Science Fiction as a Lens into the Future

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I.

First, thanks to all concerned at the Australian Defence College for organising this event, and especially to Professor Michael Evans for thinking of me and inviting me as your speaker. I'm honoured to be here and delighted to discover that science fiction is studied by a collection of people such as the college's Perry Group.

It has been said (by the British novelist L.P. Hartley) that the past is a foreign country – that they do things differently there. A lesson from relatively recent human history is that the future is also a foreign country.

When I say "relatively recent", we can put this in a broad perspective. Our species, *Homo sapiens*, is some 300,000 years old, and earlier human species from which we descended go back much further, millions of years, indeed, into the past. *Homo sapiens* has continued to evolve since the earliest fossilised specimens that we know of, becoming more gracile – or light-boned – in anatomically "modern" humans. The rise of agriculture dates back about 12,000 years, and something recognisable as civilisation, with large cities, writing, and bureaucratic social organisation, emerged in the Middle East and other locations about 5,000 years ago, give or take.

By contrast, what we now call European modernity is historically recent. If we could travel back to Europe in, say, 1500, or even 1600, CE, we'd find societies in which there was little sense of ongoing social change, though of course there had always been large-scale changes from specific events such as wars and conquests, plagues and famines, and various other kinds of human-caused and natural disasters. But changes in technology, work methods,

social organisation, transport, and so on, happened too slowly to be transformative within a single lifetime. People were more aware of the daily, seasonal, and generational cycles of time than of gradual, progressive change driven by technology.

In the past, some religious and mythological systems described grander cycles of time than seasons and generations, some societies looked back to a lost golden age from which they thought they had degenerated, and Christian writings prophesied an eventual end of worldly things to be brought about by the intervention of God. But none of this resembles our contemporary idea of the future, in which human societies are continually transformed by advances in scientific knowledge and new technologies.

That said, the sixteenth century in Europe was an extraordinarily volatile period – it immediately followed the invention and development of the printing press, with all that that entailed for distributing ideas widely, and the European discovery of the New World. Exploration and colonialism brought the cultures of Europe into contact with what seemed like strange – sometimes hostile – environments and peoples. For some European intellectuals, this provoked a sense of the historical contingency and precariousness of existing cultures and civilisations. The practices and beliefs of particular cultures, including those of Europe, increasingly appeared at least somewhat arbitrary, and thus open to change.

The sixteenth century began with festering religious discontent that quickly led to the Protestant Reformation, whose beginning we could date from Martin Luther's famous proclamations against Church practices, the "95 Theses", in 1517. Europe was soon wracked by the great wars of religion that extended, in one form or another, deep into the seventeenth century (the Thirty Years' War from 1618 to 1648 left much of the continent in ruins). The sixteenth century also saw the beginnings of modern science, including the radically transformative astronomy of Copernicus.

By the early decades of the following century, science had reached a form much more like we'd recognize today, especially with Galileo's observations, experiments, and reflections on scientific methodology. (Galileo was active 400 years ago – he first demonstrated his telescope, and turned it to the heavens, in 1609, and it was in 1633 that he was interrogated by the Inquisition and placed under permanent house arrest for supporting the Copernican claim that the Earth revolves around the Sun.) The rise, consolidation, and extension of

science, throughout the seventeenth-century Scientific Revolution, and beyond, challenged old understandings of humanity's place in the universe. It was the early success of modern science, more than anything else, that led European thinkers of the eighteenth-century Age of Enlightenment to imagine future states of society with superior knowledge and wisdom.

Enlightenment ideas of progress involved intellectual – especially scientific – and moral advances, though with little of our emphasis today on new technology when we try to imagine the future. Enlightenment thinkers hoped, and worked, for societies that might be better than their own. They looked to continued intellectual progress accompanied by social reform. This way of thinking nourished the great political revolutions at the end of the eighteenth century – the American Revolution and the French Revolution – and the upheavals that these produced inspired even more conjectures and schemes involving future societies.

Even when we look at the work of great utopians and social thinkers from the early nineteenth century, however, in the wake of the Enlightenment, there is little emphasis on technological transformations of society. In 1800, let's say, that thought was only in its infancy. The idea of the future that we possess today developed slowly and gathered force, responding to the Industrial Revolution, which commenced during the second half of the eighteenth century, at first in Britain, but then in other European societies. As the Industrial Revolution continued and renewed itself, with its steam engines, factories, and railroads, Europe and its colonies experienced something altogether new: continual – and visible – social change that was driven and shaped by advances in science and, above all, technology. As the nineteenth century rolled on, changes in the ways that things were done happened on a large scale and at a pace that could not be ignored. You could say that the nineteenth century was when humanity discovered the future.

II.

Much later, writing in the 1920s, the scientist and social commentator J.D. Bernal observed that human beings normally take accidental features of their own societies to be axiomatic features of the universe, likely to continue until supernaturally interrupted. Bernal added: "Until the last few centuries this inability to see the future except as a continuation of the present prevented any but mystical anticipations of it" (Bernal, *The World, The Flesh and the Devil: An Inquiry in the Future of the Three Enemies of the Rational Soul*, 1929). Humans

might previously have imagined supernatural events in the future, such as the second coming of the Messiah, but they did not imagine events such as the invention of the steam engine, the spread of the railways, electricity, the telegraph, motor cars, and aviation. But, as Bernal goes on to elaborate, the assumption of a relatively static society ceased to be tenable. This provided the social ground to fertilise science fiction.

In his fascinating, if polemical, book *A Short History of Progress* (2004), the archeologist and historian Ronald Wright makes the point that a citizen of London from 1600 CE would have felt reasonably at home two hundred years later, in the London of 1800. The city would have looked rather familiar. But, says Wright, warnings of threats to humanity from the rise of machines "became common in the nineteenth century, when, for the first time ever, wrenching technical and social change was felt within a single lifetime." Wright immediately adds:

> In 1800, the cities had been small, the air and water relatively clean – which is to say that it would give you cholera, not cancer. Nothing moved faster than by wind or limb. The sound of machinery was almost unknown. A person transported from 1600 to 1800 could have made his way around quite easily. But by 1900, there were motor cars on the streets and electric trains beneath them, movies were flickering on screens, earth's age was reckoned in millions of years, and Albert Einstein was writing his Special Theory of Relativity.

Yet, it took visionaries like H.G. Wells to grasp this, spell it out, and incorporate it in a new kind of fictional narrative. In addressing the great changes of the nineteenth century, Wright refers to the misgivings of many Victorians as they confronted the rise of industrial machinery, and viewed its comprehensive social impact. This leads him to an observation about the beginning of what was originally called "scientific romance":

> As the Victorian age rushed on, many writers began to ask, "Where are we going?" If so much was happening so quickly in their century, what might happen in the next? [Samuel] Butler, Wells, William Morris, Richard Jefferies, and many others mixed fantasy, satire, and allegory, creating a genre known as the scientific romance. (Wright, *A Short History of Progress*, 2004)

In this passage and the discussion that follows in *A Short History of Progress*, Wright is concerned with both scientific knowledge and the industrial uses of technology. The latter greatly altered and increased production while also transforming work and its organisation, the means of transportation, and the landscape – not in all respects, by any means, for the better.

I have emphasised technology to this point, but we should not lose track of science itself, which continued to advance and to shape understandings of the world. As the sciences developed, their practitioners were able to study a great range of natural phenomena that had previously resisted human efforts. These included very distant and vastly out-of-scale phenomena such as those investigated by astronomers, very small phenomena such as the detailed composition and functioning of our bodies, and (somewhat later, with the advent of scientific geology) phenomena from deep in time before human artifacts, buildings, or written records. By the early decades of the nineteenth century, the sciences were starting to imagine, and communicate, the extreme depth of time as well as the vastness of space.

Nineteenth-century geology suggested that we live on the surface of an incomprehensibly old planet, with the implication of a similarly incomprehensible number of years still to come. As you will know, this idea has since been confirmed, elaborated, and expanded by scientists from numerous disciplines, and, all in all, a new understanding of the cosmos has emerged.

To sum up at this point, the revolutions in science and technology during the centuries of European modernity introduced new ideas about the universe, ourselves, and the future. All of this amounted to a revised world picture.

As a result, it is now established – and was known in outline to educated Europeans in the second half of the nineteenth century – that we inhabit a vast universe whose origins lie deep in time. Like other living things, we are the product of natural events taking place over many millions of years. In all meaningful ways, so Darwinian evolutionary theory revealed, we are continuous with other animal species. Anthropocentrism and human exceptionalism have been challenged from all directions. Furthermore, our particular societies and cultures are significantly mutable. Human societies have changed dramatically in the past – and we can be sure that this will continue.

III.

All known social and cultural forms, and specifically those we have experienced in our individual lifetimes, are now revealed as contingent and temporary. Technological developments continually revolutionise the ways we work, play, plan, organise ourselves, and move from place to place. Even the relatively near future may turn out very strange by the standards of those now living. Not only is our origin as a species deep in time, our eventual destiny is unknown and perhaps lies in the very remote future (assuming we don't find a way to destroy ourselves more quickly, or perhaps fall foul of a disaster such as a collision with an asteroid). This set of claims is the new worldview embraced, since the era of Queen Victoria, by most educated people in Europe, the Anglosphere, and other industrially advanced countries. It seems almost commonsensical, when considered by secular-minded people from the vantage point of 2019. But let me make two important points about that.

The first is that these claims are not *pre-scientific* common sense. The overall picture constitutes a dramatic historical shift in human understanding of the universe and our place in it. Not so long ago, historically, such ideas would have been viewed within European Christendom (and most other parts of the world) as intolerably radical and heretical. They met with much resistance, and they still meet with resistance from some quarters.

The second point is that even now we tend to live without being fully aware of the implications of deep time and the new worldview that we've inherited from the Victorian generation. We live from day to day, and consider politics, social issues, and the like, forgetful of the deep past behind us, and we ignore the implication of a similarly deep future ahead of us. Indeed, what can we even *do* with that sort of knowledge in everyday situations?

Nonetheless, as Wells knew, the rapid changes of the nineteenth century implied the likelihood of rapid – perhaps *more* rapid – changes to come. That reasoning applies equally to us. We should assume that the current century, and the many centuries to follow, will see great changes to the world and to human societies. Our own society has not reached a point of stability, though again it's not obvious what we can do with that sort of knowledge. Historically, this was all difficult to digest – and it remains difficult. But it offered new opportunities for storytelling.

In more than one sense, science fiction is the fiction of the future. In his 1975 book, *Structural Fabulation: An Essay on Fiction of the Future*, the American critic Robert Scholes produced a short account of science fiction that influenced me when I was young and remains, the best part of half a century after it was published, a remarkably shrewd introduction to the genre. Scholes covers some of the ground that I am dealing with in this paper, in describing how science fiction relates to human history, and especially to the history of how we've conceived of time and history themselves.

Scholes writes of science fiction as a kind of fiction that is *about* the future, but he also explains why that kind of fiction is inevitable in a world with a new conception of time, history, and progress, one in which the future will be, as it were, a country foreign to us, one where they do things differently. For Scholes, it seems, science fiction will *thrive* in the future, perhaps become a dominant narrative form, and produce great things. Science fiction has become far more visible and popular since 1975, and in my assessment Scholes has turned out to be right.

IV.

When did science fiction begin? Some proto-science fiction narratives appeared even in the seventeenth century, such as a strange little book by Johannes Kepler, called *Somnium, Sive Astronomia Lunaris* (this was completed around 1608–1609, but not formally published until 1634). *Somnium* is sometimes called the first science fiction novel, but it has none of the characteristics that we normally associate with novels, such as telling a complex story and including characters with at least some appearance of psychological plausibility. It is really just a geography (if that's the right word) of the Moon's surface, based on the best observations that had been made prior to astronomical use of telescopes. The scientific lesson is framed by a thinly developed fictional narrative that showcases the discoveries of the time and allegorises the scientific quest for knowledge.

Somnium is not a fully fledged science fiction novel, but it foreshadows themes that SF writers have explored ever since. There is a trust that science can obtain knowledge of kinds that had previously eluded human efforts. At the same time, there is the sense that Kepler wants to portray a physically greater cosmos than was previously imagined. Along with this goes a recognition of our relative smallness in the total scheme, and of our limited

understanding. Kepler seems to suggest that things are not always as they appear to us from our vantage point on Earth.

Notwithstanding *Somnium* and some other early works, science fiction is very much a child of the nineteenth century. As has been said by others, it could not have existed as a field "until the time came when the concept of social change through alterations in the level of science and technology had evolved in the first place" (Isaac Asimov, *Asimov on Science Fiction*, 1981). As a result, we see little or nothing in the way of recognisable science fiction novels and stories until the nineteenth century, beginning with works such as Mary Shelley's *Frankenstein; or, The Modern Prometheus* in 1818. *Frankenstein* famously depicts Victor Frankenstein's use of scientifically based technology to create something entirely new in the world: a physically powerful, but unfortunately repulsive, artificial man. As is well known, the actual term "science fiction" was not coined for another century or so, with the rise of specialist SF magazines in the United States in the 1920s and 1930s.

Meanwhile, some of Edgar Allan Poe's stories from the 1830s and 1840s have science fiction elements, and the SF author and critic James Gunn regards Poe's "Mellonta Tauta" (1848) as possibly the first true story of the future (*Inside Science Fiction*, second ed., 2006). Unlike earlier narratives of future disasters, such as Mary Shelley's *The Last Man* (1826), it portrays a future society with unfamiliar ideas and practices. "Mellonta Tauta" is set in the year 2848 – thus, one thousand years after its date of composition – and its Greek title can be translated as "future things" or "things of the future" (or it might, I dare say, with H.G. Wells in mind, even be translated as "things to come"). It's a very peculiar story, even by Poe's standards, taking the form of one character's rambling, gossiping, speculation-filled letter to a friend. In fact, it is more like a series of diary entries, beginning on April 1 – April Fools' Day, of course – and it is composed by a well-educated but deeply misinformed individual, who reveals that she is on a pleasure excursion aboard a balloon.

In Poe's version of the future, humanity has explored the Moon and made contact with its diminutive people. However, much knowledge from the nineteenth century has become garbled and (at least) half lost. The story thus sheds doubt on historians' confident interpretations of the practices of other peoples living in earlier times. It is full of jokes, many of which are puzzling for today's readers, and even when they're explained it is often difficult to be sure exactly what ideas Poe is putting forward and which he is satirising.

(Other material that Poe wrote about the same time suffers from the same problems of interpretation.) Nonetheless, Poe laid a foundation for the development of satirical science fiction set in future, greatly altered societies.

A more substantial body of work that resembles modern science fiction emerged around 1860, particularly with the French author Jules Verne, who is best known for novels in which highly advanced (for the time) science and technology enable remarkable journeys – to the centre of the Earth, around the Moon and back, beneath the sea, and so on. H.G. Wells's career as a writer of what were then known as scientific romances commenced two or three decades later, with a group of short stories that led up to his short novel *The Time Machine* (1895). The importance of this work for the later development of science fiction cannot be overstated. That great theorist of the genre, Darko Suvin, writes, without hyperbole, that "all subsequent significant SF can be said to have sprung from Wells's *The Time Machine*" (*Metamorphoses of Science Fiction*, 1979). Wells followed up with his first full-length scientific romance, *The Island of Dr Moreau* (1896), and his extraordinary career was underway.

In the late nineteenth and early twentieth centuries, science fictional elements appeared in many utopias, dystopias (such as Wells's *When the Sleeper Wakes* (serialised 1898–99)), and lost-world novels set in remote locations or even beneath the ground. The use of interplanetary settings took the idea of lost worlds and races a step further. The first published novel by Edgar Rice Burroughs, *A Princess of Mars* (originally in serial form in 1912), epitomised the trend. Planetary romance of the kind favoured by Burroughs defined one pole of early science fiction, emphasising action and adventure in an alien setting.

Another approach was the near-future political thriller. Works of this sort, most notably "The Battle of Dorking: Reminiscences of a Volunteer", by George Tomkyns Chesney (not a full-length novel, but a novella originally published in *Blackwoods Magazine* in 1871), were a prominent component of the literary scene in the late nineteenth and early twentieth centuries. They portrayed future wars and invasions, often involving racial conflict. These political thrillers typically contained melodramatic and blatantly racist elements, but they are noteworthy as serious speculations about near-future possibilities.

All of these forms of early science fiction have continued, in one way or another, to the present day. Literary scientific romances, particularly inspired by those of Wells, and by those of authors who reacted to him, have maintained a pedigree partly independent of, and parallel to, what I call "genre science fiction" (or "genre SF"), by which I mean science fiction aimed at a relatively specialist audience of SF fans and aficionados. Genre science fiction is a phenomenon dating from the 1920s, and there is an interesting story to tell about its development under the leadership of its first great editors – Hugo Gernsback and John W. Campbell – through to the present day. But for current purposes, we'll have to skip over that. For more, see the opening chapters of my 2017 book, *Science Fiction and the Moral Imagination: Visions, Minds, Ethics*. Suffice to say that the pace of social, scientific, and technological change continued to accelerate. In response, as the twentieth century unfolded and segued into the twenty-first, narratives of technological innovation and humanity's future prospects became even more culturally prominent.

I'll also make short work here of the much-debated question of how we should define science fiction, and how, if at all, we can fence it off from other narrative genres or modes such as technothrillers, horror stories, and fantasy. In summary – see *Science Fiction and the Moral Imagination* again if you want more – I identify science fiction as combining three elements that we may call "novelty", "rationality", and "realism".

I intend each of these in a specific and rather narrow sense: *novelty*, in that the narrative depicts some kind of break with the empirical environment of the author's own society and historically recorded societies (this is what Darko Suvin refers to as the *novum*); *rationality* in the sense that whatever is novel is nonetheless imagined to be scientifically possible (at least by the standards of some future body of scientific knowledge), rather than magical or otherwise supernatural; and *realism* in the minimal sense that the events described are imagined as actually happening within the internal universe of the story – that is, the events, including the problems confronted by the characters, are to be interpreted literally, even if they have a further allegorical or metaphorical level of meaning. In other senses, of course, science fiction is not a variety of literary realism, but nor does it have the qualities of straightforward allegory, dream, or psychodrama.

Science fiction, then, is a kind of fictional narrative that is characterised by novelty, rationality, and realism. It typically and centrally imagines future developments in social

organisation, science, and/or technology, though I hope I've said enough for it to be clear why it sometimes depicts amazing inventions in the present day, present-day invasions from space, or events that happened in the deep past, in prehistoric times. Science fiction can take many forms, but *at its core* it is fiction about the future.

V.

Although science fiction has a central concern with future societies, SF writers are not prophets and they cannot simply provide a transparent window that opens upon the future. Hence, the title of this paper refers to a *lens into the future*: something more probing – and perhaps more difficult to use, requiring more activity, interpretation, and skill – than a window overlooking a future vista. In some cases, setting narratives in the future (much like the use of extraterrestrial settings) merely provides writers with exotic locales for adventure stories, something that came in handy as a plot device during a time when the surface of the Earth was increasingly being explored and mapped. To be clear, there's nothing terrible about adventure stories in exotic locales – I love them as much as anybody – but science fiction writers often engage more meaningfully than *that* with ideas of the future, or of possible futures.

Wells certainly thought – at least for most of his career – that it was possible to consider and imagine the future of humanity with some prospect of making successful predictions. He discussed exactly this topic in a famous lecture that he delivered to the Royal Institution of London in January 1902. This lecture, entitled "The Discovery of the Future", helped to establish his reputation, and it was published as a small book not long after he delivered it. In "The Discovery of the Future", he put the problem like this: "How far may we hope to get trustworthy inductions about the future of man?" (We'd now say something more like: "How far can we have a reliable science of the future of humanity?")

For Wells, speaking and writing in 1902, the present had arisen from the past through the deterministic operation of scientific laws, and the future would follow from the present in the same deterministic way. However, he suggested that there was an asymmetry between the past and the future, or at least in how we perceive them. That is, we can be certain about many events that happened to us personally in the past, and which we remember clearly,

whereas we do not know what lies in store for us, as individuals, in the future. We have no future-oriented equivalent of personal memory.

However, Wells said, things are different when it comes to future events involving large populations. By analogy, he argued, we can't predict where individual grains of sand will fall if we shoot them from a cart, or even the shapes of the individual grains, which will vary greatly. But we can predict which grains – of what sizes and shapes – will tend to be found in different parts of the resulting heap. Wells considered the possibility that individual people of great energy and ability might be less predictable, and have greater effects on human destiny, than exceptionally large grains of sand. Nonetheless, he was strongly inclined to think that larger forces operating in history determined broad historical outcomes. For example, if Julius Caesar or Napoleon had never been born, someone else would have played a similar role in the history of Europe.

On this basis, Wells concluded that we have evidence available to us in the present that can help us to reconstruct the past, and that we *also* have information available to us now to help us predict how humanity's future will unfold on a large scale. He was very conscious of human origins in deep time, and with that in mind he placed a special emphasis on humanity's long-term destiny, the deep future of our species:

> We look back through countless millions of years and see the will to live struggling out of the intertidal slime, struggling from shape to shape and from power to power, crawling and then walking confidently upon the land, struggling generation after generation to master the air, creeping down into the darkness of the deep; we see it turn upon itself in rage and hunger and reshape itself anew; we watch it draw nearer and more akin to us, expanding, elaborating itself, pursuing its relentless, inconceivable purpose, until at last it reaches us and its being beats through our brains and arteries, throbs and thunders in our battleships, roars through our cities, sings in our music, and flowers in our art. And when, from that retrospect, we turn again toward the future, surely any thought of finality, any millennial settlement of cultured persons, has vanished from our minds.
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> This fact that man is not final is the great unmanageable, disturbing fact that arises upon us in the scientific discovery of the future, and to my mind, at any rate, the

> question what is to come after man is the most persistently fascinating and the most insoluble question in the whole world. ("The Discovery of the Future", 1902)

In "The Discovery of the Future", Wells repudiated any idea of a static human society, even as part of some utopian blueprint:

> In the past century there was more change in the conditions of human life than there had been in the previous thousand years. A hundred years ago inventors and investigators were rare scattered men, and now invention and inquiry are the work of an unorganized army. This century will see changes that will dwarf those of the nineteenth century, as those of the nineteenth dwarf those of the eighteenth. […] Human society never has been quite static, and it will presently cease to attempt to be static.

Wells made certain predictions about the nearer future, before our species is eventually superseded, such as the emergence, perhaps not for hundreds of years, or even for "a thousand or so" years, of a great world state. Toward the end of his lecture, he granted that humanity might be destroyed by a cataclysm of some kind, if not by the eventual death of the Sun itself, but he expressed his fundamental rejection of these outcomes and his belief in what he called "the greatness of human destiny". He claimed to have no illusions about human failings, but he saw a path of ascent from the deep past to the deep future:

> Small as our vanity and carnality make us, there has been a day of still smaller things. It is the long ascent of the past that gives the lie to our despair. We know now that all the blood and passion of our life were represented in the Carboniferous time by something – something, perhaps, cold-blooded and with a clammy skin, that lurked between air and water, and fled before the giant amphibia of those days.
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> For all the folly, blindness, and pain of our lives, we have come some way from that. And the distance we have travelled gives us some earnest of the way we have yet to go.

He concluded "The Discovery of the Future" with a radically optimistic sentiment that later found expression in much twentieth-century science fiction, and, I venture to add, in much current thought from transhumanists and similar thinkers about the human future:

> It is possible to believe that all the past is but the beginning of a beginning, and that all that is and has been is but the twilight of the dawn. It is possible to believe that all that the human mind has ever accomplished is but the dream before the awakening. We cannot see, there is no need for us to see, what this world will be like when the day has fully come. We are creatures of the twilight. But it is out of our race and lineage that minds will spring, that will reach back to us in our littleness to know us better than we know ourselves, and that will reach forward fearlessly to comprehend this future that defeats our eyes.
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> All this world is heavy with the promise of greater things, and a day will come, one day in the unending succession of days, when beings, beings who are now latent in our thoughts and hidden in our loins, shall stand upon this earth as one stands upon a footstool, and shall laugh and reach out their hands amid the stars.

VI.

Let's return, in conclusion, to one of Wells's key questions in "The Discovery of the Future": "How far may we hope to get trustworthy inductions about the future of man?" I conspicuously have not provided an answer, although I've reported Wells's claim that we have considerable ability to predict the broad outlines, if not the detail, of humanity's future. Wells certainly did not think that the future for individuals was predictable – alas! – but it was possible, he thought, to work out the future's broad outlines for very large numbers of people, including humanity as a whole.

This idea seems to have been accepted, in large part, by the science fiction writers of the following several decades. You can find something like the same idea in Isaac Asimov's Foundation series, begun in 1942, with its science of psychohistory developed by the main protagonist, Hari Seldon. Asimov even grapples with the impact of a truly remarkable human being – a kind of super-Napoleon – in the person of the Mule, a mutant with the extraordinary power to bend others' emotions to his wishes. During the so-called Golden Age of science

fiction, from the late 1930s to the end of the 1940s, something of a consensus picture of the long-term human future seems to have been shared by Asimov, Robert A. Heinlein, and others. They embraced a vision, much like that offered by Wells in "The Discovery of the Future", of a destiny in the stars for humanity and whatever beings might descend from us.

However, this vision has become considerably less popular in genre science fiction since the 1950s, and it might now be disputed by many professional SF writers. Also, there is an obvious alternative to this way of thinking about science fiction. The alternative is that the point is not to reveal the actual human future, or even an approximation of it, so much as to investigate many possible futures. In short, science fiction is not predictive. On this approach, we could think of the future not as something determinate, but as something that could, at least as far as our practical knowledge ever extends, take many forms or go down many paths. If science fiction is a lens into *this* sort of future, it is a way for us to probe a dimension of possibilities, and to consider their implications. Science fiction can help us prepare for the real future by portraying possibilities. It is a lens into an indeterminate, but multiply imaginable, future.

Another approach, perhaps the dominant one in the tradition of scientific romance – that is, once again, in science fiction narratives outside of, and parallel to, genre SF – is to view imagined futures as most relevant and compelling when they are distorted pictures of the present, or its trends, created for the purpose of social commentary. If we think of it in this way, science fiction is not so much a lens into the future as a narrative form that uses imaginative pictures of the future to provide a lens into the *present*.

When we consider these models of science fiction and how it approaches the future, we might ponder H.G. Wells's own enormous contribution to SF. Wells made some impressive predictions, not least about armoured military vehicles, the importance of aviation for future warfare, and, in *The World Set Free* (1914), the development of massively destructive atomic bombs (admittedly rather different in operation from those that were dropped on Japanese cities three decades later). Did Wells offer "trustworthy inductions" about humanity's future? Perhaps he did to some extent, though by 1945, the year before his death, he'd become despairing about the future's predictability. Was his science fiction a lens into the future in some sense, or even into the present, or into our world and the human situation in some other way?

This, I hope, gives us plenty to talk about, so let's open up the discussion about science fiction and the future of our species.

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