

Against Literary Darwinism

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Literary Darwinists integrate literary concepts with a modern evolutionary understanding of the evolved and adapted characteristics of human nature. They aim not just at being one more “school” or movement in literary theory. They aim at fundamentally transforming the framework for all literary study. They think that all knowledge about human behavior, including the products of the human imagination, can and should be subsumed within the evolutionary perspective.

—JOSEPH CARROLL, “What Is Literary Darwinism?”

What is undeniable is that theories of human behavior must be *consistent* with the fact of evolution; so too must they be consistent with the fact that the human body is made of matter. However, it does not follow from this that either evolutionary biology or physics can tell us anything interesting about human behavior.

—ELLIOTT SOBER, *Philosophy of Biology*

Darwinian literary criticism has a strange place in the current intellectual scene. Only a short while ago, evolutionary perspectives on art and literature were scarce and exotic. In the past few years, studies connecting literary texts to processes of natural and sexual selection have come forth in handsome volumes from the major trade and university presses and have received a fascinated response from magazines, newspapers, and even television.¹ Arguably no movement in literary studies has attracted so much

1. Academic year 2008–2009 was something of a watershed moment for literary Darwinism, marked by the twin publication of Denis Dutton, *The Art Instinct: Beauty, Pleasure, and Human Evolution* (New York, 2009), hereafter abbreviated *AI*; and Brian Boyd, *On the Origin of Stories: Evolution, Cognition, and Fiction* (Cambridge, Mass., 2009); hereafter abbreviated *OS*. Along with being reviewed in most major dailies, Dutton made a noteworthy appearance on *The Colbert Report*; see Dutton, “Denis Dutton | January 28th | ColbertNation.com,” interview by Stephen Colbert, *Colbert Nation*, bit.ly/birhio. This breakthrough into the major media was preceded by John Allemang, “Harry Potter, Meet Charles Darwin,” *Globe and Mail*, 11 Aug. 2007, bit.ly/cqMtvA; D. T. Max, “The Literary Darwinists,” *New York Times*, 6 Nov. 2005, pp. G74–79; Natalie Angier, “Curriculum Designed to Unite Art and Science,” *New York Times*, 27 May 2008, p. F1; Jennifer Schuessler, “How Would Darwin Read?” *New York Times*, 16 Feb. 2008, papercuts.blogs.nytimes.com/tag/

attention in quite some time. Literary Darwinism would seem to be all the rage. Yet for all this attention outside the academy, the movement has not provoked much of a response within, where, if it has been noticed at all, it has often been treated with trepidation or contempt.² This is a shame. Were the claims of literary Darwinism true, we might be at the threshold of what one of its advocates calls a “new humanities,” in which the natural sciences and literary humanities would speak directly to each other (see *LSH*, esp. pp. 89–176). Even if its central arguments are misguided, we might learn something about the place of literary study among the disciplines from the manner in which literary Darwinism fails to make its case. At the very least, it would seem odd not to engage work that has so captivated a public otherwise dismissive of what happens in literature departments. For these reasons, the present essay attempts to take seriously the central premises of the Darwinian program in literary studies. I will argue against literary Darwinism but only as I reconstruct the story about literature it attempts to tell.

I begin with some disciplinary context. Literary Darwinism believes that the humanities have fallen into disrepute because our assumptions fly in the face of accepted science, especially the science of mind. Whereas the humanities believe in an infinitely plastic human nature, so the literary Darwinists claim, the biological and social sciences have discovered that

literary-darwinism/; Ian Sample, “Victorian Novels Helped Us Evolve into Better People,” *The Guardian*, 14 Jan. 2009, bit.ly/ailwef; and elsewhere. For the background argument, see the manifesto-anthology *The Literary Animal: Evolution and the Nature of Narrative*, ed. Jonathan Gottschall and David Sloan Wilson (Evanston, Ill., 2005); “Symposium: Evolution and Literature,” ed. Nancy Easterlin, special issue of *Philosophy and Literature* 25 (Oct. 2001): 197–344; Joseph Carroll, “An Evolutionary Paradigm for Literary Study,” special double issue of *Style*, ed. John V. Knapp, 42 (Summer–Fall 2008): 103–424, hereafter abbreviated “EP” and *Literary Darwinism: Evolution, Human Nature, and Literature* (New York, 2004), hereafter abbreviated *LD*; and Gottschall, *Literature, Science, and a New Humanities* (New York, 2008), hereafter abbreviated *LSH*.

2. The major figures of literary Darwinism—Boyd, Carroll, Dutton, Gottschall, Michelle Scalise Sugiyama—all make much of this marginalization. In a recent essay, Carroll refers to the group as a “robust guerilla band” (“EP,” p. 104). They would seem to have a point, at least anecdotally; apparently the MLA repeatedly turned down proposals for panels on the topic and *The Literary Animal* went through several presses before finding a home at Northwestern. It is hard to know what to make of these inescapably gossipy and complaint-driven stories. Nevertheless, Dutton’s *Philosophy and Literature* has become something like the house journal of the movement, in part due to the perceived sense that no other academic journal would consider their work seriously.

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the mind evolved many thousands of years ago in response to an environment we no longer live in. Their goal is to show how our evolved cognition can explain particular features of texts or facts about writing and reading. I'll argue in contrast that evolutionary psychology of the variety the literary Darwinists endorse is both more controversial as science than they let on and less promising as a basis for criticism than they might wish. In the middle sections of the essay, I argue that many of the candidate features for innate cognition would seem to be a poor fit to literature on almost any definition of the term. My point is not, however, that literary studies should be kept apart from exciting developments in cognitive science. Far from it. Literary Darwinism fails to make its case because it does not take the relation between the humanities and sciences seriously enough. I will argue against the idea that creating or enjoying literary works is an adaptation and for a less tidy account of how we did or did not come to like stories. This less tidy account is, I will suggest at the end, closer to the kind of thing science can help us say about the arts.

Literary Criticism and Evolutionary Psychology

Literary Darwinism has two defining features: an adherence to evolutionary psychology as an explanatory theory of human behavior and a weariness bordering on hostility to the current state of the humanities. The two are usually joined. The literary humanities have walked down the wrong path because, alone among the disciplines, they have refused to acknowledge what scientists like Leda Cosmides and John Tooby, David Buss, Steven Pinker, and (before them) E. O. Wilson have taught us about the mind. "The field is floundering, aimless, and increasingly irrelevant," writes Jonathan Gottschall in *Literature, Science, and a New Humanities*, and that is because "more than three decades after evolutionary models of behavior and psychology burgeoned in other human-related fields, they have failed to locate a welcoming humanities niche" (*LSH*, pp. 2, 22). When critics like Gottschall say we should "move closer to the sciences" (*LSH*, p. xii), therefore, they mean we should get on board the "adaptationist program" . . . grounded in Darwinian conceptions of human nature" (*LD*, p. vii). Literary Darwinism would present itself as bringing the manna of science to woolly-headed and ideologically driven English professors. What they identify as ordinary and agreed-upon science, however, is in fact one particular view of the mind. So we might take a look at what this move entails, both as an account of the science and as a program for criticism.

Although the immediate inspiration for literary Darwinism is modern-day evolutionary psychology, its debts extend back to the 70s-era selfish-

gene theory of Richard Dawkins and the sociobiology of Wilson. For evolutionary theorists of this stripe, the goal was to describe human behavior in light of its biological origins and so to translate from our ordinary language of motivation to an ostensibly deeper language of survival, reproduction, and the propagation of genes. “The essence of the argument,” Wilson wrote, “is that the brain exists because it promotes the survival and multiplication of the genes that direct its assembly. The human mind is a device for survival and reproduction.”³ On this view, behavioral traits and predispositions could be understood as adaptations in the same way as traits of the body.⁴ Seen one way, humans act on the bases of their beliefs or desires; seen another, they are directed to proliferate their genes. In the classic problem case of altruism, for example, altruistic agents take care of their kin for reasons of kindness or love. At the same time, they assist in the survival of those who also (perhaps) have altruistic genes, with the result that the genotype spreads in the population.⁵ The same was supposed to be the case for many other kinds of activity, from mating preferences to the deferential treatment of authorities. In simple terms, a behavioral trait was adaptive when it had a genetic basis and resulted in the leaving of more offspring. Sociobiology tried to explain how this was so.

Despite its adherence to more recent models of evolutionary psychology, literary Darwinism is unashamedly fond of this earlier moment. Its manifesto-anthology *The Literary Animal* (2005) was prefaced by Wilson, who also has enjoyed retrospective honorifics by several of the major players in the movement.⁶ So it is worth taking a quick look at the responses Wilson and his colleagues provoked. No point was argued at greater length than their account of adaptation. According to the influential critique of Steven Jay Gould and Richard Lewontin, sociobiology was merely an extreme example of a pervasive mistake within evolutionary biology itself: the parceling of an organism into discrete traits, each of which could be identified as an adaptation selected for its fitness. The adaptationist program, they argued, “regards natural selection as so powerful and the con-

3. Edward O. Wilson, *On Human Nature* (Cambridge, Mass., 1978), p. 2.

4. For Wilson, behavioral adaptations were the result of “the process whereby certain genes gain representation in the following generations superior to that of other genes located at the same chromosome positions” (Wilson, *Sociobiology: The New Synthesis* [Cambridge, Mass., 1975], p. 3).

5. See *ibid.*, pp. 2–7, 547–76, and Robert Trivers, “Parental Investment and Reproductive Success” (1972), *Natural Selection and Social Theory: Selected Papers of Robert Trivers* (Oxford, 2002), pp. 56–110.

6. See, for example, *OS*, pp. 338–39, *LD*, pp. 69–84, and *LSH*, pp. 19–21. Late-period Wilson called for a “consilience” of the humanities and natural sciences by seeing the vertical integration of all knowledge into a single program. See Wilson, *Consilience: The Unity of Knowledge* (New York, 1998). The literary Darwinists see themselves as fulfilling that remit.

straints upon it so few that direct production of adaptation through its operation becomes the primary cause of nearly all organic form, function, and behaviour.”⁷ Gould and Lewontin’s response was to introduce layers of complication into the model of evolution by natural selection. Some traits were selected for fitness, they said, but some were by-products of other traits (spandrels) and some useful redesigns of inherited structures (exaptations). Selection could occur without adaptation, and adaptation without selection.⁸ The mere presence of a trait was therefore not evidence of utility, nor was utility evidence of selection. In making this argument, Gould and Lewontin took special aim at the evolutionary treatment of human social and cultural phenomena. Precisely in the area where it had the least to go on, the adaptationist program had taken the strongest hold. With no access to the neurophysiology, genetic variance, social organization, or environment of our ancestors, sociobiology was “an exercise in plausible story telling rather than a science of testable hypotheses.”⁹

These older debates around adaptation and sociobiology are relevant for my current purposes because they shed some light on the model of selection and adaptation literary Darwinists use. Unstintingly critical of Gould, the major players assert, in the words of Brian Boyd, that “every part of our brain’s design” must have “served an adaptive function” of some sort or other (*OS*, p. 38).¹⁰ The presiding assumption is therefore a kind of holdover, and yet at the same time it is wildly more ambitious, as it aims to include the creation or enjoyment of literary works among the

7. Steven Jay Gould and Richard Lewontin, “The Spandrels of Saint Marco and the Panglossian Paradigm: A Critique of the Adaptationist Programme,” *Proceedings of the Royal Society of London* 205, ser. B (1979): 584–85. For the broader argument against sociobiology, see Lewontin, “Sociobiology as an Adaptationist Program,” *Behavioral Science* 24 (Jan. 1979): 5–14, and Lewontin, Steven Rose, and Leon-Kamin, *Not in Our Genes: Biology, Ideology, and Human Nature* (New York, 1984).

8. Their example of the former is a mutation that produces fecundity without a corresponding growth of resources. More eggs will appear but not more surviving offspring, just more with the (useless) trait. The trait will thus have been selected while not adaptive. Their examples of the latter include many cases—sponges, moths, and snails—where phenotypic plasticity is relative to the environment within a single generation and so not selected.

9. Lewontin, “Sociobiology as an Adaptationist Program,” p. 11. Lewontin would later argue that “we know essentially nothing about the evolution of our cognitive capacities, and there is a strong possibility that we will never know much about it” (Lewontin, “The Evolution of Cognition: Questions We Will Never Answer,” in *An Invitation to Cognitive Science*, ed. Daniel N. Osherson, 4 vols. [Cambridge, Mass., 1995–98], 4:109). For Gould’s response to evolutionary psychology, see Gould, “Evolution: The Pleasures of Pluralism,” *New York Review of Books*, 26 June 1997, pp. 47–52, www.nybooks.com/articles/archives/1997/jun/26/evolution-the-pleasures-of-pluralism

10. Much as the literary Darwinists herald Wilson they also routinely trash Gould; see, for example, *LD*, pp. 227–45.

many adaptations of mind. To see how this move occurred, however, we need to look at how evolutionary psychology turned the corner on sociobiology. The two schools are often conflated—a move encouraged in this case by the routine invocation of Wilson as an *éminence grise*—but it is important to notice the differences. Whereas sociobiology emphasized how organisms like humans have adapted to their environment, evolutionary psychology emphasized how the mind was adapted to fit an environment we no longer live in: the hunter-gatherer environment of the Pleistocene era (2.5 million to 12,000 BCE). At the same time, evolutionary psychology placed greater emphasis than sociobiology on the internal, cognitive machinery designed to execute this or that adaptive behavior. In the words of Tooby and Cosmides, “this new field focused on psychology—on characterizing the adaptations comprising the psychological architecture—whereas sociobiology had not. Sociobiology had focused mostly on selectionist theories, with no consideration of the computational level and little interest in mapping psychological mechanisms.”¹¹ This retrospective distinction alights on one key move. With its talk of mechanism and architecture, evolutionary psychology attempted a broad and sometimes fraught alignment with cognitive science of the kind made famous at MIT: the school of Noam Chomsky and Jerry Fodor.¹² Cognitive science of this variety had argued that the mind did not come equipped with a single, all-purpose learning device but rather had innate and genetically specified modules dedicated to specific tasks: from learning and speaking a language to discriminating objects in the environment. This notion that mental states and properties arise from multiple and differentiated faculties proved handy for evolutionary psychologists because it provided a model for how parts of the mind might have individually responded to selection pressures.¹³ Chomsky and Fodor were thoroughly disinclined to join cog-

11. John Tooby and Leda Cosmides, “Conceptual Foundations of Evolutionary Psychology,” in *A Handbook for Evolutionary Psychology*, ed. David Buss (Hoboken, N.J., 2005), p. 16 n. 3.

12. Modular theories of mind grew out of Chomsky’s career-long work on the language faculty as a mental organ on the analogy with other physiological systems, like the circulatory or immune system; see, for example, Noam Chomsky, *Rules and Representations* (New York, 1980). Fodor’s contribution was to extend this model to other aspects of cognition, like visual perception; see, for example, Jerry A. Fodor, *The Modularity of Mind: An Essay on Faculty Psychology* (Cambridge, Mass., 1983).

13. For the purposes of this paper, I’m going to keep as relatively synonymous the terms *module*, *faculty*, and *mental organ*. In the more technical areas of linguistics and cognitive psychology, the three are sometimes parsed with great care. Nothing in the present argument will depend on this parsing, however. The important point for us is whether *literary competence* can satisfy the basic requirements of a functionally differentiated compartment of the mind. For the relevant distinctions, see John Collins, “Faculty Disputes,” *Mind and Language* 19, no. 5 (2004): 503–33. As the early 1980s revival of faculty psychology turned into the 1990s interest in

nitive science to evolutionary psychology. To this day, they remain in the camp of Gould and Lewontin.¹⁴ Despite their protests, however, evolutionary psychology took off by marrying nativism and modularity to adaptation. Thus Pinker in response to Fodor: “The organs of computation that make up the human mind are not tailored to solve arbitrary computational problems but only those that increased the reproductive chances of our ancestors living as foragers in pre-state societies.”¹⁵ The corpus of modules accordingly expanded to include hundreds of loci selected for their special function: from processing language or recognizing faces to detecting cheaters or performing basic moral judgment.

The trick of evolutionary psychologists like Cosmides and Tooby and Pinker was to use the modular model of cognition for the argument that the mind was put together by natural selection, with each module responsible for executing a separate adaptation.¹⁶ Interest in the antique,

evolutionary psychology the question became whether modules were for lower-level systems like perception or could include many different systems defined in terms of function (like cheater detection in the classic case). Literary Darwinism in this respect presupposes massive modularity without making much of a case for it. For a basic outline of the massive modularity thesis, see Cosmides and Tooby, “The Modular Nature of Human Intelligence,” in *The Origin and Evolution of Intelligence*, ed. Arnold G. Sheibel and J. William Schopf (Sudbury, 1997), pp. 71–101. For the debates about modularity, see H. Clark Barrett and Robert Kurzban, “Modularity in Cognition: Framing the Debate,” *Psychological Review* 113, no. 3 (2006): 628–47, and David Buller, *Adapting Minds: Evolutionary Psychology and the Persistent Quest for Human Nature* (Cambridge, Mass., 2005), pp. 127–200. For the argument against massive modularity, see Fodor, *The Mind Doesn’t Work That Way: The Scope and Limits of Computational Psychology* (Cambridge, Mass., 2001), esp. the appendix on detecting cheaters, pp. 101–4. For a defense, see Steven Pinker, “So, How Does the Mind Work?” *Mind and Language* 20 (Feb. 2005): 1–24, and Dan Sperber, “The Modularity of Thought and the Epidemiology of Representations,” in *Mapping the Mind: Domain Specificity in Cognition and Culture*, ed. L. A. Hirschfeld and S. A. Gelman (Cambridge, 1994), pp. 39–67 and “In Defense of Massive Modularity,” in *Language, Brain, and Cognitive Development: Essays in Honor of Jacques Mehler*, ed. Emmanuel Duproux (Cambridge, Mass., 2001), pp. 47–57.

14. See Fodor, “Review of Steven Pinker’s *How the Mind Works* and Henry Plotkin’s *Evolution in Mind*,” in *Critical Condition: Polemical Essays on Cognitive Science and Philosophy of Mind* (Cambridge, Mass., 1998), pp. 203–14 and the book-length engagement, *The Mind Doesn’t Work That Way*. For Chomsky’s resistance to adaptationism, see Chomsky, *Language and Mind* (Cambridge, 2006), pp. 97–98 and *Language and Problems of Knowledge: The Managua Lectures* (Cambridge, Mass., 1988), pp. 167–88. In his recent critique of theories of natural selection, Fodor argues that Darwin provides no account of how the environment can distinguish between coextensive traits and thus select for one rather than the other. Selection for as opposed to mere selection, on his view, smuggles in some sort of agent doing the selecting. See for example the controversial essays by Fodor, “Against Darwinism,” *Mind and Language* 23, no. 1 (2008): 1–24 and “Why Pigs Don’t Have Wings,” *London Review of Books*, 18 Oct. 2007, pp. 19–22 along with the book-length expansion coauthored with Massimo Piatelli-Palmarini, *What Darwin Got Wrong* (New York, 2010).

15. Pinker, “So, How Does the Mind Work?” p. 5.

16. For the basic, early account of adapted minds and modularity, see Tooby and

Pleistocene-era origin of human psychology thus went hand in hand with talk of modules. Since the mind is a complicated, multipart device for executing adaptive behaviors, it could only have been put together over the long period of time during which we evolved as a species. In the eye-catching slogan of Cosmides and Tooby, “our modern skulls house a stone-age mind.”¹⁷ Literary Darwinism inherits this synthesis of modularity, stone-age cognition, and adaptationism.¹⁸ Its grand aim is to “move closer to science” by discovering “an adaptive function that is specific to art or literature proper” (*LD*, p. xxi). Once this move has been taken, literary Darwinism can begin its cleaning out of the stables of the humanities. Adaptation is therefore the underlying rationale and opening gambit. “Adaptationist literary scholars,” writes Joseph Carroll in *Literary Darwinism*, “are convinced that through adaptationist thinking they can more adequately understand what literature is, what its functions are, and how it works—what it represents, what causes people to produce it and consume

Cosmides’s paradigm-building “The Psychological Foundations of Culture,” in *The Adapted Mind: Evolutionary Psychology and the Generation of Culture*, ed. Jerome H. Barkow, Cosmides, and Tooby (New York, 1992), pp. 19–136. The great wave of popular evolutionary psychology writing during the 1990s—culminating in Pinker’s *How the Mind Works* and *The Blank Slate: The Modern Denial of Human Nature* (New York, 2002)—represented an expanded and controversial form of the sort of nativism that had marked the first cognitive revolution of the 1950s and 1960s. Twenty-first-century literary Darwinism can be seen, in this respect, as a kind of final plank in the attempt to extend *adaptive* nativism to the mind.

17. The aphorism about stone-age minds appears several times in Cosmides and Tooby’s writing and is quoted often by others (often in critique). It is “principle 5” in their online “Evolutionary Psychology: A Primer,” www.psych.ucsb.edu/research/cep/primer.html; hereafter abbreviated “EPP.” References to the Pleistocene era abound in the literature of evolutionary psychology, where the period of human speciation around 150,000 BCE marks the beginning of the Environment of Evolutionary Adaptedness or EEA. See Tooby and Cosmides, “The Psychological Foundations of Culture.” With specific reference to literature, Sugiyama writes, “we can safely say that oral narrative is part of our hunter-gathering past, likely to have emerged between 30,000 and 100,000 years ago” (Michelle Scalise Sugiyama, “Narrative Theory and Function: Why Evolution Matters,” *Philosophy and Literature* 25 [Oct. 2001]: 234).

18. Thus Sugiyama: “our minds and bodies are not general-purpose organs but, rather, a set of specialized organs, each of which has evolved to surmount a specific obstacle to survival or reproduction (an adaptive problem or selection pressure) that recurrently beset our ancestors throughout evolution” (Sugiyama, “Narrative Theory and Function,” p. 235); Dutton: “My approach has tended to model the human mind on the analogy of a multipurpose tool—a Swiss Army knife [a favorite metaphor of Cosmides and Tooby] fitted by evolution with an assortment of mental blades and implements for solving specific problems in prehistory” (*AI*, p. 135); Carroll: “The human mind has functional cognitive mechanisms for precisely the same reason that the human organism has complex functional structures in other organ systems—because it evolved through an adaptive process by means of natural selection” (“EP,” p. 106). In the same essay, Carroll mentions in passing that he has grown skeptical of modularity, yet does little to suggest an alternative architecture that would support the idea that literature is itself an adaptation. He makes a similar point in the chapter on Wilson in *LD*, p. 82.

it, and why it takes the form it does" (*LD*, p. vii). "Art," echoes Boyd in *On the Origin of Stories*, "is a specifically human adaptation, biologically part of our species. It offers tangible advantages for human survival and reproduction" (*OS*, p. 1). "Far from being derived from sets of cultural conventions," opens Denis Dutton in his crossover bestseller *The Art Instinct*, "the enjoyment of fiction shows clear evidence of Darwinian adaptation" (*AI*, p. 5). The point of these sorts of overtures is at once to bring the study of literature into the kind of science literary Darwinism likes and to correct what it sees as a discipline-wide relativism. Evolutionary psychology can show us why we read works of literature and how reading literature is as much a part of our biology as fearing snakes or loving children.

The approach has proven tremendously seductive. Indeed, the recent reception of long and ambitious works by Boyd and Dutton has in the main given literary Darwinism a free pass on the science.¹⁹ There is ample reason, however, to look hard at the sort of science they use. We need not only look back to the earlier moment of Gould and Lewontin in order to do so. When for example biologists like Elisabeth Lloyd and Marcus Feldman describe the "metatheoretical science on which all evolutionary psychology is built" as "a particular small corner . . . of evolutionary thought" and a "rather fringe position in evolutionary genetics itself," they mean to argue that it represents the last holdout of older theories of adaptation, selection, and fitness.²⁰ As Gould and Lewontin had argued, the theory "focuses all attention on adaptation as a result of optimization of inclusive fitness" ("E," p. 151). To this observation Lloyd and Feldman (and others) add that evolutionary psychology places too great a distance between organisms and the environments in which they evolve. Drawing on recent work in genetics, including responses to dairying and deforestation, they argue that human evolution is sometimes faster and often more ongoing than evolutionary psychology had supposed.²¹ "A more correct view of human evolution," they write, "would entail simultaneous evolution of the human and its environment, the latter consisting of artifacts and concepts that can be learned and improved. The organism is viewed then as part of the environment and changes in each occur during the trajectory of evolution" ("E," p. 153). Humans don't so much confront an established

19. See for example Michael Bérubé, "The Play's the Thing," review of *On the Origin of Stories* by Boyd, *American Scientist*, Jan.–Feb. 2010, bit.ly/7dfejO

20. Elisabeth A. Lloyd and Marcus W. Feldman, "Evolutionary Psychology: A View from Evolutionary Biology," *Psychological Inquiry* 13, no. 2 (2002): 150, 151; hereafter abbreviated "E."

21. Their examples include the coevolution of the gene for lactose tolerance with the cultural trait of using animals for dairy and the gene for fighting malaria (and disposing oneself to sickle-cell disease) with the cultural practice of deforestation; see "E," p. 153.

environment as create the environments to which they also respond.²² Adaptation is therefore a kind of misnomer. David Buller puts it like this: “as human psychology evolved, the adaptive problems driving human psychological evolution would have evolved in lockstep, so there would have been no stable adaptive problems driving human psychological evolution.”²³ In the fifteen years or so between the development of evolutionary psychology as a research program in the social sciences and its filtering into major works of literary criticism, some of the most noteworthy work in evolutionary biology has raised trouble for the stone-age mind theory.²⁴ So while evolutionary psychology may support a view of mind and literature that literary Darwinism would like to promote, it could just be that the story about literature as an adaptation fails to bring us any closer to science. At the very least, the substance of the claim fails to represent debates within the sciences themselves.

Literature as an Adaptation

The argument that literature is an adaptation rests on one view of the mind among others. It aims to include the writing and reading of literary texts among the behaviors said by evolutionary psychology to be “inherited characteristics that reliably solved problems related to survival and reproduction better than competing alternatives.”²⁵ The advantage of this view for literary Darwinism is that it would provide a story about function contrary to what it imagines as the norm for the rest of the humanities. Literature is “biologically part of our species” because it is (or at least was once) good for us. Whereas the rest of literary study has grown to suspect

22. This perspective has come to be known as niche construction. It sees organisms and their niches as in constant flux. See F. John Odling-Smee, Kevin N. Laland, and Marcus W. Feldman, *Niche Construction: The Neglected Process in Evolution* (Princeton, N.J., 2003), esp. pp. 239–81.

23. Buller, *Adapting Minds*, p. 100. See also Kim Sterelny, *Thought in a Hostile World: The Evolution of Human Cognition* (Malden, Mass., 2003).

24. Just as genetics has suggested that evolution is more ongoing, neuroscience (of some varieties) has argued that the brain is more plastic with respect to the environment than had been assumed during the heyday of nativism; see the essays in *Toward a Theory of Neuroplasticity*, ed. Christopher Shaw and Jill McEachern (Philadelphia, 2001), esp. the introduction, and Peter Huttenlocher, *Neural Plasticity: The Effects of Environment on the Development of the Cerebral Cortex* (Cambridge, Mass., 2002). Among the literary Darwinists, Boyd very briefly discusses neural plasticity, but he uses plasticity as evidence that the arts shape our brains, which even if it were true would defeat the argument that the liking of art is an adaptation, since it would assume that cognition is more sensitive to context than adaptationism can allow. It would also conflate modern-day *reading* of stories with ancient *listening* to stories and so also conflate the visual and aural pathway through the brain. See OS, pp. 93–94.

25. Jaime C. Confer et al., “Evolutionary Psychology: Controversies, Questions, Prospects, and Limitations,” *American Psychologist* 65 (Feb.–Mar. 2010): 110.

the value of literature for living, literary Darwinism understands that “art is a human adaptation . . . established throughout the species because it has been selected as a behavior for the advantages it offers in terms of survival and reproduction” (OS, p. 81). Let us put aside for a moment qualms from the scientists and allow for the sake of argument that the account of natural selection behind statements like this is a plausible one to have. We may then confront the claim on its own terms. What would it entail to include literature among a roster of psychological adaptations? At an elementary level the proposition would mean that nature selected a certain habit of mind: a “compulsion to invent or enjoy stories we know to be *untrue*” (OS, p. 69) or, in slightly baggier terms, “a uniquely human, species-typical disposition for producing and consuming imaginative verbal constructs” (“EP,” p. 134). In deference to nativist theories of other aspects of mind, we might call this disposition literary competence. The idea is that a certain cognitive mechanism—liking stories or being good at telling stories—is present in us now because it conferred a fitness advantage in the past. We like to read and write novels, say, because our very distant ancestors liked to tell stories, and their telling stories provided some sort of advantage for their survival. So their storytelling genes were passed on to their descendants and, like snake-fearing and child-loving genes, are still with us today. In the words of Dutton: “A thoroughgoing Darwinism makes a specific demand: nothing can be proposed as an adaptive function of fiction unless it explains how the human appetite for fictional narratives acted to increase, however marginally, the chances of our *Pleistocene forebears* surviving and procreating” (AI, pp. 109–10; emphasis added). The shift in tense in this sentence is no accident. Nothing can explain the present status of fiction as an adaptation unless it refers to the past action of increasing fitness. As Michelle Sugiyama puts it, “storytelling is the product of a mind adapted to hunter-gatherer conditions.”²⁶ The question is what task did the telling of stories perform for stone-age minds?

For the uninitiated, this kind of recourse to an ersatz anthropology of Pleistocene-era hominids might be a little unusual. Literary criticism as a rule is not rife with talk about cavemen. In this case, however, such talk is unavoidable. If the liking of literature is a “Darwinian adaptation” as understood by evolutionary psychology, its roots must be antediluvian. Here is the canonical view as summarized by Cosmides and Tooby:

The key to understanding how the modern mind works is to realize that its circuits were not designed to solve the day-to-day problems of

26. Sugiyama, “Reverse-Engineering Narrative,” p. 178.

a modern American—they were designed to solve the day-to-day problems of our hunter-gatherer ancestors. These stone age priorities produced a brain far better at solving some problems than others. For example, it is easier for us to deal with small, hunter-gatherer-band sized groups of people than with crowds of thousands; it is easier for us to learn to fear snakes than electric sockets, even though electric sockets pose a larger threat than snakes do in most American communities. In many cases, our brains are *better* at solving the kinds of problems our ancestors faced on the African savannahs than they are at solving the more familiar tasks we face in a college classroom or a modern city. In saying that our modern skulls house a stone age mind, we do not mean to imply that our minds are unsophisticated. Quite the contrary: they are very sophisticated computers, whose circuits are elegantly designed to solve the kinds of problems our ancestors routinely faced. [“EPP”]

To be a literary Darwinist is thus to take as a first principle that present-day habits of mind may be explained by selection pressures from an antique environment. The fear of snakes, like the taste for sweet and fatty food or the disinclination to sleep with one’s siblings, is still with us because it responded to a dilemma in the Pleistocene: snake bites, starving, inbred deformities, and so on. “Behavior in the *present*,” Cosmides and Tooby continue, “is generated by information-processing mechanisms that exist because they solved adaptive problems in the *past*—in the ancestral environments in which the human line evolved” (“EPP”). There is a kind of melancholy belatedness to our basic mental equipment. Since the relevant number of generations to produce adaptations occurred while we lived as small bands eking out subsistence in western Africa, our habits of mind are pitched to a world we no longer live in. So it is best not to look to the present-day world for the clue to how our minds work. “Evolutionary psychology is relentlessly past-oriented” (“EPP”). The important point for our current purposes therefore is that the adaptation thesis speaks to dimensions of literary competence that may be said to be very old, present in the notional prehistory of the human species, prior to writing, literacy, or any work with which we are familiar. Any claim made on behalf of the adaptive function of literature—on this theory of adaptation—must be appropriate for prehistory and oral texts.²⁷ At the level of the phenotype,

27. Thus the following moment from Dutton’s interview with Steven Colbert:

Colbert: “How many cavemen were reading *Emma*?”

“sitting around a Pleistocene campfire listening to the storyteller’s tale” needs to be identical to reading *Middlemarch* (AI, p. 132).

I will argue below that this story about ancient origins constrains literary Darwinism from having much to say about literature, apart from what it would extract elsewhere from the evolutionary psychological edifice (claims about mate selection or aggression, for example). For the present, I’m interested in whether literary Darwinism can support the argument about adaptation with which it begins. The standard practice in evolutionary psychology is to posit a selection pressure in the Pleistocene “environment of evolutionary adaptedness or EEA” and then hypothesize a cognitive mechanism designed to solve it.²⁸ The science consists in testing to confirm or disconfirm the existence of this mechanism.²⁹ So for example the classic search for a “cheater detection module” began with the hypothesis that trust would be important in the small-scale, hunter-gatherer societies of the Pleistocene and concluded by testing for a species-wide bias for social information over other kinds of data.³⁰ Likewise, very recent research into “adaptive memory” began with the suggestion that it would have been advantageous in the EEA to remember certain kinds of information better than others—information about, for example, mating or shelter or predators—and concluded by testing for differential recall for terms associated with such topics.³¹ Again, we may put aside the considerable debates this sort of work has engendered and merely observe that the route of the inference and the argument, in either case, moves from the

Dutton: “They weren’t reading anything. What they were doing was telling very complex stories to each other.” [“Denis Dutton | January 28th | ColbertNation.com”]

The limits to oral culture are readily granted by Carroll, who cedes in passing that when he “speak[s] of the adaptive functions of literature,” he “mean[s] to signify the adaptive functions of the oral antecedents of written stories, poems, and plays.” Yet, this constraint does little to limit the explanatory dividend adaptation provides, since “writing is an extension of oral communication” and the “same arguments that apply to these oral forms will be understood as extending also to their counterparts in written language” (*LD*, p. 103). The narrow wedge of what we may say about oral storytelling in general—the properties that inaccessible, prehistoric narratives might have had—turn out to be quite broad; indeed, they turn out to be all one might ever want to say about any artifact from the actual, available history of literature.

28. Tooby and Cosmides, “The Psychological Foundations of Culture,” p. 69.

29. See Buller, *Adapting Minds*, pp. 92–99, and Confer et al., “Evolutionary Psychology,” pp. 109–12.

30. See Cosmides and Tooby, “Cognitive Adaptations for Social Exchange,” in *The Adapted Mind*, pp. 163–228. Cosmides and Tooby used the Wason selection task—if/then relations about numbers and colors as opposed to if/then relations about beverages and ages—to show that subjects found it considerably easier to reason about social relations.

31. See the discussion in Confer et al., “Evolutionary Psychology,” p. 112.

selection pressure to the mechanism designed to relieve that pressure.³² Literary Darwinism moves in the other direction, from the putative mechanism to the pressure. It notes first “a uniquely human, species-typical disposition for producing and consuming imaginative verbal constructs” and then asks what sort of adaptation problem this disposition was designed to resolve. The move does not itself vitiate the argument on its own terms. Although the marquee experiments in evolutionary psychology have tended to look for mechanisms, some have endeavored to explain shared traits. Most relevant for the present context might be the attempt by Pinker and others to account for linguistic performance in adaptive terms.³³ In this case and others like it, the procedure was to identify some properties specific to language—syntax, morphology, phonology, and the like—and then come up with a plausible account of their ancient provenance and adaptive function. The debates that followed accordingly featured competing claims about what constitutes the properties of language.³⁴ The considerable onus for literary Darwinism is to demon-

32. The most notorious claims of evolutionary psychology are perhaps the so-called Cinderella effect, in which stepparents are alleged to have a higher rate of abuse than biological parents, and the picture of mate selection, according to which men pick out fecundity (including ideal waist-to-hip ratios) and women pick out protection. For the Cinderella effect, see Martin Daly and Margo Wilson, *Homicide* (Hawthorne, N.Y., 1988), pp. 1–93 and “Is the ‘Cinderella Effect’ Controversial?: A Case Study of Evolution-Minded Research and Critiques Thereof,” in *Foundations of Evolutionary Psychology*, ed. Charles Crawford and Dennis Krebs (New York, 2008), pp. 383–400. For mate selection, see Buss, *The Evolution of Desire: Strategies of Human Mating* (New York, 1994); for the fabled waist-to-hip ratio, see Devendra Singh, “Adaptive Significance of Female Physical Attractiveness: Role of Waist-to-Hip Ratio,” *Journal of Personality and Social Psychology* 65, no. 2 (1993): 293–307. A balanced critique may be found in Buller, *Adapting Minds*, esp. pp. 49–126, and a balanced defense may be found in Confer et al., “Evolutionary Psychology.”

33. See the influential essay by Pinker and Paul Bloom, “Natural Language and Natural Selection,” *Behavioral and Brain Sciences* 13, no. 4 (1990): 707–26, and Pinker, *The Language Instinct: How the Mind Creates Language* (New York, 1994).

34. See for example the lively debate between, on the one side, Chomsky, Tecumseh Fitch, and Marc Hauser and, on the other, Ray Jackendoff and Pinker. For Chomsky, Fitch, and Hauser, language evolution can be limited to recursion (or syntactic embedding), whereas for Jackendoff and Pinker the “gene involved in language learning and speech” also included “morphology, phonology, case, agreement,” and so on. See W. Tecumseh Fitch, Hauser, and Chomsky, “The Faculty of Language: What Is It, Who Has It, and How Did It Evolve?” *Science*, 22 Nov. 2002, pp. 1569–79 and “The Evolution of the Language Faculty: Clarifications and Implications,” *Cognition* 97, no. 2 (2005): 179–210. See also Pinker and Ray Jackendoff, “The Faculty of Language: What’s Special about It?” *Cognition* 95, no. 2 (2005): 201–36 and “The Nature of the Language Faculty and Its Implications for Evolution of Language (Reply to Fitch, Hauser, and Chomsky),” *Cognition* 97, no. 2 (2005): 211–25. The relevant point of the Fitch/Hauser/Chomsky thesis is that language might have “evolved to solve other computational problems such as navigation, number quantification, or social relationships” (Fitch, Hauser, and Chomsky, “The Faculty of Language,” p. 1578) and not initially communication, that is, that it was not selected for fitness in the classic sense of adaptation. This debate like many others in the evolution of mental faculties passed without notice in the effort to absorb hard-

strate that their putative trait—a disposition to tell or attend to stories, literary competence—has properties one can isolate and describe in sufficient detail to speculate on function. Considering the argumentative load they are to bear, these properties should be crisply defined and distinguished. Yet in the absence of actual examples from the EEA such crispness is impossible, as we shall see. Were we simply to concede that such a trait or disposition exists, therefore, we would still have no idea what it does.

For better or worse, evolutionary psychology argues that forms of behavior responded to pressures from a Pleistocene environment. On this view, the *design* of an adaptive trait performs one or another *function*. Buss and his students put it like so: “Psychological adaptations are information-processing circuits that take in delimited units of information and transform that information into functional output designed to solve a particular adaptive problem.”³⁵ Since each part of the adapted mind responds to separate dilemmas posed by the environment, each must come with some properties specific to its domain. The alleged cheater-detection module, for example, picks out specific social cues from the wide universe of available stimuli and produces useful insight about other minds. The same is supposed to be the case for language parsing or incest avoidance or any functionally designed activity. Carroll appears to have this argument in mind when he claims that “artistic and literary productions are . . . highly organized in ways that seem designed to fulfill a primary and irreducible psychological need” (*LD*, p. xxi). Carroll here piggybacks onto received notions of literary form biological notions of design for adaptive function, as if formal analysis of the sort that grounds literary study of all varieties was already equipped to do the sort of work that literary Darwinism has in mind. And yet the argument would be quite difficult to sustain. Literary works might seem highly designed, like an organism put together by selection, but of course this design would likely have little to do with function as understood by the sort of evolutionary theory Carroll uses. Leaving aside the question of whether the design of works reflects the design of the disposition that creates or attends to them, we might still ask what about such works could be threaded back to the environment in which minds supposedly adapted. The difficulty in answering this question causes some real trouble. “An adaptive problem and its cognitive

line evolutionary psychology into the humanities. For a different, influential model, hypothesizing the coevolution of language, higher-order symbolic thinking, and the brain, see Terrence W. Deacon, *The Symbolic Species: The Co-Evolution of Language and the Human Brain* (New York, 1997).

35. Confer et al., “Evolutionary Psychology,” p. 111.

solution,” write Cosmides and Tooby, “need to fit together like a lock and a key.”³⁶ The analogy presumes a set of formal properties, a shape specific to the subset of mind and corresponding aspects of the environment such that the one fits into the other. “Natural selection shapes domain-specific mechanisms so that their structure meshes with the evolutionarily stable features of their particular problem-domains.”³⁷ Whatever one thinks about this sort of argument, it would seem that storytelling and attending would present it with considerable difficulties. We know of course very little or nothing about how they are implemented in the brain or genetically specified.³⁸ So much could be said for many traits of the mind. But in this case we also know nothing about Pleistocene-era language or the stories stone-age humans might have told each other.³⁹ We have no sense if *any* features of a particularly literary design responded to *any* pressures from a specifically Pleistocene environment. Both “key” and “lock” remain drastically underspecified. The result is a certain scattering of function depending on which literary Darwinist you read. What is the adaptive function of listening to or creating stories? Take your pick:

The ability of human beings to extend themselves by representing in their minds possible but nonexistent states of affairs—situations-that-were-true-in-the-past or are-not-true-in-the-present or are-possibly-

36. Cosmides and Tooby, “Origins of Domain Specificity: The Evolution of Functional Organization,” in *Mapping the Mind: Domain Specificity in Cognition and Culture*, ed. Lawrence A. Hirschfield and Susan Gelman (Cambridge, Mass., 1994), p. 96.

37. *Ibid.*

38. Work on the neuroscience of reading is in its (interesting) infancy. See for example Stanislas Dehaene on the neural location of word recognition and semantic decoding. Location identifies a correlation between the phenomenal experience of reading and activity in regions of the brain. It explains *where* that experience might be realized, not *how* the brain subserves literary experience. See Stanislas Dehaene, “Evolution of Human Cortical Circuits for Reading and Arithmetic: The ‘Neuronal Recycling’ Hypothesis,” in *From Monkey Brain to Human Brain: A Fyssen Foundation Symposium*, ed. Dehaene et al. (Cambridge, Mass., 2004), pp. 133–58 along with his more wide-ranging book-length elaboration, *Reading in the Brain: The Science and Evolution of a Human Invention* (New York, 2009). See also Maryanne Wolf, *Proust and the Squid: The Story and the Science of the Reading Brain* (New York, 2008). Both Dehaene and Wolf emphasize that reading is learned and historically recent (in evolutionary terms).

39. Many literary Darwinists try to solve this problem by looking at the habits of present-day hunter-gatherer societies, a solution that seems tendentious and question-begging (hunter-gatherers then were like what they are like now), when not wholly dependent on the secondary literature of another discipline. See for example Sugiyama, “Reverse-Engineering Narrative” and “Narrative Theory and Function,” and *LSH*, pp. 56–70. As Buller and others point out, there is no reason to assume, in Gottschall’s terms, that “world ethnography, especially of relatively ‘uncontaminated’ hunter-gatherers, is a precious repository of information about the lives of our ancestors” (*LSH*, p. 25).

true-in-the-next-valley or might-be-true-in-the coming-winter. [AI, p. 113]

Most succinctly expressed by the Boy Scout motto: be prepared. As any *Survivor* fan knows, finding food and water, building a shelter, preventing and treating injury and illness, and maintaining group cohesiveness is difficult and demanding work. . . . Narrative enables people to acquire information, rehearse strategies, or refine skills that are instrumental in surmounting real-life difficulties and dangers.⁴⁰

The ability to share and shape the attention of others by appeals to common cognitive preferences . . . to behaviors that focus not on the immediate needs of the here and now, but on directing attention and engaging emotion for its own sake, even toward distant realities and new possibilities.⁴¹

An emotionally and subjectively intelligible model of reality [within which] human beings organize their complex behaviors. [LD, p. xxii]

A fitness indicator . . . *attracting and seducing members of the opposite sex*. [AI, p. 140]

Organizing motivational systems disconnected from the immediate promptings of instinct. [“EP,” p. 122]

The literary Darwinists are united in their sense that literature helped to make us the species we are, but consensus stops there. After the insight is floated, the accounts of function scatter because none has recourse to a property that could be said to be intrinsic to forms of literary narrative. The limit would seem to be one in principle. Without an appeal to the form of stories told in the long-ago past, one doesn't know where to look. And so each candidate for function slides from literary narrative to something else. Natural selection did not need literature to represent “possible but non-existent states of affairs,” for example. It only needed the mind's ability to form sentences in the conditional tense. Conditional sentences and modal constructions are, one imagines, quite wonderful things for human survival. How the mind forms these sorts of sentences or represents events that *might* or *could* happen is an independently interesting problem. How

40. Sugiyama, “Reverse-Engineering Narrative,” p. 187. This account of “information acquisition and storage” is maintained also in Sugiyama, “Narrative Theory and Function,” p. 238.

41. Boyd, “Literature and Evolution: A Bio-Cultural Approach,” *Philosophy and Literature* 29 (Apr. 2005): 10.

minds with this facility evolved is a matter of intense debate.⁴² My point is simply that stories are not necessary for modality. Syntax would do the work just fine. The same is the case with the other candidates for function: acquiring information from the environment, sharing attention, forming mental images of nonexistent entities, experiencing emotions, sending out fitness signals to potential mates. We would be hard-pressed to make the case that any one of these functions couldn't be achieved by simpler means: memory, reasoning, perception, recursive syntax, the modal tense, and so on.⁴³ This is no mere quibble. Because literary Darwinism begins with a loosely defined trait—"a disposition for producing and consuming imaginative verbal constructs"—it defines functions conceivably solved by other mechanisms, each with their own pathway of development.

Seen this way, literary competence (should such a thing exist) could very well serve no reproductive advantage at all. It might accompany features of mind that do serve some advantage—modal syntax, memory, imagining objects and events not immediately present—and yet still be a *further fact*, subject to more local and historical constraints, like writing and literacy, for example.⁴⁴ The conclusion I'll draw from this later on in this essay is that it's a great deal easier to make a case for adaptive and other functions of mind feeding into a disposition to create and consume works of literature than it is for such a disposition itself to be an adaptation.⁴⁵ Literature might or might not be a spandrel. It might or might not be something that we learned to do as we carved out a relatively more recent niche for ourselves. Faced with such possibilities, we'll see, the literary

42. See the texts cited in footnote 38 above, as well as the responses to Bloom and Pinker in *Behavioral and Brain Sciences* 13, no. 4 (1990) (including Lewontin and Philip Lieberman). See also Morten H. Christiansen and Simon Kirby, "Language Evolution: The Hardest Problem in Science?" in *Language Evolution*, ed. Christiansen and Kirby (New York, 2003), pp. 1–15. The volume contains a number of interesting essays by various players in the debates on language evolution.

43. Or in the case of Carroll's argument that "art and literature proper" helped to attach emotional meaning to higher-order intelligence, that *religion* doesn't do the work better and more thoroughly and over a much longer swath of human history. Were Carroll to concede this rather obvious point he would then have to say that religion is an adaptation, something he would clearly rather not do. It is nevertheless remarkable that the rather extensive body of work on the evolutionary grounds of religion escapes his notice, including especially the quite relevant work of Pascal Boyer; see note 65.

44. The language of further fact is taken from arguments about consciousness in the philosophy of mind. See David J. Chalmers, *The Conscious Mind: In Search of a Fundamental Theory* (Oxford, 1996).

45. The evolved-for-other-purposes argument could extend from the thoroughgoing nativism of Pinker, who famously argues that the arts (minus literature) are "cheesecake" for the mind, to the more modest claim that some of our mental dispositions (the emotions, theory of mind) are perhaps innate but that they interact with more context-specific features of the changing environment (Pinker, *How the Mind Works*, p. 525).

Darwinists often retreat to the idea that literature provides enduring themes or values, now validated by the latest science. No wonder the press loves them.

Literature and the Innate Mind

My point so far has been that literary Darwinism has a stranger relation to the biological and cognitive sciences than one might assume at first glance. The side it takes in long-standing debates over the nature and meaning of natural selection gives it little room to find a purpose for its favorite trait (literary competence, liking literature, or what have you). I will now turn the argument in a different direction and ask if such a trait is the kind of thing that could be selected for and innately specified in the first place. Inferences from universal to innate to adaptive are increasingly common in popular science, but they are always hard to defend. One cannot just assert that some capacity is innate, for example. One needs to define the capacity and show how it satisfies some relatively stringent criteria. In the present section, I'll attempt to reconstruct the kind of case literary Darwinism would have to make were it to have any hope in saying that a capacity like storytelling is biologically part of our species. I take no position on nativist theories in cognitive science itself. Rather, my goal is to show what the literary Darwinist argument would have to look like were it to be consistent with the theory it uses.

Theories of innate psychology have a long pedigree and come in many varieties. The shared idea is that minds not only learn from the environment but also come into the world with preset traits and knowledge.⁴⁶ In the classical example from the first cognitive revolution of the 1950s, Chomsky's model of universal grammar asserted that all minds have innate parameters for linguistic expression. For instance, prepositions can either precede or follow nouns, and the role of the environment in which a person matures is simply to set this switch in one or the other direction.⁴⁷ In this respect, to say some trait is innate is not to say that it is fixed in

46. Debates over innateness go back to Plato and were a touchstone during the Enlightenment, but the relevant context for literary Darwinism would be the fallout from the first cognitive revolution and the subsequent attempt by evolutionary psychology to argue that innate capacities are also adaptations. For the long history, see *Innate Ideas*, ed. Stephen Stich (Berkeley, 1975). For more recent interventions, see, on the antinativist side, Fiona Cowie, *What's Within: Nativism Reconsidered* (Oxford, 1999), and, on the nativist side, Pinker, *The Blank Slate*.

47. On the head-direction parameter, see Chomsky, *Lectures on Government and Binding: The Pisa Lectures* (Berlin, 1993) and "Principles and Parameters in Syntactic Theory," in *Explanation in Linguistics*, ed. Norbert Hornstein and David Lightfoot (London, 1981), pp. 32–75, and Mark C. Baker, *The Atoms of Language: The Mind's Hidden Rules of Grammar* (New York, 2001), pp. 68–75.

advance or present at birth; it is to say, rather, that it is shaped by parameters or instructions that are prior to experience. So the question of nativism often comes down to where one places the emphasis with respect to the contribution from the organism and the contribution from the stimulus. As we have seen, literary Darwinism tacitly presupposes the strong form of psychological nativism provided by evolutionary psychology. All minds enter the world with a common structure and set of tools. This structure and set of tools are part of the genetic endowment and develop independently of environment or learning. The particular culture in which an individual matures merely fills in content or turns the switches in one direction or the other. Each feature of the innate mind, moreover, is present in us now because it solved an adaptive problem in the past. Liking literature on this account is simply one of the many things that we do by nature.⁴⁸ Thus Dutton:

The arts, like language, emerge spontaneously and universally in similar forms across cultures, employing imaginative and intellectual capacities that had clear survival value in prehistory. The obvious surface differences between art forms cross-culturally no more argues against their instinctual origins than the differences between Portuguese and Swahili show that language does not rely on a universal ensemble of instinctive capacities. [*AI*, p. 5]

Dutton craftily weaves innateness together with adaptation, two elements of the argument that might otherwise be kept apart. And this is no surprise. While one might have innateness without adaptivity (think of the funny bone or handedness), one cannot have adaptivity without innateness.⁴⁹ So the argument draws an analogy between art and universal grammar. Just as every human has a linguistic competence in the capacity to learn a language and produce grammatical expressions, so every human has an aesthetic competence in the capacity to appreciate or create works of art.⁵⁰

48. Thus Dutton: “The love of fiction—a fiction instinct—is as universal as hierarchies, marriage, jokes, religion, sweet, fat, and incest taboo” (*AI*, p. 109).

49. The funny bone and handedness are merely extreme examples of morphological traits that, while innate, are likely by-products. The longstanding point of Gould and Lewontin is that adaptationism conflates selection—the process whereby traits remain over time—with adaptation, the process by which certain traits confer a fitness advantage. To postulate something as innate is not therefore to postulate that it is adaptive.

50. Since this passage occurs at the beginning of the study, Dutton is in the business of saying all the arts are innate and adaptive. Of course, the argument would come with the significant burden of discriminating among, say, graphic, literary, and musical art, between vision, language, and hearing as cognitive systems.

Despite the apparent dissimilarity among tastes from place to place or across time, all humans share this innate aesthetic endowment. Once we accede to this, Dutton thinks, it is only a matter of time before we realize that such an innate competence must also be an adaptation.

The analogy to language brings with it however some questions that are (again) very difficult to answer. The argument for literary as well as linguistic competence should have some clear sense of what the properties of this feature are, not just what it does and why it's there, but what it *is*. For the sort of story the literary Darwinists would like to tell to work, liking or making literature must be more than a disposition or appetite or tendency; it must be a particular way of manipulating or responding to a unique kind of data, in a manner similar to a language module extracting and producing grammatical expressions. Here again is the definition provided by Buss and his students: "Psychological adaptations are information processing circuits that take in delimited units of information and transform that information into functional output designed to solve a particular adaptation problem." Given the extent of the claims made by literary Darwinism it seems fair to ask, what are the units of information attended to by a literature module, and what is the design of the expressions or artifacts it produces? Or in Dutton's terms, what is the "universal ensemble" of intellectual and imaginative capacities that engender the artifacts we come to know as literature?

The analogy between linguistic and literary competence makes a familiar move. The apparent fact of cultural dissimilarity relies on a universal and innate similarity. Since we may easily grant that a faculty for language is innate, we ought to do the same for literature, which also has a general structure despite appearances to the contrary. So how long can one sustain the analogy between literary and linguistic competence? Several features would seem to be important in making language the prototype for an innate mental faculty.

1) *Universality*: All humans have a language just as all humans have legs and livers.

2) *Domain specificity*: Beneath the surface diversity of human languages there is a common set of rules specific to this individual activity.

3) *Ontogenesis*: Language has a regular pace of development across time and place; it is "grown" according to a predictable schedule of acquisition, error, and the like.

4) *Poverty of the stimulus*: Language develops faster than the available data would explain, which suggests an innate, internally held body of knowledge.

5) *Speed and encapsulation*: Linguistic processing is separate from and

faster than other, more “domain general,” kinds of mental activity. It works on a restricted database (words, phonemes) and cannot be accessed or manipulated.

I asked earlier what features a disposition to enjoy or create works of literature would need to have for it to be an innate part of our cognitive repertoire. I’m not suggesting that the above would provide a checklist so much as a vague likeness. If enjoying literature is the kind of thing that can be innately specified and inherited across the duration of human history, one would expect it to have intrinsic features *like* those of language.⁵¹ So while talk of literary competence or a literature module might seem a little odd, the point again is to see whether literary Darwinism is consistent with the model it invokes. When Dutton and others equate literary with linguistic competence, after all, they do so for a reason. A great deal hangs on the analogy working as an argument.

Let’s consider the parts of the analogy one at a time and see if they actually make a working thesis:

Universality. The literary Darwinists make frequent claim to the ubiquity of literary taste and production. All cultures at all times in all places (so it is said) produce and consume literature. This is an empirical thesis and is on occasion supplemented with some evidence.⁵² But what might it mean were it to be true? Were we to discover or just stipulate that something like literary taste and production is present in all cultures at all times, our explanation would again be limited (drastically so) to what could be said about oral production. Writing and reading are historically recent and therefore something one learns. Global illiteracy confirms this every day. Therefore, the claim for universality obliges its adherents (again) to downplay or eliminate the difference between written and spoken texts. Even

51. This is not a brief on behalf of (Chomskyan) linguistic nativism. My argument remains agnostic on the matter. For recent criticism of the paradigm, see Deacon (note 34 on language evolution above) and also the revival of the Sapir-Whorf hypothesis that national language shapes thought. See in particular Lera Boroditsky, “Does Language Shape Thought? Mandarin and English Speakers; Conceptions of Time,” *Cognitive Psychology* 43, no. 1 (2001): 1–22 and “Linguistic Relativity,” in *Encyclopedia of Cognitive Science*, ed. Lynn Nadel (Hoboken, N.J., 2003), pp. 917–21, www.credoreference.com/entry/wileycs/linguistic_relativity. Literary Darwinism, like evolutionary psychology, aligns nativism with adaptation and extends both to the domain of the aesthetic. If linguistic nativism roughly on the Chomskyan model is not true, then neither is literary Darwinism.

52. Sugiyama, “Reverse-Engineering Narrative” and *LSH* present some studies about the global prevalence of literary culture. So does Tooby and Cosmides, “Does Beauty Build Adapted Minds? Toward an Evolutionary Theory of Aesthetics, Fiction, and the Arts,” *SubStance* 30, nos. 1–2 (2001): 6–27. Often the claim is just asserted. Dan Everett’s work on the Pirahã of northern Brazil has revealed, he claims, at least one culture that has no art and no narrative (fictional or otherwise). See John Colapinto, “A Reporter at Large: The Interpreter,” *The New Yorker*, 16 April 2007, pp. 118–37.

this lower-level universality, however, wouldn't seal the deal on an innate or adaptive faculty for literature. After all, universality as such does not prove innateness, or else a nativist theory of language could stop with the mere ubiquity of human speech. There are clearly some universals (or near universals), like clothing and cooking, which are less likely to be innate than to be perennial responses to recurrent problems.⁵³ So even if everyone reads or listens to stories, that might just be because stories have become part of our inherited culture, something everyone *learns*. To prove innateness, one would need to connect the universal practice to an underlying system of rules and constraints.⁵⁴

Domain Specificity. One way to exclude a nonnativist explanation for the ubiquity of literature, therefore, is to show that enjoying and creating literary works (however they may be defined) is in fact constrained by a set of rules that play a role analogous to a grammar. One might make recourse in this regard to the tradition of formal analysis that looks for these kinds of rules. Vladimir Propp's morphology of the folktale, for example, draws an analogy between parts of stories and parts of an organism as a way of enumerating the relevant components of all fairy tales.⁵⁵ Tales break down to "functions" arranged in a "sequence."⁵⁶ The best-case scenario for the literary nativist might proceed along these lines and extend the analogy, so functions resemble parts of speech and sequences resemble syntax. Like universal grammar, functions and sequences are "*stable, constant elements in a tale, independent of how and by whom they are performed.*"⁵⁷ And like a natural language, a folktale is known for a "two-fold quality": "multiformity, picturesqueness, and color, and on the other hand, its no less striking uniformity, its repetition."⁵⁸ But the analogy would confront some difficulties. Propp himself declined to explain the uniformity of fairy tales according to the uniformity of the human mind. There were just too many other kinds of tales with separate kinds of rules.⁵⁹ The closer one gets to form, on his view, the closer one also gets to diversity and historical cir-

53. See Jesse Prinz, "Is Morality Innate?" in *The Evolution of Morality*, vol. 1 of *Moral Psychology*, ed. Walter Sinnott-Armstrong (Oxford, 2008), pp. 367–406.

54. For further discussion of the candidate features of innate cognition, see Tom Simpson, "Toward a Reasonable Nativism," in *The Innate Mind*, ed. Peter Carruthers, Stephen Laurence, and Stich, 3 vols. (Oxford, 2005–7), 1:122–39.

55. *LSH* contains two chapters (pp. 91–126) on folk and fairy tales without a single reference to Propp. This is too bad.

56. See Vladimir Propp, *Morphology of the Folktale*, trans. Laurence Scott, ed. Louis A. Wagner, 2d ed. (1928; Bloomington, Ind., 1958), pp. 71–79. Propp's study is of the fairy tale, which he understands as a subset of the folktale along with animal tales, jokes, and anecdotes.

57. *Ibid.*, p. 21.

58. *Ibid.*, pp. 20–21.

59. See *ibid.*, p. 96.

cumstance. Literary Darwinism wants to say that the closer one gets to form, the closer one gets to the universals selected for during the Pleistocene. And what are these forms? By a sleight of hand, the innate parameters for the telling of stories move away from anything we might identify as either formal or grammatical and toward the usual thematic obsessions of evolutionary psychology. When Dutton turns to works of fiction, for example, he makes a great deal of what he calls, following Christopher Booker, the “seven basic plot templates,” the “universal themes of love, death, adventure, family, conflict, justice, and overcoming adversity” (*AI*, pp. 127, 132). These “blueprints for story plots” constitute the mind’s innate contribution to works of fiction (*AI*, p. 131). They precede any literary artifact we encounter. The nature of this contribution, however, is unclear. The mind would not seem to supply rules that would structure, constrain, or engender this or that story; rather it would supply “the deep themes that fascinate us in fictions” (*AI*, p. 131). Academic literary criticism of course recoils from this sort of thing and for good reason. We are left with no accounting for how these themes (should they exist) make their way into any given artifact we care to explain. Instead the argument seems to move in the other direction, with genial-sounding themes glancing off of individual texts and making their way to all minds. I will return to this recourse to thematic and sentimental criticism in the final section below; I would only observe now that it fails to provide an account of how the mind responds by nature to or creates any kind of artifact.

Ontogenesis. One source of evidence for the linguistic nativist is the regular schedule of language learning among healthy children. Were language taught, so the story goes, children might pick it up at various speeds. And yet despite the best or worst efforts of parents, children tend to grow their language at more or less the same rate. The inference follows that language learning is served by some sort of innate mechanism. Friends of psychological nativism have extended the inference from ontogenesis to other domains, from theory of mind (the recognition of mental states in other people) to morality.⁶⁰ Under certain experimental parameters, chil-

60. The research on theory of mind is vast and rapidly becoming a staple of cognitive theories of art and literature; see for example Blakey Vermeule, *Why Do We Care about Literary Characters?* (Baltimore, 2009), and Lisa Zunshine, *Why We Read Fiction: Theory of Mind and the Novel* (Columbus, Ohio, 2006). The argument for innate development on the analogy to language is set forth eloquently in Simon Baron-Cohen’s popular crossover, *Mindblindness: An Essay on Autism and Theory of Mind* (Cambridge, Mass., 1995). The argument for innate moral competence is much more controversial (for obvious reasons). For several different arguments in favor of moral nativism, see Frans De Waal, *Primates and Philosophers: How Morality Evolved*, ed. Stephen Macedo and Josiah Ober (Princeton, N.J., 2006); Jonathan Haidt and Craig Joseph, “The Moral Mind: How Five Sets of Innate Intuitions Guide the Development of

dren can be shown to develop a theory of mental states on a regular schedule without explicit instruction.⁶¹ Likewise, on some sets of evidence, children demonstrate norms of fairness and cooperation at predictable intervals.⁶² Can the same be said for something like literary competence? Boyd thinks so. On his account, an interest in art, including the art of storytelling, “develops reliably in all normal humans without special training.” Moreover, “the fact that it emerges early in individual development—that young infants respond with special pleasure to lullabies and spontaneously play with colors, shapes, rhythms, sounds, words, and stories—particularly supports evolutionary against nonevolutionary explanations” (OS, p. 73). Since the interest appears so early, Boyd argues, it must be innate, and since it is innate it must be adaptive. The inference from early to innate to adaptive, however, raises some further questions. If the arts are innate and develop without training, we would expect each of them to come online according to separate schedules and to have separate rules, as in the case, for example, of vision and language. What, then, apart from an indifferent response to stories and sounds in the very young would demonstrate how literary competence matures? One potentially promising body of research has focused on the advent of pretense, imagination, and pretend play in very young children. According to some, children regularly show a capacity for acting as if something is the case between eighteen and twenty-four months, so that for example if a cup is full of pretend water the floor beneath it will become pretend wet in the event the cup is tipped.⁶³ In other words, the ability to bracket our ordinary sense of the external world and establish an internally consistent, counterfactual version of things may develop on a regular schedule across humans. So there’s a reasonable chance that pretending and imagining are innate. There’s also a reasonable chance that pretense and imagination feed into the way that older children understand fictional worlds.⁶⁴ Yet the moral of

Many Culture-Specific Virtues, and Perhaps Even Modules,” in *The Innate Mind*, 3:367–92; and Hauser, *Moral Minds: How Nature Designed Our Universal Sense of Right and Wrong* (New York, 2006). For the contrary argument, see Prinz, *The Emotional Construction of Morals* (Oxford, 2007).

61. Thus nonautistic children pass the “false-belief” task around age four. They are able to understand that other people have beliefs that may be false, as in the fabled “Sally-Ann” hidden marble test. See Baron-Cohen, *Mindblindness*, pp. 1–9.

62. See Jerome Kagan, “Morality and Its Development,” in *The Neuroscience of Morality: Emotions, Brain Disorders, and Development*, vol. 3 of *Moral Psychology*, ed. Sinnott-Armstrong (Cambridge, Mass., 2007), pp. 297–312.

63. See for example Alan M. Leslie’s influential paper, “Pretense and Representation: Origins of ‘Theory of Mind,’” *Psychological Review* 94, no. 4 (1987): 412–26.

64. See Deena Skolnick and Bloom, “What Does Batman Think about SpongeBob?”

this finding is not easy to draw. Pretense and imagination are likely to be features of any model of literary competence. But they are clearly not identical to such competence. Reading or attending to fictions would require other faculties or skills to be in working order alongside pretense, each of which might come online independently of the other, from language to memory to the emotions and beyond. Likewise, imagination and pretense might well feed into other dispositions, like a tendency for religious belief, as Pascal Boyer and Paul Bloom have argued.⁶⁵ In other words, the regular pattern in which pretend play develops in young children provides evidence that literary competence (if we can speak this way) is built from features of mind selected (if at all) for *other* purposes.

Poverty of the Stimulus. The early cognitive revolution reintroduced nativism to talk about the mind by arguing that the stimulus from the environment was insufficient to produce the sort of response that behaviorists claimed amounted to learning a language.⁶⁶ The influential conclusion from this observation was that the mind must have an innate repertoire of grammatical rules that exceeds the evidence available from experience. Children extract examples from the environment but then expand or compute them at a rate of learning that cannot be explained without recourse to internal processes and innate knowledge. I have no interest in adjudicating this equally significant and controversial thesis about language. I would only point to its ineliminable connection to nativist theories about other mental faculties, like moral judgment. “The appeal to explicit moral instruction,” Susan Dwyer writes, “will not provide anything like a satisfactory explanation of the emergence of mature moral competence. What we have here is a set of complex, articulated abilities that . . . emerge over time in an environment that is impoverished with respect to the content and scope of their mature manifestations.”⁶⁷

Children’s Understanding of the Fantasy/Fantasy Distinction,” *Cognition* 101, no. 1 (2006): B9–B18.

65. See Pascal Boyer, *Religion Explained: The Evolutionary Origins of Religious Thought* (New York, 2001) and “Religious Thought and Behaviour as By-Products of Brain Function,” *Trends in Cognitive Science* 7, no. 3 (2003): 199–224, and Bloom, “Religion Is Natural,” *Developmental Science* 10, no. 1 (2007): 147–51. Boyer’s conclusion is quite relevant to the present argument and provides an indirect correction to the literary Darwinists, namely, the higher-order disposition toward religious belief is a by-product of, and cobbled together from, mental faculties and systems evolved for other reasons.

66. This is one of the points of Chomsky’s famous review of B. F. Skinner, *Verbal Behavior* (New York, 1959), though the phrase itself doesn’t appear until his *Rules and Representations*, p. 34.

67. Susan Dwyer, “Moral Competence,” in *Philosophy and Linguistics*, ed. Kumiko Murasugi and Robert Stainton (Boulder, 1999), p. 173. See also John Mikhail, “The Poverty of the Moral Stimulus,” in *The Evolution of Morality*, pp. 361–66.

Whatever one might think about this kind of argument, one would have to grant that it has at least a kind of formal coherence. The parts of the analogy fit together, and for this reason the validity is an empirical question. It would be exceedingly difficult to find a way to write a similar series of sentences about what Carroll calls “art or literature proper.” Linguistic and moral nativists have recourse to ideas of innate content, whether the rules of grammar or of conduct. As we’ve seen from the example of narrative morphologies, even the best-case presentation of shared literary parameters might tell us very little about an innately held faculty for literature. In this respect, literature is a poor fit to a poverty-of-the-stimulus-type argument on logical or a priori grounds. Literary competence might not be the kind of thing that could develop in advance of stimulus.⁶⁸ Elements of literary competence might be, but to say this (again) would be to run a very different kind of argument.

Speed and encapsulation. One particularly thorny point in the debate over modularity was the claim by some that innate mental systems must work fast on a restricted database and thus be inaccessible to conscious manipulation.⁶⁹ Consider this: From the soup of ambient noise, the language faculty extracts units of sound and immediately parses them into sentences. One doesn’t have to work at all to hear speech as language. One just does. The lesson is supposed to apply equally to other modules as well. Fodor puts it like this: “You can’t help hearing an utterance of a sentence (in a language you know) as an utterance of a sentence, and you can’t help seeing a visual array as consisting of objects distributed in three-dimensional space. Similarly, *mutatis mutandis*, for the other perceptual modes: you can’t, for instance, help feeling what you run your fingers over as the surface of an object.”⁷⁰ Fodor’s point is that the speed with which linguistic and other information is extracted from the environment corresponds to the inaccessibility of the raw data, either from one module to another or from one module to regular, “domain general” intelligence. Try as one might, one cannot make a sentence sound like noise. The same is the case for vision. Presented with an optical illusion, like the Müller-Lyer drawing (two parallel arrows with ends pointing in opposite directions) or

68. For an attempt to make it work, see *OS*, pp. 88–95.

69. Those who want to extend modularity across the mind and align modules with selection pressures often jettison encapsulation so that modularity can apply to any adaptive function. This was one of the main sticking points in the Fodor versus Pinker debate.

70. Fodor, *The Modularity of Mind*, pp. 52–53.

the appearance of the sun at the horizon, my visual experience will remain the same no matter what my thinking is. I cannot make myself see the lines as identical in length or the sun as ordinary sized. Therefore it is reasonable to infer, so the story goes, that modules produce output into central systems while receiving no equivalent input from them. Boyd draws a relatively loose analogy to literary processing along these lines. Just as we automatically hear noise as language or see objects in three dimensions or interpret actions in terms of mental states, he argues, so too we respond quickly by design to narrative fictions. "In the same way," he writes, "we are unable *not* to imagine and respond to the characters and events of a well-told story. . . . We may know that the story consists of mere words, words with no pretense to report real events," he continues, and yet "we cannot stop conjuring up and responding to the story's invented people and predicaments, and even, if occasion prompts, weeping tears at characters' fates" (OS, pp. 189–90). I have as little access to the process in which I respond to fiction, on this view, as I do to the process in which I put together bits of sound as speech. Narrative raw materials are sealed off in roughly the same way as linguistic raw materials, hence the automatic and fast response I have to stories I know to be false. Since we respond automatically and speedily to literary artifacts, Boyd concludes, we may reasonably infer that literary competence is of a piece with other features of the adapted mind. Once again, however, the analogy seems difficult to sustain. Is literary response automatic and encapsulated in the manner of language or vision? Whereas the component bits of language or vision are inaccessible to other parts of the mind, the component bits of a text or oral performance are not, except insofar as they are made from linguistic or visual forms. So for example we might lose the details of conversational syntax or be unable to break down a visual image, but we can pretty well track the component bits of the texts themselves, the "agents and actions, character and plot, intentions and outcomes," as Boyd calls them (OS, p. 91). Often these bits solicit consideration that would be impossible were the system shut off from introspective access. (What does Pip see "among the joyous, heartless, ever-juvenile eternities"? Why does "she that me learneth to love and to suffer" will that "my lust's negligence be reined by reason"?) Reading or listening to stories or poems or plays may recruit or even fatigue the peripheral systems of language and vision and memory but would seem to be in some important sense distinct from them. The point is not that literature is some ethereal thing above the whirs and gears of the cognitive machinery. Were we to agree that the mind has modules, rather, we would most likely have to say they are brought to reading or

attending to stories in the sense that it is hard to read without having language or sight or hard to listen without audition, and so on.⁷¹

This quick overview of literature and psychological nativism has tended throughout toward a similar end. Literary Darwinism presupposes the functional specialization of the mind and argues for a special process devoted to art and literature.⁷² The case for such a process seems quite thin on the ground. When we consider the plausibility of a literature module or literary competence alongside the properties assumed to belong to other innate faculties of the mind, we seem moved in one of two directions: either a disposition to create and attend to literature just isn't the sort of thing that can be innately specified but is rather subject to more local and historical causes and constraints, or other bits of the mind feed into and have some sort of regular relation with creating and attending to literary texts. It may be then that the interdisciplinary project between literary studies and the sciences of mind is just to sketch out all these relations. I'll say a little more about this sort of sketch in the next section. It provides I think a kind of plausible link to cognitive science already underway elsewhere in interdisciplinary criticism.

Literary Studies and Science

Literary Darwinism shares many features with earlier attacks on the humanities. The discipline of English has grown too political or theoretical or obscure or has lost touch with the values and virtues of literature, and so on.⁷³ To these familiar complaints, the literary Darwinists add the authority of Science.⁷⁴ Evolutionary psychology has shown that we were right all along to suspect that something has gone deeply wrong with the humanities. Literature *is* really valuable and *does* really speak to eternal truths. And yet curiously, for all this taking sides with a beleaguered Literature in the never-ending culture wars, literary Darwinism has surprisingly little to say about literary texts or forms. There is a reason for this, as we've seen.

71. For more thoughts along these lines, see Ellen Spolsky, *Gaps in Nature: Literary Interpretation and the Modular Mind* (Albany, N.Y., 1993).

72. And of course visual and linguistic capacities must also have a vastly separate timeline on the species, as Boyd at least acknowledges; see *OS*, p. 190.

73. Along with Wilson, *The Literary Animal* boasted a foreword by none other than Frederick Crews, doyen of the culture wars; see Frederick Crews, "Foreword from the Literary Side," in *The Literary Animal*, pp. xiii–xv. All the major players in literary Darwinism pause for long discussions of the terrible state of politics and theory in English departments these days. See *OS*, pp. 335–47 and Boyd's quite intemperate "Getting It All Wrong: Bioculture Critiques Cultural Critique," *American Scholar* 75, no. 4 (2006): 18–20; *LD*, pp. 29–44; and *LSH*, pp. 1–42.

74. "We cannot simply go back to literary texts," writes Boyd, "without assimilating what science has discovered about human nature, minds, and behavior over the last half-century" (*OS*, p. 3). See also *LSH*, esp. pp. 3–25.

Anything it could say about such forms would have to be appropriate for a prehistoric culture whose language and stories are lost forever. One suspects after a while that this is a bullet that literary Darwinism is willing to bite for the same reason that it sticks so strongly to one specific and controversial version of the science. They squeeze from the school of Pinker and Buss a story about human nature quite genial to a certain story about literature. Women do really like “cads” when they are young, “dads” when they get older; literature really does make a fully human life worth living, and so on.⁷⁵

So what of Carroll’s claim that literary works are “highly organized in ways that seem designed to fulfill a primary and irreducible psychological need”? In the main, the notion that some property of literary works performed some function for survival gives way to a series of plot summaries: mate selection in Austen, jealousy in Shakespeare, and so forth.⁷⁶ If evolutionary psychology is “relentlessly past-oriented,” literary Darwinism is, as I’ve indicated, relentlessly *thematic*. At the extreme, the theme is a kind of microversion of the story of natural selection itself. The Darwinian saga somehow becomes the very story of most fictions. Thus (again) Dutton:

The basic themes and situations of fiction are a product of fundamental, evolved interests human beings have in love, death, adventure, family, justice, and overcoming adversity. “Reproduction and survival” is the evolutionary slogan, which in fiction is translated straight into the eternal themes of love and death for tragedy, and love and marriage for comedy. . . . Story plots are not, therefore, unconscious archetypes but structures that inevitably follow, as Aristotle realized and Darwinian aesthetics explain, from an instinctual desire to tell stories about the basic features of the human predicament. [*AI*, p. 132]

75. For the cads and dads argument, see Daniel J. Kruger, Maryanne Fisher, and Ian Jobling, “Proper Hero Dads and Dark Hero Cads: Alternate Mating Strategies Exemplified in British Romantic Literature,” in *The Literary Animal*, pp. 225–43.

76. See Carroll’s essay on Austen in *LD*, pp. 187–215, and Daniel Nettle, “What Happens in *Hamlet*? Exploring the Psychological Foundations in Drama,” in *The Literary Animal*, pp. 56–75. In a recent essay, Carroll distinguishes between “vulgar” literary Darwinism concerned only with “Darwinian themes in works of literature” and “more sophisticated forms [that] recognize that literature does not simply represent typical or average human behavior” (Carroll, “Three Scenarios for Literary Darwinism,” *New Literary History* 41 [Winter 2010]: 59, 60). What this seems to mean is that such things as “the primary need to acquire resources and to mate successfully” may not always be depicted in a novel like *Pride and Prejudice* (his example) but that such “species-typical patterns form an indispensable frame of reference” (*LD*, p. 204).

This paean to universal humanity and the great themes of love and death seems quite apart from the promised attention to design. Where design might twist or arrange or put in relation themes of one sort or another, literature on Dutton's view provides a kind of naked access to them. The last sentence is in this respect quite telling. The disposition to tell stories is an adaptation because it helped us survive and was passed on with reproduction. The stories we tell are (oddly) about this process of survival and the passing on of things like stories. We need not have any idea how any design specific to literary form mediated this trait. Form turns to plot and plot to theme.

Literary Darwinism promises to show that literature played an important role in the evolution of the species, but what adaptive function could be served by bare themes, by subject matter as such? Failing to describe how "the adapted mind produces literature," literary Darwinism often falls back on more general and even genteel notions of improvement (*LD*, p. xii). The move has a certain logic. Literary Darwinism has a difficult time finding a place for literary forms in the story of adaptation under selection pressure. At the same time, it is committed to the proposition that literature must have helped us to become the species we are. The result of this curious imbalance is that literature simply is *about* who we are in a relatively straightforward and uplifting sense. Literary texts provide "lively and powerful images of human life suffused with the feeling and understanding of the astonishingly capable and complete human beings who wrote them."⁷⁷ There is something tender-hearted in this bid for the function of literature to create "healthy human possibility" (*LD*, p. 68). It exchanges a hardheaded naturalism for mushier notions of moral cultivation

77. The quotation is from Carroll on *David Copperfield*. It is worth citing in full:

What [David] gets from [the books in a neglected store near his room] are lively and powerful images of human life suffused with the feeling and understanding of the astonishingly capable and complete human beings who wrote them. It is through this kind of contact with a sense of human possibility that he is enabled to escape from the degrading limitations of his own local environment. He is not escaping from reality; he is escaping from an impoverished reality into the larger world of healthy human possibility. By nurturing and cultivating his own individual identity through his literary imagination, he enables himself to adapt successfully to this world. He directly enhances his own fitness as a human being, and in doing so he demonstrates the kind of adaptive advantage that can be conferred by literature. [*LD*, p. 68]

This passage is exceedingly strange, shot through with moral language—the fullness and healthiness of certain kinds of lives—that would have sat fine with F. R. Leavis. At the same time, Carroll seems to believe that reading provides a fitness, which of course it cannot do. It is literally impossible for what David reads to prove the adaptive value of literature as Carroll understands it elsewhere. Reading might (or might not) make David a more ethical person and provide for him a fuller life, but it does nothing to affect his genes.

and strikes an ethical note reminiscent of F. R. Leavis. But surely this is a most remarkable turn of events. Casting about for a function specific to literature, the friends of adaptation seem to settle for it making us better, more decent, or more complete human beings (see *LD*, p. 68). Yet value-laden ideas like complete humanity have no meaning in the terms of evolutionary or any other science and tell us very little about any cultural artifact. And this is precisely my point. With the turn to a kind of pabulum, Darwinian criticism seems not very scientific at all.

I began this essay by observing that literary Darwinism sides quite strongly with one strain in the science of mind. I think we now have some sense of why this is so. Evolutionary psychology provides a scientific rationale for seeing literature as the repository of timeless themes and for criticizing those scholars who fail to see how this is so. I want to conclude, however, by suggesting that the various impasses literary Darwinism reaches indicate more promising roads to take. Literary Darwinism is worth taking seriously not only because it has been so successful at marketing itself but also because it sharply poses the question of literary study's relation to the sciences of mind. Much turns on their combination of nativism and adaptation. Were the disposition to create or consume literature innate in the way argued by the literary Darwinists, it would be just as invariant across the species and across time as they maintain. But if the disposition is not innate in this way, it might simply emerge from other features of the mind in a way considerably more sensitive to environment and history. So much would seem to underwrite at least some of the more interesting work across cognitive science and literary studies in recent years.⁷⁸ You don't have to be a fan of the adaptive story about literature, in

78. I hasten to add, this is work done by other people. The present essay simply attempts to look over the shoulder at the literary Darwinists and other folks interested in bringing cognitive science in some relation to literary study. It is not a brief for the author's own work. The oldest foothold is for obvious enough reasons in narratology. Ann Banfield's influential *Unspeakable Sentences: Narration and Representation in the Language of Fiction* (Boston, 1982) was polemically Chomskyan and thus cognitive in the specific sense of the term at the time. More recent work in narratology has tracked closely the changing arguments in cognitive science, including the recent inroads made in the study of the brain, and the development of cognitive-neuroscience as a branch of the science of mind. See for example the work of David Herman, including "Storytelling and the Sciences of Mind: Cognitive Narratology, Discursive Psychology, and Narratives in Face-to-Face Interaction," *Narrative* 15, no. 3 (2007): 306–34 and the essays in *Narrative Theory and the Cognitive Sciences*, ed. Herman (Stanford, Calif., 2003), as well as Alan Palmer, *Fictional Minds* (Lincoln, Nebr., 2004). For something of an overview of approaches reaching beyond narratology, see the essays collected in *Introduction to Cognitive Cultural Studies*, ed. Zunshine (Baltimore, 2010), and Alan Richardson, "Studies in Literature and Cognition: A Field Map (Introduction)," in *The Work of Fiction: Cognition, Culture, and Complexity*, ed. Richardson and Spolsky (Aldershot, 2004), pp. 1–29. See also individual studies by these three: Richardson, *British Romanticism and the Science of the Mind* (Cambridge, 2001) and the more recent and neuroscientifically inflected *The Neural Sublime: Cognitive Theories and Romantic*

other words, to be excited about recent, interdisciplinary ventures between the humanities and the sciences. One route such ventures have taken is to explore the cognitive dimension of this or that problem in literary study.⁷⁹ Another has been to connect the long history of cognitive science to the rise and fall of literary forms.⁸⁰ Neither approach requires the adaptationist argument. In the first case, the point is to figure out how problems we care about in literary studies—the representation of mental states in works of writing, for example—rely upon and illuminate features of the mind studied by other disciplines. In the second, cultural artifacts like works of literature are part of the environment our minds build, respond to, and build again. The historical and formal methods of our discipline in either case would have something to contribute to understanding how the mind works.

The sciences of mind have been shown to provide suggestive points of linking between literary studies and more empirically driven disciplines. One lesson from literary Darwinism might be that we should be more open-ended and modest about what this work has accomplished and where it might go. Once the story of why a given adaptation was selected is finished, the historical work is over. My hunch is that the work only gets started when we identify connections between certain features of mind and certain kinds of texts or forms. In other words, once we rule out the kind of strong nativism that would see literary competence as adaptive and innate, the beginnings of a research project come into view. The question for this project is not what function did literature have in the ancestral past but what is done with minds at certain times and in certain places. There is no telling what such work might reveal.

Texts (Baltimore, 2010); Spolsky, *Gaps in Nature* and “Darwin and Derrida: Cognitive Literary Theory as a Species of Post-Structuralism,” *Poetics Today* 23, no. 1 (2002): 43–62; and Zunshine, *Why We Read Fiction and Strange Concepts and the Stories They Make Possible: Cognition, Culture, Narrative* (Baltimore, 2008).

79. This would include those who seek to draw insights from evolutionary psychology without arguing that literature is an adaptation, like William Fleisch, *Comeuppance: Costly Signaling, Altruistic Punishment, and Other Biological Components of Fiction* (Cambridge, Mass., 2007), and Vermeule, *Why Do We Care about Literary Characters?* For attempts to bring in neuroscience, see Richardson, *The Neural Sublime*; G. Gabrielle Starr, “Poetic Subjects and Grecian Urns: Close Reading and the Tools of Cognitive Science,” *Modern Philology* 105, no. 1 (2007): 48–61, and “Cognitive Themes,” special issue of *Poetics Today* 30 (Fall 2009) (long a journal that has encouraged this sort of work).

80. See for example Nicholas Dames, *The Physiology of the Novel: Reading, Neural Science, and the Form of Victorian Fiction* (Oxford, 2007), Suzanne Keen, *Empathy and the Novel* (Oxford, 2007), and Richardson, *British Romanticism and the Science of the Mind*.