1 Introducing Welby's Metaphysics

Victoria Welby (1837–1912) began working on metaphysics in 1880s Britain, a heady period which saw scientists and philosophers grappling with new theories of matter, evolution, and space. This Element offers the first study of her metaphysical system. At its core lies a grand ontology of Motion, befitting Welby's remarks on the subject. 'Motion', she writes, 'is that "reality" to which all else is subordinate'.[1] 'I am and always was an essentially dynamic thinker', 'Motion is my governing idea'.[2] 'The thesis of motion as primary runs through all my thinking.'[3] 'Motion is the great fact, the supreme category.'[4] On my reading of Welby, what we usually think of as the material universe is merely a complex of motions: motions comprise material bodies, living beings, and conscious minds. Welby labels this dynamic universe 'Motion' (I follow her practice of capitalising Motion in this sense). Motion underlies her views on matter, mind, idealism, space, change, and time; Motion even points us towards God.

This study will show that Welby's metaphysical theories are grounded in the science of her day. 'My thought', she explains in an 1887 letter, 'fits in with the best attested facts of modern science'.[5] To explain her theories, it is often necessary to explain how they are powered by poorly studied debates in physics and biology. As such, this Element advances our understanding of Welby, *and* of the neglected Victorian science she engaged with, including vortex theories of matter, Darwin-driven panpsychisms, and 'fourth dimensional' accounts of time. When Welby's metaphysics are pieced together, we will see that they form a rich, intricate, wide-ranging system – one that carefully navigates the tangled jungles of Victorian philosophy *and* science.

This Element proceeds as follows. Section 2 gives some background on Welby and her philosophical works. The subsequent sections enquire into Welby's metaphysics, tracing the development of her views in rough chronological order. Using texts from the mid-1880s onwards, Section 3 starts with Welby's 'supreme' metaphysic of Motion, explaining how she conceives material bodies as motions. I argue her account of Motion draws on the work of various scientists: vortex matter theorists George Romanes, G. Johnstone Stoney, Karl Pearson, and William Armstrong. Section 4 explores Welby's account of minds as motions, an account which hints at how minds might be

[1] Untitled note dated 28 April 1907; see VWF, 1970–010/032–01.
[2] Manuscript dated 7 April 1907, headed 'Prof. Stout'; see VWF, 1970–010/032–12. It likely formed part of a letter to G. F. Stout.
[3] Letter to Frederick Pollock dated 18 July 1907; see VWF, 1970–010/013.
[4] Untitled note dated 29 April 1907; see VWF, 1970–010/032–01.
[5] Letter to Norman Pearson dated December 1887; see VWF, 1970–010/012.

immortal. Section 5 argues that Welby's metaphysic of Motion is ultimately idealist. Focusing on 1890–1 texts, Section 6 argues Welby held a panpsychism akin to that of W. K. Clifford and C. Lloyd Morgan. Yet, on my reading, Welby's position is complicated by her willingness to acknowledge genuine novelty within nature. I argue her resulting struggle runs parallel to that found in the mature emergentism of Lloyd Morgan and Samuel Alexander, and the layered picture of reality she arrives at is especially similar to that of Alexander. Section 7 considers Welby's views on time across her career, arguing that from her earliest, 1881 writings on the topic she posits a block universe; and that from around 1897 she arrives at a complementary, new position, that time is derivative on space. Welby publishes this metaphysic in her 1907 *Mind* article 'Time as Derivative'. Section 8 investigates Welby's identification, from around 1897, of Motion with space. I argue that Welby's Motion-Space can profitably be understood using Clifford's identification of matter with the curvature of space. Section 9 concludes by summarising my understanding of Welby's metaphysical system, and speculating on the relationship between Motion and God. Welby's metaphysics, and the shadowy scientific–philosophical debates underlying them, reward exploration.

2 Sketching Welby's Life and Works

Lady Victoria Alexandrina Maria Louisa Welby, née Stuart-Wortely, was born into the British aristocracy: her godmothers were Princess Victoria (later, Queen Victoria) and the Duchess of Kent (the Queen mother). Following early years of travel abroad, and two years spent at the court of Queen Victoria, Welby married Sir William Welby-Gregory and retired to Denton Manor, Grantham (Lincolnshire). After the death of her husband in 1898, Welby moved to Duneaves, Harrow (London).[6] Her wide-ranging interests included philosophy, language, theology, science, technology, education, and literature. Evidence of this breadth can be found in the newspaper clippings she collected, and often annotated. To give just a few examples, these clippings include articles on 'Motor-Car Engineering'; 'Medicine To-Day'; 'Automatic [Telephone] Exchange'; 'Woman Suffrage and Its Advocates'; 'Quackery and Dental Clinics'; and 'The Sources of Energy', on radium and coal.[7]

From the 1860s until her death, Welby maintained an extensive intellectual network, corresponding with over 450 figures. These figures include major philosophers and scientists of the period, such as Henri Bergson, F. H. Bradley,

[6] These and other biographical details are taken from Eschbach (1983, ix–xv), Schmitz (1985, xxii–xxviii), Myers (1995, 1–5), and Petrilli (2009, 7–14).
[7] VWF, 1970–010/38.

Shadworth Hodgson, T. H. Huxley, William James, Christine Ladd-Franklin, Vernon Lee, Charles Sanders Peirce, Bertrand Russell, F. C. S. Schiller, G. F. Stout, and Mrs Humphry Ward. From 1886 she became close friends with Lucy Clifford, novelist and widow of philosopher W. K. Clifford (who died in 1879). In her memoriam of Welby, Lucy Clifford (1924, 106) wrote, 'She knew everyone who counted in the world.' Welby used her network to develop ideas and to bring people together, putting her correspondents in contact with each other, and hosting events.[8] She even offered the 'Welby Prize' for the best essay on 'significs', her label for theories of meaning, which was published by the journal *Mind* in 1896. In a 1901 parody edition of the journal, *Mind!*, her friend Schiller immortalised the event with characteristic slapstick style:

> LADY WELBY, whose interest in clearing up intellectual fogs and purifying the philosophical atmosphere is well known, has offered a prize of £1,000 to any philosopher who can produce adequate documentary evidence to show that he:
>
> (1) Knows what he means.
> (2) Knows what any one else means. (Schiller, 1901, 128)

Schiller's comic announcement indicates that, by 1901, Welby was already 'well known' amongst her peers.

A fraction of Welby's correspondence has been published; I recount the major efforts here.[9] Welby's daughter, Mrs Henry Cust, published two volumes of letters spanning 1879–1911; see Cust (1929, 1931). These volumes are extremely valuable but they have drawbacks: Cust silently edited some of the prose, and does not include precise dates for each letter.[10] Decades later, Charles S. Hardwick (1977) published Welby's 1903–11 correspondence with Peirce. Susan Petrilli's (2009) groundbreaking study of Welby, *Signifying and Understanding*, includes additional unpublished correspondence, alongside some of Welby's unpublished essays and more inaccessible publications. Despite these efforts, the vast bulk of Welby's correspondence – and many draft papers – remains unpublished in the Lady Victoria Welby Fonds at York University, Ontario (VWF).

Welby published many articles, and several books, during her lifetime. Most of her publications concern language, and she is best known for her 1903 *What Is Meaning?*. Peirce (repr. in Hardwick, 1977, 157) praised this book as 'really

[8] On her networking, see especially Hardwick (1977, xxix), Eschbach (1983, xiv), and Schmitz (2013).
[9] Schmitz (2013) details many more minor efforts to publish Welby's letters, for example in the collected correspondence of other figures.
[10] For a fuller description of these volumes, and their problems, see Schmitz (2013, 205–6).

important', comparing it with Bertrand Russell's *Principles of Mathematics*.[11] Eschbach (1983, xvi) claims this shows that Peirce held Welby in high esteem – 'far higher esteem than many Peirce scholars, who make only occasional mention of Lady Welby and then frequently in footnotes as the correspondence partner of the great semiotics expert'. Happily, following a fallow period in the mid-twentieth century, interest in Welby picked up from the 1970s. This was partly due to the Hardwick (1977) volume; and partly to Eschbach's (1983) edition of *What Is Meaning?*, which included a lengthy editorial introduction. Two years later, Schmitz (1985) edited a collection on her work, *Essays on Significs: papers presented on the occasion of the 150th anniversary of the birth of Victoria Lady Welby, 1837–1912*. Today, partly spurred by Petrilli's ongoing scholarship, interest in Welby's work on language continues. Not least, Nuessel et al. (2013) edited a special issue of the journal *Semiotica* on Welby's significs.

Likely because *What Is Meaning?* and the Peirce–Welby correspondence focus on language, Welby is frequently characterised as primarily (even exclusively) focused on language. For example, Schmitz (1985, xii) records that 1920s scholars describe Welby as an early investigator of meaning. Hardwick (1977, xix) writes, 'From 1885 until her death in 1912, Lady Welby's interests were almost completely centred on problems of language and meaning.' Peijnenburg and Verhaegh (forthcoming) describe Welby as a philosopher 'of language'. Yet historians of philosophy are slowly becoming interested in other aspects of Welby's work. For example, Misak (2016, 82–5), Metzer (2020), and Hurley (2022) study Welby's relationship with pragmatism; Pearson (forthcoming) explores Welby's views on analytic philosophy and education; and Stone (forthcoming) examines Welby's views on meaning *and* naturalism. Against prevailing characterisations of Welby as being uninterested in metaphysics, I have argued that Welby offers a metaphysical idealism, and an anti-realist metaphysic of time; see Thomas (forthcoming a, forthcoming b).

With the exception of her articles on time, I find that whilst Welby's publications hint at deep metaphysical views, they offer no detail. Yet, through archival research, I have found that *hundreds* of her unpublished letters and manuscripts concern metaphysics. I draw extensively on these materials to construct my reading of Welby's system. There is evidence that Welby wanted to publish her views. One of Welby's (repr. in Petrilli, 2009, 36–7) plans for future books include chapters on 'motion and the dynamic, instead of Matter and the static'; the 'self'; and 'Time as distinctly derived from Space as Room + motion, Change and succession'. Sadly, these plans did not come to pass, and her

[11] Peirce reviewed both books in the same three-page article but dispensed with *The Principles of Mathematics* in a single paragraph.

metaphysics largely remains in the archives. This Element aims to reconstruct the system she might have advanced. Venturing deep into the wilds of Welby's thought, it seeks to dispel any lingering doubts as to her interest in metaphysics. Future scholars may dispute my reading of Welby's metaphysical system but not, I hope, that she *has* one.

3 Material Bodies as Motions

3.1 Introducing Welby's Puzzling Claims on Matter and Motion

Lucy Clifford (1924, 101–2) sheds light on the chronology of Welby's intellectual development when she recalls a trip they took to Switzerland in 1886: 'it was soon evident that she was in a transition stage, dreaming and evolving theories of her own, reaching out towards the thinkers – humbly seeking knowledge from them and encouragement to pursue her own tracks of thought'. I find it highly plausible that 1886 was a 'transition stage' for Welby, for her metaphysical claims emerge forcibly from that year onwards.

From around that period, Welby repeatedly states that 'Motion', or the 'dynamic', is prior to matter. Here are some examples. The following passage is taken from an 1886–8 letter to theologian W. H. Simcox:

> We know now what we never knew before, that, beyond all we see as 'fixed' or 'stationary', there is Motion – in every molecule as in every solar-system. (Welby, repr. in Cust, 1929, 202)

This is from an 1889–90 letter to another theologian, Edmund McClure:

> I have had certain ideas all or nearly all my life which I am now finding day by day to be in unexpected general correspondence with the present lines of scientific advance . . .
>
> [Including] Replacement of the static by the dynamic. Everywhere for a lump of stuff called 'substance', read a complex of energy. The 'stuff' is always secondary and provisional; the motion is always primary and permanent. (Welby, repr. in Cust, 1929, 265–6)

In *What Is Meaning?*, Welby (1983 [1903], 174) reiterates that 'Motion' and the 'dynamic' are primary, whilst 'Matter' and the 'static' are secondary.

Welby's 1907 'Time as Derivative' claims that, once we have improved our conception of Motion:

> the term 'matter' will be reduced to its proper function of indicating content and resistance. Whatever resists, whatever is contained, is the outcome of that ultimate dynamic order which in the last resort is the source of the static or at least its governing pre-supposition. (Welby, 1907, 398)

I have found a 1902 draft of 'Time as Derivative', which adds:

> we postulate matter at rest and then conceive Motion as coming to shove it on . . . But we have to reverse this if we take the view here suggested. It is Motion which 'constructs' Matter.[12]

Finally, consider this passage from a letter to William James, dated 24 May 1908:

> Having lost or failed to gain the sense of the supremacy of motion over its product matter, and of the solidity attained by intensely rapid, minute, confined motion (of some 'third' element, apparently 'ether'?), we make a ruling fetish of stuff, although in English we couple it with *nonsense*.
>
> (Welby, repr. in Petrilli, 2009, 59)

In the absence of further explanation, these statements are puzzling, even obscure. I argue we can best understand them by looking to Welby's engagement with the physics of her period.

3.2 Welby's Engagement with Vortex Theories of Matter

A major milestone of Victorian physics was the development of 'field theories'. On these theories, phenomena such as electromagnetism are derived from a more fundamental medium – a field. From the 1860s, William Thomson (later, Lord Kelvin) developed a new kind of field theory: the 'vortex' theory of matter. Earlier thinkers had suggested that electromagnetic waves, including light, travelled through an undetectable, space-filling field or substance known as 'ether'. Building on this, Thomson (1867, 15–17) argued we should stop conceiving material atoms as 'strong and infinitely rigid pieces of matter'. Instead, we should conceive them as 'vortex atoms', akin to moving vortices within liquid. Thomson compares vortex atoms with the rings of smoke produced by cigars or cigarettes. He records recently witnessing a 'magnificent display of smoke-rings', wherein the rings bounced off each other, 'shaking violently from the effects of the shock', yet elastically maintaining their shape. Vortex atoms are, however, more complex than smoke-rings: although Thomson conceives them roughly as rings, a closed loop with two ends meeting, these atoms can be 'knotted or knitted' in many different ways. He argues that the variety of vortices, and their interplay, could potentially explain all material phenomena.[13]

[12] VWF, 1970–010/032–03.

[13] The notion that material bodies are not really rigid pieces of matter has a long philosophical history. For example, Kant's 1786 *Metaphysical Foundations of Natural Science* describes material bodies in terms of attractive and repulsive forces; see Watkins and Stan (2014, §2.3). Yet, as far as I am aware, these vortex theorists did not draw on this history.

Thomson's vortex theory of matter had a huge impact on late-nineteenth-century British science. In her pioneering study of its history, Doran (1975, 197) explains that this 'program for a field theory of matter . . . was widely subscribed to in Britain by 1880'. Physicist Oliver Lodge (1883b, 329–30) described Thomson's theory as 'highly beautiful', 'the simplest conception of the material universe which has yet occurred', a theory which almost 'deserves to be true'. Lodge (who would later defend his own vortex theory) usefully summarises how it was understood in the early 1880s:

> We must begin to imagine a continuous connecting medium between the particles – a substance in which they are imbedded, and which extends . . . without break to the remotest limits of space . . .
>
> Gravitation is explainable by differences of pressure in the medium . . .
>
> Light consists of undulation or waves in the medium; while electricity is turning out quite possibly to be an aspect of a part of the very medium itself.
>
> The medium is now accepted as a necessity by all modern physicists . . .
>
> The name you choose to give to the medium is a matter of very small importance, but 'the Ether' is as good a name for it as another.
>
> (Lodge, 1883a, 305)

Of especial interest to us is how physicists understood Thomson's theory of matter:

> whirling portions [of ether] constitute what we call matter; their motion gives them rigidity, and of them our bodies and all other material bodies with which we are acquainted are built up.
>
> One continuous substance filling all space . . . which in whirls constitutes matter . . . This is the modern view of the ether and its functions.
>
> (Lodge, 1883b, 330)

Just as motions in water create whirlpools, motions in another medium create material bodies. As Lodge's description exemplifies, some vortex theorists explicitly conceive matter as *motions of ether*. However, others simply conceive matter as *motions*; implying either that there is no underlying medium, or else leaving the nature of the underlying medium open. Some of these latter, motion-focused accounts drew on Thomson's (1884, 204) statement: 'it is scarcely possible to help anticipating . . . the arrival at a complete theory of matter, in which all its properties will be seen to be merely attributes of motion'. This section will now set out three texts defending vortex theories of matter.[14]

The first is G. Johnstone Stoney's 1885 paper, 'How Thought Presents Itself in Nature'. Stoney was an Irish physicist, best known for his work on light,

[14] There is very little literature on the vortex atomism of these particular texts, but Doran's study (1975, 249, 198) briefly mentions that the work of Stoney and Pearson forms part of this tradition.

gases, the solar system, and for advancing towards the discovery of the 'electron' – a term he coined.[15] In the introduction to this paper, Stoney (1885, 178–9) explains that science has shown the universe to exhibit greater 'simplicity' than previously realised. The simplicities he identifies all concern motion. For example, 'Sound is Motion', such as vibrating piano strings; and 'Light is Motion', for we see objects via motions in the molecules affecting our retinas. Stoney (1885, 186–7) states that force, mass, and energy are merely 'functions of the motions'. Our bodies comprise motions, including the vibrations of nerve fibres, and 'intricate' movements within the brain. He claims there need not be any 'mysterious entity' called 'substance': we need not accept that 'underlying every motion must be some *thing* to be moved'. He summarises these findings as follows:

> we are confronted with the fact revealed to us by science, that every phenomenon of the outer world which we can perceive by any of our senses, is simply a mass of motions . . .
>
> scientific inquiry finds motion pervading the material universe; motion everywhere, motions underlying every phenomenon, and it finds *nothing existing outside the mind excepting motions*. (Stoney, 1885, 189, 191)

For Stoney, science shows that the material universe is really 'a mass of motions'.

The second is George Romanes' 1885 paper, 'Mind and Motion'. Romanes was a Canadian-Scots evolutionary biologist, best known for his work on the nervous system, natural selection, and mental evolution.[16] The paper declares:

> [It is] a matter of carefully demonstrated fact, that all our knowledge of the external world is nothing more than a knowledge of motion. For all the forms of energy have now been proved to be but modes of motion; and even matter, if not in its ultimate constitution vortical motion, at all events is known to us only as changes of motion. . . . We do not even know what it is that moves; we only know that when some modes of motion pass into other modes, we perceive what we understand by matter. (Romanes, 1885, 75–6)

For Romanes, matter is only known to us as 'changes of motion'.

The third text is Karl Pearson's 1892 *The Grammar of Science*. Pearson was an English mathematician and philosopher, best known for 'almost single-handedly' establishing the discipline of mathematical statistics.[17] As its title indicates, *The Grammar of Science* is partly concerned with scientific language: Pearson (1892, viii) aims to address the 'obscurity' enveloping scientific principles. However, it also makes many claims about matter. Some of these claims

[15] See Owen and O'Hara (2004). [16] See Smith (2004). [17] See Woiak (2004).

were foreshadowed in another book Welby owned: Pearson's 1888 *The Ethic of Freethought*.[18] For example, this text states:

> The scientific view of the physical universe . . . is based simply on motion . . . The popular conception of matter, as a hard, dead something, is merely a superstition. The very essence of matter is motion. (Pearson, 1888, 66–7)

But *The Grammar of Science* discusses matter in far more detail. In a chapter titled 'Matter', Pearson (1892, 330) claims that, for many thinkers, the 'notion of matter' is 'obscure'. Against the 'commonsense' conception of matter as 'impenetrable' atoms, Pearson (1892, 304–5) argues that other conceptions are available. He considers 'a wave on the surface of the sea', as in Figure 1. Waves

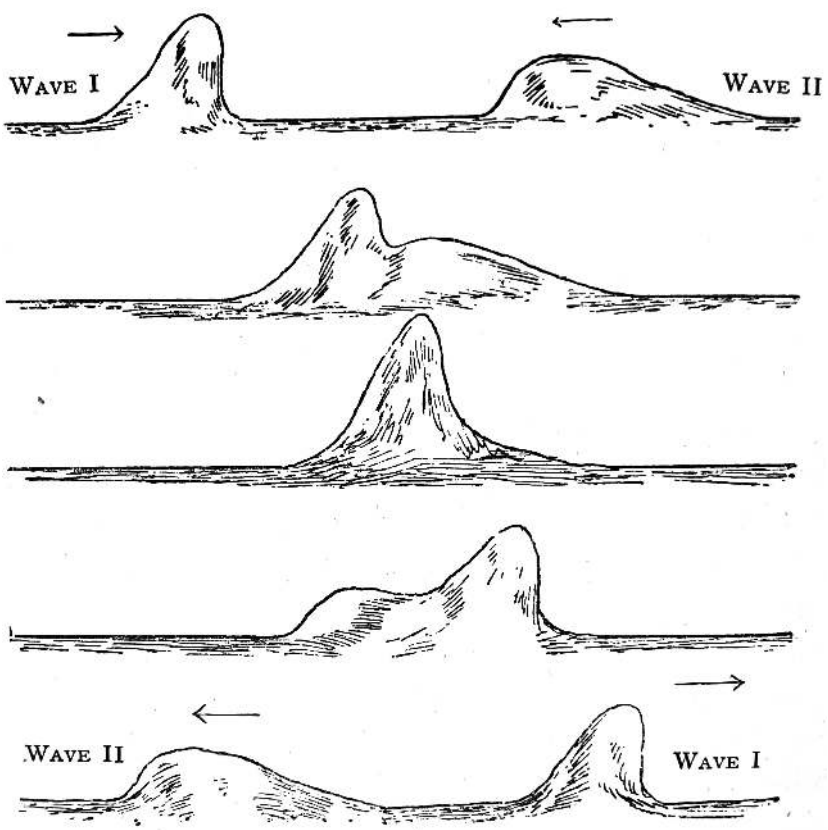

Figure 1 Waves moving across the sea. Taken from Pearson (1900, 256). This image is in the public domain; it is reproduced (with permission) from a copy at Durham University Library

[18] See The Lady Welby Library catalogue, University of London.

maintain their identity as they travel across water, suggesting another conception of matter:

> [One] reason for citing this wave example lies in the light it throws on the possibilities involved in the statement: '*Matter is that which moves*'. The wave consists of a particular form of motion in the substratum [i.e. the water] which for the time constitutes the wave. This form of motion itself moves along the surface of the water. Hence we see that beside the substratum something else can be conceived as moving, namely, *forms of motion*. What if, after all, matter as the moving thing could be best expressed in conception by a form of motion moving. (Pearson, 1892, 307)

On this theory, the water does not move; what moves is the wave, a 'form of motion'. For Pearson, a material body is like a wave: it is not an impenetrable particle, but a form of motion.

Over commonsense conceptions of matter, Pearson (1892, 309–10) prefers ether theories: 'it is the great hope of science at the present day that "hard and heavy matter" will be shown to be ether in motion'. If we could account for all our 'sense-impressions of hardness, weight, colour, temperature, cohesion', and so on via 'the motions of a single medium', our scientific descriptions would be 'immensely simplified'. Pearson (1892, 317–18) goes on to explain that, on Thomson's account of vortex atoms as rings, 'the substratum of an atom always consists of the same elements of moving ether'. Just as a smoke-ring always consists of the same smoke molecules, Thomson seems to conceive vortex atoms as always consisting of the same parts of the ether. Against this, Pearson offers an alternative account. Ocean waves need not consist of the same seawater molecules, and the same goes for vortex atoms:

> [I] put forward a theory in which, while the ether is still looked upon as a perfect fluid, the individual atom does not always consist of the same elements of ether. In this theory an atom is conceived to be a point at which ether flows in all directions into space; such a point is termed an *ether-squirt.* An ether-squirt in the ether is thus something like a tap turned on under water . . . the ether-squirt seems a conceptual mechanism capable of describing a very considerable range of phenomenon.
>
> (Pearson, 1892, 318–19)

For Pearson, vortex atoms are *squirts* – modes of motion. If we turned on a tap underwater, Pearson (1892, 320–1) explains that 'the pressure produced by the flow of water' might produce 'new sense-impressions' in the region of the squirt – the water might seem 'hard and impenetrable'. 'Such squirts, although only water in motion, might form very *material* groups of sense-impressions.' Pearson speculates that the squirts originate in a fourth dimension of space; to explain this, he cites the novel *Flatland.*