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Letters Editor
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The following is a letter responding to Jerry Coyne's article "Of mice and men" that was published in the 04.03.00 issue.

To the editors:

Although we too are skeptical that many of the interventions proposed by Thornhill and Palmer to reduce the incidence of rape would prove effective, Jerry Coyne's review of their book blunders badly - even unethically - when he moves beyond his (and our) unfounded guesses about public policy and into the actual science involved. Coyne congratulates himself for (supposedly unlike others) evaluating their book as a "scientist". If so, he needs to reacquaint himself with such scientific basics as a commitment to be factually accurate rather than to originate falsehoods, to learn at least a bare minimum about the fields he pronounces on, to ground generalizations on a representative set of cases rather than typologizing tendentiously from imaginary or idiosyncratic examples, and, when engaged in critical evaluation, to fairly and accurately characterize the views of those criticized rather than to propagate academic urban legends. Coyne manages to saturate his review with violations of these basics, at times deftly packing them all into single sentences. This starts no later than his opening characterization of evolutionary psychology: "Most of its adherents are convinced that virtually every human action or feeling, including depression, homosexuality, religion, and consciousness, was put directly into our brains by natural selection."

As even many casual readers know, from the field's founding, leading evolutionary psychologists have vigorously and clearly championed precisely the opposite view. By going to the *New York Times* March 14th article on evolutionary psychology, for example, to get a neutral list of other leading researchers ("adherents") in the field (Don Symons, Martin Daly, Margo Wilson, Steven Pinker, David Buss, Randy Nesse, ourselves, etc.) and consulting their writings, one finds that each has made exceptionally lucid general statements on this point, backed up by numerous specifics. For example, in their book *Homicide*, Daly and Wilson identify nearly all of the major categories of what they are investigating - homicide - as nonadaptive; Symons in his *Evolution of Human Sexuality* (where many of Coyne's own arguments concerning human sex differences were first articulated) identifies many major aspects of human sexuality as nonadaptive, including homosexuality (an obvious and consensus view); Pinker in his synthesis *How the Mind Works* similarly articulates the consensus view that music, religion, and the arts appear to be by-products; Randy Nesse and George Williams (arguably the world's most eminent living evolutionary biologist) in their book *Why we get sick* outline numerous examples of nonadaptive features of human biology and psychology; and we ourselves have argued that, along with many other phenomena, the great majority of the thousands of heritable psychological differences in humans could not be psychological adaptations. Coyne's statement is a fabrication, and particularly dishonest in the context of the book being reviewed: Palmer, one of the book's coauthors explicitly argues that the phenomenon of rape is a by-product rather than an adaptation, and the

first section of the book not only addresses but belabors the commonplace nature of evolved by-products.

Coyne, despite his expertise in *Drosophila* genetics, needs to brush up on elementary evolutionary biology as well before attempting to set others straight about it, or before presenting himself as giving an authoritative critique based on his professional background. It is an embarrassingly simple-minded error to state, as Coyne does, that it is "a tautology, or an article of faith" or "unfalsifiable" or "requires no evidence because it is true by definition" to claim that a trait is a by-product of adaptations. Sufficient design evidence, as is the case with the visual system, the biochemistry of blood clotting, or celestial navigation in birds, can establish that the trait in question is an adaptation, not a by-product. Alternatively, traits might be neither adaptations nor by-products of adaptations, but evolutionary noise, such as the numerous neutral or deleterious protein variants found in organisms. So eager is Coyne to propagate the urban legend that adaptationist claims are unfalsifiable that he conceals from readers the reality that hundreds of hypotheses distinguishing these three possibilities are routinely tested every year by evolutionary biologists and evolutionary psychologists. (As part of his theater of "authoritative" dismissal, Coyne conceals from his readers that Randy Thornhill is an evolutionary biologist at least as highly respected as Coyne, instead misidentifying him as an anthropologist. Coyne similarly evades telling his readers that the leaders of modern evolutionary biology, such as George Williams, William Hamilton, John Maynard Smith, and Ernst Mayr, are selectionists and adaptationists of the very kind that Coyne derides. Arguments from authority are inherently weak, but if Coyne is going to resort to them he shouldn't mislead nonspecialists about where the authoritative consensus in his own field lies.)

Far more troubling is Coyne's statement that evolutionary biology and adaptationism have played no "useful role" in biomedical efforts to understand and curb disease. Not only is this another fiction of extravagant proportions, but if it came to be believed it would perpetuate substantial remediable suffering. Our modern understanding of the dynamics of virulence and antibiotic resistance (to name just two areas) are rooted in evolutionary concepts, and, as Ernst Mayr points out, all major advances in the history of physiology were prompted by the key adaptationist question about the function of the organ or process under investigation. Using the same conceptual tools over the past two decades, evolutionary psychologists such as Margo Wilson and Martin Daly have begun to make similar discoveries about many previously unknown risk-factors for such behavioral pathologies as child abuse and spousal violence. Indeed, although it was discussed in the book under review, and central to Coyne's thesis, Coyne mysteriously has nothing to say about Neil Malamuth's successful use of an evolutionary psychological framework to identify and empirically confirm a number of previously unknown risk-factors in the development of a sexually aggressive or sexually coercive orientation in men - that is, the tendency to commit rape. It is certainly Coyne's privilege to refuse to be interested in the scores of new empirical findings so far produced. But pretending they don't exist is not an honest way for Coyne to deal with data that contradict his views.

And here we come to the heart of the matter. Evolutionary psychology rests on a simple premise: In attempting to discover the species-typical design of the human brain and mind ("human nature") and to understand the causes of its richly varied expressions, evolutionary psychologists believe it is better to integrate what we know from all available sources - anthropology, cognitive science, neuroscience, psychology - even dread and taboo evolutionary biology. Which is a better strategy for solving scientific puzzles - bringing together all the pieces one can, or only some of the pieces? It is ridiculous and archaic that this question should still be the object of controversy and uproar. It is curiously overheated to call, as Coyne does, this common sense process of piecing together all relevant information an "ideology," "dogma," "totalistic explanation of human life" or "a theory of inevitability." This is a question of ethics as well as of science. Knowledge always cross-connects in unexpectedly illuminating ways, and we cannot know in advance which elements might provide the missing key to remove a source of human misery. Therefore a

genuine - rather than a feigned - concern for human suffering involves a commitment to improving effective scientific integration. Rather than exploiting appearances for easy and shallow moralizing, researchers of all orientations need to go beneath the surface of debates - however sensational or off-putting - to dispassionately assess and extract what is valuable in the various contributions.

Coyne's naivete about Popper prevents him from recognizing that there is always an inevitable spectrum of discussion - from the general and synoptic to the specific and empirical - that goes on in every field from physics to immunology, so that only the final level of well-specified hypothesis and empirical prediction need be - or even could be - falsifiable. And on that level *research* by leading evolutionary psychologists stacks up very well against the other biological sciences, not to mention traditional psychology, anthropology, and other forms of social and behavioral science carried out innocent of the modern neo-Darwinism, as well as of each other. The well-specified models of psychological (computational) and neural mechanisms that are emerging in evolutionary psychology can be made far more precise and testable than the vague and obsolete theories they are displacing: of a blank slate mind, of computationally unspecified "learning", and of disembodied and psychology-free culture. Coyne expresses no concern whatsoever about the lack of falsifiability (or failure to specify a mechanism) that characterizes the vacuous and magical theories of culture that have reigned unproductively for almost a century. Whatever the sources of hostility to evolutionary psychology, an evenhanded concern with falsifiability and research quality isn't it.

Indeed, Coyne argues that human males and females have evolved different psychologies with respect to aggression and to sex, ratifying without acknowledgement the consensus mainstream view of evolutionary psychologists. If he were to advance or defend his beliefs outside of the context of an attack of evolutionary psychology, he would himself be attacked as an evolutionary psychologist. Ironically, although Coyne considers such views obvious, he seems unaware that any scholar who uses or even shows awareness of the evidence on these points would - at most universities - be ruled out as a candidate for a position in social or cultural anthropology, gender studies, sociology, or even most branches of psychology. Under the status quo, strict ignorance of certain facts and fields is a professional prerequisite in many disciplines. Program officers at NIH, NSF, and elsewhere privately advise applicants to remove all mention of the word "evolution" from their grant applications for them to have any hope of success. Coyne objects to the exasperated tone and uncharitable remarks made by Thornhill and Palmer about social scientists and feminists who shrink from using even routine knowledge from the evolutionary sciences or tolerating others who do (Coyne is surely entitled to his own taste in such matters). But however injudicious Thornhill's and Palmer's adversarial tone, the institutional reality is not one of galloping biological imperialism, but of an entrenched intellectual apartheid, directed fiercely against scholars - including junior scholars - whose only crime is using well-established findings from the evolutionary sciences as one tool among many. After decades of effort, a small breach in the heavily policed walls of separation has finally been established, and a few scholars are trying to fit the pieces together. Coyne bravely leaps into the breach - to do what? To play to the appetite on the part of many modern intellectuals to hear someone apparently authoritative in evolutionary biology give them permission to remain biologically illiterate, through assuring them there is nothing useful or important that they could learn that would help them address the intellectual problems they face.

Finally, the emptiness of Coyne's general claims are reflected in his specific disputes with Thornhill and Palmer about rape. Thornhill and Palmer argue that women evolved to deeply value their control over their own sexuality, the terms of their relationships, and the choice of which men are to be fathers of their children. Therefore, they argue, part of the agony that rape victims suffer is because their control over their own sexual choices and relationships was wrested from them. Coyne calls this view offensive, and argues instead that the pain of rape is explained solely because of the physical trauma of the bodily violation that accompanies it.

However unlikely this seems from either an evolutionary or a feminist perspective (which have many points of contact), his view is not logically impossible. It would, though, predict that the trauma of rape would correspond directly to the degree of violence used in the attack. If Coyne had paid attention to the research reported in the book, and was actually committed to evaluating testable hypotheses rather than pantomiming such a commitment, he would know that his own view had already been falsified by the clinical data on rape victims. In the battle of the just so stories, it appears that Coyne still has a lot to learn from Thornhill and Palmer's. This point is far from trivial: Unlike culturally relativist or blank-slate hypotheses about the psychology of women, this view underscores that throughout history women have suffered intensely whenever their sexual autonomy was taken from them, as it has been in most traditional and many modern societies, even when women were not physically brutalized in pursuit of this control. Rape is simply one form of the far broader phenomenon of sexual coercion - a phenomenon that will require all of the avenues of insight and careful investigation available to us if it is to be understood, reduced or eliminated.

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