

ESSAY



Conflict: Altruism's midwife

Generosity and solidarity towards one's own may have emerged only in combination with hostility towards outsiders, says **Samuel Bowles**.

Groups of fire ants, chimpanzees, meerkats and other animals engage in lethal conflicts. But we humans are especially good at it, killing 'outsiders' on a scale that altered the course of our evolution. Prehistoric burials of large numbers of men and women with smashed skulls, broken forearms and stone points embedded in their bones — as well as ethnographic studies of recent hunters and gatherers — strongly suggest that warfare was a leading cause of death in many ancestral populations. Yet at the same time, humans are unusually cooperative, collaborating with non-kin, for example in hunting and sharing food, on a scale unknown in other animals.

Paradoxically, the grisly evidence of our warlike past may help explain our distinctly cooperative nature.

This 'distasteful' idea is based on the evolution of what my co-authors and I have termed 'parochial altruism'. Altruism is conferring benefits on others at a cost to oneself; parochialism is favouring ethnic, racial or other insiders over outsiders. Both are commonly observed human behaviours that are well documented in experiments. For example, people from the Wolimbka and nearby Ngenika groups, in the Western Highlands of Papua New Guinea, have no recent history of violence. Yet when asked to divide a pot of money between themselves and another, they give more and keep less for themselves if the other is a member of their own group rather than an outsider.

But parochial altruism is puzzling from an evolutionary perspective because both altruism and parochialism reduce fitness or material well-being compared with what a person would gain were he or she to eschew these behaviours. Altruistic acts, by definition, confer advantages on others at a cost to the altruist. The impediments to the evolution of parochialism are more complicated, but could also be prohibitive. Hostility towards

outsiders limits an individual's choice of partners for long-distance trade, political coalitions and help during times of adversity. Like the altruist, the parochialist bears a handicap in the evolutionary race.

The solution to the puzzle may be that parochialism and altruism act synergistically. Among ancestral humans, parochial altruists may have provoked conflicts between groups over scarce natural and reproductive resources, and at the same time contributed to a group's success in these conflicts. Altruism would have facilitated the coordination of raiding and ambushing on a scale known in few other animals, while parochialism fuelled the antipathy towards outsiders. Additionally, with the development of projectile weapons, humans became adept at killing from a distance, which would have reduced the costs of aggression.

As winning groups gained territory, an increase in reproductive opportunities and political and cultural influence could have overcome the selective disadvantages of parochialism and altruism when occurring separately. When winners and losers differed significantly in their genes or cultural practices, the effects of this kind of conflict on evolution could have been substantial.

Computer wars

Support for this idea comes from artificial histories of early human evolution that my co-authors and I simulated by computer. In these simulations, we allowed groups of agents, tolerant or parochial, altruistic or selfish, to interact over thousands of generations under conditions likely to have been experienced by our Late Pleistocene and early Holocene ancestors. We designed the simulations so that violent conflict between two groups is likely if

at least one group contains a preponderance of parochialists. We also made each group's fighters the parochial altruists (non-altruists are happy to let someone else do the fighting; tolerant members prefer to stay on friendly terms with outsiders). Thus, the groups with the most parochial altruists tend to win conflicts. Our objective was to see how the frequency of warfare, and the fraction of the different types of agent, would evolve.

In millions of simulated evolutionary histories, the populations emerging after thousands of generations of selection tend to be either tolerant and selfish, with little warfare, or parochial and altruistic with frequent and lethal encounters with other groups.

Occasional transitions occur between the selfish peaceful states and the warring altruistic states. But neither altruism nor parochialism ever proliferate

singly; they share a common fate, with war the elixir of their success.

Climatic and archaeological evidence indicate that competition between groups, which underpins the process by which parochial altruism evolves, was rife during the Late Pleistocene, about 126,000 to 10,000 years ago. The extraordinary climate instability recorded in Greenland ice cores would have heightened competition for resources, forcing long-distance migrations and frequent encounters among hard-pressed and, in the later part of the period, well-armed groups. Archaeological finds, such as projectile wounds found in the skeletons on the Channel Islands off southern California, suggest that during seven millennia of prehistory, conflict among groups was especially intense during periods of environmental stress. Such conflict seems to have accounted for a much larger fraction of deaths

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than occurred during Europe's just-concluded 'century of total war'.

Charles Darwin anticipated the contribution of warfare to the evolution of altruism, predicting that a tribe possessing a greater number of members ready to warn each other of danger, and aid and defend each other, would spread and be victorious over other tribes. Thus "the social and moral qualities would tend slowly to ... be diffused throughout the world". But he omitted to mention that among these 'moral qualities' would be hostility towards outsiders.

From genes to culture

A similar evolutionary logic extends to the present, working on timescales more appropriate for cultural than genetic evolution. Indeed, the modern European state was forged in the heat of warfare among the some 500 city states, bishoprics, principalities and other sovereign bodies that governed Europe half a millennium ago. Parochial conflict was the midwife of the novel institutions — tax compliance, respect for the rights of property, the rule of law — that spelled survival in the five-century-long shakeout that, on the eve of the First World War, had left just 27 states standing.

The making of Europe as we know it thus paradoxically owes something to the exploits of "animals possessing the virtues of courage and fighting, but nothing else" in the words of a twelfth-century Islamic soldier-scholar who lost his home and family to the Crusaders.

However, I do not want to oversell this 'red in tooth and claw' side of human origins. Even in periods and places where warfare was uncommon, environmental crises could have eliminated groups that failed to work together while cooperative groups survived.

Moreover, like the emergence of multicellular organisms, much of human distinctiveness got an evolutionary boost from practices that kept the lid on conflict among group members. Where this occurred, members would have tended to share common levels of

reproductive and cultural success. As a result, the evolutionary effect of competition between individuals would have receded in importance compared with that of competition between groups, giving cooperators the edge.

Practices that suppress competition within groups are common among recent hunters and gatherers. These include sharing food and information, and mating systems that prevent dominant males from monopolizing reproductive opportunities. The foraging Aché people in Paraguay, for example, shared foods such as meat and honey equally among group members, irrespective of who originally acquired them. Among our foraging ancestors, similar practices almost certainly protected altruistic and cooperative individuals from exploitation by aggressive self-aggrandizers.

Our computer simulations of evolutionary histories show that in groups adopting these so-called levelling practices, the tendency of altruistic members to be eliminated by natural or cultural selection is attenuated. Indeed, without the suppression of conflict within groups, empirically plausible levels of conflict between groups do not promote the spread of altruism.

Thus, in ancestral humans, evolutionary pressures favoured cooperative institutions among group members as well as conflict with other groups. These were complemented by individual dispositions of solidarity and generosity towards one's own, and suspicion and hostility towards others. This potent combination of group and individual attributes is as characteristic of the contemporary welfare state in a system of heavily armed and competing nations — in short, modern nationalism — as it was among our ancestors.

Legacy, not fate

The inspiring public spiritedness, courage on behalf of others and generosity that are distinctive of humans thus bear the birthmarks of a history of conflict. But our ancestors made peace as well as war. They benefited from

an interchange of goods, information, words, songs and marriage partners — anticipating the networks of risk sharing, friendship and exchange that would flourish among modern foragers.

The !Kung foragers of Namibia and Botswana, for example, exchanged goods (many of purely symbolic value) with members of other groups, often more than 100 kilometres away. This was to ensure that they and their families would be welcomed should personal conflicts or a dry water hole necessitate moving. If the !Kung could devise cultural practices ensuring the welcome of needy people from distant groups, a similar spirit of solidarity could surely exist among today's far-flung peoples just an e-mail or overnight flight away.

Moreover, humans are uniquely receptive to socialization and learning, with tolerant altruistic behaviour a frequent result. Ethnic hostility can be redirected, attenuated and even eliminated in a matter of decades or years. This has been shown by the intellectual, political and even military collaboration of Muslims, Christians and Jews that occurred in parts of Islamic Spain a millennium ago, even as the First Crusade pitted Christian against Muslim in the eastern Mediterranean; the widespread support in many countries for aid to the people of poor nations; and the recent transformation of racial attitudes among US voters. Those who joined Martin Luther King in 'We Shall Overcome' were not only buoying their spirits; they were also making a reasonable assessment of human possibilities.

Thus, even if I am right that a parochial form of altruism is part of the human legacy, it need not be our fate.

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