Pragmatism's Evolution Supplemental Footnotes

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Introduction

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Chapter 1

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On the various debates between Agassiz and Gray, see Dupree, *Asa Gray*, 216–306; Lurie, *Louis Agassiz*, 252–350; Philip J. Pauly, *Biologists and the Promise of American Life: From Meriwether Lewis to Alfred Kinsey* (Princeton: Princeton University Press, 2000), 25–43. For the initial American resistance to Darwin more generally, see Roberts, *Darwinism and the Divine in America*, 32–63.

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For more on Mivart, see Jacob W. Gruber, *A Conscience in Conflict: The Life of St. George Jackson Mivart* (New York: Columbia University Press, 1960); Richards, *Darwin*, 353–363; Gregory P. Elder, *Chronic Vigour: Darwin, Anglicans, Catholics, and the Development of a Doctrine of Providential Evolution* (Lanham, MD: University Press of America, 1996), 85–120.

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On Spencer's general importance, see Hofstadter, *Social Darwinism*; Robert C. Bannister, *Social Darwinism: Science and Myth in Anglo-American Social Thought* (Philadelphia: Temple University Press, 1979); Werth, *Banquet at Delmonico's*.

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Jeremy Dunham (personal communication) has suggested that James may also have been influenced by Renouvier's discussions of interest and attention, although James does not reference these discussions: see Charles Renouvier, *Essais de critique générale: Deuxième essai* (Paris: Ladrange, 1859), 172–175, 214–218. Dunham notes that the importance of these concepts was well established in the French psychological tradition, tracing back at least to Étienne Bonnot de Condillac, *Essai sur l'origine des connoissances humaines: Ouvrage ou l'on réduit à un seul principe tout ce qui concerne l'entendement humain*, 2 vols. (Amsterdam: Pierre Mortier, 1746), 1:27–29.

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James and Hodgson were attacking and Spencer was defending what is now called epiphenomenalism, i.e., the view that mental events are mere epiphenomena, having no effects on physical events. Hodgson attacked epiphenomenalism in 1865—in the text quoted here by James—but then defended it in 1870: see Hodgson, *Time and Space*, 273–283; Shadworth H. Hodgson, *The Theory of Practice: An Ethical Enquiry in Two Books*, 2 vols. (London: Longmans, Green, Reader, and Dyer, 1870), 1:416–436. Conversely, James seems to have had sympathy for epiphenomenalism only a few years before this explicit rejection of it: see James, "[Draft on Brain Processes and Feelings] 1872"; Perry, *Thought and Character of William James*, 1:615; Alexander Klein, "James on Consciousness," in *The Oxford Handbook of William James*, ed. Alexander Klein (Oxford: Oxford University Press, forthcoming).

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On Helmholtz's psychology of visual perception, see Gary Hatfield, *The Natural and the Normative: Theories of Spatial Perception from Kant to Helmholtz* (Cambridge: MIT Press, 1992), 165–234. Interestingly, Helmholtz placed much more emphasis on the active mind

in his optics than in his account of musical hearing—he did not think the latter even required a psychology: see Trevor Pearce, "Tonal Functions and Active Synthesis: Hugo Riemann, German Psychology, and Kantian Epistemology," *Intégral* 22 (2008): 86–91.

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For analyses of James's notion of attention, see Kyle Bromhall, "James's Account of the Phenomena and Conditions of Action" (PhD diss., University of Guelph, 2015), chap. 3; Jesse Prinz, "Attention," in *The Oxford Handbook of William James*, ed. Alexander Klein (Oxford: Oxford University Press, forthcoming).

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The image may have been inspired by G. W. Leibniz: "If the soul were like such a blank tablet then truths would be in us as the shape of Hercules is in a piece of marble when the marble is entirely neutral as to whether it assumes this shape or some other. However, if there were veins in the block which marked out the shape of Hercules rather than other shapes, then that block would be more determined to that shape and Hercules would be innate in it, in a way" (Gottfried Wilhelm Leibniz, *New Essays on Human Understanding*, trans. Peter Remnant and Jonathan Bennett (Cambridge: Cambridge University Press, 1996), 52.). This Leibniz passage was quoted in a *Critique Philosophique* article on Spencer that James probably read: see Pillon, "L'innéité selon M. Herbert Spencer," 210.

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There is no direct evidence that James was familiar in the 1870s with Cope's ideas, though they prompted an exchange with Spencer in *Nature* and were presented at the American Association for the Advancement of Science, with the likes of Asa Gray joining the discussion: Edward Drinker Cope, "The Laws of Organic Development," *Nature* 5 (1872); Herbert Spencer, "The Survival of the Fittest," *Nature* 5 (1872); Edward Drinker Cope, "The Survival of the Fittest," *Nature* 5 (1872); Edward Drinker Cope, "The Survival of the Fittest," *Nature* 5 (1872); Edward Drinker Cope, "The Laws of Organic Development," *American Naturalist* 5 (1871): 605; Edward Drinker Cope, "The Relation of Animal Motion to Animal Evolution," *American Naturalist* 12 (1878). Much later, in 1895, Cope and James both participated in an American Psychological Association panel on "Consciousness in Evolution": see "Proceedings of the Fourth Annual Meeting of the American Psychological Association, 1895," *Psychological Review* 3 (1896): 129. James's remarks from the panel do not seem to have survived.

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On Allen, see Peter Morton, *The Busiest Man in England: Grant Allen and the Writing Trade* (New York: Palgrave Macmillan, 2005); Bernard Lightman, *Victorian Popularizers of Science: Designing Nature for New Audiences* (Chicago: University of Chicago Press, 2007), 266–289; Bernard Lightman, "Spencer's British Disciples," in *Herbert Spencer: Legacies*, ed. Mark Francis and Michael W. Taylor (London: Routledge, 2015), 229–234.

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Amphioxus is one of the primitive members of our own phylum, as noted in a song written in the early twentieth century (sung to *Tipperary*): "It's a long way from Amphioxus / It's a long way to us. / It's a long way from Amphioxus / to the meanest human cuss./ It's goodbye fins and gill slits, / Welcome skin and hair / It's a long way from Amphioxus / But we came from there." See Jane Maienschein, *100 Years Exploring Life*, *1888–1988: The Marine Biological Laboratory at Woods Hole* (Boston: Jones & Bartlett, 1989), 165. For a recording, see https://www.youtube.com/watch?v=B0egWbwErRQ.

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See also Nathaniel Southgate Shaler, "The African Element in America," *Arena* 2 (1890); Nathaniel Southgate Shaler, "The Nature of the Negro," *Arena* 3 (1890); John S. Haller Jr., *Outcasts from Evolution: Scientific Attitudes of Racial Inferiority*, 1859–1900 (Urbana: University of Illinois Press, 1971), 166–187; David N. Livingstone, "Science and Society: Nathaniel S. Shaler and Racial Ideology," *Transactions of the Institute of British Geographers* 9 (1984).

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Black Africans were traditionally considered descendants of Ham, although this view was contested at the time: see Alexander Winchell, *Preadamites: Or a Demonstration of the Existence of Men before Adam, Together with a Study of Their Condition, Antiquity, Racial Affinities, and Progressive Dispersion over the Earth* (Chicago: S. C. Griggs, 1880), iv.

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For more on Youmans, see Adrian Johns, *Piracy: The Intellectual Property Wars from Guten*berg to Gates (Chicago: University of Chicago Press, 2009), chap. 11; Bernard Lightman, "Spencer's American Disciples," in *Global Spencerism: The Communication and Appropria*- tion of a British Evolutionist, ed. Bernard Lightman (Leiden: Brill, 2016).

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On Taylor, see *Thirtieth Annual Catalogue of the Illinois Wesleyan University, Bloomington, Illinois,* (Bloomington: Illinois Wesleyan University), 59; *Annual Catalogue of Illinois Wesleyan University, 1888–89, 60; Catalogue of the Officers and Graduates of Columbia College (Originally King's College) in the City of New York, 1754–1888,* (New York: Columbia College, 1888), 181; Wilder, *Historical Sketch, 97; J. B. Taylor, "In the Wesleyan, '63–'69," Illinois Wesleyan Magazine 5 (1900); Elmo Scott Watson, ed. The Professor Goes West: Illinois Wesleyan University—Reports of Major John Wesley Powell's Explorations: 1867–1874 (Bloomington: Illinois Wesleyan University Press, 1954), 26–27.*

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Immanuel Kant, *Critique of the Power of Judgment*, trans. Paul Guyer and Eric Matthews (Cambridge: Cambridge University Press, 2000), §70; see Henry E. Allison, "Kant's Antinomy of Teleological Judgment," *Southern Journal of Philosophy* 30 (1991); Angela Breitenbach, "Two Views on Nature: A Solution to the Antinomy of Mechanism and Teleology," *British Journal for the History of Philosophy* 16 (2008); Marcel Quarfood, "The Antinomy of Teleological Judgment: What It Is and How It Is Solved," in *Kant's Theory of Biology*, ed. Ina Goy and Eric Watkins (Berlin: De Gruyter, 2014).

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Chapter 4

p. 160

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For more details, see Alexander Klein, "The Rise of Empiricism: William James, Thomas Hill Green, and the Struggle over Psychology" (PhD diss., Indiana University, 2007).

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There are three more articles in Green's series, one of which was published posthumously: Thomas Hill Green, "Mr. Herbert Spencer and Mr. G. H. Lewes: Their Application of the Doctrine of Evolution to Thought. Part II. Mr. Spencer on the Independence of Matter," *Contemporary Review* 31 (1878); Thomas Hill Green, "Mr. Herbert Spencer and Mr. G. H. Lewes: Their Application of the Doctrine of Evolution to Thought. Part III. Mr. Lewes' Account of Experience," *Contemporary Review* 32 (1878); Thomas Hill Green, "Mr. Herbert Spencer and Mr. G. H. Lewes' Account of Experience," *Contemporary Review* 32 (1878); Thomas Hill Green, "Mr. Herbert Spencer and Mr. G. H. Lewes: Their Application of the Doctrine of Evolution to Thought. Part III. Mr. Herbert Spencer and Mr. G. H. Lewes: Their Application of the Doctrine of Evolution to Thought. Part IV. Mr. Lewes' Account of the 'Social Medium,"' in *Works of Thomas Hill Green*, ed. R.L. Nettleship (London: Longmans, Green, 1885).

p. 163

For a nice discussion of the different kinds of work that fall under the headings "evolutionary ethics" and "evolutionary epistemology," see Michael Bradie, *The Secret Chain: Evolution and Ethics* (Albany: State University of New York Press, 1994), 3–8.

p. 164

For more on this topic, see David Boucher, "British Idealism and Evolution," in *The Oxford Handbook of British Philosophy in the Nineteenth Century*, ed. W. J. Mander (Oxford: Oxford University Press, 2014).

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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.

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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.

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.

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Haldane attacked the mechanistic picture of life throughout his career: see John Scott Haldane, *Mechanism, Life and Personality: An Examination of the Mechanistic Theory of Life and Mind* (London: John Murray, 1913); John Scott Haldane, *The Philosophical Basis of Biology: Donellan Lecures, University of Dublin, 1930* (London: Hodder & Stoughton, 1931).

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Thomas Carnelley and John Scott Haldane, "The Air of Sewers," Proceedings of the Royal Society of London 42 (1887); Thomas Carnelley, 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); Clement Le Neve Foster 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); John Scott Haldane, Methods of Air Analysis (London: Charles Griffin, 1912); John Scott Haldane, Organism and Environment as Illustrated by the Physiology of Breathing (New Haven: Yale University Press, 1917). On Haldane's war service, see John B.C. Kershaw, "The Use of Poisonous Gases in Warfare," in The Scientific American War Book: The Mechanism and Technique of Warfare, ed. Albert A. Hopkins (New York: Munn, 1915), 166-168. For more on Haldane see Sturdy, "A Co-ordinated Whole"; Steven W. Sturdy, "Biology as Social Theory: John Scott Haldane and Physiological Regulation," British Journal for the History of Science 21 (1988); Martin Goodman, Suffer and Survive: The Extreme Life of J.S. Haldane (London: Simon & Schuster, 2007); Steven W. Sturdy, "The Meanings of 'Life': Biology and Biography in the Work of J.S. Haldane (1860–1936)," Transactions of the Royal Historical Society 21 (2011). He is not to be confused with his son, the population geneticist John Burdon Sanderson Haldane.

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This essay, along with Ritchie's book *Darwinism and Politics*, is the most famous British Idealist treatment of organic evolution. See David George Ritchie, *Darwinism and Politics* (London: Swan Sonnenschein, 1889); David George Ritchie, "Darwin and Hegel," *Proceedings of the Aristotelian Society* 1 (1891); David George Ritchie, *Darwin and Hegel, with Other Philosophical Studies* (London: Swan Sonnenschein, 1893). For commentary, see Harris, *The Neo-Idealist Political Theory*, 74–100; Otter, *British Idealism and Social Explanation*, 88–119; Mander, *British Idealism: A History*, 262–267.

p. 179

For an overview of early functional psychology, see John R. Shook, ed. The Chicago School

of Functionalism, vol. 3, Functionalist Psychology (Bristol: Thoemmes, 2001).

p. 185

On the place of Buffon, Lamarck, Geoffroy, Herder, and Goethe in the history of evolutionary thought, see Haeckel, *History of Creation*, chaps. 4–5; Samuel Butler, *Evolution*, *Old and New; or, the Theories of Buffon*, *Dr. Erasmus Darwin*, *and Lamarck*, *as Compared with That of Mr. Charles Darwin* (Salem: S. E. Cassino, 1879), chaps. 7–11, 15–18; Pietro Corsi, *The Age of Lamarck: Evolutionary Theories in France*, 1790–1830, trans. Jonathan Mandelbaum (Berkeley: University of California Press, 1988); Walther Ch. Zimmerli, "Evolution or Development? Questions Concerning the Systematic and Historical Position of Herder," in *Herder Today: Contributions from the International Herder Conference*, *Nov. 5–8*, 1987, *Stanford*, *California*, ed. Kurt Mueller-Vollmer (Berlin: De Gruyter, 1990); Richards, *The Romantic Conception of Life: Science and Philosophy in the Age of Goethe*, chap. 11; Robert J. Richards, "Did Goethe and Schelling Endorse Species Evolution?" in *Marking Time: Romanticism and Evolution*, ed. Joel Faflak (Toronto: University of Toronto Press, 2017); Zammito, *Gestation of German Biology*, chap. 6.

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For more on Guizot, see Ceri Crossley, French Historians and Romanticism: Thierry, Guizot, the Saint-Simonians, Quinet, Michelet (London: Routledge, 1993), chap. 3; Aurelian Craiutu, Liberalism Under Siege: The Political Thought of the French Doctrinaires (Lanham, MD: Lexington, 2003); Aurelian Craiutu, "The Method of the French Doctrinaires," History of European Ideas 30 (2004). For more on Cooper, see Joy James, "The Profeminist Politics of W. E. B. Du Bois, with Respects to Anna Julia Cooper and Ida B. Wells Barnett," in W. E. B. Du Bois on Race and Culture, ed. Bernard W. Bell, Emily Grosholz, and James B. Stewart (London: Routledge, 1996); Vivian M. May, Anna Julia Cooper, Visionary Black Feminist: A Critical Introduction (New York: Routledge, 2007); Derrick Alridge, "Of Victorianism, Civilizationism, and Progressivism: The Educational Ideas of Anna Julia Cooper and W. E. B. Du Bois, 1892–1940," History of Education Quarterly 47 (2007); Beverly Guy-Sheftall, "Anna Julia Cooper," in African American Review (Spring 2009); Shirley Moody-Turner, "Dear Doctor Du Bois': Anna Julia Cooper, W. E. B. Du Bois, and the Gender Politics of Black Publishing," MELUS 40 (2015).

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For more on Crummell, see Wilson Jeremiah Moses, *Alexander Crummell: A Study of Civilization and Discontent* (New York: Oxford University Press, 1989); Wilson Jeremiah Moses, *Creative Conflict in African American Thought: Frederick Douglass, Alexander Crummell, Booker T. Washington, W. E. B. Du Bois, and Marcus Garvey* (Cambridge: Cambridge University Press, 2004), chaps. 5–7; Stephen Thompson, "Alexander Crummell," in *Stanford Encyclopedia of Philosophy*, ed. Edward N. Zalta, https://plato.stanford.edu/archives/fall2017/entries/alexander-crummell/.

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 (cited above).

Chapter 5

p. 196

On Peirce and Gray, see Forster, "The Logical Foundations of Peirce's Indeterminism," in *The Rule of Reason: The Philosophy of Charles Sanders Peirce*, ed. Brunning and Forster (Toronto: University of Toronto Press, 1997), 71–72.

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Darwin was aware of Argyll's 1864 address: see Charles Lyell to Darwin, 16 January 1865 and Darwin to Charles Lyell, 22 January 1865, *Darwin Correspondence Project*, nos. 4746 and 4752, https://www.darwinproject.ac.uk/. Lyell had made a similar point in a journal entry of 1860: see Leonard G. Wilson, ed. *Sir Charles Lyell's Scientific Journals on the Species Question* (New Haven: Yale University Press, 1970), 369; quoted in John Beatty, "The Creativity of Natural Selection? Part I: Darwin, Darwinism, and the Mutationists," *Journal of the History of Biology* 49 (2016): 663–664.

p. 197

On the origin of variation as "an important programme of research" in the late nineteenth century, see Thierry Hoquet, *Revisiting the "Origin of Species": The Other Darwins* (London: Routledge, 2018), 97–98.

p. 198

Du Bois was assigned the *New Text-Book*, which omitted the phrase "by Hyatt and Cope." Dana was probably referring to Alpheus Hyatt, "On the Parallelism between the Different Stages of Life in the Individual and Those in the Entire Group of the Molluscous Order Tetrabranchiata," *Memoirs Read before the Boston Society of Natural History* 1 (1866); and Edward Drinker Cope, "On the Origin of Genera," *Proceedings of the Academy of Natural Sciences of Philadelphia* 20 (1868). See also Sanford, "Dana and Darwinism," *Journal of the History of Ideas* 26 (1965).

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Here are James's likely sources, given his list of "authorities": Alfred Russel Wallace, *Contributions to the Theory of Natural Selection* (London: Macmillan, 1870); Oscar Schmidt, *The Doctrine of Descent and Darwinism* (London: Henry S. King, 1875); Francis Galton, "A Theory of Heredity," *Contemporary Review* 27 (1875); Edward Drinker Cope, *The Origin of the Fittest: Essays on Evolution* (New York: D. Appleton, 1887); Herbert William Conn, *Evolution of To-day: A Summary of the Theory of Evolution as Held by Scientists at the Present*

Time, and an Account of the Progress Made by the Discussions and Investigations of a Quarter of a Century (New York: G.P. Putnam's Sons, 1887).

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'Plasm' (German *Plasma*), usually in combined form (germ-plasm, bioplasm, protoplasm, nucleoplasm, cytoplasm, etc.), referred to the various fluid or gel-like contents of biological cells. It derives from the Greek *plasma*, something formed/molded.

p. 203

For more on Osborn, see Rainger, An Agenda for Antiquity: Henry Fairfield Osborn & Vertebrate Paleontology at the American Museum of Natural History, 1890–1935 (Tuscaloosa: University of Alabama Press, 1991).

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Wallace called the book his "little volume on Popular Darwinism": see Alfred Russel Wallace to Edward Bagnall Poulton, 26 September 1888, *Wallace Letters Online*, WCP4353.4576, https://www.nhm.ac.uk/research-curation/scientific-resources/collections/ library-collections/wallace-letters-online/

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For more on Lankester's role in these discussions, see Joseph Lester and Peter J. Bowler, *E. Ray Lankester and the Making of Modern Biology* (British Society for the History of Science, 1995), chap. 7.

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For more on Argyll's polemical persona, see Melinda Baldwin, *Making "Nature": The History of a Scientific Journal* (Chicago: University of Chicago Press, 2015), 79–90.

p. 205

Hugo Münsterberg, a psychologist who would soon become James's colleague at Harvard, was working in Freiburg at this time. James may also have heard about Weismann via Osborn's April 6 contribution to a *New York Times* debate on Spencer's philosophy. Although James declined to participate in this debate (initiated by Peirce and described in detail below), he may still have been following it: see James to Peirce, 16 March [1890], in James, *Correspondence*, 7:8.

p. 206

Spencer had already made a version of this argument in *The Principles of Biology*, vol. 1 (London: Williams and Norgate, 1864), 451.

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As noted by Houser et al., Peirce's reply was placed directly after Spencer's, although the latter was merely a report by Minot Judson Savage of a recent conversation with the English philosopher: see Peirce, *Writings*, 6:582.

Osborn described Spencer's views "in 1866," not naming *Principles of Biology*, but he was quoting from Spencer, *The Principles of Biology*, vol. 1 (London: Williams and Norgate, 1864), 409. The first volume of the American edition of *Principles of Biology* was published in 1866.

p. 211

For more on Peirce's relationship with Carus, see Harold Henderson, *Catalyst for Controversy: Paul Carus of Open Court* (Carbondale: Southern Illinois University Press, 1993), chap. 8. For a short obituary of Russell, see "F. C. Russell, Old Resident, Dies, Aged 82," *Chicago Daily Tribune*, November 24, 1920, 17.

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For more on American Neo-Lamarckism, see George W. Stocking, Jr., "Lamarckianism in American Social Science: 1890–1915," Journal of the History of Ideas 23 (1962); Edward J. Pfeifer, "The Genesis of American Neo-Lamarckism," Isis 56 (1965); George W. Stocking, Jr., Race, Culture, and Evolution: Essays in the History of Anthropology (New York: Free Press, 1968), chap. 10; Moore, Post-Darwinian Controversies, chap. 6; Richard W. Burkhardt, "Lamarckism in Britain and the United States," in The Evolutionary Synthesis: Perspectives on the Unification of Biology, ed. Ernst Mayr and William B. Provine (Cambridge: Harvard University Press, 1980); Stephen Jay Gould, "The Rise of Neo-Lamarckism in America," in Lamarck et son temps, Lamarck et notre temps (Paris: J. Vrin, 1981); Bowler, Eclipse of Darwinism, chap. 6; Robert C. Richardson and Thomas C. Kane, "Orthogenesis and Evolution in the 19th Century: The Idea of Progress in American Neo-Lamarckism," in Evolutionary Progress, ed. Matthew H. Nitecki (Chicago: University of Chicago Press, 1988); Cook, "Neo-Lamarckian Experimentalism in America: Origins and Consequences"; Mark A. Ulett, "Making the Case for Orthogenesis: The Popularization of Definitely Directed Evolution (1890–1926)," Studies in History and Philosophy of Biological and Biomedical Sciences 45 (2014). For a few of Peirce's other entries referencing Cope, see Whitney, ed. The Century Dictionary: An Encyclopedic Lexicon of the English Language, 6 vols. (New York: Century, 1889-91), 2:1541 (s.v. 'departure'), 3:2673 (s.v. 'habit'), 3:2883 (s.v. 'horizon').

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For more on Cope's evolutionary views, see Peter J. Bowler, "Edward Drinker Cope and the Changing Structure of Evolutionary Theory," *Isis* 68 (1977); Moore, *Post-Darwinian Controversies*, 146–152; Goulven Laurent, "Un néo-Lamarckien Américain: Edward Drinker Cope (1840–1896)," *Revue de Synthèse* 100 (1979); Jane Pierce Davidson, *The Bone Sharp: The Life of Edward Drinker Cope* (Philadelphia: Academy of Natural Sciences, 1997), chap. 8; Mark A. Ulett, "Definitely Directed Evolution (1890–1926): The Importance of Variation in Major Evolutionary Works by Theodor Eimer, Edward Drinker Cope, and Leo Berg" (PhD diss., Arizona State University, 2014), chap. 3; David Ceccarelli, "Between Social and Biological Heredity: Cope and Baldwin on Evolution, Inheritance, and Mind," *Journal of the*

History of Biology 52 (2019).

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Schelling had famously declared that matter is "erloschene Geist" in System des transcendentalen Idealismus (Tübingen: J.G. Cotta, 1800), 191; this view was summarized in Ueberweg, A History of Philosophy, from Thales to the Present Time, trans. Morris, 2 vols. (New York: Scribner, Armstrong, 1872–1874), 2:218. For a brief criticism of the idea that Gustav Fechner inspired Peirce's evolutionary metaphysics, see Pearce, "Protoplasm Feels': The Role of Physiology in Peirce's Evolutionary Metaphysics," HOPOS 8 (2018): 40n24.

p. 216

For another 1891 summary of his evolutionary cosmology, see Peirce to Christine Ladd-Franklin, 29 August 1891, L237, Peirce Papers; in Peirce, *Collected Papers*, 8:214–215. I will give paragraph numbers when citing the *Collected Papers*. For a recent interpretation of Peirce's evolutionary cosmology, see Paul Forster, *Peirce and the Threat of Nominalism* (Cambridge: Cambridge University Press, 2011), chap. 9.

p. 217

The second essay in Peirce's series, "The Doctrine of Necessity Examined," is nicely analyzed in Frederick M. Kronz and Amy L. McLaughlin, "The Complementary Roles of Chance and Lawlike Elements in Peirce's Evolutionary Cosmology," in *Between Chance and Choice: Interdisciplinary Perspectives on Determinism*, ed. Harald Atmanspacher and Robert Bishop (Thorverton: Imprint Academic, 2002).

p. 219n62

This footnote, along with MS 954B (1892) and MS 956 (1890), show that Peirce was also interested in Weismann's theory of the relation between mortality and evolution, which had been described in Alfred Binet, "The Immortality of Infusoria," *Monist* 1 (1890). For the theory itself, see Weismann, *Essays upon Heredity and Kindred Biological Problems* (Oxford: Clarendon Press, 1889), chaps. 1 and 3.

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Surprisingly, Lamarck was not on the list of "Great Men of History" that Peirce made in 1892, even though it included such naturalists as Karl Ernst von Baer, Xavier Bichat, Georges Cuvier, Charles Darwin, Albrecht von Haller, François Huber, Alexander von Humboldt, and Carl Linnaeus: see MS 1120 (1892), in Peirce, *Writings*, 8:258–266.

p. 222

For more on this topic, see Joseph W. Dauben, "Peirce and History of Science," in *Peirce and Contemporary Thought: Philosophical Inquiries*, ed. Kenneth Laine Ketner (New York: Fordham University Press, 1995); Chiara Ambrosio, "The Historicity of Peirce's Classification of the Sciences," *European Journal of Pragmatism and American Philosophy* 8, no. 2 (2016).

Peirce was probably influenced by Whewell's discussions of Gothic architecture: see David Wagner, "Peirce, Panofsky, and the Gothic," *Transactions of the Charles S. Peirce Society* 48 (2012): 438–443; Aleta Quinn, "William Whewell's Philosophy of Architecture and the Historicization of Biology," *Studies in History and Philosophy of Biological and Biomedical Sciences* 59 (2016).

p. 225

It is sometimes claimed that whereas biological evolution is Darwinian, cultural evolution is Lamarckian: for example, Stephen Jay Gould, "Shades of Lamarck," *Natural History* 88 (1979); see also Maria E. Kronfeldner, "Is Cultural Evolution Lamarckian?" *Biology & Philosophy* 22 (2007).

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Herbert Spencer, "The Inadequacy of 'Natural Selection," *Eclectic Magazine of Foreign Literature, Science, and Art,* n.s., 57 (1893); Herbert Spencer, "The Inadequacy of 'Natural Selection," *Littell's Living Age* 197 (1893); Herbert Spencer, "The Inadequacy of 'Natural Selection," *Popular Science Monthly* 42/43 (1893).

p. 228

For the use of 'ontogenetic' and 'phylogenetic' (or 'phyletic'), see Weismann, *Essays upon Heredity and Kindred Biological Problems* (Oxford: Clarendon Press, 1889), 206; Weismann, *The Effect of External Influences upon Development* (Oxford: Clarendon Press, 1894), 35.

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For more on the dispute, see Frederick B. Churchill, "The Weismann-Spencer Controversy over the Inheritance of Acquired Characteristics," in *Human Implications of Scientific Advance: Proceedings of the 15th International Congress of the History of Science*, ed. Eric Gray Forbes (Edinburgh: Edinburgh University Press, 1978); Leonidas I. Blacher, *The Problem of the Inheritance of Acquired Characters: A History of A Priori and Empirical Methods Used to Find a Solution*, trans. Frederick B. Churchill (New Delhi: Amerind, 1982), 102–108; Stephen Jay Gould, *The Structure of Evolutionary Theory* (Cambridge: Harvard University Press, 2002), 197–208; Kele W. Cable, "Ants and Their Castes in the Spencer-Weismann Controversy," *Kestrels and Cerevisiae* (blog), July 20, 2011, https://phylogenous.wordpress.com/ 2011/07/20/ants-and-their-castes-in-the-spencer-weismann-controversy/; Churchill, *August Weismann*, 450–469.

p. 229

For Weismann's changing views on the sources of variation, see Rasmus G. Winther, "August Weismann on Germ-Plasm Variation," *Journal of the History of Biology* 34 (2001); Churchill, *August Weismann*, chap. 18.

p. 230

For an overview of political responses to Neo-Darwinism, see Robert C. Bannister, So-

cial Darwinism: Science and Myth in Anglo-American Social Thought (Philadelphia: Temple University Press, 1979), chap. 7.

p. 230

On Ward as a critic of *laissez-faire*, see Richard Hofstadter, *Social Darwinism in American Thought*, 1860–1915 (Philadelphia: University of Pennsylvania Press, 1944), chap. 4; Bannister, *Social Darwinism: Science and Myth in Anglo-American Social Thought* (Philadelphia: Temple University Press, 1979), 126–131.

p. 230

For more on Ward and Neo-Darwinism, see Edward C. Rafferty, *Apostle of Human Progress: Lester Frank Ward and American Political Thought*, *1841–1913* (Lanham, MD: Rowman & Littlefield, 2003), 184–187; Katharine Zimmerman, "Disciplining the Reception of Darwin: The Botanical and Sociological Work of Lester Frank Ward" (MA thesis, Oregon State University, 2007), 76–80; Maurizio Meloni, *Political Biology: Science and Social Values in Human Heredity from Eugenics to Epigenetics* (New York: Palgrave Macmillan, 2016), 55–57; Emilie J. Raymer, "Human Progress by Human Effort: Neo-Darwinism, Social Heredity, and the Professionalization of the American Social Sciences, 1889–1925," *History and Philosophy of the Life Sciences* 40, no. 4 (2018).

p. 231

For more on Kidd, see David Paul Crook, *Benjamin Kidd: Portrait of a Social Darwinist* (Cambridge: Cambridge University Press, 1984).

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After reading Darwin's *Origin*, Marx told Engels that it contained "the natural-historical foundation for our view." Karl Marx to Friedrich Engels, 19 December 1860, in Karl Marx and Friedrich Engels, *Briefwechsel*, Abt. 3 of *Marx-Engels-Gesamtausgabe* (Berlin: Akademie, 1975–), 11:271. On Marx's complicated assessment of Darwin's ideas, see Ralph Colp Jr., "The Myth of the Darwin-Marx Letter," *History of Political Economy* 14 (1982); Richard Weikart, *Socialist Darwinism: Evolution in German Socialist Thought from Marx to Bernstein* (San Francisco: International Scholars Publications, 1999), chap. 1. On Bellamy and evolution, see Mark Pittenger, *American Socialists and Evolutionary Thought*, 1870–1920 (Madison: University of Wisconsin Press, 1993), 65–71.

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On Spencer and socialism, see Greta Jones, *Social Darwinism and English Thought: The Interaction between Biological and Social Theory* (Atlantic Highlands, NJ: Harvester, 1980), chap. 4; Jeffrey Paul, "The Socialism of Herbert Spencer," *History of Political Thought* 3 (1982); Pittenger, *American Socialists*, 17–22; Álvaro Girón, "The Moral Economy of Nature: Darwinism and the Struggle for Life in Spanish Anarchism (1882–1914)," in *The Reception of Darwinism in the Iberian World*, ed. Thomas F. Glick (Dordrecht: Kluwer, 2001); Naomi Beck, "Enrico Ferri's Scientific Socialism: A Marxist Interpretation of Herbert Spencer's Organic Analogy," Journal of the History of Biology 38 (2005); Beck, La gauche évolutionniste. Spencer et ses lecteurs en France et en Italie. For the classic take on Spencer and laissez-faire, see Hofstadter, Social Darwinism, chap. 2; but see also Mark Francis, "Herbert Spencer and the Myth of Laissez-Faire," Journal of the History of Ideas 39 (1978); Bannister, Social Darwinism, chaps. 2–4; Rick Tilman, "Herbert Spencer and the Political Economy of Mean-Spiritedness Revived," Journal of the History of Economic Thought 21 (1999).

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For more on George, see Edward T. O'Donnell, *Henry George and the Crisis of Inequality: Progress and Poverty in the Gilded Age* (New York: Columbia University Press, 2015).

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Dewey stated that his preferred approach to anarchism was that of Stephen Pearl Andrews, as outlined in *The True Constitution of Government in the Sovereignty of the Individual as the Final Development of Protestantism, Democracy, and Socialism* (New York: William J. Baner, 1851), reprinted in Boston by Sarah E. Holmes in 1888. Dewey also mentioned Benjamin Ricketson Tucker, editor of the anarchist biweekly *Liberty*. For more on the Chicago pragmatists and socialism, see Andrew Feffer, *The Chicago Pragmatists and American Progressivism* (Ithaca: Cornell University Press, 1993), chaps. 4–5; Rick Tilman, "John Dewey and the American Tradition of Empirical Collectivism," in *American Cultural Studies*, ed. Catherine A. Warren and Mary Douglas Vavrus (Urbana: University of Illinois Press, 2002). Dewey is counted (along with various socialists) as a "Reform Darwinist" in Mike Hawkins, *Social Darwinism in Euopean and American Thought*, 1860–1945 (Cambridge: Cambridge University Press, 1997), 175–177. Hawkins, somewhat anachronistically, focuses on Dewey's later work.

p. 238

Like Romanes and James, Morgan was sympathetic to Spencer's co-adaptation argument, although he suggested that co-adaptation could be due to past selection for correlated variation: see "The Nature and Origin of Variations," *Proceedings of the Bristol Naturalists' Society* 6 (1891): 254–255.

p. 239

For more on social heredity and the related "Baldwin Effect" as part of the context for Dewey's work at this time, see David J. Depew, "The Rhetoric of Agency in William James and John Dewey: Evolutionary Psychology at the Turn of the 20th Century," unpublished manuscript (2015). I think Depew is right that Dewey, like Osborn, Baldwin, and Morgan, found a third way between the positions of Spencer and Weismann; however, Dewey's view was already outlined in the 1894 review of Ward and Kidd, two years before Baldwin and the others presented the Baldwin Effect. For more on this effect and its historical context, see Richards, *Darwin*, 469–495; Weber and Depew, *Evolution and Learning: The Baldwin Effect Reconsidered*; Trevor Pearce, "'A Perfect Chaos': Organism-Environment Interaction and the Causal Factors of Evolution" (PhD diss., University of Chicago, 2010),

chap. 2; Pearce, "Origins and Development," 20–23; Christopher D. Green, "James Mark Baldwin, the Baldwin Effect, Organic Selection, and the American 'Immigrant Crisis' at the Turn of the Twentieth Century," in *Entangled Life: Organism and Environment in the Biological and Social Sciences*, ed. Gillian Barker, Eric Desjardins, and Trevor Pearce (Dordrecht: Springer, 2014); David Ceccarelli, "Between Social and Biological Heredity: Cope and Baldwin on Evolution, Inheritance, and Mind," *Journal of the History of Biology* 52 (2019).

p. 241

On Kropotkin's 1890–96 series of "mutual aid" articles, directed against Huxley and later collected in the 1902 book *Mutual Aid*, see Ruth Kinna, "Kropotkin and Huxley," *Politics* 12 (1992): 47–50; Álvaro Girón, "Kropotkin between Lamarck and Darwin: The Impossible Synthesis," *Asclepio* 55 (2003); Mark E. Borrello, "'Mutual Aid' and 'Animal Dispersion': An Historical Analysis of Alternatives to Darwin," *Perspectives in Biology and Medicine* 47 (2004): 16–22; Oren Harman, *The Price of Altruism: George Price and the Search for the Origins of Kindness* (New York: W.W. Norton, 2010), 9–37; Piers J. Hale, *Political Descent: Malthus, Mutualism, and the Politics of Evolution in Victorian England* (Chicago: University of Chicago Press, 2014), 206–251; Pearce, "American Pragmatism, Evolution, and Ethics," 48–49.

p. 241

Despite his references to Kropotkin's late-1880s articles, Dewey did not mention the later "mutual aid" series until the 1900s: see John Dewey and James Hayden Tufts, *Ethics* (New York: Henry Holt, 1908), 371; John Dewey, "Anthropology and Ethics," in *The Social Sciences and Their Interrelations*, ed. William F. Ogburn and Alexander Goldenweiser (Boston: Houghton Mifflin, 1927), 25–27. Dewey only ever cited the 1902 book and not the original articles.

p. 245

Du Bois's speech is briefly discussed in Eric D. Anderson, "Black Responses to Darwinism, 1859–1915," in *Disseminating Darwinism: The Role of Place, Race, Religion, and Gender*, ed. Ronald L. Numbers and John Stenhouse (Cambridge: Cambridge University Press, 1999), 250–251.

Chapter 6

p. 248

For Peirce's earlier endorsement of the claim that "opinions [in science] will gradually approximate to the truth," see "How to Make Our Ideas Clear," 300. On experimental philosophy in the seventeenth century, see Peter Anstey and Alberto Vanzo, "The Origins of Early Modern Experimental Philosophy," *Intellectual History Review* 22 (2012); Peter Anstey and Alberto Vanzo, "Early Modern Experimental Philosophy," in *A Companion to*

Experimental Philosophy, ed. Justin Sytsma and Wesley Buckwalter (Oxford: Wiley Black-well, 2016).

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James described the experimental method in psychology in James, *The Principles of Psychology*, 2 vols. (New York: Henry Holt, 1890), 1:192–194. For one of Dewey's classes with Granville Stanley Hall, in which he engaged in "observation and experiment," see "Enumeration of Classes, Second Half-Year, 1882–3," *Johns Hopkins University Circulars* 2 (1883): 93; Dewey to H. A. P. Torrey, 14 February 1883, in Dewey, *Correspondence*, no. 00422. On Mead and experimental psychology, see Huebner, *Becoming Mead: The Social Process of Academic Knowledge* (Chicago: University of Chicago Press, 2014), chap. 2.

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On the interrelations between psychology and philosophy at the time, see Wilson, *Science, Community, and the Transformation of American Philosophy, 1860–1930, chaps. 4–5; Edward S. Reed, From Soul to Mind: The Emergence of Psychology from Erasmus Darwin to William James (New Haven, CT: Yale University Press, 1997), chap. 10; Gary Hatfield, "Psychology: Old and New," in <i>The Cambridge History of Philosophy, 1870–1945*, ed. Thomas Baldwin (Cambridge: Cambridge University Press, 2003); Green and Feinerer, "How the Launch of a New Journal in 1904 May Have Changed the Relationship between Psychology and Philosophy."

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Ely studied with Johannes Conrad at Halle in 1877–78; with Karl Knies and Johann Caspar Bluntschli at Heidelberg in 1878–79 (where he received his doctorate); and with Adolph Wagner and Ernst Engel at Berlin in 1878–79. Du Bois studied with Wagner and Gustav Schmoller (among others) at Berlin from 1892 to 1894. All of these professors (apart from Bluntschli) were early members of the *Verein für Sozialpolitik*, which Du Bois actually joined in 1893. Richard Theodore Ely, *Ground under Our Feet: An Autobiography* (New York: Macmillan, 1938), 39–51; Benjamin G. Rader, *The Academic Mind and Reform: The Influence of Richard T. Ely in American Life* (Lexington: University of Kentucky Press, 1966), 11–14; Du Bois to the John F. Slater Fund, 10 March 1893, in *Correspondence of W. E. B. Du Bois*, 1:23; Gustav Schmoller, *Zur Social- und Gewerbepolitik der Gegenwart* (Leipzig: Duncker & Humblot, 1890), 1–2; Erik Grimmer-Solem, *The Rise of Historical Economics and Social Reform in Germany*, 1864–1894 (Oxford: Oxford University Press, 2003), 174–176. For the moniker "*Social-Reform-Verein*," see *Verhandlungen der Eisenacher Versammlung zur Besprechung der socialen Frage*, (Leipzig: Duncker & Humblot, 1873), 161.

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Dewey would also have encountered the organicist picture of society in his Comparative Constitutional History class with Adams, who assigned Bluntschli's *Theory of the Modern State* (Adams, like Ely, had studied at Heidelberg with Bluntschli): see "Enumeration of Classes, Second Half-Year, 1882–3," 93; "Historical and Political Science," *Johns Hopkins*

University Circulars 2 (1883): 134–135; Johann Caspar Bluntschli, Lehre vom modernen Stat, 3 vols. (Stuttgart: J. G. Cotta, 1875–76), 1:18–22. Adams's biology-tinged "New England Towns" was also part of the political science curriculum at Fisk: see Du Bois, [Fisk College Coursework, 1885–88], p. 3, in "Du Bois, William Edward Burghardt," Box 120 VT, Student Folders (UAIII 15.88.10), Harvard University Archives; Herbert Baxter Adams, "The Germanic Origin of New England Towns," in Johns Hopkins University Studies in Historical and Political Science, ed. Herbert Baxter Adams (Baltimore: N. Murray, 1882). On this period in German economics, see David F. Lindenfeld, The Practical Imagination: The German Sciences of State in the Nineteenth Century (Chicago: University of Chicago Press, 1997), chaps. 4–5; Daniel T. Rodgers, Atlantic Crossings: Social Politics in a Progressive Age (Cambridge: Harvard University Press, 1998), chap. 3; Axel R. Schäfer, American Progressives and German Social Reform, 1875–1920: Social Ethics, Moral Control, and the Regulatory State in a Transatlantic Context (Stuttgart: Franz Steiner, 2000), chap. 1; Grimmer-Solem, Rise of Historical Economics.

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At a seminary meeting of 11 January 1884 (probably attended by Dewey), Jevons's *Methods of Social Reform* was "highly commended" by Ely, and he had also praised Jevons's comments on "social experimentation" in his earlier essay: see "Seminary Records, December, 1877–May, 1886," in *The Johns Hopkins University Seminary of History and Politics: The Records of an American Educational Institution, 1877–1912*, ed. Marvin E. Gettleman (New York: Garland, 1987), 43; Ely, "Past and the Present," 44n. For more on Ely and evolution, see Pittenger, *American Socialists*, chap. 2; Thomas C. Leonard, *Illiberal Reformers: Race, Eugenics, and American Economics in the Progressive Era* (Princeton: Princeton University Press, 2016), chap. 6.

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For more on Wright, see James Leiby, *Carroll Wright and Labor Reform: The Origin of Labor Statistics* (Cambridge: Harvard University Press, 1960).

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Although Dan Green and Edwin Driver speculate that Du Bois did not mention Cummings in any later writings because he was unimpressed with him, Du Bois did in fact remember him in 1954 (along with other "new instructors") as having "mentioned Marx, but only in passing": Dan S. Green and Edwin D. Driver, "Introduction," in *On Sociology and the Black Community*, ed. W. E. B. Du Bois (Chicago: University of Chicago Press, 1978), 6; Du Bois, "Apologia," 328.

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For more on Du Bois's time in Berlin, see Sieglinde Lemke, "Berlin and Boundaries: *sollen* versus *geschehen,*" *boundary* 2 27 (2000); Kenneth D. Barkin, "'Berlin Days,' 1892–1894: W. E. B. Du Bois and German Political Economy," *boundary* 2 27 (2000); Axel R. Schäfer, "W. E. B. Du Bois, German Social Thought, and the Racial Divide in American Progressivism,

1892–1909," Journal of American History 88 (2001); Barrington S. Edwards, "W. E. B. Du Bois Between Worlds: Berlin, Empirical Social Research, and the Race Question," *Du Bois Review* 3 (2006); Robert E. Prasch, "W. E. B. Du Bois's Contributions to U.S. Economics (1893–1910)," *Du Bois Review* 5 (2008); Gooding-Williams, *In the Shadow of Du Bois*, 58–65; Kenneth D. Barkin, "W. E. B. Du Bois and the German *Alltag*, 1892–1894," *Journal of African American History* 96 (2011); Appiah, *Lines of Descent*, Chapter 1.

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Kelley's name was not even mentioned in the official report: Carroll Davidson Wright, *The Slums of Baltimore, Chicago, New York, and Philadelphia* (Washington: Government Printing Office, 1894).

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For more on this aspect of Mead's work, see Mary Jo Deegan, "Introduction," in *Play*, *School*, *and Society*, ed. George Herbert Mead (New York: Peter Lang, 1999).

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See also the related symposia in *Ethnic and Racial Studies* (2016, vol. 39, no. 8, pp. 1370–1417) and the *British Journal of Sociology* (2017, vol. 68, no. 1, pp. 3–77). On the pragmatist roots of the Chicago School, see Martin Bulmer, *The Chicago School of Sociology: Institutionalization, Diversity, and the Rise of Sociological Research* (Chicago: University of Chicago Press, 1984), chap. 3; Deegan, *Jane Addams and the Men of the Chicago School;* Huebner, *Becoming Mead*, 102–07, 158–163, 187–190.

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Jane Addams attended several other congresses of the World's Congress Auxiliary, all of which were held in the newly built Art Institute on Michigan Avenue: see Knight, *Citizen*, 269–274; David F. Burg, *Chicago's White City of 1893* (Lexington: University Press of Kentucky, 1976), chap. 6.

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On Du Bois and eugenics—and African-American interest in eugenics more generally—see Marouf Arif Hasian Jr., *The Rhetoric of Eugenics in Anglo-American Thought* (Athens: University of Georgia Press, 1996), chap. 3; Stephanie Athey, "Eugenic Feminisms in Late Nineteenth-Century America: Reading Race in Victoria Woodhull, Frances Willard, Anna Julia Cooper, and Ida B. Wells," *Genders* 31 (2000); English, *Unnatural Selections*, chap. 1; Shawn Michelle Smith, *Photography on the Color Line: W. E. B. Du Bois, Race, and Visual Culture* (Durham, NC: Duke University Press, 2004), chap. 2; May, *Anna Julia Cooper, Visionary Black Feminist: A Critical Introduction*, 52–57; Gregory Michael Dorr, *Segregation's Science: Eugenics and Society in Virginia* (Charlottesville: University of Virginia Press, 2008), chap. 5; Yuddell, *Race Unmasked*, 103–105; Ayah Nuriddin, "Race, Sexuality, and the 'Progressive Physician': African American Doctors, Eugenics, and Public Health, 1900–1940" (MA thesis, University of Maryland, 2014); Ewa Barbara Luczak, *Breeding and Eugenics in the Amer*- *ican Literary Imagination* (New York: Palgrave Macmillan, 2015), chaps. 6–7; Thomas Wells Reese, "Building a Better Race: Epistemic Resistance and Homogeneity in the Works of W. E. B. Du Bois and Ernest A. Hooton" (MA thesis, Georgetown University, 2015); Liam Kofi Bright, "Du Bois and the Alt Right," *The Sooty Empiric* (blog), November 12, 2016, http: //sootyempiric.blogspot.com/2016/11/du-bois-and-alt-right.html.

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For more on Dewey and Boas, see Gabriel Alejandro Torres Colón and Charles A. Hobbs, "The Intertwining of Culture and Nature: Franz Boas, John Dewey, and Deweyan Strands of American Anthropology," *Journal of the History of Ideas* 76 (2015); Gabriel Alejandro Torres Colón and Charles A. Hobbs, "Toward a Pragmatist Anthropology of Race," *Pluralist* 11 (2016).

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On Du Bois and Boas, see Rosemary Lévy Zumwalt and William Shedrick Willis, *Franz Boas and W. E. B. Du Bois at Atlanta University*, 1906 (Philadelphia: American Philosophical Society, 2008); Michael Yuddell, *Race Unmasked: Biology and Race in the Twentieth Century* (New York: Columbia University, 2014), 95–98.

Chapter 7

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For a critique of Dewey's essay, see Jonathan Hodge and Gregory Radick, "The Place of Darwin's Theories in the Intellectual Long Run," in *The Cambridge Companion to Darwin*, ed. Jonathan Hodge and Gregory Radick (Cambridge: Cambridge University Press, 2009).

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On James's negotiation of the boundaries between natural history, psychology, and philosophy see Francesca Bordogna, *William James at the Boundaries: Philosophy, Science, and the Geography of Knowledge* (Chicago: University of Chicago Press, 2008), chaps. 1–2; Alexander Klein, "Divide et Impera! William James's Pragmatist Tradition in the Philosophy of Science," Philosophical Topics 36 (2008); Alexander Klein, "Hatfield on American Critical Realism," HOPOS 5 (2015): 157–162; Leary, "On the Relation between James's Psychology and Philosophy."

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For an argument that it was Dewey who 'naturalized' James, see Richard M. Gale, "John Dewey's Naturalization of William James," in *The Cambridge Companion to William James*, ed. Ruth Anna Putnam (Cambridge: Cambridge University Press, 1997).

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Williston Samuel Hough taught physiological psychology at Michigan in 1888-89, Dewey's

year at Minnesota, but he taught it from George Trumbull Ladd's textbook without a laboratory component: see *Calendar of the University of Michigan for 1888–89* (Ann Arbor: University of Michigan, 1889), 53. Dewey's various classes in "Empirical Psychology" and "Experimental Psychology" from 1884 to 1888 also consisted only of lectures, according to the *Calendar*.

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On Tufts as the laboratory's real founder, see Edmund B. Delabarre, "Les laboratoires de psychologie en Amérique," *Année Psychologique* 1 (1894): 238; Christian A. Ruckmich, "The History and Status of Psychology in the United States," *American Journal of Psychology* 23 (1912): 520.

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On Donaldson and Cattell's laboratory work at Hopkins, see Henry H. Donaldson and Lewis T. Stevens, "The Influence of Digitaline on the Work of the Heart and on the Flow through the Blood-Vessels," *Journal of Physiology* 4 (1883); Michael M. Sokal, "Launching a Career in Psychology with Achievement and Arrogance: James McKeen Cattell at the Johns Hopkins University, 1882–1883," *Journal of the History of the Behavioral Sciences* 52 (2016): 12–14. On Dewey's experimental research in Hall's laboratory, see Dewey to H. A. P. Torrey, 14 February 1883, in *Correspondence*, vol. 1, no. 00422.

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Lipson was an undergraduate at Michigan from 1889–93, graduating with an LLB in 1893 and an LLM in 1894: see *Calendar of the University of Michigan for 1893–94* (Ann Arbor: University of Michigan, 1894), 188; *Calendar of the University of Michigan for 1894–95* (Ann Arbor: University of Michigan, 1895), 202. The quoted letter implies that he met Dewey while a sophomore in 1890–91, took General Psychology with Lloyd in 1891–92, and took a laboratory class with Mead sometime between 1892 and 1894.

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For more on Lloyd's philosophy, see Evelyn Shirk, *Adventurous Idealism: The Philosophy of Alfred Lloyd* (Ann Arbor: University of Michigan Press, 1952); Evelyn Shirk, "Alfred Henry Lloyd: Beyond Labels," *Transactions of the Charles S. Peirce Society* 15 (1979).

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For more on Dewey, biology, and education in the 1890s, see Fallace, *Dewey and the Dilemma of Race*, chaps. 1–2.

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On Dewey's early lack of engagement with Peirce, see also Shook, *Dewey's Empirical Theory of Knowledge and Reality*, 14, 130–131; Johnston, *John Dewey's Earlier Logical Theory*, 22–25.

Hookway, "Normative Logic and Psychology"; Baldwin, *Dictionary of Philosophy and Psychology*, 2:22 (Logic); also quoted in Jeff Kasser, "Peirce's Supposed Psychologism," *Transactions of the Charles S. Peirce Society* 35 (1999): 517–518; Vincent Colapietro, "The Space of Signs: C.S. Peirce's Critique of Psychologism," in *Philosophy, Psychology, and Psychologism*, ed. Dale Jacquette (Dordrecht: Kluwer, 2003), 169. On James and psychologism, see Bordogna, *William James at the Boundaries*, chap. 5; Klein, "Was James Psychologistic?"; Vincente Sanfelix Vidarte, "Psychologism and the Self," *European Journal of Pragmatism and American Philosophy* 9, no. 1 (2017).

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For more on the instinctive aspects of Peircean abduction, see Timothy Shanahan, "The First Moment of Scientific Inquiry: C. S. Peirce on the Logic of Abduction," Transactions of the Charles S. Peirce Society 22 (1986): 455–459; Robert J. Roth, "Anderson on Peirce's Concept of Abduction," Transactions of the Charles S. Peirce Society 24 (1988); Nicholas Rescher, A Useful Inheritance: Evolutionary Aspects of the Theory of Knowledge (Savage, MD: Rowman & Littlefield, 1990), 30-31; Sami Paavola, "Peircean Abduction: Instinct or Inference?" Semiotica 153 (2005); Sami Paavola and Kai Hakkarainen, "Three Abductive Solutions to the Meno Paradox – With Instinct, Inference, and Distributed Cognition," Studies in Philosophy and Education 24 (2005); Lorenzo Magnani, "Animal Abduction," in Model-Based Reasoning in Science, Technology, and Medicine, ed. Lorenzo Magnani and Ping Li (Berlin: Springer, 2007). On Peircean abduction more generally, see Douglas Anderson, "The Evolution of Peirce's Concept of Abduction," Transactions of the Charles S. Peirce Society 22 (1986); Anya Plutynski, "Four Problems of Abduction: A Brief History," HOPOS 1 (2011); Chihab el Khachab, "The Logical Goodness of Abduction in C. S. Peirce's Thought," Transactions of the Charles S. Peirce Society 49 (2013); Mark Tschaepe, "Guessing and Abduction," Transactions of the Charles S. Peirce Society 50 (2014); Woosuk Park, "On Classifying Abduction," Journal of Applied Logic 13 (2015); Mousa Mohammadian, "Theoretical Virtues in Science and Metaphysics" (PhD diss., University of Notre Dame, 2017), 125–161.

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For samples of Peirce's research in astronomy, geodesy, and psychology, see Charles Sanders Peirce, *Photometric Researches, Made in the Years 1872–1875*, Annals of the Astronomical Observatory of Harvard College, vol. 9 (Leipzig: Wilhelm Engelmann, 1878); Charles Sanders Peirce, "On the Deduction of the Ellipticity of the Earth from Pendulum Experiments," in *Report of the Superintendent of the U.S. Coast and Geodetic Survey, Showing the Progress of the Work during the Fiscal Year Ending with June, 1881* (Washington, D.C.: Government Printing Office, 1883); Peirce and Jastrow, "On Small Differences of Sensation."

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For more on experimentation with diagrams, see Forster, *Peirce and the Threat of Nominalism* (Cambridge: Cambridge University Press, 2011), 36–40; Frederik Stjernfelt, "Peirce's

Notion of Diagram Experiment: Corrollarial and Theorematical Experiments with Diagrams," in Image and Imaging in Philosophy, Science and the Arts, ed. Richard Heinrich, et al., vol. 2 (Frankfurt: Ontos, 2011); Chiara Ambrosio and Chris Campbell, "The Chemistry of Relations: Peirce, Perspicuous Representations, and Experiments with Diagrams," in Peirce on Perception and Reasoning: From Icons to Logic, ed. Kathleen A. Hull and Richard Kenneth Atkins (New York: Routledge, 2017). For more on existential graphs, see J. Jay Zeman, "The Graphical Logic of C. S. Peirce" (PhD diss., University of Chicago, 1964); Don D. Roberts, The Existential Graphs of Charles S. Peirce (The Hague: Mouton, 1973); Sun-Joo Shin, The Iconic Logic of Peirce's Graphs (Cambridge: MIT Press, 2002); Ahti-Veikko Pietarinen, Signs of Logic: Peircean Themes on the Philosophy of Language, Games, and Communication (Dordrecht: Springer, 2006), chap. 4; John F. Sowa, "Peirce's Tutorial on Existential Graphs," Semiotica 186 (2011); Esther Ramharter and Christian Gottschall, "Peirce's Search for a Graphical Modal Logic (Propositional Part)," History and Philosophy of Logic 32 (2011); Ahti-Veikko Pietarinen, "Existential Graphs: What a Diagrammatic Logic of Cognition Might Look Like," History and Philosophy of Logic 32 (2011); Ahti-Veikko Pietarinen, "Exploring the Beta Quadrant," Synthese 192 (2015); Francesco Bellucci and Ahti-Veikko Pietarinen, "Existential Graphs as an Instrument of Logical Analysis: Part I. Alpha," Review of Symbolic Logic 9 (2016); Ahti-Veikko Pietarinen and Francesco Bellucci, "Two Dogmas of Diagrammatic Reasoning: A View from Existential Graphs," in Peirce on Perception and Reasoning: From Icons to Logic, ed. Kathleen A. Hull and Richard Kenneth Atkins (New York: Routledge, 2017).

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Bush and Woodbridge were Dewey's colleagues at Columbia University (where he moved in 1904); all three of them retired in the late 1930s. Bush and Woodbridge were also coeditors of the Journal of Philosophy, Psychology and Scientific Methods (renamed the Journal of Philosophy in 1921) until 1941–42. On the naturalist legacy of Dewey and Woodbridge, see William M. Shea, The Naturalists and the Supernatural: Studies in Horizon and an American Philosophy of Religion (Macon, GA: Mercer University Press, 1984); John Ryder, ed. American Philosophic Naturalism in the Twentieth Century (Amherst, NY: Prometheus, 1994); Kuklick, A History of Philosophy in America, 1720–2000 (Oxford: Oxford University Press, 2001), 190-196; Andrew Jewett, "Canonizing Dewey: Naturalism, Logical Empiricism, and the Idea of American Philosophy," Modern Intellectual History 8 (2011); Rob Sinclair, "Dewey, Nagel, and the Challenges of American Naturalism," Avello Publishing Journal 5, no. 1 (2015), https://avellopublishing.files.wordpress.com/2015/12/ d-n-on-naturalism-1.docx. For recent work inspired by so-called "Columbia Naturalism," see John Ryder, The Things in Heaven and Earth: An Essay in Pragmatic Naturalism (New York: Fordham University Press, 2013); Lawrence E. Cahoone, The Orders of Nature (Albany: State University of New York Press, 2013).

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On Grace de Laguna's later work, see Peter Olen, "Consequences of Behaviorism: Sellars

and de Laguna on Explanation," Philosophy of the Social Sciences 47 (2017).

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Gregory Fernando Pappas, "Dewey's Philosophical Approach to Racial Prejudice," Social Theory and Practice 22 (1996); Shannon Sullivan, "(Re)construction Zone: Beware of Falling Statues," in In Dewey's Wake: Unfinished Work of Pragmatic Reconstruction, ed. William J. Gavin (Albany: State University of New York Press); Shannon Sullivan, "From the Foreign to the Familiar: Confronting Dewey Confronting Racial Prejudice," Journal of Speculative Philosophy 18 (2004); Shannon Sullivan, "Racialized Habits: Dewey on Race and the Roma," in Pragmatism and Values: The Central European Pragmatist Forum, Volume One, ed. John Ryder and Emil Višňovský (Amsterdam: Rodopi); Paul C. Taylor, "Silence and Sympathy: Dewey's Whiteness," in What White Looks Like, ed. George Yancy (New York: Routledge, 2004); Michael Eldridge, "Dewey on Race and Social Change," in Pragmatism and the Problem of Race, ed. Bill E. Lawson and Donald F. Koch (Bloomington: Indiana University Press, 2004); "Afterword: A Conversation between Cornel West and Bill E. Lawson," in Pragmatism and the Problem of Race, ed. Bill E. Lawson and Donald F. Koch (Bloomington: Indiana University Press, 2004); Frank Margonis, "John Dewey, W. E. B. Du Bois, and Alain Locke: A Case Study in White Ignorance and Intellectual Segregation," in Race and Epistemologies of Ignorance, ed. Shannon Sullivan and Nancy Tuana (Albany: State University of New York Press, 2007); Sam F. Stack, Jr., "John Dewey and the Question of Race: The Fight for Odell Waller," Education and Culture 25 (2009); Susan D. Carle, "John Dewey and the Early NAACP: Developing a Progressive Discourse on Racial Injustice, 1909–1921," in Dewey's Enduring Impact: Essays on America's Philosopher, ed. John R. Shook and Paul Kurtz (Amherst, NY: Prometheus, 2011); Thomas D. Fallace, Dewey and the Dilemma of Race: An Intellectual History, 1895–1922 (New York: Teachers College Press, 2011); Jeff Frank, "Reconstructing Deweyan Growth: The Significance of James Baldwin's Moral Psychology," Education and Culture 29 (2013).