

Thought Experiment

James Gunn

SCIENCE FICTION CONSIDERS THE POST-HUMAN

One of the hot topics in academic circles is the post-human. Professors in the humanities and social sciences discuss, according to Wikipedia, “questions of ethics and justice, language and trans-species communication, social systems, and the intellectual aspirations of interdisciplinarity.” Transhumanism, which considers human technological enhancement, is an allied topic. But the post-human is nothing new to science fiction; its authors have been speculating about the post-human for more than a century. What they have been writing about is the next stage in human development, the actual transformation of humanity through the natural processes of evolution, particularly social evolution, and the effects on humanity of science and technology.

These kinds of ideas were unthinkable before the Industrial Revolution, the Scientific Enlightenment, and the introduction of the theory of evolution, all of which combined to change a part of human experience, observable within a single lifetime, and comprehensible through an overarching theory. And in so doing they provided the environment for the creation of a new kind of writing, a literature about change and a mutable future. It was a preoccupation in which change in the condition of humanity itself became a subject for speculation, beginning with stories about the primitive ancestors of humanity and the emergence of *homo sapiens* as well as competition with Neanderthals. Prehistoric fiction became a genre of its own.

Up to the middle of the eighteenth century change was almost always catastrophic or supernatural or so slow as to be unnoticeable. With the introduction of the steam engine and the industrial and social upheaval it created, people could see alternatives to what seemed fixed ways of life; for the first time in human experience, as a people, humans had choices. And they chose to move to the cities.

A number of authors responded to the general perception that the world was changing as they watched and that the future would be different: Mary Shelley, Edgar Allan Poe, and Jules Verne were only a few of the better known—Shelley’s 1818 *Frankenstein* was inspired by Volta’s discovery of electrical stimulation of muscle tissue, Poe’s 1848 “Melonta Tauta” imagined a future of dirigible life (and the future’s misunderstandings of the past), and Verne imagined how exploration would uncover new wonders by the use of such new technologies as ballooning, steam power, cannon propulsion, and electricity. (As Captain Nemo says in 1870’s *Twenty Thousand Leagues Under the Sea*, his submarine runs on electricity “but it is not everybody’s electricity.” And then, finally, Herbert George Wells. Wells studied biology with Thomas Huxley and absorbed the lessons of Darwinism, which Huxley defended against a parade of challengers. In 1871, *The Descent of Man* had postulated that humanity was subject to the same evolutionary forces that had influenced the rest of the living things on Earth. In Wells’ very first science fiction novel (although it was called a “scientific romance” in his day and was more properly a novella) *The Time Machine* (1895), Wells described a future in which social classes had evolved into separate kinds of humans, the charming and ineffectual Eloi and the troglodytic Morlocks who preyed upon them. Darwin had dealt with biological evolution produced by natural selection, and science fiction, from that moment, could be considered Darwinian in incorporating into its basic philosophy the adaptability of the human species. In *The Time Machine*, Wells, whose entire body of work was focused on

the changes in the natural and social world that would upend Victorian complacency, introduced another way in which humanity could change, social evolution, which substituted humanly created conditions for those caused by nature. It would take several decades for Wells to get around to the third kind of change produced by humanity's purposeful use of materials to improve its interactions with the natural world and the people in it. Technological evolution became Wells's topic in novels like 1904's *The Food of the Gods*, although he would deal with it less directly in narratives of human-made catastrophe such as *The World Set Free* (1914).

In the interim he would speculate in an 1897 article on "Man of the Year Million" about the future evolution of humanity into a weak, large-brained creature that he would incorporate the same year into the large-brained, tentacular, technology-dependent invaders from Mars in his *The War of the Worlds*. A year earlier he had speculated about the possible development of animals into sentience through vivisection in *The Island of Doctor Moreau*, and four years later about the controlled adaptation of individual capabilities by the Lunarites in 1901's *The First Men in the Moon*. The same year he published a work popularly called *Anticipations*, but whose full title was *Anticipations of the Reaction of Mechanical and Scientific Progress upon Human Life and Thought*.

After his early pessimistic works, Wells entered into a period of utopian speculation involving social change, typified by his membership in (and campaign for the presidency of) the Fabian Society and his call for an "Open Conspiracy" to create a better, saner world. In his fiction the only ways he could imagine to reform the human species were by gases, in the tail of a comet (*In the Days of the Comet*, 1906) or a catastrophic war. In his remarkable 1937 *Star-Begotten*, however, a search for hidden Martians trying to change humanity biologically into more intelligent beings transforms itself at the end into a realization that this would be beneficial.

The quiet tone of this late novel compares with the misanthropy of J.D. Beresford's 1907 novel *The Hampdenshire Marvel*, in which a child born with remarkable mental powers is ostracized and eventually dies at the age of seven. This trend toward greater intelligence and conflict with "normal" or less gifted humans would be a continuing theme of later science fiction, culminating in 1935 with W. Olaf Stapledon's *Odd John*, in which genius children, shunned and hated by their inferiors, finally segregate themselves on a remote island only to be pursued by warships. Rather than destroy them with their super powers, the gifted young people accept annihilation. By the 1940s writers turned to the possibility of atomic radiation producing mutations that might develop into an advanced species that would have to conceal itself until it reached maturity and whose interaction with the deficient species it had supplanted might produce the extinction of one or the other. Judith Merrill wrote a classic 1947 story, "That Only a Mother," in which society organizes to destroy mutations that have become more common in the atomic age, and fathers kill their mutant offspring, leading to a heart-wrenching ending in which a father returns from a long absence working on a project involving radioactive materials to find a gifted infant without arms or legs (a prescient anticipation of the thalidomide tragedy) and kills her. Wilmar Shiras, an author of the same period, published "In Hiding" (1948) and other stories about extra-intelligent mutated children who must be concealed to avoid their possible destruction. The stories were published as a novel entitled *Children of the Atom* in 1953.

Other authors were focusing on different means of achieving a transformation of humanity, often using biological methods and producing superiority by not only greater intelligence, but also special abilities. Throughout his writing career, A.E. van Vogt searched for hidden human talents that needed only discovery and training (it was telling that he became a Dianetics auditor in 1950). In his classic *Slan* (serialized in

Astounding Science Fiction in 1940 and published in book form in 1946), he imagined a race of super-intelligent and telepathic humans created by a scientist and now hunted down and killed on sight by the rest of humanity. In van Vogt's 1948 *The World of Null-A* (serialized in the same magazine in 1945), super-intelligent humans who had been trained in "non-Aristotelian" thinking (van Vogt used epigraphs selected from Korzybski's 1933 *Science and Sanity*) are selected by a month-long series of examinations supervised by the Games Machine. The losers become the leaders of the world government; the winners get to go to Venus, where they live in intellectual sanity and rise spontaneously to combat emergencies. The leader among them, Gilbert Gosseyn (go-sane), however, has been cloned by a scientist to have extra abilities through a "second brain." But at least non-Aristotelian thinking has kept these superior humans within acceptable limits and prepared to resist an alien invasion.

In somewhat different approaches, Robert Heinlein published an early novel (serialized in *Astounding Science Fiction* in 1940, published in book form in 1958) titled *Methuselah's Children*, in which selective breeding over a period of centuries produces a wiser and longer-lived human subset, and Arthur C. Clarke, in his novelization of the Stanley Kubrick film *2001: A Space Odyssey*, imagined evolution from primitive man to *homo sapiens* instigated by mysterious aliens through a black monolith and again, tens of thousands of years later, into *homo superior* through other encounters with black monoliths. In his 1952 novel *Childhood's End*, Clarke expanded his 1946 novelette "Guardian Angel" into a near future in which humanity's children, under the supervision of aliens, are elevated to post-humanity only to destroy Earth and join the Overmind. Isaac Asimov, in his 1954 *The Caves of Steel* and its 1957 sequel *The Naked Sun*, portrayed humanity divided into two groups, each with its own crippling neurosis derived from their contrasting environments, the short-lived Earthers in their crowded, roofed-over cities and the long-lived Spacers in their sparsely settled, robot-served extra-solar planets.

Where much of academic consideration of the post-human concerns itself with the threat to humanistic values by various kinds of change, science fiction's portrayals of *homo superior* suggest a near-universal acceptance among science fiction writers and readers that *homo sapiens* is flawed and should be supplanted by a better version.

Many of the post-human narratives of the 1950s focused on special abilities that produced a new kind of humanity, either by natural evolutionary development or discovery, or by accident. Poul Anderson's first science fiction novel, *Brain Wave* (1954), speculated that Earth and the Solar System had been passing through a portion of cosmic space that diminished intelligence, and that emerging from it would produce a revolutionary change in human behavior. A number of stories speculated about the possibility of "smart pills" and dealt with whether increased intelligence alone was a blessing or a curse (as in Daniel Keyes's *Flowers for Algernon*), and whether being smarter only set up conflicts with inferiors. After World War II, many stories explored parapsychological possibilities, inspired by John W. Campbell's editorial comments that the familiar topics of science fiction such as space flight and atomic energy had been realized in World War II and were used up as science fiction subjects. Campbell advised writers to extrapolate from the parapsychological research of J.B. Rhine at Duke University (not coincidentally, perhaps, Campbell's alma mater). Telepathy was the most common new talent to be explored, followed by telekinesis and prevision. Commonly, these stories dealt with conflicts between the gifted and those left behind, but sometimes, as in A.J. Budrys's 1955 "Nobody Bothers Gus," with the isolation of individual superior humans, who only find safety from the animosity or envy of ordinary humans by being unmemorable. In some cases, such as Alfred Bester's *The Demolished Man* (*Galaxy*, 1952, book 1953), telepaths avoid hostility by circumscribing their activities with laws and

professional ethics.

Most of the speculations of the pre-computer period about post-humanity depended on the natural processes of evolution. Stapledon was a philosopher, and his first speculations about the future of humanity resulted in a remarkable 1932 book that read more like a text about the next two billion years of human history. *Last and First Men* traced humanity through eighteen different evolutionary stages until its last doomed survivors end up on Neptune sending human spores into space. And his later rumination, 1937's *Star-Maker*, expanded his vision to measure humanity against the vast processes of the Universe.

An alternative consideration of telepathy and the post-human was produced in Robert Silverberg's 1972 *Dying Inside*, in which telepathy turns out to be a personal handicap (or in another character a corrupting talent) that has frustrated its unhappy possessor throughout his life—and yet he is reluctant to feel it fade. In a somewhat different approach, Theodore Sturgeon in 1953's *More Than Human* imagined a group of talented children, outcast from society, forming themselves into a gestalt being with parapsychological abilities that first must learn how to operate as a group and then how to develop a social consciousness and join other such gestalts.

Another encounter with superior abilities is found in Clifford Simak's 1944 *As-tounding* story "Desertion," in which a man, trying to discover why previous experimental subjects have not returned from their attempts to explore the surface of Jupiter, transfers his consciousness and that of his aging dog into Jupiter's "Lopers," and they experience the forbidding and destructive surface of Jupiter transformed into a wonderland by the Lopers' additional senses and abilities, including telepathy. The story ends with Towser, the dog, saying it doesn't want to return because, "They will turn me back into a dog," and the human Fowler (note the similarity in names) replies, "And me back into a man." This story is central to the collection published in 1952 as *City*, in which all of humanity has gone to Jupiter to become Lopers, leaving Earth to the now-intelligent dogs.

When computers became commonplace, so did their role in the post-human. But the interconnection between machines and human existence goes back to the earliest records of human imagination. In pre-science-fiction literature, this usually evidenced itself as mechanical creatures like Talos or machines in various shapes that can perform unusual feats, such as playing chess, or human-like beings created in some unnatural fashion such as golems, and finally as a scientific project as in Mary Shelley's *Frankenstein* and Karel Capek's *R. U. R.* (1920). Edgar Rice Burroughs also dealt with the creation of artificial humans in *The Monster Men* (1929), but the novel's focus was on the discovery by the protagonist that he was not a "monster man." This development was reversed in later science fiction versions when the protagonist discovers that he is actually an android.

One of the earliest treatments of mechanical existence after the creation of the science fiction magazines was Neil R. Jones's "Professor Jameson" stories, beginning with the 1934 *Amazing Stories* "The Jameson Satellite," about the body of a scientist committed to orbit and, after forty million years, when human life on Earth has ended, discovered by a race of creatures whose brains have been transplanted into robot bodies. They restore Jameson's brain and transplant it into a robot body in which he has further explorations and discoveries. C.L. Moore's 1944 "No Woman Born" picks up the concept of a human mind in a metal body when a beautiful dancer and singer is burned in a theater fire and her brain transplanted. The focus of the story is on whether she will stay sane in her diminished humanity, and the revelation at the end is that her concern is leaving humanity behind when she has become superior in every way. Damon Knight tackled the same theme in his story "Masks," published in *Playboy* in 1968, but his male brain in a metal body finds itself repelled by the

biological imperfections of other creatures and turns destructive.

Other treatments of human and machine interactions culminated in Eando Binder's 1939 "I, Robot" and Isaac Asimov's first collection of robot stories in 1950 (also titled *I, Robot*) in which the problems of dealing with a new kind of thinking creature reflect on human existence. In an alternative approach, Frederik Pohl's 1976 *Man Plus* observes a man being changed biologically and surgically into a being capable of surviving on Mars, reminiscent of James Blish's 1957 collection *The Seedling Star*. This brought together a group of stories in which humans have been transformed into creatures capable of existing on alien worlds through a process he called "panropy." Pohl's 1966 story "Day Million" imagines future humans changed both genetically and technologically into bodies substantially different from today's norms, but the statement of the story is that traditional romantic relationships are still recognizable even if couples exchange digital analogues and never meet again, and that they are no stranger to today's humans than modern humans would have been to Attila the Hun.

Both Blish's and Pohl's stories suggest genetic engineering, which would come into reality with the analysis of the human genome and the ability to identify the genes specific to particular characteristics. But the basic consideration of these kinds of humanly controlled alterations go back almost a century, most visibly in Aldous Huxley's *Brave New World* (1932), where classes of people (Alpha, Beta, Gamma) are conditioned in mechanical wombs for different social roles. And even earlier, in his brother Julian's "The Tissue-Culture King" (1929), a British scientist enables an African king to multiply his sacred tissue throughout his kingdom and raises the ethical issue of the scientist's responsibility. Genetic engineering played a dramatic role in Cordwainer Smith's (Paul Linebarger) Instrumentality stories, in which animals like cats, dogs, and cattle have been genetically transformed into "underpeople" to the godlike humans, as in "The Ballad of Lost C'Mell." Other kinds of engineered humans were considered by authors such as Ursula K. Le Guin; in the 1969 *The Left Hand of Darkness*, Le Guin postulated a world in which people had been genetically transformed into humans who assumed either gender when they come into a state of sexual readiness called "kemmer." Geoff Ryman's *The Child Garden* (1989) considered genetic engineering's unfortunate side effects. The reality of genetic engineering brought on many more such stories, from Brian Stableford's 1985 *The Third Millennium* to Jeff VanderMeer's 2017 *Borne*. If there is to be a real post-humanity, it is likely to be through genetic engineering, but science fiction writers will already have explored its dangers. As John Campbell commented, "Science fiction allows us to practice in a no-practice area."

Between these last two stories of singular change came Bernard Wolfe's 1952 mainstream novel *Limbo*, which described a future 1990s world in which people have begun to replace their limbs with superior artificial ones, an early consideration of "cybernetics" that would come to fuller attention with CBS's 1970s "The Six Million Dollar Man," adapted from Martin Caiden's bestselling 1972 novel *Cyborg*, the "Borg" part of which would become famous in the *Star Trek* series. Here the idea of human-to-machine transference became one of augmentation.

Augmentation leads back to the computer age, where authors began to imagine computers as the creators of a new industrial revolution and a new world, and, like the Industrial Revolution, the computer age had its critics. Stories of computers rebelling and destroying civilization became common, featuring works like the 1966 *Colossus*, which was filmed in 1970 as *The Forbin Project*, Harlan Ellison's "I Have No Mouth and I Must Scream" (1967), and *The Terminator* film series. These were examples of what Isaac Asimov called, in *The Rest of the Robots*, "the Frankenstein complex," where every creation of new life inevitably turns against its creators, a complex he reacted against with his "three laws of robotics." Eventually, as computers became smaller and in common use, the stories began to turn toward a more symbiotic relationship

like A.J. Budrys's 1977 *Michaelmas*.

And then finally came a new stage that offered the Singularity, in which computers are anticipated to become so complex and powerful that humans are unable to control them or even understand them, described in Vernor Vinge's 1993 essay "The Coming Technological Singularity; How to Survive in the Post-Human Era" and his novels *A Fire Upon the Deep* (1992) and *A Deepness in the Sky* (1997), which posited an intellectual inhibition as life approached galactic center. The Singularity might be accompanied or followed, some authors speculate, by humans downloading their consciousnesses into computers and experiencing digital existence that might be indistinguishable from real life except that its powers are magnified and it does not age or sicken, as in Greg Egan's 1994 *Permutation City*.

And that had led to speculation among some authors and scientists that human existence, or even the entire universe, could be a computer simulation and there would be no way to prove it wasn't.

Perhaps the ultimate consideration of the ethical concerns of the post-human were dealt with in Nancy Kress's (1993) *Beggars in Spain* trilogy (that began as an award-winning 1991 novella). In her future, genetic engineering has produced genetic modifications such as dispensing with sleep and created divides between the mods and the nonmods. It includes a philosophy called "Yaganism," a kind of objectivism that confers dignity and position only through personal productivity and owes nothing to the weak and unproductive. The trilogy considers the ethical question of what productive and responsible people owe "beggars in Spain." The author has said that the trilogy grapples with Ayn Rand's philosophy and Ursula K. Le Guin's vision of community.

This discussion does not claim any special insight for science fiction writers about possible changes in humanity. But, like anthropologists, ever since Darwin, science fiction authors have been thinking about the changes that the species has experienced over the past few hundreds of thousands of years and speculating about the next stage of human evolution for almost as long. Their writings provide a broad range of thought experiments ranging from the fantastic to the plausible, and represent a treasury of ideas. More important, these are ideas that from the beginning have focused on the human implications of scientific and technological developments—the space between what editor John W. Campbell (*Of Worlds Beyond*, 1948) called the laboratory and the marketplace, between what is theoretically possible and its introduction into everyday use. An immersion in this sea of ideas might inspire serious scholars of the post-human as they have inspired scientists, engineers, and explorers. As Isaac Asimov noted, "Science fiction writers and readers didn't put a man on the Moon all by themselves, but they created a climate of opinion in which the goal of putting a man on the moon became acceptable."

I took the speculations of my predecessors into consideration when I wrote my *Transcendental* trilogy, inspired at first by Cory and Alexei Panshin's study of Golden Age science fiction, *The World Beyond the Hill: Science Fiction and the Quest for Transcendence* (1989). I combined that with an idea that somewhere in the galaxy there might be a machine that could produce transcendence instantly. When I placed that concept into a mixed-species future that has just recovered from a galactic war and rumors of a Transcendental Machine that might upset the uneasy peace, I had a quest story that involved a long space voyage and a *Canterbury Tales* kind of pilgrimage.

The outcome of this pilgrimage may not have been what some readers expected. (Poul Anderson told me once, "What readers want are the twin pleasures of surprise and rightness.") I have come to the conclusion that science fiction is at its best when it deals with the unanticipated consequence. The Transcendental Machine turns out to be a matter transmission created a million years earlier by a vanished species. It

works by destructive analysis of anything that enters it and the instant transmission of information, based on entangled particles, to distant worlds. The information is re-constituted at the receiving end in its ideal form, leaving behind all the errors that have accrued from genetic flaws or experience.

All this is in the service of a good story, but it also, as science fiction does, addresses the human condition encountering change. The change envisioned here turns out to be political, philosophical, and technological. It deals, for instance, with the necessity, if humanity is to survive and thrive, of harnessing its computers and their development into artificial intelligences (I call them “pedias” in the trilogy) to the solution of its problems and the future problems of interstellar flight and alien interactions. In the trilogy I suggest that the Singularity may be more benign than some experts fear, that the basic computer instructions will act in the same way psychological and sociological constraints influence human behavior to direct the A.I.s toward protecting and assisting human existence. The danger that comes from the pedias is not so much their ability to bypass their programming (to turn against their creators in typical “Frankenstein” tradition) as their inability to imagine what they have not been instructed to contemplate and their actions to inhibit activities that could endanger humanity (Jack Williamson discussed that aspect in “With Folded Hands” as his humanoids overdo their instructions to “Serve, Obey, and Keep Man from Harm.”) The solution I proposed in the trilogy is that humanity must rise above its limitations in mind and body in order to meet its pedias on an equal basis.

Ultimately, differences among approaches to the post-human may depend upon whether one identifies with the post-humans or the humans. Traditional considerations of the post-human have viewed change as a threat; science fiction generally has used its platform to critique humanity and anticipate *homo superior*. It has seen the long evolutionary path as a movement toward human improvement in mind, body, accomplishment, and understanding of the universe in all its aspects. If human is defined as its contemporary state, whatever that happens to be, humanity has progressed through a series of post-humans. A hominid holding a stone axe sees itself and its world differently, and one with a spear differently from one with a stone axe. Each stage in technological development creates a new generation of post-humans. Today’s technology changes so swiftly that it transforms the world as people watch. Wells noticed this phenomenon more than a century ago in his *Anticipations of the Reaction of Mechanical and Scientific Progress upon Human Life and Thought* and his *Experiment in Autobiography*, in which he observed the way his mother’s world of sailing ships and fixed relationships had changed to his own world of change and the literature that anticipated it. For the first time in human history, he wrote in another essay, people could ask one another, “What do you do?” rather than simply struggle to stay alive.

Today’s children who grow up with computers, the internet, and social media see themselves and the world they live in differently than my generation, just as my generation saw the world differently from my parents. Information, distribution, surveillance, transportation, medicine, science—whatever new technologies await humanity—everything is changing, including humanity. Soon, in spite of cautions and warnings, scientists will be changing the human genome, and then we will be post-human for sure. What will we choose to be?

James Gunn has two books scheduled for publication in 2019, *Pilgrims to Transcendence*, the series of character stories from *Transcendental* published in *Asimov’s*, by Reanimus Press, and, with Mike Page, a book about a 1996 online discussion of the protocols of reading science fiction that featured contributions by Damon Knight,

Jim, and others. Advent will publish. Jim tells us, "At ninety-five I have no lack of projects and activities that get me up in the morning and, with the sometimes unwelcome help of my cat Annie, to my computer. I've given invited talks to a couple of groups of retirees about my autobiography *Star-Begotten: A Life Lived in Science Fiction* and urged them to write about their own lives. I suggest this not only because this is the most enjoyable book I've ever written, but writing a memoir gives the author the chance to relive a life with perspective. What seems like ordinary circumstance often turns out to be unlikely." Last year he participated in a university colloquium on "Post-human." His contribution resulted in the article published here.