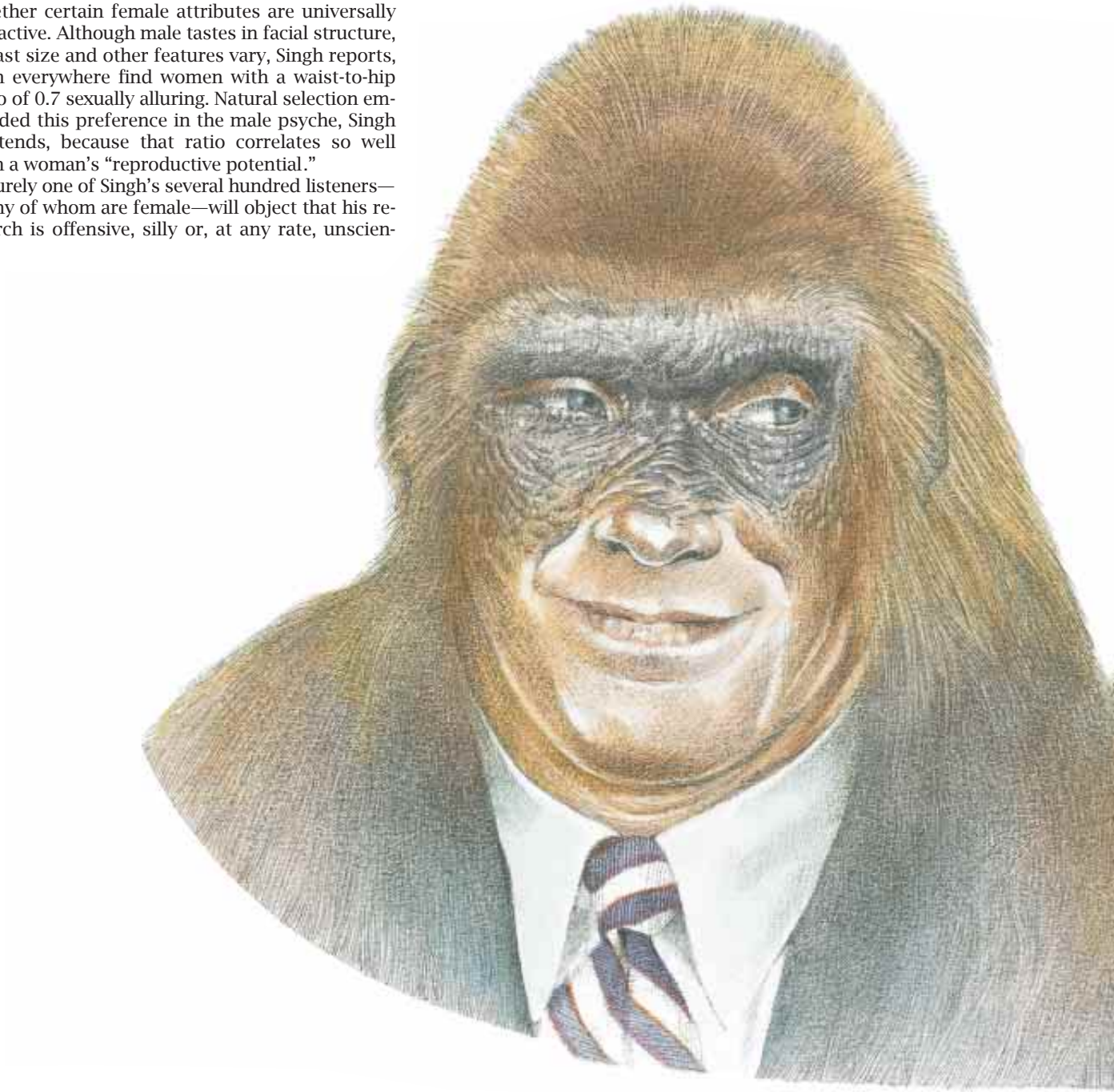
The New Social Darwinists

by John Horgan, *senior writer*

The headless woman in black leather panties has got to be the last straw. Devendra Singh, a psychologist at the University of Texas at Austin, flashes the photograph of the curvaceous torso on a giant screen during his talk on "men's preference for romantic relationships." For years Singh has been circling the globe, showing "sexy" pictures like this to men in an effort to determine whether certain female attributes are universally attractive. Although male tastes in facial structure, breast size and other features vary, Singh reports, men everywhere find women with a waist-to-hip ratio of 0.7 sexually alluring. Natural selection embedded this preference in the male psyche, Singh contends, because that ratio correlates so well with a woman's "reproductive potential."

Surely one of Singh's several hundred listeners—many of whom are female—will object that his research is offensive, silly or, at any rate, unscientific. Men's tastes are obviously dictated by culture, someone will argue, rather than by "instinct." But this is no ordinary social science meeting. It is the annual conference of the Human Behavior and Evolution Society. Attendees are trying to fulfill Charles Darwin's prophecy (reprinted on the cover of the meeting's program, along with a photograph of a bare-



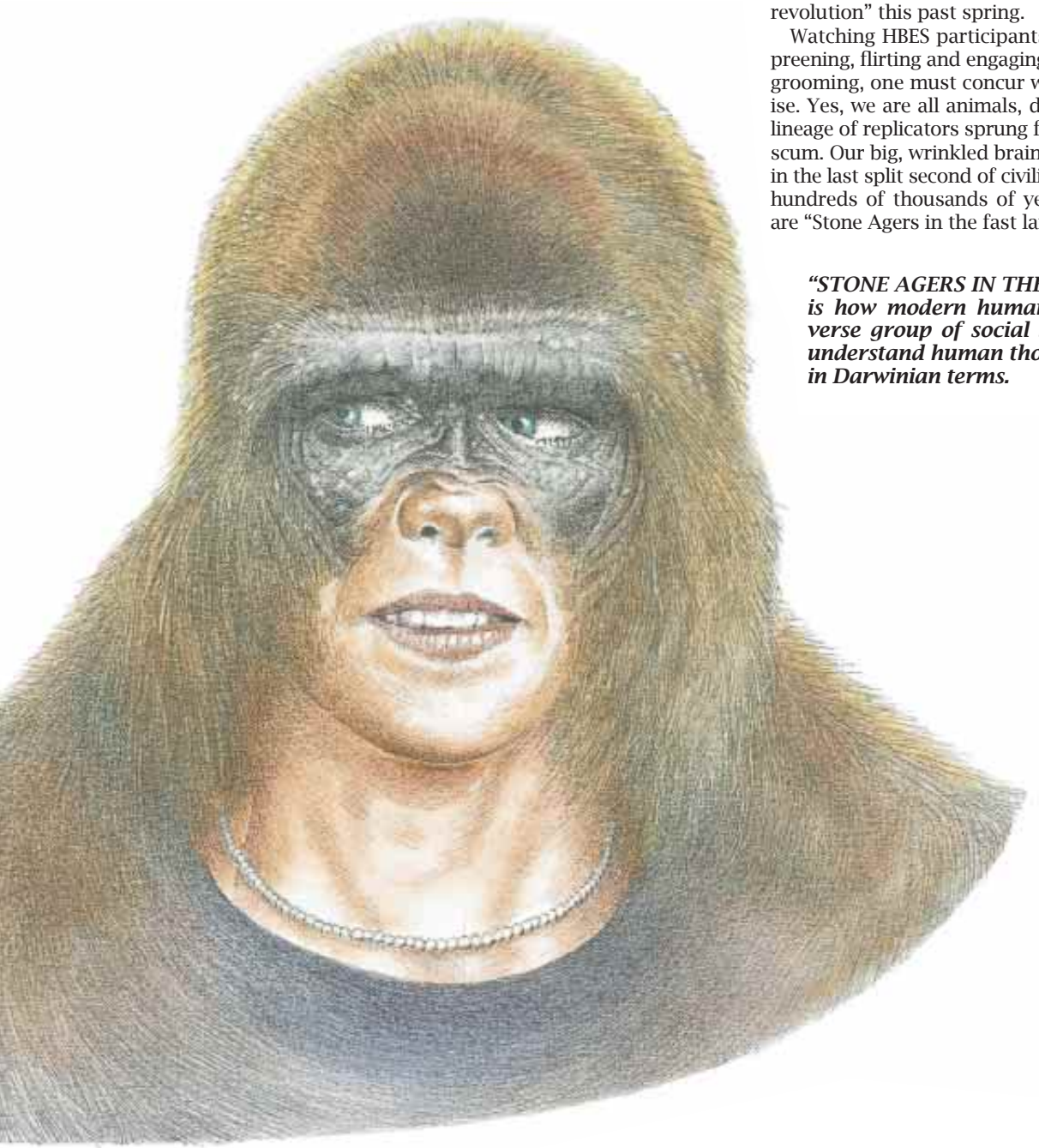
Psychologists and others try to sidestep old pitfalls—both political and scientific—as they apply evolutionary theory to the clothed ape

breasted Amazonian maiden) that "in the distant future… [p]sychology will be based on a new foundation"—that is, Darwin's own theory of evolution by natural selection.

Darwin, as usual, was right—about Darwinian psychology being in the distant future, that is. But over the past decade evolutionary theory has been racing, like a mutant virus, through the social sciences. In the seven years since the HBES was founded, it has attracted a growing number of psychologists, anthropologists, economists, historians and others seeking to understand human affairs (in all senses of the word). Publishers have released a swarm of books by scientists and journalists propounding the "new" paradigm. A highly regarded PBS series, *The Human Quest,* highlighted what it dubbed the "second Darwinian revolution" this past spring.

Watching HBES participants bonding, bickering, preening, flirting and engaging in mutual rhetorical grooming, one must concur with their basic premise. Yes, we are all animals, descendants of a vast lineage of replicators sprung from primordial pond scum. Our big, wrinkled brains were fashioned not in the last split second of civilization but during the hundreds of thousands of years preceding it. We are "Stone Agers in the fast lane," as S. Boyd Eaton,

"STONE AGERS IN THE FAST LANE": that is how modern humans appear to a diverse group of social scientists trying to understand human thought and behavior in Darwinian terms.



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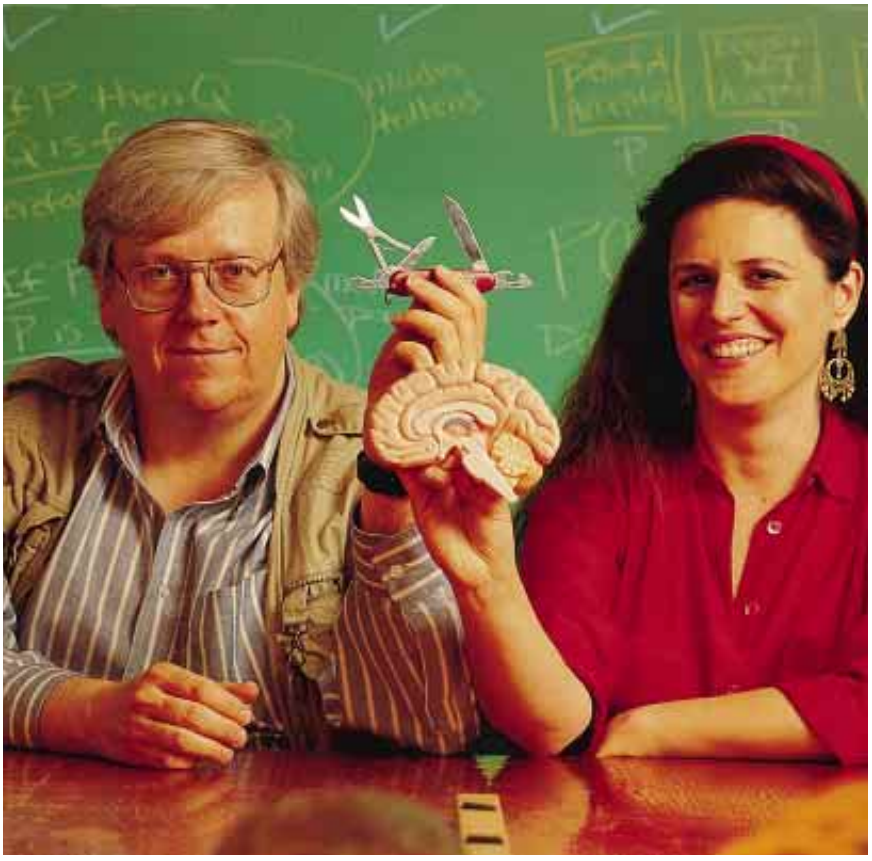


ALAN LEVENSON

THE MIND IS A SWISS ARMY KNIFE, crammed with tools designed for specific problems that faced our hunter-gatherer ancestors, say evolutionary psychologists Leda Cosmides and John Tooby of the University of California at Santa Barbara.

a physician at Emory University, puts it.

But just how much can the new social Darwinism tell us about our modern, culture-steeped selves? Even enthusiasts admit that the field has much to prove before it can shake the old complaint that it traffics in untestable "just-so stories" or truisms. Singh's work in "Darwinian aesthetics" is a case in point. His finding, once unpacked, hardly seems profound. Men desire young, healthy women—neither starving nor obese—who are not already pregnant and whose hips are wide enough to deliver a child. Do we really need Darwinian theory to tell us that?

Actually, we do, replies Randolph M. Nesse, a psychiatrist at the University of Michigan who helped to organize the first HBES meeting and one of the society's most respected members. Most social scientists, Nesse points out, still assert that our concepts of beauty are culturally determined; only Darwinists attempt to explain why certain aspects of beauty are universal. Nesse adds that just as it does for biology, Darwinian theory can also provide a much needed framework for the social sciences, which are now in disarray.

Yet Nesse admits that he often becomes frustrated by his field's inability to predict counterintuitive phenomena rather than to offer retroactive explanations of all too familiar ones. He would like to see researchers construct the rigorous "ladders of inference" that have made fields such as, say, molecular genetics so successful. "We're just getting started," Nesse says. "To see this as a mature field would be a mistake."

The Modular Mind

The HBES conference demonstrates, if nothing else, the astonishing ambition of the new social Darwinists. Topics range from the evolution of religious symbology to the resurgence of spouse swapping among middle-class Americans. The meeting sounds at times like a pep rally. There is much gleeful bashing of those deluded souls who think culture—whatever that is—determines human behavior. When anthropologist Lee Cronk of Texas A&M University derides cultural determinism as a "religion" rather than a rational stance, his audience roars with laughter.

But serious disagreements lurk beneath the seeming unity of the gathering. Just how malleable are our minds? To what extent are we creatures of instinct, as opposed to reason? Just how consciously do we pursue our genetic interests? To what degree do the differences between individuals and ethnic groups reflect genetic rather than cultural influences?

Moreover, some of the new social Darwinists, in their effort to avoid the political pitfalls into which their predecessors stumbled, have become hard to distinguish from culturalists. Most shun the naturalistic fallacy, the conflation of what is with what should and must be. This view was typified by the original social Darwinists of a century ago, who argued that those at the top of the Victorian heap deserved to be there.

Nesse and other HBES founders also deliberately chose not to include the controversial term "sociobiology" in the society's name. Sociobiology is closely associated with Edward O. Wilson of Harvard University, who was tarred as a genetic determinist for arguing in his 1975 classic *Sociobiology* and later works that evolutionary theory can illuminate the social behavior not only of termites and baboons but also of humans.

To be sure, the society's official journal is called *Ethology and Sociobiology,* and some of the veterans here still defiantly call themselves sociobiologists, out of loyalty to Wilson or sheer stubbornness. Others, while acknowledging their debt to sociobiology, contend that sociobiologists often ignored the mind's role in mediating the links between genes and human behavior. To reflect this emphasis on the mind, they call themselves evolutionary psychologists.

Leda Cosmides and John Tooby, a wife-and-husband team at the University of California at Santa Barbara, are leaders of evolutionary psychology. Some sociobiologists, they note, have implied that the human brain is a calculating machine dedicated to "maximizing fitness" in all environments. If that were true, they say, no one would forgo having children; in fact, men would all be lining up at sperm banks so that they might have as many offspring as possible.

In the (dare one say it) seminal 1992 book *The Adapted Mind,* which they coedited with Jerome H. Barkow of Dalhousie University, Cosmides and Tooby assert that the mind consists of a motley collection of specialized mechanisms, or modules, designed by natural selection to solve problems that faced our hunter-gatherer forebears, such as acquiring a mate, raising children and dealing with rivals. The solutions often involve such emotions as lust, fear, affection, jealousy and anger.

Cosmides and Tooby also emphasize,

as sociobiologists often did not, that Darwinian theory need not conflict with the liberal principle that all humans are created equal (more or less). "Evolutionary psychology is, in general, about universal features of the mind," they have written. "Insofar as individual differences exist, the default assumption is that they are expressions of the same universal human nature as it encounters different environments."

Gender is the crucial exception to this rule. Evolutionary psychologists insist that natural selection has constructed the mental modules of men and women in very different ways as a result of their divergent reproductive roles. David M. Buss, an evolutionary psychologist at the University of Michigan, says his research on sexual attraction and "mate choice" reveals a distinct gender gap.

Buss has surveyed men and women worldwide about their sexual attitudes. He has concluded that men, because they can in principle father a virtually infinite number of children, are much more inclined toward promiscuity than are women. Women, because they can have on average only one child per year, are choosier in selecting a mate. Men in all cultures place a greater premium on youth and physical attractiveness—which Buss calls cues to fertility—than do women, to whom male "resources" are more important. Similarly, because men can never be sure that a child is theirs, their jealousy tends to be triggered by fears of a mate's sexual infidelity. Women, on the other hand, become more upset at the thought of losing a mate's emotional commitment and thus his resources.

Buss realizes that these conclusions, which he spells out in his 1994 book *The Evolution of Desire,* might seem obvious to the "man in the street." But some influential social scientists, he notes, have held that the man in the street is wrong, that culture rather than nature determines sexual attitudes. This view was typified by Margaret Mead, who in her famous book *Coming of Age in Samoa* depicted a society in which men and women pursue sexual pleasure with equal abandon, and jealousy is unknown. Buss says work by him and others has shown that Mead's vision was a fantasy.

The persistence of male jealousy, Buss adds, also contradicts the suggestion of some sociobiologists that our minds rationally calculate how to maximize our reproductive prospects under any and all circumstances. Male jealousy made sense in a hunter-gatherer environment, Buss explains, because when acted on, it could improve the chances that a male's genes were propagated rather than a competitor's. But modern males, Buss says, will become enraged by a mate's unfaithfulness even if she is using birth control.

Our Cheating Hearts

One of the few HBES members who still calls herself a sociobiologist, Sarah Blaffer Hrdy of the University of California at Davis, accuses Buss of caricaturing the views of sociobiologists and even cultural determinists. If Mead saw the world through the filter of her own fantasies, Hrdy comments, so have many male investigators of sexual behavior—such as those who study the evolutionary significance of female breast symmetry.

"Men just love coming up with scenarios for female breasts because they love looking at them," Hrdy snaps. She complains that far too much time has been expended on "preference" studies like Buss's; sexual behavior is often more complex, and calculated, than such surveys suggest. For example, male jealousy may often be irrational, but the female preference for mates with money makes perfect sense today, given that women's economic opportunities are still limited in most societies. Hrdy concurs with the statement of one HBES speaker that evolutionary psychologists must move beyond their "discovery" that "men like pretty girls and women like wealthy men."

Some researchers think Cosmides has done just that. One of the mind's most useful modules, she proposes, is dedicated to detecting "cheating" by others. Her hypothesis is a corollary of a bracingly cynical concept called reciprocal altruism, first advanced in 1971 by Robert L. Trivers of Rutgers University. Trivers proposed that altruism could have arisen among our forebears only if it led to some "tit for tat" benefit.

Building on this insight, Cosmides argues that in a society bound by reciprocal altruism, natural selection would have favored both those who could cheat successfully and those who could spot cheaters. In tests with volunteers, Cosmides showed that humans are much more adept at solving problems if the solution requires the detection of cheating rather than some purely logical, abstract chain of reasoning.

At the meeting, economist Vernon Smith of the University of Arizona says his research supports the hypothesis of Cosmides. In Smith's experiments, volunteers have the opportunity to earn hundreds of dollars by successfully negotiating various complex transactions with others. (Needless to say, Smith has no trouble recruiting volunteers for his research.) The transactions are all variations of the famous Prisoner's Dilem-

Can Darwin Explain Everything?

At the annual meeting of the Human Behavior and Evolution Society, speakers invoked evolutionary theory to explain a broad range of phenomena.

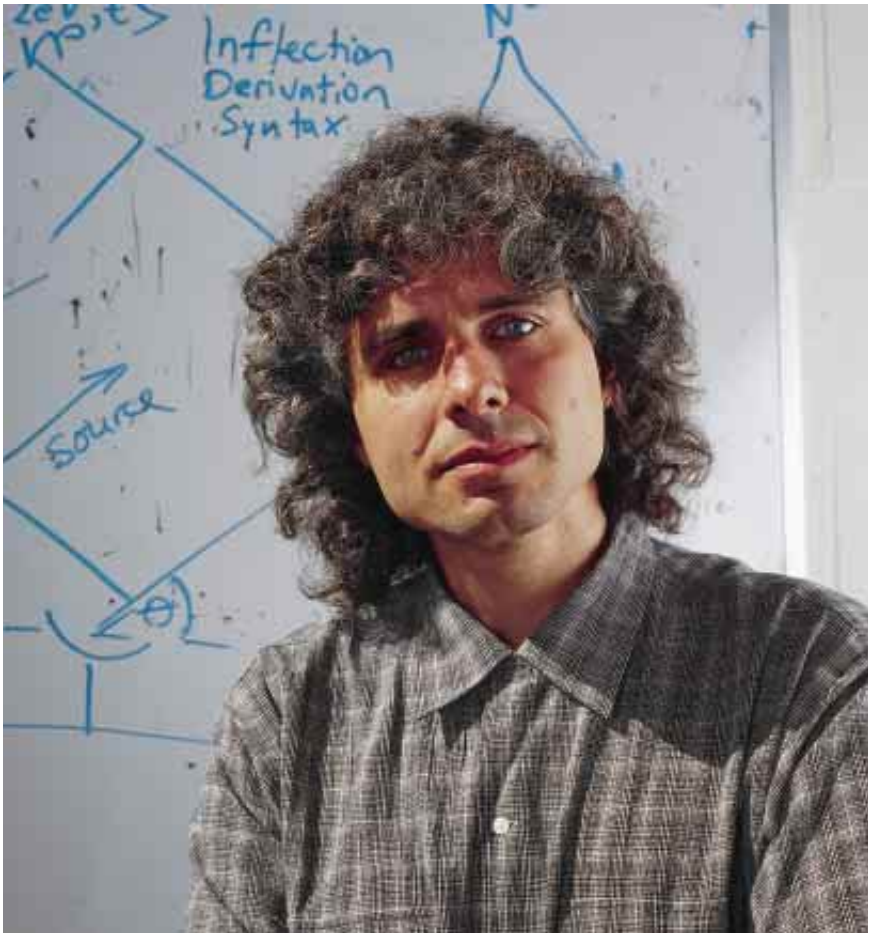
Sex, Politics and Religion. Secular and religious laws in societies such as imperial Rome and medieval England, asserts Laura Betzig of the University of Michigan, represented strategies of male rulers to accumulate and retain wealth and power, which led in turn to greater sexual opportunities.

Male Dominance of Culture. The fact that art, music and literature are produced largely by men between the ages of 20 and 40 suggests that culture "is primarily sexual display by young males," says Geoffrey Miller of the University of Nottingham.

The Amorous Female Tourist. The tendency of certain affluent women to pursue sexual liaisons with low-status men while on vacation, in seeming violation of Darwinian tenets, may actually be motivated by the women's innate desire for "social connectedness," according to April Gorry of the University of California at Santa Barbara.

Female Beauty. Men desire women with full lips and small chins, says Victor S. Johnston of New Mexico State University, because these attributes correlate with high estrogen levels and thus high fertility.

Problems during Pregnancy. The hypertension afflicting some pregnant women, suggests David Haig of Harvard University, may result from a "selfish gene" strategy of the fetus; the strategy causes the fetus to draw too heavily on the mother's resources—that is, the nutrients in her blood.



JESSICA BOYATT

STEVEN PINKER argues that language must be a creation of natural selection, but his M.I.T. colleague and fellow linguist Noam A. Chomsky demurs.

ma: each participant must decide whether to betray his or her counterparts and earn a guaranteed sum or trust them and possibly earn more—or even less—than the original amount.

Smith expected his subjects to calculate their selfish interests with cold rationality; that is the prediction of rational-choice theory, which is gospel among most economists. But the volunteers tended to be more trusting initially and, if their trust was betrayed, more unforgiving than they would be if behaving rationally. Smith was puzzled by his results until he discovered the writings of Cosmides and Tooby, who have emphasized the role of emotion in social transactions.

The modularity model has attracted mental health researchers as well. Alan M. Leslie, a psychologist at Rutgers, presents evidence that autism stems from a disorder of what he calls the theory-of-mind mechanism. According to this hypothesis, normal children have an innate ability to create internal representations, or "theories," of others' mental states. This ability has obvious adaptive value, Leslie explains, because it allows us more effectively to predict and manipulate the behavior of others. Autistic children often score well on intelligence tests—unless those tests require them to empathize with or predict the behavior of others.

Is Language an Instinct?

Another convert to evolutionary psychology is Steven Pinker, a linguist at the Massachusetts Institute of Technology. In a lecture at the HBES meeting, Pinker, who plans to spend the next year working with Cosmides and Tooby in Santa Barbara, delivers a Cliff Notes version of his well-received 1994 book *The Language Instinct.* Language is far too complex, Pinker contends, to be entirely learned; it must stem from an innate program hardwired into our brains. Moreover, language is common to all cultures (unlike reading and writing), and all physiologically normal children learn to speak fluently with little or no effort. Research has also shown that all languages share common features, suggesting that natural selection favored certain syntactic structures.

"I'm going to make some extremely banal points," Pinker adds. Language, he asserts, almost certainly arose because it was adaptive—that is, it conferred benefits on our hunter-gatherer ancestors. Language would allow early hominids to share learned skills related to toolmaking, hunting and other activities. Those especially adept at language would be able to manipulate others, form alliances and enjoy other advantages that would translate into more offspring. "I don't intend these points to be taken as revolutionary," Pinker says, "but they are generally denied when they are brought up at all."

In fact, these "banal" points are denied by none other than Pinker's legendary M.I.T. colleague and fellow linguist Noam A. Chomsky. Evolutionary psychologists are all, in a sense, heirs of Chomsky's. Almost 40 years ago Chomsky routed the behaviorists' tabula-rasa view of the mind by arguing convincingly that language is innate. But since then, Chomsky has cast doubt on the assumption that language is an adaptive trait, favored by natural selection.

Some Darwinists hint that Chomsky's position must be linked somehow to his leftist politics. Chomsky retorts that he simply recognizes, as Pinker and others do not, the limits of Darwinian explanations. He accepts that natural selection may have played *some* role in the evolution of language and other human attributes. But given the enormous gap between human language and the relatively simple communication systems of other animals, Chomsky says, and given our fragmentary knowledge of the past, science can tell us little about how language evolved.

Just because language is adaptive now, Chomsky elaborates, does not mean that it arose in response to selection pressures. Language may have been an incidental by-product of a spurt in intelligence that only later was coopted for various uses. The same may be true of other properties of the human mind. Evolutionary psychology, Chomsky complains, is not a real science but "a philosophy of mind with a little bit of science thrown in." The problem, he adds, is that "Darwinian theory is so loose it can incorporate anything."

Even at the meeting, some investigators find fault with the emphasis of evolutionary psychology on specialized rather than general-purpose abilities. James H. Fetzer, a philosopher at the University of Minnesota, argues that the subjects in the cheating experiments of Cosmides could have been displaying not some innate talent but a learned ability; after all, situations involving potential deception are common in the

modern era, too. Fetzer contends that evolutionary psychologists too quickly dismiss the possibility that humans may possess an all-purpose "heuristics" program; modern civilization and science itself testify to the power of our ability to learn through simple trial and error.

Steven J. Mithen, an archaeologist at the University of Reading, agrees. He faults evolutionary psychologists for implying that the "ancestral environment" was uniform and static rather than highly variable in space and time. The fluidity of the conditions under which our ancestors evolved, Mithen argues, might have favored those whose problem-solving skills, too, were adaptable rather than compartmentalized.

The Docile Yanomamö

But just how adaptable are we? In attempting to explain behavior that does not accord with Darwinian tenets, some theorists have postulated that conformity—or "docility"—is an adaptive trait. Those who go along, get along. In an article in *Science* in 1990 the economist and Nobel laureate Herbert A. Simon of Carnegie Mellon University conjectured that docility could explain why, for example, people obey religious tenets that curb their sexuality and why men fight in wars when as individuals they have little to gain and much to lose.

Although this hypothesis cleverly coopts the culturalists' position, it could also undermine the status of evolutionary psychology as a legitimate science. If a given behavior accords with Darwinian tenets, fine; if it does not, it merely demonstrates our docility. The theory becomes falsification-proof (thus demonstrating Chomsky's point that Darwin can account for anything). Acknowledging the tendency of humans to conform to their culture poses another problem for Darwinian theorists. Given the interconnectedness of all modern cultures, some of the universal, seemingly adaptive attitudes and actions documented by researchers such as Buss might actually result from docility. That is what the culturalists have said all along.

Indeed, Napoleon A. Chagnon, a prominent "Darwinian anthropologist" at Santa Barbara, sounds like a culturalist when he interprets his own work. For more than 20 years Chagnon has studied the behavior of the Yanomamö, one of the few Amazonian tribes still clinging to its primordial way of life. In this polygynous society, men in one village often raid other villages, killing men they encounter there and kidnapping women. Chagnon has found a correlation between the number of homicides that men commit and the number of offspring that they have. On the other hand, those who shrink from violent encounters—Chagnon calls them wimps—are usually "wiped out."

Chagnon has been accused of implying that male violence and even warfare are instinctual and therefore inevitable. He insists that is not his position. The Yanomamö men, Chagnon says, engage in aggressive behavior because it is esteemed by their culture. If they were raised in a society that revered not violence but, say, farming skills, they would quickly conform to that system. Chagnon acknowledges that his view is not so different from that of Stephen Jay Gould of Harvard University, who also emphasizes the malleability of human nature—and is considered by many HBES members to be an archenemy of their enterprise. "Steve Gould and I probably agree on a lot of things," Chagnon says.

The Wicked Stepfather Syndrome

Two other Darwinian researchers who warn against overinterpreting their findings are Margo Wilson and Martin Daly of McMaster University. This married couple has examined what Darwinists consider to be the most perverse of human acts, a parent's murder of his or her own child. Evolutionary theory predicts that we should be particularly solicitous toward those to whom we are

NAPOLEON A. CHAGNON

YANOMAMÖ MEN, shown here preparing for a raid on a neighboring village, are known for their ferocity. Yet anthropologist Napoleon A. Chagnon says they are conforming to their culture rather than acting on an "instinct" for violence.

most closely related. After analyzing murder records from the U.S. and Canada, Wilson and Daly determined that children younger than two were at least 60 times more likely to be killed by a stepparent—and almost always a stepfather—than by a natural parent. The results agreed with evolutionary theory after all.

Wilson and Daly, like David Buss, are sensitive to charges that they have "discovered" the obvious: people like their own children more than the children of others; this message, after all, is embodied in such fairy tales as *Cinderella* and *Snow-White*. Wilson contends that most social scientists have dismissed this "folk wisdom" about evil stepparents rather than trying to determine whether it has any basis.

Wilson and Daly's research is often cited as a model of Darwinian social science, because it addresses an important issue and rests on a large empirical foundation. But even they concede that their work raises some obvious questions. Families with a stepparent might be less stable financially and emotionally than families that have remained intact. Moreover, many stepfathers might have assumed the burden of stepchildren reluctantly when they married. Controlling for such factors is next to impossible, Wilson says.

Some critics have suggested that Wilson and Daly should compare the homicide rates for adopted children with that for natural children. Wilson responds that performing such a study would be extremely difficult, in part because many adoptive parents want to conceal their relationship to their children. If such data were available, she predicts, they would show little or no effect, because couples who adopt are carefully screened for financial security, emotional stability and other factors. They may also be more motivated to have children than many natural parents are.

Wilson and Daly have been contacted by both prosecutors and defense lawyers involved in cases in which a stepparent has killed a child. The defense lawyers are seeking to exonerate their clients on the grounds that "it was in their genes." Applying the same logic, prosecutors have asked whether Wilson and Daly would support stiff sentences to deter other stepparents inclined to commit such a crime. Wilson and Daly have declined to support either position. They emphasize that no one should infer from their results that stepparents are fated to abuse their children; after all, most stepparents treat their children benignly.

The Guy in the Black Hat

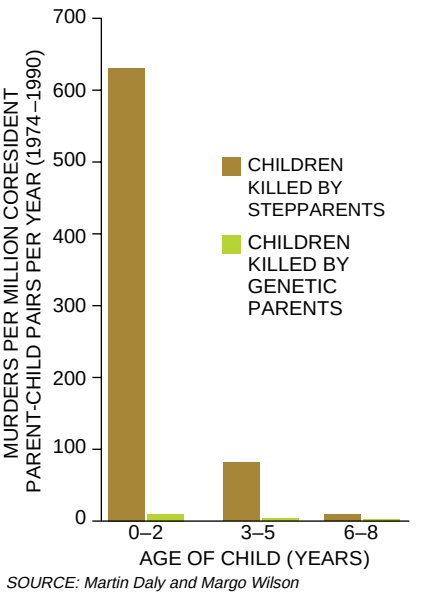
The work of Wilson and Daly—and of Chagnon—raises what is, for those who pursue genetic explanations of human behavior, another divisive issue. Why do some men resort to violence when others, faced with similar situations, refrain from doing so? Wilson, Daly and Chagnon all downplay the possibility that some men are more genetically inclined toward violence than others; the researchers cite environmental factors, such as differences in upbringing, as more likely causes of behavioral differences. This view conforms to the party line of evolutionary psychology, which holds that with the important exception of sex, all humans are born with essentially the same psychological endowment. Cosmides and Tooby have speculated that genetic variation among individuals may protect our species from disease or parasites but should have few significant behavioral consequences.

In fact, the surest way to annoy evolutionary psychologists is to lump them together with behavioral geneticists, who tend to ascribe differences among individuals and even ethnic groups to genetic variation. "I'm the guy in the black hat here," says David C. Rowe of the University of Arizona, one of the few behavioral geneticists invited to give a talk at the conference. (His talk is scheduled for the final session of the final day, after many attendees have left.)

Rowe understands why evolutionary psychologists disavow behavioral genetics: this position makes their work easier both politically and scientifically. If all commonalities can be ascribed to genes and all disparities to the environment, the task of constructing models is enormously simplified; evolutionary psychologists can also distance themselves from the race-obsessed science exemplified by last year's notorious best-seller *The Bell Curve*.

But Rowe still finds the position of Cosmides and Tooby a bit disingenuous. If genes can account for our commonalities, he points out, they can also account for our differences; moreover, evolution would not occur without individual variation. A growing body of evidence, Rowe notes, shows a correlation between genetic variation and such

SUSAN BONNERS



SOURCE: Martin Daly and Margo Wilson

EVIL STEPPARENTS, notorious from fairy tales such as the Grimm brothers' *Snow-White,* may have a basis in fact. Children age two or younger in Canada were some 60 times more likely to be killed by a stepparent than by a genetic parent.

significant behavioral traits as aggression, extroversion, intelligence, homosexuality and depression.

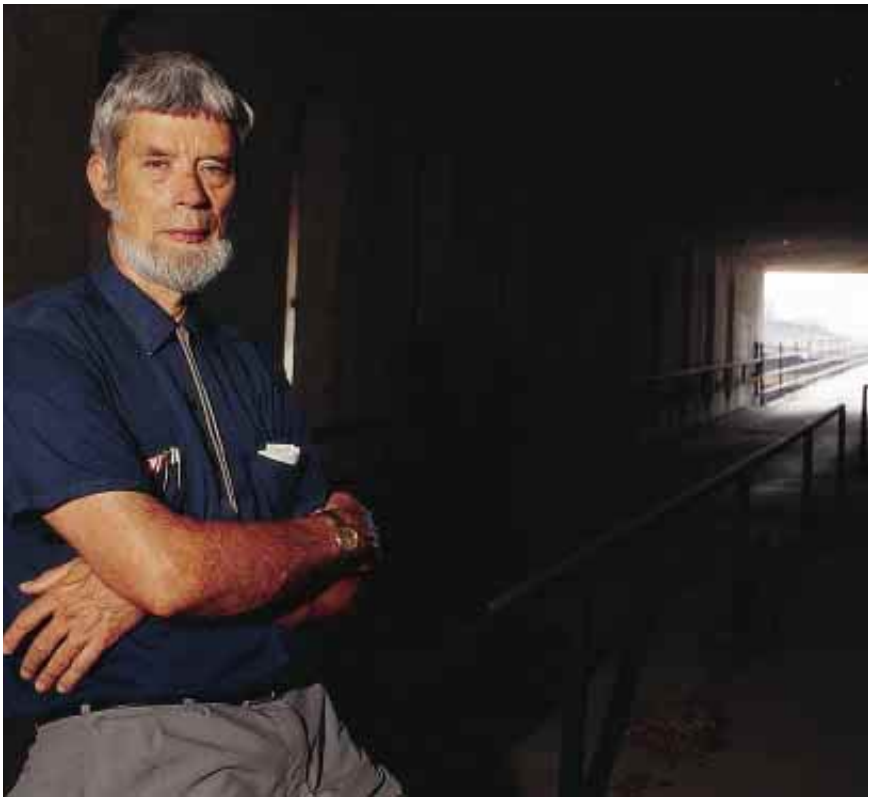
These findings—when combined with the obvious fact that humans conform to their culture—raise what for evolutionary psychologists must be a disturbing possibility. They assume that genes underlie our commonalities and environment our differences. But the reverse may also be true. Culture may account for many of our commonalities, and our differences may reflect genetic variation.

Given their aversion to behavioral genetics, it is no wonder that many evolutionary psychologists are enamored of the work of Frank J. Sulloway. He offers a more palatable explanation for individual variation: birth order. For almost 25 years Sulloway, a historian at M.I.T., has compiled data on links between birth order and personality. Firstborn children, he has concluded, are much more likely than their younger siblings to be conservative, to support the status quo and to reject new scientific or political ideas. Later-born children, in contrast, tend to be more adventurous, radical, open-minded, willing to take risks.

Sulloway acknowledges that in 1983 two Swiss psychiatrists surveyed all the previous literature on birth-order effects and concluded that they were illusory. Sulloway says his meta-analysis of their data turned up a "huge" effect that they missed. He contends that most of the great revolutions in modern history—scientific and political—have been led and supported by later-borns and opposed by "stubborn" firstborns. Darwin, for example, was the fifth of six children, and those who supported his theory also tended to be later-borns.

Evolutionary psychology, Sulloway says, accounts for these findings. The longer children survive beyond the perils of infancy, the more likely it is that they will reproduce and thus propagate their parents' genes (other factors being equal). Parents thus tend to invest more "resources" in older children. Firstborns seek to exploit this situation by maintaining a close relationship with their parents and other authorities. Later-borns, with less to lose, have more incentive to embrace change and disorder. "From a Darwinian point of view, it is just impossible that birth-order effects don't exist," declares Sulloway (who, needless to say, is a later-born).

Sulloway's theory, although acclaimed on the front page of the *Wall Street Journal,* has not undergone peer review yet. Sulloway has packed his analysis of history into an 800-page book, entitled *Born to Rebel,* scheduled to be published next year. Like many other listeners, George C. Williams of the State University of New York at Stony Brook is both fascinated by and skeptical of Sulloway's results. "I keep thinking of counterexamples," Williams says. Isaac Newton, for example, was a firstborn.



ROBERT PROCHNOW

GEORGE C. WILLIAMS, a leading evolutionary theorist, admits to feeling some "nervous hesitation" over the application of Darwinian concepts to humans.

The Darwinian Society

Williams is one of the most venerated elders of the HBES and of evolutionary biology in general. In his classic work *Adaptation and Natural Selection,* published in 1966, he posed a question that still inspires his younger colleagues: "Is it not reasonable to anticipate that our understanding of the human mind would be aided greatly by knowing the purpose for which it was designed?"

Williams remains active in the field he helped to create. In *Why We Get Sick: The New Science of Darwinian Medicine,* published this year, he and Nesse argue that evolutionary theory can help physicians understand and treat physical and mental disorders. Williams also has high hopes for what he calls Darwinian epistemology. Is there some adaptive reason, he asks, why we organize reality into space and time? After all, one profound lesson of modern physics is that our "commonsense" views of space and time are highly arbitrary. But Williams, noting how easy it is to misunderstand and misapply evolutionary theories of human nature, admits he has "some nervous hesitation about the whole business."

Lionel Tiger, an anthropologist at Rutgers, contends that Darwinian science inevitably will, and should, have legal, political and moral consequences; some of the most pressing issues of the 1990s—abortion, birth control, sexual discrimination, homosexuality—are "in Darwin's beat." Tiger says he knows of at least one Supreme Court justice and several high-ranking Pentagon officials who have taken an interest in evolutionary psychology and are considering applying it in their realms. Ready or not, here comes the Darwinian society.

Further Reading

THE RED QUEEN: SEX AND THE EVOLUTION OF HUMAN NATURE. Matt Ridley. Penguin Books, 1993.

THE MORAL ANIMAL: THE NEW SCIENCE OF EVOLUTIONARY PSYCHOLOGY. Robert Wright. Pantheon Books (Random House), 1994.

EVOLUTIONARY PSYCHOLOGY: A NEW PARADIGM FOR PSYCHOLOGICAL SCIENCE. David M. Buss in *Psychological Inquiry,* Vol. 6, No. 1, pages 1–30; 1995.