PSYCHOLOGY

The Value of the Stick: Punishment Was a Driver of Altruism

A hallmark of humanity is that people help other people—not just relatives and friends but even complete strangers. Such altruism, which goes beyond the mere exchange of favors and forms the scaffolding of large-scale cooperation in human societies, has long been an evolutionary mystery. On page 1767, anthropologist Joseph Henrich of Emory University in Atlanta, Georgia, and his colleagues take a crack at solving the puzzle, concluding that such helpful behavior may have arisen as a result of punishment.

Playing by the rules. Joseph Henrich (*center*) and his colleagues found that the willingness to punish unfair acts is common to many societies, including members of Fiji's Yasawa population (*left*).

CREDIT: J. HENRICH *ET AL.*, *SCIENCE*

Reporting on experiments they conducted in 15 different societies on five continents, the researchers argue that altruism evolved hand in hand with a willingness to punish selfish behavior. Their results lend support to models of gene-culture coevolution that propose that cultural norms such as the punishment of unfair actions drive the selection of genes favoring altruism. "It's a pathbreaking study," says Ernst Fehr, an experimental economist at the University of Zurich in Switzerland and a proponent of gene-culture coevolution. But some evolutionary biologists, who believe that altruism toward nonrelatives evolved through repeated, mutually beneficial interactions, are unconvinced by the conclusions.

Researchers have studied the link between altruistic behavior and punishment in the past, but mainly among university students. To address whether all cultures reveal such a link, Henrich and his colleagues conducted game-playing experiments among populations such as a seminomadic community in the Kenyan savanna, inhabitants of Yasawa Island in Fiji, and farmers and wageworkers in Missouri. In one game, two players who remained anonymous to each other were given the local equivalent of 1 day's wages to divide between themselves. According to the rules, if the first player offered an amount that the second player rejected, both would walk away with nothing. The second player's decision thus provided one measure of willingness to punish.

In another game, a twist on the first one, a third person was added to the mix. If that third player felt that the first offered too little to the second, he could reduce the first player's winnings by 30%, but it would cost him a known portion of money he had been allotted. The choice of whether to ignore pure self-interest provided another measure of willingness to punish selfish acts. A final game was designed to measure altruism: Two anonymous players were given an amount to share, and one had to accept the other's offer.

The researchers found that individuals in all societies were willing to pay a price to punish unequal offers, both as the aggrieved party in the first game and as observers in the second game. Some societies were less punitive than others. And societies with a greater willingness to punish were more altruistic in the third game.

"You evolve into a more cooperative being if you grow up in a world where there are punishers," says Henrich. His evolutionary interpretation is that "punishment may have first emerged culturally. Those who violated social norms were punished while others flourished, leading to the genetic evolution of altruistic psychologies."

John Tooby, an evolutionary psychologist at the University of California, Santa Barbara, challenges Henrich's conclusion as a fanciful leap from games in which people remain anonymous. He notes that "in ancestral societies, people lived in small groups where everybody knew each other. In that environment, anonymous punitive interactions would have been rare to nonexistent, so there would have been no selection to adapt to such situations." Still, Tooby agrees that the study is a significant contribution to the ongoing debate on altruism "because it tests and reports on behavioral phenomena in a carefully parallel, cross-cultural fashion." **–YUDHIJIT BHATTACHARJEE**

Bank Shot

Gene hounds are keen on the idea of creating a massive DNA research database on the U.S. population, but planners need to do more homework first, according to a Department of Health and Human Services (HHS) advisory committee.

Several countries are launching population databases that researchers could mine for links between genes, the environment, and disease, such as the 500,000-person so-called biobank in the United Kingdom (*Science*, 17 March, p. 1535). Last month, the HHS Secretary's Advisory Committee on Genetics, Health, and Society weighed in on a similar proposal. The panel's draft report is "enthusiastic" about the idea, which could cost upward of $3 billion to recruit up to 1 million participants, analyze their DNA, and follow their health over a decade or more. But mindful of controversy over privacy and other matters that have dogged some biobanks, the panel says the government first needs to know whether the public wants to participate and study policy issues such as ethnic diversity and the effort's scientific value. HHS now plans to assess public opinion and is soliciting comment on the report until 31 July (see www4.od.nih.gov/oba/SACGHS/ public_ comments.htm).

– JOCELYN KAISER

Spanish Scientists: Home Alone

Young Spanish researchers are up in arms following recent comments by a government minister who referred to them as "postdoctoral and temporary." The roughly 2500 scientists, most Spanish-born, were lured back to their home country—many from tenure-track jobs abroad—for a fellowship program that promised "their integration in the Spanish science system." Now, with the first 5-year contracts in the Ramón y Cajal program nearing their end, many institutions have yet to offer secure employment, despite recent funding incentives from the government, although precise figures are not available.

Newly appointed Secretary of State for Universities and Research Miguel Ángel Quintanilla's words, published in the Spanish newspaper *El Mundo*, have only added to the scientists' discontent. The National Association of Ramón y Cajal Researchers deplored Quintanilla's "disrespectful and burlesque attitude." But the Ministry of Education and Science says it gave "generous" incentives to universities and research centers and "can't oblige [institutions] to contract anyone."

–ELISABETH PAIN

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