⁸ Yet he was just as perturbed by materialistic science as he was by theology,¹⁰⁹ citing the shortcomings of both to account for ‘the problems presented by death and what follows it’,¹¹⁰ and describing the destructive spiral they were locked in, precluding genuine progress in understanding the universe by the tribalism of their own private battle.¹¹¹ While he offered a theory of immortality based in ‘experimental science’ – therefore refuting materialism as he saw it – Fournier offered concessions to followers of traditional religion, lending credibility to Bowler’s argument that during this period there was a concerted attempt to reconcile science and religion.¹¹² Fournier wrote that he hoped theologians would accept the book as ‘a working hypothesis of a future life...such as both parties could possibly be brought to agree upon’,¹¹³ and that he thought it genuinely possible to reveal the ‘Master-builder’ of the universe through scientific

¹⁰⁶ William Ramsay to Fournier d’Albe, 13 December 1908, London, Fournier d’Albe Papers.

¹⁰⁷ Frank M. Turner, *Between Science and Religion: The Reaction to Scientific Naturalism in Late Victorian England* (New Haven, 1974); Peter J. Bowler, *Reconciling Science and Religion: the debate in early twentieth-century Britain* (Chicago, 2001); Oppenheim, *Other World*.

¹⁰⁸ Fournier d’Albe to Yolande Hanman, 1 November 1919, London, Fournier d’Albe Papers.

¹⁰⁹ Fournier d’Albe, *New Light*, 1-6.

¹¹⁰ *Ibid.*, 16, 321.

¹¹¹ *Ibid.*, 131-33.

¹¹² Bowler, *Science and Religion*, 3.

¹¹³ Fournier d’Albe, *New Light*, viii-xi.

reasoning. But this was more compromise than confession and was the closest Fournier ever got to a *rapprochement* with religion. Nevertheless, the American publication, *Catholic World*, welcomed Fournier's discussion of immortality and contribution to the 'rout of the materialism of the nineteenth century', giving the book a qualified endorsement.¹¹⁴ On the back of the success of his scientific works – even *New Light on Immortality* was translated into Italian – Fournier was elected a member of the Royal Irish Academy in 1908, the same year he began to look for employment outside of Ireland.¹¹⁵

IV

Fournier's popular scientific works allowed him to disseminate his monistic views, but they also allow some new angles into popularisation and its relationship to the wider scientific world at this point. Journalism had been a source of income since his late teenage years, and he took this role one step further when he began to write popular science books in the mid 1900s. As Bowler has noted, popularisation in the early-twentieth century is vastly understudied compared to the Victorian era, and has normally been considered separately from 'professional' science.¹¹⁶ Fournier exquisitely blurs any such line. While it may be tempting to simply attribute his popularisation down to a desire for money, things are more complicated.¹¹⁷ Bowler has shown how there was a gap in European markets for 'self-education' works – serious popular science aimed at middle-class intellectuals – and it was in this niche that Fournier's popular work sat.¹¹⁸ His *Wonders of Physical Science* (1910) was published in the relatively pricey (one shilling and six pence) MacMillan Readable

¹¹⁴ *Catholic World* 88 (February, 1909), 687-8.

¹¹⁵ Fournier to Castletown, 19 February 1908, NLI, LCP, MS 35,305 (7); Letter to Castletown, 16 April 1908, NLI, LCP, MS 35,305 (7).

¹¹⁶ Bowler, *Science for All*, 1-14.

¹¹⁷ He did appreciate the 'financial results' [Fournier to Castletown, 16 April 1908, NLI, LCP, MS 35,305 (7)].

¹¹⁸ Bowler, *Science for All*, 75-8.

Books in Natural Knowledge series; this was clearly not the sensationalist science of newspapers or penny paperbacks, and Bowler has argued that this type of ‘nonspecialist writing’ was appreciated by the scientific community, which still felt itself undervalued in the early twentieth century.¹¹⁹ So Fournier could happily write works in this vein for profit and still feel he was performing a service to science.

Commentators praised his *Electron Theory* for its accessibility, simplifying the work of Fournier’s mentor George Johnstone Stoney (1826-1911), who had first posited the idea of electrons, before they were confirmed by J.J. Thomson (1856-1940) in 1897. The publishers reported that the book was ‘exceedingly well received both by the public and the Press’, and sold its first printing of 1500 copies within a year before going through several editions and translation into four different languages.¹²⁰ Particularly impressed by Fournier’s ability for synthesis, William Ramsay called the book ‘almost...“epoch-making”...to have moulded it into a complete theory appears to me to deserve the title of a work of genius’.¹²¹ Oliver Lodge recommended it above his own work on the topic.¹²² Moreover, Fournier’s scientific peers *encouraged* him to produce popular works. Ramsay, taken with *The Electron Theory*, urged Fournier to publish his article series ‘The Outlook in Chemistry’ which would be a ‘valuable addition to any scientific library’; it eventually appeared as *Contemporary Chemistry* (1911).¹²³ Popularisation meant that Fournier’s thought was also approachable to non-specialists. The socio-political radical Edward Carpenter (1844-1929), besides mentioning Fournier’s theories in *The Drama of Love and Death* (1912), also sought

¹¹⁹ Bowler, *Science for All*, 8-9, 118.

¹²⁰ MESSRS. LONGMANS, GREEN & CO to E.E. Fournier, Esq., 1 October 1908, London, Fournier d’Albe Papers.

¹²¹ William Ramsay to Fournier d’Albe, 25 September 1908, London, Fournier d’Albe Papers.

¹²² Oliver Lodge to A.O. Granger, 15 April 1913, University of Birmingham, Oliver Lodge Letters Add/32.

¹²³ William Ramsay to Fournier d’Albe, 1 March 1910, London, Fournier d’Albe Papers.

his advice for the scientific sections in its republication.¹²⁴ Later, at the end of the 1920s, H.G. Wells would consult Fournier about spiritualism for his work *The Science of Life* (discussed below).

It was Fournier's ability to synthesise as a populariser that had made him well known among his physicist acquaintances, some of whom – like Ernest Rutherford (1871-1931) – knew him primarily through columns as Abstractor for the Physical Society and *Electrician* magazine, mentioned explicitly by Rutherford in his endorsement of Fournier for the position of Assistant Lecturer in Physics at the University of Birmingham, which he secured in 1910.¹²⁵ Ramsay, Lockyer, Johnstone Stoney, and George Fitzgerald also all supported him. His appointment by Lodge is not surprising given that Lodge had strongly supported Fournier's application to another position in 1908, praising his 'extraordinary knowledge of contemporary physical science', 'luminous abstracts of the most important papers', and 'public spirit'.¹²⁶ Bowler has pointed out that scientific popularisers often had ulterior motives beyond profit, whether it was the promotion of Darwinism, materialism, religion, etc.,¹²⁷ and Fournier was no exception, advancing his monism through the works. He hoped the electron theory would help to unify physical science and eventually lead to 'those realms of infinitely greater complexity which harbour the phenomena of life'.¹²⁸ He continued his monistic plea in *Contemporary Chemistry* (1911), complaining of the 'tripartite division' of the natural sciences into physics, chemistry and biology, calling for their unity and opposing what he saw as the inherently materialist approach of 'a

¹²⁴ Edward Carpenter to Fournier d'Albe, 7 March [191?], Fournier d'Albe Papers; Edward Carpenter, *The Drama of Love and Death: A Study of Human Evolution and Transfiguration* (London, 1912), 183-91.

¹²⁵ Ernest Rutherford to Fournier d'Albe, January 18 1908, Fournier d'Albe Papers.

¹²⁶ Oliver Lodge to Fournier d'Albe, 7 November 1908, Birmingham, Fournier d'Albe Papers.

¹²⁷ Bowler, *Science for All*, 17.

¹²⁸ E.E. Fournier d'Albe, *The Electron Theory: A Popular Introduction to the New Theory of Electricity and Magnetism* (London, 1906), 6.

chemical explanation of life’, which was ‘no explanation, since it reduces...life...to dead matter’.¹²⁹

While he worked at Birmingham – modelled on a unified research-teaching model of the German universities – Fournier also obtained his doctorate and turned his attention towards inventing. With Lodge’s encouragement he researched Selenium, a photocell, or element that can convert light into electricity.¹³⁰ But this was also his greatest period of sustained ‘pure science’ research, and he published studies in the *Proceedings of the Royal Society*, *Nature*, the *Physikalische Zeitschrift*, and the Italian publication *Scientia*, before submitting his doctoral dissertation on the subject in 1913.¹³¹ His selenium researches transformed into selenium inventions, and from 1912 until his death he devoted most time to his optophone (invented 1912), a device that used a selenium bridge to produce beams of light to ‘scan’ letters and produce specific sounds, enabling ‘totally blind persons to read ordinary books and newspapers through the sense of hearing’ (fig. 1).¹³²

Like his journalism, it would perhaps be tempting to diagnose Fournier’s inventions as profit-driven, but this would again be too simplistic. He mostly financed things himself, and wrote that it would have been foolish to undertake the optophone for commercial purposes, as the ‘number of blind people capable of benefiting by reading is limited’, instead congratulating himself on contributing to ‘the applications of

¹²⁹ Fournier d’Albe, *Contemporary Chemistry*, 171-2.

¹³⁰ E.E. Fournier d’Albe, ‘On the Efficiency of Selenium as a Detector of Light,’ *Proceedings of the Royal Society*, Ixxxix, (1913), 75-90.

¹³¹ E.E. Fournier d’Albe, ‘On the efficiency of Selenium as a detector of light’ (1913), unpublished doctoral dissertation (University of Birmingham).

¹³² E.E. Fournier d’Albe, *Proceedings of the Royal Society of London. Series A, Containing Papers of a Mathematical and Physical Character*, 90 (1914), 373-5.

science to the welfare of humanity'.¹³³ Furthermore, it should be remembered that as a whole 'pure science' was moving towards 'applied science' during this time.¹³⁴ David Edgerton has argued that the lack of focus on discoveries in British science was not evidence of a 'decline', but a refocus towards industry and technology,¹³⁵ an obvious focus during the Great War. Fournier was part of this shift, inventing a 'needle periscope'¹³⁶ for the trenches and working for the Board of Inventions and Research, along with some of the country's foremost scientists, in the production of selenium-operated remote-controlled devices, for which the Admiralty provided him with a laboratory in Pall Mall.¹³⁷

Released from Admiralty service in 1917, Fournier returned to the optophone, a device welcomed during and after the carnage of the Great War. He taught the English war hero Captain Gilbert Nobbs (1880-1970) – shot through both eyes at the Somme – to read his own book about his experiences in the trenches and a German POW camp.¹³⁸ James Joyce (1882-1941) – who may have known Fournier in Dublin and later read *Quo Vadimus?* – referenced the optophone in Finnegans wake,¹³⁹ and though initially criticised as impractical by the President of the National Institute for the Blind, it received a favourable reception in the popular press.¹⁴⁰ The King and Queen partook in a demonstration of the device in 1920 at the Scottish Blinded Soldiers and Sailors' Institution, which King George described as 'wonderful'.¹⁴¹

¹³³ Fournier d'Albe, *Moon Element*, 128, 145.

¹³⁴ Bowler, *Science for All*, 19-22.

¹³⁵ David Edgerton, *Science, Technology and the British Industrial 'Decline', 1870-1970* (Cambridge, 1996).

¹³⁶ E.E. Fournier d'Albe, 'Improvements in Trench Periscope', UK Patent No. 9259, 27 April 1916.

¹³⁷ The National Archives (hereafter 'TNA'), Kew, ADM 116/4766; Churchill Archives Centre (CAC), The Papers of 1st Lord Fisher of Kilverstone, FISR 7/15.

¹³⁸ Gilbert Nobbs, *Englishman, Kamerad! Right of the British Line* (London, 1917).

¹³⁹ Nagai, 58.

¹⁴⁰ Fournier d'Albe, *Moon Element*, 117-22.

¹⁴¹ *Times*, 9 July 1920.

Following this endorsement, the National Institute for the Blind changed tack and purchased an optophone, hiring Fournier to give lessons to its pupils.¹⁴² It was produced in New York, and received enough recognition to feature on the cover of *Scientific American* (fig. 1). Harry Houdini (1874-1926) wrote to Fournier that he had seen it in the *Graphic* magazine, and that he thought the machine deserved its own ‘special Printed affair’, while H.G. Wells opened correspondence to him with the informal moniker ‘Dear Optophone’.¹⁴³ Fournier spent the rest of his life improving the device and trying to make it more affordable, though he also engaged in early research into radio and television, speaking in fluent Esperanto – and therefore demonstrating his ongoing commitment to monism – about ‘Wireless telegraphy and television’ at the 1926 Esperanto Summer University in Edinburgh.¹⁴⁴ He had a cordial relationship with John Logie Baird (1888-1946) – credited with the invention of the television – who he advised about selenium.¹⁴⁵ Yet despite being involved in the more materially oriented aspects of science, Fournier remained anti-materialistic and committed to spiritualism, though here his belief began to falter.

V

At the outset of the 1920s Fournier was at the peak of his scientific career, with studies in top scientific publications, approbation for his popular scientific books, and what seemed several promising inventions. However, he soon lost the psychical bridge to his monism, but nevertheless managed to reconcile his increasingly technological focus with his own spiritual outlook and bring his monism full circle.

¹⁴² Fournier d’Albe, *Moon Element*, 130.

¹⁴³ [Underlined in letter], Harry Houdini to Fournier d’Albe, 8 July 1920, Fournier d’Albe Papers; H.G. Wells to Fournier d’Albe, [N.D. 1928?], Fournier d’Albe Papers.

¹⁴⁴ *Hartlepool Mail*, 5 August 1926.

¹⁴⁵ John Logie Baird to Fournier d’Albe, 6 May 1924, Fournier d’Albe Papers.

Although interest in spiritualism exploded in the wake of the Great War, Fournier began to have doubts. In 1921 Oliver Lodge tasked him with an investigation into the Belfast medium Kathleen Goligher and her ‘circle’, after the previous investigator had killed himself.¹⁴⁶ Fournier published his findings as a book in 1922, with a series of debunkings, the most serious being ‘ectoplasm’ exposed as a muslin sheet. After the sittings he wrote to Lodge in some anguish, stating that he had arrived ‘fully persuaded’ of the Goligher phenomena, but that his conclusion was ‘forced upon [him] against [his] will’ and a ‘bitter disappointment’. But Fournier was still convinced of spiritual phenomena in general and did not want ‘the good name of psychic research’ tarnished by the Golighers, signing off his letter with the declaration that his conviction in the genuineness of the phenomena around Eva C. was ‘unshaken’.¹⁴⁷ The book received the respect of Houdini, who sought to expose the way that mediums took advantage of the vulnerable.¹⁴⁸ Fournier joined him in similar calls in his official biography of the autodidactic spiritualist chemist Sir William Crookes (1832-1919). Commenting on the interplay of spiritualism, science, and religion, Fournier confessed he had seen both sides of the issue, giving both a ‘spiritualist version’ and a ‘rationalist version’ of Crookes’ involvement with spiritualism.¹⁴⁹ Here the change in his ideas is obvious, as he declared that ‘Spiritualism as a religion’ could be studied ‘in a section of anthropology, but spiritualism as a science does not exist’. If a scientist surrendered his reason to spiritualism, it ‘may soothe him on his death-bed, but so may almost any religion when embraced with a fervent faith’.¹⁵⁰ Fournier acknowledged that spiritualism as a

¹⁴⁶ E.E. Fournier d’Albe, *The Goligher Circle, May to August 1921* (London, 1922), 5-6.

¹⁴⁷ [underlined in letter] Fournier to Lodge, 22 December 1921, Cambridge University Library Archives, Sir Oliver Lodge Papers, SPR MS 35/635.

¹⁴⁸ Harry Houdini, *A Magician Among the Spirits* (London, 1924), 173-76.

¹⁴⁹ Fournier d’Albe, *The Life of Sir William Crookes, O.M., F.R.S.* (London, 1923), 174-6.

¹⁵⁰ Fournier d’Albe, *Sir William Crookes*, 238-9.

religion brought comfort to millions, and that Crookes had done much to advance it, but from a scientific standpoint this fact could also be used to condemn him as ‘it may be plausibly argued that the majority of religions are built upon fallacies’.¹⁵¹ Pursuing this line in later work, Fournier stated ‘even a tentative explanation of [spiritualistic phenomena] is uncalled-for. Science might just as well concern itself with the anatomy and physiology of fairies’.¹⁵² Fournier’s expertise spurred H.G. Wells to ask for Fournier to edit his chapter on ‘Borderland Science’ in his book *The Science of Life* (1929).¹⁵³ The two had disagreed over spiritualism in 1918, but Fournier finally conceded to Wells that he had been right all along.¹⁵⁴

The abandonment of spiritualism must have been traumatic for Fournier, as it had helped to bridge mind and matter in his monism. But instead of abandoning everything, he doubled down, reconciling not only his loss of spiritualism but his more materially focused applied science to monism. With characteristic optimism, he articulated these ideas most clearly in two books printed in a series called *To-day and To-morrow*, published by Kegan and Paul between 1924-1931, in which writers were asked to give their opinions on modern society and the future. That Bertrand Russell (1872-1970) and J.B.S. Haldane (1892-1964) were fellow contributors reveals not only the prestige of the series but also the level of recognition that Fournier had achieved by this point. In his first book, revealingly titled *Hephaestus, or the Soul of the Machine* (1925), he proclaimed victory in the fight against materialism: ‘There is an increasing tendency in modern thought to abolish the distinction between soul and

¹⁵¹ Fournier d’Albe, *Sir William Crookes*, 238.

¹⁵² ‘Ectoplasm called a Fraud’, *The Science News-Letter*, 12 (1927), 251-52.

¹⁵³ H.G. Wells to Fournier d’Albe, 21 September 1928, Fournier d’Albe Papers.

¹⁵⁴ Fournier to Wells, 23 September 1928, University of Illinois Archives, H.G. Wells Papers: Correspondence, W1/F137.

body and to regard them as one and indivisible'. This monism meant that '...if a "soul" animated man's body...the same soul will animate his weapon...' ¹⁵⁵ In other words, a machine became an extension of man; its purpose was his purpose. It has been argued that, in the aftermath of the war, the rehabilitation of the human body – torn apart by military machinery – was a way to reconstruct order in civilization, but Fournier's ideas allowed man and machine to become one, thereby providing a way of neutralising the fear and suspicion that surrounded technology in post-war society. ¹⁵⁶ He extended this idea to tie the loose ends of his philosophy together, declaring that the "mechanical age" is actually 'the age of supreme *psychical* achievement', and that 'Every machine has a psychical element, a purpose, a "soul"'. ¹⁵⁷ Thus, technological materialism was really psychical monism all along.

Quo Vadimus? outlined the path that Fournier envisioned scientific progress, and therefore society, would take in the next million years. Undaunted by the Great War, he was fiercely optimistic about the idea of progress, thinking perpetual peace would come in a hundred years. *The Time Machine* (1895) was an obvious inspiration and Wells features as a comparator throughout the book, which sees the return of a plan for world government, united, 'of course', by an international, artificial auxiliary language, likely Esperanto. Ireland appears, but as a sad case-study of intra-national enmity, and Fournier despaired at the 'wild men' who had taken control of the Irish revolution. ¹⁵⁸ He also took a shot at religion, predicting 'Art and science' will 'have

¹⁵⁵ Fournier d'Albe, *Hephaestus*, 19-20.

¹⁵⁶ Ana Carden-Coyne, *Reconstructing the Body: Classicism, Modernism and the First World War* (Oxford, 2009); see also Emilio Gentile, Stéphanie Lanfranchi-Guilloux (trans.), *L'Apocalypse de la modernité. La Grand Guerre et l'homme nouveau* (Paris, 2011).

¹⁵⁷ [original emphasis] Fournier d'Albe, *Hephaestus*, 36.

¹⁵⁸ Fournier d'Albe, *Quo Vadimus?*, 21-24; Fournier to Castletown, 23 December 1923, NLI, LCP, MS 35,305 (7).

been emancipated from their ecclesiastical fetters'.¹⁵⁹ In the same series, Bertrand Russell – whose work was revealingly titled *Icarus* (1924) – was sceptical, fearing notions of 'progress' would only serve those in power. But Fournier's fellow scientists made similar arguments to him. Haldane's *Daedalus* (1924) was also bullish about the progress entailed by scientific developments, while W.H. Bragg wrote to Fournier that he sympathised with his ideas in *Hephaestus*.¹⁶⁰ Fournier finished with a monistic flourish about the unity of man and the universe: 'The Earth will have become a sentient being... Mankind will be the "grey matter" of its brain'.¹⁶¹

Fournier's monistic declarations towards the end of his life were remarkably consistent with his youthful ideas of 1893, despite the fact that the world had changed so considerably since that time. If his monistic philosophy was constructed against a fractured background in order to bring some sort of unity to his life and interests, then it was certainly effective. In 1927 Fournier suffered a stroke that paralysed his left side; he continued his scientific work as best he could, but the consequent straitened financial circumstances meant that he took on more popular journalistic work, for *The Observer* and *Armchair Science*. He was awarded a Civil List Pension in 1933, but only weeks before he died of a stroke (while working on the optophone). His application was supported by some of the most eminent scientists of the day including Rutherford, Thomson, Bragg, and Lodge.¹⁶²

VI

Fournier's monistic philosophy – shaped particularly by his German schooling, London university days, and Irish cultural involvement – transposed itself repeatedly

¹⁵⁹ Fournier d'Albe, *Quo Vadimus?*, 85.

¹⁶⁰ W.H. Bragg to Fournier d'Albe, 11 Jan. 1924, Fournier d'Albe Papers.

¹⁶¹ Fournier d'Albe, *Quo Vadimus?*, 86.

¹⁶² TNA, Kew, PREM 5/75, Application for Civil List Pension.

in different intellectual and cultural settings across different nations, and led him to adopt idiosyncratic positions within these different fields. Where most nationalisms were terrestrial and chauvinist, Fournier's Pan-Celticism was international and inclusive (which is likely why it survives to this day); where, for many spiritualists, occult phenomena were evidence of the supernatural, for Fournier they could be 'annexed' and explained by science; and, where many scientists described the world in terms of matter, Fournier explained the universe in terms of a cosmic soul. Other scientific optimists like Haeckel and Ostwald, though secularists, conceived of monism as a kind of religion.¹⁶³ Although Fournier did not describe his ideas as a religion, he approached them with the fervent energy of religious devotion, and he occasionally used religious language, such as when he described Pan-Celticism as '...a Celtic faith, which I have found the source of the greatest inspiration of my life';¹⁶⁴ or when he expressed his belief '...that this world of ours is in good hands, that it is not governed by blind chance or inflexible destiny, that it offers infinite possibilities of faith and hope and love...'¹⁶⁵ Although not linked to Christianity – like the monism of the British idealists – Fournier's monism nevertheless contained an arguably stronger moral drive. Pan-Celticism was a movement to free what he saw as the maligned Celtic nations from their English oppressor and a step towards a Spencerian international commonwealth, while he viewed his inventions – manifestations of psychically animated technology – as contributions to the welfare of humanity, and his popular scientific books as educative works for the public.

This article has sought to restore some agency to Fournier himself, but we also learn something about *lack* of agency – his monism was an attempt to make sense of what

¹⁶³ See, e.g., Haeckel, *Monism*.

¹⁶⁴ *Carnarvon and Denbigh Herald and North and South Wales Independent*, 17 March 1899.

¹⁶⁵ E.E. Fournier d'Albe, *Two New Worlds*, vii.

seemed to be an increasingly fracturing world and the uncertain future of humanity. Fournier operated in a wide range of contexts, many of which have been represented as symptoms of the disjuncture or pessimism of *fin-de-siècle* society, but he was himself an archetypal whig and viewed history as humanity's march of perpetual progress. But despite being involved in pioneering research into things like radio and television, Fournier's contributions quickly became obsolete and he was soon forgotten. However, if we now overlook a figure like Fournier for these reasons we fall into the same whiggish trap that he did. He undoubtedly contributed to the atmosphere and milieu in which these developments occurred, and was the personification of the idea of modernity being a new departure, wherein science and technology would reshape the universe. Upon his death, the popular scientific writer R.A. Gregory (1864-1952) wrote to his widow that 'Fournier was a brilliant genius and he never received the rewards which should have been his', while many years later Mandelbrodt stated, 'we are indebted to him for something of lasting value'.¹⁶⁶ In Ireland, Pearse wrote that Fournier 'has given as unselfish and brilliant service to the Irish language movement as anyone I know',¹⁶⁷ and the Breton nationalist François Jaffrennou described Fournier as 'le personnage le plus extraordinaire que j'aie connu'.¹⁶⁸ Endorsements from such a diverse yet eminent cast are testament both to the impact that Fournier made on the world and to the effectiveness of his monism to provide novel approaches in popular fields. Fournier's monism was indeed a worldview, applied to all aspects of his life; by looking at his life in its totality, we therefore not only learn more about the intellectual and cultural history of the period, we examine his life in terms that he would have understood.

¹⁶⁶ R.A. Gregory to Yolande Fournier d'Albe, 4 July 1933, Fournier d'Albe Papers; Mandelbrot, *Fractal Geometry*, 396.

¹⁶⁷ *An Claidheamh Soluis*, 31 March 1906, cited in O'Leary, *Prose Literature*, 380, n. 119.

¹⁶⁸ François Jaffrennou, *Un petit voyage chez les Peuples celtiques* (Quintin, 1927).