

This week

Born to fight, evolved for peace

Not only is warfare as old as humanity itself, it may even be the driver behind cooperative behaviour

BOB HOLMES

IT'S a question at the heart of what it is to be human: why do we go to war? The cost to human society is enormous, yet for all our intellectual development, we continue to wage war well into the 21st century.

Now a new theory is emerging that challenges the prevailing view that warfare is a product of human culture and thus a relatively recent phenomenon. For the first time, anthropologists, archaeologists, primatologists, psychologists and political scientists are approaching a consensus. Not only is war as ancient as humankind, they say, but it has played an integral role in our evolution.

The theory helps explain the evolution of familiar aspects of warlike behaviour such as gang warfare. And even suggests the cooperative skills we've had to develop to be effective warriors have turned into the modern ability to work towards a common goal.

These ideas emerged at a conference last month on the evolutionary origins of war at the University of Oregon in Eugene. "The picture that was painted was quite consistent," says Mark Van Vugt, an evolutionary psychologist at the University of Kent, UK. "Warfare has been with us for at least several tens, if not hundreds, of thousands of years." He thinks it was already there in the common ancestor we share with chimps. "It has been a significant selection pressure on the human species," he says. In fact several fossils of early humans have wounds consistent with warfare.

Studies suggest that warfare accounts for 10 per cent or more of all male deaths in present-day hunter-gatherers. "That's enough to get your attention," says Stephen LeBlanc, an archaeologist at Harvard University's Peabody Museum in Boston.

Primatologists have known for some time that organised, lethal violence is common between groups of chimpanzees, our closest relatives. Whether between chimps or hunter-gatherers, however, intergroup violence is nothing like modern pitched battles. Instead, it tends to take the form of brief raids using overwhelming force, so that the aggressors run little risk of injury. "It's not like the Somme," says Richard Wrangham, a primatologist at Harvard University. "You go off, you make a hit, you come back again." This opportunistic violence helps the aggressors weaken rival groups and thus expand their territorial holdings.

Such raids are possible because



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humans and chimps, unlike most social mammals, often wander away from the main group to forage singly or in smaller groups, says Wrangham. Bonobos – which are as closely related to humans as chimps are – have little or no intergroup violence because they tend to live in habitats where food is easier to come by, so that they

need not stray from the group.

If group violence has been around for a long time in human society then we ought to have evolved psychological adaptations to a warlike lifestyle. Several participants presented the strongest evidence yet that males – whose larger and more muscular bodies make them

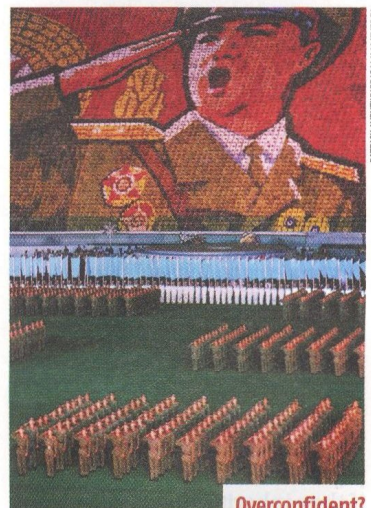
THE MINDSET FOR MODERN WARFARE

Modern warfare with its complex strategies, and advanced, long-distance weapons bears little resemblance to the hand-to-hand skirmishes of our ancestors. This may mean we're left with battle instincts unsuited to our time, suggested several participants at the Oregon conference.

Overconfidence in the strength of numbers is one example, says Dominic Johnson of the University of Edinburgh, UK. He found that in a simulated war game, men tended to overestimate their chance of winning, making them more

likely to attack (*Proceedings of the Royal Society B*, vol 273, p 2513). Thus, a dictator surveying his soldiers on parade may vastly overrate his military strength. "In the Pleistocene, nobody would have been able to beat that," says John Tooby at the University of California at Santa Barbara.

Soldiers going into battle today don't make the decisions, says Richard Wrangham of Harvard University, which may make them more fearful fighters. "In primitive warfare, men were fighting because they wanted to."



Overconfident?

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Gangs of New York

better suited for fighting – have evolved a tendency towards aggression outside the group but cooperation within it. “There is something ineluctably male about coalitional aggression – men bonding with men to engage in aggression against other men,” says Rose McDermott, a political scientist at Stanford University in California.

Aggression in women, she notes, tends to take the form of verbal rather than physical violence, and is mostly one on one. Gang instincts may have evolved in women too, but to a much lesser extent, says John Tooby, an evolutionary psychologist at the University of California at Santa Barbara. This is partly because of our evolutionary history, in which men are often much stronger than women and therefore better suited for physical violence. This could explain why female gangs only tend to form in same-sex environments such as prison or

high school. But women also have more to lose from aggression, Tooby points out, since they bear most of the effort of child-rearing.

Not surprisingly, McDermott, Van Vugt and their colleagues found that men are more aggressive than women when playing the leader of a fictitious country in a role-playing game. But Van Vugt's team observed more subtle responses in group bonding. For example, male undergraduates were more willing than women to contribute money towards a group effort – but only when competing against rival universities. If told instead that the experiment was to test their individual responses to group cooperation, men coughed up less cash than women did. In other words, men's cooperative behaviour only emerged in the context of intergroup competition (*Psychological Science*, vol 18, p 19).

Some of this behaviour could arguably be attributed to

HOW WAR SPREAD LIKE THE PLAGUE

The threat of disease could have driven the evolution of war – at least within a nation.

This controversial idea is the brainchild of Randy Thornhill, an evolutionary biologist at the University of New Mexico in Albuquerque. He argues that cultures become more insular and xenophobic where diseases and parasites are common, preferring to drive away strangers who may carry new diseases. In contrast, cultures with a low risk of disease are more open to outsiders. Thornhill thinks these attitudes to outsiders colour each culture's propensity for war.

Sure enough, when Thornhill and his colleagues gathered data from 125 civil wars, they found that such wars were far more common in nations with

higher rates of infectious disease, such as Indonesia and Somalia.

Participants at the conference at the University of Oregon in Eugene greeted Thornhill's theory with interested scepticism. It is “a very different way of thinking that has to be taken seriously”, says primatologist Francis White who works at the university. John Orbell, a political scientist also at the university, says the idea is “pretty persuasive”.

Thornhill admits his ideas are hard to test, because countries with high disease levels are often poor, multi-ethnic and authoritarian, all of which can drive civil unrest. However, he says, when infectious disease fell in western nations in the 20th century thanks to antibiotics and sanitation, those same societies also became less xenophobic.

conscious mental strategies, but anthropologist Mark Flinn of the University of Missouri at Columbia has found that group-oriented responses occur on the hormonal level, too. He found that cricket players on the Caribbean island of Dominica experience a testosterone surge after winning against another village. But this hormonal surge, and presumably the dominant behaviour it prompts, was absent when the men beat a team from their own village, Flinn told the conference. “You're sort of sending the signal that it's play. You're not asserting dominance

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over them,” he says. Similarly, the testosterone surge a man often has in the presence of a potential mate is muted if the woman is in a relationship with his friend. Again, the effect is to reduce competition within the group, says Flinn. “We really are different from chimpanzees in our relative amount of respect for other males' mating relationships.”

The net effect of all this is that groups of males take on their own special dynamic. Think soldiers in a platoon, or football fans out on the town: cohesive, confident, aggressive – just the traits a group of warriors needs.

Chimpanzees don't go to war in the way we do because they lack the abstract thought required to see themselves as part of a collective that expands beyond their immediate associates, says Wrangham. However, “the real story of our evolutionary past is not simply that warfare drove the evolution of social behaviour,” says Samuel Bowles, an economist at the Santa Fe Institute in New Mexico and the University of Siena, Italy. The real driver, he says, was “some interplay between warfare and the alternative benefits of peace”.

Though women seem to help broker harmony within groups, says Van Vugt, men may be better at peacekeeping between groups.

Our warlike past may have given us other gifts, as well. “The interesting thing about war is we're focused on the harm it does,” says Tooby. “But it requires a super-high level of cooperation.” And that seems to be a heritage worth hanging on to. ●