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The end of war;

Despite what most people think, warmongering is not a part of human nature and warfare may one day be a thing of the past

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OPTIMISTS called the first world war "the war to end all wars". Philosopher George Santayana demurred. In its aftermath he declared: "Only the dead have seen the end of war". History has proved him right, of course. What's more, today virtually nobody believes that humankind will ever transcend the violence and bloodshed of warfare. I know this because for years I have conducted numerous surveys asking people if they think war is inevitable. Whether male or female, liberal or conservative, old or young, most people believe it is. For example, when I asked students at my university "Will humans ever stop fighting wars?" more than 90 per cent answered "No". Many justified their assertion by adding that war is "part of human nature" or "in our genes". But is it really?

Such views certainly seem to chime with recent research on the roots of warfare. Just a few decades ago, many scholars believed that prior to civilisation, humans were "noble savages" living in harmony with each other and with nature. Not any more. Ethnographic studies, together with some archaeological evidence, suggest that tribal societies engaged in lethal group conflict, at least occasionally, long before the emergence of states with professional armies. Meanwhile, the discovery that male chimpanzees from one troop sometimes beat to death those from another has encouraged popular perceptions that warfare is part of our biological heritage.

These findings about violence among our ancestors and primate cousins (see "When apes attack") have perpetuated what anthropologist Robert Sussman from Washington University in St. Louis, Missouri, calls the "5 o'clock news" view of human nature. Just as evening news shows follow the dictum "if it bleeds, it leads", so many accounts of human behaviour emphasise conflict. However, Sussman believes the popular focus on violence and warfare is disproportionate. "Statistically, it is more common for humans to

be cooperative and to attempt to get along than it is for them to be uncooperative and aggressive towards one another," he says. And he is not alone in this view. A growing number of experts are now arguing that the urge to wage war is not innate, and that humanity is already moving in a direction that could make war a thing of the past.

Among the revisionists are anthropologists Carolyn and Melvin Ember from Yale University, who argue that biology alone cannot explain documented patterns of warfare. They oversee the Human Relations Area Files, a database of information on some 360 cultures, past and present. More than nine-tenths of these societies have engaged in warfare, but some fight constantly, others rarely, and a few have never been observed fighting. "There is variation in the frequency of warfare when you look around the world at any given time," says Melvin Ember. "That suggests to me that we are not dealing with genes or a biological propensity."

Anthropologist Douglas Fry of Åbo Akademi University in Turku, Finland, agrees. In his book, *Beyond War*, he identified 74 "non-warring cultures" that contradict the idea that war is universal. His list includes nomadic hunter-gatherers such as the !Kung of Africa, Australian Aborigines and Inuit. These examples are crucial, Fry says, because our ancestors are thought to have lived as nomadic hunter-gatherers from the emergence of the Homo lineage around 2 million years ago until the appearance of permanent settlements and agriculture less than 20,000 years ago. That time span constitutes more than 99 per cent of the evolutionary history of Homo .

Fry does not deny that lethal violence probably occurred among our nomadic hunter-gatherers' forebears, but he asserts that hunter-gatherers in the modern era show little or no genuine warfare - organised fighting between rival groups. Instead, he says, most violence consists of individual aggression, often between two men fighting over a woman. These fights might occasionally precipitate feuds between groups of friends and relatives of the antagonists, but such rivalry is costly and so rarely lasts long. Humans "have a substantial capacity for dealing with conflicts non-violently", he says. One group might simply "vote with its feet" and walk away from the other. Alternatively, a third party might mediate a resolution. Or in rare cases, a man might be so compulsively aggressive and violent that others in the band would banish or even kill him. "In band society, no one likes a bully," says Fry.

When battle begins

Brian Ferguson of Rutgers University in Newark, New Jersey, also believes that there is nothing in the fossil or archaeological record supporting the claim that our ancestors have been waging war against each other for hundreds of thousands, let alone millions, of years. The first clear-cut evidence of violence against groups as opposed to individuals appears about 14,000 years ago, he says. The evidence takes the form of mass graves of skeletons with crushed skulls, hack marks and projectile points embedded in them; rock art in Australia, Europe and elsewhere depicting battles with spears, clubs and bows and arrows; and settlements clearly fortified for protection against attacks .

War emerged when humans shifted from a nomadic existence to a settled one and was commonly tied to agriculture, Ferguson says. "With a vested interest in their lands, food stores and especially rich fishing sites, people could no longer walk away from trouble." What's more, with settlement came the production of surplus crops and the acquisition of precious and symbolic objects through trade. All of a sudden, people had far more to lose, and to fight over, than their hunter-gatherer forebears.

So rather than being a product of our genes, it looks as if warfare emerged in response to a changing lifestyle. Even then it was far from inevitable, as the variability in warmongering between cultures and across time attests. The Embers have found links between rates of warfare and environmental factors, notably droughts, floods and other natural disasters that impact upon resources and provoke fears of famine. Likewise, Patricia Lambert of Utah State University in Logan found a connection between drought and warfare among the Chumash, who inhabited the coast of southern California for millennia before the arrival of Europeans (*Antiquity*, vol 65, p 963).

Archaeologist Steven LeBlanc of Harvard University says that war is not a biological compulsion but a rational response to environmental conditions such as swelling populations and dwindling food supplies. He points out that some North American tribes fought savagely over land and other resources before the arrival of Europeans. But warfare also "stops on a dime", he says, as a result of ecological or cultural changes. In his book *Constant Battles: Why we fight*, LeBlanc describes how warlike Native American tribes such as the Hopi embraced peace when it was imposed on them by outsiders. "We are definitely malleable and susceptible to cultural influence," he says. Warfare is "not so hard-wired that it can't stop".

Warfare on the wane

Indeed, perhaps the best and most surprising news to emerge from research on warfare is that humanity as a whole is much less violent than it used to be. People in modern societies are far less likely to die in battle than those in traditional cultures. For example, the first and second world wars and all the other horrific conflicts of the 20th century resulted in the deaths of fewer than 3 per cent of the global population. According to Lawrence Keeley of the University of Illinois in Chicago, that is an order of magnitude less than the proportion of violent death for males in typical pre-state societies, whose weapons consist only of clubs, spears and arrows rather than machine guns and bombs.

There have been relatively few international wars since the second world war, and no wars between developed nations. Most conflicts now consist of guerilla wars, insurgencies and terrorism - or what the political scientist John Mueller of Ohio State University in Columbus calls the "remnants of war". He notes that democracies rarely, if ever, vote to wage war against each other, and attributes the decline of warfare over the past 50 years, at least in part, to a surge in the number of democracies around the world - from 20 to almost 100. "A continuing decline in war seems to be an entirely reasonable prospect," he says.

"Violence has been in decline over long stretches of history," agrees psychologist Steven Pinker of Harvard University. Homicide rates in modern Europe, for example, are more than 10 times lower than they were in the Middle Ages. Decreases in the rate of warfare and homicide, Pinker notes, cannot be explained by changes in human nature over such a relatively short period. Cultural changes and changes in attitude must be responsible, he says.

Pinker gives several reasons for the modern decline of violence in general. First, the creation of stable nations with effective legal systems and police forces. Second, increased life expectancies that make us less willing to risk our lives through violence. Third, increasing globalisation and improvements in communications technology, which have increased our interdependence with, and empathy towards, those outside of our immediate "tribes". "The forces of modernity are making things better and better," he says.

However, while war might not be inevitable, neither is peace. Nations around the world still maintain huge arsenals, including weapons of mass destruction, and armed conflicts still ravage many regions. Major obstacles to peace include the lack of tolerance inherent in religious fundamentalism, which not only triggers conflicts but often contributes to the suppression of women; global warming, which will produce ecological crises that may spark social unrest and violence; overpopulation, particularly when it produces a surplus of unmarried, unemployed young men, and the proliferation of weapons of mass destruction. "Humans can easily backslide into war," Pinker warns.

Fortunately, understanding the environmental conditions that promote war also suggests ways to limit it. LeBlanc points out that the modern focus of human competition - and the warfare that can accompany it - has shifted somewhat from food, water and land to energy. Two keys to peace, he suggests, are population control and cheap, clean, reliable alternatives to fossil fuels. Promoting the spread of participatory democracy clearly wouldn't hurt, either.

Richard Wrangham of Harvard University takes another line, and makes a case for the empowerment of women. It is well known that as female education and economic opportunities rise, birth rates fall. A stabilised population decreases demands on governmental and medical services and on natural resources and, by extension, lessens the likelihood of social unrest and conflict. Since women are less prone to violence than men, Wrangham hopes that these educational and economic trends will propel more women into government.

Is this all just idealistic pie-in-the-sky? Well, there is no doubt that any announcement of the end of warfare would be premature. At the very least, though, we can confidently reject the fatalistic belief that it is innate. That assumes "we're some kind of automata where aggressive genes force us to pick up knives and guns like zombies and attack each other without any thoughts going through our heads", says Pinker. War is not in our DNA. And if warfare is not innate then, surely, neither is it inevitable.

When apes attack
John Horgan

Many people think the discovery of warlike behaviour among chimps supports the view that war among humans is inevitable. In fact, the work of some primatologists suggests ways to reduce human conflict.

"We and all the primates have a tendency to be hostile to non-group members," says Frans de Waal of Emory University in Atlanta, Georgia. But the level of aggression displayed by individuals depends on their environment. He found, for example, that rhesus monkeys, which are ordinarily incorrigibly aggressive, grow up to become kinder and gentler when raised by mild-mannered stump-tail monkeys.

De Waal has also reduced conflicts among monkeys and apes by increasing their interdependence - making them cooperate to obtain food, for example - and ensuring they had equal access to food (PLoS Biology , vol 5, e 190). He points to the myriad interdependencies between nations and groups of people, and believes that by fostering ever more economic cooperation through alliances such as the European Union we can promote peace.

Primate violence is not blind and compulsive but calculating and responsive to circumstance, says Richard Wrangham from Harvard University. Chimps only fight when they think they can get away with it. "That's the lesson that I draw for humans." Wrangham says that although we are much less risk-averse than chimps, human societies - from hunter-gatherers to modern nations - also behave much more aggressively toward rival groups if they are confident they can prevail. He reckons that reducing imbalances of power between nations should reduce the risk of war (Yearbook of Physical Anthropology , vol 42, p 1).

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