Introduction: Leibniz's philosophy and science

In the centuries since his death, the scope and extent of Leibniz's genius have been extolled often. One of the most striking of these eulogies was published in an English newsletter, *The Weekly Entertainer*, in 1807:

> When a great man appears, he soon surpasses in excellence those who surround him. The thousands who compare their own insignificance with his colossal height, complain that nature should strip a whole generation to form the mind of one. But nature is just; she distributes to each individual the necessary attainments by which he is enabled to fulfil the career assigned him. To a chosen few alone she reserves the privilege of possessing uncommon talents, and of enlightening mankind by their exertions. To one she lays open the means of explaining her phenomena; to another she assigns the task of framing and expounding the laws which control his fellow-creatures; to a third it is given to portray the custom of nations, and describe the revolutions of empires: but each has generally pursued one track, and excelled only in one particular line. A man at length arose, who dared lay claim to universality, whose head combined invention with method, and who seemed born to show, in their full extent, the powers of the human mind. That man was Leibnitz.[1]

Leibniz's range was truly astonishing, covering law, mathematics, philosophy, politics, languages, and many areas of science, including what we would now call physics, biology, chemistry, and geology. But Leibniz was not just interested in these areas; he contributed to them all. Although he was neither a professional philosopher nor a professional scientist (*avant la lettre*), some of Leibniz's most notable contributions were in the fields of philosophy and what we would now call science (though we should remember that, in

Leibniz's day, science was still part of philosophy). Indeed, to a large extent, Leibniz's fame and reputation among his contemporaries rested on his contributions to these areas,[2] which were often made in response to the perceived shortcomings of rival positions.

For example, in "Whether the essence of body consists in extension," published in the *Journal des Sçavans* [Journal of the Learned] in 1691,[3] Leibniz took issue with the Cartesian conception of body, which held that the essence of body consists in extension alone.[4] Leibniz pointed out that, if bodies were nothing more than extension, a moving body colliding with a body at rest would result in both bodies moving away with the same speed and direction of the body that was initially in motion. But this was not what happened in real-life cases, in which moving bodies invariably slowed down when hitting other bodies at rest, and sometimes even rebounded from them. Leibniz insisted that this showed that body must also possess *resistance,* that is, the ability to resist change. This property, he argued, was not one that could be derived from mere extension, which led him to claim that there had to be more to bodies than extension alone, insisting that one had to appeal to the metaphysical notion of substance, and in particular the force inherent within (from which, he claimed, resistance *could* be derived) in order to explain the phenomena. Three years later, Leibniz published "On the correction of first philosophy and the concept of substance" in the *Acta Eruditorum* [Chronicles of the Learned],[5] in which he claimed that substances possess not just a passive force that enables them to resist motion, but also an active force that initiates motion, this force amounting to an inherent striving that is "midway between the faculty of acting and the act itself."[6]

Descartes was again the principal target in Leibniz's famous paper entitled "New system of the nature of the communication of substances, as well as the union that exists between the soul and the body," published in the *Journal des Sçavans* in 1695.[7] In opposition to Descartes' claim that substances could causally interact,[8] Leibniz argued that because

substances were true unities, without parts, there was no way that one could pass anything into another, or receive anything from another, as was thought to occur during interaction.[9] Hence there can be no communication or causal interaction between created substances, each of which must instead follow its own laws which it received from God at the moment of creation. Nevertheless, Leibniz claimed, at the outset God co-ordinated substances in such a way that each one perfectly harmonizes with all of the others, and they all act as if they causally interacted. In a follow-up paper, published in February 1696 in the *Histoire des ouvrages des savans* [History of the works of the learned],[10] Leibniz employed the famous analogy of two clocks to illustrate the theory: a sufficiently skilled clockmaker, he noted, could make two clocks which both keep perfect time of their own accord. In such a case, the agreement of the clocks would be due to the supreme artisanship of the clockmaker at the outset, rather than to any influence between the clocks, or on account of any intervention of the clockmaker. And so it is with God and created substances: God was able to create substances that spontaneously agree with all other substances, without any communication between them or any need for divine intervention to keep them co-ordinated. Although the doctrine of pre-established harmony found few supporters, it was taken seriously by a number of Leibniz's contemporaries, being critiqued (for example) in François Lamy's *The Knowledge of the Self* (1699),[11] and in the second edition of Pierre Bayle's *Dictionary* (1702).[12]

Bayle was later to become Leibniz's target in the one philosophical book Leibniz published in his lifetime, the *Theodicy* (Amsterdam, 1710). In the *Dictionary* and other works,[13] Bayle had claimed that faith and reason were directly opposed to each other, such that reason could show to be false those articles that faith demanded, such as the Trinity and the Incarnation. Further, Bayle claimed that all attempts to reconcile the world's evil with the existence of an all-powerful, all-knowing, loving God had failed, and that the problem was

one that did not admit of a rational solution. The *Theodicy* opens with a sustained attempt to show that, *pace* Bayle, faith and reason are not directly opposed to each other, but instead are in perfect conformity. Leibniz claimed that the object of faith is God's revealed truth, and as such a true faith, that is, a faith in revealed articles that are true, could not be demonstrated false by rational arguments. Hence while reason could not demonstrate the truth of doctrines such as the Trinity and the Incarnation, it could at least demonstrate their coherence and hence possibility, by showing that any objections raised against them were without force. Having shown the compatibility of faith and reason, Leibniz devoted much of the rest of the *Theodicy* to showing that a defence of God's justice was possible in the face of the world's evil, against Bayle's claims to the contrary. Leibniz argued that God's justice could not be impugned by the existence of evil in the world because his nature is such that we could be sure he had created the best of all possible worlds, in which case the evil therein is no less an indispensable part of the best than any other feature, such that to make any changes – such as removing the evil – would effectively be to create a different possible world, and as such one that would be less than the best.

These by no means exhausted the philosophical and scientific ideas that Leibniz communicated to the public during his lifetime. For example, he published articles about the accuracy of watches,[14] the separation of salt and water,[15] the laws of nature,[16] the nature of knowledge and ideas,[17] the cause of the aurora borealis,[18] and many other topics besides. Yet many of what we now think of as Leibniz's signature doctrines, such as his containment theory of truth, his analysis of space and time in terms of relations, and his theory of monads, were not widely known among his contemporaries, and were often imperfectly known by those who were aware of them. Indeed, Leibniz occasionally received complaints from correspondents keen to know more of his philosophical or scientific views than he had publicly divulged.[19] This is not surprising. During his lifetime, Leibniz published more than

one hundred journal articles, the *Theodicy*, and several volumes of historical documents, and in addition some of his letters were published without his consent, such as those he wrote to Paul Pellisson-Fontanier regarding religious toleration, which Pellisson had published in 1692.[20] But this represents just a miniscule fraction of all that Leibniz committed to paper during his lifetime, the vast majority of which he chose not to put in the public domain. Following his death in 1716, more of his writings started to appear. The famous correspondence with Samuel Clarke, from 1715-16, was published by Clarke in 1717;[21] the text we now know of as the "Monadology" was published in 1720;[22] *Protogaea,* Leibniz's key work on geology originally written 1691-3, was published in 1749;[23] the *New Essays concerning Human Understanding*, originally written 1703-5, was published in 1765, as part of a single volume collection of Leibniz's works, the *Oeuvres Philosophiques* [Philosophical Works] edited by Rudolf Raspe.[24] In the years that followed Raspe's edition, a number of editors put together multi-volume collections of Leibniz's works: the first of these was the six volume *Opera Omnia* [Complete Works], edited by Louis Dutens (1768);[25] in the eighteenth century, Carl Gerhardt published seven volumes of Leibniz's mathematical writings as *Leibnizens Mathematische Schriften* [Leibniz's Mathematical Writings] (1849-63),[26] and seven volumes of his philosophical writings as *Die Philosophischen Schriften* [The Philosophical Writings] (1875-90);[27] Louis Foucher de Careil issued seven volumes of Leibniz's writings as *Oeuvres de Leibniz* [Leibniz's Works] (1860-75);[28] Onno Klopp published eleven volumes of Leibniz's historical and political writings as *Die Werke von Leibniz* [Leibniz's Work] (1864-84).[29] Between them, these collections made available a great number of Leibniz's writings that had not been previously available. But there was still much that remained unpublished, and that which had been published was not always reliable, with faulty transcriptions common in the various eighteenth and nineteenth century collections.

However, in the early twentieth century, in an effort to do justice to Leibniz's Nachlass, work began on a critical edition of all Leibniz's writings, entitled *Sämtliche Schriften und Briefe* [Complete Writings and Correspondence].[30] The first volume of this edition appeared in 1923, and by the start of 2016 no fewer than fifty four volumes have been published, arranged in eight series:

Series 1: general, political and historical correspondence (24 volumes, to July 1705)

Series 2: philosophical correspondence (3 volumes, to 1700)

Series 3: mathematical, scientific and technological correspondence (8 volumes, to 1701)

Series 4: political writings (8 volumes, to 1700)

Series 5 historical and linguistic writings (no volumes published to date)

Series 6: philosophical writings (5 volumes, to 1690, and the *New Essays* as a separate volume)

Series 7: mathematical writings (6 volumes, to 1676)

Series 8 scientific, medical, and technical writings (1 volume, to 1676)

Work on this edition is still ongoing, and it is likely to be at least another fifty years before it is complete. Nevertheless, in spite of the fact that even now, three hundred years after his death, Leibniz's writings have still not been published in their entirety, it must be acknowledged that scholars today have access to a much greater range of Leibniz's writings than those of any previous generation, an invaluable boon for those who seek not just to plot the contours of Leibniz's thought, but also ascertain how his thought fit into – and emerged from – the age in which he lived. Arguably, the scholarship on Leibniz in the last three or four decades has been deeper and richer than what came before, underpinned as it has been

by the availability of so many more of Leibniz's works than were available to scholars of previous generations. Yet more work needs to be done to get to grips with the breadth and depth of Leibniz's thought, not least his ideas in philosophy and science. The essays in this volume – published exactly three hundred years after Leibniz's death – together represent a further step towards understanding Leibniz's philosophical and scientific thought, and its place both in his age and in ours.

The essays are arranged under four broad themes: science, metaphysics, epistemology, and religion and theology, and the volume is completed by a biographical conclusion. In what follows we shall outline each of the contributions.

Science

The science section begins with Maria Rosa Antognazza exploring the question of Leibniz's contribution to the rise of modern "science." Leibniz's position, so Antognazza claims, marks a milestone towards a modern understanding of the distinction between philosophy and science, but it does not make him someone who is pursuing a type of inquiry which is nowadays extinct. On the contrary, whilst Leibniz is heir of the ancient and medieval Rennaissance tradition endorsing the unity of "science" as knowledge and its systematicity, he is also herald of the future through one of the first theorised distinctions between physics and metaphysics that tracks our modern distinction between the autonomous enterprise of science in its modern meaning, and the enterprise of philosophy. Antognazza holds that, for Leibniz, physics proper is the study of natural phenomena in mathematical and mechanical terms without recourse for its explanations to metaphysical notions. This autonomy, however, does not imply for Leibniz that physics can say on its own all that there is to be said about the natural world. In fact, quite the opposite: for Leibniz the bottom level of reality is reached by metaphysics, not by physics.

While Leibniz himself did not conduct many scientific experiments, he was well-informed of those conducted by others. As Alessandro Becchi shows in his essay, Leibniz took an especially keen interest in the work of the Dutch microscopist, Antoni van Leeuwenhoek (1632-1723), whose findings had a considerable impact on Leibniz's thinking. Becchi reveals how Leibniz utilised Leeuwenhoek's discovery of protozoa as empirical evidence to underpin a number of his own metaphysical doctrines, among them that bodies are infinitely complex and inherently organized (organic) at every level, and that there is life everywhere. Having found such value in Leeuwenhoek's work, Leibniz often lamented that it was carried out in isolation, strongly believing that science should be a communal enterprise. He held out hope that Leeuwenhoek would establish a microscopy school and pass on his techniques to others, for the benefit of the scientific community and the wider population, and even raised the prospect of this in his first letter to the Dutchman, written in 1715. As Becchi explains, however, Leeuwenhoek's refusal to accede to Leibniz's request stemmed from his own vision of science as the preserve of privileged and talented individuals rather than as a shared, collaborative enterprise, which Leibniz wanted it to be.

The final essay of the section, by Richard Arthur, considers Leibniz as a forerunner to some key ideas in modern biology. Arthur draws an analogy between Leibniz's view that each individual contains all that is necessary for its structural and formative development, and that of modern genetics, in which the information necessary for a living being's development is contained in its genetic code. He also sees Leibniz's belief that living things are themselves composed of living things as consonant with modern findings, which reveal, for example, that certain forms of bacteria are necessary for the proper functioning of the human body despite being genetically separate organisms. Although Leibniz's philosophy is not evolutionary, as Arthur notes, his vision of life as a process and organic matter as fundamentally made up of self-sustaining replicating machines may be seen as anticipating more recent trends in

biological thinking. According to Arthur, this makes Leibniz's thinking about life and organism of great contemporary relevance, despite the great changes that have occurred in the biological sciences in the intervening centuries.

Metaphysics

The metaphysics sections opens with Nicholas Jolley asking why Leibniz favoured an ontology of monads of varying grades, from the superior (minds) to the inferior (bare monads), rather than a Berkeleian ontology of minds or spirits, given that Leibniz's God is committed to creating substances that mirror his own perfections. Jolley suggests Leibniz's ultimate reasons for preferring a monadology are twofold: first, Leibniz considers plenitude, involving as it does a hierarchy of beings, to be more aesthetically pleasing. At the price of including inferior and bare monads with very imperfect mirroring abilities, Leibniz's hierarchy of monads provides him with richness in variety and the multiplication of harmonies on all ontological levels. Second, in developing his dynamics, Leibniz finds himself in need of an adequate theory of bodily forces that connect those on the kinetic or locomotive level with basic and inherent forces at the metaphysical ground floor. In adopting a monadology, Leibniz is able to supply his new science of dynamics with the required grounding of physics in the primitive forces of the lower or bare monads.

The dynamics is also at the heart of Tzuchien Tho's essay, which charts the formative steps of Leibniz's theory of corporeal motion which culminated in the appropriately coined "Dynamica" of 1689. Tho claims that, after several false starts, it is only when Leibniz arrives at the concept of action, and is able to formulate a theory in which corporeal motion or agency is embedded within bodies, that his long-term metaphysical commitments are met to his satisfaction and the new science of the cause of corporeal motion is called into life. What does this tell us about the relationship between physics and metaphysics in Leibniz?

According to Tho, that Leibniz's dynamics cannot be understood as metaphysically neutral, since it takes up a clear position on causal motion and agency. Yet Tho also claims that the metaphysics of the dynamics can be reconciled with a number of fundamental metaphysical positions, that is, with realism as well as idealism. Unlike Antognazza, then, Tho does not view the enterprises of science and metaphysics as autonomous to the extent that levels operate nomologically independently and "in ignorance" of one another. Rather, on Tho's account, metaphysics and science in Leibniz are deeply and irreducibly entwined insofar as Leibniz, in searching for an empirical understanding of bodies in motion, allows himself to be entirely guided by his long-term metaphysical commitments.

In his essay, Stefano Di Bella examines Leibniz's correspondence with the Dutch scientist Burcher De Volder which ran from 1698-1706, and so is ideally positioned in chronological terms to highlight some of the important changes to Leibniz's ontological thinking which occurred as a consequence of his work on the new dynamical theory of 1689. Whilst some of his early logico-ontological intuitions are still alive at the time of his correspondence with De Volder, according to Di Bella, Leibniz is at that point more prepared to draw a clear distinction between ontological and conceptual relations. On Di Bella's reading of the De Volder letters, the metaphysical interpretation of Leibniz's dynamic discoveries is to a large extent responsible for a downgrading of the concept-containment thesis which less than a decade and a half earlier in the *Discourse on Metaphysics* (1686) had been presented as the ultimate explanation of such metaphysical notions as inherence and causality. Now, in his critical confrontation with Cartesian essentialism and its reductive and abstracting features, Leibniz argues for a sharp distinction between conceptual dependence on the one hand and ontological dependence on the other, and between conceptual containment and ontological inherence. This puts Leibniz distinctly at odds with De Volder's view. The correspondence becomes witness to Leibniz's systematic defence of this revised

understanding of the inherence relation which together with Leibniz's particular brand of causation, now clearly separate the ontological and the conceptual dimensions.

Epistemology

The epistemology section starts off with Dale Jacquette considering the extent to which Leibniz can correctly be called a Rationalist. In his paper, Jacquette explores how the common distinction between Rationalism and Empiricism – understood as the epistemic prioritisation of reason over perception in the first case, and that of perception over reason in the second – helps us understand Leibniz's rationalist tendencies better. How do Leibniz's contributions in the *Protogaea,* for example, fit with the speculative character of a natural science that is based on empirical observation and inference to the best explanation? For Leibniz, according to Jacquette, the inference that best explains the present state of the world and the empirical findings of natural science is not complete unless it includes a story about the world's universal origins and God's unerring plan for creation. The clue to Leibniz's rationalism, hence, lies in the understanding that any explanation of phenomenal regularities must point beyond itself to a disclosure of the origins of the universe and God's world-making preferences. Although empirical science in its approach is indistinguishable in Leibniz from that of later empiricists, natural science in Leibniz is a precursor of natural theology, which, together with its usual methods of observation and experiment, uncovers the rational order in the universe and God's will.

The certainty with which we as humans may come to know the universal natural order and its "rules" is the topic of the essay by Julia Weckend. She argues that the concept "certainty" in Leibniz is stable inasmuch as it can be given a generally applicable and therefore universal definition – it is always considered to be the highest obtainable measure of knowledge – but that its scope varies and adjusts depending on whose knowledge it is and

the particular field of investigation. When disambiguating "certainty" as a concept we find that Leibniz uses it in both a modal and an epistemological sense. In the modal sense, "certainty" refers to an objective property of a fully determinate world, whose events are certain and determined inasmuch as they cannot fail to happen. All events are knowable in principle, though in practice it is only God who is omniscient. In the epistemological sense, on the other hand, "certainty" refers to the highest degree to which limited beings can attain knowledge of truths. For humans the spectrum ranges from logical or geometrical certainty, to be found in disciplines like logic or mathematics with the highest levels of *a priori* contributions, through to reduced and probabilistic forms of certainty, for example in the empirical sciences, such as geography and astronomy, which rely on a mixture of data and *a priori* reasoning. Leibniz's complex and layered system of knowledge is rounded off by life-sustaining practical certainties such as the reliability of perception. This hierarchical understanding of certainty, according to Weckend, is an important aspect of Leibniz's overall epistemological project.

The pursuit of some form of certainty also plays a role in Leibniz's handling of probabilities in the moral domain, which is the topic of Chris Meyns' essay. Meyns explains how Leibniz's contribution to decision theory in the sphere of human choices and actions reforms the rather arbitrary system of moral evaluation inherited from his Scholastic predecessors. Whilst Scholastic probabilism held that an opinion was morally plausible and worthy of consideration if it was supported either by already recognised reasoning (such as moral or legal precedents) or endorsed by an appropriate authority, Leibniz insisted that calculations of probability should reflect the actual ratios and tendencies with which phenomena occur in the world. On Leibniz's account, Copernicus' opinion in celestial matters turns out to be more "probable" not because of Copernicus' notable scientific expertise – which on the Scholastic assessment would have been sufficient to ground a

decision – but because Copernicus' hypotheses came closest to the truth. This makes Leibniz's account of probability objective and his probabilistic analysis truth-tracking. As Meyns reads it, probability for Leibniz is not about how certain we are about being correct, but about how closely what we deem correct also represents the facts.

Religion and Theology

The Religion and Theology section begins with Leibniz's theodicy, and its key claim that ours is the best of all possible worlds. In his essay, Lloyd Strickland notes that the plausibility of Leibniz's theodicy was widely thought to have been severely damaged by the Lisbon earthquake of 1755, which killed at least 10,000 people. Thinkers such as Voltaire complained that Leibniz's theodicy could not adequately explain the pain, suffering and death caused by the earthquake, but how might Leibniz have responded to this charge? In considering this question, Strickland examines the ways in which Leibniz sought to explain, and justify, pain, suffering and death in general. Drawing on biblical sources, Leibniz claimed that pain and suffering were often punishments for sins, or important for one's moral and spiritual development, and that death was not a genuine disorder, but rather a stage that was necessary in order for individuals to perfect themselves. As Leibniz thus believed that pain, suffering and death contribute to the perfection of the universe rather than detract from it, Strickland argues that he would not have thought his theodicy threatened by an event even of the magnitude of the Lisbon earthquake.

From theodicy we turn to the nature and distribution of grace. In his paper, Agustín Echavarría considers Leibniz's various conceptions of grace, and how these are squared with divine justice, given that some people are granted the necessary grace for salvation and others are not. Echavarría argues that the theory of divine grace that Leibniz develops not only has to harmonise with his other metaphysical commitments, such as his belief that all creatures

have complete concepts, but also has to strike a fine balance between preserving the gratuity and the efficacy of divine grace without jeopardising God's justice in the distribution of grace or human responsibility for rejecting God's aids. On one level, the issue turns on Leibniz's compatibilist assumptions regarding divine foreknowledge and the possibility of free will of the creature. The plenitude of grace's effects in a particular individual depends on the conjunction of concurring factors, including resistances of the will, the previous states of the soul, and the internal and external circumstances that help the individual to fix her attention to the good. On a second level, we see that all these factors are unified and connected in the complete order of things that God has chosen to create. What ultimately matters for the Leibnizian account of grace is the perfection of the entire series of things.

The final essay in the theology section concerns Leibniz's vision of the afterlife. Here, Paul Lodge proposes a new and conciliatory reading of Leibniz's position on the doctrines of universal salvation and eternal damnation, in opposition to those who argue that Leibniz exclusively endorsed one or the other. After looking again at the texts that are usually considered to decide this issue, Lodge suggests that they are consistent with the following working hypothesis: that eternal damnation and universal salvation are features of distinct theologies, whose appropriateness is determined by the extent to which they are capable of engendering true piety in their audiences. In Lodge's view, Leibniz's motivation behind his handling of these doctrines may be practical rather than dogmatic, that is, his aim is to promote piety and a love of God rather than show his own commitment to one or the other. On this account, Leibniz considered both eternal damnation and universal salvation to be admissible doctrines as long as they solicit the right effects from their intended audience. According to Lodge, Leibniz's ultimate stance may thus be far more radical than commonly suggested, driven by his belief in perpetual progress as the ultimate goal of salvation.

The final essay of the volume is Michael Kempe's biographical conclusion, which assesses Leibniz's claims to be a global thinker. According to Kempe, Leibniz sought not just to observe global affairs, but also to shape them, despite being a middle-ranking civil servant in one of the less powerful German states. Yet from there, Leibniz was able to establish a global epistolary network of well over a thousand correspondents, allowing him to collect and share enormous quantities of information from all around the world. He devoured the travel accounts of seafaring explorers and Christian missionaries, followed the developments and effects of colonial explorations in North and South America, and supported the search for potential trade routes to South East Asia. But this was not just out of personal curiosity, as Leibniz sought also to formulate plans of a global nature, whether it be for a French invasion of Egypt, the establishment of scientific societies, or the promotion of European culture in Russia. And these were no mere pipe dreams either, for as Kempe notes, even from a relatively young age, Leibniz had the ear of the political elite, and over the course of his life was able to meet the German emperor, the Russian tsar, and the English king. Thus for Kempe, Leibniz was not just a universal genius, but a thinker of truly global perspective, a thinker who sought to find out what he could of the world and, where possible, to shape it.[31]

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[1] [Anon], "Account of the learned Leibnitz," 621.

[2] The obvious exception is Leibniz's discovery (or co-discovery, as we now think) of infinitesimal calculus, which secured him a reputation among his contemporaries as a first rate mathematician. See Leibniz, "Nova methodus pro maximis et minimis"; Leibniz, "G. G. L. de geometria recondita et analysi indivisibilium atque infinitorum"; Leibniz, "G. G. L. supplementum geometriae Dimensoriae."

[3] Leibniz, "Extrait d'une lettre de Mr. de Leibniz." English translation: SLT 123-5.

[4] Descartes, *The Philosophical Writings of Descartes Volume 1*, 224 (*Principles of Philosophy*, II.4).

[5] Leibniz, "G. G. L. de primæ philosophiæ emendatione." English translation: PPL 432-3.

[6] PPL 433.

[7] SLT 68-77.

[8] Descartes, *The Philosophical Writings of Descartes Volume 2*, 275.

[9] SLT 73.

[10] [G. W. Leibniz], "Extraits des divers lettres," 273-6. English translation: LNS 62-4.

[11] Lamy, *De la connoissance de soi-même*.

[12] See Bayle, *Historical and Critical Dictionary*, 235-9 and 245-54.

[13] See Bayle, *Pensées diverses, écrites à un docteur de Sorbonne*; Bayle, *Continuation des Pensées diverses*; Bayle, *Réponse aux Questions d'un Provincial*.

[14] Leibniz, "Extrait d'une lettre de Mr Leibniz à l'auteur du Journal."

[15] Leibniz, "Meditatio de separatione salis & aqua dultis."

[16] Leibniz, "Brevis demonstratio erroris memorabilis Cartesii." English translation: PPL 296-8.

[17] Leibniz, "Meditationes de cognitione, veritate, et ideis." English translation: PPL 291-4.

[18] Leibniz, "Annotatio de luce quam quidam auroram borealem vocant."

[19] See for example GP III, 616.

[20] Pellisson-Fontanier, *De la tolerance des religions*.

[21] Clarke, *A Collection of Papers, Which passed between the late Learned Mr. Leibnitz, and Dr. Clarke*.

[22] Leibniz, *Lehr-Sätze über die Monadologie*.

[23] Leibniz, *Protogaea*.

[24] Leibniz, *Oeuvres Philosophiques latines & Francoises de feu Mr. de Leibnitz*.

[25] Cited in this book as Dutens.

[26] Cited in this book as GM.

[27] Cited in this book as GP.

[28] Leibniz, *Oeuvres de Leibniz*.

[29] Leibniz, *Die Werke von Leibniz*.

[30] Cited in this book as A.

[31] With thanks to Erik Vynckier for his comments on an earlier draft of this introduction.