

## CHAPTER 1



# An Evolutionary Paradigm for Literary Study, with Two Sequels

### Sources and Occasions

Parts of this essay were included in a “target” article in a special double issue of the journal *Style*. Thirty-five scholars and scientists responded to the target article, and I then wrote a “rejoinder to the responses.” Developing ideas from the target essay, I took up the issue of adaptive function again in an online discussion, the forum *On the Human* hosted by the National Humanities Center in North Carolina. This first chapter contains a revised and expanded version of the target article. I’ve appended two sequels: a condensed version of my rejoinder to the respondents in *Style*, and a condensed version of my rejoinder to the respondents in the forum *On the Human*.

### The Current Institutional Position of Literary Darwinism

In the past few years, “literary Darwinism” has emerged as the most dynamic new movement in literary study. A steadily increasing mass of articles, books, edited volumes, and special journal issues has been devoted to this topic, and it has garnered wide public attention, with articles in leading newspapers and magazines all over the world. As it has gained in visibility, the movement has also attracted a good deal of criticism from diverse disciplinary perspectives—from traditional humanism, poststructuralism, cognitive poetics, and evolutionary social science. I have surveyed contributions to the field in several previous articles, aiming at bibliographic inclusiveness.<sup>1</sup> Here I won’t

replicate those bibliographic efforts. Instead, I shall briefly describe some of the more important contributions to evolutionary literary study, discuss key theoretical issues, and respond to representative critiques.

The central concept in both evolutionary social science and evolutionary literary study is “human nature”: genetically mediated characteristics typical of the human species. In the concluding paragraph of a survey I published in 2003 I said that “we do not yet have a full and adequate conception of human nature. We have the elements that are necessary for the formulation of this conception, and we are on the verge of synthesizing these elements.”<sup>2</sup> Over the past six years, that effort of synthesis has advanced appreciably. In a subsequent section, I lay out a model of human nature that incorporates the features on which most practitioners in the field would agree. One crucial element of human nature remains at least partially outside this consensus model: the disposition for producing and consuming literature and the other arts. Within the evolutionary human sciences, divergent hypotheses have been formulated about the adaptive function of the arts. Theorists disagree on whether the arts have adaptive functions, and if they do, what those functions might be. The alternative hypotheses on this topic involve alternative conceptions of human evolutionary history and human nature. They are thus vitally important to the whole larger field of evolutionary social science, and they also have important implications for the practical work of interpretive criticism. After describing and critiquing the main competing hypotheses, I make a case for one particular hypothesis. I also discuss two problems that are more particularly concerns for literary study: the challenge of generating new knowledge about literature, and the challenge of mediating between the discursive methods of the humanities and the empirical methods of the social sciences.

The most modest claim that could be made for evolutionary literary study is that it is one more “approach” or “school” that merits inclusion in casebooks and theoretical surveys. Along with Marxist, psychoanalytic, feminist, deconstructive, and New Historicist essays, one would thus have a Darwinian “reading” of this or that text, *Hamlet* or *Heart of Darkness*, say. Most casebooks of course do not yet include a Darwinian reading, and in truth the Darwinists have had a hard enough time even getting panels accepted at the MLA. My own favorite rejection note explained that the program

committee felt that the Darwinian approach was too “familiar” and that what was wanted were proposals along more “innovative” lines—this in a year in which proposals with Lacanian, feminist, and Marxist themes achieved levels of production comparable to those of the American and Soviet military industries in the latter days of the Second World War. In his superbly witty parodies of literary schools in *Postmodern Pooh*, Frederick Crews includes a chapter on the evolutionary literary critics, ridiculing them in tandem with their peers in more firmly established schools, but this was perhaps merely an act of kindness.<sup>3</sup> By including them, Crews gave recognition to a struggling minority that—whatever their failings (as he might see them) in doctrinaire narrowness—shares his respect for reason and evidence. In a recent essay in *Style*, James Mellard speaks with evident alarm about “a growing army of enthusiasts for a new Darwinian naturalism.”<sup>4</sup> So far as this description applies to the social sciences, it is apt enough. Darwinian social scientists hold key positions in prestigious universities, publish works in the mainstream journals in their disciplines, and win large popular audiences among the educated lay public. The literary Darwinists, in contrast, could most accurately be characterized not as an army but as a robust guerilla band. That standing could change fairly soon. If the rate of current publication in the field continues or increases, before long sheer numbers will tilt the balance toward inclusion in casebooks more conventional than *Postmodern Pooh*.

Institutionally, the literary Darwinists occupy a peculiar position. On the one hand, they are still so marginal that being included in panel sessions and casebooks would constitute an advance in institutional standing. On the other hand, their ultimate aims sweep past any such inclusion. At least among their most ambitious adherents, they aim not at being just one more “school” or “approach.” They aim at fundamentally altering the paradigm within which literary study is now conducted. They want to establish a new alignment among the disciplines and ultimately to subsume all other possible approaches to literary study. They rally to Edward O. Wilson’s cry for “consilience” among all the branches of learning. Like Wilson, they envision an integrated body of knowledge extending in an unbroken chain of material causation from the lowest level of subatomic particles to the highest levels of cultural imagination.<sup>5</sup> And like Wilson, they regard evolutionary biology as the pivotal discipline uniting the hard sciences with the social sciences and

the humanities. They believe that humans have evolved in an adaptive relation to their environment. They argue that for humans, as for all other species, evolution has shaped the anatomical, physiological, and neurological characteristics of the species, and they think that human behavior, feeling, and thought are fundamentally constrained and informed by those characteristics. They make it their business to consult evolutionary biology and evolutionary social science in order to determine what those characteristics are, and they bring that information to bear on their understanding of the human imagination.

Virtually all literary Darwinists formulate “biocultural” ideas. That is, they argue that the genetically mediated dispositions of human nature interact with specific environmental conditions, including particular cultural traditions. They nonetheless characteristically distinguish themselves from “cultural constructivists” who effectively attribute exclusive shaping power to culture. The Darwinists typically focus on “human universals” or cross-cultural regularities that derive from regularities in human nature. They recognize the potent effect of specific cultural formations, but they argue that a true understanding of any given cultural formation depends on locating it in relation to the elemental, biologically based characteristics that shape all cultures.

### Literary Darwinism and Cognitive Poetics

In their effort to bring about a fundamental shift in paradigm, the literary Darwinists can be distinguished from practitioners in a school that is in some respects their closest disciplinary neighbor—cognitive poetics. In her preface to a collection of essays in cognitive poetics, Ellen Spolsky explains that the cognitivists aim to “supplement rather than supplant current work in literary and cultural studies.” She assures her audience that “these essays have no interest in repudiating the theoretical speculations of post-structuralist and historicist approaches to literature.” She and her colleagues wish only to enter into “a constructive dialogue with the established and productive theoretical paradigms.”<sup>6</sup> Her coeditor, Alan Richardson, takes a similar line. Emphatically distancing the cognitivists from the literary Darwinists, he describes the work of the Darwinists “as an outlier that helps define the boundaries of cognitive literary criticism proper.” Describing the disciplinary

alignments of individual contributors to the volume, he affirms that Spolsky seeks “not to displace but to supplement poststructuralist approaches to literature like deconstruction and New Historicism,” that F. Elizabeth Hart seeks only “to supplement ‘postmodern’ accounts of language, subjectivity, and culture,” and that Mary Crane “locates her work between cognitive and poststructuralist accounts of subjectivity, language, and culture.”<sup>7</sup>

Efforts to segregate cognitive poetics from evolutionary literary study are doomed to failure. One thinks of early stages in the development of American cities. Enclaves outside the city core are inevitably swallowed up as the cities expand outward. Evolutionary social science seeks to be all-inclusive. Because it is grounded in evolutionary biology, it encompasses all the more particular disciplines that concern themselves with human evolution, human social organization, and human cognition. As a distinct school within evolutionary social science, “evolutionary psychology” can be described as the offspring of a coupling between sociobiology and cognitive psychology.<sup>8</sup> Evolutionary psychologists derive from sociobiology an emphasis on the logic of reproduction as a central shaping force in human evolution, and they seek to link that logic with complex functional structures in cognitive mechanisms. Hence the title of the seminal volume in evolutionary psychology: *The Adapted Mind*.<sup>9</sup> 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 has evolved through an adaptive process by means of natural selection. In the process of expanding outward from the logic of reproduction to the explanation of cognitive mechanisms, evolutionary social scientists have already given concentrated attention to many of the standard topics in cognitive psychology, for instance, to “folk physics,” “folk biology,” and “folk psychology”; perceptual mechanisms; the relation between “modularized” cognitive processes and “general intelligence”; the relation between emotions and conscious decision-making; mirror neurons, “perspective taking,” “Theory of Mind,” and “metarepresentation”; “mentalese” and language acquisition; metaphor and “cognitive fluidity” or conceptual blending; “scripts” and “schemata”; and narrative as an elementary conceptual schema.<sup>10</sup> If evolutionary psychology can give a true and comprehensive account of human nature, it can ultimately encompass, subsume, or supplant the explanatory systems that currently prevail in the humanities.

As things currently stand, the use of cognitive psychology in literary study can be located on a spectrum running from deconstruction at one end to evolutionary psychology at the other. At the deconstructive end, practitioners seek only to redescribe poststructuralist ideas in terms derived from cognitive science. Spolsky, for instance, argues that the supposedly modular character of the mind approximates to deconstructive accounts of the decentered and fragmented self.<sup>11</sup> Somewhere closer to the middle of this spectrum, Lisa Zunshine references evolutionary psychology to support her claims that the human mind has evolved special powers of peering into the minds of conspecifics—what psychologists call Theory of Mind (ToM).<sup>12</sup> Despite her appeal to selected bits of evolutionary psychology, Zunshine strongly emphasizes the “cognitive” aspect of her views, muting and minimizing their sociobiological affiliations. Beyond ToM, she declines to attribute any very specific structure to the adapted mind, and in citing other literary scholars, she prudently avoids reference to most of the published work in evolutionary literary study. She unequivocally locates herself in the community of practitioners who explicitly segregate their work from the evolutionary literary critics. Moving toward the evolutionary end of the spectrum, in film theory, David Bordwell has long identified his work as “cognitive” in orientation, but he has increasingly envisioned cognitive mechanisms as the result of an adaptive evolutionary process, and he firmly contrasts his naturalistic vision with the prevailing poststructuralist theories in film studies. Bordwell and his associates have done excellent work in linking evolved cognitive mechanisms with specific formal features of film.<sup>13</sup>

Because evolutionary psychology draws heavily on cognitive developmental psychology, all evolutionary literary critics are in some measure *de facto* cognitivists. They vary, though, in the degree to which they have incorporated information on cognitive mechanisms not just indirectly through evolutionary psychology but directly from cognitive psychology. Among the evolutionary literary critics, Brian Boyd has gone further than any other scholar in assimilating information directly from cognitive psychology, especially cognitive developmental psychology. Like Bordwell, but with more explicit and detailed reference to evolutionary thinking, Boyd demonstrates that the findings of cognitive psychology make sense ultimately because they are embedded in the findings of evolutionary psychology. He emphasizes the continuity between “play”

in animals, human curiosity, and the generation of novelty in form, ideas he applies to classical works such as the *Odyssey*, modernist works such as *Lolita*, and avant-garde graphic narratives.<sup>14</sup>

Clearly, one central line of development for evolutionary literary study will be to link specific cognitive structures with specific literary structures and figurative modes, locating both in relation to evolved human dispositions. So far, the Darwinists have focused more on drama and fiction than on poetry, but Frederick Turner has correlated the length of poetic lines with the duration of perceptual units, and Michael Winkelman demonstrates that Zahavi's handicap principle can be effectively used to analyze the tension between convention and invention in Donne's poetic forms.<sup>15</sup> Boyd, Michelle Scalise-Sugiyama, and Francis Steen use goal-orientation and problem-solving to construct basic frameworks for the analysis of narrative, and Daniel Nettle uses goal-orientation for analyzing the structure of drama.<sup>16</sup>

#### A Selective Survey of Works in Evolutionary Literary Study

In 2005, Jonathan Gottschall and David Sloan Wilson published a collection of commissioned essays, *The Literary Animal: Evolution and the Nature of Narrative*, that set a new standard for cross-disciplinary research in the human sciences. Gottschall is a literary scholar who has made pioneering efforts in using empirical methods in literary study, and Wilson is an evolutionary biologist with wide-ranging cultural interests. The volume includes forewords by both a scientist (E. O. Wilson) and a literary scholar (Frederick Crews), and it contains an afterword written by a philosopher (Denis Dutton). The authorship of the essays is almost equally divided between evolutionary scientists and literary scholars. A collection edited by Robin Headlam Wells and Johnjoe McFadden, *Human Nature: Fact and Fiction*, has a similar range of contributors, with essays by Steven Pinker, Simon Baron-Cohen, Ian McEwan, me, and others. More recently, Brian Boyd, Jonathan Gottschall, and I compiled an anthology of some of the best work done in evolutionary literary study in the past fifteen years or so. As we went over the materials for this volume, sorting and evaluating them, we agreed that the level of professionalism—of expertise in assimilating information from the social sciences, of clarity in theoretical principles, and of sophistication in the use of theory for the purposes of practical criticism—has steadily improved. Like its predecessors, *Evolution*,

*Literature, and Film* contains essays by both literary scholars and scientists. In a new annual journal, *The Evolutionary Review: Art, Science, Culture*, Alice Andrews and I are following the lead of these other volumes in including works by both scholars and scientists. Aiming to demonstrate that “this view of life” can indeed encompass all things human,<sup>17</sup> we are publishing essays and reviews on film, fiction, theater, visual art, music, dance, and popular culture; essays and reviews of books, articles, and theories related to evolution and evolutionary psychology; and essays and reviews on science, society, and the environment.<sup>18</sup>

The first full-length books that could clearly be classed as works of literary Darwinism appeared in the mid-nineties, my own *Evolution and Literary Theory*, and Robert Storey’s *Mimesis and the Human Animal: On the Biogenetic Foundations of Literary Representations*.<sup>19</sup> Like many of the early essays in the field, these two books presented themselves as polemical confrontations between biological naturalism and poststructuralist efforts to dispense with nature. They both also contain elements of constructive theory. Storey sketches in features of a “biogrammar”—a model of human nature—and I work out correlations between elementary biological and literary concepts. I define character, setting, and plot in terms of organism, environment, and action, and I delineate literary activity as a form of “cognitive mapping”—a subjectively charged image of the world and of human experience in the world. I identify three chief levels for the analysis of meaning in texts: (a) elemental or universal human dispositions (human nature); (b) the organization of those dispositions within some specific cultural order; and (c) the peculiarities of individual identity in represented subjects, authors, and readers. I also argue for the systematic analysis of individuality through the incorporation of modern research into personality.

More recent works of general theory have continued to define their principles in contrast to purely culturalist principles. On the whole, though, the polemical element has diminished relative to the efforts of constructive formulation. Ellen Dissanayake, an evolutionary theorist of the arts, offers an example. In *Homo Aestheticus* (1992), she set an evolutionary vision of art in contrast to poststructuralist views. In her most recent book, *Art and Intimacy: How the Arts Began* (2000), she concentrates on developing the positive aspects of her theories.<sup>20</sup> In *Literature, Science, and a New Humanities* (2008), Jonathan Gottschall gives evidence for a pervasive sense of a crisis of



morale in the humanities.<sup>21</sup> He traces this crisis to a methodological failure to produce empirically valid and progressive forms of knowledge, but he is less interested in attacking a failed ethos than in offering an alternative. He argues that the humanities can benefit from incorporating scientific methods and, along with the methods, the ethos of empirical inquiry. Gottschall has published several articles in which he uses quantitative methods of “content analysis” to explore topics of sexual identity and characterization cross-culturally. *Literature, Science, and a New Humanities* includes several such studies as examples. In *On the Origin of Stories: Evolution, Cognition, and Fiction*, Boyd defines his evolutionary perspective in contrast to the culturalist models that still prevail in the humanities, but he occupies himself relatively little with criticizing poststructuralist formulations. Instead, he concentrates on incorporating evolutionary research in his own theories of writing and reading.<sup>22</sup> Harold Fromm is a founding figure in ecocriticism, and his intuitive naturalism has in recent years converged with “The New Darwinism in the Humanities,” the title of a set of essays included in his most recent book, *The Nature of Being Human: From Environmentalism to Consciousness*. In an earlier book, *Academic Capitalism*, Fromm had actively engaged the prevailing poststructuralist orthodoxies. In his new book, collecting essays over a period of years, he occupies himself with three primary topics in separate but cumulative phases: ecocriticism, the new Darwinism in the humanities, and a naturalistic philosophy of consciousness like that associated with Daniel Dennett.<sup>23</sup>

The works of general theory just noted contain a fair amount of practical criticism but can be distinguished from works primarily dedicated to practical criticism. The first book-length work in practical criticism from an evolutionary angle was on Zamyatin’s dystopian novel *We*—Brett Cooke’s *Human Nature in Utopia: Zamyatin’s We*. Cooke draws on evolutionary psychology to delineate features of human nature—communal eating, play, charismatic authority figures, sex, filial relations, and visceral responses—that are systematically violated in dystopian fantasies. He concentrates on Zamyatin’s novel but locates it within the broader context of all utopian and dystopian fiction.<sup>24</sup> In *Shakespeare and the Nature of Love: Literature, Culture, and Evolution*, Marcus Nordlund produces an account of love, romantic and filial, in which he integrates evolutionary research with research into Renaissance ideas about love. That account serves as the context for his reading of several

Shakespeare plays. Nordlund contrasts his “biocultural” critique with purely culturalist perspectives on love and identity in the Renaissance.<sup>25</sup> In *Shakespeare’s Humanism*, Robin Headlam Wells gives a detailed account of ideas of human nature active in the Renaissance and, like Nordlund, sets this account in contrast to current views that align the Renaissance writers with poststructuralist theories of cultural autonomy.<sup>26</sup> In *The Rape of Troy: Evolution, Violence, and the World of Homer*, Jonathan Gottschall integrates sociobiological theory with archeological and anthropological research in order to reconstruct the motivating forces in Homer’s cultural ecology. Gottschall vividly evokes the Homeric ethos and convincingly demonstrates the value of a biological perspective for analyzing a specific cultural formation.<sup>27</sup> In a context seemingly far removed from that of Homer’s barbarian warriors, Judith Saunders adopts a similar perspective, concentrating on the shaping force of reproductive logic, to analyze character and plot in the novels of Edith Wharton. Barash and Barash offer a set of sociobiological critiques geared toward a popular audience.<sup>28</sup>

Moving beyond the analysis of represented subject matter, several scholars have used evolutionary psychology to examine the interplay of perspectives among readers, authors, and characters. In our empirical study of Victorian novels, Johnson, Gottschall, Kruger, and I correlate the emotional responses of readers with motives and personalities in individual characters.<sup>29</sup> Robert Storey, Michelle Scalise Sugiyama, and I have all considered reader response from an evolutionary perspective.<sup>30</sup> Using game theory and the theory of “costly display,” William Flesch identifies depictions of altruistic punishment as a chief means through which authors engage readers emotionally. Michael Austin delves into manipulative deceit and self-delusion in point of view.<sup>31</sup> The study of point of view shades over into the study of tone. In the critique of *Wuthering Heights* in part 2 of the present volume, I combine basic motives with “basic emotions” in a framework for analyzing complex interactions of tone in generic structures. In the critique of *Hamlet*, I develop ideas of tragedy by incorporating recent research on the neurobiology of depression, consider the kinds of emotional responses *Hamlet* has elicited in readers, and compare reader responses to *Hamlet* in various literary periods. Later in this chapter, illustrating a claim that the Darwinists can generate new literary knowledge, I shall return to some of these works and also describe others.

### A Model of Human Nature

Until fairly recently in literary history, most writers and literary theorists presupposed that human nature was their subject and their central point of reference. Dryden following Horace, who follows others, offers a representative formulation. In “Of Dramatic Poesy,” Dryden’s spokesman Lisideius defines a play as “a just and lively image of human nature, representing its passions and humours, and the changes of fortune to which it is subject; for the delight and instruction of mankind.”<sup>32</sup> The understanding of human nature in literature is the most articulate form of what evolutionists call “folk psychology.”<sup>33</sup> When writers invoke human nature, or ordinary people say, “Oh, that’s just human nature,” what do they have in mind? They almost always have in mind the basic animal and social motives: self-preservation, sexual desire, jealousy, maternal love, favoring kin, belonging to a social group, desiring prestige. Usually, they also have in mind basic forms of social morality: resentment against wrongs, gratitude for kindness, honesty in fulfilling contracts, disgust at cheating, and the sense of justice in its simplest forms—reciprocation and revenge. All of these substantive motives are complicated by the ideas that enter into the folk understanding of ego psychology: the primacy of self-interest and the prevalence of self-serving delusion, manipulative deceit, vanity, and hypocrisy. Such notions of ego psychology have a cynical tinge, but they all imply failures in more positive aspects of human nature—honesty, fairness, and impulses of self-sacrifice for kin, friends, or the common good.

Postmodernists have put all such ideas of human nature out of play. Evolutionists, fortunately, have taken a different path. While literary theorists were immersing themselves in speculative theoretical systems such as phenomenology, psychoanalysis, deconstruction, and Marxism, the evolutionists were gradually developing an empirically based model of human nature, including childhood development, family dynamics, sexual relations, social dynamics, and cognition.

Writing from the perspective of a traditional humanist, Eugene Goodheart has devoted a book to repudiating Darwinian thinking in the humanities. Questioning the claims of evolutionary psychology to give us an adequate account of human nature, he says, “Human nature may not be a blank slate, but do we know enough to know

what is inscribed upon it?"<sup>34</sup> In the manner in which it is posed, this is not a very serious question. Goodheart himself does not want an answer. Still, the question itself is well worth asking and deserves an answer. The literary Darwinists have committed themselves to the proposition that it can be answered in the affirmative. As Alan Richardson observes, the evolutionary critics differ from the cognitivists "in their high evaluation of the progress of scientific psychology."<sup>35</sup> This section is devoted to assessing the progress of scientific psychology in the one area that most concerns literary Darwinists—our modern understanding of human nature.

Natural selection operates by way of "inclusive fitness," shaping motives and emotions so as to maximize the chances that an organism will propagate its genes, or copies of its genes in its kin. Evolutionary psychologists commonly distinguish between inclusive fitness as an "ultimate" force that has shaped behavioral dispositions and the "proximal" mechanisms that mediate those dispositions.<sup>36</sup> The motives and emotions shaped by natural selection include those directed toward survival (obtaining food and shelter, avoiding predators) and those directed toward reproduction, a term that includes both mating effort and the effort aimed at nurturing offspring and other kin. Species vary in length of life, developmental trajectory, forms of mating, the number and pacing of offspring, and the kind and amount of effort expended on parental care. For any given species, the organization of these basic biological processes constitutes a distinct species-typical pattern of "life history." Like the species-typical pattern of life history for all other species, the species-typical pattern of human life history forms a reproductive cycle. In the case of humans, that cycle centers on parents, children, and the social group. Successful parental care produces children capable, when grown, of forming adult pair bonds, becoming functioning members of a community, and caring for children of their own.<sup>37</sup>

Humans share with all animals a physiology organized in basic ways around reactive impulses of "approach" and "avoidance." They share with other social animals dispositions organized around affiliation and dominance.<sup>38</sup> Like all mammals, they have evolved systems of mother-infant bonding, and like chimpanzees, they have evolved dispositions for forming coalitions within large social groups. All of these characteristics are part of the species-typical repertory of dispositions that we call "human nature," but none of

them is exclusive to humans. The traits that are most distinctively human constitute an integrated suite of anatomical, physiological, and behavioral features. Humans are bipedal, but proportional to body size they have much larger brains than other primates. Upright posture produces a narrowed birth canal. The problem of squeezing a large brain through a narrowed birth canal requires that human infants be born in an “altricial” or relatively helpless state. Human infants are heavily dependent on parental care for much longer than other animals, and they have, further, a greatly extended period of childhood development—the period previous to reproductive maturity. In ancestral environments (and typically still today), the dependency of human infants has required paternal investment—that is, care and resources provided by fathers. Humans share the characteristic of paternal investment with many birds and some other animals but with very few other mammals. Humans are the only animals that both have paternal investment and also live in large groups containing multiple males who form complex coalitions. Males of all species have evolved in such a way as to avoid investing in the offspring of other males, and living in multi-male groups reduces paternity certainty. Dispositions for pair bonding and sexual jealousy are thus prominent features in the evolved dispositions of human males. Human females are also distinctive in having menopause and thus a period of life that extends beyond the reproductive years. That period enables older women to raise their latest offspring to maturity and to aid in caring for grandchildren.<sup>39</sup>

Humans like other animals share fitness interests with their mates and their offspring, but, except in the case of monozygotic twins, the fitness interests of even the most closely related kin are not identical, and the logic of natural selection has shaped human dispositions in such a way that all intimate relations involve conflict. Females invest more than males in bearing and rearing children, and they also have certainty that their offspring are their own. Human males have evolved a reproductive strategy that includes both paternal investment and a disposition for low-investment short-term mating. Human females have evolved a need to secure the bonded attachment of a male willing to invest resources in them and their offspring, but they have also evolved dispositions for taking advantage of mating opportunities with higher-quality males than their own mates. Male and female relations are thus not

only intense and passionate in their positive affects but also fraught with suspicion, jealousy, tension, and compromise. These relations often work smoothly enough for practical purposes, but they not infrequently break down in rejection, separation, abandonment, violent struggle, abuse, and even murder. Parents and children share a fitness interest in the success of the child—in the child reaching maturity and achieving successful reproduction. But the fitness interests of a child and parent are not identical. A child has one hundred percent fitness interest in itself. Each parent has only a fifty percent genetic investment in a child, and investment in any one child has to be deducted from investment in other children or potential children. Parents must often disperse resources over multiple offspring who each wish more than an even share. Parents preferentially invest in certain offspring, and they must also balance the effort they give to mating with the effort they give to parenting. Siblings form a natural social unit, allied in competition with nonrelated people, but they are also caught in intense competition with one another. Mating involves a coalition between two people who are not related by blood. They share a fitness interest in their own offspring, but they differ in the interest they have in the welfare of the kin they do not share with their mate. Even in nuclear families, fitness interests involve conflicts, and in step-families those conflicts are sharply exacerbated. The workings of inclusive fitness thus guarantee a perpetual drama in which intimacy and opposition, cooperation and conflict, are inextricably bound together.<sup>40</sup>

Because of their extended childhood development, humans have a long period in which to develop the social skills required by living in exceptionally complex social environments. Those social environments are structured by kin relations, flexible and multiple social coalitions, status hierarchies, and in-group/out-group relations.<sup>41</sup> Two features of the distinctively human suite of characteristics, both dependent on the expanded human brain, are particularly important in mediating these social relationships: (a) Theory of Mind and (b) language. Theory of Mind consists in the ability to attribute mental states to oneself and others, and it is thus the basis for self-awareness and for an awareness of others as distinct persons. The rudiments of Theory of Mind have been found in chimpanzees and some other animals, but the highly developed forms found in humans are unique. Self-awareness is a necessary precondition for the sense of personal identity—the sense that one has a distinctive set of traits,

personality features, motive dispositions, social connections, and personal experiences, all extending continuously over a lifetime. Self-awareness is a necessary element of moral consciousness, and it is the precondition for self-esteem, embarrassment, shame, and guilt.<sup>42</sup> In its other-directed aspect, Theory of Mind is the capacity for envisioning the inner mental state of other humans, their beliefs, desires, feelings, thoughts, and perceptions. A key diagnostic characteristic for this aptitude is the ability to recognize that other people can have beliefs different from one's own, an ability that emerges in normally developing humans between the ages of three and four.<sup>43</sup> Language is the chief medium for conveying information in non-genetic ways. That kind of informational transmission is what we call "culture": arts, technologies, literature, myths, religions, ideologies, philosophies, and science. From the evolutionary perspective, culture does not stand apart from the genetically transmitted dispositions of human nature. It is, rather, the medium through which we organize those dispositions into systems that regulate public behavior and inform private thoughts. Culture translates human nature into social norms and shared imaginative structures.<sup>44</sup>

When we speak of "human nature," it is generally to this whole suite of characteristics—some common to all animals, some exclusive to mammals, some shared with other primates, and some peculiarly human—that we refer. These characteristics are so firmly grounded in the adaptive logic of the human species that they exercise a constraining influence on every known culture. Individuals can and do deviate from species-typical characteristics, but the recognition of the species-typical nonetheless forms a common frame of reference for all people. Adaptations emerge from regularities in ancestral environments, and the basic ground plan of human motives and human feelings forms one of the most important such regularities within the ancestral environments of modern humans. Because people are such intensely social animals, because their sociosexual relations are so extraordinarily complex and highly developed, and because successfully negotiating with other humans is one of the most important skills contributing to survival and to successful reproduction, having an intuitive insight into the workings of human nature can reasonably be posited as an evolved and adaptive capacity.<sup>45</sup> That adaptive capacity constitutes a "folk psychology," and it is in literature that folk psychology receives its most complete and adequate articulation.

The culture in which an author writes provides a proximate framework of shared understanding between the author and his or her projected audience, but every specific cultural formation consists in a particular organization of the elemental dispositions of human nature, and those dispositions form the broadest and deepest framework of shared understanding. Many authors make overt and explicit appeals to “human nature.” By delineating the folk concept of human nature, we can reconstitute the shared framework of understanding within which authors interact with readers. That shared framework includes intuitions about persons as agents with goals, basic human motives, basic emotions, the features of personality, the phases of life, the relations of the sexes, filial bonding, kinship relations, the opposition between affiliation and dominance, and the organization of social relations into in-groups and out-groups.

### Shifting the Frame of Interpretation

Whether traditionally humanistic or poststructuralist in orientation, literary criticism over the past century has spread itself along a continuum between two poles. At the one pole, eclectic general knowledge provides a framework for impressionistic and improvisatory commentary. At the other pole, some established school of thought, in some domain not specifically literary, provides a more systematic vocabulary for the description and analysis of literary texts. The most influential schools have been those that use Marxist social theory, Freudian psychology, Jungian psychology, phenomenological metaphysics, deconstructive linguistic philosophy, and feminist gender theory. Poststructuralist literary criticism operates through a synthetic vocabulary that integrates deconstructive epistemology, postmodern Freudian analysis (especially that of Lacan), and postmodern Marxism (especially that of Althusser, as mediated by Jameson). Outside of literary study proper, the various source theories of poststructuralism converge most comprehensively in the cultural histories of Michel Foucault, and since the 1980s, Foucauldian cultural critique has been overwhelmingly the dominant conceptual matrix of literary study. Foucault is the patron saint of New Historicism. Postcolonialist criticism is a subset of historicist criticism and employs its synthetic vocabulary chiefly for the purpose of contesting Western hegemony. Queer theory is



another subset of historicist criticism and employs the poststructuralist vocabulary chiefly for the purpose of contesting the normative character of heterosexuality. Most contemporary feminist criticism is conducted within the matrix of Foucauldian cultural critique and dedicates itself to contesting patriarchy—the social and political predominance of males.

Each of the vocabulary sets that have come into prominence in literary criticism has been adopted because it gives access to some significant aspect of the human experience depicted in literature—class conflicts and the material base for imaginative superstructures; the psycho-symbolic dimensions of parent-child relations and the continuing active force of repressed impulses; universal “mythic” images derived from the ancestral experience of the human race; elemental forms in the organization of time, space, and consciousness; the irrepressible conflicts lying dormant within all partial resolutions, or social gender identity. All of these larger frameworks have enabled some insights not readily available through other means. They have nonetheless all been flawed or limited in one crucial respect. None of them has come to terms with the reality of an evolved and adapted human nature.

Humanist critics do not often overtly repudiate the idea of human nature, but they do not typically seek causal explanations in evolutionary theory, either. In the thematic reductions of humanist criticism, characters typically appear as allegorical embodiments of humanist norms—metaphysical, ethical, political, psychological, or aesthetic. In the thematic reductions of postmodern criticism, characters appear as allegorical embodiments of the terms within the source theories that produce the standard postmodern blend—most importantly, deconstruction, feminism, psychoanalysis, and Marxism. In their postmodern form, all these component theories emphasize the exclusively cultural character of symbolic constructs. “Nature” and “human nature,” in this conception, are themselves cultural artifacts. Because they are supposedly contained and produced by culture, they can exercise no constraining force on culture. Hence Fredric Jameson’s dictum that “postmodernism is what you have when the modernization process is complete and nature is gone for good.”<sup>46</sup> From the postmodern perspective, any appeal to “human nature” would necessarily appear as a delusory reification of a specific cultural formation. By self-consciously distancing itself from the folk understanding of human nature, postmodern criticism

loses touch both with biological reality and with the imaginative structures that authors share with their projected audience. In both the biological and folk understanding, there is a world outside the text. From an evolutionary perspective, the human senses and the human mind have access to reality because they have evolved in adaptive relation to a physical and social environment about which the organism urgently needs to acquire information.<sup>47</sup> An evolutionary approach shares with the humanist a respect for the common understanding, and it shares with the postmodern a drive to explicit theoretical reduction. From an evolutionary perspective, folk perceptions offer insight into important features of human nature, and evolutionary theory makes it possible to situate those features within broader biological processes that encompass humans and all other living organisms.

#### The Adaptive Function of Literature: A Controversy

Evolutionists insist that genes constrain and direct human behavior. Cultural constructivists counter that culture, embodied in the arts, shapes human experience. Both these claims are true, but some evolutionists and some cultural constructivists have mistakenly regarded them as mutually exclusive.<sup>48</sup> Some evolutionists have either ignored the arts or tried to explain them away as epiphenomenal to the basic processes of life. Many cultural constructivists, in contrast, have sought to collapse biology into culture, eliminating “human nature” and thus turning culture into a first cause or unmoved mover. In the past few years, evolutionists in both the sciences and the humanities have broken through this impasse, arguing that the imagination is a functional part of the adapted mind. These new ideas revise an earlier model of human cognitive evolution—a model most closely associated with evolutionary psychology (EP) as a specific school within the evolutionary human sciences. Revising that model makes it possible for us now fully to integrate the evolutionary human sciences and literary study.

In the early phases of EP, theorists seeking to counter the concept of the mind as a “blank slate” committed themselves to the idea of “massive modularity,” the idea that the mind operates almost exclusively through dedicated bits of neural machinery adapted to solve specific practical problems in ancestral environments. Cognitive modules—the neural machinery dedicated to sight, for

example—are characterized by automaticity and efficiency. The idea of massive modularity thus carried within itself a general sense of humans as adaptation-executing automata. To account for cognitive flexibility in this scheme, one could only “bundle larger numbers of specialized mechanisms together so that in aggregate, rather than individually, they address a larger range of problems.”<sup>49</sup> The idea of massive modularity overgeneralizes from the most hard-wired components of the brain. It is a massive oversimplification of human cognitive architecture, and it is already fading into the archives of intellectual history.<sup>50</sup> Its residual influence makes itself felt, though, in the ongoing debate over the adaptive function of the arts.<sup>51</sup>

In *How the Mind Works*, Steven Pinker locates the arts within an EP conception of human cognitive evolution.<sup>52</sup> As he sees it, natural selection shaped human motives to maximize inclusive fitness within a hunter-gatherer ecology. Sociality and language were part of the human adaptive repertory. Imaginative culture was not. Creative imagination, whenever it appeared in human evolution, was just added on as a by-product of the cognitive/behavioral mechanisms that solved practical problems. To illustrate the by-product idea, Pinker draws parallels between art and pornography, psychoactive drugs, and rich foods like cheesecake. He acknowledges that fictional narratives might have informational content of some utility in providing game plans for practical problems that could arise. All the other features of the arts, he suggests, reflect only the human capacity to exploit evolved mechanisms for producing pleasure. This sort of pleasure, detached from all practical value with respect to survival and reproduction, would be equivalent to the pleasure derived from masturbation. (In “Does Beauty Build Adapted Minds?” Tooby and Cosmides modify their own earlier view that the arts are nonadaptive side effects, but they do not modify the underlying conception of mental architecture with which that earlier view is concordant.)

A second hypothesis from the side of evolutionary psychology, equally provocative, has been proposed by Geoffrey Miller. Miller argues that all displays of mental power, including those of the arts, might have had no adaptive value but might have served, like the peacock’s tail, as costly signals indicating the general fitness of the person sending the signal. Miller’s hypothesis identifies virtuosity in overcoming technical difficulty as the central defining characteristic

of art.<sup>53</sup> Since Miller grants that the arts and other forms of mental activity, once underway, might have been co-opted or “exapted” for adaptively functional purposes, his argument reduces itself to an argument about the original function of the arts. Miller’s wider argument about the origin of all higher cognitive powers has an obvious weakness: it requires us to suppose that the enlarged human brain—so costly, so complex and functionally structured, and so obviously useful for so many practical purposes in life—evolved primarily as a useless ornament for the purposes of sexual display. Virtually all commentators would acknowledge that human mental abilities can be used for sexual display, as can almost any other characteristic. We use bodily powers, clothing, and housing for sexual display, but we do not suppose that physical strength, clothing, and shelter have no primary functions subserving the needs of survival and the forms of reproduction not associated with display. Acknowledging that adaptively useful capacities can be deployed in a secondary way for the purposes of sexual display tells us nothing about any specific adaptive function those capacities might have.

Even if we overlook the weakness in Miller’s broader hypothesis about the adaptive utility of the higher cognitive powers, his hypothesis about the arts says so little about the qualities and features that are specific to art that it has little explanatory value. Pinker’s hypothesis is more challenging. He might be right that humanists object to his arguments at least in part because those arguments seem to diminish the dignity of the arts,<sup>54</sup> but I think many of these objections come from a deeper and more serious level—from a feeling that Pinker’s hypothesis, like Miller’s, fails to give an adequate account of his subject. Those who have sought to counter Pinker’s hypothesis have a strong personal sense of what art and literature mean for them, and they have an intuitive conviction that their own experience of the arts cannot adequately be reduced to didactic lessons and pleasurable fantasy.

To solve the puzzle of adaptive function, we have to satisfy three criteria: (a) define art in a way that identifies what is peculiar and essential to it—thus isolating the behavioral disposition in question; (b) identify the adaptive problem this behavioral disposition would have solved in ancestral environments; and (c) identify design features that would efficiently have mediated this solution. Various writers have formulated propositions that collectively meet