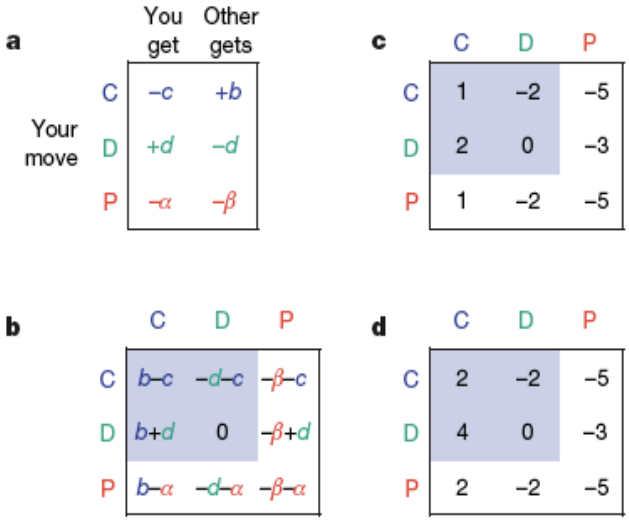
TEMPLETON REPORT
NEWS FROM THE JOHN TEMPLETON FOUNDATION *April 29, 2008*

To Punish or to Prosper?

Does punishment bring social benefits? Some say it does, believing that the fear of punishment promotes cooperation. But a very different view has been suggested recently in a study led by long-time Templeton grantee Martin Nowak of Harvard University and co-authored by Anna Dreber, David G. Rand, and Drew Fudenberg. Published in the March issue of the journal *Nature*, the study found that far from gaining, those who punish tend to worsen their own fortunes; those who cooperate tend to prosper.

"Punishment is an escalation of conflict," said Nowak, a professor of biology and mathematics at Harvard and director of the university's Program for Evolutionary Dynamics. "People who know how to avoid the escalation of conflict come out on top of the social interaction." The innovative study has won headlines with its arresting finding, summarized by Nowak as "Nice guys finish first."

As the website for his program explains, Nowak's research covers an eclectic set of subjects. He has investigated the "evolutionary dynamics" of "infectious agents, cancer cells, altruistic behavior, and human language." These apparently diverse areas of study are united, he explained, by evolutionary biology.



*Cooperate, defect, or punish?**

"Evolution is the one theory that brings together all of biology," Nowak said in an interview with the *Templeton Report*. "To understand a biological structure or behavior means to understand the evolutionary pressures that have shaped it." A mathematician and biologist by training, Nowak bases his analyses of these selection pressures on precise mathematical theories. It is "a beautiful view of living things," he said, to find "the mathematical principles behind them."

For the study published in *Nature*, Nowak and his colleagues designed a unique version of the classic situation in game theory known as "the prisoner's dilemma." Ordinarily, the game is played one-on-one. In each round, the players face a simple binary choice to "cooperate" or to "defect." Cooperating means losing one unit of money so that your opponent gains two. Defecting means gaining one unit so that your opponent loses one.

Nowak's version of the game added a third option, "costly punishment," in which a player could choose to lose one unit so that the other player would lose four. He added another important wrinkle to the game as well: his research subjects – 104 Boston-area college students – played a total of more than 8,000 rounds.

*Figure reprinted by permission from Macmillan Publishers Ltd: [*Nature*] (Dreber A, DG Rand, D Fudenberg, MA Nowak. **Winners don't punish. 452:** 348-351.), © 2008.

When all the gains and losses were added up, the study found that players who punished the least or not at all made the most money. Those who punished the most made the least money. The most profitable response to an opponent who punished repeatedly was to avoid retaliation. "It is a very positive message," said Nowak. "You are doing best if you know how to avoid using costly punishment."

"Altruistic behavior is a hot topic in evolutionary theory," said Charles Harper, Senior Vice President of the Foundation. "How do you explain why people sacrifice themselves for the group?" Exploring this scientific question has been "the core of Nowak's work in his relationship with us."

Nowak believes that the social implications of his findings are wide-ranging. His study underscores the need to learn "how to avoid escalating conflicts, either between countries or between people. Escalation leads to loss overall." He is pleased that *Nature* chose to publish a photo of Mahatma Gandhi alongside a commentary on his study.

Barnaby Marsh, the Foundation's Director of Strategic Initiatives, said that Nowak's interest in the larger implications of his research distinguishes him from many other scientists and makes him an ideal Templeton grantee. "In the normal course of science, you investigate how things work," said Marsh. "But Nowak's research has a broader philosophical significance. It relates to the development of moral and ethical systems. We're always looking to support top scientists who are eager to push beyond conventional boundaries."

The Foundation is supporting Nowak's research through a grant to study the "evolution and theology of cooperation," which he holds jointly with Sarah Coakley, the Edward Mallinckrodt Professor of Divinity at the Harvard Divinity School. The grant has been active since 2005 and, said Marsh, has been "tremendously productive."

NOTEBOOK

The Power of Forgiveness

A JTF-funded documentary, *The Power of Forgiveness*, has been airing this spring on PBS stations nationwide, to strongly favorable national and regional reviews.

Over the past 20 years forgiveness has come into its own as an area of academic study. Researchers are examining the psychological and physical effects of forgiveness on individuals and within relationships, following injuries ranging from petty insults to sexual assault. Clinicians have developed new ways to help people forgive transgressions and get on with their lives.

Created by filmmaker Martin Doblmeier, *The Power of Forgiveness* examines how the scientific community now measures the physical and mental benefits of letting go of grief and resentment, and also explores the role of forgiveness in various

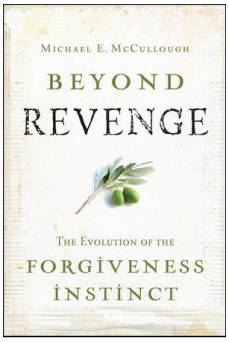
faith traditions. It features powerful stories about a devastating attack on the Amish, the 9/11 tragedy, and peace-building in Northern Ireland, as well as interviews with renowned Buddhist teacher Thich Nhat Hanh, Nobel Peace Laureate Elie Wiesel, and the best-selling authors Thomas Moore and Marianne Williamson.

The Foundation has also supported a companion book of the same title, written by Kenneth Briggs, the former religion editor of the *New York Times*. Like the documentary, which is available as a DVD, the book focuses on real people who have faced the reality of betrayal, loss, grief, and confusion. It explores in depth the complex patterns of healing that can emerge from forgiveness.

Doblmeier is the president and founder of Journey Films in Alexandria, Virginia. Since 1983 he has produced and directed more than 25 award-winning films examining the relationship between spirituality and the well-being of individuals and communities. Briggs is a regular columnist for Beliefnet.com, the author of two important books on Roman Catholicism in America, and an ordained elder in the United Methodist Church.

Beyond Revenge

Still another contribution to this growing field is *Beyond Revenge: The Evolution of the Forgiveness Instinct* by Templeton grantee Michael McCullough, a professor of psychology at the University of Miami. *Publishers Weekly* recently gave his new book high praise:



McCollough targets a general audience in this exploration of the human capacity for both revenge and forgiveness. Schooling readers in the basics of natural selection, he argues that despite popular belief that revenge is a disease, both revenge and forgiveness have been adaptive for our species. Acting as a chatty tour guide through a labyrinth of game theory and studies of human and animal behavior, McCullough delineates the neurological, psychological, social, cultural, and religious mechanisms behind these choices. McCullough approaches stories of extraordinary forgiveness with clear-eyed inquiry. What conditions, he asks, are most likely to lead to forgiveness rather than revenge? How can we create those conditions at a societal, even global level? . . . Accessible but unsentimental, this book will appeal to all who wish to better understand forgiveness and how to engender it.

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