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Across the Zodiac: Lexicographical Travels through Space, Time, Infinity and Beyond

James Lambert

Introduction

The creation of neologisms is an open playing field; anyone can invent words or new usages at will. However, language as a social tool is apt to be applied only when there is a need. The arrival of a new word on the language block signals the genesis of a conceptual novelty. Certainly complex ideas can and often are generated long before they become associated with a particular lexeme, but the settling down of an idea into a word of the language is a signification of that notion's debut into the wider discourse. Dictionaries on historical principals, tracing as they do the earliest attestations of new words and senses, are an under-utilised resource in literary and social research. The following research arises from work on a comprehensive historical dictionary of science fiction, with the working title *Across the Zodiac*, provides insight into the ongoing development of the conception of humanity's place, and even form, in the universe.

Part I: PLACE

Science Fiction Origins and the Father of Science Fiction

Many have attempted to provide a starting point for science fiction and in doing so generally resort to deciding upon any of a number of famous authors or notable works (Kress), including, Jules Verne, H.G. Wells, Mary Shelley's *Frankenstein*, Swift's *Gulliver's Travels*, even going so far back as Lucian's *True History* (Georgiadou and Larmour). However, these texts were written outside the genre, or rather, before the genre had formed, and were without parallel in their times, and are therefore better viewed as precursors to science fiction, or proto-science fiction. Leaving aside precursors, the type of science fiction story that is typical of the genre¹ began first to be written in the early 1900s and this literary phenomenon is largely attributable to the efforts of

Hugo Gernsback, the oft-labelled “Father of Science Fiction,”² after whom science fiction’s most prestigious award, the Hugo, is named.

In 1908 Gernsback started *Modern Electrics*, and then in 1913, *The Electrical Experimenter*, both magazines for enthusiasts of radio and electrics. These magazines “carried how-to articles, information on new radio patents, and news of radio and radio operators across North America [and] Gernsback was publisher, editor, chief writer (and often ghost-writer), and also did layout and sold advertising” (Banks). In other words, the magazines were a one-man-show. It was in *Modern Electrics* and *The Electrical Experimenter* that science fiction, as we know it today, was born. Gernsback, following up on the realisation that his readers were science-minded but not trained scientists, had the idea that purely fictional stories about science might be able to give real scientists a potential insight for possible experimentation, research and development. Gernsback initially led the way by writing fictional science stories himself, starting in 1911,³ and by 1916 was encouraging his readers to take up the pen. He initially called this new type of predictive fiction *scientifiction*, a portmanteau word derived from blending *scientific* and *fiction* (Gernsback, 1916), though he later renamed it to the more familiar, and easier to pronounce⁴ *science fiction* (Gernsback, 1927). So popular was this type of fiction amongst his readers that in 1926 Gernsback decided to start a magazine wholly devoted to science fiction, and thus began *Amazing Stories* which is still publishing science fiction today.⁵

The Setting: Space and the Plurality of Worlds

Fantasies about travel into space have a long history, reaching back to mythic times with Icarus and Daedalus. In the seventeenth century Francis Godwin’s astronaut Domingo Gonsales was conveyed to the Moon by a flock of geese, and Cyrano de Bergerac employed evaporating dew to effect his lunar excursion (Pizor), and in the eighteenth century Voltaire’s Sirian Micromegas travelled sometimes via sunbeam, sometimes via comet (Smollett). The late nineteenth century saw proto-science fiction writers dealing with the topic of space travel more scientifically with such works as Percy Greg’s *Across the Zodiac*, in 1880, and John Jacob Astor’s *A Journey in Other Worlds*, in 1894.

However, the very concept of Space, as opposed to the Earth, commonplace as it is to us today, is somewhat of a new idea to humanity. In the pre-Copernican and pre-Galileo age Earth

was contrapuntal not to Space, but rather to Heaven. Stars were fixed points of light in the firmament (not ‘space’), planets were wandering stars, and the sun and moon were unique. The very notion that planets themselves were analogous to our world, that they were spherical bodies of roughly similar size, and that they might therefore be inhabited by living creatures as our globe is, shook the very foundations of knowledge. Despite early attempts to suppress these heretical ideas, in time speculation abounded. Tracing first occurrences of words, or new senses of existing words, provides an insight to the origin, or the starting point of acceptance, for new concepts. The term *world* originally, that is, since Anglo-Saxon times, referred solely to the planet Earth, and it not until 1638 (Godwin 10)⁶, after the invention of the telescope allowed for closer scrutiny of other heavenly bodies, that it was first used to signify other planets in the solar system. The astronomical sense of *space* can only be dated back to 1667 (*OED Online*).

A natural flow-on from the acceptance of the planets as other worlds, as other places, was the inevitable question: Is there life on other planets? Within the genre science fiction the resounding answer has always been Yes! In order from the Sun, science fiction is populated with Mercurians, Venusians, Martians, Jovians, Saturnians, Uranians, Neptunians and Plutonians. Not to forget the Selenites⁷ or Lunarians of the Moon, and even the Solarians inhabiting the Sun. By attempting to trace the earliest examples of these words in English literature⁸ we can get a picture of the venerable age of speculation about planetary beings other than humans. The dates of earliest attestation for each of these terms, sorted chronologically, are:

1645 Selenite (Howell: III. ix. 18)	1834 Solarian (Chickering: 137)
1698 Mercurian (Huygens: 106)	1839 Marsian (<i>Fantastical</i> : 73)
1698 Saturnian (Huygens: 123)	1839 Venerean (<i>Fantastical</i> : 27)
1708 Lunarian (<i>British Apollo</i> : 2)	1854 Neptunian ¹⁰ (Brooman: 488)
1725 Jovian (Harris: 127)	1874 Martian (<i>The Galaxy</i> : 127)
1769 Jupiterian (D’Alenzon: 92)	1874 Venusian (Blair: 39)
1834 Uranian ⁹ (Chickering: 137)	1931 Plutonian ¹¹ (Coblentz 323)

With the exception of *Plutonian*, these terms do not first appear in science fiction proper, and for the most part there was no explanation of the imaginary inhabitants’ biology, culture or technology, no interaction with them, no drama, no invasions, no interplanetary alliances or galactic empires,

etc. Instead these terms began their lives in a then-insipient genre now known as Popular Science – scientific material written for a popular audience. In terms of astronomy and its relation to early science fiction vocabulary the seminal work was Bernard le Bovier de Fontenelle’s *Entretiens sur la Pluralité des Mondes* (*Conversations on the Plurality of Worlds*) of 1686. This work was essentially an explication of celestial mechanics offered through the medium of nightly conversations between a young male astronomer and a keenly interested young woman. It was first translated into English in 1688 by no less a literary light than Aphra Behn and spawned a succession of copycat books which continued well into the nineteenth century. In these texts the inhabitants of other planets were posited merely to serve as a point of view often in order to explain some point of celestial mechanics:

Jupiter performs his Gyration in the Space of ten Hours; and therefore a *Jovian*, or an inhabitant of *Jupiter* will see the whole Heavens, and even our *Earth* together with the *Sun*, to have a rapid Motion round his Body in the Space of ten Hours. (Keill, 73)

Though as time went on there was more and more speculation about the possibility of life on other planets and the form that life would take, as in this 1760 version of Fontenelle: “The optic nerves of the *Mercurians* must not be so delicately tender; they could not possibly support the glare of light” (373).

At the same time, learned debate raged about whether or not life could only exist on Earth, and how Biblical teachings illuminated this point (Whewell; Brewster; Proctor). These new words to the English language are basically the result of systematic word formation, using the *-ian* adjectival and noun suffix appended to the name of the planet (*Mercury* + *-ian*) or a representative Latinate stem (*Jovis* + *-ian*), but were unneeded in the English language until the increase in astronomical knowledge and the subsequent speculation about life on other planets required them.

To Boldly Go: From Interplanetary to Interstellar to Intergalactic

The next step outwards in terms of place and expanding consciousness is beyond the Solar System. In science fiction this outward movement was made possible by the “invention” of various super-

technologies such as *hyperspace travel* in 1928 (Olsen), *space warp* in 1935 (Schachner), and *FTL* or *faster-than-light* drive in 1936 (Campbell). Through these science fictional technologies humanity was able to contact and interact with the inhabitants of other star systems, such as Alpha Centauri, Antares, Betelgeuse, Rigel, Sirius, and Vega, and neighbouring galaxies, such as the Andromeda galaxy:

1930 Andromedan (Smith: 17)	1937 Alpha Centaurian (Binder: 90)
1931 Antarean (Smith: 132)	1940 Rigellian (Asimov: 14)
1932 Sirian (Campbell: 84)	1940 Betelgeusian (Asimov: 32)
1935 Centaurian (Leinster: 234)	1942 Vegan (Asimov: 154)

By tracing the arrival of such science fictional words in the English language we are able to track the humanity's expanding notion of its place in the universe. Significantly all of these¹² are post-Gernsbackian and only arose within the genre of science fiction which fostered continual speculation about the application of scientific knowledge.

Part II: METAMORPHOSIS

Metamorphosis of one kind or another is a common and complex theme in science fiction, with a number of different overlapping and interconnecting strands.

Metamorphosis is frequently the product of mutation, generally as a direct result of exposure to radiation, as from a nuclear accident or the like. This type of metamorphosis is often portrayed negatively, especially in post-apocalyptic science fiction, as in the fear-inspired dictum "Accursed is the Mutant" in John Wyndham's 1955 classic *The Chrysalids*. On the other hand, mutation is also frequently seen as beneficial to humanity, giving rise to such superhuman powers as telepathy, telekinesis, super-intelligence, and ESP. At other times the phenomenon is characterised ambivalently, for example in the comic book character The Hulk, and in the numerous Godzilla movies, where the mutated person/animal whilst creating much destruction and havoc in the end behaves benevolently towards and beneficially to humans. An early seminal text in the genetic mutation subgenre is Stanley G Weinbaum's *The Adaptive Ultimate*, 1935, in which

the earliest science fictional occurrence of the noun *mutant* is to be found, after which it becomes a popular motif.

An alternate path to metamorphosis is through technology, with which it becomes possible to alter living creatures, including humans. The history of this theme in science fiction can be dated back at least as far as H.G. Wells' *The Food of the Gods and How It Came to Earth*, 1903, where scientists create a chemical foodstuff that has the ability to accelerate growth and create gigantic lifeforms and subsequent genre science fiction deals with a host of possibilities. While the concept of genetic engineering only entered public consciousness in the last few decades, the term *genetic engineer* first appeared in science fiction as far back as 1954 (Anderson 22). Keeping one step ahead of the times, science fiction writers have created the portmanteau words *gengineer* for genetic engineer (Easton 1988: 153) and *genhanced* for genetically enhanced (Hudson 1989: 23), a common science fiction literary device calculated to suggest the popular familiarity of the referent in the fictionalised future (but, are these terms also destined for standard English in our future?) The 1960s saw the introduction of the word *bionics* (Silverberg, 1961) to refer to human beings augmented by technological devices. By 1973 we had the *personality reconstruction* (Silverberg 28) and 1982 ushered in the idea of connecting mind and computer directly via *cyberspace* (Gibson 72).

Finally, metamorphosis is the outcome of evolution, which in science fiction is concerned with future evolution, as opposed to real science's interest in the past. Influential science fiction editor John W. Campbell, helming *Astounding Science Fiction* from 1937 until his death in 1971, is generally praised for bring hard science to science fiction and for encouraging stories where "the scientifically minded man" used "reason and practical know-how to solve seemingly insurmountable problems" (James and Mendelsohn 38). However, at the same time, Campbell considered "telepathy and other forms of extrasensory perception" just as "valid scientifically as any speculation about alien environments or rocket ship engineering" (40) and that these abilities are essentially incipient in the human species, just waiting for the right impetus to cause them to evolve to their full potential. A superb example of this theme is to be found in Philip E. High's *Come, Hunt an Earthman*, 1973, in which humanity, when on the backfoot from invading galactic baddies, spontaneously develops worldwide telepathy in order to pool its analytical resources and develop super-weapons which ensure eventual victory. Science fiction historian Michael Ashley notes that by the 1950s "stories of psychic and transcendental power began to dominate

Astounding” (260) and this had a direct influence on science fiction in general. Thus in the 1950s we see the arrival of such terms as *precog* (Dick 10), a person with pre-cognition, that is, the ability to see or know the future; *psionics* (Williamson, 1951) a more scientific-sounding term for psychic abilities; and *empath* (‘McIntosh’ 30) for a person with empathic abilities.

Whether via mutation, technology, or evolution, much science fiction deals with the metamorphosis of humanity, often to the utmost extremes of possibility or imagination. In 1935 Olaf Stapledon envisioned humans transforming into a superior species he named *Homo superior*, a term picked up by many subsequent writers (Harness 151; Brunner 87; ‘Muller’ 123; Kapp 102). Indeed, depictions of future humanity are by and large complimentary. For example, although H.G. Wells’ evolution of humanity into the meek and blissful but apathetic Eloi, and the cannibalistic, subterranean Morlocks is well-known, this unflattering division into Jekyll and Hyde types did not become a staple of later science fiction. However, another more flattering Wellsian figure was inspired by Darwinism and has become a well-accepted science fiction trope: namely that of future humans with bulbous heads (to hold enormously developed brains) and weedy bodies with vestigial limbs (a result of the absence of physical labour over an evolutionary time scale). This metamorphosed human first appears in one of Wells’ earliest short stories, *The Chronic Argonauts*, 1888:

He was a small-bodied, sallow faced little man ... the bones and muscles of his face were rendered excessively prominent and distinct by his extreme leanness. The same cause contributed to the shrunken appearance of the large eager-looking grey eyes, that gazed forth from under his phenomenally wide and high forehead. It was this latter feature that most powerfully attracted the attention of an observer. It seemed to be great beyond all preconceived ratio to the rest of his countenance.
(Wells 1888: 313)

The same figure appears again in Wells’ essay *The Man of the Year Million*, 1893. The notion was also explicated by Hugo Gernsback:

Thus a man whose grandfather and father were hard-working laborers, will nine times out of ten inherit a bony as well as robust body and a relatively small brain.

Whereas a man whose grandfather and father were mathematicians nine times out of ten will have a comparatively small boned body, which is far from robust, but his brain will be large (1915, 314).

This originally science fictional character eventually gave rise to the Ufological *grey*, a member of a group of super-technological Earth-visiting aliens who made their screen debut in Steven Spielberg's 1977 film *Close Encounters of the Third Kind*.

Beyond Infinity

After humans have metamorphosed into a more evolved or otherwise superior hominid, where might they go from there? What type of being is possible? Since at least the 1930s science fiction has had the answer: humans will eventually dispense with the physical body altogether and become beings of *pure thought* (Peterson 33; Gillings 5); beings who have no physical body but exist as some energy or force that can control matter, space and time. And, after humans have spread from their home planet Earth and colonised the Solar System, and then outwards through the enumerate star systems of the Milky Way galaxy, and then intergalactically throughout the entire Universe, and then transdimensionally through all dimensions of time and space, and there are no more frontiers to be conquered, will they sit Alexander-like and cry? Science fiction says no: beyond the furthest reaches of physical space there is Infinity! Well parodied in the motto of Toy Story character Buzz Lightyear – ‘To Infinity and beyond!’ – the notion of reaching or exceeding infinity has been a staple of much genre science fiction. The Internet Speculative Fiction Database records no less than 352 short story and novel titles containing the word infinity, including three separate short stories specifically entitled *Beyond Infinity*. Other titles include: *Arc of Infinity* / *The Infinity Machine* / *Crown of Infinity* / *Escape to Infinity* / *A Trip to Infinity* / *Children of Infinity* / *Meet Me at Infinity* / *Split Infinity* / *Black Infinity* / *This Side of Infinity* and *The Infinity Plague*. A typical example of the way which infinity is portrayed in these texts is provided by the pen of the prolific B-grade science fiction writer R.L. Fanthorpe, writing under the Badger Books house name ‘Karl Zeigfreid’:

Mike Sterne reappeared through the rectangular metal gateway of the X-dimensions. *He had escaped to infinity*, and he had come back.
(Fanthorpe 1962: 147)

Fabulous nonsense, no doubt. At no time in the novel is the nature of this Infinity, let alone what lies beyond it, ever elucidated. Obviously is a contradiction in terms as there is no end to infinity, and so there can be no beyond it.¹³ In one way this science fictional ‘infinity’ is a place that represents the ultimate pinnacle of human achievement or progression, where humans take on omnipotency and immortality, transcending not only merely physical existence but also the laws of physics and reality. On another level, the use of ‘infinity’ represents the very finite dimensions of the English language. Beyond all places in the known universe, beyond all boundaries of dimension and time, English reaches its upper limit of hyperbolic description with the word ‘infinity’, and to go beyond it moves into the world of the ridiculous. The word stock is exhausted at this point and any cogent conceptualisation of something more is brought to a full stop. And yet, while the verbal journey may have finally run into a dead end, science fiction is still moving ever forwards, pursuing the onward urge, undergoing its own metamorphoses.

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Notes

¹ Known in science fiction criticism as “Genre Science Fiction” (Prucher, 78). An analysis of science fiction subgenres is outside the scope of this paper, but include: Hard Science Fiction, Soft Science Fiction, Social Science Fiction, Cyberpunk, Biopunk, Steampunk, New Wave Science Fiction, Golden Age Science Fiction, Pulp Science Fiction, Space Opera, Science Fantasy, Speculative Fiction, and the list goes on.

² There are a number of other ‘Fathers’ of Science Fiction, including Jules Verne, H.G. Wells, and John W. Campbell.

³ These were serialized in *Modern Electrics* and then in 1925 published as a novel *Ralph 124C 41+ : A Romance of the Year 2660* (Boston: The Stratford Co.). The title is a pun on “one to foresee for one”. Currently a copy of the first edition with rare dust jacket will set you back at a minimum of roughly US \$500 and a copy signed by Gernsback in excess of US \$30,000! *AddALL* website. Accessed 25 May 2007. (www.addall.com).

⁴ Prucher (177) gives the pronunciation /ʃaɪəntɪˈfɪkʃən/, which maintains the primary stress of *fiction* /ˈfɪkʃən/; another alternative would be /ʃaɪənˈtɪfɪkʃən/, in order to maintain the primary stress of *scientific* /saɪənˈtɪfɪk/; a third possibility, more easily rolling off the tongue, would be /saɪˈɛntɪfɪkʃən/, which preserves the stress and pronunciation of *science*. Which ever way, the pronunciation of *scientifiction* is problematic and lingually difficult.

⁵ Justine Larbalestier credits Gernsback with the invention of science fiction arguing that “Science Fiction as a community, and certainly science fiction as a publishing category, began in the United States in 1926 with the first English language science fiction magazine, *Amazing Stories*” (15).

⁶ This evidence antedates the earliest record (1713) in the *Oxford English Dictionary*.

⁷ From Greek *σεληνη* the moon.

⁸ The earliest attestations provided in this paper frequently antedate those found in the *Oxford English Dictionary* (whether the second edition of 1989, the Additions Series 1993—1997, or OED Online) and in Jeff Prucher’s recently published *Brave New Words: The Oxford Dictionary of Science Fiction*, 2007.

⁹ Uranus was discovered by astronomers in 1781.

¹⁰ Neptune was discovered by astronomers in 1846.

¹¹ Pluto was discovered by astronomers in 1930.

¹² Ignoring an exceptional isolated occurrence in Voltaire's short fantasy – not science fiction – story “Mircomegas” (appearing in English first in Tobias Smollett's 1762 translation (254), and thence reoccurring in subsequent translations, such as the anonymous 1840 translation in the New York *Knickerbocker* magazine (129)).

¹³ This is not unlike the science fiction use of the term absolute zero. Current scientific theory holds that absolute zero or zero Kelvin is impossible to reach (or at least impossible to measure if reached) a number of science fiction stories revolve around technologically attaining this unattainable goal (Anderson; Broxon; Bear).