

Will Empathy Save Us?

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Abstract Recent prescriptions for rescuing civilization from collapse involve extending our human capacity for empathy to a global scale. This is a worthy goal, but several indications leave grounds for cautious optimism at best. Evolutionary biology interprets non-kin helping behaviors as products of natural selection that rewarded only the transmission success of resident genes within ancestors, not their prospects for building a sustainable civilization for descendants. These descendants however are now us, threatened with ruin on a warming, overcrowded planet—and our evolutionary bequeathal, in giving us empathy, may have also given us potential for resolve in guiding cultural evolution for the best interests of humanity. But can the latter trump the best interests of our genes? And if so, now that the liberal copying success of our genes is in conflict with the best interests of a sustainable civilization for our descendants, do the latter risk losing the empathic instinct presently called upon to save them?

Keywords Civilization · Collapse · Cooperation · Cultural evolution · Fitness · Human nature

Signs pointing to an impending collapse of civilization continue to raise alarm in virtually every sector of society. Urgency has yielded many hopeful and ambitious proposals, ranging from strategies for preventing collapse, to remedies for minimizing the impact of its effects (e.g., Homer-Dixon 2007; Speth 2008; Heinberg 2011; Barnosky et al. 2012; Ehrlich et al. 2012). Some recent prescriptions

involve finding inspiration, insight, and resolve from a fundamental product of our evolution as a social animal: our empathic instinct (de Wall 2009; Rikfkin 2009; Ehrlich and Ornstein 2010). The basic idea is this: the reproductive success of our social ancestors was generally rewarded by behaviors involving empathy for, and associated cooperation with, other members of their social groups—extended families and bands most immediately, but expanding later to larger clans and tribes as well, and eventually still larger states and empires. Hope for saving civilization then may lie in guiding cultural evolution in ways that will further extend the capacity and impact of our empathic human nature to a global scale.

This is an intriguing idea for a biologist because it looks to our evolutionary roots in searching for solutions. The following passages exemplify the petition for optimism in this:

Darwin lived before the heyday of psychological consciousness, in a world where the very word “empathy” had yet to be invented. Still, he gleaned the importance of the empathic bond. In the case of the man saving the victim from the fire, the rescuer instinctually senses the victim’s struggle as if it were his own and comes to his aid and comfort. This is what Darwin meant by “the social instinct.” In a remarkable passage, Darwin writes presciently of a coming age when humanity will stretch its social instincts and sympathetic impulses, “becoming more tender and more widely diffused until they are extended to all sentient beings.” As to how this might come about, Darwin muses that, “[a]s soon as this virtue is honored and practiced by some few of us it spreads through instruction and example to the young and eventually becomes incorporated in public opinion. (Rikfkin 2009, p. 92)

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Know it or not, all of us are now walking the same tightrope, and we need to keep our balance together. At the circus, our mirror neurons keep us squirming in our chairs, and we are almost overwhelmed with empathy. But now we need to generalize that emotion from circus to globe. We must act as one with those with whom we share the now-swaying civilization tightrope, with millions of fellow citizens of our nations, with seven billion fellow citizens of Earth, and with trillions of *Homo sapiens* who, if we succeed, will have the opportunity to try to walk the tightrope in the very long-term future. The good news is that we're going with the tide of history. Our human families have been extending and our empathy expanding for thousands of years. For the final step to save civilization, everyone must strive to transform that tide into a tidal wave. (Ehrlich and OrNSTein 2010, p. 130)

The aim of this commentary is to start a conversation about how optimistic we can be about the above propositions. The answer is not at all clear. It would be a valuable achievement to identify as much hope as possible, and the recently launched "Millennium Alliance for Humanity and the Biosphere" (<http://mahb.stanford.edu>), spearheaded by Paul Ehrlich, is playing a leading role in this mission. Some interpretations from evolutionary biology suggest potential for promise, but there are more that provide compelling reasons to be doubtful.

Evidence for Empathy in Action

Naturally, we are impressed with the man who saves the victim from the burning building, even while putting himself at risk. But does this type of helping behavior really represent evidence of a broadly characteristic empathic or altruistic instinct in the human species—one that we can count on to form the foundation of a grand, new, and lasting model for sustainable civilization? The evidence is not there. When confronted with dangers like a burning building, most people may be more likely to flee or to stand and watch than to provide help, just as people are not generally inclined to intervene to stop a bully in a school yard, or come to the aid of victims of accident or assault witnessed on the street (Latane and Darley 1969; Thornberg 2007). A recent meta-analysis of survey data on the "Me" generation in fact shows a sharp contemporary decline in empathic concern (Konrath et al. 2011). According to some analysts, narcissism is now an epidemic (Twenge and Campbell 2009). Perhaps being capable of empathy—understanding the affective state of others—does not necessarily compel one to aid or rescue them.

Empathy, therefore, may be necessary but not sufficient to motivate the "Good Samaritan."

Nevertheless, we admire the brave hero, and so when asked, some people may report truthfully—but more may be likely to report with delusion or deception—that they could be counted on to rescue the fire victim, or stop the bully. Such pronouncements, when there is an audience that has no access to a test of their truth, are likely to be viewed (by the audience) as signals of morality and trustworthiness, thus bolstering the reputation of the talker. We might wonder therefore whether the fitness of ancestors was promoted by successfully deceiving others about these signals, and whether "We sanctify true altruism in order to reward it, and thus to make it less than true, and by that means to promote its recurrence in others" (Wilson 1978, p. 149). Intrinsic fascination with stories of brave heroes may have also facilitated valuable learning opportunities regarding the likelihood of their availability, rare as they may be, in the event that one might be needed sometime to provide personal rescue—for "Me"—from harm.

Perhaps the potential for expanding the scope of empathic helping behavior to a global scale would be more apparent if we looked hard enough in the right places. But if so, why then has empathy not already guided a sustainable model for human civilization? Every great civilization in history has collapsed (Diamond 2004), and if empathy could not save these, what reasons are there to be confident that it can save us now? Some might say that our cultural and technological evolution have only recently equipped us with the necessary capacity for empathy, opportunity for effective social and political discourse, and widespread awareness of the magnitude and scale of risk to our imperiled civilization. Yet, despite persistent appeals—conspicuous everywhere in the age of television and the internet—to limit carbon emissions, curb the escalation of species extinctions, reduce consumption, and live collectively within the carrying capacity of the planet, most of the world it seems is not listening or doesn't care (Brito and Smith 2012; Tollefson and Gilbert 2012). Maybe over time, with carefully directed cultural evolution, there will be more listening and more caring. But maybe not, and in any event, not likely before the impact of collapse has taken a significant toll.

"Us" Versus "Them"

Momentum does seem to be building for identifying social learning strategies that might create a "We" generation to succeed the "Me" generation (e.g., Greenberg and Weber 2008; Unger 2009). However, formidable obstacles from inborn effects of "prepared learning" on human nature cannot be overlooked. "In prepared learning, we are

innately predisposed to learn and thereby reinforce one option over another. We are ‘counterprepared’ to make alternative choices, or even actively to avoid them” (Wilson 2012, p. 194). It has never been human nature to be generally content with one’s state of affairs, because it has always been in the best interests of one’s genes to want more for “Me” and often for “We” as well, but while usually being indifferent to—or wanting less for—“Them.” While it seems likely that human nature has indeed been shaped in part by inheritance of an instinctual capacity for empathy toward “Us”—the members of one’s social group—the fitness reward for this may have been normally rooted in tribalism and territorialism. The latter are necessarily accompanied by suspicion or fear of rival groups, representing the evolutionary roots of parochialism, xenophobia, and ethnocentrism (Brown 2004).

As Wilson (2012, p. 59) notes, “In its power and universality, the tendency to form groups and then to favour in-group members has the earmarks of instinct.” The troubling implication here is that the evolution of an empathic instinct, and hence the reliable and effective expression of empathic helping toward “Us,” may generally have required (and continue to require) a perception of concurrent advantage for “Us” in conflict with something that can be called “Them.” This would be unavailable in the context of a global-scale target for empathic helping behavior—and thus likely to encumber initiatives for generating it through cultural evolution.

Empathy and “Selfish” Genes

All products of natural selection—like empathy—reward only fitness, i.e., the copying and transmission success of certain genes/alleles (and not others) into future generations. Evolutionary biology has taught us that traits, not genes are the targets of selection, and these may be individual-level or group-level traits, but in either case, the reward—fitness—goes only to genes, and specifically those genes/alleles that influence the expression of the favoured traits. Individuals provide only the vehicles (and the only vehicles) for copying and transmitting those genes into future generations (Dawkins 1989). Accordingly, the number of descendants that an individual leaves represents a good estimate of the fitness of her individual genes, but only in the relatively short term. Because of genetic recombination during gamete production—iterated across multiple generations—it is highly probable that many, most, or even all of the living descendants of a very distant ancestor “A,” will carry not a single gene copy that can be traced back to “A” (Dawkins 2004).

Conventional “selfish gene”-based theory, has provided several plausible interpretations in accounting for

empathic, non-kin helping behaviors. These include their role in elevating social status and thus conferring fitness benefits connected with greater access to resources, including greater attractiveness to mates (Zahavi 2000). For female ancestors in particular, a potential mate who displayed kindness, generosity, trustworthiness, and bravery in “coming to the rescue” (despite risk to himself)—and who therefore also earned advantage from the attendant reputable social standing within the band or clan—was likely to represent a good investment for ensuring the safety and provision of one’s offspring (Miller 2007). [This can account for the extreme measures that some males are willing to take—even while risking their lives—in order to earn and defend their reputations (Barash 2008).] Other interpretations involve mutualism and reciprocation benefits between non-kin (Joyce 2006; Bowles and Gintis 2011)—ancestrally, for example, involving cooperative efforts needed to promote efficient foraging and meat harvesting, to coordinate tasks with division of labor around campsites, and to attack (and defend from) rival tribes (Diamond 1992). The chances of our ancestors surviving long enough to reproduce, and attracting the mates required to do so, would have been routinely greater by being willing to cooperate within one’s social group, and by advertising that willingness—even while risking one’s life—than by acting alone.

Perhaps our distant predecessors were also more likely to survive—and thus transmit their genes—if they were just basically “nice”; those less nice were perhaps more likely to be punished and often killed because their behaviors signaled a threat to the best interests of the social group (Boehm 2012). This may account in part for why people are commonly and openly nice to each other, but also why they are often—at the same time, under the surface—deceitful, self-serving, liars, cheaters and traitors (Barash 2008). The cognitive and social skills required to modulate an optimal degree of niceness and helpfulness has served well the best interests of our ancestors’ genes (even while some of their descendants were/are less skillful than others). And having a sharp empathic instinct would have been an important tool in refining and honing those skills.

It is not surprising therefore that being generally nice and helpful commonly feels good. If such behaviors were inherited from ancestors as products of natural selection, then being predisposed to find pleasure in them would have even further promoted the reproductive success of these ancestors. These fitness rewards, however, did not require that distant ancestors understood why it was pleasurable to help non-kin. Neither did they even require an explicit motivation to be nice and helpful, e.g., based on awareness that doing so would, in return, reap personal advantages, like status, favourable reputation, and resources. All that

was required for the early evolution of empathic instinct was for these non-kin helping behaviors to result in consequences that propelled copies of our ancestors' genes into their descendants.

Empathy for Non-Kin as an Incidental By-Product of Kin Selection

In some cases, expressions of non-kin helping behavior have no apparent return on investment—i.e., no obvious connection with potential for rewarding fitness. Some of these might be accounted for simply as incidental by-products of kin selection—by-products that some may suggest bode well in attempts to guide cultural evolution for the best interests of civilization for our descendants. Because our distant social ancestors spent most of their time in the company of close kin within small bands, any genes that favoured kin-helping behaviors would have promoted transmission success for copies of those genes residing within kin. This selection may have been so strong that the expression of these helping behaviors simply “spilled over” fortuitously from time to time into interactions with non-kin that happened to be around—and importantly therefore, on average, without incurring any net penalty on the transmission success (fitness) of those genes. Any occasional fitness cost (i.e., cost to the transmission probability for one's resident genes) incurred by helping non-kin (if there was any cost at all) may have been simply outweighed by the much larger inclusive fitness benefit of also helping kin—either concurrently, or imminently.

Even puzzling examples of selflessness—such as the soldier who falls on a grenade to save comrades, despite being genetically unrelated—should not be unexpected as a possible by-product of kin selection. Members of the soldier's family are likely to have already benefited abundantly from his earlier kin-helping behavior, in which case any fitness penalty from sacrificing his life on the grenade could be negligible. Moreover, even if the soldier had no reproductive success prior to this event, his empathic instinct could nevertheless be transmitted to future generations through copies of his genes residing in siblings and/or cousins, where their fitness could be promoted by helping kin, despite—as for the soldier—occasional incidental helping of non-kin.

Reciprocation from Non-Kin Need not be Consistent: Only Some is Sufficient

Similarly, imagine a gene “C” residing in a distant ancestor “A” that promoted cooperative helping behaviors

toward non-kin members of a group. And suppose that these behaviors were favoured by natural selection because they evoked reciprocal helping behaviors from these non-kin group members that, in turn, promoted the reproductive success of ancestor “A,” and hence the transmission success of gene “C.” It is important to note here that the proliferation of copies of gene “C” within future generations may be limited but is not prevented in the event that some, or even several, descendants of “A” do not incur the same (or even any) reciprocation help—as did ancestor “A”—owing to group membership. Neither is it prevented even if many descendants have no reproductive success at all *because* of group membership. The transmission success of gene “C” requires only that descendants of “A,” who carry copies of “C,” continue—more often, *on average*, than not—to realize reproductive success (because of reciprocation help from non-kin) that is attributed in part to the expression of gene “C.”

Accordingly, there should be no surprise in witnessing occasional anomalous displays of extreme empathic helping behavior with no reciprocation, e.g., as in the famous case of Mother Teresa, who gave everything and preferred nothing in return. Yet, despite forgoing reproduction altogether, her genes that informed her empathic instinct are unlikely to have incurred any significant fitness penalty. This is because Mother Teresa's ancestors had offspring, and so copies of her genes presently reside somewhere within her collateral lineage, where the future transmission success of these genes can be—and probably now are being—promoted by reciprocated empathic help from non-kin.

Empathy May be Rooted in an Instinctual Drive for Self-Transcendence

The unique capacity for empathy in humans can perhaps also be understood in connection with our uniquely human capacity to foresee that we will one day cease to exist, and the associated inclination to respond to this awareness with anxiety. On one level, therefore, having an interest in saving non-kin from demise may be rooted in a self-interested conviction: only by being willing to rescue non-kin—or at least convincing oneself accordingly—can one legitimize a personal wish to be similarly rescued *by* non-kin, should the need arise. In addition, social status and recognition earned from empathic displays of heroism, philanthropy and compassion may confer a kind of adaptive anxiety buffer, in providing delusions of being able to “leave something of oneself”—a reputational “memetic” legacy—for the future, despite knowing that one's life is impermanent.

Empathic concern for others then may be just a symbolic representation of personal concern—deeply

ingrained—for capturing a meaningful sense of purpose for one’s own life, through a perceived opportunity for self-transcendence. For our sentient ancestors, such adaptive delusions (or “productive illusions”) may have their origin in delusional perceptions of offspring as vehicles for memetic legacy transmission, e.g., involving parental pride. Importantly, this would have promoted gene transmission (fitness) concurrently, including ironically for genes that informed mortality anxiety (fear of failed legacy) in the first place, plus genes that in turn promoted delusional buffers for it—like parenthood, but also involving other domains for legacy delusion like soul-based religion, charity work, a rewarding career or business venture, or reputation-promoting cultural products like art, music, literature, film, and inventions (Aarssen 2010).

Accordingly, in the case of the man saving the victim from fire, is it just a “social instinct” or also (or instead) an impulsive “legacy drive” that accounts for why “... the rescuer instinctively senses the victim’s struggle as if it were his own” (Rikfkin 2009, p. 92)? Are the empathic squirms of a circus audience member watching below the tightrope walker also triggered by legacy drive, so strong that she senses the entertainer’s danger as if it were her own? It is an intriguing hypothesis to consider that the expression of empathic behaviors in such cases may be rooted not so much in perceptions of saving others threatened with demise, but instead rooted in delusions of saving a projection of oneself threatened with demise. The effect of mirror neurons then may be to evoke this delusion, thus instilling symbolic success in averting the subconscious fear of failed legacy conjured by mortality salience.

Importantly, the above interpretation represents an explanatory hypothesis for adaptive (fitness-promoting) non-kin helping behavior that is not based on any expectation of reciprocation. None is required. Even the soldier who falls on the grenade to save his comrades, although losing his own life, may die with the subconscious anxiety-buffering delusion that—while most of his comrades will be likely to incur a relatively woeful, unremarkable death in battle—he will at least leave behind an enduring legacy of honour, represented by dramatic self-sacrificing heroism. It doesn’t matter that this legacy will expire—completely forgotten—within a generation or two (or much sooner if the comrades all die imminently in battle, thus leaving no witness). The soldier nevertheless inherited a disposition for non-kin helping behaviors because—for his ancestors—these behaviors (most of which were less extreme than falling on a grenade) evoked delusion that effectively quelled their fear of failed legacy. In other words, these non-kin helping behaviors provided a buffer for mortality (failed-legacy) anxiety that was sufficient to prevent it from compromising the reproductive success of the soldier’s ancestors, thus accounting in part for why the

soldier was there at all—available to save his comrades with the ultimate reputation-promoting sacrifice.

Concluding Remarks

In order to predict whether our empathic human nature will save us, we need first to understand where it came from. Compelling explanations are represented in the above hypotheses for impacts of natural selection, where humans evolved adaptive cognitive modules evoking pleasure rewards and anxiety buffers from behaviors triggered by empathic instinct. Even though fundamentally self-serving (i.e., fitness-promoting), it is an appealing suggestion that the effects of these empathic helping behaviors might nevertheless have potential to “spill over” to the fellow citizens of earth with sufficient impact and breadth to save their civilization from collapse. We should hope so, but not naively. “Mother Teresa” types and “sacrificing soldier” types can be found in many less dramatic versions, but there is no evidence to indicate that even these represent behavioral dispositions of the majority; in most cases they are anomalies. The strategies that account for the emergence of *Homo sapiens* as the dominant social animal “... were written as a complicated mix of closely calibrated altruism, cooperation, competition, domination, reciprocity, defection, and deceit” (Wilson 2012, p. 17). Importantly, these represent strategies not primarily for the success of individuals or groups; rather, they are strategies that realized the best interests of our ancestors’ genes, through their transmission success, as copies, into future generations (Ness 2000)—genes that influenced the expression of the above behavioral traits and the close calibration of their mix. Humans evolved an empathic instinct, therefore, only because of the “self-interested” legacy of these genes, and not because of anything intrinsically good or noble in human nature, or in any model for civilization that might emanate from it. These same genes however have likely fooled us, in clever ways, to think otherwise—because this is also in their best interests, which is one of the reasons why “evolution is cleverer than you are” (Orgel’s rule; Dennett 1995, p. 74).

The above considerations suggest that, while we have a deeply ingrained motivation to aid fellow humans from time to time, we are also prone to delusion (also partly genetically endowed) in thinking that we are motivated to aid them purely for their own sake. It is an even bigger leap of faith in humanism to suggest that our species might be instinctively motivated with sufficient collectivism to rescue civilization as a whole, purely for its own sake. Perhaps there is potential to do so, if—through our uniquely human capacity for cultural evolution guided by social learning—we could somehow be persuaded collectively “...to say

‘no’ to our evolutionary bequeathal” (Barash 2008, p. 110). But first we must know to what we need to say “no.” Most citizens of our planet however—even a century and a half after the birth of Darwinism—either do not understand, or are unable to accept that human thinking and behaviors even have any evolutionary bequeathal (Pinker 2002). And ironically, this cognitive hurdle is probably also generally in the best interests of human genes. The latter has made us into a lot of things, but one of them is not a very good “future-thinking” species. Our evolutionary bequeathal includes remarkable cognitive skills and technological prowess for dealing with the immediate, clear and present challenges, but this has left us generally ill-equipped to respond effectively in advance to challenges that “might be” in the future (Penn 2003), especially if addressing these challenges would conflict with perceptions of one’s personal self-interests in the present. Evolution by natural selection does not track sound reasoning or visionary wisdom—only fitness, and fitness only for genes.

Even for the one future event that is certain and salient in the mind of every sane adult—inevitable mortality—we are inclined to respond with nothing but anxiety-buffering delusions and distractions (Aarssen 2010). “We humans have purpose on the brain” (Dawkins 1995, p. 96). Our intrinsic attraction to upbeat optimism—reflected for example in the recent bestseller success of *The Book of Awesome* (Pasricha 2010)—points to a uniquely human drive to convince ourselves that our existence is not absurd. With these innate predispositions—clouding one’s ability to see and feel the threats of a collapsing civilization, even for one’s own personal wellbeing—how can we possibly expect to direct large-scale social learning and cultural evolution with enough impact to generate an extended empathic concern for all of humanity? We can begin, at least, by finding ways to promote a deeper understanding and a more widely appreciated awareness of these evolutionary roots—and limitations—of human nature.

Even if we meet this challenge with some success, Darwinian natural selection may still have “the last word.” Successful remedies for rescuing civilization, as Paul Ehrlich knows well (Ehrlich 1968), depend critically on coercive measures—preferably “mutually agreed” but administered by governments (Hardin 1968)—for controlling population growth, and/or a global-scale cultural revolution that voluntarily embraces carefully guarded limitation on individual reproductive output. Unfortunately (for our species in its present dilemma), however, the genes that get transmitted to future generations—as well as the cultures that have the greatest success in both horizontal and vertical transmission—are usually those affecting behaviors that promote—not those that limit—population growth (and also those that promote, rather than limit, per capita consumption).

Nevertheless, even if we manage to achieve a sustainably controlled future population size (which will need to be much smaller than seven billion) through cultural evolution guided by our empathic instinct, then our descendants may risk losing the latter. Evolutionary biology has taught us that removing opportunities for differential gene transmission (i.e., relaxing the impact of natural selection) often compromises continued inheritance of genes that were favored by past selection. Should we be wary that relaxed selection in humans could—through genetic drift within say, a one- or two-child policy—result eventually in the dissipation of our highly revered empathic human instinct? Are those who choose to remain childless or have only one child, because they wish to help save an over-crowded planet, also those who have the genes needed to instill a global-scale target for empathy within future generations? The only thing that empathy can be counted on to save with certainty may be the transmission success of genes that promote empathic behavior. If this is true, then it is just wishful thinking to count on empathy as a remedy for developing any new model of civilization for our descendants that is based on constrained opportunities for these descendants to—in turn—propel their genes into their descendants.

Will transhumanism (e.g., Kurzweil 2005) then save us? Perhaps there is some degree of somber enlightenment to be found in a recent rumination from E. O. Wilson (2012, p. 56): “... the human condition is an endemic turmoil rooted in the evolution processes that created us. The worst in our nature coexists with the best, and so it will ever be. To scrub it out, if such were possible, would make us less than human.”

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