

# INTRODUCTION

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## DARWIN AND THE DARWINIAN REVOLUTION

THE PUBLICATION OF CHARLES DARWIN'S *ON THE ORIGIN OF SPECIES* (1859), so the story goes, radically altered humanity's self-perception and perception of nature while playing a formative role in helping to establish the science of evolution and, for some, an evolutionary worldview. This is effectively the main claim underpinning the so-called Darwinian Revolution, a historical category typically used to explain the ushering in of a radically new understanding of the origins of biological diversity. The key figure invoked in representations of the Darwinian Revolution is, of course, the nineteenth-century naturalist Charles Darwin, whose scientific work has been deemed responsible for bringing about this radical change in perspective.

While the idea of the Darwinian Revolution was first raised contemporaneously with Darwin's work in the nineteenth century, it became firmly entrenched as a milestone in the history of science only in the years surrounding the 1959 centennial celebrations of the *Origin's* publication, when a series of books appeared that stressed Darwin's singular and revolutionary contributions to the development of evolution as a science.<sup>1</sup> This view was further pop-

ularized twenty years later when Michael Ruse, relying on the many specialized studies on various aspects of “Darwin and the Revolution” that were published during the interval, made the case for the way in which “the arrival of the *Origin* changed man’s world” in his *Darwinian Revolution: Science Red in Tooth and Claw* (1979).<sup>2</sup> Since then Ruse has become one of the main advocates for preserving the idea of the Darwinian Revolution.<sup>3</sup> As Ruse argued in the opening pages of his 2016 *Darwinism as Religion*, “Charles Darwin is a key figure in my story and thus, in this respect, there was absolutely, totally, and completely a ‘Darwinian Revolution.’”<sup>4</sup> If there is a not-so-subtle defensiveness to this more recent statement, it is because the notion of the Darwinian Revolution can no longer be taken for granted. This is because its narrative, produced by Ruse and others in the second half of the twentieth century, has been thoroughly challenged by a number of historians of science who have questioned some of its basic assumptions, not least the chief role that has been ascribed to Darwin.<sup>5</sup> Since at least the 1980s historians of science have moved away from the “great man” narratives that previously dominated the discipline and have begun to appreciate the collective role of scientific practitioners while focusing their attention on previously neglected figures.<sup>6</sup>

As nineteenth-century historians looked beyond Darwin, they found many other lesser-known evolutionists and texts that were more formative to the contemporary evolution debates than previously recognized. James Secord’s *Victorian Sensation* (2000), for instance, found that the most popular evolutionary treatise for most of the nineteenth century was not Darwin’s *Origin* but rather Robert Chambers’s anonymously published *Vestiges of the Natural History of Creation* (1844). While *Vestiges* had previously been presented as a failed evolutionary precursor to Darwin’s more serious treatment of the subject, Secord’s focus on what Victorians were actually reading in spite of the critical commentary of the scientific community showed that the popular perception of evolution was more likely Vestigarian than Darwinian.<sup>7</sup> In a similar vein, Bernard Lightman’s *Victorian Popularizers of Science* (2007) looked more broadly at the publications of popular science writers in the Victorian period. He found that later in the nineteenth century popular evolutionists were engaged not primarily with Darwin’s thought but rather with that of the synthetic evolutionary cosmology of Herbert Spencer.<sup>8</sup> Works like Secord’s and Lightman’s really problematized the view that Darwin was the only—or even the main—driving force behind the popularization of evolution in the nineteenth century.

This trend in the literature on popularization tends to support Peter Bowler's broad thesis on the history of biology itself, which argues that there was not a "Darwinian Revolution" in the nineteenth century but a "Non-Darwinian Revolution." Darwin may have helped evolution become a legitimate science of life, Bowler argues, but his key contribution, namely the theory of natural selection, was never able to achieve anything beyond lukewarm support, even among Darwin's closest defenders. Most evolutionists, according to Bowler, embraced a view of evolution that could be fitted under the umbrella of "developmentalism," a term representing forms of evolution that were explicitly progressive, purposeful, and could more easily accommodate the concerns of religious thinkers—evolutionary views represented by popular works like *Vestiges of the Natural History of Creation*.<sup>9</sup> Bowler has more recently taken this thesis to a counterfactual extreme in *Darwin Deleted: Imagining a World without Darwin* (2013), a book that excludes Darwin entirely from the historical record. Not only does Bowler make it clear that we did not need Darwin in order to establish evolution as a science, he goes one step further by arguing that without him, evolution would have developed at a more "natural" rate. And as non-Darwinian theories would have formed the basis of evolution, rather than Darwin's theory of natural selection, there would have been less conflict generated between scientific and religious forces, thereby leading to a much less contentious uptake of evolution more generally.<sup>10</sup>

While these attempts to move beyond Darwin are to be commended, particularly in order to uncover the importance of works and thinkers who have long been ignored, it is clear from the research presented in this volume that we may have taken things a bit too far and are now ironically letting our own presentist concerns skew the historical record. This is symbolized by Bowler's binary division between "Darwinian" (selectionist) forms of evolution on one hand and "non-Darwinian" (developmentalist) forms of evolution on the other, a division that is both arbitrary and ahistorical. Indeed, we have now come to recognize, that much of Darwin's system of evolution came to take in many key aspects of what Bowler categorizes as developmentalism, from the notion of recapitulation so central to *Vestiges* and Ernst Haeckel's work to a theory of generation and inheritance that looks decidedly Lamarckian.<sup>11</sup> Moreover, Evelleen Richards's recent book on *Darwin and the Making of Sexual Selection* (2017), shows just how central the supposed "secondary" mechanism of sexual selection was in shaping Darwin's view of human evolution.<sup>12</sup> And

Thierry Hoquet's *Revisiting the Origin of Species* (2018) makes the case that while Darwin may have wanted to provide experimental evidence for natural selection, he was equally concerned with seeking out the laws and causes of variation itself.<sup>13</sup>

Reducing the meaning of the term “Darwinian” to the theory of natural selection is also problematic because it ignores the self-identification of nineteenth-century evolutionists who embraced the labels “Darwinism” and “Darwinian.” It may be true, for instance, that Thomas Henry Huxley was never convinced by the central power of natural selection, and preferred a theory of saltations to explain evolutionary adaptations, but referring to him as a non-Darwinian applies a category of identity that did not exist at the time. We may come to a greater appreciation about the importance of evolutionary thinkers not named Darwin by embracing such presentist categories as the “non-Darwinian,” but our understanding of what “Darwin,” “Darwinism,” “Darwinian,” and related terms actually meant in the nineteenth century, and the role they came to play in shaping contemporary debates and perceptions of evolution, is greatly diminished.<sup>14</sup>

## IMAGINING THE DARWINIAN REVOLUTION

What this volume suggests is that it is time to think a bit differently about the “Darwinian Revolution.” Rather than asking if there was a Darwinian Revolution or if Darwin was actually the heroic figure that is portrayed in works of popular science, this volume is concerned with questions of a different kind: How was the idea of the Darwinian Revolution established and later transformed as a master narrative that structures much of what is taken for granted with regard to the development of evolution? How did Darwin become the iconic figure who represents an evolutionary perspective? And what sort of counternarratives were produced to challenge these formative discourses about Darwin and the Darwinian Revolution? While these general questions have no simple answers, they nonetheless frame much of what follows, which emphasizes the way in which history itself underpins the development and reception of science. The assumption here is that thinking about the way in which evolution is historicized as it developed will give us much insight into how science is made, represented, and reproduced.

One way into the kind of issue we are exploring here is to take a cue from Adrian Wilson, who has recently remarked on the way in which “science entails

history writing.” By this he meant that scientific knowledge is often produced within the framework of an “imagined past” that is sometimes implicitly, sometimes explicitly, embedded in scientists’ descriptions of their work. Wilson’s intervention is an important one for thinking about the relationship between the production of science and its history, because it suggests that history is not something that is necessarily produced in hindsight but is actually often built right into the creation of science itself. These imagined pasts of science therefore have a real effect on the way science is received and then reproduced in the future, which then inevitably produces new imagined pasts. Perhaps because Wilson’s argument is largely theoretical and is based on his consideration of a few key texts in the history of science, he has little to say about evolution.<sup>15</sup> But evolutionists have tended to be highly self-conscious of their own place within the history of their science and have, of course, contributed explicitly to that historical understanding.

What we might call evolutionists’ strong historical-mindedness has been most notably written about with regard to twentieth-century evolutionists, particularly those connected with the evolutionary synthesis of Mendelian genetics and Darwin’s theory of evolution, a period that is often considered the end point of the Darwinian Revolution. As Vassiliki Betty Smocovitis explained in *Unifying Biology* (1997), the bringing together of the various scientific disciplines under the umbrella of a Darwinian evolutionary theory was in part an imagined historical narrative that was produced at the time by participants. One of those participants was the biologist Julian Huxley, whose book *Evolution: The Modern Synthesis* (1942) provided the event with its historical framing and in so doing brought into common usage other related historical categories such as the “eclipse of Darwinism” that not only shaped how evolutionists thought about the past of evolution but also how they went on to articulate their own evolutionary innovations in the future. Huxley was followed by other evolutionists, such as Ernst Mayr and William Provine, who sought to reshape the historical meaning of the evolutionary synthesis to reflect later developments.<sup>16</sup> Other related works on the 1959 centennial celebrations, as well as on the paleontologist, historian, and popular science writer Stephen Jay Gould, have shown that the historicization of the evolutionary synthesis was not a unique occurrence, but that historical conceptions of the development of evolution have been central to the practices and debates of evolutionists throughout the twentieth century.<sup>17</sup>

Given the contemporaneity of the nineteenth century with the origins of evolution, it is perhaps not surprising that this approach has not been as well developed in regard to that period. But key works by Janet Browne on the way in which Darwin became an icon at the end of the nineteenth century help explain how Darwin's growing celebrity status played a role in diminishing other evolutionary thinkers.<sup>18</sup> Bernard Lightman has also written about how early biographies of Darwin gave shape to conceptions of Darwinian evolution that said little about natural selection, which is in stark contrast to the twentieth-century biographical tradition on Darwin.<sup>19</sup> Alistair Sponcel's recent *Darwin's Evolving Identity* (2018) shows that Darwin's self-presentation, which went through several iterations before settling into the careful and patient observer found in the pages of *Origin of Species*, was one that relied on a historical framing of his own historical development.<sup>20</sup> And a recent book by Curtis Johnson considers how Darwin's historical sketch of the progress of opinion on evolution that appeared in later editions of the *Origin* was largely done for the purposes of establishing priority over an evolutionary perspective.<sup>21</sup>

*Imagining the Darwinian Revolution* builds on these previous works by exploring the interplay between the development of evolution as a science and its historical representations. The "imagining" in the title is meant to stress both the constructed and contested nature of these historical representations that nonetheless played a role in shaping the development of evolution. And the "Darwinian Revolution" of the title is invoked not as a defense of the concept but rather in recognition of the fact that it is the overarching historiographical category that has, for better or worse, given shape to our understanding of evolution's development, and is therefore meant to function as a metonymy for the general approach taken rather than as a full description of the book's subject matter. So while one dimension of this volume is to historicize explicitly the categories of the "Darwinian Revolution" and "Darwin," the larger purpose is to consider how such imagined historical narratives shaped our understanding of evolution's development and thus the development of science itself. The thirteen chapters contribute to this endeavor by exploring themes in the construction of evolution's history from the nineteenth century to the present. While they are ordered roughly chronologically, they are also organized into three thematic sections.

## ORIGIN STORIES

The first section of the book deals with “Origin Stories,” that is, narratives focused on the events and individuals associated with the origins of what came to be known as the Darwinian Revolution and the rise of evolution in the mid-to late nineteenth century. How did Darwin’s theory of evolution become associated with a scientific revolution? How did Darwin himself characterize his theory in comparison with earlier and contemporary thinkers? Why was it that Darwin became the main figure scientific naturalists rallied around, and how can we characterize their various defenses of Darwinism in the context of their promotion of evolution as a science? What were some of the iconic narratives of evolution that emerged from this period, and can they be complicated by closer historical examination? These are some of the interrelated questions that the chapters in this section seek to consider.

In the first chapter, I look at how the idea of the Darwinian Revolution originated contemporaneously with Darwin himself. I argue that at the time the history of science was typically viewed as a product of revolutionary discoveries produced by virtuous and humble scientific heroes, a process that was built into the narrative structure of Darwin’s *Origin of Species*, from the way in which he presented himself to the way in which he presented his theory of evolution. This heroic narrative was slightly compromised, however, when Darwin was compelled to append a historical sketch to later editions of the *Origin*, highlighting the contributions of his evolutionary forebears, even while stressing the singular contribution of, and priority for, his theory of natural selection. What I argue is that this tension between the science of evolution and Darwin’s particular contribution to it became central to the idea of the Darwinian Revolution as it was further developed at the end of the nineteenth century. At the same time a counternarrative was produced that sought to remove Darwin from the historical frame by foregrounding instead the progressive and teleological evolutionary theories of Darwin’s predecessors and contemporaries. It is therefore important to recognize that the narrative of the Darwinian Revolution was one that was contested from the beginning; and that contestation continues to find resonance in more current histories foregrounding the centrality of late nineteenth-century, “non-Darwinian” theories of evolution.

Bernard Lightman's chapter complicates this picture further by pointing out that one of the first narratives of the Darwinian Revolution, penned by the popular science writer Grant Allen in 1885, stressed the central role of Herbert Spencer in developing a general evolutionism, in contrast to Darwin's biologically focused theory of evolution. Allen's narrative is, for Lightman, an important reminder that even by the late nineteenth century it was still debatable who may have been a more important evolutionary figure, Darwin or Spencer. Lightman then carefully unpacks the intellectual relationship that unfolded between the two men in order to show that the mutual respect often shown in their publications was contradicted in their private correspondence. It turns out that their public displays of mutual respect and influence in the 1860s and 1870s were done for the benefit of evolution in general. Ultimately, once evolution gained a wide enough consensus in the late 1870s and 1880s, this unity broke down, as neither man in the end gave much credit to the other, particularly in their autobiographies where they downplayed one another's contributions. What Lightman shows is that their views of one another give us much insight into the origins of competing Darwinian revolutions, one that was imagined as a strictly scientific revolution and led by Darwin, and another that was imagined as a broader philosophical revolution and led by Spencer. These competing revolutions also reflected the different identities that were cultivated by the two men.

The next chapter, by Ruth Barton, also focuses on the issue of Darwin's identity formation by examining how the epistemic and the moral were entangled in the various defenses of Darwinian evolution that were mobilized by certain members of the X Club. As Barton has illustrated in her recent book on the subject, the X Club was a close-knit group of naturalists, physicists, and philosophers who sought to coordinate their public activities in the name of advancing a naturalist science. One of their chief goals in this regard was to advocate on behalf of Darwinian evolution.<sup>22</sup> In her chapter Barton looks more closely at the X Club's defense of Darwin, focusing on their reviews of the *Origin* as well as some of their Darwin-related activities, such as editing the *Natural History Review*, the campaign for the Royal Society's Copley Medal for Darwin, and relevant British Association addresses that promoted Darwinian themes. What Barton stresses in these quite diverse activities is that Darwinian evolution itself was defended in a variety of different ways that extended well beyond the specifics of Darwin's theory. X Club members such



as Joseph Hooker, Thomas Henry Huxley, and John Tyndall tended to be more interested in pushing Darwinism in directions that were suited to their own particular interests. If there was a consistent kind of defense of Darwin, it was a defense of Darwin as an idealized man of science, whose epistemic virtues were to be promoted in order to justify the extension of the naturalist program into realms formerly beyond its control. In other words, the X Club's narratives of Darwinism had less to do with Darwin's specific claims than with the larger philosophical-religious implications of the theory that was associated with Darwin's name. The X Club thus helped make Darwin into an icon.

In the final chapter in this section Gowan Dawson explores the creation of a different icon that also became a symbol of evolution and by extension the Darwinian Revolution, namely the frontispiece to Huxley's *Evidence as to Man's Place in Nature* (1863). The image of a succession of four anthropoid apes, placed alongside a human skeleton is a strikingly familiar image of evolution, one that engendered similar evolutionary processions such as the familiar "March of Progress" image that presents *Homo sapiens* at the end of a long succession of primates. While these and similar images have been criticized as presenting a highly misleading, imagined view of the evolutionary process as teleological and anthropocentric, Dawson points out that little is actually known about the creation of the original. He shows that the construction of Huxley's frontispiece was fraught with conflict between Huxley and the artist who drew the primate skeletons, Benjamin Waterhouse Hawkins. Hawkins did not believe that there was an evolutionary relationship between apes and humans and this is reflected in his drawings, particularly of the gorilla, whose awkward, upright stance contradicted Huxley's own textual descriptions. By thus focusing on the conflict at the heart of the frontispiece's creation, Dawson not only uncovers the competing visions of development that are embedded in the image; the larger message of his chapter is that historicizing even the most familiar icons of the past can uncover a much more complex and interesting story that can undermine some of our deeply held assumptions forming the basis for such enduring, imagined histories.

## THE POLITICS OF DARWINISM

The second section, "The Politics of Darwinism," focuses on the category "Darwinism," which is central to the imagined histories of the Darwinian Revolution and considers long-standing and more recent debates about its mean-

ing. While the meaning of “Darwinism” was for a long time largely taken for granted, historians of evolution as diverse as David Hull and James Moore have since argued that there is nothing essential about the term and that its meaning has actually changed over time. They argue that a key dimension to the development of evolution is how the term was mobilized and contested due to a variety of social and political circumstances.<sup>23</sup> Moreover, as David Livingstone, Ronald Numbers and John Stenhouse, and Marwa Elshakry have also argued, geographical factors are an important consideration when thinking about how the meaning of Darwinism was transformed in local settings.<sup>24</sup> The chapters in this section build on those works by taking the instability of Darwinism as a point of departure in order to explore the politics that underpinned the various attempts to determine the overarching meaning of Darwin’s theory of evolution, a process that has been central in the production of imagined histories of evolution.

In “The Politics of the Darwinian Revolution” Piers Hale explores the relationship between the political meaning of Darwin’s theory of evolution and its reception, and how that relationship changed over time. While previous histories have sought to imagine a direct connection between the politics of Darwin’s Malthusian struggle for existence and the burgeoning upper middle class of which Darwin was a member, Hale shows that the actual political meaning of Darwin’s theory was far more complex and protean, and it was appropriated by both liberals and socialists. Further, Hale argues, while it is true that there was a Malthusian struggle at the center of Darwin’s theory of natural selection, this was tempered in the *Origin* by a deistic rhetoric that was central in gaining widespread liberal Anglican support. But this support was not given unconditionally, as Darwin discovered when *The Descent of Man* (1871) was published, and his naturalization of mind and morality alienated many of his previous supporters. This, Hale contends, might lead us to think of this focus on an evolutionary account of mind and morality as forcing a narrowing of the Darwinian Revolution. However, and militating against uncritically adopting this conclusion, the ultimate message of the chapter is that there was no singular Darwinism at stake, but that this forced erstwhile Darwinians to reimagine exactly what they meant by the term. Onetime supporters of the *Origin* became critics of *Descent of Man* but still called themselves Darwinists, Darwinians, or Darwinites, which shows that the perception of the politics of Darwinism was not by any means stable, changing from one publication to the next, from one

decade to the next, even from within the realm of a liberal political order. It is in this way that Hale uncovers the complex imagined frameworks that shaped the politics of the Darwinian Revolution.

In the following chapter Joel Barnes considers the attempt to imagine a very different politics of Darwinism under the guise of the socialist evolutionary thought of the Marxist Edward Bibbins Aveling. Unlike the liberal Anglicans of Hale's chapter, who believed that a certain kind of Darwinism could be made harmonious with their religious views, it was Aveling's militant atheism that connected his political and scientific views. While Barnes shows that Aveling's evolutionism owed a great deal to Romanticism and that Aveling even promoted the view that human races were separate species, Darwin became the key figurehead under which Aveling's evolutionism was promoted and brought into conversation with his Marxism. If Marx provided a scientific framework for understanding society and the economy, for Aveling it was Darwin who did the same for biology. Taken together, Darwin and Marx uncovered the deep reality underpinning all of existence, which Aveling referred to as the "great principle of the continuity of phenomena." By thus uncovering a natural continuity between the ideas of Marx and Darwin, Aveling envisioned that a real socialist future would be the logical outcome of his imagined, political evolutionism.

The chapter by Sarah Qidwai reminds us that much of the debate over the meaning of Darwinism has been conducted within the context of an entirely Western framework, which pays little attention to alternative views of evolution existing outside its sphere. Qidwai considers how this narrow Western-centric view has changed in recent years by focusing on the way in which the historiography on Darwinism has shifted over time, from when historians initially examined the wider "reception" of Darwinism to a later focus on the "appropriation" of Darwinism, a more nuanced approach showing that local evolutionists did not just accept Darwinism as it was presented to them but actually shaped its meaning to suit their local circumstances. Qidwai also considers how this shift in the historiography has followed from a more global perspective, as important recent histories have explored the appropriation of Darwinism in Latin America, China, and the Middle East. But even from within the context of this more nuanced historiographical tradition, Qidwai argues that the focus on Darwinism skews the historical record. As an example, she discusses the nineteenth-century Indian evolutionist Sayyid Ahmad

Kahn, whose views on evolution were developed quite independently of his reading Darwin. By focusing solely on Darwinism, whether on its reception or its appropriation, Qidwai argues that entire evolutionary traditions like those found in nineteenth-century Muslim India are excluded from such an analysis and lead to the unfortunate assumption that evolutionary views simply never developed there. Qidwai's careful exploration of the reception historiography of Darwinism challenges historians of science to rethink their categories when considering non-Western science in a global context.

In the final chapter in this section Jamie Freestone focuses on recent colloquial science texts and considers how they are embedded within imagined histories that seek to narrow the meaning of Darwin's thought to the theory of natural selection. Natural selection is, these authors argue, the essence of Darwinian evolution and is the theory that stands the test of time, thereby providing the real foundation for modern evolutionary biology. Freestone points out that this explicitly "neo-Darwinian" discourse was established in opposition to the claims of Intelligent Design advocates, whose arguments were underpinned by a very different understanding of "Darwinism," imagined histories that defined it not as a theory of science but rather as a worldview or creed. This suggests to Freestone that contemporary advocates of Darwinism have sought to circumscribe its meaning precisely to challenge the criticism that Darwinism is somehow a politicized worldview, a situation that is not unlike that of the mid-nineteenth century when Darwinians such as Huxley and Hooker sought to narrow the meaning of Darwinism to avoid charges of materialism. Then, as now, debates about the meaning of Darwinism cannot be grasped without being situated within the political, religious, and historical contexts of their time.

## EVOLUTION'S IMAGINED PASTS

Freestone's focus on the way historical notions of Darwin and Darwinism were invoked in contemporary debates in the popular literature on evolution offers a nice segue into the final section, "Evolution's Imagined Pasts." The chapters in this section focus explicitly on the constructed imaginary histories that were produced by scientists who were looking to situate their work within particular historical trajectories. They give us much insight into how in the twentieth century Darwin became a central figure in contemporary narratives of evolution's history, even when his own theory of evolution was rejected in favor

of “non-Darwinian” theories and approaches. What sort of work was being accomplished in these imagined histories? And what do these imagined histories tell us more broadly about the relationship between the development of evolution and its historical representations?

One of the key issues in this regard has to do with who gets to count as being a part of the Darwinian Revolution and how being associated with it could confer scientific legitimacy. In the first chapter of this section, Henry-James Meiring explores the conflict over Sigmund Freud’s place within histories of evolution alongside Freud’s own attempts to style himself, along with his science of psychoanalysis, as Darwinian. As Meiring points out, histories of Darwinism, even those explicitly about the development of theories of mind and behavior, tend to ignore Freud, defining him as non-Darwinian or even Lamarckian. These histories of evolution, however, are in diametrical opposition to how Freud imagined his own place within the history of science. Not only did he articulate his scientific interests and method in relation to Darwin’s, he saw himself as extending the Darwinian Revolution into the psychological realm. According to Meiring, this is the context for Freud’s now-famous observation that his science of psychoanalysis was completing a process of human dethronement that began with Copernicus and was continued by Darwin. Thanks to Stephen Jay Gould, we now tend to consider this observation as a clever trope about the deeper meaning of evolution with regard to humanity, but Meiring shows that it was more likely an attempt by Freud to articulate his own place in an imagined history of science, extending the work of his intellectual father into the realm of the psyche.

The next chapter examines the imagined history of another professed Darwinian, the geneticist R. A. Fisher. Fisher is often represented as one of the key figures who helped bring about the evolutionary synthesis of the 1930s, particularly for his work that sought to harmonize Mendelian genetics with Darwin’s theory of natural selection. Alex Aylward shows in his chapter that Fisher’s key contribution to the synthesis, *The Genetical Theory of Natural Selection* (1930), included a lengthy historical narrative about the development of natural selection in relation to human history that historians have previously found difficult to explain. It is important to recognize that Fisher was writing at a time when the theory of natural selection was largely neglected, when historical narratives praising Darwin largely downplayed or minimized the theory. One of the purposes of *Genetical Theory* was to correct these views by making Darwin’s

discovery of natural selection the key event of the Darwinian Revolution, the key event in the creation of a science. As well as helping to explain the seemingly idiosyncratic later historical chapters of *Genetical Theory*, Aylward also sheds light on the holistic nature of Fisher's view of evolution that explicitly connected his interests in genetics, eugenics, and the history of human civilizations.

The deep history of human origins, along with its relationship to Darwin's study of human evolution, concerns Emily Kern's chapter, "Indirect Descent." She focuses on these issues in relation to the science of paleoanthropology, which was undergoing a Darwinian Revolution of sorts in the wake of Louis Leakey and Mary Leakey's discovery of a hominin skull in Tanzania in 1959, which was quickly celebrated in the press as the stunning missing link between man and ape. Louis Leakey went on to argue that the discovery was evidence that humanity had originated in Africa, and not in Asia as was the dominant belief at the time. In making the case for his "Out of Africa" thesis, Louis remarked that this thesis was originally proposed by Darwin in his *Descent of Man*, thereby situating his own findings within an intellectual genealogy begun by none other than Darwin himself. Kern argues that invoking Darwin's legacy at this moment allowed Leakey to reframe a century of work on human origins by establishing a historical foundation and noble lineage for a previously ignored theory of human origins. By situating his and Mary's discovery within this history of science, Leakey had essentially reimagined paleoanthropology as a Darwinian discipline.

If the chapters by Kern, Aylward, and Meiring give us some insight into how particular historical understandings of Darwin's theory came to be associated with key evolutionary advances across multiple disciplinary approaches in the mid-twentieth century, the next chapter by Emily Herring shows that the history of evolution was presented quite differently in the context of evolutionary developments in France. Herring demonstrates that the two leading zoologists in France, Albert Vandel and Pierre-Paul Grassé, promoted what they called the "true" synthesis, in contrast to the Anglo-American "modern synthesis" of Darwinian evolution and Mendelian genetics. This synthesis promoted in France, argues Herring, was a narrative of evolution that connected the French thought of Lamarck, Cuvier, Bergson, and Pierre Teilhard de Chardin in what was defined as an explicitly anti-Darwinian form of evolution. Darwin was presented as an antagonist in these accounts, as someone who had—in

diametrical opposition to Anglo-American imagined histories—impeded the progress of evolutionary thought. This suggests that the establishment of historical narratives emphasizing the importance of Darwin and Darwinism were not by any means inevitable and that different national traditions of science produced their own imagined histories that informed the present and future development of evolution. What Herring also shows is that while evolutionists in France sought to mobilize a historical framing that stressed the role of Lamarck while minimizing the role of Darwin, the categories of Lamarck and Lamarckism, not unlike those of Darwin and Darwinism, were still open to multiple interpretations that were debated and contested throughout the twentieth century.

In the final chapter Erika Lorraine Milam explores the theme of evolution's imagined pasts by considering the way in which debates over Darwin's legacy were transformed in the 1980s. Before then scientists largely fought over the deeper meaning of Darwin's work in order to uncover what it meant to be Darwinian, a deeply presentist exercise that cared more about the essence of Darwin's thought than it did about what that thought might have actually meant in the nineteenth century. But Milam shows that from about 1980 the conversation about Darwin's legacy became more interdisciplinary, with a nexus of biologists, philosophers, and historians entering the evolutionary debates. These scholars brought a different evidentiary base to their claims, one that was based on Darwin's actual words found in his correspondence, notebooks, and other works that had now been made widely available through various publishing ventures, such as the Darwin Correspondence Project. This "Darwinian literalism," as Milam calls it, became key to studies about Darwin from several diverse disciplinary approaches, from literary studies to histories of evolution, from feminist critiques of sexual selection to the battle between Gould and his neo-Darwinian critics. We now live in a world where debates about the meaning of Darwinism and Darwin's legacy are well and truly entangled with claims about the past, and these claims are made and contested whether they include the contributions of historians or not.

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Historians are understandably well positioned to grasp the historical dimension that underpins the development of science, a dimension so clearly central to that of evolution. But recognizing that the "Darwinian Revolution" is an

invention of history, an “imagined” history of science, is only a first step in coming to terms with the way in which that category and the narratives surrounding it have shaped the development of evolution itself. By exploring this general theme from a variety of different perspectives, the chapters in this volume give us much insight into how the history of evolution has been interpreted, deployed, and exploited to fashion the science behind our changing understandings of evolution from the nineteenth century to the present.