

The Role of Biography in Intellectual History

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BIOGRAPHY AS A GENRE, though immensely popular in the public arena, finds little favor in the academy. For some, it assumes that intellectual or cultural accomplishments have sprung from the mind of an isolated genius, and no historian will admit to succumbing to a “great man” theory of history. In some intellectual quarters, however, the very opposite attitude reigns: some historians explore scientific works by placing them in sublime isolation from their personal and cultural surroundings. These historians commit the “great books” fallacy, namely, that the isolated work of a mastermind speaks for itself; no context is needed for its peculiar genius to ring forth. This latter attitude was brought home to me several years ago, when I was trying to come to terms with William James. I had occasion to read a scholar who had written on James. He cautioned: “To provide a proper perspective for the study of James . . . attention must be diverted from his life, however interesting, to his published philosophy.”¹

I wondered what kind of perspective could be gained by neglecting William James the individual. James himself, I thought, would have utterly rejected that admonition. In the *Varieties of Religious Ex-*

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perience, he contended: “The recesses of feeling, the darker, blinder strata of character are the only places in the world in which we catch real fact in the making, and directly perceive how events happen, and how work is actually done.”²

James’s remark goes to the heart of what an intellectual historian attempts to do; historians of science, my own area of inquiry, seek to explain why certain scientific theories in the past came to be entertained by scientists, why particular strategies came to be employed, why philosophical or religious concerns came to color a scientific endeavor, and the like. In sum, the job of the intellectual historian is to determine what the facts of the matter were in the past and then to explain those facts. Sometimes the historian will focus more on institutions than on individuals—though even an institutional study, for example, an inquiry into the Royal Society or the American Psychological Association, will of necessity be concerned with individuals, but perhaps not at the depth, say, that a study of the accomplishments of William James would entail.

Of course, both the efforts I’ve mentioned—ascertaining the facts and explaining them—are more complicated than my simple expression might suggest. For instance, a decent biographical approach, though focused on a particular scientist, would need to expand to discuss family members, colleagues, and those who felt the impact of that individual. Naturally, the good historian will not neglect the deposit of ideas and theories to which the subject of concern was legatee. The focus on an individual allows a coherent representation of science and of intellectual development at a moment in history. The mind of a scientist, as Thomas Hankins has suggested, is the meeting place of psychological dispositions, political attitudes, religious beliefs, and worries about theory and evidence.³ In such a mind, one encounters a complex of interacting causes that offers the basis for a realistic explanation. I will confess to an added attraction of biography: dealing with individuals such as William James, or Charles Darwin, or Ernst Haeckel, or

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Johann Wolfgang von Goethe is simply more interesting than following the activities of those in the lower ranks. They usually have many tricks up their sleeves and display, even when wrong from our perspective, the kind of genius that is compelling to explore. My attitude in this respect, I fear, is not widely shared, and I realize that many of my colleagues would not endorse some of the proposals I'm about to make. I think these proposals are more than defensible, but I will regard objections to them as a measure of the care and commitment most historians have for their craft.

Assumptions the Historian Must Make

For the historian to accomplish these tasks of giving shape to the facts and providing an explanation, a host of assumptions are required—and for the reflective historian, these assumptions should be justified. First, a simple issue: What is meant by the past? The past is a rather funny thing. After all, the historian's principal subject doesn't exist. We may have present documents, but past events exist no longer. We can only try to reconstruct the past in our descriptions. But will it be the past as understood by the actors residing in the past? It should be at least that. But which actors, since individuals will not always perceive events in the same way? Were there millions of pasts, but no unified past? And should we rely only on the actors' categories in our explanations of past events? By focusing exclusively on the way actors of the past understood their world, the historian will, I believe, be precluded from actually understanding their world. Let me provide an example.

Paula Findlen, a prominent historian of Renaissance science, in her fine book *Possessing Nature*, which examines the founding of natural history museums in Italy, ascribes Ulisse Aldrovandi's rise to fame as a naturalist to his account of a dragon that had been ravaging the countryside of Bologna in 1572.⁴ Aldrovandi even provided a drawing

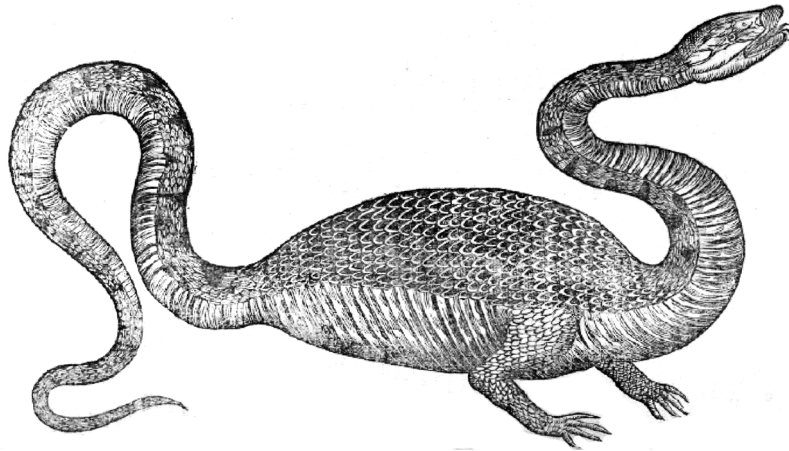
of the dragon. But Findlen nowhere says, “Oh, and by the way, dragons don’t really exist.” She simply describes how Aldrovandi’s dragon-work led to the establishment of his museum. Wouldn’t we like to know what Aldrovandi actually saw? Since whatever it was, it wasn’t a dragon—at least, he didn’t see that thing he illustrated in his book of 1640, *Serpentum et draconum* (see fig. 1). Shouldn’t the account of the historian include things and events the actors could not be aware of?

Consider the Black Death. The pestilence that the best physicians of the period thought to be due to a miasma was really, of course, due to a bacillus, *Yersinia pestis*, carried by fleas, which were transported by rats. After all, don’t we assume that fleas and the plague bacillus also existed in the past and were explanatory factors in the actions of individuals? So, I think we must recognize that the past exists in our descriptions, but that the descriptions, while including the beliefs of actors, should also include those events for which we have good evidence but yet lie beyond the ken of the actors.

A second assumption concerns the problem of the unity of the past. The past, as it exists in documents and evidence that we use in the pres-

Figure 1.

“Dragon captured in the countryside around Bologna,” from Ulisse Aldrovandi, *Serpentum et draconum* (1640).



ent, is quite fragmented; and scattered pieces often seem like they were drawn from different picture puzzles, reflecting as they do the actors' various understandings of events. Yet the historian is charged with providing a unified account. The unity, of course, must be supplied by the historian's imagination, putting together the fragments into a rational whole—rational, in that the historian's account weaves together the disjointed elements into a pattern that make sense in light of our current science and historical understanding. Even the madness of King George can be made rational, that is, understandable. Friedrich Schiller, the great German poet and historian, understood well the role of the historical imagination, without which our history “would not be anything other than an aggregate of fragments and would not deserve the name of a science [*Wissenschaft*].” He maintained that it was “philosophical understanding that comes to our aid; it connects these fragments into artful linkages, raising the aggregate into a system, into a rationally connected whole.”⁵ The unity of a historical account can thus only be supplied by a mind apprised of the best science and the widest knowledge of human affairs.

A third assumption the historian must make concerns the kinds of forces that might explain events by linking them together. Are they causes or something else? One of my former colleagues at the University of Chicago, the great historian of anthropology George Stocking, said he never used the word “cause” when describing events. It is a word, though, that frequently comes trippingly to my tongue. And if there are causes to explain events, what is their character? I think they need at least to be of the sort that David Hume would have admitted; namely, they are antecedent events that may be linked to outcomes by our best scientific theories and historical experience.

Such causes will generally be of two kinds: physical causes, like the plague bacillus; the other kind of cause will be in the realm of cognition, in the minds of the actors, their beliefs, assumptions, psychological dispositions—the kinds of causes that lead to behavior of a cer-

tain sort. The astute historian will make the narrative of those antecedent causes as tight as he or she possibly can, thus robbing the actor of any free will in the situation. The historian may depict the actors as perceiving an open future, but the historian, by his or her effort at specifying antecedent causes, closes off that future. From the historian's point of view, the explanatory effort will be deficient to the extent that in the narrative the actor could have done otherwise; for if the actor could have done otherwise, then something would be missing from the explanatory attempt. What I'm stating is, of course, the ideal. Our efforts can only approach that ideal asymptotically.

Let me mention an even more meta-consideration concerning explanatory factors. Should the historian appeal not only to the reader's intellect but also to the reader's emotions? The historian and intellectual architect of the University of Berlin, Wilhelm von Humboldt, maintained in his "Task of the Historian" that the historian was not only a scientist (i.e., one who provides systematic causal analyses) but an artist as well. Engaging in this latter endeavor, "the historian must, to execute the task of his craft, compose the given events so as to move the reader's emotions in a way similar to that of reality itself."⁶ Humboldt thought that the good historian would deliver descriptions that gave the reader some feeling of the emotional charge behind the proposed causes of events. This, I believe, is an aspect of historical explanation often neglected in intellectual history, but a crucial one for ramping up the explanatory narrative to another level. If there were a passionate component to the acceptance or rejection of a set of ideas by a scientist, mustn't the historian contrive to make the reader feel a bit of that same kind of emotion through the dexterity of his or her descriptions? Herein lies the art of the historian. I'll try to provide some examples of this in a moment.

A fourth assumption, seemingly paradoxical, is that the past is changeable and unstable. Most historians implicitly assume this, since they rarely think the last word has been spoken about a past event. In-

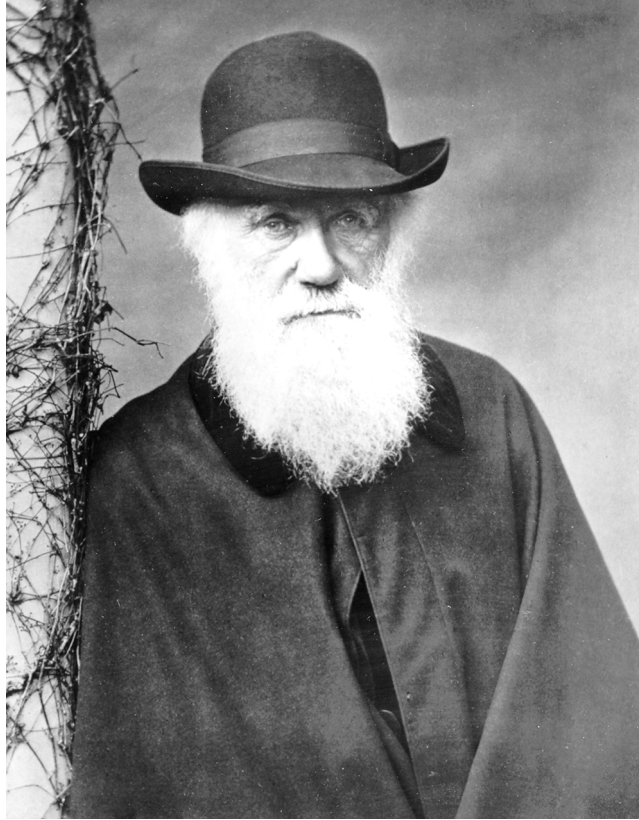
deed, the written account of a historian is always in danger of being toppled by the wrecking ball of further research. This instability of the past follows if the past exists only in the historian's constructions. The historian works with a concept of the past, as all individuals do, a concept that implies the past is fixed. Whether this concept is comparable to a Kantian category or is the result of experience, I'm not sure. The concept of the past as fixed, however, provides a framework, but one with changeable content. This just means that when a new edifice of past events is erected, by reason of better evidence and argument, this becomes the new fixed past. But does this mean the past is like Silly Putty and can take any shape into which a persuasive historian can mold it? Must there not lie beneath the construction a foundation of reliable fact? I believe there must, but that foundation is ensured by the application of our best contemporary scientific understanding and historical experience. The history of Aldrovandi's activities will have the scientific check of modern biological understanding, which precludes the existence of dragons.

Well, I'll stop with this litany of the usually unspoken assumptions historians must make, and turn to the potency of biographical understanding. I'll discuss three examples of the crucial way in which what we might think of as extraneous personal detail can provide a crucial link in historical explanation. The very personal causal factors I'll mention will not, of course, provide a magical key to unlock a comprehensive understanding of the work of a scientist, but, I believe, maybe a key card to some extremely important features of the work of Charles Darwin, William James, and Ernest Haeckel.

Charles Darwin (1809–82)

Understanding Darwin's accomplishment immediately presents to the historian several significant problems (see fig. 2). First, Darwin is almost a contemporary figure, or at least his shadow is. Many biol-

Figure 2.
Charles Darwin (1809–82). Photograph (1881) courtesy of Down House and the Royal College of Surgeons of England.



ogists and cultural critics refer indifferently to *evolutionary theory* and to *Darwinian theory*—so identified is the creator with the dominant theory in biology and in cultural discourse. This means it is quite easy to read back into the history of Darwin’s conceptions our contemporary understanding of evolutionary theory—to make Darwin into a neo-Darwinian. I think the biographical approach makes such a transformation more difficult, though not impossible, as I’ll indicate in a moment. Take two salient issues in assessing Darwin’s conception: first, whether he advanced a mechanistic view of nature or an organ-

icist view; and second, whether he believed nature was evolutionarily progressive or not? Both issues are fundamental for any historical account of Darwin's achievement. In our contemporary conceptions of evolution, I think it's pretty clear: evolutionary theory is both mechanistic in its understanding of nature and nonprogressivist—nature through the course of millennia did not have us in mind.

For such scientists and philosophers as Stephen Jay Gould, Daniel Dennett, Richard Dawkins, and Michael Ruse, Darwin is the extreme mechanist, turning nature into a Newcomen engine, which chugs along without purpose or goal—or to change the metaphor, nature is a robot that takes a random walk. As Richard Lewontin, Steven Rose, and Leon Kamin succinctly put it, “Natural selection theory and physiological reductionism were explosive and powerful enough statements of a research program to occasion the replacement of one ideology—of God—by another: a mechanical, materialist science.”⁷ For me, Darwin is an organicist and holist, who placed man as the goal of a progressively advancing nature. Darwin was a nineteenth-century thinker who used the resources of thought available to him at the time. He certainly denied species were special creations by an intervening deity, but adopted a common theological view that God promulgated the laws of nature, such laws as natural selection, which determined progressive development and acted as “secondary causes.”⁸ Lacking a biographical perspective, Lewontin, Rose, and Kamin, along with Gould, Dennett, and Dawkins, simply read back into Darwin's accomplishment our contemporary views in biology.⁹

Ruse's case is more interesting. He is quite aware of Darwin's theological attitude, but adopts a historiographic principle that stacks the deck. Like many social constructionists, Ruse begins by examining Darwin's external, sociopolitical environment, especially the environment of the Industrial Revolution in England. He then moves more internally to determine how that environment made an impact on Darwin's mental life, presumably transforming the young thinker into

a mechanist. I rather believe the starting place for biographical analysis ought to be that mental interior, Darwin's distinctive complex of attitudes, beliefs, and commitments as revealed by letters, diaries, and manuscripts; after that survey, then one can look toward that external intellectual and social environment to determine what captured Darwin's interest, what fraction of the external milieu he absorbed and what fraction he ignored.¹⁰ My assumption is that the exterior environment was quite variegated and differed for different individuals, and that those individuals would have invested particular features of the external environment with meaning. The external environment did not simply shape the ideas of the scientist, as a sculptor might chisel a piece of granite into a form; that, I think, is the wrong metaphor. Ruse's Darwin is sculpted stone; he comes out a mechanist, who displaced man from a central position in nature and turned human morality into a charade of self-aggrandizement. My Darwin placed man as the purpose of nature and reconstructed that nature with a moral spine, yielding human beings as authentically moral creatures. Quite different perspectives, with each of us attempting to make sense of Darwin's scientific life. Both of us, of course, marshal the supporting texts in Darwin's work—but those who write history recognize there is no prescription for choosing the right texts to illustrate a general thesis. Such selections require the integrity and craft of the historian.

The different Darwins that arise out of the work of two responsible historians hinge in large measure (though not exclusively) on the role given the biography of the individual—either derived from the sociopolitical environment, in Ruse's case, or given controlling priority in mine.

Intellectual history and especially history of science face a problem not often encountered in other kinds of history. This happens when contemporary thinkers endorse theories or intellectual positions that have their origins in a much earlier period, which makes it easy to assume the end of this developmental process was its beginning, an

assumption I believe Gould, Dennett, and Dawkins have made. The problem, in the case of Darwin, might be epitomized by two simple questions: What is Darwin's theory, and where does it exist?

We speak blithely of Darwin's theory as if it were an abstract entity of determinate meaning. If you examine Darwin's construction of those ideas that came to form the first edition of *On the Origin of Species*—that is, his conceptual work from just after he returned from the *Beagle* voyage (fall 1836) to the publication of the first edition (fall 1859)—you would find those ideas changing over time, a garden in which some plants blossomed and produce fruit, while others failed to thrive and died away. Moreover, if you consider the alterations wrought in the subsequent five editions of the *Origin* (sixth edition, 1872), you would track further changes, since the sixth edition is about 50 percent altered from the first. So, I take Darwin's theory to be a historical entity that resides in his manuscripts, letters, and publications over his lifetime. In its mature state, you can detect the confusions of its youth and the receding hairline of its final form. But each period is different and it would be a great mistake to assume that the phrase "Darwin's theory" has a univocal meaning. When you take a scrutinizing view of the life of Charles Darwin, you would not mistake his theory for an unchanging abstract entity. You would not be inclined to claim with the several scholars I have mentioned that Darwin replaced divine intelligence with a "completely stupid algorithmic process, natural selection," as Dennett describes it. A close reconstruction of Darwin's accomplishment shows clearly, I think, that divine intelligence hovered over the theory that came of age in the first edition. The evidence is to be found in Darwin's manuscripts and letters, but clearly exemplified in those passages from the *Origin of Species* to which I've earlier referred. A scrutinizing view of the life becomes an anchor that holds one steadily in the nineteenth century, where Darwin resides.

Now here is a problematic that many historians of science will recognize: A man named Charles Darwin wrote a book in 1859, read by

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many people, especially by critics today, as an atheistic tract. During the same year, another author by the same name wrote a book with the same title, but with the intention of showing how God's laws operated in nature, and who protested to a friend, "I had no intention of writing atheistically."¹¹ Several scholars I've already mentioned only account for one of these books. The astute intellectual historian will give a stereophonic rendering of both books, not forgetting the one excavated from the intentional life of the great naturalist, but certainly also mentioning the book that contemporary biologists refer to in the first paragraphs of their textbooks on evolutionary theory. Let me turn now to William James to illuminate other features of the biographical approach.

William James

William James not only argued that it was in character and personality where work was done, but he also suggested to a graduate student who had written her PhD dissertation on his philosophy that when representing a thinker, you cannot simply string together passages from works written at very different times for different occasions (see fig. 3). Rather, for an author, you had first to "grasp the center of his vision, by an act of imagination."¹² In the wake of such an act, remarks made at different times and places may be more clearly understood as part of a developmental history. What might be that central concern in James that an approach to his life might illuminate, might radiate to many of his intellectual occupations? I think it is revealed in several passages from his great work *Principles of Psychology* (1890). In the preface to that book, James claimed that he would treat psychology purely from the standpoint of natural science, which sought the laws governing correlations between brain and mind. His psychology, he affirmed, would avoid all temptations to metaphysics. Yet at various junctures in the book, James happily gave in to temptation. In his chapter on the will,



for instance, he remarked that the decision to act was dependent on an idea's "impulsiveness," which itself was a function of the focal attention an individual gave to the idea, the dominating interest an individual had in the idea. But then the question became: Is that interest compelled from without by a kind of propulsive force, or does it stem from the grasp reaching up from the depths of personality. James thus formulated the issue of free will, but no sooner did he formulate it in the chapter on will than he dodged it. He retreated, saying that psychology was incapable of answering the question of free will.¹³ But he couldn't let it go.

Figure 3.
William James (1842–1910), on the left, and Josiah Royce (1866–1916). Photograph courtesy of Houghton Library, Harvard University.

He couldn't let it go because he had been obsessed with the issue of freedom of the will almost from the beginning of his professional life. And in that obsession, he developed an argument early in his career that he played out in the *Principles* more subtly, an argument showing the independence of mind from brain—thus gaining free will, or at least its possibility—by other means. It was an argument that he constructed against the foil of the philosophical theory of epiphenomenalism, which holds that we are merely conscious automata, the view that brain activity rigidly determines both physical behavior and mental acts but that mind itself is causally inert. Mind, in this view, is a determined causal effect that does nothing on its own. It simply comes along for the ride; it doesn't enact anything. To fight this deterministic conception, James recruited Darwin to his side. He argued that if mind developed over time, even as a concomitant to brain development, like all traits it would be naturally selected. But if naturally selected, it must have a use in the environment; that is, it had to be causally efficacious. But if causally efficacious and thus doing something more than could be effected by brain alone, then epiphenomenalism was false, and mind had causal agency of its own. For you to catch the power of the argument, it would have to be more fully elaborated, of course. It did convince the likes of Karl Popper and the Nobel Prize winning neurophysiologist John Eccles.¹⁴ James's need to postulate free will nurtured the roots of a great variety of topics in the *Principles*, from his theory of the self to the details of consciousness and perception. If this idea were not at the center of his vision, it was micro degrees away.

As an intellectual historian, one wants to explain how the problem of free will became so central to James's philosophical psychology. And here's where the pursuit into the depths of the self is required. I won't detail all the rungs of the descent into James's personality but will immediately slide to the bottom. And at the bottom is James's mental collapse during his late twenties, severe enough that he spent

time at McLean Asylum, the temporary home of many a New England author.¹⁵ Early on, James had become quite reluctantly convinced that Herbert Spencer's doctrine of determinism was correct and that his own ideas were in thrall to what he thought a sick brain, which had "palsied" his will. What brought him around was not the stay at McLean but an argument drawn from the French Kantian Charles Renouvier, who suggested that in the debate between liberty and mechanism there was no obvious first principle from which one or the other could be derived; mechanism and liberty themselves were first principles. Hence an individual simply had to choose one or the other. This kind of argument brought James famously to declare: "My first act of free will shall be to believe in free will."¹⁶ When he later recruited the Darwinian argument to this new perspective on mind, he had the endorsement of both logic and science. He thus concluded that mind was not shackled to brain. Now there are many other personal circumstances that helped to lift him gradually out of his despondency, but Renouvier and Darwin turned out to be more powerful than the McLean water cure.¹⁷ A careful biographical approach thus opens up for inspection and consequent explanation the central feature of James's vision.

If the historian should follow the recommendation to "divert attention away from James's life and focus on the published philosophy," he or she will leave large swaths of James's philosophical psychology to evanesce. Simply to show logical connections among his ideas, while necessary for the understanding of his accomplishment, is yet not enough. I'm convinced, with David Hume, that ideas in themselves are impotent, unless infused by passion, by the feeling of urgency. The development of James's ideas cannot be explained merely in the meta-language of abstract rules drawn from the logical theorems of *Principia Mathematica*. The historian must also infuse the ideas with the emotional rules governing the central vision of the scientist. In this respect, the artful historian will make, through his or her descriptions, that ur-

gency felt. Let me try to render this more vivid in the case of Ernst Haeckel.

Ernst Haeckel

Ernst Haeckel was Darwin's foremost champion, not only in Germany during the second half of the nineteenth century, but throughout the world (see fig. 4). More people learned of evolutionary theory through his voluminous writings than from any other source, including Darwin's own work. Haeckel's *Die Weltrathsel* (World puzzles) sold over four hundred thousand copies from 1899 to 1914, and that just in the German editions; it was translated into most of the known languages and many of the unknown languages of the world, including Esperanto.¹⁸ But the feature of Haeckel's work that has electrified discussions from his time to the present was his marshaling of the forces of evolutionary theory against religion. Unlike Darwin, Haeckel took every opportunity throughout his long life to smite the preachers with the jawbone of evolutionary theory. And the preachers counterattacked.

In that series of pamphlets, many translated from the German, that came to form the twelve volumes called the *Fundamentals*—published in American between 1910 and 1915—in that series, the *bête noire* of evolutionary theory was Ernst Haeckel. Here's just a sample from volume 4: "Professor Haeckel was braver, or more rash [than Darwin], when he styled the "Descent of Man" as "anti-Genesis"; with equal truth and moderation he might have added, anti-John, anti-Hebrews and anti-Christ. The point to pierce the business and bosoms of men is a denial of the integrity and reliability of the Word of God."¹⁹ If you are looking for the source of the warfare between conservative Christianity and Darwinian theory, look no further than Ernst Haeckel.

But how to explain this eruption. Why did Haeckel cast evolutionary theory as the instrument to savage religion, when Darwin himself sought to ameliorate differences? One has to seek the explanation in

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Figure 4.
Ernst Haeckel (1834–1919), standing; on his way to the Canary Islands, 1866. Photograph courtesy of Ernst-Haeckel-Haus, Jena.

terms of Haeckel's intimate life, an interior place that might seem extraneous to his public science.

As a young man, after finishing his medical degree and getting ready to work on his habilitation in Italy, Haeckel fell in love with his first cousin, Anna Sethe. In one of his letters to a friend, he describes her as a "true German child of the forest, with blue eyes and blond hair and a lively natural intelligence, a clear understanding, and budding imagination."²⁰ Haeckel wooed her with Goethe's poetry. He saw in her his salvation: "When I press through from this gloomy, hopeless realm of reason to the light of hope and belief—which remains yet a puzzle to me—it will only be through your love, my best, my only Anna."²¹

While I was working on a book on Haeckel, my graduate assistant transcribed for me a packet of some twenty or so letters that Haeckel had sent to Anna from Italy, where he was doing research for his habilitation. Afterward my assistant confessed to me: "I have never been in love, but now I know what it must feel like." So vivid and emotionally charged were those letters.

Haeckel, after being tempted by the bohemian life in Italy—traveling and painting on the Island of Ischia—finally settled on a research subject, a class of small marine organisms about the size of a pinhead, the radiolaria. They secrete an exoskeleton of silica, which exhibits quite unusual and beautiful forms. Haeckel was an artist, and in his monograph on the radiolaria, he depicted them in vivid color, which evoked from Darwin the exclamation that the book was "one of the most magnificent works which I have ever seen, & I am proud to possess a copy from the author."²²

While working on his habilitation and before he had initiated a correspondence with Darwin, Haeckel read the German translation of the *Origin of Species* (see fig. 5). He immediately saw how the new conception made sense of relationships among the many genera and species of radiolaria that he had discovered. On the basis of his radiolarian work, he habilitated at the university of Jena and then produced

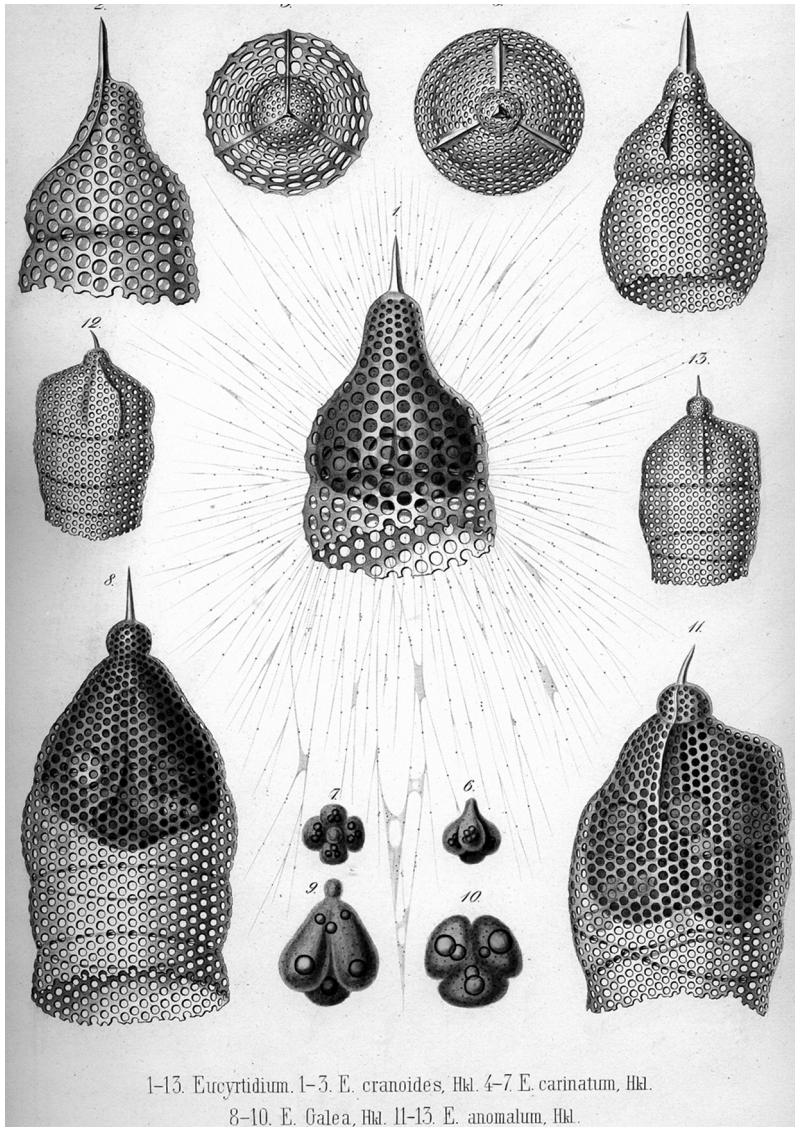


Figure 5.
Radiolaria of the subfamily
Eucyrtidium, from Haeckel's
Radiolarien (1862).

a magnificent two-volume monograph on those minute creatures. The monograph won him a permanent position at Jena as professor extraordinary; but more than that, it provided the financial security that allowed him to marry Anna. They were deliriously happy, as letters to friends testify, but a scant eighteen months later, Anna suffered what seems to have been appendicitis and died after a short illness. Her death occurred on February 16, 1864, the very day of Haeckel's thirtieth birthday and the day he got word that his monograph had won a prestigious prize.

Haeckel became mad with grief, such that his parents thought he might commit suicide. They sent him to Nice on the French coast to try to recover. He wrote them a month after Anna's death:

The last eight days have passed painfully. The Mediterranean, which I so love, has effected at least a part of the healing cure for which I hoped. I have become much quieter and begin to find myself in an unchanging pain, though I don't know how I shall bear it the long run. . . . You conclude . . . that man is intended for a higher god-like development, while I hold that from so deficient and contradictory a creation as man, a personal progressive development after death is not probable; more likely is a progressive development of the species on the whole, as Darwinian theory already has proposed it. . . . Mephisto has it right: "Everything that arises and has value come to nothing."²³

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Well into his seventh decade, on his birthday, Haeckel seriously contemplated suicide. In later years, while suffering under bondage to a second wife, who suffered from depression, he fell into the arms of another woman, he in his late 60s, she in her early 30s. Frida von Uslar-Gleichen was a woman of minor nobility. She was born the year Anna had died, and Haeckel thought of her as a kind of reincarnation of his first wife.

The letters that passed between them, over 900 letters in the space of six years, were often decorated with illustrations by Haeckel and included the poetry that bound them together. But this relationship also ended in bitter tragedy.²⁴

What kind of scientific understanding do these events in Haeckel's long, complex life illuminate? As I already suggested, they give an explanation, at least partially, of the continued vehemence with which Haeckel pursued Darwinian theory, elevating it into a religious crusade against religion. And, in specific instances, these deeply personal events provide an account, partially at least, of why Haeckel pushed his scientific claims beyond what the evidence might justify.

But here I would like to suggest another advantage of the biographical approach to scientific explanation. The great historian Thomas Babington Macaulay contended that history was both a science and an art. He wrote:

The perfect historian is he in whose work the character and spirit of an age is exhibited in miniature. He relates no fact, he attributes no expression to his characters, which is not authenticated by sufficient testimony. But, by judicious selection, rejection, and arrangement, he gives to truth those attributions which have been usurped by fiction. . . . Men will not merely be described, but will be made intimately known to us. The change in manners will be indicated not merely by a few general phrases or a few extracts from statistical documents, but by appropriate images present in every line.²⁵

In other words, the artful historian will arrange his or her history to engage the reader's emotions, to make the reader feel the height of exhilaration or the depth of sorrow suffered by the actors in the history. This provides understanding on a different level than the ethereal plane of reason. In the case of Haeckel, the effort is made easier

because simple quotations from his letters are capable of moving the soul, as my graduate assistant discovered. Though I suspect, not having experienced love, my assistant could not quite do justice to composing a history of Haeckel's development. Perhaps it requires the historian to engage in a bit of method acting—that is, conjuring up from one's personal depths an experience something like that of the scientist, to render the scientist's actions explicable. In a small way, not so much to relive the life of the scientist, but to live one's own life as it might have been lived. Which means, ultimately, that good biographical history of science is really autobiographical.

Notes

1. William Earle, "William James," in *The Encyclopedia of Philosophy*, ed. Paul Edwards, 8 vols. (New York: Macmillan 1967), 4:241.
2. William James, *The Varieties of Religious Experience* (New York: Longmans, Green, 1902), 501.
3. Thomas Hankins, "In Defence of Biography: The Use of Biography in the History of Science," *History of Science* 17 (1979): 1–16.
4. Paula Findlen, *Possessing Nature* (Berkeley: University of California Press, 1994), 17–31.
5. Friedrich Schiller, "Was Heisst und zu Welchem Ende Studiert Man Universalgeschichte?" in *Sämtliche Werke*, ed. Helmut Koopmann, 5 vols. (Munich: Winkler Verlag, 1975), 4:717.
6. Wilhelm von Humboldt, *Gesammelte Werke*, ed. Alexander von Humboldt, 7 vols. (Berlin: Reimer, 1841), 1:6.
7. Richard Lewontin, Steven Rose, and Leon Kamin, *Not in Our Genes* (New York: Pantheon, 1984), 51.
8. Charles Darwin, *On the Origin of Species* (London: Murray, 1859), 488.
9. I've tried to make this case in *The Meaning of Evolution: The Morphological Construction and Ideological Reconstruction of Darwin's Theory* (Chicago: University of Chicago Press, 1992).
10. Michael Ruse and I argued this out in our book *Debating Darwin* (Chicago: University of Chicago Press, 2016).
11. Charles Darwin to Asa Gray, May 22, 1860, in *The Correspondence of Charles Darwin*, ed. Frederick Burkhardt et al., 22 vols. to date (Cambridge: Cambridge University Press, 1985–), 8:224.
12. William James to Miss S., May 26, 1909, in *The Letters of William James*, ed. Henry James, 2 vols. (Boston: Little, Brown, 1926), 2:355.

13. William James, *The Principles of Psychology*, 2 vols. (New York: Henry Holt, 1890), 2:571–73.
14. Karl Popper and John Eccles, *The Self and Its Brain* (Berlin: Springer, 1977).
15. Robert J. Richards, *Darwin and the Emergence of Evolutionary Theories of Mind and Behavior* (Chicago: University of Chicago Press, 1987), 415.
16. William James, *Diary MS entry for April 30, 1870*, James Papers, Houghton Library, Harvard University.
17. Richards, *Darwin and the Emergence*, 418–22.
18. Erika Krauße, “Weg zum Bestseller, Haeckels Werk im Licht der Verlegerkorrespondenz,” in *Der Brief als Wissenschaftshistorische Quelle*, ed. Erika Krauße (Berlin: Verlag für Wissenschaft und Bildung, 2005), 145–70.
19. Henry Beach, “The Decadence of Darwinism,” *The Fundamentals: A Testimony to the Truth*, ed. Two Christian Laymen, 12 vols. (Chicago: Testimony, 1910–1916), 4:37.
20. Ernst Haeckel to a friend, September 14, 1858, in *Himmelhoch Jauchzend: Erinnerungen und Briefe der Liebe*, ed. Heinrich Schmidt (Dresden: Carl Reissner, 1927), 67.
21. Ernst Haeckel to Anna Sethe, August 22, 1858, in *ibid.*, 19.
22. Charles Darwin to Ernst Haeckel, March 3, 1864, in *Correspondence of Ernst Haeckel*, in the Haeckel Papers, Institut für Geschichte der Medizin, Ernst-Haeckel Haus, Friedrich-Schiller-Universität, Jena.
23. Ernst Haeckel to his parents, March 21, 1864, in Schmidt, *Himmelhoch Jauchzend*, 318–19.
24. Something I discuss in *The Tragic Sense of Life: Ernst Haeckel and the Struggle over Evolutionary Thought* (Chicago: University of Chicago Press, 2008).
25. Thomas Babington Macaulay, “On History,” in *Miscellaneous Works of Lord Macaulay*, ed. Lady Trevelyan, 5 vols. (New York: Harper Brothers, 1880), 1: 194.

QUERIES TO THE AUTHOR

Q1. AU: Your article has been lightly edited for grammar, clarity, consistency, and conformity to journal style, including issues of hyphenation and capitalization. The *Chicago Manual of Style* is followed for matters of style, and *Merriam-Webster's Dictionary* is followed for spelling. Please read your proof carefully to make sure that your meaning has been retained. Thank you.

Q2. AU: We have revised this sentence somewhat, but please let us know if we have misunderstood your intended meaning. (“James’s remark goes to the heart . . .”)

Q3. AU: Please add a citation for the Dennett passage quoted here (“completely stupid algorithmic process, natural selection”).

Q4. AU: Do you mean “published in English” or “published in America” here?

Q5. AU: Please double-check the Haeckel quote. Is it perhaps “. . . bear it in the long run . . .” rather than “bear it the long run”?