revolve around punishments donated to those who are religiously incorrect and morally frail. Perhaps the ultimate formal cruelty is the currently very popular jihadist announcement that all those uncommitted to Islamic fundamentalism of a particular flavor should be killed in an eager form of broad service to godly rectitude. The idea is, of course, quite amazing, yet the dancing in some streets that followed the attacks on the World Trade Center and the Pentagon is no small datum about the value of Nell's central and profound assertion. Armageddon as an idea of appropriate punishment for bad people remains an attractive feature of various systems of belief. Who dreams up such notions but members of a species apparently equipped with the full toolkit Nell describes? And yet, given Nell's analysis of vicious primate hunting, we may be permitted to wonder what would be the result if chimps employed assertive theologians to justify their behavior.

Cruelty, age, and thanatourism

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Abstract: Two areas of research for testing Nell's theory are suggested. One is cruelty's seemingly negative correlation with age, which would confirm its linkage with testosterone, sex, and dominance. The other is the special field of leisure activity called *thanatourism*, that is, the transformation of loci of human horror into tourist attractions.

Nell makes at least two major contributions in the target article. First, he convincingly destroys the frequent, categorical, but empirically unsupported dissociation between predation and aggression. To be sure, the two are not necessarily associated, but their coevolution in predatory vertebrate species is highly plausible. Second, Nell notes the quantum jump in cruel behavior associated with the rise of states. In this, he shows how any complete account of human behavior always involves the interplay of biology and culture.

My one quibble with Nell concerns the third part of his central argument, where he restricts cruelty to hominids, starting with *Homo erectus*. If cruelty, by definition, is the intentional infliction of pain, it must involve self-consciousness, a trait clearly present in apes and quite probably in other highly intelligent mammals, such as elephants and cetaceans. Therefore, I would hesitate to deny a priori the capacity for cruelty in intelligent predator species such as orcas. Almost every claim for human behavioral uniqueness has bitten ethological dust. Prudence dictates avoidance of making a new one, although we are very probably best at being cruel.

Let me suggest two programmatic addenda to test Nell's cruelty model for humans. The first concerns a hypothesized negative correlation between cruelty and age. If cruelty activates the same hormonally based reward circuits as sex, dominance, and aggression, one would expect it to decline past puberty. This proposition could be tested, for example, on the behavior of sport fishermen and hunters (even though both groups would deny that cruelty motivates them). The frequency with which they kill their quarry could easily be correlated with age. For instance, the incidence of voluntary "catch-release" among fishermen would be a good index. The point of satiation in the shooting of multiple small game (such as ducks and partridges) would be another.

The second suggestion relates to the incipient research area of *thanatourism*, a neologism referring to the study of what attracts millions of visitors to the loci of atrocities such as Nazi concentration camps (Auschwitz rivals the Eiffel Tower as one of Europe's top attractions), ports of embarkation for the Transatlantic Slave Trade in Senegal and Ghana, and the killing fields

of Cambodia. In a sense, these attractions are more authentic substitutes for the waxworks of Madame Tussaud, and thus nothing new. Tourism is driven in part by the quest for authenticity.

Of course, most visitors to thanatouristic sites would strenuously deny that they have come for cheap thrills. Their presence is sublimated as memorialization or learning from history to avoid repetition. Why do visitors come in millions, however, even from families and ethnic groups who have not been affected by the atrocities? Unlike many memorials that are sanitized, thanatouristic sites often include displays of gruesome photographs, mountains of abandoned shoes and suitcases, and even stacks of skulls. Thus, their attractiveness is far from self-evident. Indeed, many visitors exhibit or report acute stress on these sites. Could it be that, in societies that have banned many displays of cruelty, such as public executions, the "demand for cruelty" gets sublimated and ennobled in "never again" thanatourism? Clearly, the behavior and motivation of visitors to such sites begs investigation.

Explaining human cruelty

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Abstract: I ask four questions: (1) Why should we think that our hominid ancestor's predation is not just a causal influence but the main causal factor responsible for human cruelty? (2) Why not think of human cruelty as a necessary part of a syndrome in which other phenomena are necessarily involved? (3) What definitions of cruelty does Nell propose that we operate with? And (4) what about the meaning of cruelty for human beings?

Nell argues that human cruelty has its origin in "predatory adaptation from the Middle Cambrian to the Pleistocene" (sect. 1). He says that this explains the widespread and ingrained nature of human cruelty. There is probably some truth in this speculation. However, I have worries about whether the evidence he cites supports the speculation, and I have worries about the content of the speculation. I put four questions.

1. Nell describes the multifarious and widespread phenomena of animal and human cruelty. And he makes it plausible that the nature, frequency, and distribution of cruelty should be given an evolutionary explanation. However, I cannot see that Nell has shown that his particular evolutionary speculation is better supported by the data than other possible rival evolutionary hypotheses. It is true that predation involves many of the features of human cruelty and it is thus plausibly seen as a historical source of human cruelty. But why should it be seen as the unique source? Our ancestors of the Cambrian to Pleistocene era did much else besides predation. They also fought, fled, and fornicated. In particular, human beings and many other species spend an awful lot of time and effort fighting and even killing members of their own species. Predation, by contrast, is typically is directed at other species. Quite a lot of fighting within a species has to do with hierarchies, which are central in mating strategies. Some fighting within species may have to do with competition between groups for resources. Wrangham and Peterson (1996, Ch. 1) describe groups of chimpanzees killing chimpanzees from other groups. But much fighting within species, particularly between males, only aims at establishing hierarchies and does not involve death. It does nevertheless often involve pain and blood. So, such fighting is also a possible alternative source of current human cruelty. Moreover, there may be other possible contenders, perhaps in addition to the rival one that I have just mentioned. So, the first question I'd like to ask Nell is this: Although I am persuaded that there is causal influence from our hominid ancestor's predation to