The Role of Death Denial in Culture and Consciousness

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Abstract

Independent lines of theoretical inquiry in evolutionary psychology and existential psychodynamic psychology propose that the awareness of the inevitability of one's death would undermine the viability of consciousness as an adaptive form mental organization in the absence of death-denying cultural and psychological affectations. In accord with this view, empirical research derived from terror management theory demonstrates that intimations of mortality have a pervasive effect on a wide range of human beliefs and behaviors.

… culture and history and religion and science [are] different from anything else we know of in the universe. That is fact. It is as if all life evolved to a certain point, and then in ourselves turned at a right angle and simply exploded in a different direction.

   Julian Jaynes in *The Origin of Consciousness in the Breakdown of the Bicameral Mind.*

Consciousness, argued Julian Jaynes, is responsible for the "yawning chasm" (Jaynes, 1976) between human beings and all other forms of life. The combination of abstract symbolic thought (including, but not confined to, language), mental "time-travel" (to reflect on the past and ponder the future), mental simulations (prospective imagination), self-awareness, and theory of mind (recognizing that others have internal mental states) renders human beings capable of imagining things that do not yet exist, and the audacity to transform our imaginings into reality. Surely, this mental agility has enabled humankind to proliferate and prosper in a wide range of diverse and rapidly changing environments.

"MIND OVER REALITY" TRANSITION

While most scholars to date have focused on understanding the evolutionary processes that propelled humans across the "yawning chasm," Ajit Varki and Danny Brower, in *Denial: Self-Deception, False Beliefs, and the Origins of the Human Mind* (2013), recently argued that it might be more productive to ask why other creatures lack the same capacities that render us distinctly human. Varki and Brower note that chimpanzees, orangutans, dolphins, orchas, and magpies are all highly intelligent and social creatures with long life-spans. Why then, are chimps not pondering the meaning of life and systematically examining the world around them? Why then, are orangutans not hitting golf balls on the moon? Why then, are dolphins not developing mathematical systems? Why then, are crows not producing great works of art and music?

According to Varki and Brower, individuals of other intelligent and social and long-lived species are quite capable of sophisticated abstract thought. Moreover, they make decisions based on past experience and in anticipation of future possibilities; and, they are self-aware. The critical difference seems to be that only human beings have a sophisticated, or what Varki and Brower describe as an extended theory of mind. While chimps, dolphins, and magpies have a rudimentary theory of mind, entailing the realization that other individuals have mental states and perhaps imputing self-awareness to other individuals and understanding that others may thus harbor false beliefs, only humans have the capacity for multi-order intentionality: attributing minds and intentions to third parties and multiple individuals, including individuals one has never met (or even fictitious individuals who do not exist), and hierarchical levels of intentionality (e.g., "I know that he thinks that I do not know but he does not know that I know that he thinks that I do not know").

An extended theory of mind could be highly adaptive from an evolutionary perspective. Individuals with an extended theory of mind would be more adroit in understanding, predicting, and more effectively and efficiently behaving in a complex social environment. Additionally, the cognitive capacities required for an extended theory of mind would enable integration of previously domain-specific social, natural, and technical knowledge and intelligence, which—combined with symbolization, self-awareness, and mental time-travel, perhaps via the capacity for metaphor—results in a uniquely imaginative and creative (i.e., human) animal (see Mithen, 1996 for an extended discussion of this possibility).

However, an individual with an extended theory of mind would, by virtue of witnessing or subsequently observing the death of others, likely infer from such observations that her or his own death was inevitable, even if not immediately imminent. The explicit awareness of personal mortality would be psychologically debilitating. Witnessing a close relative being

disemboweled by a hungry predator or a neighbor drowned in a tidal wave or a baby expire from hunger in a famine could result in persistent anxiety or (and) profound despair, which could, in turn, render one fearful, timid, and passive—disinclined to take risks and unlikely to be creative or even instrumentally effective—thereby undermining reproductive fitness.

A fine allegorical example of the awareness of personal mortality arising from witnessing the death of another can be found in *The Epic of Gilgamesh*, a Sumerian tale written ca. 2150–1400 BCE and thought to be the oldest extant piece of western literature. The epic is noteworthy because it contains themes and events, such as a great flood, that are subsequently repeated in the Old Testament, which is the original basis for all western monotheistic religions. Gilgamesh was a strong, attractive, arrogant, and spirited young king who was fond of fighting and seducing young women. When the beleaguered citizens in his town appealed to the gods for relief from the young king's excesses, the gods created Enkidu, a wild-looking, colossally strong adversary to challenge him. Gilgamesh prevailed in heated combat, but the two became fast friends thereafter, and set out in search of adventure and fame. Along the way, they kill the scared Bull of Heaven, and in response, the gods decreed that Enkidu must die. Devastated by Enkidu's death, in part because it made him realize that he too would die, Gilgamesh roamed the desert, weeping bitterly and lamenting: "How can I rest, how can I be at peace? Despair is in my heart. What my brother is now, that shall I be when I am dead … I am afraid of death." (Sandars, 1960/1972).

The crux of Varki and Brower's argument is that the awareness of personal mortality posed an evolutionary barrier in that an extended theory of mind would not be adaptive unless it was simultaneously accompanied by other psychological adaptations to deny reality, particularly regarding the inevitability of death and the precariousness of life. This, a feat that only humans have "accomplished" to date, through a variety unconscious defenses, "used to reduce anxiety by denying thoughts, feelings, or facts that are consciously intolerable" (Varki & Brower, 2013, p. 17), such as afterlife beliefs, optimism biases that foster risk taking, and confirmation biases that engender resistance to currently held beliefs to minimize uncertainty. Varki and Brower propose that this "mind over reality" transition occurred approximately 100,000 years ago, with the advent of behaviorally modern humans and marked by the simultaneous appearance of art, body adornments, and ritual burials including elaborate grave goods.

Interestingly, Varki and Brower's view of the role of death anxiety in the evolution of consciousness is quite compatible with theories derived from an existential psychodynamic perspective in the twentieth century. Geza Roheim, a Hungarian psychoanalyst and anthropologist, argued that all cultures were "actuated" by fantasies of magical powers that conferred

a sense of individual invincibility. "It is through a series of complicated mechanisms of dealing with anxiety that our civilization has developed and is still developing," Roheim concluded, "But these modifications are not due to the pressure of reality … The same environment … did not compel the chimpanzee to modify its ego-structure." (Roheim, 1934, p. 403, 416, 417). Moreover, added the psychoanalyst Susan Isaacs (1948, p. 94):

> In their developed forms, phantasy thinking and reality thinking are distinct mental processes … The fact that they have a distinct character when fully developed, however, does not necessarily imply that reality thinking operates quite independently of unconscious phantasy. It is not merely that they 'blend and interweave'; their relationship is something less adventitious than this. On our view, reality-thinking cannot operate without concurrent and supporting unconscious phantasies.

Cultural anthropologist Ernest Becker subsequently elaborated on the role of death anxiety in the development of culture and consciousness in *The Denial of Death* (Becker, 1973), positing that humans manage the potentially debilitating existential terror engendered by the awareness of death by embracing cultural worldviews: humanly constructed symbolic beliefs that are assumed to be absolute representations of reality by the average enculturated individual. Such beliefs provide individuals with a sense that they are persons of *value* in a world of *meaning* (Becker, 1971), and thus eligible for either literal or (and) symbolic immortality. Literal immortality is a central feature of most religions, in the form of heavens, afterlives, reincarnations, and souls. Symbolic immortality is obtained by the confidence that a vestige of one's existence will persist over time, perhaps from having children, being part of a great and enduring tribe or nation, amassing great fortunes, or producing great works of art or science that will be commemorated in perpetuity.

For both Varki and Brower and Becker (and his psychodynamic influences) then, the awareness of personal mortality would undermine the viability of consciousness as an adaptive form mental organization in the absence of death-denying cultural and psychological affectations. Moreover, both Varki and Brower and Becker argue that to the extent that this is true, then death anxiety should have a pervasive and demonstrable effect on a wide range of human beliefs and behaviors.

TERROR MANAGEMENT THEORY

Terror management theory (TMT; Greenberg, Pyszczynski, & Solomon, 1986; Solomon, Greenberg, & Pyszczynski, 1991; Solomon, Greenberg, & Pyszczynski, 2015) was originally developed, building on Becker's work, to provide

such evidence. One line of empirical inquiry is based on the *mortality salience* (MS) hypothesis; specifically, that if culturally constructed beliefs serve to mitigate death anxiety, then reminding people of their own mortality should increase the need for those beliefs, and this should in turn be reflected by cultural worldview defense: more positive evaluations of others who share or uphold one's beliefs, and increased hostility and disdain toward those who oppose one's beliefs or who embrace different beliefs. TMT researchers make mortality salient by, for example, having people write about death, view graphic depictions of death, be interviewed in front of a funeral parlor, or be subliminally exposed to the word "dead" or "death"; participants in control conditions write about something neutral (e.g., watching television or eating a meal or subliminal exposure to "field") or aversive but not fatal (e.g., being in intense pain, failing an upcoming exam, or having a limb amputated in a car accident). For example, Rosenblatt, Greenberg, Solomon, Pyszczynski, and Lyon (1989) found that municipal court judges set a higher bond for an alleged prostitute in response to an MS induction, and in another study that MS increased participants' estimates of how much of a reward a private citizen should receive for thwarting a robbery. In another study, Greenberg *et al.* (1990) found that following MS, Christian participants had more favorable reactions to fellow Christians and less favorable reactions to Jewish targets (see Burke, Martens, & Faucher, 2010, for a meta-analysis of MS studies).

Convergent support for TMT is provided by research based on the *death-thought accessibility* (DTA) hypothesis: specifically, if culturally constructed beliefs serve to mitigate death anxiety, then challenging or threatening those beliefs should make implicit (i.e., nonconscious) death-related thoughts come more readily to mind. DTA is typically assessed with a word-stem completion task; for example, C O F F _ _ could be coffin rather than coffee; G R _ V E = could be grave or grove; DTA has also been assessed with a lexical decision task where participants are exposed to non-words or neutral, negative, and death-related words and are asked to decide if they have viewed a word. For example, Canadians had higher DTA after reading an article based on rational and potent arguments denigrating aspects of Canadian culture, such as popular foods, sports, and socialized medicine (Schimel, Hayes, Williams, & Jahrig, 2007); moreover, DTA increased when participants were told that they scored below average on an intelligence test, or that their personality was such that they were unlikely to succeed in their desired career path (Hayes, Schimel, Faucher, & Williams, 2008; for a meta-analysis of DTA research, see Hayes, Schimel, Arndt, & Faucher, 2010).

Additional research has delineated distinct defensive processes activated by conscious and nonconscious but highly accessible death thoughts

(Pyszczynski, Greenberg, & Solomon, 1999). *Proximal* defenses entail suppressing death-related thoughts or pushing the problem of death into the distant future by denying one's vulnerability. They are (seemingly) rational, threat-focused, and activated when death thoughts are in current focal attention. *Distal* terror management defenses entail maintaining self-esteem and faith in one's cultural worldview. They function to control the potential for anxiety engendered by the knowledge that death is inevitable. Such defenses are experiential, are not related to the problem of death in any semantic or logical way, and are increasingly activated as the accessibility of death-related thoughts (DTA) increases, up to the point at which such thoughts enter consciousness and proximal defenses are initiated. For example, McCabe, Vail, Arndt, and Goldenberg (2014) predicted and found that immediately after a typical death reminder, when thoughts of death are presumably still in explicit awareness, participants were more persuaded by an advertisement touting the health benefits of a new bottled water when it featured a Harvard medical doctor than the same ad featuring celebrity Jennifer Aniston, and drank more of the water when offered a sample; this is a proximal defense in that the doctor is more likely in a position to offer credible medical advice. However, a few minutes after the death reminder, when death thoughts are no longer likely in explicit awareness, participants found Jennifer Aniston more compelling than the Harvard doctor, and drank more of the water when offered a sample; this is a distal defense in that aligning with a celebrity boosts self-esteem and bolsters faith in one's cultural worldview.

Finally, TMT posits that it is the potential to experience anxiety, rather than the actual experience of anxiety, that underlies MS effects. To test this hypothesis, participants (in Greenberg *et al.*, 2003) consumed a placebo purported to either block anxiety or enhance memory before being reminded of their mortality. Although MS intensified cultural worldview defense in the memory-enhancer condition, this effect was completely eliminated in the anxiety-blocker condition. The results suggest that distal MS effects serve to avert anxiety rather than to ameliorate actually experienced anxiety.[1]

DEATH AND DENIAL

Research testing hypotheses derived from TMT provides compelling empirical support for Varki and Brower's contention, which is also entirely consistent with Becker's view, that humans deny reality by embracing afterlife beliefs, engaging in risky behaviors, and tenaciously defending their cultural worldviews.

1. All of the MS effects described in the remainder of this essay are distal defenses unless otherwise noted.

AFTERLIFE BELIEFS

Fundamentalist Christians confronted with logical inconsistencies in the Bible (Friedman & Rholes, 2007), or after reading a few paragraphs by Stephen Jay Gould arguing that there is overwhelming and incontrovertible evidence in support of the theory of evolution (Schimel *et al.*, 2007), subsequently had increased levels of DTA—suggesting that challenging central elements of a religious worldview is sufficient to bring implicit death thoughts to mind. Additionally, following an MS induction, religiously affiliated participants reported being more religious, more confident that supernatural agents exist (even Gods of different religious affiliations) and can intervene in human affairs, and more confident in the efficacy of prayer (Norenzayan & Hansen, 2006); and, reading an article suggesting that near-death experiences provide tantalizing evidence for the prospect of literal immortality eliminated defensive reactions ordinarily engendered by an MS induction (Dechesne *et al.*, 2003).

And even atheists find supernatural beliefs alluring in the wake of death reminders. Specifically, in response to MS, Christian participants reported being more confident in the existence of God (as in the study reported above), while atheists reported being more confident that there are no Gods; however, in a second study where supernatural beliefs were assessed implicitly, death priming increased both Christians' and atheists' beliefs in supernatural religious entities (Jong, Halberstadt, & Bluemke, 2012). Similarly, after reading an article suggesting that near-death experiences are indicative of the possibility of literal immortality, even atheists and agnostics (like believers in the study reported above) no longer responded defensively to an MS induction (Heflick & Goldenberg, 2012).

RISKY BEHAVIORS

There is also abundant evidence that intimations of mortality amplify risky decisions and behaviors. For example, people who base their self-esteem on being tan opted for a less powerful sunscreen and expressed greater interest in going to a tanning salon in response to MS (Routledge, Arndt, & Goldenberg, 2004). In another experiment, after reading warning labels on cigarette packages that "Smokers die earlier" and "Smoking leads to deadly lung cancer," people who view smoking as part of their positive self-image expressed more favorable attitudes about smoking and claimed that they would be more likely to smoke in the future (Hansen, Winzeler, & Topolinski, 2010). And following MS, regular smokers puffed harder and longer on their favorite cigarettes (Arndt *et al.*, 2013); social drinkers consumed more alcohol (Ein-Dor *et al.*, 2014); and, low self-esteem participants consumed more high-calorie snacks (Mandel & Smeesters, 2008).

Similarly, in response to a MS induction, people who garner self-worth from their driving ability reported being more likely to pass cars illegally, run a red light, speed, enter a one-way street from the wrong direction, and drive too fast while inebriated with a car full of friends—and they drove faster and more recklessly on a realistic car simulator (Ben-Ari, Florian, & Mikulincer, 1999); skin divers rated themselves more likely to dive at night without a light when the weather was bad or when they were feeling ill and to forgo a safety stop to decompress while ascending (Miller & Taubman-Ben-Ari, 2004); and, males were more eager to engage in unprotected sex, desired greater numbers of sexual partners in the future, and to climb rocks, drive fast, have casual sex, ride a motorcycle, sky-dive, drink large quantities of alcohol, snowboard, try heroin, hang-glide, bungee-jump, and go whitewater rafting (Hirschberger, Florian, Mikulincer, Goldenberg, & Pyszczynski, 2002; Lam, Morrison, & Smeesters, 2009). Finally, participants in Hart, Schwabach, and Solomon (2010) reminded of their own mortality made riskier decisions, and consequently did more poorly on the Iowa Gambling Task, which is considered a valid proxy for economic decision making as well as predictive of gambling addiction.

WORLDVIEW DEFENSE

Death reminders increase support for those who uphold nationalist sentiments and denigration of those who criticize them. For example, Greenberg, Pyszczynski, Solomon, Rosenblatt, Veeder, Kirkland, and Lyon (1990, Study 3) had American participants, after an MS or control induction, read essays by a purportedly written by a distinguished political scientist who either strongly favored or opposed the United States. The pro-U.S. professor was rated more favorably than the anti-U.S. professor in the control condition; however, this effect was significantly amplified in response to MS. Similarly, Italian participants reminded of their mortality reported a greater sense that Italians have many characteristics in common and share a common fate, rated being Italian as a more important aspect of their identity, and viewed Italians more favorably compared to Germans (Castano, Yzerbyt, Paladino, & Sacchi, 2002). Additionally, MS increased British participants' willingness to make personal sacrifices, including dying, to protect the British way of life (Routledge & Arndt, 2008), as well as conservative American participants' support for the pre-emptive use of nuclear, chemical, and biological weapons against countries who currently pose no direct threat to the United States (Pyszczynski *et al.*, 2006).

People also have a tendency to fervently embrace their leaders, who in antiquity were often believed to be gods, descended from gods, or divinely ordained to lead—in order to assuage death anxiety. Sociologist Max Weber

proposed that followers' attachment to, and enthusiasm for, seemingly larger-than-life leaders is intensified in times of historical upheaval; and, Becker (1973) argued that devotion to charismatic leaders results from a defensive need to feel one is a part of a larger whole. In accord with this view, after an MS or aversive control induction, Cohen, Solomon, Maxfield, Pyszczynski, and Greenberg (2004) had participants read snippets of campaign speeches by three hypothetical gubernatorial candidates with varying leadership styles before casting a vote for their favorite. The charismatic candidate emphasized each individual's importance in a great nation: "you are not just an ordinary citizen, you are part of a special state and a special nation and if we work together we can make a difference." The other candidates emphasized completing tasks effectively (task-oriented), or the need for leaders and followers to work together and accept mutual responsibility (relationship-oriented). While only 4% of the respondents voted for the charismatic candidate in the control condition, 31% of the participants chose the charismatic candidate after an MS induction.

Follow-up studies by Landau *et al*. (2004) replicated this finding in the context of the 2004 U.S. presidential election, when President George W. Bush, who declared that he believed God had chosen him to rid the world of "evil-doers" in the aftermath of the September 11, 2001 terrorist attacks on the World Trade Center and the Pentagon, ran against Senator John Kerry. Whereas American participants rated Senator Kerry more favorably than President Bush in an aversive control condition, President Bush was rated more favorably than Senator Kerry in response to MS; and, in late September 2004, Cohen, Ogilvie, Solomon, Greenberg, and Pyszczynski (2005) found that, while registered voters in an aversive control condition intended to vote for Senator Kerry by a 4:1 margin, other registered voters randomly assigned to an MS condition reported intending to vote for President Bush by a more than 2:1 margin. Similarly, and more recently, in 2016 Donald Trump was elected president by claiming that the United States was under siege by terrorists, Muslims, and immigrants, and that only he could keep U.S. citizens safe by "Making America Great Again." Cohen, Solomon, and Kaplin (2017) found that while American participants in a control condition rated Hillary Clinton significantly more positively than Donald Trump, Trump's ratings increased significantly in response to MS (and were slightly but nonsignificantly higher than ratings of Clinton).

Another form of cultural worldview defense is to perceive that others share one's beliefs, and to convince those who do not to abandon their beliefs and adopt one's own. This is because, for beliefs to serve as effective means to manage existential terror, people must be absolutely certain of their veracity. However, most of the fundamental beliefs we rely on for psychological security cannot be unambiguously proven; they are based on faith rather than

fact. Accordingly, the more people who share our beliefs, the more certain we can be that they are correct. To show that this tendency is magnified by MS, Pyszczynski *et al.* (1996) stopped pedestrians either directly in front of or 100 m to either side of a funeral home (which they assumed would make mortality momentarily salient, albeit quite unconsciously), and asked them to estimate the percentage of their fellow citizens who shared their view of an important current social issue. Germans in front a funeral home provided higher consensus estimates about Germans' support for restricting immigration; U.S. citizens in front a funeral home provided higher consensus estimates about Americans' support for teaching Christian values in public schools. Moreover, after MS, Christians were more intent on convincing atheists to embrace Jesus and evolutionists were more determined to convince creationists to embrace Darwin; and, successful proselytizing eliminated defensive reactions to an MS induction (Kosloff, Cesario, & Martens, 2012).

SUMMARY AND CONCLUSIONS

It is our knowledge that we have to die that makes us human.

Alexander Smith, *Dreamthorp*

In *The Psychological Foundations of Culture*, Tooby and Cosmides (1992, p. 69) argued that most evolutionary adaptations, including human culture, are based on reactions to the physical environment: "organisms transact the business of propagation in specific environments, and the persistent characteristics of those environments … Consequently, the structure of the environment causes corresponding adaptive organization to accumulate in the design of the organism." However, Tooby and Cosmides subsequently conceded that evolution could, in principle, proceed in response to internal organismic concerns entirely independent of external demands: "adaptations may solve endogenous adaptive problems and may improve over evolutionary time without necessarily being driven by or connected to any change in the external environment."

Varki and Brower's "mind over reality" transition theory is the first evolutionary-based account of human consciousness based on an internal psychological adaptation. They argue that the uniquely human capacity to radically transform reality in accordance with our imaginary conceptions results from the integrative and synthetic capacities associated with an extended theory of mind, and that the reason that other highly intelligent, social, and long-lived species lack these capacities is because of an "evolutionary barrier." Specifically, being able to intuit that other individuals have interior mental states and intentions results in the recognition of their mortality, and this in turn makes individuals with an extended theory of

mind aware of their own personal mortality. This would in turn undermine reproductive fitness by rendering such individuals perpetually demoralized and/or distressed. Therefore, Varki and Brower propose that an extended theory of mind could only be adaptive if it was simultaneously accompanied by a suite of psychological defenses that are primarily oriented toward fostering and maintaining psychological equanimity by the denial and distortion of reality in the service of mitigating death anxiety.

There are striking parallels between this view of the origin of human consciousness and earlier psychodynamic accounts of the relationship between culture and consciousness, starting with Geza Roheim's claim that culture originated as an internal response to anxiety, and Susan Isaac's contention that "reality" thinking is contingent on the concurrent capacity to fantasize. Ernest Becker subsequently elaborated on these notions by identifying death denial as the primary motivational impetus for human behavior. Specifically, cultural worldviews provide opportunities for people to perceive themselves as valuable to contributors to a meaningful universe and, thus, viable candidates for literal and/or symbolic immortality. Consequently, people are highly motivated to maintain faith in their cultural worldviews and confidence in their self-worth (i.e., self-esteem).

Varki and Brower's theory that an extended theory of mind could only have evolved in conjunction with psychological and behavioral mechanisms to deny death, and Becker's claim that culture evolved (at least in part) to solve the "endogenous" problem engendered by the burgeoning awareness of the inevitability of death, like many evolutionary-based theories, cannot be tested directly. However, there is no reason in principle why natural selection could not favor the adoption of denial-based proclivities through the creation of a supernatural world, one in which death was not inevitable or irrevocable. Presumably, the groups of early humans who fabricated the most compelling tales could better manage existential terror. They consequently would have been more capable of functioning effectively in their environment, and thereby most likely to perpetuate their genes into future generations.

Varki and Brower propose that the "mind over reality" transition occurred approximately 100,000 years ago with the advent of behaviorally modern humans. Perhaps the simultaneous appearance of art, body adornments, and elaborate ritual burials—and sophisticated technology—is not coincidental. The concurrent emergence of material manifestations of supernatural beliefs and extraordinary technological advances is consistent with the proposition that the sophisticated cognitive capacities associated with human consciousness could serve our ancestors well only when fortified by denial mechanisms to convince them that death could be forestalled and ultimately transcended.

Credible evolutionary-based theories should show "hallmarks of special design for proposed function," be "capable of generating specific and falsifiable empirical predictions," and "account for known data better than alternative hypotheses" (Buss, Haselton, Shackelford, Bleske, & Wakefield, 1998, p. 546). TMT and research have generated a large body of evidence consistent with these epistemological criteria. There are distinct defensive reactions to conscious and unconscious death thoughts that unfold in a predictable fashion over time (hallmarks of special design); there are now more than 1000 published studies demonstrating that death reminders have a pervasive influence on human attitudes and behavior (specific and falsifiable empirical predictions); and, to date, there are no credible theoretical alternatives to TMT (account for known data better than alternative hypotheses; see Pyszczynski, Solomon, & Greenberg, 2015, for a review of this research as well as an extended discussion of TMT vs rival theories).

Interestingly, Varki and Brower and Becker, while both noting the adaptive advantages of the suite of cognitive capacities associated with human consciousness, are also skeptical about the future viability of humankind given the adverse consequences of death denial. So was Nietzsche, who in *The Gay Science* declared that consciousness was "that most calamitous stupidity of which we shall perish someday." Varki and Brower propose that denial is responsible for humankind's disinclination to respond to issues such global warming, unsustainable national debt, and personal health risks associated with poor lifestyle choices. Becker feared the devastating effects of the evil caused, ironically, by humans righteously declaring their intent to rid the world of evil, as well as people's susceptibility to embrace ideological demagogues in times of historical uncertainty. He was also concerned about the environmental devastation and psychological degradation of a mass consumer culture: people plundering the planet in an insatiable quest for dollars and dross in a drug, alcohol, junk-food, Facebook, Netflix, Twittering stupor.

"Come to terms with death," wrote Albert Camus in his *Notebooks*, "thereafter, anything is possible." The future of our species may depend on it.

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