

The Dialectical Biologist, circa 1890: John Dewey and the Oxford Hegelians

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I. INTRODUCTION

JOHN DEWEY IS RARELY DISCUSSED in mainstream analytic philosophy nowadays. Looking only at the *Philosophical Review*, a journal in which Dewey himself published twenty-two articles, it seems that he is no longer viewed as an important interlocutor: his name has been mentioned in only two book reviews and one article since 2000.¹ This apparently low opinion of Dewey's work among analytic philosophers may be related to Richard Rorty's claim, in his American Philosophical Association presidential address of 1979, that for the pragmatist "there are no constraints on inquiry save conversational ones."² This characterization of pragmatism is controversial. Susan Haack, for one, is vehemently opposed to Rorty's account.³ Nevertheless, his vision of pragmatism—focused on community, conversation, and history—has been dominant.

Rorty's emphases, unfortunately in my view, have obscured one of the central features of Dewey's thought: his biology-inspired naturalism. Anyone reading a substantial cross-section of Dewey's works is struck by the constant references to organism and environment. Even his aesthetic theory, where such biological ideas are perhaps least expected, began with a discussion of experience as organism-environment interaction: "The first great consideration is that life goes on in an environment; not merely *in* it but because of it, through interaction with it."⁴ Rorty,

¹I am excluding "Books Received." As a comparison, Rudolf Carnap's name is mentioned over twenty times since 2000.

²Rorty, "Pragmatism, Relativism, and Irrationalism," 726. Of course, there are surely sociological reasons as well, involving deep divisions and boundary policing within the broader community of professional philosophers.

³Haack is inspired primarily by Charles Sanders Peirce, rather than Dewey; see Haack, *Evidence and Inquiry: Towards Reconstruction in Epistemology*, 182–202. See also Rorty, "Response to Susan Haack."

⁴Dewey, *Art as Experience*, 13.

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of course, did not simply ignore Dewey's connection to biology: following James Kloppenberg, he viewed Dewey as occupying the conceptual space "between Hegel and Darwin." But Rorty rejected Dewey's own understanding of these thinkers as engaged with biology and evolution, choosing instead to link them with historicism and relativism.⁵ On this reading, Dewey's philosophy is not truly biological even when it explicitly refers to biology.

Running counter to Rorty, recent champions of Dewey's naturalism—and especially his approach to ethics—tend to think that his idealist ancestry only detracts from his views. Cheryl Misak, in her book *The American Pragmatists*, writes, "Dewey's attempt at bringing Hegelian insights to the empiricist or naturalist picture seems always less than satisfactory." As Misak indicates, following recent scholarship, Dewey's philosophy retained key aspects of idealism even after his biological turn. For those seeking a naturalist Dewey, however, these Hegelian traces are an embarrassment—responsible for muddled metaphysics. As Peter Godfrey-Smith once put it, modern naturalists tend to see Dewey "as someone with good instincts but a lack of rigor and a Hegelian hangover."⁶

In this paper, I suggest that these two perspectives on Dewey's philosophy present a false choice. Rather than viewing Dewey as either a historicist (inspired by Hegel) or a naturalist (inspired by biology), we should see him as strange but potentially fruitful combination of both.⁷ My strategy is primarily historical: I demonstrate that the notion of organism-environment interaction central to Dewey's pragmatism stems from a Hegelian approach to adaptation; his turn to biology was not necessarily a turn away from Hegel. I argue that Dewey's account of the organism-environment relation derives from the work of Oxford Hegelians such as Edward Caird and Samuel Alexander, who were attempting to reconcile evolutionary ideas with a critique of Herbert Spencer's environmentalist account of human thought and action. These British Idealists insisted that adaptation or adjustment results from the reciprocal action of organism and environment: just as the environment affects the organism, the organism affects the environment. They also claimed that organism and environment were best seen as two aspects of one thing—life. This dialectical account of organism-environment interaction played a key role in Dewey's philosophy from the 1890s to the 1940s, despite other shifts in his thinking.

⁵Rorty, "Dewey between Hegel and Darwin," 56–57. Cf. Kloppenberg, *Uncertain Victory*, 35. Rorty elsewhere speaks of "Dewey's naturalized Hegelianism," but does not connect this to biology or to organism-environment talk (Rorty, "Texts and Lumps," 14; see also Rorty, *Philosophy and the Mirror of Nature*, 5).

⁶Misak, *The American Pragmatists*, 121; Godfrey-Smith, "Dewey on Naturalism, Realism and Science," 51. Philip Kitcher, like Misak, thinks Dewey's continuing relevance is primarily in the area of ethics rather than e.g. philosophy of science; see Kitcher, *The Ethical Project*. For arguments that the core of Dewey's philosophy remained Hegelian to the end, see Shook, *Dewey's Empirical Theory*; Dalton, *Becoming John Dewey: Dilemmas of a Philosopher and Naturalist*; Garrison, "Permanent Deposit"; Good, *Search*; Good, "Beyond 'Sushiology': John Dewey on Diversity"; Shook and Good, *Philosophy of Spirit*; Rockmore, "Dewey, Hegel, and Knowledge after Kant"; Good and Garrison, "Traces"; Good and Garrison, "Dewey, Hegel, and Causation"; Midtgarden, "The Hegelian Legacy in Dewey's Social and Political Philosophy"; Renault, "Dewey et Mead hégéliens"; Renault, "Dewey et la *Science de la Logique*."

⁷This false choice of nature or history appears in another form in a recent debate (also featuring Hegel) between John McDowell and Robert Pippin. See Pippin, "Leaving Nature Behind: Or Two Cheers for 'Subjectivism'"; McDowell, "Responses"; Pippin, "Postscript: On McDowell's Response to 'Leaving Nature Behind.'"

“Reciprocal action” sounds reasonable to most, but organism and environment as “aspects of one thing” tends to raise eyebrows. Godfrey-Smith locates both ideas in the work of Richard Lewontin, co-author of *The Dialectical Biologist*. Lewontin insists that “the environment is a product of the organism, just as the organism is a product of the environment.”⁸ As Godfrey-Smith suggests, Lewontin seems to go beyond this simple claim of causal interaction, viewing “the organism-environment pair as a single whole in which organism and environment are parts that codetermine each others’ properties.” Godfrey-Smith argues that the latter view tends to lump together different senses of ‘constructing’ in the phrase ‘organisms constructing their environments’; he also links this view to Dewey.⁹

It is helpful to separate these two accounts of organism and environment—the *reciprocal causes* view and the *dual aspects* view—in our analysis of philosophical texts, and I distinguish them in what follows. But it is important to note that all of the figures I discuss in this paper, from Caird and Alexander to Mead and Dewey to Levins and Lewontin, treat them as aspects of one general framework. I suggest that this framework represents a tradition of naturalized idealism or dialectical naturalism whose members (1) tend to substitute talk of organism/environment for talk of subject/object, (2) endorse some form of mind-dependence but without denying realism, and (3) deny ontological idealism, that is, the doctrine that only the mental exists.¹⁰ I do not attempt to evaluate or further characterize dialectical naturalism in this paper. For some, as for Godfrey-Smith, a conflation of the *dual aspects* and *reciprocal causes* views means that dialectical naturalism is incoherent or at least somewhat confused; for others, the *dual aspects* view is either crazy or trivial: any two interacting entities can be treated as part of one process, but surely they are still independent. Nevertheless, considering the number of thinkers working at the biology-philosophy nexus who have found this type of framework appealing, it may be worthy of more serious consideration by philosophers.

The structure of the paper is as follows. In the first section, I demonstrate that at least some of the British Idealists saw an important connection between conceptual evolution in Hegel and organic evolution in Spencer and Darwin, a view shared by Dewey and his colleague George Herbert Mead. Next, in the central part of the paper, I argue that Oxford Hegelians such as Edward Caird and Samuel Alexander developed a dialectical notion of organism-environment interaction that allowed them to occupy a middle ground between the anti-naturalism of their teacher Thomas Hill Green and the empirical psychology of his intellectual opponent Herbert Spencer. Dewey was directly influenced by this Hegelian account of the organism-environment relationship in the late 1880s and early 1890s. Finally, I

⁸Levins and Lewontin, *The Dialectical Biologist*, 69. Although the book is co-authored, the chapters “Adaptation” and “The Organism as Subject and Object of Evolution” (among others) had previously appeared under Lewontin’s sole authorship.

⁹Godfrey-Smith, “Organism, Environment, and Dialectics,” 258, 261–62; cf. Godfrey-Smith, *Complexity*.

¹⁰On the issues of mind-dependence and realism, which I do not take up in this paper, see Godfrey-Smith, “Dewey on Naturalism, Realism and Science”; Misak, *The American Pragmatists*. Murray Bookchin uses the term ‘dialectical naturalism’ in a distinct but related sense; see Bookchin, *Philosophy of Social Ecology: Essays on Dialectical Naturalism*. For a different take on Dewey’s merging of Hegelianism and naturalism, see Johnston, “Dewey’s ‘Naturalized Hegelianism’ in Operation: Experimental Inquiry as Self-Consciousness.”

discuss the role of the organism-environment dialectic in the later work of Dewey, arguing that it underpins his philosophical approach to ethics and inquiry.

The standard Hegel-Darwin-Dewey story is one we owe to Dewey himself: in the early 1890s he began to drift away from Hegel and toward the “biological conception” of William James.¹¹ Philosophers have for the most part accepted this story. According to Morton White, eventually “a thoroughgoing Darwinism forces Dewey to surrender Hegel.” Richard J. Bernstein’s classic book on Dewey takes a similar line, with an early chapter entitled “From Hegel to Darwin.”¹² I argue instead that Dewey’s philosophy combines the insights of idealism and biology: it is built around a dialectical account of the organism-environment relation. (I also think Darwin is a much less important part of the story than is generally thought, but that is a tale for another day.)

The organism-environment dyad was at the core of Dewey’s thought for over fifty years, despite his continuously changing interests, and it thus persists through what Raymond Boisvert has identified as three different phases—idealist, experimentalist, naturalist—of Dewey’s philosophical career. Thus I agree with John Shook that Dewey’s naturalism emerged organically from his idealism; I also follow Jim Garrison and James Good in emphasizing the relevance of Hegel to Dewey’s mature philosophy.¹³ Across all of these phases, from the early 1890s to the end of his life, the organism-environment dialectic lay in the background of Dewey’s ethics, his theory of inquiry, and even his aesthetics. The appearance of biological ideas in philosophy often conjures the twin specters of reductionism and scientism. Dewey’s dialectical naturalism, in contrast, may offer us a model of how biological ideas, suitably reframed, can ground a non-reductionist evolutionary account of mental and social life.

2. HEGEL AND EVOLUTION

Hegel and Darwin may seem a strange pair. Although Hegel read the work of Jean-Baptiste Lamarck and adopted the French naturalist’s classification of animals, he explicitly rejected evolutionary ideas: “The formations of nature are determinate and bounded, and it is as such that they enter into existence. . . . Man has not formed himself out of the animal, nor the animal out of the plant, for each is instantly the whole of what it is.”¹⁴ Some historians of philosophy would prefer to forget about Hegel’s forays into the natural sciences. Terry Pinkard comments that Hegel seems to have had a knack for betting on the wrong horse when it came to scientific debates. Nevertheless, Frederick Beiser has shown convincingly

¹¹Dewey to Henri Robet, 2 May 1911, in Hickman, *The Correspondence of John Dewey, 1871–1953*; Dewey, “From Absolutism to Experimentalism.”

¹²White, *The Origin of Dewey’s Instrumentalism*, 40; Bernstein, *John Dewey*, 9–21. Both White and Bernstein note that Dewey saw similarities between Hegelianism and biology, but neither pursues the connection.

¹³Boisvert, *Dewey’s Metaphysics*; Shook, *Dewey’s Empirical Theory*; Garrison, “Permanent Deposit”; Good, *Search*; Good and Garrison, “Traces.” The breakpoints between the three phases of Dewey’s thought, according to Boisvert, are in 1903 and 1925.

¹⁴Hegel, *Naturphilosophie*, 440 [§339Z]; Hegel, *Hegel’s Philosophy of Nature*, 3:22 [§339Z]. When quoting from Hegel’s *Encyclopedia*, I include the section number in brackets; the ‘Z’ indicates that the quotation is from an addition (*Zusatz*) to the section.

that Hegel's *Naturphilosophie* and his organicism were central to his philosophical system.¹⁵ In this section, I demonstrate that at least some philosophers in the late nineteenth century claimed that there was an important connection between Hegel's notion of *Entwicklung* (development or evolution) and biological evolution. Caird, Alexander, and David George Ritchie in Britain and Dewey and Mead in the United States were committed to the "marriage of Hegel and Darwin."¹⁶

Many of the British Idealists, who rose to fame in the last quarter of the nineteenth century, were trained at Balliol College in the University of Oxford.¹⁷ Because these idealist philosophers were also deeply influenced by Hegel and Hegelian readings of Kant, I will often refer to them as the Oxford Hegelians. The spiritual leader of this group of Oxford-trained philosophers was Thomas Hill Green, who taught almost all of the younger idealists at Balliol in the 1860s and 1870s after attending the college himself.¹⁸

Green, unlike some of his followers, thought that the doctrine of organic evolution was irrelevant to philosophical concerns. He was best known in the 1870s for his criticisms of David Hume, but as Alexander Klein has shown, Green's real target was the empirical psychology of his contemporaries.¹⁹ This is most obvious in several articles published shortly before his death, collectively entitled "Mr. Herbert Spencer and Mr. G.H. Lewes: Their Application of the Doctrine of Evolution to Thought." In the first of these he quoted Spencer's provocative claim: "Should the idealist be right [about the subject-object relation], the doctrine of Evolution is a dream." Green responded,

To those who have humbly accepted the doctrine of evolution as a valuable formulation of our knowledge of animal life, but at the same time think of themselves as "idealists," this statement may at first cause some uneasiness. On examination, however, they will find . . . that when Mr. Spencer in such a connection speaks of the doctrine of evolution, he is thinking chiefly of its application to the explanation of knowledge—an application at least not necessarily admitted in the acceptance of it as a doctrine of animal life.²⁰

Thus Green accepted organic evolution, but denied it an important role in philosophical accounts of knowledge and mind. He also insisted that "the principle of evolution, the process by which the human animal has come . . . to exhibit the

¹⁵Pinkard, "Speculative *Naturphilosophie* and the Development of the Empirical Sciences: Hegel's Perspective," 19; Beiser, "Hegel and *Naturphilosophie*"; Beiser, *Hegel*, 80–109.

¹⁶Kloppenber, *Uncertain Victory*, 35.

¹⁷Notable philosophers who studied at Balliol in the late nineteenth century included Thomas Hill Green (1855–59), Edward Caird (1860–63), Bernard Bosanquet (1867–70), David George Ritchie (1874–78), Samuel Alexander (1878–81), and Ferdinand Canning Scott Schiller (1882–86). Some, like Green and Caird, later taught at the college as well. Although his brother Andrew studied and taught at Balliol, the philosopher Francis Herbert Bradley went to Jesus College (1865–70) and was later a fellow at Merton. For dates and affiliations, see Foster, *Alumni Oxonienses*.

¹⁸Otter, *British Idealism and Social Explanation*; Mander, *British Idealism: A History*. For more on British Idealism see Harris, *The Neo-Idealist Political Theory*; Milne, *The Social Philosophy of English Idealism*; Hylton, *Russell, Idealism, and the Emergence of Analytic Philosophy*; Mander, *Anglo-American Idealism, 1865–1927*; Tyler, *Idealist Political Philosophy: Pluralism and Conflict in the Absolute Idealist Tradition*.

¹⁹Klein, "On Hume on Space: Green's Attack, James' Empirical Response." For more details, see Klein, "The Rise of Empiricism: William James, Thomas Hill Green, and the Struggle over Psychology."

²⁰Spencer, *Psychology*, 2:311; Green, "Mr. Herbert Spencer and Mr. G. H. Lewes," 35. There are three more articles in Green's series, one of which was published posthumously.

phenomena of a moral life” does not tell us what we ought to do. In short, Green was opposed to normative approaches in evolutionary ethics and evolutionary epistemology.²¹

Dewey’s graduate mentor at Johns Hopkins University, George Sylvester Morris, also argued that organic evolution had nothing to contribute to philosophy:

Strictly speaking . . . the phrase “Philosophy of Evolution” is an egregious misnomer. Evolution is no more philosophy than gravitation is. It has no other *kind* of philosophical significance than that which may be indirectly connected with any other scientific law. Conceding that the law of evolution has been established, the nature and the wording of philosophical problems have not been changed one whit.²²

Dewey, who took Morris’s class on British philosophy in 1882, seems to have agreed with this assessment at the time. In an early essay, likely inspired by Morris’s lectures, he attacked the evolutionists’ account of knowledge while noting that “the scientific theory of evolution” is at least “by hypothesis an exact and correct statement of a universal law.”²³ Dewey, in his first year of graduate school, also familiarized himself with the work of both Green and Hegel: in 1883, he gave presentations to the Hopkins “Metaphysical Club” on the writings of T. H. Green and on Hegel’s theory of categories. (The club was founded by Charles Sanders Peirce, who was previously a member of the more famous “Metaphysical Club” in Cambridge, Massachusetts.)²⁴ Hence at least some American idealists had views similar to those that Green was expressing in Britain: evolution might be a scientific law, but that did not mean it had any relevance to philosophy.

Many of Green’s friends and followers, however, argued that Hegel’s idea of *Entwicklung*, Darwin and Spencer’s theories of organic evolution, and Auguste Comte’s law of development were closely connected. For example, the idealist philosopher Edward Caird was much more sympathetic to evolutionary ideas than Green.²⁵ Caird considered development (a synonym of evolution at the time) to be the central organizing principle of nineteenth-century science and philosophy:

Lessing, Kant, and Herder gave that decisive impulse under which the principle of development was carried into biology by Goethe, Schelling, and many eminent scientific men, while Hegel made it the leading idea of his philosophy. . . . After these we need only refer to the names of Lamarck and Comte in France, of Darwin and Spencer in England, and of Von Hartmann and Wundt in Germany, as writers who have done much to throw light on various aspects of the idea and to give it new applications. We may, indeed, say without much exaggeration that the thought of

²¹Green, *Prolegomena to Ethics*, 9; cf. Sidgwick, “The Theory of Evolution in Its Application to Practice.” For a nice discussion of the different kinds of work that fall under the headings ‘evolutionary ethics’ and ‘evolutionary epistemology,’ see Bradie, *The Secret Chain: Evolution and Ethics*, 3–8.

²²Morris, *British Thought and Thinkers: Introductory Studies, Critical, Biographical and Philosophical*, 346.

²³Dewey, “Knowledge and the Relativity of Feeling,” 58.

²⁴*Records of the Metaphysical Club*, 16 January 1883 / 10 April 1883, Ferdinand Hamburger Archives, Johns Hopkins University. I thank James Stimpert of the Sheridan Libraries, Johns Hopkins University, for providing me with a copy of these records. For a list of club presentations, see Fisch and Cope, “The Metaphysical Club at the Johns Hopkins University” (although this list contains no mention of Dewey’s remarks on the writings of T. H. Green, listed in *Records of the Metaphysical Club*, 16 January 1883). For more on the club, see Behrens, “The Metaphysical Club at the Johns Hopkins University (1879–1885).”

²⁵Caird was a student at Balliol while Green was a fellow there, and they became close friends; see Otter, “Caird, Edward (1835–1908).”

almost all the great speculative or scientific writers of this century has been governed and guided by the principle of development, if not directly devoted to its illustration.²⁶

Although William Mander downplays the connection between Caird's principle of development and theories of organic evolution, Caird did discuss the Darwinian theory in several places. Nonetheless, when Caird spoke of evolution he was usually thinking of an abstract dialectical process, as indicated by this passage from his book on Hegel: "the unity of opposites, not as an external synthesis, but as a result of the necessary evolution of thought by means of an antagonism which thought itself produces and reconciles."²⁷

Although Caird often deployed the general idea of evolution, it was two younger Oxford scholars—Alexander and Ritchie—who explicitly attempted a *rapprochement* between Hegel and Darwin. Ritchie and Alexander first met in 1878 as students at Balliol, and they both held Oxford fellowships in the 1880s before moving on to professorships elsewhere in 1893–94. Both were influenced by Green and thus were well aware of his criticisms of "the evolution-psychology."²⁸ However, they also formed friendships with biologists and ended up reading Hegel with Darwin-tinted lenses.

Alexander and Ritchie each published essays during their Oxford fellowships that brought together Hegelian and evolutionary ideas. Alexander struck first with "Hegel's Conception of Nature," published in *Mind* in 1886. He had been studying Hegel's philosophy of nature, as indicated by his notebooks and correspondence. For example, the philosophically-inclined biologist John Scott Haldane (father of population geneticist J. B. S. Haldane) wrote him earlier that year: "I am very glad to hear that you have taken in hand the Naturphilosophie. It certainly has its fair share of unintelligibility as well as interest."²⁹ Alexander's essay was primarily a description of Hegel's *Naturphilosophie*, but the final section compared the views of Hegel with those of modern evolutionists:

Between the doctrine of evolution and Hegel's theory, how great the likeness seems to be! When Hegel speaks of nature as a process in which, with ever increasing specification of external characters, there is an ever completer involution or reflexion of these parts to a centre, we seem to anticipate the law of progress from indefinite

²⁶Caird, *The Evolution of Religion*, 1:24. On 'evolution' and 'development' as synonyms, see Richards, *Meaning of Evolution*, 168.

²⁷Caird, *Hegel*, 43; Mander, "Caird's Developmental Absolutism," 52. For Caird's references to Darwin's theory, see Caird, "Metaphysic," 92; Caird, *The Critical Philosophy of Immanuel Kant*, 2:539–44.

²⁸Alexander, "[Review of] *Works of Thomas Hill Green*. Edited by R. Nettleship. Vol. I," 242. Alexander and Ritchie corresponded about a draft of this review. See Ritchie to Alexander, 9 September 1885, ALEX/A/1/1/236, Samuel Alexander Papers, Special Collections, John Rylands Library, University of Manchester. The review was published in the October 10 issue of *The Academy*. For more on the relationship between Ritchie and Alexander, see *Application of S. Alexander . . . for the Professorship of Logic and Mental and Moral Philosophy at Owens College, Manchester* (1893), p. 28, ALEX/A/1/2/4, Samuel Alexander Papers.

²⁹Haldane to Alexander, 29 January [1886], ALEX/A/1/1/110, Samuel Alexander Papers. Reproduced by courtesy of the University Librarian and Director, John Rylands Library, University of Manchester. This letter was likely written in 1886, as Haldane describes work that he was doing in Dundee at that time. (I am grateful to Steve Sturdy for help in dating this letter.) See also Alexander's small notebook on Hegel's *Naturphilosophie*, dated 1883 (ALEX/A/2/1/12, Samuel Alexander Papers). Alexander became friends in the mid-1880s with Haldane's uncle, the Oxford physiologist John Burdon-Sanderson. See *Application of S. Alexander . . . for the Professorship of Logic and Mental and Moral Philosophy at Owens College, Manchester* (1893), p. 23, ALEX/A/1/2/4, Samuel Alexander Papers.

incoherent homogeneity to definite coherent heterogeneity. Hegel's philosophy is in fact an evolution, called by the name of dialectic, which is the counterpart in philosophy of what evolution is in science.

The "law of progress" referred to is actually Herbert Spencer's formulation of his law of evolution.³⁰ On Alexander's reading, then, Hegel's dialectical method was itself evolutionary: Hegel's philosophy of nature foreshadowed Spencer's evolutionary philosophy. (Spencer himself did not discuss the evolution-idealism connection. Peirce speculated that this was because he was simply not well read in philosophy: "There is much in German idealism having an intimate relation to the philosophy of evolution of which he knew no more than an Italian monk would to-day know of Spencer.")³¹

Not all Hegelians shared Alexander's desire to bring together Hegel and modern biology. James Hutchinson Stirling, author of *The Secret of Hegel* and one of the first British thinkers to engage at length with the German philosopher, questioned Alexander's attempt in the closing pages of "Hegel's Conception of Nature" to connect Hegel and biological evolution:

You are very gentle with these "Modern Theories" in the end. I, for my part, have no patience with what the British Association [for the Advancement of Science] glibly receives as established truth now, indisputable science now, to wit, *Natural Selection*. I never hesitate to call the Darwinian proposition a proposition of dementia.

Stirling, though admitting in a subsequent letter the possibility that he simply did not understand Darwin, sided with Hegel in rejecting biological evolution.³² His opposition to Alexander's attempt at reconciliation shows that not everyone reading Hegel in the late nineteenth century saw a harmony between Hegel's philosophy and evolutionary ideas.

Ritchie, in his 1891 essay "Darwin and Hegel," made claims similar to those of Alexander five years earlier.³³ Like Alexander, Ritchie cultivated friendships with biologist colleagues. He sent the Oxford zoologist Edward Bagnall Poulton an offprint of his Darwin-Hegel article "with the writer's kind regards"; that same year he referred to Poulton as a friend "to whom, more than to any man or book I am indebted for my biological premises."³⁴ Ritchie was more concerned with Hegel's general approach than with the details of the *Naturphilosophie*:

I think, however, it is worth while to see whether we can get any help, not from details in Hegel, but from his general method and spirit of philosophising, in making the

³⁰Alexander, "Hegel's Conception of Nature," 518; cf. Spencer, *First Principles*, 396.

³¹Peirce, "[Review of] *Negative Beneficence and Positive Beneficence*. Being Parts V. and VI. of the Principles of Ethics. By Herbert Spencer," 294.

³²Stirling to Alexander, 17 October 1886 & 27 October 1886, ALEX/A/1/1/277, Samuel Alexander Papers. Reproduced by courtesy of the University Librarian and Director, John Rylands Library, University of Manchester. See also Stirling, *The Secret of Hegel: Being the Hegelian System in Origin, Principle, Form, and Matter*.

³³This essay, along with Ritchie, *Darwinism and Politics*, is the most famous British idealist treatment of organic evolution. See Ritchie, *Darwinism and Politics*; Ritchie, "Darwin and Hegel"; Ritchie, *Darwin and Hegel, with Other Philosophical Studies*. For commentary, see Harris, *The Neo-Idealist Political Theory*, 74–100; Otter, *British Idealism and Social Explanation*, 88–119; Mander, *British Idealism: A History*, 262–67.

³⁴Ritchie, *Darwinism and Politics*, 2nd ed., iv. Poulton's personal library of books and offprints is held at the Hope Entomological Library, Oxford University Museum of Natural History.

attempt to *think* nature and human society as they present themselves to us now in the light of Darwin's theory of natural selection.

Ritchie described his task as "Hegelianising natural selection," and he thus treated Darwin's factors of Heredity and Variation as forms of Hegel's categories of Identity and Difference, respectively. He related Darwin's third factor, Struggle for Existence, to Hegel's notion of negativity. Unfortunately Ritchie did not explain these connections, but merely pointed to them; Peirce's reaction to the passage was that "Hegelianism needs to be Darwinized much more than Darwinism needs to be Hegelianized."³⁵ Nevertheless, according to Ritchie it is natural selection in particular, and not evolution in general, that meshes most easily with Hegel's dialectic.

Dewey and George Herbert Mead—his colleague at Michigan and Chicago—agreed with the Oxford Hegelians that Hegel and Darwin were part of a larger evolutionary *Zeitgeist*. The best evidence for this agreement is various student lecture notes from a course entitled *Movements of Thought in the Nineteenth Century*. Dewey created this course at the University of Michigan, where he taught it for three years from 1891–93; Mead, Dewey, and James Hayden Tufts all taught versions of the course at the University of Chicago in the 1890s, and Mead went on to teach it most years from 1898–1928.³⁶ The first version of the course, which Dewey taught at Michigan in 1891, argued that the historical approach of late-eighteenth-century authors such as Johann Gottfried Herder implied "some whole which is in the process of evolution." This idea culminated, according to Dewey, in Hegel's philosophy, which was based on the interaction between mind and world:

Hegel accounts for the apparent contradictions between intelligence and the actual conditions of life through the idea of evolution. This organization of experience is not something which is given to any man; it has to be worked out. During the process of development there will be a great deal of conflict. But this very conflict, as fast as it comes into consciousness, so fast as man becomes aware of the friction, leads to a readjustment, to the securing of a better organization.³⁷

On this reading of Hegel, it is the conflict between intelligence and world that leads to readjustment, development, and evolution. The following year, Dewey quoted the French thinker Ernest Renan: "The great progress of modern thought has been the substitution of the category of *evolution* for the category of the '*being*.'" Commenting on this claim, Dewey again invoked Hegel: "When we go on to consider the law of evolution . . . the transference of the Hegelian doctrine becomes even more marked. It is the same law, only considered now as the law of historic growth, not as the dialectic unfolding of the absolute."³⁸ Thus for Dewey, Hegel's dialectic was part of a broader nineteenth-century obsession with history, growth, and evolution.

³⁵Ritchie, "Darwin and Hegel," 63–64; Peirce, "Ritchie's Darwin and Hegel," 394.

³⁶See the *Calendar of the University of Michigan* and the *Register of the University of Chicago*.

³⁷Dewey, "Movements of Thought in the Nineteenth Century," Lecture 12 (31 November 1891). A copy of these notes is held at the Center for Dewey Studies, Southern Illinois University–Carbondale. The original is in the Edwin Spencer Peck Notebooks, Bentley Historical Library, University of Michigan.

³⁸Renan, *The Future of Science*, 169; Dewey, "Two Phases of Renan's Life: The Faith of 1850 and the Doubt of 1890," 3505.

Although Dewey spoke about Hegel's idea of evolution in abstract terms, his younger colleague made the link between Hegel and Darwin explicit. Mead framed his discussion of Hegel in *Movements of Thought in the Nineteenth Century* in terms of biological evolution:

What Hegel undertook to do was to show how this opposition between subject and object could be overcome, in some sense, by means of the recognition of the nature of the process of thought itself. In biological evolution we overcome the opposition between the identity of the life-process in all forms and the diversity of the living forms themselves by studying the process as it is taking place. . . . Now, Hegel attempted to set up a picture similar to this as it applied to the thought processes, to the process of knowing, and possibly of all sensing, perceiving, and thinking.³⁹

This connection between Hegel and biological evolution was apparently obvious to at least some of Mead's students. In the margin of her notes on Hegel and evolution from the 1915 version of *Movements*, his future daughter-in-law Irene Tufts exclaimed, "Hegel + Darwin / Shock!" (Figure 1).

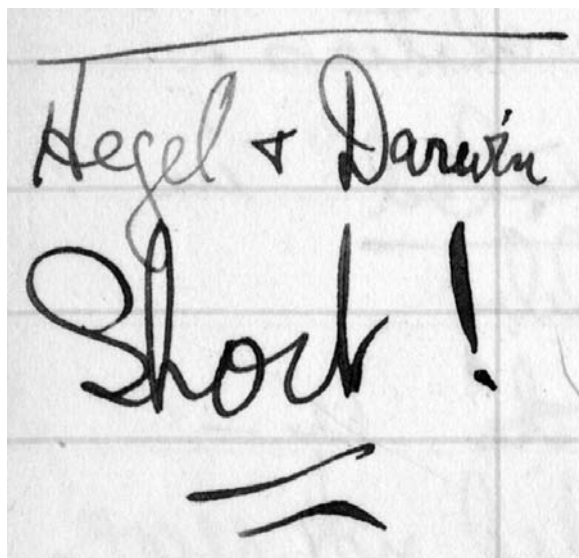


Figure 1. Marginal Note on Hegel and Darwin.⁴⁰

Mead made similar points in courses that dealt specifically with Hegel. Discussing Hegel's logic, he summarized: "Hegel's doctrine [is] one of *development*, evolution—a process leading to different forms—but an identical process—the life

³⁹Mead, *Movements of Thought in the Nineteenth Century*, 129. This book was assembled from notes taken during the Spring 1928 version of the course. See Subseries 2, George Herbert Mead Papers, Special Collections Research Center, University of Chicago.

⁴⁰Mead, "Movements of Thought in the Nineteenth Century," p. 36 (6 May 1915), Folder 6, Box 14, George Herbert Mead Papers. Reproduced by courtesy of the Special Collections Research Center, University of Chicago Library. Irene Tufts, daughter of Chicago philosophy professor James Hayden Tufts, married Henry Mead on 3 May 1917 (*University of Chicago Magazine* 8 [June 1917]: 349). James Tufts co-authored *Ethics*—a textbook—with Dewey.

process, the thought process, the historical process.”⁴¹ Thus Mead and Dewey in the United States, like Alexander and Ritchie in England, saw Hegel and Darwin as focusing on different aspects of the same nineteenth-century idea—development or evolution.

3 . THE ORGANISM-ENVIRONMENT DIALECTIC

Philosophers like Alexander and Dewey, born in the same year as the publication of Darwin’s *On the Origin of Species* (1859), had no trouble finding connections between Hegel’s philosophy and biological evolution. The mystery is how they and their idealist colleagues managed to reconcile the Hegel-evolution link with the opinion of their teachers Green and Morris, according to whom the fact of biological evolution was of no relevance to philosophy. In this section, I argue that the Oxford Hegelians (and subsequently Dewey) split the difference, embracing biological evolution as relevant to philosophy but following Green in opposing Herbert Spencer’s environmentalist account of knowledge and ethics. To this end they developed a dialectical version of the organism-environment relationship—that is, one that highlighted the reciprocal action and even the unity of organism and environment. I also demonstrate that Dewey was directly influenced by the Oxford Hegelians, and adopted their approach to organism-environment interaction in the 1890s. This approach united his apparently divergent interests in Hegel and biology.

Green was strongly opposed to Spencer’s empirical psychology, as mentioned in the previous section. The basis of this psychology—and of Spencer’s philosophy as a whole—was the notion of a correspondence between organism and environment. As I have shown elsewhere, Spencer popularized the word ‘environment’ as well as the idea of a relation between two singular entities, organism and environment. Following Comte, he made organism-environment correspondence the basis of his conception of life.⁴² Since Spencer viewed mind as simply an advanced form of life, he also framed intelligence in terms of adjustment to environment:

On comparing the phenomena of mental life with the most nearly allied phenomena—those of bodily life—and inquiring what is common to both groups, a generalization was disclosed which proves on examination to express the essential character of all mental actions. Regarded under every variety of aspect, intelligence is found to consist in the establishment of correspondences between relations in the organism and relations in the environment; and the entire development of intelligence may be formulated as the progress of such correspondences in Space, in Time, in Speciality, in Generality, in Complexity.⁴³

Thus according to Spencer both biological evolution and mental development involve the improvement of the correspondence between organism and

⁴¹Mead, “Hegel’s Logic,” p. 48 (12 June 1923), Folder 3, Box 14, George Herbert Mead Papers. See also Mead, “Hegel’s Phenomenology,” Folders 5–6, Box 7, George Herbert Mead Papers.

⁴²Comte used the words ‘*organisme*’ and ‘*milieu*.’ The latter was sometimes translated as ‘medium,’ sometimes as ‘environment.’ Spencer picked up the latter term from Harriet Martineau’s translation of Comte. See Pearce, “From ‘Circumstances’ to ‘Environment’”; Pearce, “The Origins and Development of the Idea of Organism-Environment Interaction”; see also Canguilhem, “Le vivant et son milieu”; Braunstein, “Le concept de milieu, de Lamarck à Comte et aux positivistes.”

⁴³Spencer, *Psychology*, 1:385.

environment. (This conflation of the processes that biologists now distinguish as development and evolution—ontogeny and phylogeny—was common to all of the nineteenth-century thinkers discussed in this paper. They thought that the two processes were of the same type, since both produced a correspondence between organism and environment.)⁴⁴

Although he sometimes hinted at a more interactive picture, Spencer was primarily an externalist or environmentalist about life and mind: that is, he thought that changes in an organism are primarily the result of changes in its external environment.⁴⁵ In other words, it is the organism that changes to adapt to the environment, not vice-versa. Green alluded to this one-sidedness in his critique of Spencer's account of the subject-object relation. According to Green's idealism, neither subject nor object "has any reality apart from the other. Every determination of the one implies a corresponding determination of the other." Spencer's philosophy, in contrast,

proceeds to explain that knowledge of the world which is the developed relation between object and subject, as resulting from an action of one member of the relation upon the other. It ascribes to the object, which in truth is nothing without the subject, an independent reality, and then supposes it gradually to produce certain qualities in the subject, of which the existence is in truth necessary to the possibility of those qualities in the object which are supposed to produce them.⁴⁶

Although Green was speaking of the subject-object relation and not the organism-environment relation, the parallel is clear: Spencer saw the qualities of the organism as gradually produced by the environment. William James presented a similar criticism at around the same time as Green: "Spencer, throughout his work, ignores entirely the reactive spontaneity, both emotional and practical, of the animal. . . . He regards the creature as absolutely passive clay, upon which 'experience' rains down."⁴⁷ Thus regardless of whether Spencer was truly an extreme externalist, he was read that way by critics like James and Green.

As shown by Green's claim that neither subject nor object has "an independent reality," criticisms of Spencer's organism-environment psychology went further than simply denying the one-sided externalist picture. Green and his colleagues supported not only the *reciprocal causes* view but also the *dual aspects* view of the organism-environment relation. Both of these views can be found in the idealist tradition, and in the work of Hegel himself. For example, at the end of the *Encyclopedia Logic*—a book which Dewey taught four times at Michigan from

⁴⁴Gould, *Ontogeny and Phylogeny*; Richards, *Meaning of Evolution*. Philosophers today do sometimes emphasize similar parallels: e.g. Millikan, "The Tangle of Natural Purposes That Is Us."

⁴⁵For more on Spencer and externalism, see Godfrey-Smith, *Complexity*, 30–99. Spencer did sometimes—albeit rarely—acknowledge that the causal arrow can run the other way: "The conditions to which we must be re-adapted are themselves changing. Each further modification of human nature makes possible a further social modification. The environment alters along with alteration of the constitution. Hence there is required re-adjustment upon re-adjustment" (Spencer, *Psychology*, 1:284).

⁴⁶Green, "Mr. Herbert Spencer and Mr. G.H. Lewes," 36–37.

⁴⁷James, "Brute and Human Intellect," 256. Dewey may have read this essay while in college at the University of Vermont, as he borrowed the relevant volume of the *Journal of Speculative Philosophy* from the library. He definitely read the first volume of Spencer's *Psychology* at this time, and was thus introduced early in his career to the idea of organism-environment correspondence (Feuer, "John Dewey's Reading at College").

1890 to 1893—Hegel emphasized the agency of the organism, apparently rejecting externalism:

The living being confronts an inorganic nature to which it relates as the power over it, and which it assimilates. The result of this process is not . . . a neutral product in which the independence of the two sides that confronted one another is sublated [*aufgehoben*]; instead, the living being proves itself to be what overgrasps its other, which cannot resist its power.⁴⁸

This picture of the active organism subordinating its environment was picked up by idealists such as Edward Caird (as evidenced below), and is a form of the *reciprocal causes* view that undermines Spencer's externalist picture.

However, the *dual aspects* view—at least in the case of the subject-object relation—was also present in Hegel. It is this view that was most prominent in Green's critique of Spencer quoted above: according to Green, it does not make sense to speak (as Spencer does) of the "action of one member of the relation on the other," for subject and object do not have "an independent reality." Green's position or something like it is the foundation of idealist philosophy more generally, which sees subject and object as aspects of the absolute; although the subject-object relation is understood differently by different idealists, they agree that the dualism must somehow be overcome. In the most famous case, that of F. W. J. Schelling and the early Hegel, "the subjective and the objective are distinct appearances, embodiments, or manifestations of the absolute."⁴⁹ The British Idealists were well aware of this principle. For example, Caird set out the Schelling-Hegel view in his 1883 book *Hegel* (which Dewey read carefully):

[The philosophy of Identity] was opposed . . . to that common-sense dualism for which mind and matter, or subject and object, are two things absolutely independent of each other. . . . In like manner, it was opposed to the Kantian and the Fichtean philosophy of subjectivity, which, indeed, had expressed the idea of a unity beyond difference . . . but which had not fully developed that idea. . . . The essential principle, then, in which Hegel and Schelling meet together, is that there is a unity which is above all differences, which maintains itself through all differences, and in reference to which all differences must be explained.⁵⁰

This principle of unity or identity, opposed to the "common-sense dualism" of subject and object, was central to the idealist critique of Spencer.

Although Green's followers endorsed this critique, they did not share his view that evolution was irrelevant to philosophy. In fact, they took up Spencer's notion of the organism-environment relation and reinterpreted it from an idealist perspective. In the collective volume *Essays in Philosophical Criticism*, published by a group of Scottish idealists the year after Green's death and dedicated to his memory, the biologist John Scott Haldane wrote the following:

⁴⁸Hegel, *Logik*, 394 [§219Z]; Hegel, *The Encyclopedia Logic*, 293 [§219Z]. The standard English translation in the nineteenth century was Hegel, *The Logic of Hegel*. I have quoted from the modern translation, but there are no significant differences in this passage. For Dewey's course "Hegel's Logic," see the *Calendar of the University of Michigan* from 1889–90 to 1892–93. The text for the course was Wallace's translation of the *Logic*.

⁴⁹Beiser, *Hegel*, 65; cf. Beiser, *German Idealism: The Struggle Against Subjectivism, 1781–1801*, 560–64.

⁵⁰Caird, *Hegel*, 48–50. A copy of this book—with extensive underlining—is among those preserved from Dewey's personal library at the Special Collections Research Center, Morris Library, Southern Illinois University–Carbondale.

[Development] cannot be expressed as a simple result of action from without. As we have seen, it is not correct to separate the surroundings in thought from the organism, and treat them as independent things, for the organism only realises itself in its surroundings. . . . Development is in all cases the realisation of what was not there at the beginning of the process. Yet the resulting difference is not conceived as impressed from without, but as freely produced from within itself by that which develops.⁵¹

Haldane, echoing Green's account of the subject-object relation, argued that the organism and its surroundings are not independent entities; he also highlighted the organism's agency (thus "freely produced"). Although Haldane was a physiologist, he was also interested in philosophy: he served as president of the Edinburgh University Philosophical Society in 1880 during his medical studies, and later corresponded with Oxford Hegelians such as Alexander (as mentioned above).⁵² He even published a paper in *Mind* in which he again underscored the reciprocal nature of the organism-environment relationship:

In being made to react on the surroundings the organism is determined by its own influence acting through the surroundings. The surroundings in acting on the organism are therefore at the same time acted on by it. The organism is thus no more determined by the surroundings than it at the same time determines them. The two stand to one another, not in the relation of cause and effect, but in that of reciprocity.⁵³

This passage, with its odd distinction between "cause and effect" and "reciprocity," suggests that Haldane subscribed to both the *reciprocal causes* view and the *dual aspects* view, apparently interpreting them as mutually reinforcing or as aspects of a more general position. Not coincidentally, the reciprocal relation between organism and environment was the main topic of Haldane's scientific work, which concerned human respiration and air quality—he was involved in the development of gas masks during the First World War.⁵⁴ Thus Haldane, in conversation with Green and other idealists, emphasized development and organism-environment interaction in both his philosophical and biological work.

Caird, who praised Green in the preface to *Essays in Philosophical Criticism*, also endorsed a dialectical relation between organism and environment. In his article "Metaphysic," which Dewey read in the 1880s, Caird referred to a "turning-point" of modern philosophical controversy: "In what sense can we apply the idea of

⁵¹Haldane and Haldane, "The Relation of Philosophy to Science," 58–59. This volume is cited in Dewey, "Psychology as Philosophic Method," 155. The Haldanes were an intellectual family: Elizabeth Sanderson Haldane, sister of John and Richard, translated Hegel's *Lectures on the History of Philosophy*; their uncle John Burdon-Sanderson became Waynflete Chair of Physiology at Oxford in 1882.

⁵²Sturdy, "Co-ordinated Whole," 25. A letter from Haldane to Alexander is quoted in the previous section.

⁵³Haldane, "Life and Mechanism," 32–33. Haldane attacked the mechanistic picture of life throughout his career; see Haldane, *Mechanism, Life and Personality: An Examination of the Mechanistic Theory of Life and Mind*; Haldane, *Philosophical Basis of Biology: Donellan Lectures, University of Dublin, 1930*.

⁵⁴Carnelley and Haldane, "The Air of Sewers"; Carnelley, Haldane, and Anderson, "Carbonic Acid"; Foster and Haldane, *Investigation*; Haldane, *Organism and Environment as Illustrated by the Physiology of Breathing*. On Haldane's war service, see Kershaw, "The Use of Poisonous Gases in Warfare," 166–68. For more on Haldane see Sturdy, "Co-ordinated Whole"; Sturdy, "Biology as Social Theory: John Scott Haldane and Physiological Regulation"; Sturdy, "The Meanings of 'Life': Biology and Biography in the Work of J. S. Haldane (1860–1936)." John Scott Haldane is not to be confused with his son, the population geneticist John Burdon Sanderson Haldane.

development to the human spirit? Are we to treat that development as merely a determination from without, or as an evolution from within, or as partly the one and partly the other?" He claimed that even though the Darwinian theory "supposes that the condition or medium in which the individual is placed determines the direction in which . . . development proceeds," this theory does not completely neglect "the *a priori* tendency of the individual to maintain itself in the struggle for existence." Conversely, he continued, no one any longer subscribes to the Leibnizian theory that "self-development is entirely conditioned by itself in such a sense that all the relations which it has to other existences are merely apparent." Caird argued that idealism transcends this opposition between individual and medium: "the history of the conscious being in his relations with [the external] world is not a struggle between two independent and unrelated forces, but the evolution by antagonism of one spiritual principle. It is, on this view, the same life which within us is striving for development, and which without us conditions that development." Caird allowed that, based on Darwin's ideas, one could develop a "natural science of man" that views the individual human being as externally determined; but philosophy, said Caird, shows this position to be incomplete and one-sided. Caird's picture of individual and medium united in their evolution as aspects of "the same life" is essentially Green's subject-object view reinterpreted in light of contemporary biology.⁵⁵

Caird's focus on the individual and its medium likely derived from his study of Auguste Comte's philosophy. Comte, in the third volume of his *System of Positive Politics*, had connected Kant's idealism to the interaction of organism and medium.⁵⁶ Caird summarized this purported connection in his book *The Social Philosophy and Religion of Comte*: "Kant is supposed by [Comte] to be [the] philosopher who first extended to the mind the general biological truth of the action and reaction of organism and medium upon each other"; that is, "the mind modifies the object, as well as the object the mind." This action-reaction story is clearly opposed to Spencer's more one-sided account, and is an example of the *reciprocal causes* view. Caird went further, however, endorsing the *dual aspects* view and accusing Comte of misunderstanding Kant's critical philosophy. For Kant, on Caird's reading, "subject and object are correlative elements in the unity of knowledge, and not two separate things, by the action and reaction of which upon each other knowledge is produced."⁵⁷ In Caird's idealist version of the relationship between organism and medium, it is not just that the causal arrow goes both ways; the unity of experience makes organism and medium inseparable.

Caird emphasized one or the other of these two positions—organism and environment as *dual aspects* and as *reciprocal causes*—depending on the context, suggesting that he did not see them as mutually exclusive. In "Metaphysic" and

⁵⁵Caird, "Metaphysic," 92. This article is quoted in Dewey, "Psychology as Philosophic Method," 155; see also Dewey, *Psychology*, 13.

⁵⁶Comte, *Système*, 3:18–22. Comte had first introduced the idea of organism-environment correspondence as the basis of life in the third volume of his *Course of Positive Philosophy*, published in 1838. This idea was subsequently picked up by Spencer, as mentioned above. See Pearce, "From 'Circumstances' to 'Environment,'" 247–49.

⁵⁷Caird, *The Social Philosophy and Religion of Comte*, 81, 84; cf. Comte, *Système*, 3:18–22.

the Comte book, quoted above, he highlighted the former, whereas the latter took pride of place in a two-volume work of 1889 that was the subject of one of Dewey's graduate courses at the University of Michigan: *The Critical Philosophy of Immanuel Kant*.⁵⁸ In a section of the book concerning the problem of the external world, Caird wrote,

We think of that which develops as externally related to an environment, in which, however, it finds the means of its self-maintenance. The external relation prepares us to expect the loss of both terms in a third or resultant term; but the developing being subordinates the external environment to itself, and makes the conditions that seem to limit it a means to the maintenance and aggrandizement of its own being.

Instead of the organism subordinating itself to the environment, as in Spencer, the environment is subordinated to the organism—Caird here echoed the passage from Hegel's *Logic* quoted above. He made a related point in his discussion of the relation between the organic and inorganic in Kant, suggesting that an organism's internal development is just as important as the way it is shaped by the environment:

The Darwinian theory has directed our attention almost wholly to the continuous process of adaptation to the environment by which animal and vegetable life is maintained and developed: it has laid less emphasis on the other and higher aspect of the facts, according to which the process is one of *self*-adaptation, which has self-maintenance and self-development for its end.

Caird claimed that this neglect of self-adaptation is “partially, though only partially, corrected” in Spencer's account of evolution.⁵⁹ Thus evolution, for Caird, involves not merely the environment determining the organism, but the organism's autonomous development as well as the subordination of the environment to its ends.

Published in the same year as Caird's work on Kant, Alexander's book *Moral Order and Progress* presented a dialectical account of organism-environment interaction that was even more explicitly opposed to Spencer's picture. Spencer, on Alexander's reading, regarded “good conduct as an adaptation or adjustment of man to his environment.” But Alexander criticized Spencer for subscribing to an overly simplistic notion of adaptation, one that sees the environment as “something fixed and permanent, . . . the cloth according to which [man] must cut his coat.”⁶⁰ Several years earlier, in the essay on Hegel discussed in the previous section, Alexander had claimed that adaptation is “as much a selection by the [organism] of the conditions under which it can develop, as the dictate of the [environment] which organisms will suffer to develop.”⁶¹ He elaborated this position in *Moral Order and Progress*:

The act of adaptation can only be understood as a joint action of the individual and his environment, in which both sides are adjusted to the other. What the environment is depends on the character or the qualities of the individual, for it is only in so far

⁵⁸Dewey's course, offered in the fall of 1890, was entitled “Caird's Critical Philosophy of Kant.” See the *Calendar of the University of Michigan*.

⁵⁹Caird, *The Critical Philosophy of Immanuel Kant*, 1:646–47, 2:90–91.

⁶⁰Alexander, *Moral Order*, 267, 271.

⁶¹Alexander, “Hegel's Conception of Nature,” 520. Dewey referred to Alexander's essay on Hegel in his 1891 course “Hegel's Philosophy of Spirit” at the University of Michigan; see Shook and Good, *Philosophy of Spirit*, 176.

as it responds to him that it can affect him at all. . . . The environment, therefore, changes as the individual changes, and the act of adaptation is thus not a mere one-sided modification, but a process of selection from both sides, not the mere operation upon the individual of a foreign body which remains constant, but a contribution to a joint result. What the individual does, and what the environment is, are settled at one and the same time by the act in which they are said to be adjusted, and they both vary together.

Thus adaptation is a two-way street: the environment modifies the organism, but the organism also modifies the environment. Organism and environment are co-determining. This dialectical account of the organism-environment relation—startlingly similar to Lewontin’s view of a hundred years later—was central to Alexander’s evolutionary ethics, as it was the key to moral progress: good conduct involves adaptation, but this adaptation “itself alters the sentiments of the agent, and creates new needs which demand a new satisfaction.”⁶²

These works by Caird and Alexander directly influenced Dewey, and in the early 1890s he adopted the Oxford Hegelians’ dialectical account of the organism-environment relationship. In the preface to his book *Outlines of a Critical Theory of Ethics*, Dewey stated that he was “especially indebted” to Caird’s books on Comte and Kant as well as to Alexander’s *Moral Order and Progress*.⁶³ As Jennifer Welchman argues, Dewey’s ethical views were at this stage primarily an elaboration of Francis Herbert Bradley’s idea that the aim of morality is self-realization—“the realization of all one’s latent, potential personhood.”⁶⁴ In *Outlines*, Dewey declared that the good is the realization of individuality, and distinguished two aspects of individuality, capacity and environment. It was at this point that he drew from Caird and Alexander, developing his own *dual aspects* view:

The moment we realize that only what one conceives as proper material for calling out and expressing some internal capacity is a part of his surroundings, we see not only that capacity depends upon environment, but that environment depends upon capacity. In other words, we see that each in itself is an abstraction, and that the real thing is the individual who is constituted by capacity and environment in their relation to one another.

Capacity and environment, according to Dewey, should be thought of as aspects rather than as independent entities; they are unified in the individual.

Dewey’s debt to Alexander and Caird is also obvious in a section titled “Adjustment to Environment,” where he presented something more like the *reciprocal causes* view:

Even a plant must do something more than adjust itself to a fixed environment; it must assert itself *against* its surroundings, subordinating them and transforming them into material and nutriment; and, on the surface of things, it is evident that *transformation* of existing circumstances is moral duty rather than mere reproduction of them. The environment must be plastic to the ends of the agent.

⁶²Alexander, *Moral Order*, 271–72, 277.

⁶³Dewey, *Outlines*, vii. He added, “[T]o [Caird’s volumes on Kant] in particular my indebtedness is fundamental.”

⁶⁴Welchman, *Dewey’s Ethical Thought*, 31, 75–83; see Bradley, *Ethical Studies*, 59–74. Dewey also notes his debt to Bradley’s book at the beginning of *Outlines*.

That is, adjustment involves alteration of the environment, and not only change in the organism. “Adjustment to environment,” said Dewey, is a “phrase made familiar by evolutionists” like Spencer. But this adjustment “is not outer conformity; it is living realization of certain relations in and through the will of the agent.”⁶⁵

This dialectical account of organism-environment interaction also forms the backdrop to Dewey’s founding of the Chicago school of functional psychology. Andrew Backe has shown that Dewey’s psychological views were indebted to Green’s philosophy, but they were also shaped by the ideas of Caird and Alexander. Caird’s idealism insisted that organism and environment—“self-determination and determination from without”—should not be seen as independent forces, for they are united as aspects of “the same life.”⁶⁶ As we have just seen, Dewey adopted a similar view in *Outlines*, arguing that capacity and environment are two aspects of individuality rather than independent factors contributing to it. Continuing this line, Dewey introduced the term ‘function’

to express union of the two sides of individuality. The idea of function is that of an active relation established between power of doing, on one side, and something to be done on the other. . . . A function thus includes two sides—the external and the internal—and reduces them to elements of one activity. . . . So, morally, function is capacity *in action*; environment transformed into an element in personal service.⁶⁷

The idea that environment and organism are not separate factors but aspects of one function—one process, one coordination, one life, one experience—was central to Dewey’s work beginning in the 1890s. In a course on “Philosophy of Education” at the University of Chicago in 1896, Dewey offered yet another variation on this theme:

Adaptation is dynamic, not static. It means control; and highest adaptation means highest control. Environment is not a fixed idea to be measured or set up by kind of life. It is different for every existing creature. There is something to which the organism and the environment are related. The function is something more than organism; it is something more than environment. Organism and environment are simply the two sides of function. The organism is the method or implement of function. The environment is the supply [of] function.

It is the process of life that is truly real, according to Dewey. Organism and environment are separable only as a result of analysis.⁶⁸ The founding document of Chicago functionalism—Dewey’s article on “The Reflex Arc Concept in Psychology”—made an analogous claim: stimulus and response are not separate entities, but functional phases of one coordination or adjustment.⁶⁹

Thus although British Idealists such as Caird, Haldane, and Alexander broke with Green in arguing for the relevance of biological evolution to philosophy, they

⁶⁵Dewey, *Outlines*, 100, 115, 117.

⁶⁶Caird, “Metaphysic,” 92; Backe, “John Dewey and Early Chicago Functionalism.” For an overview of early functional psychology, see Shook, *The Chicago School of Functionalism*.

⁶⁷Dewey, *Outlines*, 100–101.

⁶⁸Dewey, “Philosophy of Education,” Lecture 3 (1896). These notes are available electronically at the Center for Dewey Studies, Southern Illinois University–Carbondale. They will appear in Koch, *The Class Lectures of John Dewey*, vol. 2.

⁶⁹Dewey, “The Reflex Arc Concept in Psychology.” For more on the reflex arc essay as involving both Hegelian and biological ideas, see Bernstein, *John Dewey*, 15–21.

developed an account of the relation between organism and environment that went beyond Spencer's. Evolution or development, according to the Hegelians, is not simply the environment determining the organism: first, this ignores what Caird called "self-development"; second, it neglects the fact that organisms select and modify their environments just as environments select and modify organisms. Moreover, it might even be misleading to think about organism and environment as separate, interacting entities. They are really two aspects of experience or life, two sides of the adaptive process. Dewey, as he began teaching courses on ethics and on the idealism of Kant and Hegel in the 1890s, adopted this dialectical account of the organism-environment relation.⁷⁰ He argued that organism and environment were not independent factors but merely two aspects of one coordination or life process. As I show in the final section of the paper, this Hegelian notion of organism-environment interaction went on to play a central role in Dewey's pragmatic approach to ethics and inquiry.

4. ORGANISM-ENVIRONMENT THINKING

Although Dewey was deeply influenced by biological ideas, he did not think that the processes of ethical deliberation or scientific inquiry were simply reducible to biology. But this does not mean that his constant references to the interaction of organism and environment were merely metaphorical uses of biological language. Dewey described his naturalism in 1927: "To me human affairs, associative and personal, are projections, continuations, complications, of the nature which exists in the physical and pre-human world. There is no gulf, no two spheres of existence, no 'bifurcation.'" ⁷¹ However, the claim that there is no gulf between nature and the human does not imply that we should use similar methods to study both physiology and education. Rather, organism-environment interaction acts as a kind of abstract naturalist framing device and is not necessarily biological. After all, usually the "projections, continuations, [and] complications" are where the action is. Hence although organism-environment thinking has its roots in biology, it avoids the pitfalls of "nothing-but-ism" and scientism.⁷²

The easiest way to get at the role of the organism-environment dichotomy in Dewey's work is to examine its relation to key terms such as 'reconstruction' and 'situation.' William James, in his famous review "The Chicago School," pointed to the biological connotation of these very terms:

Like Spencer, . . . Dewey makes biology and psychology continuous. "Life," or "experience," is the fundamental conception; and whether you take it physically or

⁷⁰Dewey moved to the University of Minnesota for the 1888–89 academic year before returning to the University of Michigan as department chair after Morris's death. One upshot of his new position as chair was that he had more control over his teaching, and he immediately began teaching courses in ethics, political philosophy, and Hegel's logic, thereby encountering thinkers who were attempting to integrate Hegelian idealism and evolution. See the *Calendar of the University of Michigan*.

⁷¹Dewey, "Half-Hearted Naturalism," 58. This paper was prompted by the accusation of George Santayana that Dewey's naturalism was half-hearted.

⁷²On nothing-but-ism, see Wimsatt, *Re-Engineering Philosophy for Limited Beings: Piecewise Approximations to Reality*, 304. For a discussion of scientism, see Haack, *Defending Science—Within Reason: Between Scientism and Cynicism*. On naturalism and scientism, see Kitcher, *Preludes to Pragmatism: Toward a Reconstruction of Philosophy*, xvi.

mentally, it involves an adjustment between terms. Dewey's favorite word is "situation." A situation implies at least two factors, each of which is both an independent variable and a function of the other variable. Call them *E* (environment) and *O* (organism) for simplicity's sake. They interact and develop each other without end; for each action of *E* upon *O* changes *O*, whose reaction in turn upon *E* changes *E*, so that *E*'s new action upon *O* gets different, eliciting a new reaction, and so on indefinitely. The situation gets perpetually "reconstructed," to use another of Professor Dewey's favorite words, and this reconstruction is the process of which all reality consists.⁷³

James was here describing Dewey's view, inherited from the Oxford Hegelians, that the causal arrow between organism *O* and environment *E* runs both ways. *O* depends on *E* just as *E* depends on *O*. Moreover, *O* and *E* can be interpreted as two aspects of one process, reconstruction, "of which all reality consists." In this final section, I argue that the *O-E* dyad undergirds Dewey's theories of ethics and inquiry. Following James's lead, I pay special attention to key terms such as 'situation,' 'reconstruction,' and 'adjustment.'⁷⁴ Obviously I cannot be exhaustive; thus I depend on a series of characteristic examples to make my case.

Dewey was an early proponent of a kind of evolutionary ethics—though one that was opposed to the externalist evolutionism of Spencer. In an 1894 encyclopedia entry on "Moral Philosophy," Dewey credited the work of Bradley, Green, and Caird with the "introduction of German philosophical concepts into English ethics." Ritchie and Alexander, in turn, attempted "to unite this mode of thinking with evolutionary concepts."⁷⁵ Dewey worked in the latter tradition. Take, for instance, his 1902 essay "The Evolutionary Method as Applied to Morality." According to Dewey, the evolutionary method in ethics has the same role as the experimental method in science: it isolates a certain set of causal conditions, a specific process of generation. An evolutionary or historical approach to ethics, then, "reveals to us the conditions under which moral practices and ideas have originated. This enables us to place, to relate them. In seeing where they came from, in what situations they arose, we see their significance."⁷⁶ By investigating the original environment of particular moral ideas, we gain insight into both the function of these ideas and the means of their control.

Dewey's ethics was based on what he called the genetic method, which involved the ideas of reconstruction, adjustment, and situation. The word 'situation,' in Dewey's accounts of ethics and inquiry, indicates a site of ongoing development or adjustment; it is analogous to 'life' or 'experience' insofar as it can be analyzed into two aspects that are jointly reconstructed as problems arise. He distinguished this method from the empirical approach of Spencer:

The genetic method determines the worth or significance of the belief by considering the place that it occupied in a developing series; the empirical method by referring to its components. . . . The empirical method holds that the belief or idea is generated by a process of repetition or cumulation; the genetic method by a process of adjustment.

⁷³James, "The Chicago School," 2. This article is a review of Dewey, *Studies*.

⁷⁴James Good and Jim Garrison have used the notion of *Bildung*, which relates directly to these ideas of reconstruction and adjustment, to understand the connections between Dewey and Hegel. See Good, *Search*; Good and Garrison, "Traces."

⁷⁵Dewey, "Moral Philosophy," 884–85.

⁷⁶Dewey, "Evolutionary Method," 113.

In other words, Spencer's empirical method views the moral act as reproducing its conditions; that is, the moral act is simply a response to the external environment. The genetic method, on the other hand, treats such an act as part of an adjustment—a reconstruction of the relevant situation in which both individual and environment are transformed. Both the moral act and its environing conditions are changed, and together they make up the ethical situation. The worth of an ethical idea is tested via "its capacity to regulate the various factors entering into the situation," a process of reconstruction rather than reproduction. An ethical situation emerges because of a problem that demands change, meaning that we are somehow out of alignment with the world. It is not just our beliefs and actions that must change in the process of realignment, however, but the entire situation: "It is the lack of adequate functioning in the given adjustments that supplies the conditions which call out a different mode of action; and it is in so far as this is new and different that it gets its standing by transforming or reconstructing the previously existing elements."⁷⁷ To put it more biologically, adjustment involves not only adaptation to a fixed environment, as in Spencer, but transformation or reconstruction of both organism and environment. The dynamic notion of adjustment in Dewey's account of morality thus stems from the dialectical account of organism-environment interaction that Dewey adopted in the 1890s.

This dialectical picture of the moral situation reappeared in both the 1908 and 1932 editions of Dewey's textbook *Ethics*—though the biological language had receded further to the background. Dewey and his co-author James Tufts began the book by identifying two aspects of the moral life:

On the one hand it is a life of purpose. It implies thought and feeling, ideals and motives, valuation and choice. . . . On the other hand, conduct has its outward side. It has relations to nature, and especially to human society. Moral life is called out or stimulated by certain necessities of individual and social existence. . . . And in turn the moral life aims to modify or transform both natural and social environments, to build a "kingdom of man" which shall be also an ideal social order—a "kingdom of God."

The special problem of ethics, for Dewey and Tufts, is that of relating these two aspects: "[Ethics] has to study the inner process *as determined by the outer conditions or as changing these outer conditions*, and the outward behavior or institution *as determined by the inner purpose, or as affecting the inner life*."⁷⁸ That is, ethics always involves the transformation of both outer conditions and inner purposes, each of which modifies and is modified by the other. The same dialectic appears in social reform, according to another of Dewey's works, where again he argued against a one-sided picture. Rather than thinking that morality springs only "from an inner freedom," or that we are "purely malleable" under the action of environment, Dewey insisted that

there is an alternative to being penned in between these two theories. We can recognize that all conduct is *interaction* between elements of human nature and the environment, natural and social. Then we shall see that progress proceeds in

⁷⁷Dewey, "Evolutionary Method," 364–68.

⁷⁸Dewey and Tufts, *Ethics*, 2–3; Dewey's italics. This passage is left unchanged in the second edition, despite extensive rewriting: see Dewey and Tufts, *Ethics*, 2nd ed., 4.

two ways, and that freedom is found in that kind of interaction which maintains an environment in which human desire and choice count for something.⁷⁹

This idea of two-way progress in social reform is analogous to the claim that adaptation or adjustment can involve changes to either the organism or the environment—and inevitably involves both, since they are aspects of a single developing situation.

The idea of organism-environment interaction was also central to Dewey's work on logic and inquiry. Referring directly to "The Evolutionary Method as Applied to Morality," Dewey's *Studies in Logical Theory*—the book that prompted James's christening of "The Chicago School"—endorsed an evolutionary approach: "The entire significance of the evolutionary method in biology and social history is that every distinct organ, structure, or formation . . . has to be treated as an instrument of adjustment or adaptation to a particular environing situation." (Note that 'situation' can be a slippery term in Dewey: sometimes he used it to mean one aspect of the adjustment process, as in this quotation; but at other times it refers to the whole that is undergoing adjustment.) What Dewey called "logical theory" is "an account of thinking as a mode of adaptation to its own generating conditions," the validity of which should be judged "by reference to its efficiency in meeting its problems." This instrumental logic assumes what Dewey called "the standpoint of practical deliberation and of scientific research," and treats different modes of inference as adaptive in concrete situations.⁸⁰ Dewey used the analogy of a carpenter:

Thinking is adaptation *to* an end *through* the adjustment of particular objective contents. The thinker, like the carpenter, is at once stimulated and checked in every stage of his procedure by the particular situation which confronts him. . . . Logical theory will get along as well as does reflective practice, when it sticks close by and observes the directions and checks inherent in each successive phase of the evolution of the cycle of experiencing.⁸¹

The carpenter thinks through problems as they arise, but this process is not adaptation to a fixed environment; rather, each adjustment requires a reconstruction of both the content of thought and its situation. Thinker and environment are not static factors, but dynamic aspects of a single developmental process.

Dewey invoked the idea of organism-environment interaction more directly in his *Logic: The Theory of Inquiry*, published in 1938. In an early chapter of this book, which defended a naturalist theory of scientific inquiry, Dewey argued that "biological functions and structures prepare the way for deliberate inquiry and . . . foreshadow its pattern." He cited the Italian philosopher Eugenio Rignano, who had claimed that there is an "intrinsic tendency of the organism to preserve or restore the state of its normal physiological equilibrium, or to re-establish a previous physiological state, general or local, which had been determined in

⁷⁹Dewey, *Human Nature and Conduct*, 9–10; Dewey's italics.

⁸⁰Dewey, *Studies*, 6–8, 15–16. Dewey wrote the first four chapters of this book; his colleagues authored the remaining seven. All quotations are from the chapters written by Dewey. After his description of "the evolutionary method" (15), Dewey footnotes Dewey, "Evolutionary Method."

⁸¹Dewey, *Studies*, 81–82.

the past by certain environmental relations.” Dewey, however, argued that what matters is the relation between organism and environment, rather than the state of either taken separately:

As [Rignano’s] treatment stands, it emphasizes *restoration* of the previous *state* of the *organism* rather than the institution of an integrated *relation*. The establishment of the latter relation is compatible with definite changes in both the organism and the environment; it does not require that old and new states of either the organism or the environments be identical with one another.⁸²

As in Dewey’s earlier writings, neither organism nor environment is static—they vary together. All inquiry, said Dewey, “involve[s] the making of *some* change in environing conditions. This fact is exemplified in the indispensable place of experiment in inquiry.” Following Caird as well as his own 1890s work, Dewey also claimed that organism and environment are not independent entities or mere interacting causes; rather, they are two aspects of one process. Interaction characterizes that phase of life-activity that involves disturbance or tension, whereas integration characterizes the subsequent resolution of this tension:

Integration is more fundamental than is the distinction designated by interaction of organism *and* environment. The latter is indicative of a partial disintegration of a prior integration, but one which is of such a dynamic nature that it moves (as long as life continues) toward reintegration [sic].⁸³

Thus the interaction of organism and environment only becomes relevant when some problem jars life out of its integrated state.

Ultimately, Dewey grounded what he called “the pattern of inquiry” in the organism-environment relation:

Inquiry grows out of an earlier state of settled adjustment, which, because of disturbance, is indeterminate or problematic (corresponding to the first phase of tensional activity), and then passes into inquiry proper, (corresponding to the searching and exploring activities of an organism); when the search is successful, belief or assertion is the counterpart, upon this level, of reintegration on the organic level.

This process is open-ended and ongoing:

Inquiry, in settling the disturbed relation of organism-environment (which defines doubt) does not merely remove doubt by recurrence to a prior adaptive integration. It institutes new environing conditions that occasion new problems. What the organism learns during this process produces new powers that make new demands upon the environment.⁸⁴

Both organism and environment are continually modified—disintegrated and reintegrated in the course of experience. As Dewey had made clear in *Art as Experience* a few years earlier, this rhythm is the basis of his concept of experience: “Direct experience comes from nature and man interacting with each other. In this interaction, human energy gathers, is released, dammed up, frustrated and victorious. There are rhythmic beats of want and fulfillment, pulses of doing and

⁸²Rignano, *The Psychology of Reasoning*, 31; Dewey, *Logic*, 28.

⁸³Dewey, *Logic*, 33–34.

⁸⁴Dewey, *Logic*, 34. For a detailed account of Dewey’s theory of scientific inquiry, see Brown, “John Dewey’s Logic of Science.”

being withheld from doing.” Moments of rest and integration are never truly final, however, for the “attainment of a period of equilibrium is at the same time the initiation of a new relation to the environment, one that brings with it potency of new adjustments to be made through struggle.”⁸⁵ In the words of Peirce, “[belief] is the demi-cadence which closes a musical phrase”; but an antecedent phrase demands its consequent, and the music continues.⁸⁶

5. CONCLUSION

In the nineteenth century, ‘development’ and ‘evolution’ were used interchangeably. Thus the idea of an interaction between organism and environment was relevant to both ontogeny and phylogeny—what we would now call development and evolution. It is thus not surprising that British and American idealists, writing at the end of the century, made a connection between Hegel’s *Entwicklung* (usually translated as ‘development’) and biological evolution. Although Green and Morris thought biological evolution was irrelevant to philosophical theories of mind and morality, their followers Caird, Alexander, Ritchie, and Dewey ultimately argued that the conceptual evolution of Hegel and the organic evolution of Darwin and Spencer were part of a broader “movement of thought” that emphasized history, growth, and development.

This connection between Hegel and biology led to a series of British Idealist discussions of organism and environment. Haldane, Caird, and Alexander followed Green in rejecting Spencer’s externalism, but still endorsed a broader evolutionism, developing a dialectical account of the organism-environment relation: the environment modifies the organism, but the organism also modifies the environment. Dewey adopted this Oxford Hegelian story in the 1890s, finally claiming that organism and environment are not just reciprocally dependent factors but two aspects of one experience.

Dewey deployed organism-environment thinking in his various writings on ethics and inquiry. Moral conduct, according to Dewey, is not simply an act that seeks to fit a fixed social environment; it requires the joint reconstruction of the conscious actor and the external conditions. Ethical questions emerge from concrete problems, and the resolution of such problems always involves reciprocal transformation of behavior and environment. The pattern of inquiry follows a similar process of reconstructive adjustment: it begins when we fall out of step with the environment, and ends with the restoration of integration. Any such adjustment, however, demands the alteration of both organism and environment. Experience is this ongoing process of adaptation and re-adaptation.

A century after the Oxford Hegelians first formulated the dialectic of organism and environment, two scientists published a book entitled *The Dialectical Biologist*. As mentioned in the introduction, Richard Lewontin (one of its authors) is famously associated with the claim that “the environment is a product of the organism,

⁸⁵Dewey, *Art as Experience*, 16–17; cf. Good and Garrison, “Traces,” 54–57.

⁸⁶Peirce, “How to Make Our Ideas Clear,” 291. Peirce’s account of inquiry as the struggle, prompted by doubt, to reach a state of belief was first outlined in Peirce, “The Fixation of Belief.” This latter article, as republished in the *Collected Papers of Charles Sanders Peirce*, is cited in Dewey, *Logic*, 14n4.

just as the organism is a product of the environment.” This simple postulate has spawned elaborate research programs, with evolutionary biologists promoting *niche construction* and philosophers assessing the implications for our understanding of the natural world.⁸⁷

As Godfrey-Smith notes, Lewontin’s views stem not from an engagement with Dewey or idealism but from a reading of Friedrich Engels.⁸⁸ Nevertheless, the similar positions of the two thinkers should not surprise us: Lewontin is and Dewey was a naturalist sympathetic to dialectical philosophy. And although there is no historical connection between them, they did have a common ancestor in Hegel: both Engels and the British Idealists were attempting to unite Hegel’s method and modern biological theories. Like Caird and colleagues, Engels had an interactive picture of the organism-environment relation:

Animals, as already indicated, change external nature through their activity in the same way, even if not to the same extent, as man does; and these modifications of the environment [*Umgebung*] . . . in turn react upon and change those who made them. For in nature nothing happens in isolation. Everything affects and is affected by every other thing, and it is mostly because this manifold motion and interaction is forgotten that our natural scientists are prevented from gaining a clear insight into the simplest things.⁸⁹

Lewontin translated this picture of the interaction between organism and environment into mathematics: “ $dO/dt = f(O, E)$, and $dE/dt = g(O, E)$.”⁹⁰ That is, changes in the environment are a function of both the organism and the environment, just as changes in the organism are a function of both the environment and the organism.

Looking just at these equations and the passage from Engels, it seems like the only thing on the table for Lewontin is the *reciprocal causes* view. As mentioned in the introduction, however, Lewontin also endorses the idea that organism and environment are aspects of a single whole. He and Levins declare that “a whole is a relation of heterogeneous parts that have no prior independent existence *as parts*. . . . In general, the properties of parts have no prior alienated existence but are acquired by being parts of a particular whole.”⁹¹ That Dewey also subscribed to this *dual aspects* picture is most obvious in an unpublished book manuscript, written in the early 1940s but only recently rediscovered. In this manuscript, Dewey used the terms ‘life-functions’ and ‘life-activities’—or simply ‘living’—as synonyms of ‘experience.’ Employing this vocabulary, Dewey wrote that “Life-activities are cooperative interactivities of component factors to which the names

⁸⁷Levins and Lewontin, *The Dialectical Biologist*, 69; Odling-Smee, Laland, and Feldman, *Niche Construction: The Neglected Process in Evolution*; Pearce, “Ecosystem Engineering, Experiment, and Evolution,” 794–95.

⁸⁸Godfrey-Smith, “Organism, Environment, and Dialectics,” 255–59.

⁸⁹Engels, “Der Antheil der Arbeit an der Menschwerdung des Affen,” 551; translation modified from Engels, *Dialectics of Nature*. This essay is cited in Levins and Lewontin, *The Dialectical Biologist*, 70. There is one historical link, albeit indirect, between Engels and British Idealism: the preface and notes to the 1940 translation of *Dialectics* were written by the population geneticist John Burdon Sanderson Haldane, son of John Scott Haldane (the philosophically inclined biologist cited above).

⁹⁰Lewontin, “Gene, Organism and Environment,” 282; see also Levins and Lewontin, *The Dialectical Biologist*, 104–5.

⁹¹Levins and Lewontin, *The Dialectical Biologist*, 273.

‘environmental’ and ‘organic’ apply.” He then provided a clear statement of the *dual aspects* view:

The terms organism-environment are simply *generalized* names which serve to summarize, condense, unify, a large number of particular interactivities, such as air-respiratory processes, ground-locomotor apparatus, food-stuffs-digestive-tissues etc. They do not stand for two separate and independent things which then somehow come into connection with one another and produce life functions. On the contrary, in their status and capacity of being organic and environmental, they stand for results of analysis of primary life-activities.

He claimed that although it is useful to analyze experience (or living) into organism and environment, especially when engaged in scientific inquiry, “it is one of the functions of philosophy to recall us from the results of analyses, which are made for special purposes, to the larger, if coarser and in many respects cruder, events which alone have primary existence.”⁹² Thus Dewey thought that organism and environment are aspects of a single whole, and emerge as interacting causes only upon analysis; for him, the *causes* and *aspects* views are consistent with one another, though the latter is primary.

Is this simply a metaphysical muddle, as some have suggested? I cannot resolve this question here, but some parallels with German idealism may help clarify what is at stake. As discussed earlier, Hegel and Schelling both subscribed in the early 1800s to the principle of subject-object identity. However, as Beiser recounts, Hegel was dissatisfied with Schelling’s version of the *aspects* view because it could not account for our concrete experience of a subject-object distinction:

If philosophy is to explain the opposition between subject and object in ordinary experience, then it must show how the single universal substance, in which the subject and object are the same, divides itself and produces a distinction between subject and object. The philosopher faces an intrinsically difficult task: he must both surmount and explain the necessity of the subject-object dualism.

According to Beiser, Hegel’s solution was to interpret the absolute as a universal organism: biological development is self-differentiation, and the subjective and objective can be seen as “different degrees of organization” in the development of the absolute. Thus the opposition between them is necessary, but they are ultimately only *aspects* of a single whole.⁹³

Dewey can be interpreted as offering an analogous solution. What is primary is the whole: experience. Only when a problem arises, or in the midst of a scientific investigation, do we resolve experience into its two most general aspects, the organic and the environmental.⁹⁴ At this point we arrive at the *reciprocal causes* view as a secondary result—without causes, after all, we would be unable to intervene, and intelligent adjustment was for Dewey “an engineering issue” involving control and “social guidance.”⁹⁵ But although this analysis of a whole into its aspects is vital to the process of adjustment or reconstruction, when this process—whether

⁹²Dewey, *Unmodern Philosophy and Modern Philosophy*, 321–22, 324.

⁹³Beiser, *Hegel*, 65, 94, 105.

⁹⁴This move is similar to those made in some attacks on the notion of “the given.” See Sellars, “Empiricism and the Philosophy of Mind.”

⁹⁵Dewey, *Human Nature and Conduct*, 10.

ethical reflection or scientific inquiry—comes to a close, we are again left with what is primary: simply living. Thus Hegel and Dewey shared a commitment to a kind of developmental metaphysics.⁹⁶

All this is quite speculative, and in the end Dewey's dialectical naturalism may not be defensible in its current form. Nevertheless, given that many philosophers share Dewey's other commitments—a non-reductive naturalism in ethics, an emphasis on experiment in social policy, a focus on scientific practice—it may be valuable to explore more thoroughly his broader metaphysical framework. The goal of this essay has been to demonstrate that Dewey was not merely a naturalist or an idealist, but a hybrid: he was part of a rich tradition of dialectical naturalism.⁹⁷

BIBLIOGRAPHY AND ABBREVIATIONS

- Alexander, Samuel. "Hegel's Conception of Nature." *Mind* 11 (1886): 495–523.
- . *Moral Order and Progress: An Analysis of Ethical Conceptions*. London: Trübner, 1889. [*Moral Order*]
- . "[Review of] *Works of Thomas Hill Green*. Edited by R. Nettleship. Vol. 1." *The Academy* 28 (1885): 242–43.
- Backe, Andrew. "John Dewey and Early Chicago Functionalism." *History of Psychology* 4 (2001): 323–40.
- Behrens, Peter J. "The Metaphysical Club at the Johns Hopkins University (1879–1885)." *History of Psychology* 8 (2005): 331–46.
- Beiser, Frederick. *German Idealism: The Struggle Against Subjectivism, 1781–1801*. Cambridge: Harvard University Press, 2002.
- . *Hegel*. New York: Routledge, 2005.
- . "Hegel and *Naturphilosophie*." *Studies in History and Philosophy of Science* 34 (2003): 135–47.
- Bernstein, Richard J. *John Dewey*. New York: Washington Square, 1966.
- Boisvert, Raymond D. *Dewey's Metaphysics*. New York: Fordham University Press, 1988.
- Bookchin, Murray. *The Philosophy of Social Ecology: Essays on Dialectical Naturalism*. Montreal: Black Rose, 1990.
- Bradie, Michael. *The Secret Chain: Evolution and Ethics*. Albany: State University of New York Press, 1994.
- Bradley, Francis Herbert. *Ethical Studies*. London: Henry S. King, 1876.
- Braunstein, Jean-François. "Le concept de milieu, de Lamarck à Comte et aux positivismes." In *Jean-Baptiste Lamarck, 1744–1829*, edited by Goulven Laurent, 557–71. Paris: CTHS, 1997.

⁹⁶The replacement of substance with process as the key to metaphysics is not unheard of. Alfred North Whitehead's *Process and Reality* pursued such an approach, and like Hegel and Dewey he developed (in Dewey's words) "a philosophy of the universe as an organism." Dewey thought that Whitehead's metaphysics remained too rationalist and dualistic, however, and lamented the fact that he did not explore "the possibility of a new kind of empiricism," one that recognizes the world as organic. See Dewey, "An Organic Universe: The Philosophy of Alfred N. Whitehead."

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- Brown, Matthew J. "John Dewey's Logic of Science." *HOPOS* 2 (2012): 258–306.
- Caird, Edward. *The Critical Philosophy of Immanuel Kant*. 2 vols. Glasgow: James Maclehose & Sons, 1889.
- . *The Evolution of Religion*. 2 vols. Glasgow: James Maclehose & Sons, 1893.
- . *Hegel*. Edinburgh: William Blackwood, 1883.
- . "Metaphysic." In *The Encyclopaedia Britannica: A Dictionary of Arts, Sciences, and General Literature*, 79–102. Edinburgh: Adam & Charles Black, 1878.
- . *The Social Philosophy and Religion of Comte*. Glasgow: James Maclehose & Sons, 1885.
- Canguilhem, Georges. "Le vivant et son milieu." In *La connaissance de la vie*, 160–93. Paris: Hachette, 1952.
- Carnelley, Thomas, and John Scott Haldane. "The Air of Sewers." *Proceedings of the Royal Society of London* 42 (1887): 501–22.
- Carnelley, Thomas, John Scott Haldane, and A. M. Anderson. "The Carbonic Acid, Organic Matter, and Micro-Organisms in Air, More Especially of Dwellings and Schools." *Philosophical Transactions of the Royal Society of London B* 178 (1887): 61–111. ["Carbonic Acid"]
- Comte, Auguste. *Système de politique positive, ou Traité de sociologie, instituant la religion de l'humanité*. 4 vols. Paris: L. Mathias, 1851–54. [Système]
- Dalton, Thomas C. *Becoming John Dewey: Dilemmas of a Philosopher and Naturalist*. Bloomington: Indiana University Press, 2002.
- Dewey, John. *Art as Experience*. New York: Milton, Balch, 1934.
- . "The Evolutionary Method as Applied to Morality." *Philosophical Review* 11 (1902): 107–24, 353–71. ["Evolutionary Method"]
- . "From Absolutism to Experimentalism." In *Contemporary American Philosophy: Personal Statements*, edited by George Plimpton Adams and William Pepperell Montague, 13–27. New York: Russell & Russell, 1930.
- . "'Half-Hearted Naturalism.'" *Journal of Philosophy* 24 (1927): 57–64.
- . *Human Nature and Conduct: An Introduction to Social Psychology*. New York: Henry Holt, 1922.
- . "Knowledge and the Relativity of Feeling." *Journal of Speculative Philosophy* 17 (1883): 56–70.
- . *Logic: The Theory of Inquiry*. New York: Henry Holt, 1938. [Logic]
- . "Moral Philosophy." In *Johnson's Universal Cyclopaedia: A New Edition*, edited by Charles Kendall Adams, 880–85. New York: A. J. Johnson, 1894.
- . "An Organic Universe: The Philosophy of Alfred N. Whitehead." In *The Later Works of John Dewey, 1925–1953*, edited by Jo Ann Boydston, 375–81. Carbondale: Southern Illinois University Press, 1984.
- . *Outlines of a Critical Theory of Ethics*. Ann Arbor, MI: Inland Press, 1891. [Outlines]
- . *Psychology*. New York: Harper & Brothers, 1887.
- . "Psychology as Philosophic Method." *Mind* 11 (1886): 153–73.
- . "The Reflex Arc Concept in Psychology." *Psychological Review* 3 (1896): 357–70.
- . *Studies in Logical Theory*. Chicago: University of Chicago Press, 1903. [Studies]
- . "Two Phases of Renan's Life: The Faith of 1850 and the Doubt of 1890." *Open Court* 6 (1892): 3505–6.
- . *Unmodern Philosophy and Modern Philosophy*. Carbondale: Southern Illinois University Press, 2012.
- Dewey, John, and James H. Tufts. *Ethics*. 2nd ed. New York: Henry Holt, 1932.
- . *Ethics*. New York: Henry Holt, 1908.
- Engels, Friedrich. "Der Antheil der Arbeit an der Menschwerdung des Affen." *Die Neue Zeit* 14 (1896): 545–54.
- . *Dialectics of Nature*. New York: International Publishers, 1940.
- Feuer, Lewis S. "John Dewey's Reading at College." *Journal of the History of Ideas* 19 (1958): 415–21.
- Fisch, Max H., and Jackson I. Cope. "The Metaphysical Club at the Johns Hopkins University." In *Studies in the Philosophy of Charles Sanders Peirce*, edited by Philip P. Wiener and Frederic H. Young, 371–74. Cambridge: Harvard University Press, 1952.
- Foster, Clement Le Neve, and John Scott Haldane. *The Investigation of Mine Air: An Account by Several Authors of the Nature, Significance, and Practical Methods of Measurement of the Impurities Met With in the Air of Collieries and Metalliferous Mines*. London: Charles Griffin, 1905. [Investigation]
- Foster, Joseph. *Alumni Oxonienses: The Members of the University of Oxford, 1715–1886: Their Parentage, Birthplace, and Year of Birth, with a Record of Their Degrees*. 4 vols. London: Joseph Foster, 1887. [Alumni Oxonienses]
- Garrison, Jim. "The 'Permanent Deposit' of Hegelian Thought in Dewey's Theory of Inquiry." *Educational Theory* 56 (2006): 1–37. ["Permanent Deposit"]
- Godfrey-Smith, Peter. *Complexity and the Function of Mind in Nature*. Cambridge: Cambridge University Press, 1996. [Complexity]

- . “Dewey on Naturalism, Realism and Science.” *Philosophy of Science* 69 (2002): S1–S11.
- . “Organism, Environment, and Dialectics.” In *Thinking about Evolution: Historical Philosophical, and Political Perspectives*, edited by Rama S. Singh, Costas B. Krimbas, Diane B. Paul, and John Beatty, 253–66. Cambridge: Cambridge University Press, 2001.
- Good, James A. “Beyond ‘Sushiology’: John Dewey on Diversity.” *The Pluralist* 1 (2006): 123–32.
- . *A Search for Unity in Diversity: The “Permanent Hegelian Deposit” in the Philosophy of John Dewey*. Lanham, MD: Lexington, 2006. [Search]
- Good, James A., and Jim Garrison. “Dewey, Hegel, and Causation.” *Journal of Speculative Philosophy* 24 (2010): 101–20.
- . “Traces of Hegelian *Bildung* in Dewey’s Philosophy.” In *John Dewey and Continental Philosophy*, edited by Paul Fairfield, 44–68. Carbondale: Southern Illinois University Press, 2010. [“Traces”]
- Gould, Stephen Jay. *Ontogeny and Phylogeny*. Cambridge: Harvard University Press, 1977.
- Green, Thomas Hill. “Mr. Herbert Spencer and Mr. G.H. Lewes: Their Application of the Doctrine of Evolution to Thought. Part I. Mr. Spencer on the Relation of Subject and Object.” *Contemporary Review* 31 (1877): 25–53. [“Mr. Herbert Spencer and Mr. G.H. Lewes”]
- . *Prolegomena to Ethics*. Oxford: Clarendon Press, 1883.
- Haack, Susan. *Defending Science—Within Reason: Between Scientism and Cynicism*. Amherst, NY: Prometheus Books, 2003.
- . *Evidence and Inquiry: Towards Reconstruction in Epistemology*. Oxford: Blackwell, 1993.
- Haldane, John Scott. “Life and Mechanism.” *Mind* 9 (1884): 27–47.
- . *Mechanism, Life and Personality: An Examination of the Mechanistic Theory of Life and Mind*. London: John Murray, 1913.
- . *Organism and Environment as Illustrated by the Physiology of Breathing*. New Haven, CT: Yale University Press, 1917.
- . *The Philosophical Basis of Biology: Donellan Lectures, University of Dublin, 1930*. London: Hodder & Stoughton, 1931.
- Haldane, Richard Burdon, and John Scott Haldane. “The Relation of Philosophy to Science.” In *Essays in Philosophical Criticism*, edited by Andrew Seth and Richard Burdon Haldane, 41–66. London: Longmans, Green, 1883.
- Harris, Frederick Philip. *The Neo-Idealist Political Theory*. New York: King’s Crown, 1944.
- Hegel, Georg Wilhelm Friedrich. *The Encyclopedia Logic: Part I of the Encyclopaedia of Philosophical Sciences with the Zusätze*. Translated by T. F. Geraets, W. A. Suchting, and H. S. Harris. Indianapolis: Hackett, 1991.
- . *Georg Wilhelm Friedrich Hegel’s Werke. Vollständige Ausgabe, durch einen Verein von Freunden des Verewigten*. Vol. 6, *Die Logik*. Berlin: Duncker & Humblot, 1840. [Logik]
- . *Georg Wilhelm Friedrich Hegel’s Werke. Vollständige Ausgabe, durch einen Verein von Freunden des Verewigten*. Vol. 7, *Vorlesungen über die Naturphilosophie*. Berlin: Duncker & Humblot, 1842. [Naturphilosophie]
- . *Hegel’s Philosophy of Nature*. Translated by Michael John Petry. 3 vols. London: George Allen & Unwin, 1970.
- . *The Logic of Hegel*. Translated by William Wallace. Oxford: Clarendon Press, 1874.
- Hickman, Larry A., ed. *The Correspondence of John Dewey, 1871–1953*. 3 vols. Charlottesville, VA: InteLex, 1999–.
- Hylton, Peter. *Russell, Idealism, and the Emergence of Analytic Philosophy*. Oxford: Oxford University Press, 1990.
- James, William. “Brute and Human Intellect.” *Journal of Speculative Philosophy* 12 (1878): 236–76.
- . “The Chicago School.” *Psychological Bulletin* 1 (1904): 1–5.
- Johnston, Scott. “Dewey’s ‘Naturalized Hegelianism’ in Operation: Experimental Inquiry as Self-Consciousness.” *Transactions of the Charles S. Peirce Society* 46 (2010): 453–76.
- Kershaw, John B. C. “The Use of Poisonous Gases in Warfare.” In *The Scientific American War Book: The Mechanism and Technique of Warfare*, edited by Albert A. Hopkins, 165–70. New York: Munn, 1915.
- Kitcher, Philip. *The Ethical Project*. Harvard: Harvard University Press, 2011.
- . *Preludes to Pragmatism: Toward a Reconstruction of Philosophy*. Oxford: Oxford University Press, 2012.
- Klein, Alexander. “On Hume on Space: Green’s Attack, James’ Empirical Response.” *Journal of the History of Philosophy* 47 (2009): 415–49.
- . “The Rise of Empiricism: William James, Thomas Hill Green, and the Struggle over Psychology.” PhD diss., Indiana University, 2007.
- Kloppenberg, James T. *Uncertain Victory: Social Democracy and Progressivism in European and American Thought, 1870–1920*. Oxford: Oxford University Press, 1986. [Uncertain Victory]

- Koch, Donald F., ed. *The Class Lectures of John Dewey*. Vol. 2. Charlottesville, VA: InteLex, forthcoming.
- Levins, Richard, and Richard C. Lewontin. *The Dialectical Biologist*. Cambridge: Harvard University Press, 1985.
- Lewontin, Richard C. "Gene, Organism and Environment." In *Evolution from Molecules to Men*, edited by D.S. Bendall, 273–85. Cambridge: Cambridge University Press, 1983.
- Mander, W. J., ed. *Anglo-American Idealism, 1865–1927*. Westport, CT: Greenwood, 2000.
- . *British Idealism: A History*. Oxford: Oxford University Press, 2011.
- . "Caird's Developmental Absolutism." In *Anglo-American Idealism, 1865–1927*, edited by W. J. Mander, 51–63. Westport, CT: Greenwood, 2000.
- McDowell, John. "Responses." In *Reading McDowell: On Mind and World*, edited by Nicholas H. Smith, 269–305. London: Routledge, 2002.
- Mead, George Herbert. *Movements of Thought in the Nineteenth Century*. Chicago: University of Chicago Press, 1936.
- Midtgarden, Torjus. "The Hegelian Legacy in Dewey's Social and Political Philosophy." *Transactions of the Charles S. Peirce Society* 47 (2011): 361–88.
- Millikan, Ruth. "The Tangle of Natural Purposes That Is Us." In *Contemporary Philosophical Naturalism and its Implications*, edited by Bana Bashour and Hans D. Muller, 63–74. New York: Routledge, 2014.
- Milne, A. J. M. *The Social Philosophy of English Idealism*. London: George Allen & Unwin, 1962.
- Misak, Cheryl. *The American Pragmatists*. Oxford: Oxford University Press, 2013.
- Morris, George Sylvester. *British Thought and Thinkers: Introductory Studies, Critical, Biographical and Philosophical*. Chicago: S. C. Griggs, 1880.
- Odling-Smee, F. John, Kevin N. Laland, and Marcus W. Feldman. *Niche Construction: The Neglected Process in Evolution*. Princeton, NJ: Princeton University Press, 2003.
- Otter, Sandra M. den. *British Idealism and Social Explanation*. Oxford: Clarendon Press, 1996.
- . "Caird, Edward (1835–1908)." In *Oxford Dictionary of National Biography*. Oxford: Oxford University Press, 2004.
- Pearce, Trevor. "Ecosystem Engineering, Experiment, and Evolution." *Biology & Philosophy* 26 (2011): 793–812.
- . "From 'Circumstances' to 'Environment': Herbert Spencer and the Origins of the Idea of Organism-Environment Interaction." *Studies in History and Philosophy of Biological and Biomedical Sciences* 41 (2010): 241–52. ["From 'Circumstances' to 'Environment'"]
- . "The Origins and Development of the Idea of Organism-Environment Interaction." In *Entangled Life: Organism and Environment in the Biological and Social Sciences*, edited by Gillian Barker, Eric Desjardins, and Trevor Pearce, 13–32. Dordrecht: Springer, 2014.
- Peirce, Charles Sanders. "The Fixation of Belief." *Popular Science Monthly* 12 (1877): 1–15.
- . "How to Make Our Ideas Clear." *Popular Science Monthly* 12 (1878): 286–302.
- . "[Review of] *Negative Beneficence and Positive Beneficence*. Being Parts V. and VI. of the Principles of Ethics. By Herbert Spencer." *The Nation* 57 (1893): 293–94.
- . "Ritchie's Darwin and Hegel." *The Nation* 57 (1893): 393–94.
- Pinkard, Terry. "Speculative *Naturphilosophie* and the Development of the Empirical Sciences: Hegel's Perspective." In *Continental Philosophy of Science*, edited by Gary Gutting, 19–34. Oxford: Blackwell, 2005.
- Pippin, Robert B. "Leaving Nature Behind: Or Two Cheers for 'Subjectivism.'" In *Reading McDowell: On Mind and World*, edited by Nicholas H. Smith, 58–75. London: Routledge, 2002.
- . "Postscript: On McDowell's Response to 'Leaving Nature Behind.'" In *The Persistence of Subjectivity: On the Kantian Aftermath*, 206–21. Cambridge: Cambridge University Press, 2005.
- Renan, Ernest. *The Future of Science*. Boston: Roberts, 1891.
- Renault, Emmanuel. "Dewey et la *Science de la Logique*." In *La Science de la Logique au miroir de l'identité*, edited by Bernard Mabilbe and Gilbert Gérard. Leuven: Peeters, forthcoming.
- . "Dewey et Mead hégéliens." In *La théorie sociale de George Herbert Mead*, edited by Alexis Cukier and Eva Debray. Lormont: Bord de l'eau, 2014.
- Richards, Robert J. *The Meaning of Evolution: The Morphological Construction and Ideological Reconstruction of Darwin's Theory*. Chicago: University of Chicago Press, 1992. [Meaning of Evolution]
- Rignano, Eugenio. *The Psychology of Reasoning*. Translated by Winifred A. Holl. New York: Harcourt, Brace, 1923.
- Ritchie, David George. "Darwin and Hegel." *Proceedings of the Aristotelian Society* 1 (1891): 55–74.
- . *Darwin and Hegel, with Other Philosophical Studies*. London: Swan Sonnenschein, 1893.
- . *Darwinism and Politics*. 2nd ed. London: Swan Sonnenschein, 1891.
- . *Darwinism and Politics*. London: Swan Sonnenschein, 1889.

- Rockmore, Tom. "Dewey, Hegel, and Knowledge after Kant." In *John Dewey and Continental Philosophy*, edited by Paul Fairfield, 26–43. Carbondale: Southern Illinois University Press, 2010.
- Rorty, Richard. "Dewey between Hegel and Darwin." In *Modernist Impulses in the Human Sciences, 1870–1930*, edited by Dorothy Ross, 54–68. Baltimore: Johns Hopkins University Press, 1994.
- . *Philosophy and the Mirror of Nature*. Princeton, NJ: Princeton University Press, 1979.
- . "Pragmatism, Relativism, and Irrationalism." *Proceedings and Addresses of the American Philosophical Association* 53 (1980): 719–38.
- . "Response to Susan Haack." In *Rorty & Pragmatism: The Philosopher Responds to His Critics*, edited by Herman J. Saatkamp, Jr., 148–53. Nashville, TN: Vanderbilt University Press, 1995.
- . "Texts and Lumps." *New Literary History* 17 (1985): 1–16.
- Sellars, Wilfrid. "Empiricism and the Philosophy of Mind." In *Minnesota Studies in the Philosophy of Science*, edited by Herbert Feigl and Michael Scriven, 253–329. Minneapolis: University of Minnesota Press, 1956.
- Shook, John R., ed. *The Chicago School of Functionalism*. Vol. 3, *Functionalist Psychology*. Bristol: Thoemmes, 2001.
- . *Dewey's Empirical Theory of Knowledge and Reality*. Nashville, TN: Vanderbilt University Press, 2000. [*Dewey's Empirical Theory*]
- Shook, John R., and James A. Good. *John Dewey's Philosophy of Spirit, with the 1897 Lecture on Hegel*. New York: Fordham University Press, 2010. [*Philosophy of Spirit*]
- Sidgwick, Henry. "The Theory of Evolution in Its Application to Practice." *Mind* 1 (1876): 52–67.
- Spencer, Herbert. *First Principles*. 4th ed. London: Williams & Norgate, 1880.
- . *The Principles of Psychology*. 2nd ed. 2 vols. London: Williams and Norgate, 1870–72. [*Psychology*]
- Stirling, James Hutchison. *The Secret of Hegel: Being the Hegelian System in Origin, Principle, Form, and Matter*. 2 vols. London: Longman, Green, Longman, Roberts, & Green, 1865.
- Sturdy, Steven W. "Biology as Social Theory: John Scott Haldane and Physiological Regulation." *British Journal for the History of Science* 21 (1988): 315–40.
- . "A Co-ordinated Whole: The Life and Work of John Scott Haldane." PhD diss., University of Edinburgh, 1987. ["Co-ordinated Whole"]
- . "The Meanings of 'Life': Biology and Biography in the Work of J. S. Haldane (1860–1936)." *Transactions of the Royal Historical Society* 21 (2011): 171–91.
- Tyler, Colin. *Idealist Political Philosophy: Pluralism and Conflict in the Absolute Idealist Tradition*. London: Continuum, 2006.
- Welchman, Jennifer. *Dewey's Ethical Thought*. Ithaca, NY: Cornell University Press, 1995.
- White, Morton. *The Origin of Dewey's Instrumentalism*. New York: Columbia University Press, 1943.
- Wimsatt, William C. *Re-Engineering Philosophy for Limited Beings: Piecewise Approximations to Reality*. Cambridge, MA: Harvard University Press, 2007.