

November 6, 2005

The Literary Darwinists

By D. T. MAX

Jane Austen first published "Pride and Prejudice" in 1813. She had misgivings about the book, complaining in a letter to her sister that it was "rather too light, and bright, and sparkling." But these qualities may be what make it the most popular of her novels. It tells the story of Elizabeth Bennet, a young woman from a shabby genteel family, who meets Mr. Darcy, an aristocrat. At first, the two dislike each other. Mr. Darcy is arrogant; Elizabeth, clever and cutting. But through a series of encounters that show one to the other in a more appealing light - as well as Mr. Darcy's intervention when an officer named Wickham runs away with Elizabeth's younger sister Lydia (Darcy bribes the cad to marry Lydia) - Elizabeth and Darcy come to love each other, to marry and, it is strongly suggested at book's end, to live happily ever after.

For the common reader, "Pride and Prejudice" is a romantic comedy. His or her pleasure comes from the vividness of Austen's characters and how familiar they still seem: it's as if we know Elizabeth and Darcy. On a more literary level, we enjoy Austen's pointed dialogue and admire her expert way with humor. For similar reasons, critics have long called "Pride and Prejudice" a classic - their ultimate (if not well defined) expression of approval.

But for an emerging school of literary criticism known as Literary Darwinism, the novel is significant for different reasons. Just as Charles Darwin studied animals to discover the patterns behind their development, Literary Darwinists read books in search of innate patterns of human behavior: child bearing and rearing, efforts to acquire resources (money, property, influence) and competition and cooperation within families and communities. They say that it's impossible to fully appreciate and understand a literary text unless you keep in mind that humans behave in certain universal ways and do so because those behaviors are hard-wired into us. For them, the most effective and truest works of literature are those that reference or exemplify these basic facts.

From the first words of the first chapter ("It is a truth universally acknowledged, that a single man in possession of a good fortune, must be in want of a wife") to the first words of the last ("Happy for all her maternal feelings was the day on which Mrs. Bennet got rid of her two most deserving daughters"), the novel is stocked with the sort of life's-passage moments that resonate with meaning for Literary Darwinists. (One calls the novel their "fruit fly.") The women in the book mostly compete to marry high-status men, consistent with the Darwinian idea that females try to find mates whose status will assure the success of their offspring. At the same time, the men are typically competing to marry the most attractive women, consistent with the Darwinian idea that males look for youth and beauty in females as signs of reproductive fitness. Darcy and Elizabeth's flips and flops illustrate the effort mammals put into distinguishing between short-term appeal (a pert step, a handsome coxcomb) and long-term appropriateness (stability, commitment, wealth, underlying good health). Meanwhile, Wickham - the penniless officer who tries to make off first with Darcy's sister and then carries off Lydia - serves as an example of the mating behavior evolutionary biologists call (I'm using a milder euphemism than they do) "the sneaky fornicator theory."

Humans beyond reproductive age also have a part to play in the Literary Darwinist paradigm. Consider Mrs. Bennet, Elizabeth's mother. Jane Austen calls her "invariably silly," and most critics over nearly two centuries have agreed. But for Literary Darwinists, her marriage obsession makes sense, because she also has a stake in what is going on. If one of her daughters has a child, Mrs. Bennet will have further passed on her genetic material, fulfilling the ultimate aim of living things according to some evolutionary theorists: the replication of one's genes. (J.B.S. Haldane, a British biologist, was once asked if he would trade his life for his brother's and replied no, but that he would trade it for two brothers or eight cousins.)

It is useful to know a bit about current literary criticism to understand how different the Darwinist approach to literature is. Current literary theory tends to look at a text as the product of particular social conditions or, less often, as a network of references to other texts. (Jacques Derrida, the father of deconstruction, famously observed that there was "nothing outside the text.") It often focuses on how the writer's and the reader's identities - straight, gay, female, male, black, white, colonizer or colonized - shape a particular narrative or its interpretation. Theorists sometimes regard science as simply another form of language or suspect that when scientists claim to speak for nature, they are disguising their own assertion of power. Literary Darwinism breaks with these tendencies. First, its goal is to study literature through biology - not politics or semiotics. Second, it takes as a given not that literature possesses its own truth or many truths but that it derives its truth from laws of nature.

"The Literary Animal," the first scholarly anthology dedicated to Literary Darwinism, is to be published next month. It draws from the various fields that figure in Darwinian evolutionary studies, including contributions from evolutionary psychologists and biologists as well as literature professors. The essays consider the importance of the male-male bond in epics and romances, the battle of the sexes in Shakespeare and the motif in both Japanese and Western literature of men rejecting children whom their wives have conceived in adultery. "The Literary Animal" spans centuries and individual cultures with bravura, if not bravado. "There is no work of literature written anywhere in the world, at any time, by any author, that is outside the scope of Darwinian analysis," Joseph Carroll, a professor of English at the University of Missouri at St. Louis, writes in an essay in "The Literary Animal." Why bring literature into what is essentially a social science? Jonathan Gotschall, an editor of "The Literary Animal," offers an answer: "One thing literature offers is data. Fast, inexhaustible, cross-cultural and cheap."

There is a circularity to an argument that uses texts about people to prove that people behave in human ways. (I'm reminded of the Robert Frost line: "Earth's the right place for love:/I don't know where it's likely to go better.") But Literary Darwinism has a second focus too. It also investigates why we read and write fiction. At the core of Literary Darwinism is the idea that we inherit many of the predispositions we deem to be cultural through our genes. How we behave has been subjected to the same fitness test as our bodies: if a bit of behavior has no purpose, then evolution - given enough time - may well dispense with it. So why, Literary Darwinists ask, do we make room for this strange exercise of the imagination? What are reading and writing fiction good for? In her essay "Reverse-Engineering Narrative," Michelle Scalise Sugiyama tries to simplify the question by picking stories apart, breaking them down into characters, settings, causalities and time frames ("the cognitive widgets and sprockets of storytelling") and asking what purpose each serves: how do they make us more adaptive, more capable of passing on our genes?

For the moment, Literary Darwinism is a club that may grow into a crowd; there are only about 30 or so declared adherents in all of academia. (The wider field of biopoetics - which relates music and the visual arts to Darwin as well - can claim another handful.) But it has captured the imagination of a number of academics who grew up with other literary critical techniques and became dissatisfied. Brian Boyd, for instance, a well-known scholar of Vladimir Nabokov and professor at the University of New Zealand in Auckland, changed his focus in his 40's to Literary Darwinism, gripped by what he calls its "one very simple and powerful idea."

worldview Darwin formulated. It has a way of capturing people's attention. While not everyone enjoys being reminded that humans descend from monkeys (or even worse, from prokaryotic bacteria), many of us like the subtle reassurance that Darwinism offers. Despite its theory that unceasing change is the essence of life, it can be perceived as a reassuring philosophy, one that believes there are answers. And a philosophy that implies "survival of the fittest" pays a great compliment to all of us who are here to read about it. So it is little surprise that evolutionary biology has come to be invoked not merely as a theory about changes in the physical makeup of living beings but also as an explanatory tool that appeals to both academics and to everyone's inner pop psychologist. (Jack Nicholson explaining his bad-boy behavior to an interviewer for *The New York Times* in 2002: "I have a sweet spot for what's attractive to me. It's not just psychological. It's also glandular and has to do with mindlessly continuing the species.")

Literary Darwinism - like many offshoots of Darwinism - tends to find favor with those looking for universal explanations. Like Freudianism and Marxism, it has large-scale ambitions: to explain not just the workings of a particular text or author but of texts and authors over time and across cultures as well. It may also allow English professors to grab back some of the influence - and money - that the sciences, in the Darwinian fight for university resources, have taken from the humanities for the past century. But for now, to march under the Literary Darwinist banner you had better be independent and unafraid. "The most effective and easiest form of repudiation is to ignore us," Carroll says.

Literary Darwinists give off a cultlike vibe. When they talk about like-minded academics who won't acknowledge their beliefs in public, they sometimes call them "closeted." The 56-year-old Carroll's own conversion to the discipline took place when, as a young, tenured but disgruntled professor of English at the University of Missouri in St. Louis in the early 90's, he picked up "The Origin of Species" and "The Descent of Man" and had an "intuitive conviction" that he had found the master keys to literature. Carroll had always liked big ideas; he'd had a "big Hegel phase" when he was 21. "The basic conception crystallized for me in a matter of weeks," he remembers, and the notes he began taking "at high intensity" formed themselves into the founding text in the field, "Evolution and Literary Theory," published in 1995.

Jonathan Gottschall, a 33-year-old editor of "The Literary Animal," began his graduate studies in English at the State University of New York at Binghamton in 1994 and was surprised at how little his professors cared about linking literature with "the big, Delphic project of seeking the nature of human nature. They didn't believe in knowledge. In fact they could only render the word in quotes." When he found a copy of the zoologist Desmond Morris's 1967 book, "The Naked Ape," in a used bookstore, Morris's observations on the overlap between primate and human behavior spoke to him. (Animals often play a role in these conversion narratives: Ellen Dissanayake, the author of "What Is Art For?" and a biopoeticist at the University of Washington, was primed for her conversion in part by watching the behavior of wild animals - her husband at the time was a director at the National Zoo in Washington - and comparing them to her young children.)

Soon after reading "The Naked Ape," Gottschall reread the "Iliad," one of his favorite books: "As always," he writes in the introduction to "The Literary Animal," "Homer made my bones flex and ache under the weight of all the terror and beauty of the human condition. But this time around I also experienced the 'Iliad' as a drama of naked apes - strutting, preening, fighting, tattooing their chests and bellowing their power in fierce competition for social dominance, desirable mates and material resources." He brought his ideas to class. "When I would say things like 'sociobiology' and 'evolutionary biology' in class," Gottschall remembers, "my classmates would hear things like 'eugenics' and 'Hitler.' It was a measure of how toxic the material was."

His interest in Literary Darwinism does not seem to have helped Gottschall's career - "The Literary Animal" was rejected by more than a dozen publishers before Northwestern University Press agreed to take it on. And Gottschall himself remains unemployed (though that is a condition familiar to many English Ph.D.'s). Literary Darwinists claim that no acknowledged member of their troupe has ever received tenure in this country. "Most of my closest friends ended up at the Ivies or their equivalents," Joseph Carroll says, while he is at "a branch campus in a state university system."

The alpha male of Literary Darwinism is the 76-year-old Harvard biologist Edward O. Wilson. "There's no one we owe so much," Gottschall says. Wilson contributed a foreword to "The Literary Animal" in which he writes that if Literary Darwinism succeeds and "not only human nature but its outermost literary productions can be solidly connected to biological roots, it will be one of the great events of intellectual history. Science and the humanities united!" Wilson has been working for 30 years to prepare the way for such a moment. In 1975, he began the expansion of modern evolutionary biology to human behavior in his book "Sociobiology: The New Synthesis." In the last chapter, he tried to show that evolutionary pressures play a big role not just in animal societies but also in human culture. "Many scientists and others believed it would have been better if I had stopped at chimpanzees," Wilson would remember later, "but the challenge and the excitement I felt were too much to resist."

In "On Human Nature," published three years later, Wilson revisited the question with new energy. The field that emerged in part out of his work, evolutionary psychology, asserts that many of our mental activities and the behaviors that come from them - language, altruism, promiscuity - can be traced to preferences that were encoded in us in prehistoric times when they helped us to survive. According to evolutionary psychologists, everything from seasonal affective disorder to singing to lifesaving is - or at least might be - hard-wired. Evolutionary psychologists also try to demystify the nature of consciousness itself, positing, for example, that the brain is a collection of separate modules evolved to serve mental operations, more like a Swiss Army knife than a soul. A controversial implication of their theories is that evolution may be responsible for some inequalities among groups. One has only to recall the trouble that Lawrence Summers, Harvard's president, brought on himself earlier this year when he speculated that evolution might have left women less capable than men of outstanding performance in engineering and science to see how the notion continues to roil us.

All the same, today we speak casually of innate preferences, adaptive behavior and fitness strategies. Consider how evolutionary psychology has displaced Freud. Who, upon discovering that a remote tribe had an incest taboo, would ascribe it to unconscious repression on the part of the sons of their sexual attraction to their mothers? Instead, we would likely cite an evolutionary biology principle that states that we have evolved an innate repulsion to inbreeding because it creates birth defects and birth defects are a barrier to survival.

In a recent telephone conversation, I asked Wilson to assess the state of the revolution he helped touch off. How far had sociologists and psychologists gone in folding evolutionary principles into their work? Wilson laughed and said silkily, "Not far enough, in my opinion." Nonetheless, he looks forward to seeing sociobiology dust the wings of the arts - especially literature - with its magic. "Confusion is what we have now in the realm of literary criticism," Wilson writes in his foreword to "The Literary Animal." He amplified the point on the phone: "They just go on presenting it, teaching it, explaining it as best they can." He saw in literary criticism, especially the school led by Derrida, a "form of unrooted free association and an attempt to build rules of analysis on just idiosyncratic perceptions of how the world works, how the mind works. I could not see anything that was truly coherent." Predicting my objection, he went on: "We're not talking about reducing, corroding, dehumanizing. We're talking about adding deep history, deep genetic history, to art criticism."

Literary Darwinists use this "deep history" to explain the power of books and poems that might otherwise confuse us, thus hoping to add satisfaction to our reading of them. Take for instance "Hamlet." Through the Literary Darwinist lens, Shakespeare's play becomes the story of a young man's dilemma choosing between his personal self-interest (taking over the kingdom by killing his uncle, his mother's new husband) and his genetic self-interest (if his mother has children with his uncle, he may get new siblings who carry three-eighths of his genes). No wonder the prince of Denmark cannot make up his mind.

territory, as commentators usually assume, but the central subject of the poem, occasioned by an ancient sex-ratio imbalance, a fact he unearthed in part from studies of the archaeological records of contemporary grave sites.

One of the central beliefs of evolutionary psychology is that pleasure is adaptive, so it is meaningful that Literary Darwinism is enjoyable to practice. But while its observations on individual books can be fun and memorable, they also feel flimsy. As David Sloan Wilson, an editor of "The Literary Animal" and a professor of biology and anthropology at SUNY-Binghamton, puts it, "Tasty slice, but where's the rest of the pie?"

And Literary Darwinism is not equally good at explaining everything. It is best on big social novels, on people behaving in groups. As the British novelist [Ian McEwan](#) notes in his contribution to "The Literary Animal," "If one reads accounts of . . . troops of bonobo . . . one sees rehearsed all the major themes of the English 19th-century novel." But I don't think even by stretching one's imagination primates evoke "The Waste Land" or "Finnegans Wake." Tone, point of view, reliability of the narrator - these are literary tropes that often elude Literary Darwinists, an interpretive limitation that can be traced to Darwin himself; his son once complained that "it often astonished us what trash he would tolerate in the way of novels. The chief requisites were a pretty girl and a good ending." Darwin was drawn to books that were Darwinian. Similarly, Literary Darwinists are better on Émile Zola and John Steinbeck than, say, Henry James or Gustave Flaubert. I would read their take on Shakespeare's histories before the tragedies and the tragedies before the comedies, and in "The Tempest" I'd be curious about their observations on the Prospero, Miranda and Fernando triad but not on Caliban or Ariel. I don't care if there are selection pressures on mooncalves and sprites.

Ultimately, Literary Darwinism may teach us less about individual books than about the point of literature. But what can the purpose of literature be, assuming it is not just a harmless oddity? At first glance, reading is a waste of time, turning us all into versions of Don Quixote, too befuddled by our imaginations to tell windmills from giants. We would be better off spending the time mating or farming. Darwinists have an answer - or more accurately, many possible answers. (Literary Darwinists like multiple answers, convinced the best idea will win out.) One idea is that literature is a defense reaction to the expansion of our mental life that took place as we began to acquire the basics of higher intelligence around 40,000 years ago. At that time, the world suddenly appeared to homo sapiens in all its frightening complexity. But by taking imaginative but orderly voyages within our minds, we gained the confidence to interpret this new vastly denser reality. Another theory is that reading literature is a form of fitness training, an exercise in "what if" thinking. If you could imagine the battle between the Greeks and the Trojans, then if you ever found yourself in a street fight, you would have a better chance of winning. A third theory sees writing as a sex-display trait. Certainly writers often seem to be preening when they write, with an eye toward attracting a desirable mate. In "The Ghost Writer," [Philip Roth's](#) narrator informs another writer that "no one with seven books in New York City settles for" just one woman. "That's what you get for a couplet."

Yet another theory is that the main function of literature is to integrate us all into one culture; evolutionary psychologists believe shared imaginings or myths produce social cohesion, which in turn confers a survival advantage. And a fifth idea is that literature began as religion or wish fulfillment: we ensure our success in the next hunt by recounting the triumph of the last one. Finally, it may be precisely writing's uselessness that makes it attractive to the opposite sex; it could be that, like the male peacock's exuberant tail, literature's very unnecessaryness speaks to the underlying good health of its practitioner. He or she has resources to burn.

Generally, Literary Darwinism positions literature not as a luxury or as an add-on but as connected with our deepest selves. There is a grandeur to this view, and also a good deal of conjecture. That is because evolutionary biology is unusual among the sciences in asking not just "how" things work but also "why" - and not the why of local explanations (Why does water freeze at 32 degrees?) but the why of deeper ones, why something exists (Why did we evolve lungs? Why do we feel love?). There is no lab protocol to solve these sorts of mysteries, which the inductive techniques of science are poorly designed to answer, and so in the end, evolutionary biologists' conclusions can far outrun their research.

Take, for example, the human fear of snakes. According to Edward Wilson, this fear had its beginning in prehistoric times, when many of our ancestors were killed by snake bites. Those who feared snakes survived in greater numbers than those who didn't. This was the period when the human brain was becoming hard-wired, so our fear, rooted now in our genetic makeup, outlived its usefulness. Even after snakes stopped killing us very often, we remembered how we felt when they did. Over time, because they had traumatized us when we were most impressionable, snakes took a central role in our imaginative lives, becoming a center of our religion and art - whence the protection of the kings of ancient Egypt by the cobra goddess Wadjet; Quetzalcoatl, the Aztec serpent god of death and resurrection; and the fascination D.H. Lawrence felt when an uninvited guest slithered "his yellow-brown slackness soft-bellied" down to his water trough.

It is a nice story backed by some evidence. Children have a readiness to fear snakes that needs only an encounter or two to set it off. Their fear remains even after they outgrow ordinary childhood fears. And many primates, our nearest relatives, also have a readiness - an easily evoked potential - to be afraid of snakes. But we need to know a great deal before asserting that our snake obsession is an example of the sort of "gene-culture co-evolution," in Wilson's words, that evolutionary psychology - and literary Darwinism - depend on. For one thing, if there is a module in the brain that contains the predisposition to fear snakes, it has not yet been found. Nor do we really know how many snake deaths there were in prehistoric times. Nor whether that number was sufficient to create a phobia, which, moreover, for some reason would have had to remain fixed until the present day in the human mind instead of dropping out through further evolutionary selection, as you might expect a useless phobia to do. Today it might be people who love snakes who outproduce the ophidophobes, since some snakes make good eating and their skins can be sold for money, yet we have no evidence of this pattern. At the same time, we must ask why there are equivalent or greater dangers our ancestors withstood that do not seem to have led to phobias - for instance, fire.

When you try to evaluate the importance of snakes to myths and the arts, you have to make several more assumptions. First, are snakes any more prominent in our imaginations than, say, eagles, which have never preyed on us? And if they are, does it not seem as likely that our fascination with them comes from there being something special (module-activating, if you like) about the snake's motion or its shape - its resemblance to a stick, or pace Freud, to the penis? Or about the fact that it kills with poison rather than through lethal wounding, as most wild animals do? Why trace our fear of them only back to their supposed role as a prehistoric killer of our ancestors?

Sometimes evolutionary psychological theory feels like a start toward a science rather than a science itself. Consider, for instance, the larger question of the human imagination's role in evolution. Let's assume the capacity for imagination is inherited. Then most evolutionary psychologists would assume that human imagination was favored by natural selection and that it helps us to survive. But imagination could just as well not be an adaptation to (imagined) survival pressures but an accidental byproduct of such an adaptation. Maybe evolutionary pressures favored a related mental process like, say, curiosity, and because the higher brain, where such mental activities reside, is a sort of huge pool of neurons, it also produced the capacity for imagination. And, as [Stephen Kosslyn](#), a Harvard psychology professor, notes, "Whether any of this was itself the target of natural selection is anybody's guess."

To be fair, evolutionary psychologists deserve credit for asking whether complex human behavior can be transmitted through a genetic-cultural link even if they cannot yet show that it is. Theirs remains an alluring approach. What they need in order to overcome their problems is the equivalent of the early-20th-century elaboration of the function of genes - or at least more and better hard science to support their conclusions.

A similar focus would help Literary Darwinists. They would benefit from studying writers and readers in the laboratory to see what parts of the brain our taste for literature comes out of and what the implications are. Such experiments could reveal quite remarkable things. For instance, we know that a structure in the brain called the hippocampus has a key role in long-term memory formulation. Scanning readers using functional M.R.I.'s - M.R.I.'s set to track blood flow to different areas of the brain - we can also see how different works activate their readers' hippocampuses. Those words that light up the hippocampus the most are the ones people wind up remembering best. So functional M.R.I.'s of the hippocampus could provide the beginning of a biological basis for the hoary assumption that "Pride and Prejudice" is a classic and maybe even a justification for the rest of the literary canon.

Even more interesting, brain scanning might one day help to explain the act of reading itself. "Reading is a funny kind of brain state," says Norman Holland, a professor who teaches a course on brain science and literature at the University of Florida in Gainesville. "If you're engrossed in a story, you're no longer aware of your body; you're no longer aware of your environment. You feel real emotions toward the characters." What is going on in our heads? Are we in a dream? A heightened reality? A trance?

Edward Wilson told me that he is confident neurobiology can help confirm many of evolutionary psychology's insights about the humanities, commending the work to "any ambitious young neurobiologist, psychologist or scholar in the humanities." They could be the "Columbus of neurobiology," he said, adding that if "you gave me a million dollars to do it, I would get immediately into brain imaging." In fact, you won't always need a million dollars for the work, as the cost of M.R.I. technology goes down. "Five years from now, every psychology department will have a scanner in the basement," says Steven Pinker, a Harvard cognitive psychologist. With the help of those scanners, Wilson says that science and the study of literature will join in "a mutualistic symbiosis," with science providing literary criticism with the "foundational principles" for analysis it lacks.

David Sloan Wilson, the co-editor of "The Literary Animal" (and the son of the novelist Sloan Wilson), sees the potential of that embrace differently. "Literature," he says, "is the natural history of our species," and its diversity proves us diverse. No one in "Pride and Prejudice" takes exception when, at the book's opening, Elizabeth Bennet's father's cousin comes to propose to her. In Daniel Defoe's "Moll Flanders," the title character can, at the same time, consider her incest with her brother "the most nauseous thing to me in the world" and say she "had not great concern about it in point of conscience" because she had not known they were related. Humans are complex, and the best books about them are too. So rather than narrowing literature, David Wilson says that Literary Darwinism may broaden evolutionary psychology.

It may, in fact, have already done so. Think about evolutionary psychology. It is seductive and metaphoric, alluring and imagistic. It is fun to riff on. It takes bits of information and from them builds a worldview. It convinces us that we understand why things happen the way they happen. When it succeeds, evolutionary psychology impresses us with the elegance and economy of that vision and, when it fails, gives us a sense of waste and unthriftiness on the author's part. It may be true or it may just have some truth in it, and once you have encountered it, you can never see things quite the same way again: it works a kind of conversion in you. Isn't it, then, already a lot like literature?

D.T. Max, a frequent contributor to the magazine, is working on "The Dark Eye," a cultural and scientific history of mad cow and other prion diseases.