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Science Fiction, Religion, and Apotheosis by J. Daniel Sawyer

There's been a lot of talk in recent years of science fiction reaching the end of its tether¹. How can we project ourselves into the future, imagine possible worlds, and wow our audiences if not even the worlds best prognosticators can foresee technological developments more than fifteen years from now? Growth is accelerating – the singularity is near.² Speculation has become passé, or so the argument goes, because in five years we'll see how wrong we were. Our works won't last, and we'll fade away like so much sea foam on a stormy beach.

As a science fiction writer myself, I find this prospect something more than mildly unnerving. Short of civilization crashing down around our ears to the point where we get to experience just how un-utopian an agricultural utopia can be, I don't think there's much that can provoke more professional angst for a science fiction writer than the notion that we've run out of future. If nothing that has happened before prepared us to anticipate what will happen soon, how is a speculative writer to go on about his prognostication?

Is science fiction really a dying genre? Maybe so, but I think there are good reasons to doubt it.

To understand why, we need to follow a distinctively science fictional formula. We must journey back in time a few thousand years to a grassland hut surrounded by a small stockyard.

A man, probably no older than thirty five, staggers up the path to his house, delirious with

1 See the essays, both entitled “The End of Science Fiction,” by James John Bell, David Louis Edelman, as well as similar essays available online by Bret Funk and Bruno Maddox.

2 The Singularity is the point in the near future where the convergence of biotech, nanotech, medical technology, and artificial intelligence creates a massive technological takeoff resulting in changes so massive and unpredictable that speculating upon the future becomes pointless. For further information see the information available at <http://www.singinst.org>. See also the books *Liberation Biology* by Ronald Bailey and *The Singularity is Near* by Ray Kurzweil. Also worth a look is the artificial life project at biota.org. It's worth noting that project member Tom Barbalet told me in an interview recently that he believes the Singularity is no longer a point in the future – it is already upon us.

triumph. His prayers have been answered. His home is safe from the invading armies, his enemies lay in heaps for the carrion birds, and he's won himself a valuable bit of plunder to help keep his estate solvent through the winter. He promised his god a sacrifice in return for victory, and his god delivered. Now all he must do is complete his part of the bargain, and make a burnt offering.

Of his daughter.

This story isn't an invention – well, not an invention of mine, in any case. It comes from one of Western culture's best-known mythology sourcebooks, and it's remarkable for the window it gives us into the way that people think about their gods. Leaving aside the question of which (if any) religion is true and which (if any) gods exist, let take a look at how religion functions psychologically and sociologically, and see what window it may give us onto the putative death of science fiction.

This man's transaction with his god is an economic one: you give me the battle, I'll give you something dear to me. It's the kind of logic you'd expect from a culture whose chief form of social intercourse is bargaining, or from a culture that is often besieged by threats from outside that seem far greater than anything they can deal with. The gods are the universe's ultimate retailers, trading favor, miracles, and good luck for a gesture of devotion, insisting only that a price be paid.

This is the logic that underlies all sacrifices in ancient religions, whether sacrifices of propitiation or of thanksgiving. Crassly put, propitiation is a protection racket, where the lowly human bribes the local divine mafia to keep its wrath at bay, while thanksgiving is more like paying into your IRA: when the gods smile on you, you give back to them a portion of what life's bounty has given you, showing that you appreciate divine favor and building up a credit balance. Both of these sorts of transactions are economic even if the sacrifice is one of time, or of charity, or of morality, rather than one of blood or money.

Of course, the dynamic need not always be conscious, and it's not without its emotional or relational components. The same kind of behavior can be seen in small children at Christmas, when they box up their most beloved teddy bear to give to their father. The logic is simple: *Without this person, my universe would shatter. I love this person. I need to give this person something to show him he's important...I know! I'll give him something immensely valuable. Something it will hurt me to give up. Then he'll know how much he means to me.*

A child doesn't have the capacity to understand that her father likely has no use for a teddy bear. She doesn't know that value isn't intrinsic, she knows only her own bounded perspective. This teddy bear is her talisman, imbued with magical powers to keep the monsters under the bed away. It's comfort and safety. Without it, her life will be more frightening, but if it's that special and that powerful, then her father must need one. His life will be better, and if his life is better, maybe he'll not have to go away to work as often, or won't divorce her mother like some of her friends' parents have, or maybe he'll just love her even more than he does now. That would be nice, wouldn't it?

As adults, we understand – mostly – that the world doesn't work that way, and that relationships are built by giving another the things *they* value in times of need, and by being able to accept gifts earnestly given, and renegotiating the terms of relationships as the needs, circumstances, desires, and philosophies change with growth. But when dealing with forces beyond our ken – governments, large corporations, imagined conspiracies that just might run the

world, or gods – we tend to revert to the earlier, more intuitive form of relationship: that of the child who gives a teddy bear to her father for Christmas.

This is the logic of sacrifice, and to an ancient mindset, where the pieces of the universe seem animistically connected, it makes sense. You can see it at work in the works of Homer,³ in the epic of Gilgamesh,⁴ in the Bible,⁵ and notably in the tales of chivalry from the era of Arthurian romances in the middle ages – particularly in the vows of chastity that the knights made to God, and the vows of devotion they made to the objects of their courtly love.

Of course, there is another way in which humans interact with their gods: magic. By “magic” I don't mean card tricks, nor do I mean rituals of welcome, such as neopagans practice on the winter solstice to welcome back the sun from its long descent to the south. I also do not mean “miracles.” Miracles, if they happen, may be the result of magical practice, or they may be the result of unprovoked divine action – in either case, they are an effect rather than a cause.

No, by “magic” I mean “those actions that humans take to wield spiritual/divine power” rather than “miracles.” Where the aim of sacrifice is creating or maintaining a dependable relationship between oneself and one's god, the aim of magic is to participate with one's god in the maintenance of the universe. This can take the form of sympathetic magic, or of witchcraft, or of invocation – and usually magic is practiced with all three simultaneously in the mix.

Sympathetic Magic

Sympathetic magic is perhaps the easiest to understand, because it's directly intuitive. If the world around you is alive, or if it's controlled by an intelligence, then doing an action in microcosm that you hope to achieve in macrocosm makes perfect sense. You're going through the motions of what you're hoping your god will do. Ritual baths – still enjoyed by many of the world's religions – are a direct form of sympathetic magic. A ritually impure person will bathe, perhaps in a prescribed fashion or while reciting a ritual prayer, before entering the presence of her god. Christians practice this as baptism, Jewish women take ritual baths to cleanse themselves after their menstrual period. The practice of ritual bathing actually comes from a deep-seated psychological impulse that gets acted out in everyday life – if you've ever done something you found distasteful, or had a bad day, or been raped, one of the first impulses most people experience after they get home is to step into the bath. The Bond film *Casino Royale* used this universal human impulse to stunning effect when Vesper Lynd, after participating in a murder, sequesters herself in the shower, fully clothed, apparently for hours, trying to cope with what she's just experienced. The unspoken hope of this kind of bathing is that physical cleansing will effect spiritual, moral, or psychological cleansing. As C.S. Lewis says of humans in *The Screwtape Letters* “...we must never forget that they are animals, and what their bodies do effects their souls.”

Of course, if bodily disposition can effect one's spiritual standing, it makes sense that the transverse would also be true. As children, many of us heard Grimm's fairy tales and became accustomed to a trope from Germanic folk religion that relies on precisely this intuition: that evil

3 Odysseus, in the *Odyssey*, sacrifices a ram to the spirits of the dead to gain entrance to the underworld. He also sacrifices to Poseidon to appease the god's wrath against him for blinding Polyphemus,

4 Gilgamesh tablet XI Lines 146-147, 155

5 The story above comes from Judges 11:31ff. Numerous other examples include the giving up of Samuel to the temple by his mother, the numerous instances of ritual sacrifice in the cult of Yahweh, and the origins of the practice of tithing among the patriarchs.

people become ugly because of their evil. Of course, if this is the case, then burning or torturing an effigy of a person you dislike might just might be an effective form of vengeance⁶ – and an evil man might be able to protect himself from that kind of magic by vesting his soul in an unrelated object. Then, even if his body were tortured or destroyed, his soul would live on and allow him to find another body – just as did Sauron in *Lord of the Rings*, or Voldemort in the *Harry Potter* series, or the Russian villain Koschei the Deathless (upon whose mythos both of the fictional villains draw heavily).

In a similar way, fertility cults in ancient societies served the magical purpose of encouraging the gods and the land to be bountiful. Sometimes, as in the case of the still-practiced Obando fertility rites in the Philippines, they centered around the fertility of the women of the tribe.⁷ In more agrarian cultures, such as Mesopotamia, they centered more around the fruitfulness of the land than the fertility of women.

In many ancient cultures, at the beginning of spring, a ritual orgy in which the priests or the common folk would engage in regular sexual intercourse for the length of the festival (the details and rules of the orgy varied from culture to culture) to remind the land (and the gods of the land) that it was now time to be genitive, to make the land abundant and fruitful, and bring life back after the long winter. In more ancient times when the King himself was considered to be a god-man and/or the embodiment of the land, he might be called upon to sacrifice himself, or a surrogate, so that his blood might re-fertilize the land, returning its fertility and reminding it what life felt like. This cycle of sex and death is reflected in the myth of Ishtar and Tammuz. In the story, Tammuz dies at the peak of the earth's fertility. As the land fails under the baking summer heat and then grows cold after the harvest, Ishtar descends into hell to resurrect her brother. It is only the following spring, after Tammuz is brought back to the world above and the couple are united in sexual intercourse that Tammuz's sacrifice to fertilize the earth with his blood is honored, and the world becomes fruitful again. Sex and blood sacrifice are seen as two essential parts of a ritual cycle that humans participate in to remind the spirits of the land of their job⁸

Invocation

Invocation is the second essential form of magic. When a priest or a believer calls upon a god or spirit – often exercising temporary power over it by speaking its name – to bless a loved son, or curse an enemy, or heal a sick person, that person is attempting to invoke the power of the god to serve his own ends. There are strictures on this kind of magic, as one does not wish to call up on the power of the god frivolously. This logic behind invocation can be seen plainly in the Biblical story of Jacob and Esau, where after Esau discovers Jacob's trickery and begs his father Isaac for something – anything – of his birthright, his father responds that he has already given Jacob

6 A prime example of this kind of magic is the Voodoo Doll. It's worth pointing out that the practice of torturing a doll has roots in European folk magic as well as the Hoodoo religion (which Hollywood misnamed "Voodoo" in movies dating from the 1920s)

7 "Sayaw Obando." (*Fertility Dance*), *Obando, Bayang Pinagpala!* (Obando, Blessed Town!), *Pamahalaang Bayan ng Obando* (Local Government of Obando), 2006/2007

8 Though only vestiges of these practices survive to the present day (maypole dances, Easter egg hunts, etc.), as of the late 19th century a handful of cultures which practiced this kind of fertility magic still survived, and are documented in James Frazier's *The Golden Bough*, Chapter 47, Section 3. Though some of his information and conclusions (including his meta-theory) are obsolete, his analysis of magic and his primary source reporting have so far held up to scrutiny by anthropologists and mythologists.

everything. Isaac tells Esau “Your brother came deceitfully and took your blessing.”⁹

To our modern way of thinking, where a blessing is merely one person wishing another person well, this statement makes very little sense. In the ancient mind, however, a blessing is an invocation of divine power – to engage in it frivolously is to invite the displeasure of the god, which could make Him turn a deaf ear during times when His blessing is earnestly sought for important matters, and this made blessings both rare and sought after.

Witchcraft

Witchcraft is the third form of magic, and is what springs to mind for most people when confronted with the term “magic.” Witches are divines for their local group – a tribe or a village – that perform healing rites and dole out miracles by use of ritual, symbols, and talismans – often in conjunction with alchemy (primitive chemistry and/or medicine) and invocation. These symbols are seen as potent nexes of spiritual power, and are used to direct natural forces or godly attentions in particular directions. Some frequent uses of witchcraft include healing in the absence of medical science, blighting the crops and herds of a rival, inducing a god to favor your side in combat, divining the future, and controlling the weather.¹⁰

Witchcraft also includes acting as a medium for elemental or spiritual forces, and controlling and channeling same. Thus, in many cultures witches are believed to be able to call and control familiar spirits and demons, talk to the spirits of the dead, and locate water or petroleum by dowsing.

Of Magic and the Gods

Throughout history, witchcraft, sacrifice, and prayer have been codified and bound together in religious systems. Everything we now call “mythology” was, at one point, the sacred stories of a religion. Sometimes, it was a relatively unsystematized folk religion as existed in rural Germany and preserved in Grimm's Fairy Tales, while at other times, mythos developed into full-blown empire-governing religions, such as the Egyptian state religion, the Greek religion, the Hindu religion, and the other major religions we know today. Whatever the status of its truth-claims, religion's uniting characteristic across all cultures is its systematization of cultural identity and knowledge. In doing so, it preserves cultural memory, it perpetuates social and political order (particularly in non-metropolitan societies), and it explains the world around us and the individual's place in it. It assuages existential angst, and grapples with ultimate questions:

Who am I? Why am I here? What does it mean to be human?

Humans have always lived in the shadow of power greater than themselves – at the mercy of the earth, the sun, the rain, the wind, the wild animals, incomprehensible diseases, and more advanced civilizations. Because of this, and perhaps for other reasons as well, humans have always perceived themselves as living also in the shadows of the gods.

Throughout history, we have told stories about the gods and their world, and about the spiritual forces we've seen operating in our own world. We've used them as mnemonics to remember when to plant and when to harvest, to convey social values to our descendants, and –

9 Genesis 27:32

10 Not an all-inclusive list.

perhaps most importantly to the modern mind – as a canvas upon which to work out our understanding of our place in the world around us, from the immediate environment to the entire universe. Stories of catastrophes averted by beneficent gods offer comfort to peoples facing impossible odds – if the god is good or well appeased, then it *will* appear and show mercy, so long as we are faithful. Stories of apotheosis (where a man or woman ascends to godhood) and of heroic deeds give hope and courage that someday humanity will be the master of its environment, rather than being at its mercy.

Humanity's gods have always taken one of two forms – the “doing” gods, and the taxonomic gods, both of which exist in a Venn diagram with considerable overlap.

The “Doing” Gods

The *doing* gods are those beings who are known by their attributes – in some cases, it is what they do that qualifies them as worthy of veneration. These are either beings whose being is the same as their doing (Yahweh the Creator in Judaism and Christianity, Christ the Redeemer in Christianity, Siva the Destroyer in Hinduism) or they are beings who, though born human, are elevated through their actions to godhood (Augustus in the Roman Imperial cult, Jesus in certain strains of Gnosticism, Heracles in the Greek hero cult, Guan Yu in Taoism). This second kind of god typically inspires more enduring fervor and devotion for the reasons advanced in the Book of Hebrews, 4:15 where it says “For we have not a high priest that cannot be touched with the feeling of our infirmities; but one that hath been in all points tempted like as we are, yet without sin.”¹¹ In other words, a god we can identify with is one we can understand well enough to worship easily. This second kind of “doing” god inspires devotion for another reason: it gives humans hope of achieving transcendence.¹²

Christianity's Triune God, though being of a different substance from mortal man, is known to believers primarily by his attributes and actions (he thus sits squarely in the center of the Venn diagram). He is omnipotent, omniscient, omnipresent. He is loving and patient, vengeful and wrathful, just and righteous. More importantly, he became human to create a bridge so that humans could become “children of God” - moving humans from their status as “a little lower than the angels”¹³ to beings whom the angels would eventually serve.¹⁴

Starting with the industrial and scientific revolutions, religion centered around gods that *do* developed a problem – or, rather, since at least some of these religions have since reconciled their cognitive dissonance, perhaps it's more accurate to say that people began to have a problem with their gods. With a microscope and a telescope, we began to intrude into the domains of God's knowledge, and that revolution hasn't slowed down. With our great machines, faith was no longer necessary to move mountains – we could do it with the press of a button (okay, a few buttons connected to a lot of machinery, but you see the point).

It's hard to wrap our heads around this now, but as science and industry ascended, they

11 American Standard Version

12 This theology appears in many religions, and is usually reserved for the very great in spirit or stature.

13 Pslams 8:5, King James Version

14 The Greek Orthodox church's theology of “theosis” articulates this notion most fully, though it is found in Catholicism's cult of the saints, in Luther's doctrine of the Priesthood of all Believers, and in other flavors throughout the Christian and Muslim worlds. The Mormon church goes one step farther, promising not only heaven or participation in the trinity, but literal godhood and the ruling over individual worlds in the afterlife.

created genuine theological problems and anxiety for Christendom. Vaccination and anesthesia, for example, were both vigorously opposed by the Church in Europe because both were seen to be mitigating the curse of Genesis, which brought both childbirth pains and disease and death into the world.¹⁵¹⁶ In effect, church leaders of the time saw these scientific innovations as stealing power for ourselves that was rightly God's power, and then using it to negate God's will.

In time, and with a lot of theological wrestling, humans made peace once again with their gods.¹⁷ After all, we could move mountains, we could penetrate space, but at the end of it we were, after all, merely human. We could learn everything in the world, but we'd never be able to see into the mind of another person. We might even be able to go anywhere, but we'd still be constrained to live out our lives in mortal bodies bounded by Einstein's universal speed limit. We might conquer disease, but we'd never escape our nature as flawed, mortal, and destructive beings. In response to the rise of science and industry, Western thought shifted from concentrating mostly on what God does to emphasizing what God IS.¹⁸

The Taxonomic Gods

Which brings us to the other kind of god. These are beings that are gods by virtue of their substance. Like the difference between cats (*felis*) and humans (*homo*), many religions see “god” as a taxonomic category (*dios?*). Most of the Greek pantheon is this way, as is the Egyptian – a race of beings born, raised, living, and sometimes dying in the heavenly realms, having immense power, but still distinguishable beings of identity even to the point of having bodies. Their bodies are made of different stuff than you or I – spirit, instead of matter – perfect, instead of fallible.

One currently-practiced religion that operates this way is Hinduism. The gods in Hinduism are emanations from the Brahman, made up of spiritual substance, having lives and concerns that have an existence wholly other than whatever interest they take in human affairs. They are gods by virtue of what they are – the stuff they're made of – rather than by virtue of how they interact with the material universe.

Another religion of this sort is Islam, which, although dominated by a *doing* god also contains all manner of taxonomic gods – djinn, spirits, demons, angels, and suchlike that it inherited from its polytheistic forebearers.

In its early years, Christianity partly rejected the idea of “god” as a taxonomic category – it smacked too much of Gnosticism, which was a major competitor to Christianity at the time. However, the rejection was only partial, as Christianity retained the notion of created demigods (angels, demons, and resurrected saints) who serve a similar cosmogenical function, and then set The Triune God above them. Where the demigods were distinguished from humans primarily by virtue of their substance, Christians initially emphasized the Triune God as a being who *does*

15 "I will greatly increase your pains in childbearing; with pain you will give birth to children. Your desire will be for your husband, and he will rule over you." Genesis 3:16, ASV

16 "[The ground] will produce thorns and thistles for you...for dust you are and to dust you will return." Genesis 3:17 and 19, ASV (selected portions).

17 Of course, some religions with “doing” gods, such as Islam, have not yet actually grappled with the rise of science, preferring instead to spurn scientific inquiry as theologically dangerous and merely enjoy the fruits of its labor (i.e. technology).

18 As with any sphere of life where there are intellectuals and laity, many believers still experience and/or think of God as a “doing” god rather than a “being” god, but that's beyond the scope of this article.

rather than a being who *is*.

However, as the ideological and cultural landscape shifted beneath the church's feet with the Enlightenment, as argued earlier, Christianity began to emphasize once more what God *is* over what God can *do*, since it is what God *is* (perfect, immaterial, everlasting, uncreated) that ultimately distinguishes Him from humanity.

The Trouble with Taxonomy

“Over billions of years, on a unique sphere, chance has painted a thin covering of life—complex, improbable, wonderful, and fragile. Suddenly we humans (a recently arrived species no longer subject to the checks and balances inherent in nature), have grown in population, technology, and intelligence to a position of terrible power: we now wield the paintbrush.” -Paul MacReady "An Ambivalent Luddite at a Technological Feast"

By the time we walked on another planet, we had long since dispensed with the notion that the heavens were literally the dwelling place of God, but at the time when Galileo first seriously advocated against that notion it represented a real theological difficulty for certain segments of the Catholic church – though not nearly as large a difficulty as is widely believed.

However, since the mid-twentieth century, by inches, the *being* gods have also had problems as we found ever more ways to understand the universe, and to extend our power. We have even found ways to control our own bodies and evolution, to change our fundamental psychological nature,¹⁹ and to create life from scratch. Very few people not at least passingly familiar with the current state of research in biotech, nanotech, aerospace, and neuroscience receive such a statement with an incredulous scoff. This scoffing is not just unwarranted, it's downright wrong.

Even in the popular consciousness, we have begun to realize that humanity wields tremendous power over the natural world. Although humanity has sometimes aspired to such power, we never asked for it in a coherent way. Instead, we have merely grown in knowledge, population, and understanding to the point where the power is ours, whether we like it or not. While we do not (and can not yet) micromanage the biosphere, we can and do single out some species for extinction hunting or habitat destruction, and other species we wish to privilege through protection or domestication. We apply deliberate evolutionary pressures to organisms which prey upon us, like cholera or HIV, in the hopes of channeling their evolution in a harmless direction – much the same way our ancestors domesticated the wolf and turned it from enemy to friend. We make deserts bloom in Phoenix, Arizona, and we help deserts grow in the Sahara. We can – and do – change the face of the planet far more radically and far more regularly than any

¹⁹ The first documented case of a person's nature changing by external intervention is the case of Phineas gage, who, after an injury to the frontal lobes of his brain, experienced a severe personality change to the point where his loved ones insisted that he was “no longer Gage.” Later work in neurology, including lobotomies, severing the corpus colosom, and selective application of electricity all showed alterations in personality and the experience of consciousness, occasionally spawning multiple semi-independent personalities. Additionally, electro convulsive therapy has been shown erase and alter memories, and occasionally psychedelic drugs can induce spiritual experiences that can alter a person's outlook on and approach to life permanently. These tools, while crude, have been known to us for over 100 years. Current advances in neurology and neural imaging, along with advances in microelectronics, mean that our tools for altering mental processes through direct physical interference are getting sharper and more adaptable.

ancient storm god ever did. We may not be comfortable with this, but we have become accustomed to it.

The notion that we can control our own beings and nature, or that we can create life, or that we can read minds is another matter entirely. The notion smacks of arrogance – for secular people it raises specters of the eugenics movement, of the Nazi regime, and of Frankenstein's monster. For religious people, it can be seen as almost blasphemous: these are all things that God does – not man – and he does it by virtue of the kind of being he is: pure spirit, unlimited by physical constraints. In both cases the call of anxiety is the same: We should not be “playing God.”

But we are playing God, and we're not going to stop anytime soon. In 2007, Craig Ventner announced his program to create the first artificial life forms – after he had already constructed a number of artificial chromosomes. Building from the ground up, he hopes (very reasonably) to be able to design artificial organisms to create fuels, kill cancers, repair biological damage, and combat diseases in the next decade.

In 2003, the Methuselah Foundation announced the Methuselah Mouse Project, which places a bounty on therapies that can radically extend the life of laboratory mice. The aim, which is a ways off but against which no theoretical barriers any longer stand, is to use what is learned from this project to slow, arrest, and ultimately reverse human aging.

Nanotechnology, still in its infancy, has already created molecular machines that can perform assembly tasks. They are not yet sophisticated enough to self-replicate, but the technology is moving fast enough that the facts may have changed by the time this article goes to press. Since evolution is a consequence of self-replication and resource competition (assuming the replicators can commit errors in replication), once this happens evolution is likely inevitable.

Genetic engineering is already creating viruses that can target cancer cells and induce apoptosis,²⁰ and genetic screening allows us to pre-select which pregnancies will come to term or not based on genetic defects or gender. As more of the human genome is mapped, the selection options will expand to include both cosmetic factors (such as hair color) and, to a certain extent, intelligence, athleticism, and even the number of limbs. By the time humans are living independently on the moon (currently expected by 2020, as no less than three separate governments are planning semipermanent moon bases between 2015 and 2025), we will have the power to re-engineer humans to optimize them for lunar living, or to remove from our nature the destructive impulses and tribalism that plague us. The only questions left are: Will we exercise that power? If so, then how?

Since the early 1970s, computing has closed steadily in on the creation of artificial consciousness. The endeavor has been so successful that, as Ray Kurzweil pointed out in his address to the Singularity Summit in 2006, the Turing test is now an obsolete measure of sentience. The notion of artificial intelligence is now obsolete – computers are artificially intelligent in ways that far surpass human intelligence. What they lack is consciousness. For reasons too lengthy to go into here, I'm skeptical that they'll be able to pull it off on silicon hardware, but if the research program on artificial intelligence succeeds in creating a self-conscious computer or cyberorganic, humanity will have intruded a step further into God's presumed domain, by creating souls.²¹

20 Preprogrammed cell-death.

21 By saying this I'm setting my flag firmly on one side of the P-zombie debate in philosophy. For the two definitive books on the subject, see David Chalmers *The Conscious Mind* (arguing elegantly in favor of dualism) and John Searl's *The*

In the meantime, we are already partially able to read minds. Neural scanners enable people to control computer displays. Enhancements in neural imaging combined with a better understanding of how the brain works should allow for the development of **real** lie detectors and mind-reading before the end of the next decade, if not sooner.

Whether any of the gods exist or not is beside the point of this paper. What is salient is that, with one exception (the ability to create universes), in every way that humanity has ever cared to define what godhood is, we are inevitably becoming gods. And even when we are only vaguely aware of it, we find the inexorability of our continual and gradual self-apotheosis unsettling. If there's a god or a pantheon of gods up there, watching over us, able to help us or judge us as we see fit, we can take a certain amount of comfort: the wicked will be held to account for their actions. We may pay the price for our blunders, but ultimately if we destroy our world, it was because God judged us unworthy of salvation. And though death stalks us, if we win (or, in some religions, accept) the favor of the gods, we may hope ultimately to escape the final end of ourselves.

But what happens when we are doing the gods' jobs? What if we can, step by step, learn to micromanage the biosphere, control our weather, harness the power of earthquakes, live on other planets, travel to other solar systems? What if we can use cybernetic implants to enhance what is best about us, and suppress what is worst? What if we can find our own way towards immortality? By what measure then can we say “ah, but I am merely a man, not a god?” And how, ultimately, can we grapple with such a crippling burden of responsibility?

Science Fiction as Religion

I do not think it is a coincidence that science fiction rose to prominence at the start of the space age, nor that its character in the space age is markedly different than was its character in the industrial age. As a genre, science fiction is far deeper and more profound than most people credit – it is not merely space opera, or gadgetry, or even masterful engineering. Science fiction is instead the descendant of an older form of literature in which man wrestled with his place in the universe as he learned to conquer nature in the fields.

Beginning with ancient mythology and moving forward, beneath the sword and sorcery tropes, the grand quests, and the strange beings, fantasy literature has been often preoccupied with the triumph of men (at this stage of history, it was men in the gendered sense particularly) over their gods – at first with the aid of other gods, then as the beneficiary of the gods infighting, and finally as the one who brings about the death of the gods. Whether it is Odysseus outwitting Polyphemus, Circe, and Poseidon and winning his way home, or Gilgamesh killing Humbaba and the Bull of Heaven, or Beowulf slaying Grendel and Grendel's mother, or Sigfried slaying the Dragon, or the unmaking of the divine realm in *Götterdämmerung*,²² fantasy is preoccupied with the death or fading of the gods, and it's not surprising that this is the case. Ancient mythology – that which survives – was first written as civilizations were rising and the fickle gods of cloud and air were less feared than once they had been. As humans acquired mastery over the soil, they

Rediscovery of the Mind (arguing, in my view, convincingly against dualism). Daniel Dennett offers a third view in the very readable *Kinds of Minds*.

²² Though not properly ancient mythology itself, *Götterdämmerung* draws this and many other plot points from Norse mythology.

found gods more suited to their concerns than were the gods of the nomads – but the nomadic gods had to go somewhere. They had to fade or be conquered so that there would be room for humans and their new dominion, aided by their new gods of agriculture.

This is, I believe, why fantasy enjoyed such a resurgence during the industrial revolution. In the early Enlightenment, particularly in Florence, intellectuals tended to push Christianity and the folk mythologies of the people to one side in favor of the more symbolic mythologies of Golden Age Athens – when (according to the thought of the time) people didn't really believe in the gods, but they did use them for symbols. And for the early Enlightenment mind, they were fine symbols. The gods were manifestly men in divine clothing, wielding easy mastery of nature, personifications of natural forces and attributes at work in the world and in the human soul. But as the industrial revolution progressed, humanity shifted radically in a way that it had not shifted since the agricultural revolution: it became less and less dependent upon the rhythms of nature and more and more dependent upon the rhythms of the machines. Over the course of two generations (and in some areas, one generation), the population went from being powerless before nature to being enslaved by the instruments of humanity's power over nature. The sociological trauma must have been immense – far more immense than we, who are accustomed to rapid continual paradigmatic change, can easily imagine. During this time, a mountain of fantasy literature was produced, particularly in the British Empire, much of it concerned with relegating the old gods and demigods of nature to the nursery. In that same time, a few works – *Die Ring des Neibelungen* by Wagner, *Phantastes* by MacDonald, *The Waste Land* by Eliot, and *The Lord of the Rings* by Tolkien²³ – dealt with the death of the nature gods on an adult scale, allowing the grief and confusion that accompanied the triumph of man to well up and mix in a mature, bittersweet fashion.

The Lord of the Rings is the epitome of this subgenre – underneath the magic and the magical, we have an heroic story about the race of Men coming of age and taking its place as the steward of the world. The Elves and the Valar fade into the west, the Ents gradually settle down into full-blown treehood, the Hobbits and Dwarves will eventually merge with men. At the end of the story, the evil and pestilence of Sauron (whose dominion over nature is wholly destructive and perverse) is achieved only at the price of unmaking the world that once was. As Frodo leaves Middle Earth, the magic is fading, and it will not return.

John Boorman's *Excalibur* gives us another angle on this same theme. “The One God comes to drive out the many gods,” Merlin tells Morgana, “The spirits of rock and tree fall silent. It is time for men, and their ways.” And later again, he tells Arthur that he may no longer help him. “I am old, the world is done with me. It the time for man – it's your time...for you to be King at last.”

Fantasy – particularly fantasy of this type, helped people cope with existential angst. With the loss of the way things once were, with the responsibility that humanity's newfound power thrust upon their shoulders. It allowed people a metaphorical forum to hash out their values, their ethics, and cope with their fears at the dawning (and ever growing) age of the machines.

Science fiction began its first flowering at the same time, with Mary Shelley, Jules Verne, and H.G. Wells. These authors told stories colored by the fear of the effects of technology on mankind, of the danger of playing god, of the promise – and peril – of exploring the heavens and

23 Again, not an inclusive list.

journeying into the future. At the root of all of them lurked the same singular question that religions have always wrestled with: What does it mean to be human, particularly now?

With the dawn of the space age, and the information age, and the age of genomics, the stakes are now higher than they have ever been. When humanity harnessed the power of steam, it leapt far past the power of the Egyptian god-men that once ruled as Pharaohs. With the invention of the automobile, the airplane, and the space ship in the space of a single generation, humanity again jumped forward – this time ahead of many of the Greek gods in terms of our power and knowledge, and our ability to understand the subtle workings of the cosmos. Because of our need to understand who we are and where we are going, science fiction sprang forth in full flower with Heinlein, Bradbury, Asimov, and Clarke.

Arthur C. Clarke, in spotting where technology had brought us, and seeing how fast and how far it still had to go before we bumped up against the laws of physics, observed that “Any sufficiently advanced technology is indistinguishable from magic.” When he said that, he gave form to the suspicion that had been growing long in the western mind: We wield the kind of power that was once reserved for the gods alone. The world is changing – and so are we. And those changes are probably permanent.

We already have the power to control life, to read minds, to create life, to direct evolution, to move mountains, to fly, and to voyage into the heavens. What do the gods do that we cannot do ourselves? What do the gods have that we cannot acquire, in the very near future? What makes a god different from a human?

Could it be immortality? Perhaps not. At the time of this writing, the first experiments in telomeric regeneration²⁴ have just been completed, with mixed but promising results. Even without advances in anti-aging therapies, medical science if progressing fast enough that is is very possible, even probable, that the first human to live to the age of 160 years is already living. And, if medical science continues to progress, living to 160 might be just long enough to give that person the option to live forever. This isn't a certainty, but it is far from wild speculation. It is a very conservative extrapolation of historic trends – far more conservative than the most conservative futurists²⁵ are currently projecting.

Potential immortality is only one of several irrevocable game changes that our race dances with today. Extending lifespan, genetic engineering, merging with machines via neurological enhancements and interfaces, fiddling with our nature by changing our DNA and our neurology – all of these things, in some way, fundamentally change who we are. We know this. Deep down, we have always feared it. And because of that, for the last hundred years, we have been preparing ourselves for it.

In the meantime, the kinds of stories that once served to give us hope of beating the grim reaper – whether it's Jesus' resurrection, or Elijah's chariot of fire, or Tantalus' stolen ambrosia, or Arthur drinking from the Holy Grail – may have a sinister ring now that such power is within our grasp. So along come stories of another kind. *The Highlander*, *Time Enough For Love*, and countless others are stories wrapped up, in one way or another, with coping with immortality and apotheosis. In some cases, immortality comes to the strictly human, as it did for Lazarus Long. In

24 Telomeres are the “aging markers” at the ends of chromosomes that govern cell life. The shortening of telomeres are one of the causes of aging.

25 Ray Kurzweil (who sees this as desirable) and Francis Fukuyama (who does not)

others, it comes through transcending the human body to evolve into a being of pure energy, as it did to Dave through his transformation into the Star Child of *2001*. These stories, both by their subject matter and by the ubiquity with which they have worked into our culture, have *become* religion.

Religion has always been humanity's refuge against a cold, uncaring universe. It's where we gravitate to cope with our ignorance, our mortality. We look up and project ourselves in macrocosm, and we get gods who are just like us – but better. Morally purer, more just, more loving, more wrathful, more righteous, wiser, better, faster, stronger – and we imagine regular people who so transcended their nature that, like the Buddha, they become the divine that the rest of us contemplate. Now, the universe is at our fingertips, and becomes moreso each day. As we creep inexorably towards the day when we can chose to become immortal, we are falling towards self-apotheosis.

With this radical upending of the way we experience the universe, we have replaced the social functions of magic, sacrifice, and prayer with a new holy trinity: technology, inquiry, and aspiration. But we have a problem. Although many of us still believe that one or another of the old religions is true in a sense that matters (spiritual truth, ultimate truth, or philosophical truth), the one thing we can no longer derive from religion is comfort, except in the abstract sense of hope of an afterlife. Most of us are aware of how unlikely prayers are to be answered, and even more of us are conscious that, if there truly be gods that judge our actions, they must surely hold us accountable for how we exercise our power. The power is ours – we can't set it down and walk away from it – we will either learn to use it wisely, or we will wield it to our own destruction.

Thus, as we become gods in most senses of the word, we necessarily displace the old gods, like children growing up to replace their parents. The story of *Babylon 5* is self-consciously this story, as it deals with the defeat of the elder races – the first ones, whom many worship as gods – by the younger races, who must then cope with the responsibility of charting their own destiny for the first time. The climactic episode of the series ends with the reflection:

*“We begun in chaos, too primitive to make our own decisions. Then we were manipulated from outside by forces that thought they knew what was best for us. And now now we are finally standing on our own. Lorien was right, it's a great responsibility. This is ours now...”*²⁶

Science Fiction and Fantasy are not Dying

The more of the universe – and our own nature – we control, the less felt need we have for salvation from our sins, deliverance from death, and mystification at the process of creation. Yet, our religions center around stories concerned with these very things. They are well equipped to deal with the anxieties of generations long past, but they give us very little or nothing to prepare us to deal with our own apotheosis. And so, we have made our own stories. New stories to deal with realities unimaginable by the scribes who earnestly penned the scriptures of the great religions.

The rise of science has split human understanding between the facts of the matter (How did I get here? What is a human?) and the experience of meaning (Why am I alive? What does it mean to be human?). Science fiction and fantasy, whatever their entertainment or prognosticative value, have grown up alongside science to answer those other questions of meaning, because the

26 Sheridan to DeLenn, “Into the Fire” Season 4, Episode 6 of *Babylon 5*, J. Michael Straczynski

old answers (even when we believe they are true) feel inadequate when humanity is changing before our eyes in world that bears no resemblance to the one our progenitors thought they lived in. This is why science fiction and fantasy are not dying: they provide a forum for us to examine our anxieties, to grapple with our responsibilities, to learn to accept our power. They also, like *Lord of the Rings*, help us mourn the loss of our innocence, and indulge in the fantasy of a simpler time when the world was smaller and the small things *mattered* in a cosmic sense.

Science fiction is in the midst of a sea-change. It has not run its course so much as it is coming into its own. As long as there is a tomorrow better, grander, more frightening, or more pregnant with possibility than today, we humans will need a myth – a religious tale – to help us understand who we are, how to live, and what it means to be human. Maybe even what it means to be more than human. And we need it to do that, because we have to go on living. As DeLenn said in *Babylon 5*:

*“Now we make our own magic. Now we create our own legends. Now we build the future. Now we stop being afraid of shadows.”*²⁷

27 DeLenn to Sheridan, *ibid.*