

the other hand, it is difficult to escape the sense that transformation for Peters remains essentially a personal experience that is applied to or comes to affect the social only through individual choices.

I also am struck by the way that Peters sees the relation between science and religion. On the one hand, Peters clearly knows that nature is the context in which transformations take place. This means that what science has to offer is helpful in understanding that context; science becomes a tool for understanding religious phenomena. However, if spirituality and religion are not the same but different, then transformations clearly might happen quite unrelated to religion. In what way do we talk about these as spiritual transformations? If we mean by *spirit* that which is personal, transformations of the spirit can occur through the physical/social environment of the individual. All of this seems to be in the mix as Peters uses this set of reflections to provide metaphors for our thinking. The small text is a nice primer for the subject that introduces enticing ways to think about the complexities of spiritual transformation. One hopes for more development perhaps in another volume.

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*The Genial Gene: Deconstructing Darwinian Selfishness.* By Joan Roughgarden. Berkeley and Los Angeles: Univ. of California Press, 2009. 272 pages. \$24.95 (cloth), \$18.95 (paper).

*The Genial Gene* is about “social selection” that trumps the sexuality and individuality of Darwinian sexual selection. On page 237, Table 19 outlines “The Contrast between Evolutionary Systems of Sex,” between “Social Selection” and “Sexual Selection.” This is the book in a nutshell.

But “memes” are equally important. Richard Dawkins coined the term *selfish gene* in his 1976 book of the same name. He wrote about “selfish replicators”: selfish genes and selfish memes. Memes are replicators that copy information beyond the genome’s DNA.

Two problems emerge in Roughgarden’s elegant research. Can “human” qualities such as kindness be attributed to biological nature? Perhaps more important, are there aspects that go beyond Darwinism, even beyond the distinction Roughgarden makes between sexual selection and social selection? Could cultural selection fit the bill? Genetics is how organisms and cells reproduce, carrying DNA to the next generation of offspring. However, much biology occurs through extragenetics, categorized as “culture” by sociobiologists, especially John Bonner (1980).

A recent article in *Science* (Pennisi 2009) chronicles work on cooperation and selection. In sperm and egg, the large ovum “guides” sperm to “land” so zygotes form. This is extragenetic. It takes place by means of a chemical gradient not dependent on the DNA. Culture plays a role beyond genetics and sociality based solely on DNA biology. So do “passionate” and “coy” males and females.

Roughgarden addresses peacock tail biology. In sexual selection, gaudy peacock tails advertise desirable genes—billboard plumage easily detected by mate-seeking

females. In social selection, the big feathers serve as admission tickets to power cliques—extragenetic yet also cultural. But beyond reproduction, there is another explanation for big peacock feathers that lies entirely within biology: Eye spots scare predators, a cultural facet beyond chromosomes deep within cells.

The analysis of homosexuality is fascinating. (Roughgarden's *Evolution's Rainbow* [2004] takes a deep look.) Homosexual behavior exists from flatworms with "dueling" penises to "Lesbian lizards," fish that change from male to female, and bonobos, chimpanzee relatives that use homosexual behavior to limit aggression. These activities range beyond the genetic code and in part fall in the cultural selection category.

Roughgarden omits cultural selection. This may be due to a bias against socio-biological formulations shared by many biologists. Yet biological acumen and rich examples are rife in *The Genial Gene*. It is in many ways a masterpiece. Her expertise as a biologist shines through. She provides fascinating examples from the world of nature and transposes them to the human world. It is well organized, with helpful footnotes and a well-assembled index. A bibliography is lacking, but references are accessible from footnotes. But *The Genial Gene* does not extend to The Genial Meme. Perhaps a future effort in the same lapidary style and manner will take up that challenge.

#### REFERENCES

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*Religious Naturalism Today: The Rebirth of a Forgotten Alternative*. By Jerome A. Stone. Albany: State University of New York Press, 2008. xiv + 259 pages. \$75.00 (cloth), \$26.95 (paper).

"This book is like a portrait. Those who know my work will know my hand" (p. 3). Longtime readers of *Zygon: Journal of Religion and Science* may well recognize the distinctive touch of philosopher and theologian Jerome A. Stone—an able advocate of religious naturalism and a frequent contributor to these pages—in *Religious Naturalism Today*. Likening his study to a group portrait that includes the artist himself, Stone seeks to place the people in the foreground: "But it is hoped that the figures themselves will be recognizable" (p. 3). Yet Stone's book offers landscape as well as portrait, illuminating the sweeping conceptual range of religious naturalisms through the particular figures in highlight. As Philip Hefner observes in the foreword, Stone is an expert guide to this landscape.