From *The Times Literary Supplement,* Sunday, August 15th, 2004

Charm Schools

A Review by Jerry Coyne

In *Evolution's Rainbow*, Joan Roughgarden, a distinguished population biologist, sets out to question Darwin's seminal theory of sexual selection. Until a few years ago, Joan Roughgarden was Jonathan Roughgarden. Her agenda, as a transgendered person, is explicit and ideological: she aims to dismantle the testosterone-soaked Darwinian view of male competition for females, and to replace it with an alternative vision, in which sexual behaviour is not only highly variable -- involving homosexuality, bisexuality and hermaphroditism -- but also mediated through cooperation instead of aggression and competition. In Roughgarden's world, individuals sort out their sexual rivalries through amiable consensus-building. Here, writ small, is a clash between the absolutism of the nineteenth century and the relativism of the twenty-first.

Roughgarden writes for the best of reasons -- to gain equality for gay and transgendered people. To do this, she presents an impressive catalogue of "non-standard" sexual behaviour in nature, and also describes gender variation in diverse human societies. By revealing the breadth of sexual diversity among animals, Roughgarden hopes to enhance the self-esteem of gay and transgendered humans, whose orientation cannot, in the light of her evidence, be seen as "unnatural". She concludes that science also shows that homosexual behaviour cannot be deemed immoral: "The value and naturalness of homosexuality must be as scientifically clear as the earth is round". But there are problems with Roughgarden's arguments, and in the end she fails to make her case that Darwinism has been socially oppressive.

Darwin proposed his theory of sexual selection to explain features of animals with no apparent survival value -- features that seemingly could not be attributed to natural selection. These traits, largely confined to males, include bizarre mating rituals, bright colours, showy ornaments and weapons used in combat. The peacock's tail and the stag's antlers are classic examples. Darwin realized that, even though these traits may not promote survival, they do promote mate acquisition: female peacocks prefer males with the biggest tails, and male deer that out joust other males win access to females.

What Darwin did not understand was why females prefer showier males. He never solved this problem, concluding lamely that "the most refined beauty may serve as a charm for the female, and for no other purpose". But we now understand why males compete for the affection of choosy females, rather than vice versa. Males, who can produce many offspring with only minimal investment, spread their genes most effectively by mating promiscuously. In contrast, female reproductive output is far more constrained by the metabolic costs of producing eggs or offspring, and thus a female's interests are served more by mate quality than by mate quantity. (The Guinness Book of Records awards the laurels for reproductive output to a Moroccan emperor who sired more than 900 offspring. The female record -- though in some ways more remarkable -- is a mere sixty-nine.) This version of Darwin's theory suggests that victory in combat, bright plumage and vigorous displays are indicators of male quality. It is this conflict between the genetic interests of males and females, embodied in the updated neo-Darwinian theory of sexual selection, that explains many of the traits and behaviours that distinguish the sexes.

Roughgarden argues that, by stressing the dichotomy of the competitive male and the picky female, the theory of sexual selection both ignores the diversity of sexual behaviour in nature and is politically divisive. She considers Darwin's theory to be "diversity-repressing", an "elitist, regressive stance" that "denies diverse people their right to feel at one with nature". She laments that the theory "denies me my place in nature, squeezes me into a stereotype I can't possibly live with -- I've tried". By doggedly adhering to a flawed theory, evolutionists are, she claims,

complicit in suppressing gay and transgendered people.

Roughgarden devotes nearly 200 pages to cataloguing sexual behaviours that supposedly violate Darwin's theory. It is here that the book is at its best: Roughgarden writes clearly and engagingly, regaling the reader with stories of fish that change sex as they grow, chimpanzees that are avid lesbians, hyenas that give birth through enlarged clitorises, and male geese that form lifelong pairs with other males. While much of this material appeared in an earlier book, Bruce Bagemihl's Biological Exuberance: Animal Homosexuality and Natural Diversity (1999), Roughgarden distils Bagemihl's 700 pages into a manageable dram. But her laundry list is biased. She ignores the much larger number of species that do conform to sexual selection theory, focusing entirely on the exceptions. It is as if she denies the generalization that Americans are profligate in their use of petrol by describing my few diehard countrymen who bicycle to work. What's more, a little research shows that even many of Roughgarden's "counterexamples" fit comfortably into the neo-Darwinian paradigm.

For example, Roughgarden makes much of "gender variation" in the bluegill sunfish of North America. In this species, females are small and purplish-brown. Males, however, come in several forms with different reproductive strategies. Large "parental" males defend territories to attract spawning females, and then guard the eggs and fry. "Satellite" males, however, closely resemble females in colour and behaviour; they invade parental territories before or (usually) during spawning, trying to fertilize some of the female's eggs.

Satellite males are conventionally thought to be "female mimics", whose resemblance to females has evolved in order to deceive parental males and gain access to unfertilized eggs. Roughgarden, however, sees satellites as "marriage brokers", whose courtship of parental males purportedly demonstrates to onlooking females that the parentals are not too aggressive. In return for this service, parentals supposedly allow satellites to gain some offspring. But Roughgarden's theory does not explain why females would prefer a less aggressive male (aggression is surely a virtue, given that males guard nests and offspring), why the "marriage brokers" so closely resemble females, and especially why the matchmaking typically begins only when consummation is under way. The point is that the superficially plausible Roughgarden explanation does not withstand detailed scrutiny. The standard neo-Darwinian theory, on the other hand, does.

Moreover, Roughgarden's alternative theory -- that sexual traits and behaviours are "social inclusionary" features used to barter for access to reproduction and resources -- is fraught with problems. Most alarmingly, it's disturbingly anthropocentric. Yes, bonobo chimps, among our closest relatives, may use homosexual behaviour to establish group bonds, but what of the rest of the natural world, most of it bereft of the sensibilities we share with only a few closely related species? Half of Earth's 10 million species, for example, are insects, and few insects engage in the complexities of group-or pair-bonding. Theories of "social inclusion" simply do not apply to ground beetles.

But regardless of the truth of Darwin's theory, should we consult nature to determine which of our behaviours are to be considered normal or moral? Homosexuality may indeed occur in species other than our own, but so do infanticide, robbery and extra-pair copulation. If the gay cause is somehow boosted by parallels from nature, then so are the causes of child-killers, thieves and adulterers. And given the cultural milieu in which human sexuality and gender are expressed, how closely can we compare ourselves to other species? In what sense does a fish who changes sex resemble a transgendered person? The fish presumably experiences neither distressing feelings about inhabiting the wrong body, nor ostracism by other fish. In some baboons, the only males who show homosexual behaviour are those denied access to females by more dominant males. How can this possibly be equated to human homosexuality?

The step from "natural" to "ethical" is even riskier. As the philosopher G. E. Moore argued, identifying what is good or right by using any natural property is committing the "naturalistic fallacy": there is no valid way to deduce "ought" from "is". If no animals showed homosexual behaviour, would discrimination against gay humans be more justified? Certainly not. Roughgarden's philosophical strategy is as problematic as her biological one.

Roughgarden believes that evolutionary biologists, with their enthusiasm for the "classical" gender roles of the neo-Darwinian theory of sexual selection, are partly responsible for society's unease with gay and transgendered people. She is wrong. This theory is powerful and largely correct. Yes, there are nuances of behaviour that require special explanation, or that we don't yet understand. But nobody, least of all Darwin, ever claimed that evolutionary biology is characterized by ironclad laws. Our field is not physics. Nevertheless, some generalizations, such as the pervasive competition of males for females, can be powerful and useful.

Yet in the end, all of this is irrelevant to the gay and transgendered community's genuine concerns about repressive social attitudes. Rather than wringing her hands about the theories embraced by her biological colleagues, Joan Roughgarden might consider visiting a school board meeting deep in the American Bible Belt. There, ironically, she would find where opposition to a sexually diverse society really thrives, as does opposition to the very theory she is partly lambasting, Darwinism. It is not the intellectuals who are the problem; it's the anti-intellectuals.

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