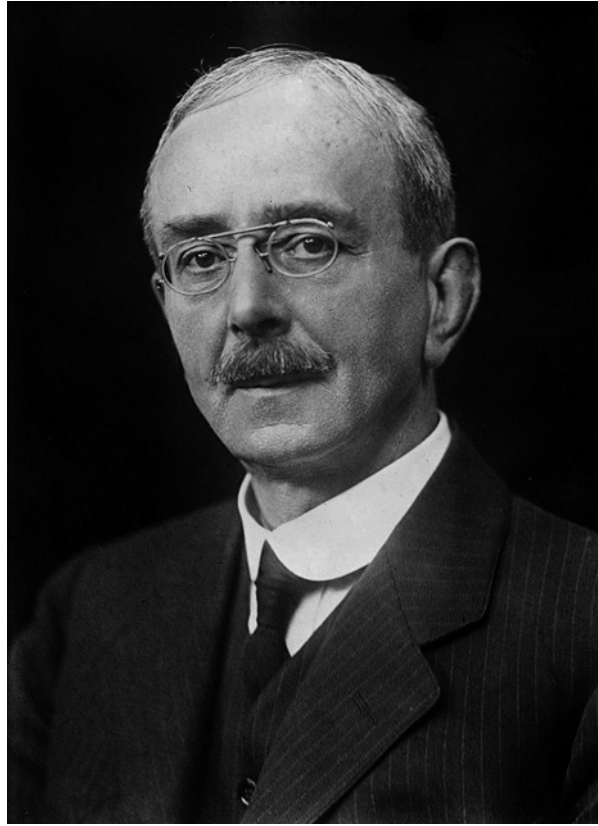

Epilogue: A Brief Tour of the Introductions to Consciousness Studies

That a man should simply and profoundly say that he cannot understand how consciousness has come into existence – is perfectly natural. But that a man should glue his eye to a microscope and stare and stare – and still not be able to see how it happens – is ridiculous, and it is particularly ridiculous when it is supposed to be serious. [...] If the natural scientists had been developed in Socrates' day as they are now, all the sophists would have been scientists. One would have hung a microscope outside his shop in order to attract custom, and then would have had a sign painted saying: "Learn and see through a giant microscope how a man thinks" (Soren Kierkegaard, diary entry of 1846)

Like a fortress under siege, consciousness has so far resisted any attempts to provide convincing solutions to the many questions it poses. The great neurophysiologist Sir Charles Sherrington (Fig. 1) neatly captured the problem of understanding the very nature of consciousness as a phenomenon which appears to elude scientific explanation within the domain of physical science: “The energy-concept [...] embraces and unifies much. [...] Immense as it is, and self-satisfying as it is, and self-contained as it is, it yet seems but an introduction to something else. For instance a star which we perceive. The energy-scheme deals with it, describes the passing of radiation thence into the eye, the little light-image of it formed at the bottom of the eye, the ensuing photo-chemical action in the retina, the trains of action-potentials travelling along the nerve to the brain, the further electrical disturbance in the brain, the action-potentials streaming thence to the muscles of eye-balls and of the pupil, the contraction of them sharpening the light-image and placing the best seeing part of the retina under it. The best ‘seeing’? That is where the energy-scheme forsakes us. It tells us nothing of any ‘seeing’. Everything but that. Of the physical happenings, yes. [...] But, as to our seeing the star it says nothing. [...] The energy-scheme deals with the star as one of the objects observable by us; as to the perceiving of it by the mind the scheme puts its finger to its lip and is silent. It may be said to bring us to the threshold of the act of perceiving, and there to bid us ‘goodbye’” (*Man On His Nature*, 1942, p. 304–305).

The view that the fundamental aspect of mental life is conscious experience which physical science cannot explain has an old tradition. To quote just a few examples, in the eighteenth century German philosopher Gottfried Leibniz (Fig. 2) proposed the famous analogy between the brain and the mill: “Suppose that there be

Fig. 1 Sir Charles Sherrington (1857–1952)



a machine, the structure of which produces thinking, feeling, and perceiving; imagine this machine enlarged but preserving the same proportions, so that you can enter it as if it were a mill. This being supposed, you might visit it inside; but what would you observe there? Nothing but parts which push and move each other, and never anything that could explain perception” (*Monadology*, Section XVII, 1714). Over a century later, British biologist Thomas Huxley (Fig. 3) wrote along the same lines “How it is that anything so remarkable as a state of consciousness comes about as a result of irritating nervous tissue, is just as unaccountable as the appearance of the Djin, when Aladdin rubbed his lamp.”

More recently, German biologist Gunther Stent seemed to imply that the scientific exploration of consciousness should surrender, as the enterprise is to fail because the nature of consciousness is beyond the limits of human understanding. In a 1968 article published in *Science* which shares similarities with Colin McGinn’s new mysterianism (see Chap. 10), Stent wrote that “Searching for a “molecular” explanation of consciousness is a waste of time, since the physiological processes responsible for this wholly private experience will be seen to degenerate into seemingly

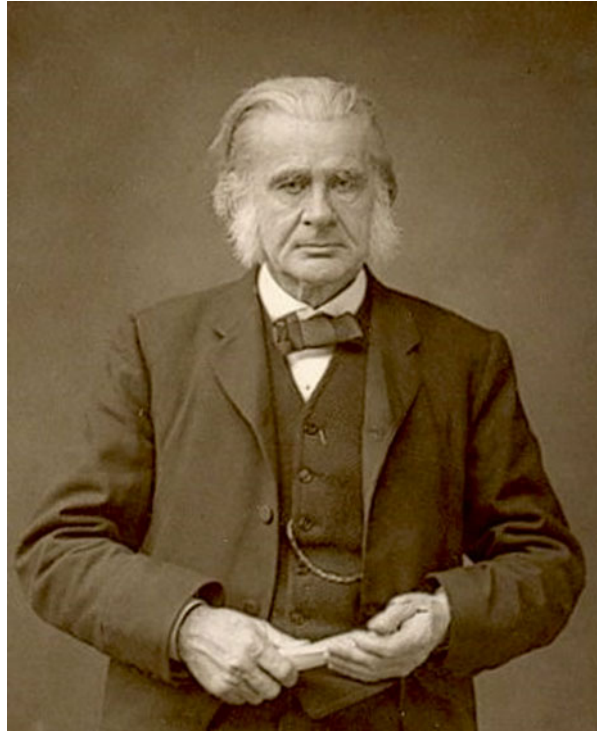
Fig. 2 Gottfried Leibniz (1646–1716)



quite ordinary, workaday reactions, no more and no less fascinating than those that occur in, say, the liver.” This pessimistic view about the possibility of reaching a scientific understanding of consciousness mirrors the strong ontological status, eliminating the problem altogether and relegating consciousness to a useless epiphenomenon of ontologically stronger physical entities (see Chaps. 2, 5, and 8). This latter view was elegantly epitomized by Thomas Huxley in his 1874 essay *On the hypothesis that animals are automata, and its history*: “The consciousness of brutes would appear to be related to the mechanism of their body simply as collateral product of its working, and to be completely without any power of modifying that working, as the steam-whistle which accompanies the work of a locomotive engine is without influence upon its machinery. Their volition, if they have any, is an emotion indicative of physical changes, not a cause of such changes [...] The soul stands to the body as the bell of a clock to the works, and consciousness answers to the sound which the bell gives out when it is struck [...] To the best of my judgment, the argumentation which applies to brutes holds good of men [...] We are conscious automata.”

The same feeling of frustration about the failed attempts to either decipher or deflate the problem of consciousness has not prevented the flourishing of a rich literature on the topic. The perceived importance – and intrinsic beauty – of the

Fig. 3 Thomas Huxley
(1825–1895)



conundrum of consciousness continues to generate both philosophical inquiry and scientific exploration across the mind-brain interface. In fact, the last three decades have seen an unprecedented increase in the number of publications by scholars of different disciplines. In turn, this has led to the development of the need for accessible introductory textbooks to such a vast and heterogeneous material, which we will briefly review in this final chapter (Fig. 4).

Introductory books on the newly established field of philosophy of mind first appeared over three decades ago, with Colin McGinn's *The Character of Mind: An Introduction to the Philosophy of Mind* (1982; second edition 1997), Paul Churchland's *Matter and Consciousness: Contemporary Introduction to the Philosophy of Mind* (1984; second edition 1988; third edition 2013), Owen Flanagan's *The Science of the Mind* (1984; second edition 1991), Peter Smith and Owen Jones' *The Philosophy of Mind: An Introduction* (1986), and William Bechtel's *Philosophy of Mind: An Overview for Cognitive Science* (1988). These books have soon become classics and, in many cases, have been updated in subsequent successful editions. The real "explosion" in the introductory literature to philosophy of mind began in the 1990s, with a series of excellent volumes which soon became popular as university course textbooks. These included George Graham's *Philosophy of Mind: An Introduction* (1993; second edition 1998), Dale Jacquette's *The Philosophy of Mind: The Metaphysics of Consciousness* (1994; second edition 2009), David Braddon-Mitchell and Frank Jackson's *Philosophy of Mind and Cognition* (1996; second edition 2006), Jaegwon Kim's *Philosophy of Mind* (1996; second edition 2006; third

Fig. 4 Detail from *The reader of novels* (1853) by Antoine Wiertz (1806–1865). Image cropped by authors



edition 2010), Sanford Goldberg and Andrew Pessin's *Gray Matters: An Introduction to the Philosophy of Mind* (1997), Colin McGinn's *Minds and Bodies: Philosophers and Their Ideas* (1997), Georges Rey's *Contemporary Philosophy of Mind: A Contentiously Classical Approach* (1997), Stephen Burwood et al.'s *Philosophy of Mind* (1998), and John Heil's *Philosophy of Mind* (1998; second edition 2004; third edition 2012). The new millennium has seen the consolidation of philosophy of mind as one of the most popular and rapidly expanding disciplines in academic departments of philosophy, mirrored by an unprecedented proliferation of introductory publications. In addition to updated editions of classic textbooks, newly published excellent books included Suzanne Cunningham's *What Is a Mind? An Integrative Introduction to the Philosophy of Mind* (2000), Samuel Guttenplan's *Mind's Landscape: An Introduction to the Philosophy of Mind* (2000), Jonathan Lowe's *An Introduction to the Philosophy of Mind* (2000), Andrew Brook and Robert Stainton's *Knowledge and Mind: A Philosophical Introduction* (2001), Tim Crane's *Elements of mind: An Introduction to the Philosophy of Mind* (2001), William Lyons's *Matters of the Mind* (2001), Keith Maslin's *An Introduction to the Philosophy of Mind* (2001; second edition 2007), Mel Thompson's *Understand Philosophy of Mind* (2003; second edition 2012), Neil Campbell's *A Brief Introduction to the Philosophy of Mind* (2005), Edward Feser's *Philosophy of Mind: A Short Introduction* (2005; second edition 2007), Ian Ravenscroft's *Philosophy of Mind: A Beginner's Guide* (2005), Barbara Montero's *On the Philosophy of Mind* (2009), David Cockburn's *An Introduction to the Philosophy of Mind: Souls, Science and Human Beings* (2011), William Jaworski's *Philosophy of Mind: A Comprehensive Introduction* (2011), Pete Mandik's *This Is Philosophy of Mind: An Introduction* (2013), and Andrew Bailey's (editor) *Philosophy of Mind: The Key Thinkers* (2014). Some of the most important academic publishers have also produced useful reference guides, such as Richard Gregory's (editor) *The Oxford Companion to the Mind* (1987; second edition 2004); Samuel Guttenplan's (editor) *A Companion to the Philosophy of Mind* (1996), Stephen Stich and Ted Warfield's (editors) *The Blackwell Guide to Philosophy of Mind* (2003), and James Garvey's (editor) *The Continuum Companion to Philosophy of Mind* (2011). Since the 1990s, introductory textbooks and compendia have been complemented by a number of comprehensive anthologies of classical and

contemporary readings in philosophy of mind, including William Lycan's (editor) *Mind and Cognition: An Anthology* (1990; second edition 1999; third edition 2008), David Rosenthal's (editor) *The Nature of Mind* (1991), Brian Beakley and Peter Ludlow's (editors) *The Philosophy of Mind: Classical Problems/Contemporary Issues* (1992; second edition 2006), Richard Warner and Tadeusz Szubka's (editors) *The Mind-Body Problem: A Guide to the Current Debate* (1994), William Lyons' (editor) *Modern Philosophy of Mind* (1995), Daniel Robinson's (editor) *The Mind* (1998), Anthony O'Hear's (editor) *Contemporary Issues in Philosophy of Mind* (1998), Peter Morton's (editor) *A Historical Introduction to the Philosophy of Mind: Readings with Commentary* (2000), David Chalmers' (editor) *Philosophy of Mind: Classical and Contemporary Readings* (2002), and John Heil's (editor) *Philosophy of Mind: A Guide and Anthology* (2004). Finally, Patrick Grim's (editor) *Mind and Consciousness: Five Questions* (2009) is a collection of interviews with leading philosophers of mind.

The mind-body problem is arguably the dominant theme within philosophy of mind, and – in Thomas Nagel's words – “Consciousness is what makes the mind-body problem really intractable” (*What is it like to be a bat?*, 1979). It is therefore not surprising that introductory textbooks specifically focusing on the philosophical literature on consciousness made their appearance since the turn of the new millennium, with William Seager's *Theories of consciousness: An introduction and assessment* (1999), David Papineau and Howard Selina's *Introducing Consciousness* (2000; second edition 2005), Max Velmans' *Understanding Consciousness* (2000; second edition 2009), Arne Dietrich's *Introduction to Consciousness* (2007), and Torin Alter and Robert Howell's *A Dialogue on Consciousness* (2009). Reference textbooks on the philosophical approach to the problem of consciousness are Max Velmans and Susan Schneider's (editors) *The Blackwell Companion to Consciousness* (2007), Philip Zelazo et al.'s (editors) *The Cambridge Handbook of Consciousness* (2007), and Tim Bayne et al.'s (editors) *The Oxford Companion to Consciousness* (2009). Ned Block et al.'s (editors) *The Nature of Consciousness: Philosophical Debates* (1997) and Torin Alter and Robert Howell's (editors) *Consciousness and the Mind-Body Problem: A Reader* (2012) are two useful anthologies of the most relevant philosophical articles on consciousness.

Over the last decades, philosophers have also turned their attention to the neurosciences, as shown by the publication of relevant books on the theoretical aspects of brain sciences. These include Maxwell Bennett and Peter Hacker's *Philosophical Foundations of Neuroscience* (2003), Maxwell Bennett et al.'s *Neuroscience and Philosophy: Brain, Mind, and Language* (2007), and Maxwell Bennett and Peter Hacker's *History of Cognitive Neuroscience* (2012), plus the anthologies by Ned Block (editor) *Readings in Philosophy of Psychology* (1980) and by William Bechtel et al. (editors) *Philosophy and the Neurosciences: A Reader* (2001).

The number of introductory books on the scientific approach to the problem of consciousness is considerably smaller compared to the philosophical literature; however, over the last decade, there have been a few relevant volumes, suggesting that consciousness studies have recently become a respectable research area within the neuroscientific tradition. Interestingly, the second edition of *Human Brain Function* (2004) with Richard Frackowiak as editor in chief contains a chapter

Fig. 5 Hippocrates of Kos
(450–380 BC)



entitled “The neural correlates of consciousness,” which opens with a remarkable sentence: “In the first edition of this book there was a final chapter on the future of imaging in which use of the word *consciousness* was strictly avoided until the very last sentence. Now that we have moved into a new millennium it has no longer been so easy to resist the *Zeitgeist*. That single sentence has become a whole chapter.” In a way, this paradigm shift toward neurobiological reductionism in consciousness studies had been anticipated by Hippocrates’ writings around 400 years before the Christian era (Fig. 5): “Men ought to know that from the brain, and from the brain only arise our pleasures, joys, laughter and jests, as well as our sorrows, pains, griefs and tears. Through it, in particular, we think, see, hear and distinguish the ugly from the beautiful, the bad from the good, the pleasant from the unpleasant” (*On the Sacred Disease*). In more recent times, the same concept was poetically reinstated by George Bernard Shaw at the beginning of the last century in the form of a dialogue between Don Juan and the Devil: “*The Devil*: You conclude, then, that Life was driving at clumsiness and ugliness? *Don Juan*: No, perverse devil that you are, a thousand times no. Life was driving at brains – at its darling object: an organ by which it can attain not only self-consciousness but self-understanding” (Shaw, *Man and Superman: Don Juan in Hell, Act III*, 1903). The belief that the study of brain function could shed light on the nature of consciousness was also echoed in



Fig. 6 Michelangelo Buonarroti (1475–1564), *The Creation of Adam* (1511–1512), fresco, Sistine Chapel, Vatican. Different authors have recently suggested that the shape of God portrayed in the act of giving reason to Adam corresponds to the sagittal section of a human brain (Meshberger 1990; Paluzzi et al. 2007; Suk and Tamargo 2010)

Somerset Maugham’s words before it became a self-fulfilling prophecy (Fig. 6): “The highest activities of consciousness have their origins in the physical occurrences of the brain just as the loveliest melodies are not too sublime to be expressed by notes” (Maugham, *A Writer’s Notebook*, 1949).

The novel stream of neuroscientific publications on consciousness includes Adam Zeman’s *Consciousness: A User’s Guide* (2004), Bernard Baars and Nicole Gage’s *Cognition, Brain, and Consciousness: Introduction to Cognitive Neuroscience* (2007; second edition 2010), Steven Laureys and Giulio Tononi’s (editors) *The Neurology of Consciousness: Cognitive Neuroscience and Neuropathology* (2008), Andrea Cavanna et al.’s (editors) *Neuroimaging of Consciousness* (2013), and Bernard Baars et al.’s *Essential Sources in the Scientific Study of Consciousness* (2003). A couple of excellent articles published in two of the most important scientific journals in the medical disciplines of neurology and psychiatry are Adam Zeman’s “Consciousness” (*Brain* 2001;124:1263–1289) and Kenneth Kendler’s “A psychiatric dialogue on the mind-body problem” (*American Journal of Psychiatry* 2001;158:989–1000).

Our brief tour of the introductory literature to consciousness studies closes with an inspiring handful of books, which have made the first innovative attempts to bridge the “two cultures,” by devoting roughly equal space and attention to both philosophical and neuroscientific theories. These books, which share the multidisciplinary spirit of the present volume, include Thomas Metzinger’s

(editor) *Neural Correlates of Consciousness: Empirical and Conceptual Questions* (2000), Stanislas Dehaene's (editor) *The Cognitive Neuroscience of Consciousness* (2001), Rita Carter's *Exploring Consciousness* (2002; second edition 2004), Susan Blackmore's *Consciousness: An Introduction* (2003; second edition 2010) and *Consciousness: A Very Short Introduction* (2005a), David Rose's *Consciousness: Philosophical, Psychological, and Neural Theories* (2006), and Antti Revonsuo's *Consciousness: The Science of Subjectivity* (2009). Susan Blackmore also published a lively and insightful collection of interviews with both philosophers and scientists of consciousness, titled *Conversations on Consciousness* (2005a, b; second edition 2007).

The digital era offers useful resources to the interested readers who wish to keep up to date with the rapidly expanding philosophical and neuroscientific literature on consciousness. Of particular relevance are a few interdisciplinary peer-reviewed academic journals dedicated entirely to the field of consciousness studies: *Consciousness and Cognition* (founded in 1992: <http://www.journals.elsevier.com/consciousness-and-cognition/>), *Journal of Consciousness Studies* (founded in 1994: <http://ingentaconnect.com/journals/browse/imp/jcs>), and *Frontiers in Consciousness Research* (founded in 2010: http://www.frontiersin.org/consciousness_research). *Psyche* (http://www.theassc.org/journal_psyche) is a free electronic journal dedicated to supporting the interdisciplinary exploration of the nature of consciousness and its relation to the brain that was active between 1994 and 2010. The journal *Consciousness and Emotion* (founded in 2000: <https://benjamins.com/#catalog/journals/ce/main>) in 2003 became a book series (<https://benjamins.com/#catalog/books/ceb/main>), alongside *Advances in Consciousness Research* (founded in 1995: <https://benjamins.com/#catalog/books/aicr/main>).

A few precious repositories of online resources need mentioning. The *Stanford Encyclopedia of Philosophy* has a wonderful website (<http://plato.stanford.edu/>), which organizes scholars from around the world in philosophy and related disciplines to create and maintain an up-to-date reference work. The philosophy of mind section of the website contains several entries relevant to consciousness studies which are highly accurate and authoritative. David Chalmers' website (<http://consc.net/chalmers/>) is arguably the most comprehensive collection on topics related to consciousness and/or philosophy, such as the bibliography MindPapers, directories of online papers, and some philosophical diversions, including a photo gallery. US-based Italian polymath Piero Scaruffi has single-handedly compiled an annotated bibliography of mind-related topics in his superb website (<http://www.scaruffi.com/mind.html>), a real gold mine for both experts and beginners.

The Center for Consciousness Studies based at the University of Arizona (<http://www.consciousness.arizona.edu/>) promotes a series of successful meetings called Towards a Science of Consciousness (TSC: <https://sbs.arizona.edu/project/consciousness/>). The TSC conferences are the preeminent world gatherings on all approaches to the profound and fundamental question of how the brain produces conscious experience, a question which addresses who we are, the nature of reality, and our place in the universe. These interdisciplinary conferences emphasize broad and rigorous approaches to all aspects of the study and understanding of conscious

awareness. Topical areas include neuroscience, philosophy, psychology, biology, quantum physics, meditation and altered states, machine consciousness, culture, and experiential phenomenology. Held annually since 1994, these conferences alternate yearly between Tucson, Arizona, and various locations around the world.

The Association for the Scientific Study of Consciousness (ASSC: <http://www.theassc.org/>) is an academic society that promotes rigorous research directed toward understanding the nature, function, and underlying mechanisms of consciousness. The ASSC includes members working in the fields of cognitive science, medicine, neuroscience, and philosophy, along with other relevant disciplines in the sciences and humanities, and coordinates a series of successful annual conferences on the scientific study of consciousness which started in 1997.

We hope that these colorful, albeit partial, snapshots of introductory books and online resources on consciousness studies will serve the reader as an Ariadne's thread to navigate the infinite passages of the consciousness labyrinth. In a way, they highlight the value of interdisciplinarity as the most fruitful way forward in this complex field. Inspired by the genuine fascination of the subject, we wish the readers good luck in their journeys through the delightful mysteries of human consciousness.

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