

Julia Weckend and Lloyd Strickland (eds.), *Leibniz's Legacy and Impact*. New York: Routledge, 2020. 319 pp.

Reviewed by Markku Roinila, University of Helsinki

Leibniz's Legacy and Impact is a most welcome addition to our understanding of the influence of the universal genius. The volume reaches far beyond Leibniz's immediate impact and gives us valuable information on how his ideas influenced various fields of science. We even get to see what Leibniz's impact on future science might be 304 years after he passed on.

It is standard practice for introductory textbooks and article collections on Leibniz to include a chapter about his legacy, often reflecting the interests of the commentator in question. As an example one might mention the relatively recent book by Richard Arthur,¹ in which Leibnizian posterity is discussed especially from the point of view of physics and mathematics. A different focus can be found in Nicholas Jolley's *Leibniz*, where the author approaches the topic from a metaphysical point of view.² An earlier account by Catherine Wilson is centered on Leibniz's immediate impact on Eighteenth-Century French and German discussions.³ Finally, it is interesting that recent German introductions to Leibniz's philosophy, such as those by Michael-Thomas Liske⁴ and Hans Poser,⁵ include chapters on reception in which contemporary philosophy is emphasized (Poser's chapter is titled "Leibniz Today").

While these different accounts complement each other in a fruitful way, there have been few general, book-length accounts of Leibniz's impact and legacy apart from some conference proceedings. This is unfortunate because Leibniz's central role in the scientific enterprises of his time is interesting not only to Leibniz scholars, but also to scholars of early modern philosophy and historians of science. Part of the reason may be that it is almost impossible to take into account all of the different aspects of the polymath, and consequently the book will inevitably be incomplete. Such is the case with this book as well. However, I think it can be said that this volume includes an extraordinary breadth within unity, for the topics range from mathematics to ecology and the timeline extends from Leibniz's youth to our time and beyond.

The introduction by the editors is excellent, giving a more substantial take on results than is often the case in article collections and covering the challenges regarding the assessment of Leibniz's impact very well. It is clear that the biggest

problem in this respect is that most of his scientific output consists of articles (yet another way in which he anticipated modern science!) There is also a number of other matters that affect his impact, such as the priority-dispute between Leibniz and Newton, the *vis viva*-controversy in France, the rejection of Leibniz-Wolffian philosophy by Kant, and so on. As the editors note, there is no unified school of Leibnizianism (as he himself wished), so it is sometimes difficult to trace Leibnizian influences to later thought. In addition, part of the Leibnizian impact is indirect, such as his work with scientific academies and acting as a correspondent.

The introduction also complements the essays, as there are unavoidably some topics omitted in them. Such is the doctrine of *petite perceptions*, which the editors address most interestingly on p. 9 and in note 13 on p. 15. There are also rich accounts of later reactions to the pre-established harmony and monadology, which feature a lot of long forgotten philosophical accounts.

The editors challenge the often-presented story, according to which Leibniz's influence was at its strongest in his lifetime and the following years and then gradually waned until it almost disappeared in the 20th century. I think the essays in this collection do indeed show that the situation varied in different countries — for instance, in Germany one can find traces of Leibnizian influence until the 19th century, in France there are Leibnizian resurrections both in the 18th and 19th century and in Russia Leibnizianism (albeit in a modified form) survived up to the 20th century. In England one can find 20th century monadologies, in addition to the influential work on Leibniz by Bertrand Russell in 1900.

The eleven essays in the book are divided into three parts (followed by an index) and I will follow this structure in my comments.

Early Receptions

Philip Beeley starts the first part with an entertaining story of a young Leibniz. His essay “Leibniz and the Royal Society Revisited” introduces us to the tough competition between mathematicians in the 17th century where connections and reputation were of the utmost importance. Leibniz's admission to the Royal Society was largely due to his fellow German, Henry Oldenburg, who made him familiar with the English practices, warned him in vain to avoid mathematics due to the fierce competition and promoted Leibniz's *Hypothesis physica nova*, which was a relative success among the Englishmen. The hardest to impress was Robert Hooke, who even tried to build his own version of Leibniz's calculating machine.

REVIEW OF LEIBNIZ'S LEGACY AND IMPACT

Fortunately, Leibniz's first functional machine was manufactured before Hooke's version. Beeley brings out very well the lukewarm attitude of Englishmen to foreign scientists, culminating in the long-standing priority-dispute between Newton and Leibniz, and especially the often-ignored relationship between Leibniz on the one hand and Gregory and Collins on the other.

Oldenburg's death was a blow to the society's foreign members and Leibniz was blocked from hearing the developments in English science. His efforts to open correspondence with Newton were also unsuccessful and, in the end, the Royal Society proclaimed in 1712 that Leibniz had copied Newton's method. Beeley's essay ends with the conjecture that if the English were more tolerant of Leibniz, the development of mathematics would almost certainly have progressed more quickly.

Another excellent, and in some ways surprising, essay follows. Lloyd Strickland's "Staying Optimistic! The Trials and Tribulations of Leibnizian Optimism" efficiently wrecks the old story that Leibnizian optimism enjoyed a grand success until the earthquake in Lisbon destroyed the doctrine in the 1750's. According to Strickland, very few details are known about the effect of the catastrophe on the doctrine of metaphysical optimism — and in any case, Leibniz's doctrine was modified substantially after his death. Its success waned already in the 1740's and criticism of optimism increased well before the Lisbon events.

Strickland gives a good summary of Leibniz's doctrine of optimism in *Theodicy*, after which we are led through a series of partially known and partially forgotten authors who adopted or modified Leibniz's optimism in various ways during the 18th Century. For example, Georg Christian Knoerr (1691–1762) and Johann Franz Budde (1667–1729), among others, argued that God's creation of the world can be supported scripturally and that Leibniz leaves no room for Christ in his *Theodicy*. The latter fact in particular became a popular cause for criticism, in addition to a worry about God's freedom in choosing the best of all possible worlds.

We learn that Leibnizian optimism had its greatest success in 1720's Germany, largely because of Wolff's support. At the same time, however, Wolff also modified Leibniz's views. Eventually Wolff surpassed Leibniz as the foremost representative of metaphysical optimism, and many of the well-known later accounts of the doctrine, such as those by Bilfinger and Baumgarten, had little to do with Leibniz's original doctrine. In the 1730's, Leibniz's views were also often confused and combined with those of Alexander Pope's *Essay on Man* (1733–1734).

In France, optimism received increasingly severe criticism for limiting God's

freedom (Castel), although there were some defenders, such as Du Châtelet and Vattel. By the 1750's, the fascination with optimism was definitely diminishing. The effect of the Lisbon earthquake is shown mostly in Voltaire's 1756 poem (and later on in *Candide*), where he complains that Leibniz failed to give an explanation of why something like this should happen in the best of all possible worlds. Similar arguments were also presented in England in the 18th century.

Many of the variations of optimism are interesting. For example, in 1752 the German historian Georg Christian Croll distinguished between the best world in the sense that it completely fulfils the end that God proposed to himself in creation, using the most perfect means at his disposal, and the most perfect world which is one without physical and moral evils and where Adam did not fall. Croll seems to suggest that God's intention was not really to create the most perfect world, as can be inferred from the fact that God created the best world instead of the most perfect world.

Leibniz's influence on Hume is a fascinating topic. It is addressed in Julia Weckend's "Leibniz and Hume — a Point of Contact." We do not know how much exposure Hume had to Leibniz's writings (little, it seems), and there are only three explicit references to Leibniz's works in Hume. Yet, one can easily find Leibnizian topics or remarks that seem to anticipate Hume, such as the remark in *Monadology* §28 that "in three-fourths of our actions we are nothing but empirics." His work with probability also paved the way for Hume. Indeed, Weckend notes that Hume remarked in his *Abstract of a Book Lately Published* (1740) that his *Treatise* provides the new kind of logic for contingent truths that Leibniz was striving for. (Hume was referring to *Theodicy*). At the same time, Hume is clearly very much opposed to Leibniz's style of rationalism. Nevertheless, Weckend advances the bold claim that Hume applies Leibnizian metaphysical principles in order to distinguish ideas that are epistemically certain from those that are only probable.

There is some precedence for this claim, for example in Heinemann, who argues that Hume implicitly accepts some Leibnizian metaphysical assumptions, such as the principle of the identity of indiscernibles and even the pre-established harmony. All this hangs on which Leibnizian texts Hume read. If he read *The Principles of Nature and Grace* and *Monadology*, as Weckend suggests, all of the above would make more sense. It seems to be more certain that Hume was familiar with the description of Leibniz's system in Bayle's *Dictionary*, including the pre-established harmony. Had Hume seen Leibniz's *New Essays on Human Understanding*, one could understand the influence better, for the rationalist psychology in the second

book of the work would no doubt have interested Hume.

Weckend goes on to discuss Humean associationism in detail, using his terminology. This practice is quite understandable, although I would have wished for some more details concerning Leibniz's views. For example, Weckend says that "In Hume, as in Leibniz, all mental tasks are initially led by the imagination 'being the ultimate judge of all systems of philosophy'" (p. 98). While I think there are some grounds for this claim, a further explanation would have helped to show how Hume's and Leibniz's views are related.

Weckend presents some further similarities between the philosophers. These include a direct Leibnizian influence on Hume's views on probability and employing the principle of the identity of indiscernibles in criticism of a traditional way of thinking of causality. According to Hume's argument, if we can think of cause and effect independently of each other, their separate existence is possible and there is no necessary link between them. While this may be true, I am more inclined to see Leibnizian influence in Hume's doctrine that our views on causality are founded on natural habits, which are gradually built over time (see *Monadology* §28 above).

All in all, it seems challenging to discern exactly the sources in such a well-read man as Hume, and a more exhaustive comparison between the influences from Leibniz, Bayle, Locke, Clarke, Malebranche and even Spinoza would perhaps give us a fuller picture of the origins of Hume's views. While Weckend does a good job explaining Hume's epistemology and tracing different sources for his views, I found that the Leibnizian sources could have been presented more extensively. In fact, I was left with the impression that Hume, like Leibniz, chose bits and pieces from a variety of sources while keeping his own vision clearly in mind. It appears that the influence of Leibniz was both positive and negative: Hume found useful logical or metaphysical principles to help structure his theory of mind but tried to stay clear of the more ambitious rationalist elements of Leibnizianism. However, I think Weckend's take-home message is just an exaggeration: "Hume is Leibniz minus the optimism that goes with faith in the tenets of reason" (p. 107).

The first part of the book ends with "Kant's 'True Apology for Leibniz'" by Nicholas Jolley. He reflects on the question of how Kant saw his critical philosophy in relation to Leibniz (given that Kant once remarked in *On a Discovery whereby Any New Critique of Pure Reason is to be Made Superfluous by an Older One* that his *Critique of Pure Reason* is a true apology for Leibniz) and sets himself to answer to two questions: did Kant understand Leibniz to be an idealist? If not, why not?

Kant argued that Leibnizian idealism must be updated with the help of his episte-

mology. But Jolley argues that he did not sincerely understand Leibniz as an idealist — for example, he assumed that Leibniz was not serious about his pre-established harmony because he did not want to adopt idealism. Jolley argues convincingly that this was not only due to the fact that some important texts by Leibniz were not familiar to Kant. The more important question is what Kant took idealism to be in the first place. He wanted to distance himself from Berkeleyan idealism and argued that his own type of idealism (Jolley describes Kant's transcendental idealism as quasi-idealism at most) is much better than idealism or even the opposite of idealism. As Leibnizian idealism is quite different from Berkeleyan idealism, it is not so surprising that Kant did not regard Leibniz as an idealist.

Jolley then moves on to discuss the ideality of space and time. Kant was certainly aware of Leibniz's views, but he argued in the *Prolegomena* that regarding time and space as ideal does not commit one to idealism (as is obvious considering Leibniz's "middle" period). Keeping all this in mind, Jolley notes that it is strange that Kant failed to pay attention to the similarity between his and Leibniz's views in *On a Discovery*. It is indeed strange — Jolley argues convincingly that it would have been much easier to consider the first *Critique* as an apology for Leibniz if Kant's true intention was indeed to argue that his views were similar to Leibniz's. However, in the relevant section of the *Critique* Kant criticizes Leibniz's views on time and space rather than admitting any similarity with his own views.

One naturally wonders why Kant wants to downplay this similarity of views. Jolley finds the most pressing reason in Kant's view that space and time are forms of sensibility whereas for Leibniz they are intelligible systems of relations that are imposed by the intellect on bodies and events. This is indeed a substantial difference and I think Jolley is onto something here.

In sum, Jolley does an outstanding job in presenting the complex views of both philosophers and giving plausible answers to the questions asked in the beginning. His clear essay was a joy to read.

Legacy in Science and Metaphysics

The four essays in the second part of the book are related, with one exception, to specific fields of science. The first essay, "Leibnizian Conservation in d'Alembert's *Traité de dynamique*" by Tzuchien Tho, is a good example of a somewhat technical paper where the reader is given sufficient explanations and even figures to be able to follow the plot.

The story of Leibnizian dynamics is a bit similar to the reception of his theodicy — little by little the term started to take on a life of its own, and later accounts had increasingly little to do with his original doctrine. Such is the case also with d'Alembert's *Traité de dynamique* (1743), where dynamics is discussed as a science that concerns corporeal motion instead of a general theory of the causes of motion as in Leibniz. Tho argues, however, that while Leibniz's dynamics did not have a direct impact on d'Alembert and Lagrange later on, they still reflect the problems related to it, especially the conservation of living force. Leibniz did not succeed in giving a demonstration of the conservation of living force, but establishing the problem was still important to the development of physics.

Part of the problem was the division of natural philosophy into two camps. As Beeley noted concerning mathematics, Tho argues that combining the Leibnizian and Newtonian theories would have advanced the development of physics in the 18th century. Adopting Newton's concept of force would have enriched the theory of living forces — later on this was attempted by Du Châtelet. Leibniz limited himself to arguments based on centers of gravity, which were already a little dated among his colleagues. Consequently, it was left to others to develop his dynamics.

Tho points out that part of the problem was the fact that Leibniz's theory of substantial forms acted as a background metaphysical assumption in his famous *Brevis demonstratio*, and this alienated scientists like Huygens, Bernoulli and d'Alembert. In fact, he continues, the conservation of living force was seen by Leibniz as an important connection between physics and the rehabilitation of substantial forms. This is an interesting idea that merits more reflection, especially in relation to the 1695 *New System*.

Tho continues by arguing that we can find in d'Alembert's work a Leibnizian vision rather than a Newtonian one (although Newton's theory of force is utilized) — it is an attempt to solve Leibniz's unanswered question of how the conservation of living force is actually accomplished.

After giving this overview, Tho advances to details of the limitations in Leibniz's method and the concept of living forces as presented especially in *Brevis demonstratio* and *De potentia* (c. 1697–1702). The exposition is very clear with the help of figures (as is the case later on in the essay). The upshot is that while Leibniz can present a convincing case for the conservation of living force, he cannot show how this is actualized. This problem was simply left unsolved, but d'Alembert takes up the story with his famous principle according to which motion is the result of all the components of a physical system in question rather than a single body. It is a

matter of breaking the equilibrium, which gives a sufficient reason for motion. Tho gives an exposition of the contents of the *Traité* and shows how the principle is related to the conservation of living force. Although Leibniz's influence is indirect, d'Alembert's work is continuation of the same project.

Tho's paper is very clear and those unfamiliar with Leibniz's dynamics can see the big picture here. His account of d'Alembert's background in Leibniz is quite persuasive. Perhaps a little more context of the *Vis viva*-controversy would have been helpful, but that can easily be acquired elsewhere.

Next, we will move to quite a different topic, Russian Leibnizianism (Frédéric Tremblay). This is one of the most fascinating essays of the book, as the organic growth of Leibnizianism in Russia is unique, lasting up to the 20th Century. This history is not widely known, and Tremblay does an excellent job distilling a consistent history of Leibnizianism across 300+ years in Russia.

Leibniz had a direct influence on Peter the Great. He met him three times and, in addition, presented him a number of memoirs on a variety of topics from education to industry to the promotion of science in Russia. The most significant outcome of this remains the Russian Academy of Sciences in St. Petersburg.⁶ Wolff succeeded Leibniz and helped Peter to set up the Academy. Wolff's reputation in Russia was increased by the fact that many Russians studied under his supervision at the University of Marburg.

The most famous of these students is Mikhail Lomonosov (1711–1765), who is regarded as the founder of Russian science. He knew not only Wolff's works, but Leibniz's as well. He adopted some Leibnizian doctrines, such as the monadology, the principle of sufficient reason and the pre-established harmony. Lomonosov's conception of monads was different from Leibniz's, however. In a treatise later lost, he understood monads as insensible and indivisible physical particles or atoms. The qualities of these monads are subject to the principle of sufficient reason. Nature is in constant harmony and for this reason Lomonosov defended Leibniz's optimism.

The next important Leibnizian in Russia was actually a German, Gustav Teichmüller (1832–1888), who acted as a tutor in St. Petersburg and ended up at the University of Dorpat (present-day Tartu in Estonia), which was then part of the Russian empire. His version of Leibnizianism has been characterized as a personalistic monadology or a monadological panpsychism. For Teichmüller, the world is a multiplicity of psychological individuals. He rejects pre-established harmony and ultimately the mind-independent world - only selves and God have substantiality. Teichmüller was also influenced by German mysticism (Böhme, for example),

which he combined with anti-Kantianism and anti-idealism. However, Teichmüller seems to leave some space for anti-subjectivism as well, because his ontology includes real beings in addition to psychic acts and ideal beings, and he argues that science would be impossible if the monads were windowless.

Teichmüller's ideas inspired Alexei Kozlov (1831–1901, active at Kiev University) to create his own version of Leibniz-influenced panpsychism. For him, the world consists of monads that can interact with each other. The substances form an organic whole, so there is harmony in the world, but he rejects the doctrine of pre-established harmony, like Teichmüller. Another follower (and student) of Teichmüller was Evgeny Bobrov (1867–1933), who translated the *Monadology* into Russian and wrote two other books on Leibniz. He tried to create a monadology that takes Kant's criticism into account. Bobrov had also some original ideas, such as three kinds of coordination between the monads (logical, psychological and cosmic). Logical coordination orders the elements of cognition, psychological coordination connects the various subjective acts with the "I," and cosmic coordination links all beings into a single cosmological system. With this system he tried to replace the system of windowless monads. The same trend of trying to avoid the doctrine of windowless monads can be seen also in Lev Lopatin (1855–1920, Moscow).

A quite different and original kind of Leibnizianism was created by Nikolai Bugaev (1837–1903, Moscow), who combined a mathematically inspired monadology with a theory of evolution. He argued that the order of monads extends infinitely upwards and downwards and that the world is itself a higher-order monad. He agrees with his fellow Russians that monads interact. There are also complex monads with a central monad that may disintegrate and form new complexes. Thus, there is a hierarchical system where there are lower and higher, as well as simpler and more complex monads. Monads can learn by induction (trial and error) and freely evolve into complexes of monads that constitute higher-order monads — therefore the world can continually progress towards ever-higher stages of perfection.

Bugaev argued that most natural and social phenomena are subject to the law of continuity and that the theories of Darwin and Lamarck are based upon this idea. However, there are exceptions to the law, such as numbers and consciousness. Bugaev strives to overcome this difficulty by introducing two kinds of world-views, analytic (continuous, pioneered by Leibniz) and arithmological (non-continuous, established by Bugaev himself) which complement each other.

Yet a different kind of monadology was presented by Nikolai Lossky (1870–1965), who can be regarded as the last Leibnizian in Russia (for the time being). He viewed

monads as centers of force of which some attract and some repel each other. Matter is a result of this repelling and extended bodies are created in the process. Lossky followed the Russian line of rejecting windowless monads and his monadology continues the evolutionary trend of Bugaev. Lossky believed that monads evolve by means of a kind of metamorphosis (in the manner of a caterpillar and a butterfly as Leibniz had suggested himself).

In the conclusion Tremblay notes that none of the Russian philosophers can be considered a pure Leibnizian and that opinions vary on the importance of Leibniz to some of them. In any case, I found their views interesting modifications and extensions of Leibniz's ideas, although the consistency of some of the views can be questioned. As Russian philosophers before the revolution were often critical of Kantianism and German idealism, the development of philosophical thought there is in many ways original, and it is not so surprising that the influence of Leibniz and Wolff, in addition to many other worldviews, lasted longer in Russia than elsewhere.

We have also seen that Russian Leibnizianism has its own particular characteristics, such as emphasis on the interaction of monads, panpsychism, and linking the law of continuity with evolution. Some of the Russian philosophers have gone as far as to claim that as Leibniz's family had a partially Slavic origin, his philosophy is actually a Slavic philosophy from the very beginning. I leave it to the reader to decide what to think of this argument.

In his essay "Monkeys and Monads: The Unexpected Marriage between Darwinism and Leibnizian Metaphysics," Jeremy Dunham continues to discuss the combination of Leibnizianism and evolutionary theory, this time from an Anglo-Saxon perspective. He starts by saying that "The current view of philosophy's history regards this kind of metaphysical system, namely a monadology, as permanently abandoned after Kant." This is not true as we saw in the previous chapter. Dunham supports this view by discussing George Holmes Howison (1834–1916) and James Ward (1843–1925) who tried to combine monadology with evolutionary theory in the United States and England around the same time as Nikolai Bugaev in Russia.

Dunham starts by giving an exposition of Darwinian theory. Darwin refers directly to Leibniz's famous principle of nature not making any leaps — evolution progresses by short and slow steps, which is why Leibniz's law of continuity can be regarded as a theoretical background assumption for the entire theory of evolution. But there is more. Dunham argues that in Darwinian evolution an unlimited supply of unique individuals is necessary. Here Leibniz's identity of indiscernibles and the unique

monads become relevant. The monads have to be understood as spiritual atoms, which each have a unique perspective on the world. But there are also differences: for Leibniz, biological species are fixed and immutable, and there are some clear breaks as well, such as that between human beings (who have reason) and lower living beings. This represents a top-down system (where God has reserved a central role for rational beings), which is very different from the idea that beings develop eventually into more and more complicated forms. Therefore, Howison and Ward had to change this doctrine in order to better marry monadology with Darwinism.

Howison represents “personal idealism,” which is pluralism founded on individual reality, with monadology as its model. He stresses the point of view of the individual and the chain of being lacking any gaps. In addition, he rejects Leibniz’s doctrine of preformation and denies that the creation of the monads depends upon God and that the actions of individuals have any relation to God’s will. In fact, there is no one moment of creation, as that would undermine the freedom of individual monads.

Dunham argues that these are good steps to take. But then Howison takes a huge leap and argues that evolution does not produce the human mind, but rather the human mind is responsible for the phenomenon of evolution. He seems to be so taken by Kant’s proofs that space and time are a priori forms of intuition that evolutionists have to formulate their theory according to these intuitions. This is a really strange view, although, as Dunham notes, it was not unusual in Howison’s context where the non-Darwinian evolutionist Louis Agassiz was still popular.

Howison also argues that progress requires final causation. There is no *summum bonum*, but instead an individual end for each monad. Therefore, his evolution signifies the almost existentialist view that the free acts of each individual determine its ends. For Howison, the world is a multitude of monads each developing spontaneously according to its individual end and there is no interaction between the monads.

Howison’s views influenced the British philosopher James Ward, who was already an established philosopher. However, Ward found much to criticize in Howison’s views despite embracing his pluralism in general. Indeed, there was much to criticize. For example, if all monads develop spontaneously towards their own end without any external creator, why are they not all perfect? How can this spontaneous development secure moral responsibility, as Howison claimed it would?

Ward’s starting point is Darwin, and this is shown in his view that progress is not pre-determined, but complex structures arise cumulatively from lower forms

(bottom-up). Therefore he also rejects preformationism as a top-down-structure and rejects Howison's Kantianism for the same reason. Ward argues that a post-Darwinian philosophy of mind must be compatible with the progressive development of complex structures from previously less complex materials (*epigenesis*). This means that the human mind must be understood as a work of natural history, a result of a contingent process.

Ward argues that monads must have windows (it is not probable that Ward knew about the views of the Russian Leibnizians). Thus he needs to show how the structure of the monads arises from interaction rather than from their own essence. These monads, which are the products of evolution, are Leibnizian in the sense that they are constantly changing and active unique beings from which everything else in the world is built. Included in this idea is the law of continuity in the sense that the laws of mind are continuous with physical laws. This means that continuity, perceptions and appetites are to be found in all nature. Therefore Ward's views can be regarded as panpsychism.

Wardian monads are egoistic and aim for conservation and self-development. Moral responsibility is a contingent product of evolution, but individual monads depend on others for the fulfillment of their selfish interests. This is the basis for contingent interaction, which leads to more and more complex structures. At the same time, these interactions result in the behavior of monads to become more and more regular. The whole developed in this way is the new dominant monad, which can come in and out of existence, and the complex interplay between the dominant and subdominant monads illustrates the way our brains and our body interact in various levels.

Dunham's essay is clear and consistent and it is easy to agree with Dunham that Ward's monadology is a much more successful theory than Howison's, although Leibniz plays a diminishing role in it (as is the case with the Russian evolutionary Leibnizians at the time).

The second part ends with Arnauld Pelletier's "The Point of View is in the Body: on the Leibnizian Turns of Anthropology," which takes us to contemporary views in anthropology and the social sciences. He starts with Gabriel Tarde's *Monadology and Sociology* (1893) which introduced the term "monad" to French social sciences. Pelletier notes, however, that the term in this context is usually not directly related to Leibniz's monad, but applies to persons as spontaneous sources of their actions without external relations ("closed individuality"). For example, Bruno Latour calls his sociological actor-network-theory as a monadic network. True to Leibniz,

however, the doctrine of windowlessness is adopted in these views. A related trend in French contemporary social sciences is perspectivism, according to which each being (human or non-human) is a center of agency and subjectivity. Pelletier takes as his task to clarify whether perspectivism (especially in anthropology) has more direct connections to Leibniz's views than the previous views inspired by Tarde.

The first contemporary anthropologist under examination is Eduardo Viveiros de Castro, who specializes in studying how the Arawate, an Amazonian Indian group, construct their environment. He found out that their social relations include, in addition to humans, also some animals, plants and spirits, with which they interact in dreams and ritual ceremonies. On these occasions, humans adopt the perspective of nonhumans. According to De Castro, a perspective is neither a mental representation nor a belief shared by men, but a comprehensive mode of being, based on the relation of subjects determined by their bodily points of view in the world. There is no objective or natural thing that could exist outside any perspective and could not be represented in different ways by different subjects. So, the human body and the non-human body differ from the point of view of their affects, memories, dispositions and habitus, but not necessarily from a physiological viewpoint. A person is a soul that can be a human, animal or a spirit, all expressing a point of view.

De Castro quotes Deleuze's views on Leibniz and argues that each body creates a point of view which creates the subject. This is not too far away from Leibniz in, for example, the first version of *New System* or *Monadology*, Pelletier notes. The body constitutes the point of view of the soul and the soul cannot exist independently of the body. Therefore there is a parallel between the Amazonian Indians, as interpreted by De Castro, and Leibniz, although there are of course lot of differences as well, one being the fact that God does not have a body, according to Leibniz (*Monadology*, §72).

Philippe Descola also worked with Amazonian Indians. He notes that Achuars communicate as much with plants and animals as with humans. Relations between humans and non-humans are perceived as relations between persons. Unlike De Castro, Descola thinks that the views of Indians and Leibniz are not directly compatible, as the former belong to an ontological class of animism ("the attribution by humans to nonhumans of an interiority identical to their own") whereas Leibnizianism belongs ontologically to naturalism, corresponding with the western divide between nature and culture. Descola pays attention especially to Leibniz's views on continuity and argues against De Castro's symmetrical view of perspectivism: the

fact that plants and animals are seen as persons does not imply that they perceive themselves as persons.

Descola takes his inspiration from Durkheim, who was equally influenced by Leibniz. Durkheim supported the idea of individuation through bodies, but his views are different from Tarde. He argued that the notion of persons results from two factors, one being an impersonal spiritual principle (the soul of a collective), the other being bodies that individualize this principle according to their point of view. Therefore individualization means differentiating, fragmenting and personalization. Pelletier describes this as the same universal consciousness coloring each body to give birth to a particular consciousness. This results in a view that souls perceive the same object according to their own point of view.

The difficult theories of De Castro and Descola are clearly exposed in Pelletier's essay, and I was especially interested to learn about perspectivism, which has been popular in recent Leibniz studies, as the list of sessions in the latest international Leibniz-Kongress shows. However, it seems to me that direct connections to Leibniz's ideas in De Castro's and Descola's works remain rather weak after all. At the same time I started to think how many other uses there are for the term 'monad' in recent sciences and how many connections they have with Leibnizian views. For example, we can find the term in Walter Benjamin, but he apparently used it in a way that does not have much to do with Leibniz. Another thing that struck me is that the anthropologists do not seem to be aware of Leibniz's short incomplete note called *La place d'autrui* (*The Other's Place*, 1679?),⁷ which, albeit only between humans, discusses adopting the perspective of the other person in ethical and political matters.

Impact in Law, Political Thought and Ecology

The last part includes the most ambitious and broadest essays of the collection, ranging from law to politics and ecology. The first essay is Christopher Johns's "The Impact of Leibniz's Geometric Method for the Law," which I found puzzling and problematic. My difficulties are partly terminological. Johns's emphasis is on the geometric method of Leibniz, yet he does not really explain what it is, at least in law. From the context one can guess that the method has to do with the three precepts Leibniz derives from the Roman Institutes, but it is not immediately clear why the method discussed is "geometrical." Usually Leibniz's legal reasoning is thought to employ logic or deduction rather than the geometrical method, generally

REVIEW OF LEIBNIZ'S LEGACY AND IMPACT

understood, especially in the *New Method for Learning and Teaching Jurisprudence*, which is Johns's point of departure.⁸

Stripped of this confusing terminology in the introduction, I take it that Johns's aim is to argue that while Leibniz at first tried to find an a priori foundation for law; he later adopted views on more empirical grounds, especially codification of laws. He then turns to Leibniz's criticism of voluntarism ("a geometric attack") and finally to the impact of Leibniz's views on 18th century French and German legal codes, Wolff, and 19th Century Anglo-American jurisprudence.

The first section discusses reforming the law in the *New Method*. Johns discusses both logic and the geometrical method as tools for discussing law and refers to Leibniz's *Dissertation on Combinatorial Art*, where he does indeed compare jurisprudence to geometry. However, Artosi, Pieri and Sartor (in a work to which Johns refers) argue that the combinatorial method suffered from many limitations, and Leibniz soon turned to new ways to discuss science, emphasizing natural law.⁹ It is easy to see from the examples presented from *New Method* (p. 248) that Leibniz's method is not very close to geometry in the traditional sense.

Johns writes that with the *New Method* "the very ideas of right, just, obligation, possession and contract must be fixed, before any facts or cases involving them could be decided" and argues that Leibniz strove to establish civil or positive law on an a priori-foundation. He also argues that this geometrical method is developed further in works from the 1670's, such as *Elementa Juris Civilis* and *Elementa Juris Naturalis*.

One gets the feeling that Johns wants to use term "geometrical" just to be able to argue that Leibniz's views on justice and its motivational basis are founded on the a priori-foundation of just action rather than pleasure, perfection and happiness, the affective foundation. To my mind, this is simply not what Leibniz is all about. I tend to agree with Gregory Brown, whom Johns criticizes in footnote 5: "I argue that Brown fails to recognize Leibniz's considered position, which is that we can and ought to be motivated by considerations of right action, independently of pleasure." I find this a strange claim, given that there are a great number of occasions in Leibniz's texts (especially the *Elementa juris naturalis*) where Leibniz argues that pleasure (and by consequence, happiness and perfection) are what motivate a virtuous person to perform right actions.¹⁰ In addition, he also thought that hope of external reward or fear of punishment can motivate those who are not truly virtuous.

Johns goes on to cite the Preface to *Codex Juris Gentium Diplomaticus* on pages

249–250 and argues: “Leibniz does not define ‘the science of happiness,’ but it is fair to say it consists of the sort of happiness that results from right reason or moral virtue. In sum, the idea of a deduction of the law from a priori definitions is still very strong in the *Codex*.” To my mind, Johns is simply mistaken here. In the citation one finds that a good man loves everybody in so far as reason permits, and justice is the charity of the wise. From these it should be clear that the foundation of moral virtue, justice and happiness is disinterested or pure love as far as reason (that is, prudence) permits. As we are directed to the good by feeling pleasure, happiness or lasting joy follows from making wise choices.

It is not very surprising, given all of the above, that Johns considers Leibniz mistaken in his criticism of voluntarism. According to Johns, Pufendorf and Barbeyrac were correct in thinking that morality cannot be founded on our desires, even if they are directed to the highest good. Sociability and command of a superior is a much firmer foundation to human morality. Barbeyrac’s response to Leibniz’s criticism precedes Kant’s emphasis on duty, which Johns clearly considers superior to Leibniz’s emphasis on pleasure and inclination to the good. He argues that Leibniz’s rationalist model of jurisprudence and efforts to criticize voluntarism had in fact a negative impact: it helped to create a legal or positivist voluntarism founded on the empirical science of social and economic utility in the 19th century.

Johns’s inspiration here is Berkowitz’s *A Gift of Science*, according to which Leibniz’s efforts at the codification of law led later on to Prussia’s *Allgemeine Landrecht* of 1794, which was followed by many other secular codes of law that had no a priori grounds. These lawbooks emphasize social and political ends rather than goodness and moral values. In this sense one can claim that the voluntarist view was victorious, but it is much less certain that Leibniz’s anti-voluntarism was responsible for this, as was thought at the time. Rather, it seems to me that general secularization and the rise of the empirical sciences eventually undermined Leibniz’s style of universal jurisprudence.

Johns’s more original contribution is to trace the influence of Wolff’s views on jurisprudence to 19th century Anglo-American jurists, such as Austin, Langdell, Légaré and Hoffman (who praised Leibniz’s deductive method of law). Wolff was influenced by Leibniz’s *Codex*, which is obvious from his reference to the first two precepts of law. In addition, Wolff adopted Grotius’s distinction between perfect and imperfect rights. As in Germany, jurists in England and America may have been influenced by Leibniz’s method, but not really by its substance - the ends remained practical and empirical rather than ethical and rationalistic. So despite my differ-

ence of opinion with Johns on Leibniz's motivational grounds, I can easily agree with him when he says in his conclusion that "We have lost the sense of justice in which each person, whether that be an individual, a corporate entity or the state, conceives of justice as a virtue, that is, as a disposition to act from consideration of the common good" (p. 263).

"Leibniz and Political Thought" by Douglas Moggach covers partly the same ground as Johns, but more consistently. He starts with the same text, the *New Method*, and argues that it had enormous influence on political thought. Inspired by Ernst Cassirer, Moggach remarks that the text provides an ethical and aesthetic impulse which is articulated by Kant and subsequent German Idealism. The central reason for this is the exposition of the three principles of law mentioned above (*neminem laedere, suum cuique tribuere, honeste vivere*). The motivation of these maxims is anti-materialistic and founded on inner intention. In this way Leibniz inspires spontaneity and idealist views rather than mechanistic ones.

Leibniz's immediate impact on Wolff and his followers is discussed in the first subsection, "Adaptation." It is interesting to learn that Wolff continued Leibniz's ideas of institutional welfare when discussing the demands for enlightened monarchy. After Wolff, the story is similar to that of Johns (and Berkowitz): from the 1790s onwards, natural law was regarded as descriptive or empirical rather than normative by the Prussian Historical School of Law. After Kant, the Historical School and the remains of Wolffianism become polemical targets for the German idealists, such as Fichte and Hegel and his school.

The second subsection of Moggach's essay, "Extension," turns to aesthetics. This is a strange move (especially regarding the title of the essay), but evidently based on Cassirer's influence. The Leibnizian influence in aesthetics (and also in politics, as will be seen later) is in the problematic of a free, creative subject. Lessing, for example, thought that subjectivity creates its world spontaneously out of its own inner riches. Schiller combined perfection (a form of beauty) with freedom in his aesthetic theory. The subjective aesthetic form preserves its liberty in the objective world. We are then taken to the depths of German Romanticism and the concept of freedom receives new forms. For example, the politically influential Herder argued that subject and object correspond from the unique, monadic perspective of each individual or collective/national actor. Moggach ends this challenging section with a claim that both German Romanticism and Idealism share a common background in the Leibnizian concept of spontaneity.

The third subsection is termed "Critique" and deals with Kant. We have already

seen above that Kant presents his work as the true apology of Leibniz and he also tried to reformulate Leibniz's idea of spontaneity. While Kant emphasizes the Leibnizian principle of spontaneous freedom, he also recasts the idea in his *Critique of Practical Reason*, distinguishing between positive and negative liberty. Whereas the negative liberty is pretty much what Leibniz's monadic agency is like, the positive liberty is Kantian autonomy, self-governed moral action. Moggach also makes a distinction between the Kantian deontological ethics and the Leibnizian consequentialist ethics (which remained murky in the previous chapter). Further Kantian revisions to Leibnizianism include the theory of relations between subjects and goals of moral action.

Of special interest is the discussion of how Kant's theory of autonomy relates to Leibniz's three principles of natural law. Concerning the second principle, Moggach argues that Kant's deontological view is clearly different from Leibniz's consequentialism, for Kant argues that the state may not rightfully determine our ends in our quest for happiness, as long as the pursuit of these ends does not impede the freedom of others. Compared to Leibniz's Kingdom of Grace, Kant clearly represents an Enlightenment-style thinking. Moggach also argues that while Kant in general is critical of perfectionism as happiness or *eudaimonia*, later thinkers, such as Schiller and Fichte, develop different versions of perfectionism, which are related to making free action possible in itself rather than personal well-being. This trend is essential in the thinking of Hegel and his school.

I was very impressed with Moggach's grand sweep. Although I have to admit that I had difficulties in absorbing all its sophisticated details, to my mind this chapter gives a persuasive and a very interesting picture of Leibniz's impact on later German thought. Then again, as I am no expert in this field, I cannot tell whether all his claims are sufficiently well-founded.

It is now time for the last essay of the collection, "Theoria cum praxi — Leibniz's Legacy to the Future," by Pauline Phemister. It is the most ambitious and far-reaching of all the essays, striving to see what Leibniz's legacy in the future could be. Phemister starts with Leibniz's ideal of *theoria cum praxi* and his practical projects of universal language, his activities with China and establishing scientific academies. She employs the methods used in these endeavors to reflect the Leibnizian legacy in ecological thought and our relationship with animals.

I will concentrate on the latter sections of Phemister's paper, as the practical projects discussed earlier are fairly well-known. Yet, it is worth repeating her remark that Leibniz considered every area of study to have some practical value, such as

REVIEW OF LEIBNIZ'S LEGACY AND IMPACT

improvement of health, living and working conditions and securing a long-time peace. These goals are no less vital today (or in the future), and Leibniz's efforts in ecumenism and scientific co-operation are largely related to them (he even argued that scientific academies should include artisans, civil administrators and military personnel in addition to academics), and he promoted the three strategies of linguistic clarity, religious toleration and gradual progress to advance the goals.

Perhaps the most important of these strategies is overcoming semantic misunderstandings by creating a universal language or alphabet of thought. Leibniz tried in several ways to make this possible, but his efforts were never totally successful. However, Leibniz believed that efforts regarding universal language and religious toleration are essential in understanding the cultures of other civilizations. This is also important for maintaining peace, creating new ideas and reducing prejudices in general. Of special interest to him was China, and he was in correspondence with several Jesuit missionaries there. Through them he received information about Chinese language and beliefs that inspired him to examine Chinese terms and the connections between his binary arithmetic and the *I Ching*, the ancient Chinese book of changes.

In later sections Phemister turns to ecology, harmony between humans and the rest of nature. She is right in saying that most Leibniz-scholars would say that the philosopher did not have much to give us in this respect, for he was predominantly interested in the advancement of humankind. But Phemister insists that "his ideas and practices do have wider applicability in helping to restore ecological harmony throughout the natural world." Her view seems to be that Leibniz's interdisciplinary approach and the various ways he tried to influence those in power gives us tools to advance nature conservation.

This is undoubtedly true, but I cannot help thinking why we would turn to Leibniz in this matter, given that he did not say much specifically about conservation of nature. Recent studies have of course shown that his views on biology were much more developed and important than has been previously thought, but still Leibniz's impact on ecological thought *per se* seems to me to be a minor one. On the other hand, he was clearly much more interested in nature and animals than most of his contemporaries. He could not accept Descartes's view of animals as mechanisms, he analyzed the psychology of a dog, was interested in freaks of nature and could find perfection everywhere in nature. It has sometimes been claimed that his whole worldview is organic. So in this sense I think we can say that he would have supported the ecological cause, especially due to the imminent threat to the climate

that we face today. It is also true that the interdisciplinarity in Leibnizian scientific academies would probably have been useful in finding solutions to complex ecological problems, as Phemister notes.

She introduces a further step which, to my mind, is beyond what Leibniz would himself have conceived. This is the idea that the scientific academies could be opened to non-human beings as full partners for mutual exchange of information. Animals have been used as objects of research, but Phemister seems to be thinking of animals as equal research partners. This sounds peculiar in this context, given that Leibniz thought that animals have no reason, only instincts and some kind of pseudo-reasoning. Phemister's idea resembles the perspectivist ideas of Amazon Indians, as argued by De Castro in Pelletier's essay above.

Phemister examines an experiment with dolphins, called the Wild Dolphin Project. In this project a computer program CHAT was developed that enabled the researchers and the dolphins to communicate with each other. This communication is mutual, for translating human expressions into dolphins' whistles could lead the animals to adopt new ways of expressing things. CHAT is, of course, based on binary code, developed by Leibniz, and his idea of universal language (and perhaps his interest in China) can be found behind this endeavor, but it is hard for me to find any direct impact from Leibniz, as enthusiastic as he would no doubt have been about this breakthrough. In addition, it is a bit of a stretch to think of the researcher and the dolphin as equal research partners in this project (if that was Phemister's meaning). Does the dolphin draw conclusions?

With these reservations I found the chapter refreshing and an excellent example of history of ideas stretching far beyond the immediate influence of the philosopher in question. Although some of the connections may be a bit on the thin side, I believe Leibniz would have no doubt been sympathetic to Phemister's views.

Final remarks

As a whole, *Leibniz's Legacy and Impact* gives us a very good picture of Leibniz's immediate impact and his continuing influence on many fields of science, not only philosophy. It may be the first book in which Leibniz's legacy is treated in this many fields of science and over such a long period of time. Despite some of the criticisms above, I found the book very inspiring and I recommend it to anyone interested in Leibniz's thought and legacy. The book also includes a lot of topics not discussed before, so I consider it an important addition to Leibniz scholarship.

REVIEW OF LEIBNIZ'S LEGACY AND IMPACT

As I hinted at the beginning, collections like this are unavoidably incomplete. So let me list some of the figures that have been neglected here. Some have been discussed elsewhere at length and some have still not been studied properly. This is of course not to criticize the editors, but rather to point the way to the reader seeking additional reading or study. Of the first kind of figures George Berkeley immediately comes to mind, as well as Christian Wolff. Wolff features in a number of articles and in the introduction, but there is no systematic treatment of Leibniz's impact on his philosophy and the extent to which he modified Leibnizian ideas in his works. One might also mention Leibniz's influence on such well-known figures as C. S. Peirce, Kurt Gödel and Martin Heidegger, who are not treated in this book.

As an example of the second kind of figures, one might perhaps mention Samuel Clarke who is of course remembered as Leibniz's opponent in the famous correspondence, but as far as I know there are no studies on how Clarke the rationalist was affected by Leibniz. For example, at one time Leibniz was thinking of Clarke as a potential translator of the *Theodicy*. In addition, more studies on Leibniz's influence on contemporary philosophy (both "analytic" and continental) would be welcome (David Lewis, for example).

Furthermore, there are some areas of Leibniz's many activities that had clearly at least indirect impact on later views, but which are discussed only briefly or not at all in this collection. These include Leibniz's many practical projects and activities that were partly addressed in Phemister's chapter, such as the reunification of the confessions, the universal language and Leibniz's work with the scientific academies. Leibnizian impact in these fields could easily fill another book. It could be supplemented with Leibniz's practical activities in library scholarship, social welfare, diplomacy, history, geology, and mining technology, for example. Fortunately, in the recent *The Oxford Handbook of Leibniz* (edited by Maria Rosa Antognazza) most of these topics are covered in full.

Markku Roinila
Department of Philosophy, History and Art Studies
00014 University of Helsinki
Finland
mroinila@gmail.com

Notes

¹ Richard Arthur, *Leibniz*. Cambridge: Polity, 2004.

² Nicholas Jolley, *Leibniz*. London: Routledge 2005.

³ Catherine Wilson, “The Reception of Leibniz in the Eighteenth Century,” in Nicholas Jolley (ed.), *The Cambridge Companion to Leibniz*. Cambridge: Cambridge University Press, 1995, pp. 442–474.

⁴ Michael-Thomas Liske, *Gottfried Wilhelm Leibniz*. München: Beck, 2000.

⁵ Hans Poser, *Gottfried Wilhelm Leibniz. Zur Einführung*. Hamburg: Junius, 2005.

⁶ These days it is in Moscow (<http://www.ras.ru/>)

⁷ A IV, 3, pp. 903–904. An English translation is available in Marcelo Dascal (ed.), *Gottfried Wilhelm Leibniz: The Art of Controversies*. Springer, Dordrecht, 2006, pp. 163–166.

⁸ See Carmelo Massimo De Iuliis, “Leibniz and the Legal Logic: A Myth to Re-size,” in Wenchao Li (Hg.), “...*das Recht kann nicht ungerecht sein...*” *Beiträge zu Leibniz’ Philosophie der Gerechtigkeit*. Stuttgart: Steiner, 2015, pp. 109–116. On p. 111, De Iuliis says that “The method of geometrical demonstration, according to Leibniz, is not to be used in theology as well as in law, for ‘Euclid is not believed because he says, but because he proves, which is otherwise in divine and human laws, where the will stands in the place of reason/’” (*New Method* II, §4). See also Pol Boucher, “Leibniz: What Kind of Legal Rationalism?,” in Marcelo Dascal (ed.), *Leibniz: What Kind of Rationalist?* Dordrecht: Springer, 2008, pp. 231–249 and Evelyn Vargas, “Contingent Propositions and Leibniz’s Analysis of Juridical Dispositions,” in Marcelo Dascal (ed.), *Leibniz: What Kind of Rationalist?* Dordrecht: Springer, 2008, pp. 267–278.

⁹ Alberto Artosi, Bernardo Pieri and Giovanni Sartor (ed.), *Leibniz: Logico-Philosophical Puzzles in the Law: Philosophical Questions and Perplexing Cases in the Law*. Dordrecht: Springer, 2013, p. xxvi. On the same page the editors argue that the *New Method* was not meant to be a foundational work, but rather as an educational work.

¹⁰ For a criticism of Johns’s views by Brown himself, see Gregory Brown, “Leibniz and the Ground of Moral Normativity and Obligation,” in *The Leibniz Review*, vol. 26 (2016), pp. 11–62.