

## Evidence for caring among early humans

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Don Reynolds has kindly asked me to say a few words about the evidence for human caring in the human fossil and archaeological records. I am happy to do this, but my remarks will necessarily be brief, for reasons that will emerge both in what I have to say and in the next talk by my colleague Richard Milner.

To put this issue in perspective, it is pretty clear that strong empathy, and caring among individuals, are clearly an extension of the intense form of sociality that characterizes all primates, and the Old World monkeys and great apes in particular. At the same time, though, they are clearly among the traits of human beings that most strongly distinguish us from even our closest living relatives in nature, the chimpanzees and bonobos. This is because, for all our social commonalities with our closest relatives, all human beings seem to share an elaborate kind of sociality – often known to students of primate behavior and cognition as “prosociality” – that seems to be more or less unique to us.

To put this at its most basic, most humans tend to care, at least to some extent, about each other’s welfare. While, to be quite frank, chimpanzees – and, quite likely, all of our other primate relatives – really do not. Of course, among chimpanzees such social ties as the mother-offspring bond can last a lifetime; and hunting and similarly complex activities sometimes involve extensive coordination among group members. What’s more, the consolation of victims of aggression that is not infrequently seen among chimpanzees, most likely suggests that these primates experience some form of individual empathy. But manifestations of such kinds are rather different from the more general concern for others that underwrites prosociality; and, in a large body of experimental studies, chimpanzees have come across – even to chimpophile researchers – as creatures that show a striking lack of regard for their fellows.

For example, in a series of experiments carried out on a number of different captive chimpanzee groups, in different locations, by different researchers, the apes were, in various different ways, given the same option. This option was the ability to obtain a food reward, either both for themselves *and* for a neighbor, or just for themselves. In all of the experiments the reward for the chooser was the same, whether or not the neighbor benefited. In other words, the chooser had nothing to lose by being generous. But, invariably, the chimpanzees chose more or less randomly among the two options. The effect on the non-choosing

companion just didn't seem to be a factor in the choice. And on the basis of these tests at least, individual chimpanzees seem pretty consistently indifferent to the interests of others – a finding that stands in striking contrast to humans, who in psychological tests seem to be remarkably willing even to incur costs to help out strangers.

The chimpanzee results may, of course, reflect cognitive limitations that are not directly related to intrinsic sociality, or even to empathy. But, whatever the reason, the element of caring, and of expressing that caring in any practical way, just doesn't seem to be there. So it is naturally of interest to inquire just when it was in human evolutionary history that the human style of caring was acquired. Because, based on wider comparisons, we can be pretty certain that the human-chimpanzee ancestor was a great deal more chimpanzee-like in this regard than we are.

This is where the practical difficulties begin. Caring is an abstract quality of human behavior for which evidence does not preserve directly in the fossil and archaeological records. You just can't look directly at a fossil, or at an ancient artifact, and find direct evidence of caring. As a result, the existence of human-style caring among our extinct relatives has to be indirectly inferred, from proxy data. And such data turn out not only to be pretty rare, but also to be arguable when they do exist.

Perhaps the most famous example of claimed early empathy comes from the Neanderthal cave site of Shanidar, in Iraq. As most of you probably know, the species *Homo neanderthalensis* is a distinctive human relative, with a brain as big as ours, that became extinct around 30 thousand years ago. Here's a physical comparison, with a Neanderthal on the left and a modern human on the right, and you can see that the two species differ distinctively. Still, there is little question that Neanderthals invented the practice of burying their dead, a behavior we usually think of as distinctively human. Perhaps the most famous of all Neanderthal burials is the "flower burial" that took place some 60 thousand years ago at Shanidar. It was proposed that the deceased must have been laid to rest upon a bed of spring flowers, implying not only empathy but ritual too. The main evidence for this was a high concentration of pollen from flowers such as yarrow, cornflower, and Batchelor's Button, was found in the earth surrounding the skeleton of an adult male. The fact that many of the dozen or so flower species involved are now viewed as medicinal, was even interpreted to mean that this ancient individual had been a shaman, buried as it were with the tools of his trade.

Now, this is of course a great story; but, alas, more recent interpretations of these findings at Shanidar are a lot more prosaic. It has been pointed out that the skeleton was found adjacent to burrows made by gerbil-like rodents called Persian Jirds. These animals store flowers in their nests, and it is their activities that account most plausibly for the high concentration of pollens around the skeleton.

It has even been questioned whether the Neanderthal skeletons at Shanidar were buried at all; but while the burials at this particular site may be arguable, there is little doubt that burial of the dead is something that the Neanderthals did indeed practice in the period following about 100 thousand years ago, if very simply, and only occasionally.

Still, what burial of the dead actually implies in terms of the wider behaviors and cognitive attributes of the Neanderthals is hard to say. And it is important not to anthropomorphize a practice that may have meant something very different to Neanderthals than what it means to us today. Though I, for one, find it hard not to find in it echoes of some kind of inchoate empathy – even though am also pretty sure that the Neanderthals did not process information in their large brains in the unique symbolic way we do.

In any event, whatever the exact case in the specific instance of the “flower burial,” better presumptive evidence of caring in an extinct human relative may come from another Neanderthal skeleton found at Shanidar. These are the remains of what would, by Neanderthal standards, have been a very old man. And he had suffered, possibly since birth, from a withered arm. In this skeleton the right humerus, the upper arm bone, basically shriveled up well before death. And as a result, the arm would have been useless to its possessor, possibly for the whole of a very long life. In the harsh world the Neanderthals inhabited, this handicap would have been a very significant one. So significant, indeed, that it’s reckoned he would have had to depend consistently on other members of his social group for support, over an extended period of time. If so, we have here presumptive evidence in an extinct hominid, albeit a collateral relative, of the expression – at some indeterminable level of intensity – of the kind of caring to which this symposium is devoted.

But perhaps we can see evidence for stirrings of this kind of caring earlier in time, indeed very much earlier. The human family Hominidae originated in Africa, some 7 million years ago. And for five million years it remained confined to that continent. At some time following about 2 million years ago, after having acquired essentially modern body form – but still wielding very simple stone tools, and in the absence of notably enlarged brains – they emerged from Africa. The oldest site from which early émigrés from Africa are known is at Dmanisi, in the Republic of Georgia in the Caucasus. There, sediments underlying a ruined medieval town have yielded a couple of skeletons and several skulls of what has been called *Homo georgicus*. These remains date from some 1.8 million years ago.

One of the skulls is that of an aged individual who had lost all of his teeth but one before he died. The sockets that had contained the other teeth were almost all completely resorbed, meaning that the teeth had been lost well before death. In which case, this old male had lived for several years at least without the benefit of teeth. And not having

teeth makes it very difficult to process food, one of the most basic necessities of life. A couple of chimpanzees are known to have survived a substantial period without teeth. But chimpanzees live on a soft fruit diet. In contrast, the Dmanisi individual lived in a temperate woodland zone, where plant resources were mostly a lot tougher, and where hard-to-chew, and hard-to-digest, animal foods almost certainly constituted a substantial portion of the diet.

The scientists who described this individual (D 3444) think there are two possibilities here. Either the individual got by on soft foods, which seems pretty improbable in this environment; or he received help from his fellow group members, who might even have chewed his food for him. Any behavior of this latter kind would clearly have been qualitatively different from that of, say, bird mothers that regurgitate food to their infants. And, in the context of what is known of primate cooperation and behavior, it is unprecedented. In supporting this aged male, the Dmanisi hominids were doing something apparently entirely novel for their group. And if the Dmanisi scientists are correct, we are already seeing the beginnings, almost two million years ago, of what we might call “caring” in the human sense.

Nonetheless, this “caring” was not being done in the context of a modern cognitive system. The Dmanisi hominids were small-brained, with cranial vaults of well under half the capacity of our own; and their stone tool-making prowess did not exceed that of the archaic so-called “bipedal apes” who had invented stone tool making almost three-quarters of a million years earlier. Indeed, even the Neanderthals, whose brains were as big as ours, and whose stone tool-making skills were highly sophisticated, apparently did not manipulate information in the symbolic way that we do.

So, using the best proxy we have for non-maternal “caring” in the human fossil record, such behavior goes back a long way, perhaps as far as 2 million years or thereabouts. But the display of caring of this kind evidently did not depend on the possession of modern human cognition, for there is no good evidence that humans began behaving in the unique modern manner before around 75 to 100 thousand years ago at most. Instead, the suite of prosocial human features that includes “caring” as we know it today, has roots very deep in time. And its early expressions long antedated the acquisition of fully-formed humanity.