

Pandatopia: a novel with a critical commentary, TEOTWAWKI

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Abstract

Pandatopia: a novel with a critical commentary, TEOTWAWKI comprises a novel of my own creation, alongside a commentary that reflects on aspects of the creative process and aims to contextualise my work within the genre of Science Fiction.

Pandatopia is set in a world where half the global population have been deliberately *Changed* into panda people by a gene-altering virus. Now normal *unchanged* humans are adapting to life alongside their super intelligent pandafied neighbours, often living as second-class citizens in a world now being shaped by panda-kind. The novel follows the journey of Megan – a panda person who began life not as a human, but as a giant panda – as she attempts to defend the remnants of humanity from an imminent threat. Megan has uncovered a plot to eradicate the remaining *unchanged* humans from the world, and believes that her own genetic material is key to the plotters' machinations. She sets out to find others like her, *Changed* giant pandas who can take the form of bear or biped at will, in order to prevent them – and their DNA – from falling into the wrong hands. One of these beings is her brother, Alpha, who has since become the new Emperor of China. Megan is accompanied by an *unchanged* human named Jen and a panda person called James. She is also aided by a magpie known as “the Dave”, leader of his murder, who begins building a global empire of his own as they progress around the world.

TEOTWAWKI explores the central themes of the novel alongside the work of contemporary SF writers and critical theorists. It also considers aspects of the process of composition, covering some of the events and experiences that inspired and informed the development of my novum, to frame the artistic nature of the primary text.

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TEOTWAWKI

(The end of the world as we know it)

A critical companion to

Pandatopia

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[Preface](#)

My World

I wrote two novels on the road to completing this PhD. The first being a scene-setting exercise that helped me establish the rules for my “pandaified” universe, which allowed me to begin shaping my characters and defining their motivations, that I tentatively entitled *Pandaemic* (the timeline and overview of which is submitted here as [Appendix A](#)). The second is the text you have just read to completion: *Pandatopia*. I completed the first book by the end of my second year as a part-time PhD student but, when I lost my second PhD supervisor at this point and thought I would still have five to six more years left of my course, I decided it would be more productive to begin afresh with the second book in the series. In *Pandatopia* I set out to create a text that fits more solidly in the genre of science fiction, and one that went on to build upon the world created in *Pandaemic*.

I drafted and submitted *Pandatopia* because my new supervisor had not read, nor would they have found time to read, all of the initial novel before my next Supervisory Board as it had been scheduled then. I also did this because I wanted to get the most out of my studies, knowing that I had the ability to compose so much more and hoping to capitalise on my abundance of ideas on this particular storyline. I had not foreseen all of the fortuitous events in my life that I would encounter thereafter: finding the time to visit China and see the panda breeding programme in Chengdu; securing the chance to travel to Korea, by way of China again, with the Essex Abroad programme; getting several new jobs, including two teaching posts; meeting my current partner in Korea, finding that she attended the University of Sussex, then dividing my time between Colchester and Brighton during my studies; being allocated a supervisor with terrific Science Fiction (SF) credentials, the author Matthew De Abaitua, who helped me uncover new aspects of the genre to consider and explore in my texts. My first novel had always straddled genres a little, leaning more toward SF than Fantasy, and I think it is fair to say that my previous supervisors had never known entirely what to do with me. My time working with Matthew has helped me focus my reading a lot, opened up worlds I would never have encountered on my own, and helped me hone the rougher aspects of my story into more informed SF techniques. I have toned down many of the more problematic aspects of my writing since the initial draft of book one: decreasing the cast of characters; reducing viewpoint narrative perspectives; simplifying language; delivering more exposition in smaller sections of narration, rather than through character dialogue alone; reducing my reliance on an omniscient narrator for achieving comic results. Up until this point, everything has been purely academic. After

this, I have to let my little books leave the nest. That is probably when I will need to refer to the wise words adorning the cover of the *Hitchhikers Guide to the Galaxy*: “DON’T PANIC.”⁵⁷

My Word

The idea that artists should be required to justify creative works through critical evaluation is an issue that was flagged by a member of my PhD board, Adrian May, when noting that he did not like the “nomenclature of ‘critical’ in the title of the critical component.”⁵⁸ I swapped “critical” for “reflective” in my approach here, in respect of this advice, and will endeavour to follow a more metaphysical path in this piece. From the socio-economics at the roots of my inspiration, to the already volatile political situations observable around the world influencing the way I write today; all accompanied by global developments in science – both technological and biological – against a backdrop of climate change denial, anti-vaccination movements, and a populist rejection of expert opinions.

As for the adverse publicity, they could squelch it at source, since the media Corps controlled what was news and what wasn’t. And the Internet was such a jumble of false and true factoids that no one believed what was on it anymore, or else they believed all of it, which amounted to the same thing.⁵⁹

When Margaret Atwood wrote this in 2009, we were already entering the post-truth era – though it would be another seven years before “post-truth” would become the Oxford Dictionary’s “Word of the Year” – and separating fact from fiction in today’s news is as difficult for us now as for the characters in her dystopian *MaddAddam* future.

When creating the world of *Pandaemic & Pandatopia*, I aspired toward Darko Suvin’s adapted idea of the Science Fiction “novum”, with particular focus on developing novelty:

A novum of cognitive innovation is a totalizing[sic] phenomenon or relationship deviating from the author’s and implied reader’s norm of reality...though valid SF has deep affinities with poetry and innovative realistic fiction, its novelty is “totalizing”[sic] in the sense that it entails a change of the whole universe of the tale, or at least of crucially important aspects thereof⁶⁰

My panda people are generally recognisable as people – as are most of the other sentient creatures in my texts. Their thought processes are obscured, but recounted through anthropocentric means,

⁵⁷ Adams, Douglas, *Hitchhikers Guide to the Galaxy*, Pocket Books (UK 1973), p3

⁵⁸ May, Adrian, *PhD Supervisory Board*, The University of Essex (UK, 2017), recorded 21/05/2017

⁵⁹ Atwood, Margaret, *The Year of the Flood*, Anchor Books (US, 2009), p293

⁶⁰ Suvin, Darko, *Metamorphoses of Science Fiction: on the Poetics and History of a Literary Genre*, Ed. Canavan, Gerry, *Ralahine Utopian Studies* V.18, Peter Lang (Germany, 2016), p80

allowing us to continue understanding the alien viewpoints in my texts and applying our own understanding to their motives.

As a consequence, the essential tension of SF is one between readers, representing a number of types of Man of our times, and the encompassing and at least equipollent Unknown or Other introduced by the novum. This tension in turn estranges the empirical norm of the implied reader⁶¹

I used giant pandas particularly because of their position as an endangered species (at the time of writing), as I wanted to draw parallels between their situation and ours, but I also used them as I had never seen another text at the time that did anything similar. The novelty element was an important factor in the development of my novum, but more so was the idea of creating an estranging otherness between the reader and the characters.

Chapter 1 – In the beginning

The Epic of Gilgamesh got me thinking about world-changing events when I first encountered the text as an undergrad; its similarities with other mythic/religious flood narratives, the historical accounts and comparatively recent archaeological evidence that seem to ground these accounts in reality, all made the story of Utnapishtim (Uptanishtim in other translations) seem worth reviewing further. The flood myth appears as a key theme across fiction, with Science and Speculative Fiction writers taking to the narrative with particular zeal and varying success.

Notable recent examples of the flood reinventions might include Will Self's *The Book of Dave* and Margaret Atwood's *The MaddAddam Trilogy* (including *The Year of the Flood*), notable works of anthropological Science Fiction (SF). Self's text uses a literal flood that has altered the geography of England until it is barely recognisable, where the surviving human population has developed a religion based on the writings of a mentally unstable East London cab driver. Atwood's trilogy refers to a manmade extinction event that is biological rather than meteorological, just as biblical in its scope, though engineered entirely by humans; a devastating virus is hidden in pharmaceuticals that are supposed to allow people to enjoy carefree sex without worrying about consequences, and this "BlyssPlus" pill is distributed all over the world to cause maximum devastation. Atwood focuses on the human relationships throughout, giving less attention to the underlying science than to the love story that drives the plot forward, and the love story is the primary selling point highlighted on the cover blurb. Baxter's (self-described) hard SF novel, *The Flood*, extrapolates upon ideas about continental drift and subterranean water reservoirs to imagine plausible extinction-level flooding and its impact on humanity. Cronin's, *The Passage* (book one of the *Passage Trilogy*), straddles the

⁶¹ Ibid

boundaries between SF, Fantasy, and Horror/Thriller; focusing on the rapid-spread of an ancient virus that turns people into vampiric hive-minded creatures, it has much in common with Guillermo del Toro and Chuck Hogan's *The Strain Trilogy* (and not just because both were snapped-up for TV adaptation). *Pandatopia* has most in common with *The Passage* and *The Strain*, out of these texts, though it is not directly inspired by any of them and is meant to take a more light-hearted approach toward the otherwise bleak nature of the subject matter – perhaps aligning more with Atwood's aims in *MaddAddam* in respect of the novum.

The often comic *MaddAddam* books are also close to my own work in tone. Atwood uses extremes in scientific, economic and religious, thematic devices to create a text that tests the readers' suspension of disbelief. She also counterbalances the fantastic by using more grounded and ordinary viewpoint characters, who reflect on the actions of the more zealous or ingenious ones, preserving the sense mundanity through understated reaction to the terrific events unfolding around them. Atwood was also explicit that she wanted to use only plausible science in her world building, still wary of being classified as an SF author, stating: "*If I were writing about Planet Xenor, that would be different. It is our world, except with a few twists.*" In *Pandatopia* I aimed to take this concept a little further, taking my biotechnology across the lines of believability, and flirting with absurdity – an approach more akin to the fantastical elements of Solarpunk than Biopunk, where dragons frequently feature as part of the (otherwise true to SF) narratives. The use of pantropy, in terms of the human adaptation for survival in alien environments (as coined by James Blish), also pushes *Pandatopia* in to the Terraforming subgenre of SF; though my panda people are being modified to better survive in the environment we already inhabit.

Tonally my work has always been more in line with the works of Douglas Adams or Terry Pratchett, as I have always used an omniscient narrator to commentate on events and add humour – which was certainly the case in *Pandaemic*. In *Pandatopia*, following the advice of my current PhD Supervisor (De Abaitua), I have aimed to adopt a more organic approach to comedy creation: using the dialogue to deliver punchlines, rather than my own authorial voice, and drive humour through character reactions to the ridiculous situations they find themselves in. In terms of structure I have often been drawn towards non-linear episodic narratives in my story telling, a habit developed early in my academic career and influenced heavily by the Epic Theatre of Bertolt Brecht, though I am attempting to use a more linear structure in *Pandatopia*; part of the editing process, also under the advisement of my supervisor, has involved reducing the instances of flashback or summary in favour of a more episodic narrative.

My Pandaverse was not originally meant to teach people any particular lessons, include figurative allusions, or allegorical asides; I just wanted to create a few funny, if potentially disturbing, stories about people turning into pandas. Over the past years though, my intention evolved alongside the panda people on my pages. The story arc began to include reflections observed or inferred from the changing society around me: young people being pitched against old, natives against immigrants, rich against poor and the educated versus the not – all going for each other’s throats and all being whipped into frenzy by a combination of mainstream and alternative news on social media and the internet at large. This deluge of divergent influences, accompanied by the torrent of texts consumed since commencement of the project, make it difficult for me to know where I should start with this commentary; for this reason, I have decided to go back to the very beginning to best get my bearings.

I have been working on building the Pandaverse for nearly ten years now – since at least 2008 – having begun toying with tales about super-intelligent Ursidae in my undergrad Creative Writing classes at the University of Essex. Using the stimulus of recently discovered and ultimately unfulfilled story ideas (brought to our attention by Phil Terry), from F. Scott Fitzgerald’s notebook, I chose: “Lois and the bear hiding in the Yellowstone”⁶². The short story that would shape the bear’s share of my work for years to come, had been laid down in my own notebook ([Appendix B](#), in its entirety, previously un-submitted) composed as a timed exercise in under an hour.

From here I remember coming across an article in a newspaper, as part of another inspirational exercise, recounting an event at a zoo in China; a man had been so overcome by the cuteness of a giant panda, that he had jumped the enclosure fence intending to give the creature a hug. The panda reacted to the man’s advances negatively, biting and clawing him until (presumably) the man fully understood his error – the moral I took from this story was that “we all need to remember that pandas are bears”. The first full Pandaverse short story I composed after this inspiration point cast pandafied people as the oppressors of normal humans, looking at a snapshot of life after the *Change*. I developed the short story over the following two years, turning it into a slightly longer short story, entitled *Pandaemic* – which I submitted as the final piece for my Science Fiction LT367 module. This short story exists today after undergoing a forensic rewrite, as the first chapter of *Pandaemic*; a book in two parts, entitled *Panda* and *Emic* consecutively, and comprising the prequel to my current story (*Pandatopia*).

⁶²Fitzgerald, F. Scott, Book 1: From: “McSweeney’s - Issue 22” (2006), *The Notebook: The Unwritten Stories of F. Scott Fitzgerald*, last accessed 18 June 2017 here: <https://store.mcsweeneys.net/products/mcsweeneys-issue-22>

The foundations of *Pandaemic* were drafted during the process of my Creative Writing MA at the University of Essex, where several chapters were submitted for workshopping, then revised based on the feedback from my tutors and peers. I continued working on *Pandaemic* throughout my Creative Writing PhD, bringing the novel to completion by my second year of part-time study, before beginning work on *Pandatopia*. Finishing the prequel allowed me to explore the backstory of the characters and events in this novel, giving me a more complete understanding of the world I was making, and helping me to narrow my focus considerably. *Pandaemic* covered the origins of my take on the ‘Flood’ or ‘Outbreak’ narrative, which has gained traction as an area of study all of its own in recent times, spearheaded by Pricilla Wald of Duke University – using giant pandas as vectors for the disease that converts over half the global population into panda people and explaining how it came about, allowing *Pandatopia* to concentrate on the repercussions of this event.

I allowed myself significant creative freedom when writing *Pandaemic* – I let the narrative grow wild, encouraging a host of new characters to bud and letting plotlines sprout all around the central premise, until the story was more a tangled thicket of complex exposition than an entirely coherent narrative. With *Pandatopia* I have cultivated a more orderly approach – pruning irrelevant characters from the manuscript, only encouraging the focal plot points to flourish and letting the side plots go to seed. This horticultural approach to my writing was aided again by the instruction of my supervisor, De Abaitua, who advised that I adopt a more structured approach in my writing.

Chapter II – P P P P P

(Proper Preparation Prevents Piss Poor Performance⁶³)

In 2010 I was working for a non-standard home insurance provider, writing articles intended to drive more search engine traffic to their website, when I first encountered the idea of *preparedness* as a way of life. I wrote thousands of words of copy on the subject. I explored it from more angles than anyone outside of the actuarial fields would ever be likely to investigate, plumbing the depths of my creativity for approaches that would keep the subject interesting enough to prevent me from becoming suicidal over the mundanity of it all. That is when I first heard about the Prepper movement, and when it began to interest me as a subject for further exploration. The main reason why Preparedness relates to *Pandaemic/Pandatopia* goes beyond the fact that they all begin with the letter “P” – Preppers are comprised of various disenfranchised groups in modern society, from downtrodden to extremist, and their reasons for Prepping stem largely from an innate distrust of the status quo. Though I lack the inclination (not to mention the knowhow or the resources) to go off-

⁶³ Not to be confused with the ‘6 Ps’ of Acute Limb Ischaemia – as set out by RCEM Learning here: <http://www.rcemlearning.co.uk/modules/acute-limb-ischaemia/clinical-assessment-and-risk-stratification/the-6-ps/>

grid and live self-sufficiently, I do recognise the appeal this idea has and I don't think the Prepper's attitudes are the result of unfounded paranoia.

Atwood's *Flood Trilogy* features a group who call themselves "God's Gardeners" (also the original title variant for book two of the trilogy, *The Year of the Flood*, but Atwood reputedly decided against it lest it be mistaken for "a rightwing[sic] nut-bar book"⁶⁴), a commune-based sect of survivalists who were either lucky enough to be right about the apocalypse or instrumental in its inception (depending on your reading, and on which Gardener you are considering). In either case, the God's Gardeners make up the lion's share of the post-flood (and exponentially diminished) human population in the text; because of the ambiguity of the identity of those responsible for the outbreak, it seems less as though Atwood is endorsing the preparedness movement than she is acknowledging its existence. Atwood also references the function of media technologies and marketing in stoking the fires of her pre-apocalypse society, made even more pertinent to me when she mentions bears:

Of a well-meaning but fundamentally misguided environmentalist group, she writes: "It lived off the good intentions of city types with disposable emotions who liked to think they were saving something." When the charity launches an ad campaign to save drowning polar bears it features "a smiling green fuffucker telling everyone what a sterling lot of good Bearlift was doing, and please send more cash or you'll be guilty of bearicide."⁶⁵

Though I had not read this at the time of writing, it resonated strongly with my own intention to tie charitable organisations into the funding the development of the fictional panda-plague; my own marketing background, coupled with an ongoing mistrust of the methodology of charitable fundraising/spending, made me think that a panda-charity would be the perfect cover for a mad-scientist committed to experimenting on pandas.

Atwood used genetically-modified super-intelligent porcine "pigoons" in her post-flood world, who gained their smarts as a by-product of being used to grow organs and (pivotaly) brain tissue for human transplantation, and engage the surviving humans in a war born of misunderstanding as much as anything else. A similar concept of engineered pig-like being are also encountered in Self's post-flood parts of *The Book of Dave*, in the endearingly semi-intelligent "motos" and their "moped" piglets, who exist in a state of companionable domestication with the surviving humans. The difference between the two meta-pig manifestations is that of the wild versus

⁶⁴ Brockes, Emma, "Margaret Atwood Interview", *TheGuardian.com*, <https://www.theguardian.com/books/2013/aug/24/margaret-atwood-interview>, 24/08/2013, accessed on 26/08/2017

⁶⁵ Ibid

the domestic, reflecting the nature of pigs as we know them today; relatively inoffensive in the barnyard, but notoriously changeable when encountered in their natural habitats, and have been proven to be both very intelligent whilst remaining unfortunately tasty at the same time. Self's world drew the line at Motos, while Atwood's went on to note several other genetically modified creatures: the "Rakunk", "Mohair", "Wolvog", "Snat" and "Bobkitten". Most prominent among Atwood's creations for me, and not only for the flagrancy of her biblical metaphor, are the "Liobams"; as the name may suggest, a chimera of lions and lambs, seemingly made only so that fictional Christian-fundamentalist characters could be content that they'd seen the two lie down together at the end of the world. The bluntness of this image fascinated me, and directly contributed to the scene I wrote for *Pandaemic* where my savage pandaified petting zoo lambs first surfaced. In *Pandatopia* the panda-lambs resurfaced in the original prologue, as the leaders of a pastoral rebellion against bipedal kind, and I hope they will appear again before my books are finished.

Christian fundamentalism is often linked to the Prepper movement, though this is likely attributable to the demographic makeup of the United States of America where the concept has become so popularised in recent years, it makes it difficult to disentwine the two ideologies. Indeed, there is one religion where Preparation is a key and active component of the belief system: Mormonism. The Church of Jesus Christ of Latter-day Saints follow the doctrine of Joseph Smith, to the effect of "If ye are prepared ye shall not fear"⁶⁶, but global members are advised to moderate their preparations by the church's leadership through their online platform:

The Church's handbook states, "To help care for themselves and their families, members should build a three-month supply of food that is part of their normal diet. Where local laws and circumstances permit, they should gradually build a longer-term supply of basic foods that will sustain life. They should also store drinking water in case the water supply becomes polluted or disrupted."⁶⁷

The church's advice focusses on helping members prepare for unforeseen eventualities, and their PR materials explain that this could be interpreted as anything from natural disaster to illness or job loss. Though this advice seems reasonable, it is little different to Aesop's allegorical fable of the *Ant and the Grasshopper* (which has long misunderstood the lifecycles and behaviours of the two creatures) and similar lessons are put forward by a number of popular religious texts, the Mormon church is the only one so far (that I've noticed) having to issue statements urging their flock to tone down TEOTWAWKI (The End Of The World As We Know It) prep.

⁶⁶ Smith, Joseph (credited), *Doctrine and Covenants*, 38:30, <https://www.lds.org/scriptures/dc-testament/dc/38.30?lang=eng#29>, accessed 20/03/2017

⁶⁷ Uncredited, "Preparedness", *The Church of Jesus Christ of Latter-day Saints – Newsroom*, <http://www.mormonnewsroom.org/article/preparedness>, accessed 20/03/2017

There are no wholly reliable statistics to indicate the total number of people actively preparing for TEOTWAWKI today, though the *Daily Mail* spuriously estimated the number at three million⁶⁸; this was seemingly based on the number of monthly visits made to www.survivalblog.com (at point of writing the figure has raised from the unverified reports of 300,000 per month of reputedly unique visits in 2012, reliability of the *Daily Mail* reportage notwithstanding, to 320,000 per week – according to the current website tally). It is also worth considering that the Mormon religion also advocates a certain level of preparedness which might add around 15.6 million people worldwide⁶⁹ to the Prepper mix on a non-duplicate-purging basis. These are the best audiences for post-apocalyptic fiction, because they're already invested in the suspension of disbelief required to sell the story.

The prevailing commitment to the Second Amendment is one of the reasons I avoided setting my story in the US. I hoped to avoid a bullet-laden resistance tale where people might find it most appropriate to institute their own legal systems, predicated on armament or proficiency with weapons, as I wanted to focus on the impact delivered in a state where most people aren't armed to the teeth. I also hoped that placing my super-smart panda people in local settings around the Essex/Suffolk countryside would contribute to the incongruity of the situation and create a sense of the uncanny, as conjured by the pastoral settings used in works like *The Midwich Cuckoos* (John Wyndham) or *The Hampdenshire Wonder* (J.D. Beresford) – each of which featured wunderkinds, much like Megan. The places I created are largely fictional: utilising features of the landscape, augmenting them with unreality – and choosing place names to fit the acronyms (WIZRD, WARREN, etc.). I wanted to explore an apocalypse where the surviving humans were thoroughly miserable while the pantropied people were thriving, extracting the cosiness from the catastrophe and examining what might remain.

Prepper-style fiction invariably focuses on those who are doing better in the post-apocalyptic world, then they ever could have hoped to in the time before. It usually features a collapsed government, problematic infrastructure, and new leaders emerging from the ranks of previously ordinary folks. Cronin's *Passage Trilogy* and del Toro/Hogan's *The Strain* each seek to depart from this somewhat: the former by way of showing the government to have been instrumental in sheltering the survivors, after initially creating the outbreak through highly

⁶⁸ Brady, Tara, "Fill the pool with fish and stockpile the guns: up to THREE MILLION 'Preppers' in the U.S. are prepared for for[sic] the end of the world", *Mail Online*, <http://www.dailymail.co.uk/news/article-2099714/Meet-preppers-Up-3-MILLION-people-preparing-end-world-know-it.html>, last updated 11/02/2012, accessed 20/03/2017

⁶⁹ Uncredited, "Preparedness", *The Church of Jesus Christ of Latter-day Saints – Newsroom*, <http://www.mormonnewsroom.org/facts-and-statistics>, accessed 20/03/2017

questionable experimentation on death-row inmates, transporting them to safe zones and then later coordinating the resistance to the meta-human “virals” (vampire) that inherit the Earth; the latter shows human resistance collapse, with humanity succumbing to their new “Strigoi” (vampire) overlords and collaborating in the enslavement or consumption of their fellow less-fortunate humans. This is the type of world I was aiming to create too: a world where panda people are smarter and more numerous than ordinary humans, where occasionally a panda person or human turns into a savage werepanda, and where the fate of humanity rests in the hands (occasionally paws) of a little panda girl/cub. The last point also resonates with *The Passage*, which features an enhanced 14-year-old girl as the central protagonist and was reputedly developed after Cronin’s (then 9-year-old) daughter asked that he tell a story about “a girl who saves the world.”⁷⁰ This motive was also no doubt at the back of my mind as well and, though I hadn’t read Cronin’s work when I began writing the panda stories, the Omega/Megan character shares a number of noteworthy similarities with his Amy.

The concept of the meek inheriting the earth is one at the heart of my work and the roots of this inspiration can be traced back to reading Wyndham’s *The Midwich Cuckoos* as a boy, whose pale children with glowing eyes undoubtedly played a part in creating the young panda people in my book. A common trope in works of Fantasy/Horror and Sci-Fi, the lion lying down with the lamb (and waiting for a little child to lead them) is a biblical device used in each of the texts I have discussed so far: in both contemporary and future parts of *The Book of Dave*, the young Carls drive the narrative forward, with the childlike yet bestial Motos adding another layer; *The MaddAdam Trilogy* uses the concept literally in the Liobams and figuratively with the innocent Crakers, genetically designed to inherit the earth, as well as Oryx and Crake themselves (who begin their machinations for world devastation/rejuvenation as children); both *The Passage* and *The Strain* use young central protagonists as shapers or lynchpins in the fates of their respective worlds. In my own work the panda cubs (Alpha and Omega) are two sides of the same coin, with one bent on destruction while the other struggles to save lives, while a secretive network of abducted teenagers make plans to swing the fate of the global population (in an unrevealed direction) from hidden bunkers around the world.

[Chapter III – Why Pandas? Werebears?](#)

Anthropomorphosis and zoomorphosis are both important parts of *Pandatopia*, and are central to the development of the plot. There are a number of reasons why I chose the giant panda as the

⁷⁰ Baron, Zach, “The Passage of Justin Cronin”, *NYTimes.com*, <http://www.nytimes.com/2012/10/07/magazine/the-passage-of-justin-cronin.html?mcubz=0>, 04/10/2012, accessed on 03/09/2017

principal animal with which to hybridise my characters, though the idiosyncratic nature of the creatures was the quality I found most appealing initially. Bears (in more general terms) are already well established as devices employed in Science Fiction, particularly chimeric bears blended with other creatures and/or technology. Fantastical, gigantic and/or sentient bears have also been staples in Folktales and Fantasy; the research that has informed my work has included a great many examples of ursidae and other caniforms, even reaching beyond readings to include observations in the field, and texts chosen purely because they featured bears have also led to unexpected learnings that I have applied in my own work.

Giant pandas embody the principles of Darwinism. Adapted so specifically to their habitat that it would now be extremely difficult for them to survive anywhere else in nature, and they are “now restricted to around 20 isolated patches of bamboo forest in six mountain ranges in China's Sichuan, Shaanxi and Gansu provinces”⁷¹. I was so taken by Chris Packham’s assertion about “pandas being an evolutionary cul-de-sac”⁷² that I took his quote out of context and made it the epigraph for *Pandaemic*. Packham was arguing that it takes an awful lot of money to keep pandas from becoming extinct, and suggesting that this money might be better invested elsewhere when you consider the other problems that pandas have:

The panda is a species of bear that has gone herbivorous and eats a type of food that isn't all that nutritious, and that dies out sporadically. It is susceptible to various diseases, and, up until recently, it has been almost impossible to breed in captivity. They've also got a very restricted range, which is ever decreasing, due to encroachment on their habitat by the Chinese population. Perhaps the panda was already destined to run out of time.⁷³

The destruction of their habitat has historically contributed to the giant pandas’ declining numbers, though recent conservation efforts have allowed a seventeen percent increase since the 1970s (as recorded in the last researcher census of 2014). At present, the giant panda prospects are improving – though they remain one of the most endangered species of bears, they have now been upgraded from “critical” to “vulnerable” on the endangered species list – they remain a globally recognised symbol of conservation thanks largely to their place in the World Wildlife Federation logo.

⁷¹ Uncredited, ‘Habitat of the Panda’, *WWF.Panda.org*, http://wwf.panda.org/what_we_do/endangered_species/giant_panda/panda/where_panda_lives_habitat/, accessed on 27/10/17

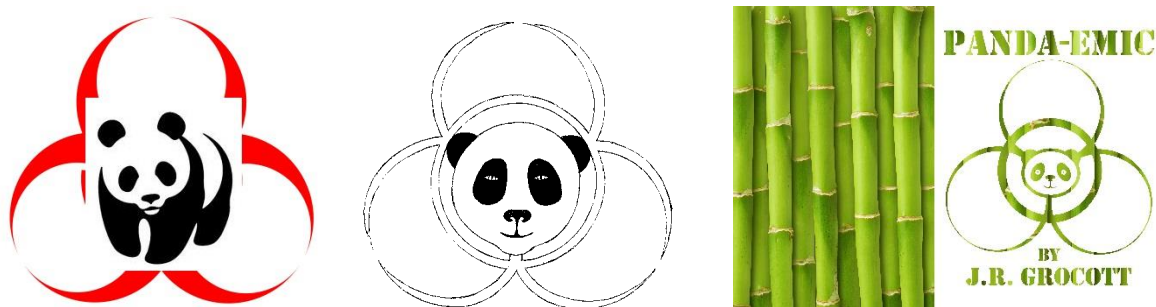
⁷² Wright, Mark, (in response to Chris Packham), “Should pandas be left to face extinction?” *TheGuardian.com*, <https://www.theguardian.com/environment/2009/sep/23/panda-extinction-chris-packham>, 22/09/09, accessed on 27/10/17

⁷³ Packham, Chris, “Should pandas be left to face extinction?” *TheGuardian.com*, <https://www.theguardian.com/environment/2009/sep/23/panda-extinction-chris-packham>, 22/09/09, accessed on 27/10/17



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As a side note; I was also inspired by the WWF logo when creating a cover design for *Pandaemic*:



I have also been in contact with WWF to make a speculative enquiry about using their logo on my cover (if I were to publish), in exchange for a donation to the charity from the profits of each book sold and a little extra promotion for their conservation efforts. Packham also acknowledges the importance of the role the panda has played in building conservation awareness, while still lobbying for their destruction:

Of course, it's easier to raise money for something fluffy. Charismatic megafauna like the panda do appeal to people's emotional side[sic], and attract a lot of public attention. They are emblematic of what I would call single-species conservation: ie[sic] a focus on one animal. This approach began in the 1970s with Save the Tiger, Save the Panda, Save the Whale, and so on, and it is now out of date. I think pandas have had a valuable role in raising the profile of conservation, but perhaps "had" is the right word. Panda conservationists may stand up and say, "It's a flagship species. We're also conserving Chinese forest, where there is a whole plethora of other things." And when that works, I'm not against it. But we have to accept that some species are stronger than others.⁷⁵

These points are pivotal when it came to choosing the giant panda as the subject of my own creative research, and everything mentioned by Packham here is what made them the perfect creatures for my purposes. Ultimately, in my work, I am not talking about the plight of the giant panda; in *Pandatopia and Pandaemic*, humans are the endangered species. Unlike Packham, I am not lobbying

⁷⁴ Uncredited, 'Panda conservation', *WWF.Panda.org*, http://wwf.panda.org/what_we_do/endangered_species/giant_panda/panda/panda_evolutionary_history/ accessed on 27/10/17

⁷⁵ Packham, Chris, "Should pandas be left to face extinction?" *TheGuardian.com*, <https://www.theguardian.com/environment/2009/sep/23/panda-extinction-chris-packham>, 22/09/09, accessed on 27/10/17

for our extinction, I am suggesting we need to *change* our ways if we are to continue to survive. Unless we want to concede dominance of the planet to bacterium and/or the ants.

The Island of Doctor Moreau has been an undeniable influence on my work, and featured at least three “beast folk” with bits of bear in them. Ground-breaking material concerning vivisection and Darwinian evolution featured in H. G. Wells’ Science Fiction novel, and it is one of the earliest credited examples of the “biological uplift” subgenre; in this context “uplift” refers to the act of humans intervening in the process of normal evolutionary-based natural selection, to imbue animals with an adaptive advantage that might allow them to survive, in a way that goes beyond conventional selective breeding practices – which we, as a species, have been doing for millennia. This is not to say that Wells was in favour of doing something similar with humans, or that I understood any of the darker implications of his text when I first read them as a kid (or as an undergraduate, for that matter), just that he acknowledged commonly held perceptions in his work:

M’ling, the black-faced man, his attendant, the first of the Beast Folk I had encountered, did not live with the others across the island, but in a small kennel at the back of the enclosure. The creature was scarcely so intelligent as the Ape Man, but far more docile, and the most human-looking of all the Beast Folk, and Montgomery had trained it to prepare food, and indeed to discharge all of the trivial domestic offices that were required. It was the complex trophy of Moreau’s horrible skill, a bear, tainted with dog and ox, and one of the most elaborately made of all his creatures.⁷⁶

Black face, white gloves, less intelligent than an ape; now common tropes in turn-of-the-century racist portrayals of black people in Western pop-culture. The dog and the ox parts demonstrated the domesticity associated with the enslaved or subservient, the bear part demonstrated the aspect of “the other” that has helped to justify gun ownership for nearly two hundred years in various bear-plagued parts of the world. In my work I aimed to shun the default position of ethnocentric insecurity, whilst drawing attention to the fact that it remains undeservedly prevalent even today, aiming to present a world where all ethnicities stand equally in the shadow of a new species that holds us all in contempt. The overt post-colonial themes in *The Island of Doctor Moreau* were indicative of Wells’ pro-eugenics opinions, often overlooked in present-day class rooms, or dismissed as merely a product of his time:

⁷⁶ Wells, H.G., *The Island of Doctor Moreau*, Penguin Books, 1946, (1st Ed. UK, 1896, Heinemann), p93

It seems to me that to prevent the multiplication of people below a certain standard, and to encourage the multiplication of exceptionally superior people, is the only real and permanent way of mending of the ills of the world.⁷⁷

Wells' *The Island of Doctor Moreau* uses one notable linguistic feature that I adopted myself, though in his case it was assuming a certain type of education being ubiquitous in his audience (divergent from my own usage in many ways). The character Moreau speaks in Latin to convey an important point about his creations, without letting the creations realise they are being discussed:

'Latin Prendick ! Bad Latin ! Schoolboy Latin ! But try and understand. *Hi non sunt homines, sunt animalia qui nos habemus ...* vivisected. A humanizing process. I will explain. Come ashore.'⁷⁸

The concept of one set of characters hiding their communications from another set, by way of a language that the first set learnt as children, became the inspiration for the "Pandanes" or "Pandarin" languages that the normal humans in my books find indecipherable; in *Pandaemic* I developed the concept using the children's game of "Chinese Whispers", reinforced by a complex understanding of mathematical principles and developed through consensus between the panda people themselves, a game that has deep-seated roots in post-colonial prejudice. By consciously combining the outdated whispers game with a current positive stereotype in popular culture, regarding the superior maths performance of Asian students compared to their Western counterparts in recent statistical analysis, I worry that I may have become complacent in my chosen messaging. The common SF trope predicting that Chinese will supplant English as the future lingua-franca has already created futurescapes that many believe to be inevitable, has permeated SF texts since the genre's inception. I have also occasionally used samples of the languages I learned as a child, when the characters in question hailed from relevant countries, and I await the technical corrections from my international friends/colleagues with some trepidation. I know that my grasp of foreign languages remains poor, and I have made my translations an unintended point of criticism until I have secured feedback from relevant native speakers from every background. I have also deployed other interesting linguistic elements, including for my magpie characters, which will be revisited later.

The 2017 novel by Jeff VanderMeer, *Borne*, places ordinary humans in a similar role to those in *Pandatopia*. VanderMeer incorporates post/meta-human devices and characters in his narrative; including a truly gigantic flying bear (called Mord) who was mutated artificially from a normal human

⁷⁷ Wells, H.G., "H. G. Wells on Eugenics", *Journal of Heredity*, Volume 20, Issue 2, 01/02/1929, <https://doi.org/10.1093/oxfordjournals.jhered.a103148>, accessed on 31/10/17, p77

⁷⁸ Wells, H.G., *The Island of Doctor Moreau*, Penguin Books, 1946, (1st Ed. UK, 1896, Heinemann), pp72-73

man, as well as a host of venomous “Mord proxies” who do his bidding and are comprised of smaller bio-engineered/modified golden-brown bears. The pantheon of bio-technology (referred to as biotech throughout) in *Borne* also includes various modified children, who have been augmented with the physical characteristics from a range of different fauna by a mysterious character known as “The Magician”, and the titular creature (“Borne” itself) is a super-intelligent being capable of changing its shape at will. Borne absorbs things and people (physically and mentally) into itself, growing ever larger and smarter in a very short time, after the viewpoint protagonist discovers Borne on the back of Mord at the beginning of the text. VanderMeer’s story focuses on the themes of zoomorphosis, anthropomorphosis and transmutation, against a backdrop of climate-change catastrophe brought on by a biotech apocalypse.

“Rachel”, the principle protagonist and first person narrator in *Borne*, is a survivor of the apocalypse and scavenger in the resulting wreckage. She salvages Borne and adopts “him” as her own child, though does not realise that he is sentient at first – he has the form of a ball when first recovered, then takes on a form that resembles a vase, before developing more cephalopod-like characteristics after he reveals his ability to communicate with Rachel – and soon grows to be afraid of Borne when he reveals uncanny and unnerving abilities as the plot advances.

“Stop! Stop!” I screamed.

I could have been caught in the crossfire. Either one could have ignored me and given in to the impulse.

But, instead, Borne fell back even as he became even more huge and ominous, blotting out the light from Wick’s fireflies because he surged out across the ceiling like an angry surf.⁷⁹

Rachel is established early in the text as the relatable character through whom we view (and, crucially, believe) the fantastical elements of the text, as well as a sounding board for Borne to bounce his developing ideas off, and plays a similar role to that I intended for “Jen” in *Pandaemic* and *Pandatopia*. At the time of writing, I do not think I have used Jen successfully enough to achieve this aim, and intend to make revisions to her chapters before submission. Though the first person perspective of Rachel allows her to describe the unbelievable in a way that makes it appear almost workaday to the reader, accepting her account as a person who has seen wonders without understanding them, my use of omniscient narration may have impeded my ability to deliver the same result with Jen. Jen has lived amongst the panda people for a decade by the time we find her in *Pandatopia*, having witnessed werebear transformations first hand, and having been present for the mass escape of intelligent *Changed* animals from Colchester Zoo; I have found it difficult to

⁷⁹ VanderMeer, Jeff, *Borne*, 4th Estate (UK, 2017), p180

balance her reactions when met with new wonders, after accounting for her experiences so far, and may be guilty of under and overcompensating on an alternating basis throughout *Pandatopia*.

The depiction of Borne has also made me re-evaluate the way I have portrayed “Megan” in my own text. The two characters share a number of commonalities – including rapid maturation, extraordinary information processing aptitudes, and the unprecedented ability to change their physical shape at will – but most notable is the way VanderMeer has chosen to combine both childlike innocence and menacing aspects in Borne’s character makeup, much as I have tried to do with Megan.

I do not know when I am being what they want me to be and when I am myself. It is better when I am “cute.” It is safer.
Not nice. NOT NICE.⁸⁰

The cuteness of Borne is relevant to me, as cuteness was another huge factor when choosing giant pandas. Giant pandas are broadly acknowledged for being cute, but they are still bears and they are just as capable of being “not nice” when they need to be, this fact is vital for my purposes. VanderMeer manages to show Borne’s internalised reflection on the events and environment around him using carefully mediated introspection from Rachel, by way of her account of conversations or diary entries (as above). It has been noted that I tend to show Megan’s inner-world through dialogue-driven exposition, and that this often leads to a perception of Megan trying to say how smart she is when it would be better to just show how smart she is. I have already begun trying to rectify this, dipping more into Megan’s internal thoughts with the omniscient narrator, and summarising action sequences that might be essential to the plot but require less detail on the page. I have also been trying to dehumanise Megan; making her transformation sequences more animalistic, reducing the empathy she shows to other characters, and cutting out explanations of the stranger behaviour she exhibits.

As part of my research I visited the Chengdu Panda Breeding Centre in China, where I had the opportunity to observe the behaviour of real giant pandas of all ages in an approximation of their natural habitat. They are undeniably cute, and I saw very few examples of pandas behaving badly – though one adolescent male did push another off of a bamboo platform while I was watching – but I could not identify a single one that demonstrated any signs of super-intelligence or a megalomaniacal predisposition toward world domination. I do not think the journey was wasted though, by any means, as I did learn a lot about their innate ability to sit around and eat huge piles

⁸⁰ VanderMeer, Jeff, *Borne*, [an excerpt from Borne’s journal], 4th Estate (UK, 2017), p190

of bamboo without pause. In this respect, my own experience viewing the sedentary adult pandas helped me create the character of Yuan Zi in Chapter 8 of *Pandatopia*, who did not *change* as much as his mate, Huan Huan – each named for the real pandas in the actual ZooParc Beauval, and who became parents of their first real-life cub (not named Lambda, regretfully) in August 2017. I had not originally intended to go as far as China to see pandas in captivity, not since they got a perfectly good breeding pair in Edinburgh Zoo, but I was very pleased when I got to attend the “In pursuit of pandas” tour. It was not the experience of seeing the pandas that helped my writing most though, but the insight into Chinese customs and culture that came through the conversations with local guides – including the insight that the Chengdu Reserve has to harvest bamboo from the panda’s native habitat and transport them in because, even though they can grow the imported variants locally, the pandas are picky and will only eat the home grown stuff. This unverified titbit did lead me to some interesting research that connects pandas’ dietary requirements intrinsically with their mating habits and seasonal migration patterns:

"Pandas in the Qinling Mountains of China move from valleys up mountains in spring, and then move back again in autumn," said Professor Raubenheimer.
 "The summer forage contains high levels of protein, needed for muscle growth, but is very low in calcium, which is required for milk production and bone growth. By contrast, the winter forage has high levels of calcium but is low in protein.
 "It is only by migrating seasonally, therefore, that pandas can obtain enough of both essential nutrients to breed."⁸¹

The sex lives of pandas have not been particularly prominent in my works so far, not to say that they will not be eventually, but the connection between their appetites and their motivations is certainly noted and I did note early in *Pandaemic* that the *change* led to more voracious sexual desires alongside cravings for rare meat (a reactivation of the inner-predator). It is a layer of characterisation I have considered carefully when portraying the *changed* panda people, applying the principles to their self-interested yet goal-orientated makeup, attempting to demonstrate their dogged determination when pursuing their objectives – often connected to their insatiable lust for power or their unquenchable thirst for knowledge.

The recent (Arthur C. Clarke Award winning) *Children of Time* is a great example from the Terraforming subgenre of SF, with the “Sinful exultation of beasts” theme of pantropy bringing it into the realms of Uplift fiction too. A vaunted society from future Earth has developed sophisticated technology; they are capable of interstellar travel and planetary seeding, genetic manipulation and biotechnological augmentation, and have managed to increase their own lifespans considerably. The

⁸¹ Uncredited, “How fussy pandas maintain a balanced bamboo diet”, The University of Sydney, <http://sydney.edu.au/news/84.html?newsstoryid=13794>, 22/07/14, accessed on 30/10/17

ships they have created are able to travel at light speed, while their crews lay suspended in cryogenic hibernation, allowing eons to pass unnoticed in the blink of an eye (from the human characters' perspectives); and this becomes the driving force behind the story, when combined with the evolutionary process occurring on a terraformed world which is accelerated by the engineered "Uplift Virus". The book begins with a massive mistake; the "barrel of monkeys", intended to be the recipients of the Uplift nanovirus, are lost during seeding and the virus finds an unintended host instead: spiders.

Infected individuals would produce offspring mutated in a number of useful ways: greater brain size and complexity, greater body size to accommodate it, more flexible behavioural paths, swifter learning ...[Sic] The virus would even recognize the presence of infection in other individuals of the same species, so as to promote selective breeding, the best of the best giving birth to even better.⁸²

This description fits almost completely with the *Pandaemic Virus* in my own text; if the amendment "It also gives each infected creature the colour-pattern of a giant panda" were added, it would be perfect. The concept of "recognition" in this initial description of the virus is later revealed as a lynchpin to the conclusion of the story: whereby the two opposing species in the text are brought together through use of the virus' recognition-invoking properties, helping the human characters overcome their innate evolutionary disdain for the tree-dwelling foes of their distant ancestors, allowing them to put one fear of otherness aside in order for *Homo sapiens* and *Arachnid sapiens* to survive/coexist/thrive. This is not the ending I envision for my own conflict, but it is certainly a satisfying one in this case.

The *Children of Time* is structured with a linear narrative development; it uses one principle human viewpoint character, an Artificial Intelligence and human hybrid, and a number of intergenerational spiders (who often share names, as they seem to be passed on genetically along with their inherited memories) to tell the tale. The spider viewpoints are most interesting to me, as they perceive reality with a different frame of reference to our own, and use a different set of senses as the basis of their system of communication. The author is most successful when it comes conveying the matriarchal spider society, by employing parallels with our own language and development reflected through the lens of spider perception – reliant on touch and sight, and only able to decipher sound through the vibrations they feel with their sensitive legs. The cannibalistic spiders follow a rapid course of evolutionary development, reflecting our own in many ways, but resulting in a culture that has learned to dominate its world through ecological symbiosis. No fossil

⁸² Tchaikovsky, Adrian, *Children of Time*, Tor (UK, 2015) p8

fuels exist on “Kern’s World”, it has not had the time/organic matter/pressure required to produce them, having been terraformed relatively recently; this means that the spiders have not been able to discover much in the way of ecologically damaging advancements, but they remain driven by a need to achieve “understanding”. The humans in the text are the last fragment of the human race, dependant on the technology of their far more advanced ancestors, who all but destroyed themselves over the “exultation of beasts” issue:

‘... the Old Empire fell because it descended into sinful ways. You know the myth cycle?’

A few grunts of confirmation.

‘The exaltation of beasts – that was one of the sins of the ancients.’⁸³

The ultimate irony of the piece comes at the revelation that the beasts exalt us – reversing the assumption of our inherent superiority and God-given dominion over all the other animals, and putting humanity’s survival in the hands of the other. This point is integral to my own work as well, with the panda-people holding a comparable sway over the fate of the *unchanged* humans, though my panda-people may prove less humane than the cannibal spider people in *Children of Time*.

Chapter IV – Playing Dialogue Jenga

Upon completion of my first draft of *Pandatopia*, I found myself feeling overwhelmed at what had to come next. I have never completed a structural edit on such a large text before, having previously opted to edit as I go and only this time did I attempt to complete the first draft before implementing changes throughout. The knowledge that I had included a number of additions or alterations to the plot had been weighing heavily on my mind as the preliminary draft neared completion, and when finished I found myself struggling to pinpoint where to start.

It has been noted that I have exhibited a tendency toward delivering exposition through dialogue; a habit I may have picked up whilst working on play scripts, or perhaps the influences of graphic and cinematic fiction permeating my work. During the creation of *Pandatopia*, I have attempted to reduce my dependency on dialogue driven exposition, in favour of showing the plot points that drive the story forward. Because I did not start doing this from the outset, identifying places in the story that rely too heavily on dialogue became a leading part of the structural editing process. At the advice of my supervisor, I began considering the printed transcript on a more visual basis – checking for pages that were notably reliant on dialogue, and reviewing to see if the conversations were essential or superfluous. I found that instances where dialogue covered more than half-the-page were more prevalent in the early chapters, generally decreasing as the text went

⁸³ Tchaikovsky, Adrian, *Children of Time*, Tor (UK, 2015) p79

on – with two or three notable exceptions – and often did correspond with an instance where structural editing was required. This is not to say that I am entirely convinced that dialogue should never be used to drive exposition (a point I will return to in greater depth later), though I did find the exercise helpful in allowing me to gain the perspective I needed to begin the editing process.

I have also included some images from my research trips to China and South Korea alongside the relevant sections below, to provide a little more context for my writing process.

Chapter Number	Chapter Name	Chapter Synopsis	Dialogue heavy	Structural edit points
P	Lone 🐼 cub and wolf	Omega and the wolf have an encounter with a pub landlady, she escapes with her life and a new piece of technology – the Anosmic Emitter. Omega refers the case of the psychotic landlady to her benefactor, as well as the horde of potential scientific breakthroughs being hoarded in the pub, before continuing on her journey.	13	Combine with earlier prologue draft (Animal Farm) – cut down to less than 4k words – consider moving some into chapter 1 and reordering chapters – introduce characters properly (give them their real names from outset) – Plot points to include: show <i>Change</i> taking place – Anosmic Emitter invention – Oli Moz taking plans and fleeing to China
1	The 🌩️🌩️ have 🐼🐼	A Dave sees Omega and flies off to report to his master, James Undertone. Omega finds Jen, and sets out with the <i>unchanged</i> woman on a mission to save the human race – Jen’s daughter is imprisoned in a bunker, and knows that the mission will also have consequences for her. James Undertone, Jen’s ex-husband and father of their child, attempts an assault on the Sign of the Bear pub (where Jen is hiding Omega). Rob and John, Jen’s brothers, arrive in time to help neutralise James’ attack.	3	Show Jen in her average day, before things start to get strange for her – do we have to make use of the AE right away? – Can we bring in James Undertone earlier, and introduce him more naturally?

Chapter Number	Chapter Name	Chapter Synopsis	Dialogue heavy	Structural edit points
2	The 🐻-in-Straitjacket	Omega and Jen set sail on the <i>Bear-in-Straitjacket</i> , B34R. The ship is captained by Patrick “Pa/Cap’n/Cap-in” Durant, Jen’s father, who is hiding his pandafication from his crew for reasons not yet clear. Magpies join the crew of the BiS for a mid-crossing parley, and Omega issues some mysterious orders to the new Dave.	2	Reduce the crew – make it more obvious that Megan knows a secret about Cap-in Durant – Make the orders more obvious, and show that the Dave hesitates before following them (the magpies aren’t subject to Megan’s Words)
3	DNC Undertone	Megan has an altercation with some of the BiS crewmates (known collectively as the Mad Sea Dogs), she emerges victorious – particularly against the ringleader Braeburn. Jen finds out some things about her abducted daughter, and finds them all very concerning. Megan visits James Undertone, who is being held captive in the hold, and begins experimentation with her stolen Anosmic Emission technology.	3	Another good opportunity to reduce the crew – review the way revelations about Jen’s daughter (Charlotte) are unveiled – perhaps do so through flashback/video footage from within the WARREN? – Simplify Anosmic Emitter function and role in story. Make Braeburn a continual hindrance throughout.

Chapter Number	Chapter Name	Chapter Synopsis	Dialogue heavy	Structural edit points
4	Eta	The Dave of all English Magpies finds a group of pandas living wild in Spain, led by one called Eta – part of the initial <i>Change</i> experiments. Megan learns to pilot the BiS and begins toying with the new Anosmic Emitter she has built, discovering that she can use it to make humans more susceptible to her suggestions. Jen discovers that her father is secretly a panda person, and has been hiding the fact from her and his crew. The Dave convinces the Spanish Pandas to join Megan's cause.	4	Perhaps we should see more of the Dave bending the local birds to his will? Maybe some crew could jump ship – being prejudiced against panda people and, learning the truth about Durant and Megan, decide to abandon the mission.
5	Surrender	The BiS is attacked by a flotilla of small vessels. Megan observes the Mad Sea Dog's response, before extinguishing the threat. Cap'n Durant tortures James Undertone in the hold, trying to work out why Megan seems to have so much power over him, but his actions allow James to attempt an escape.	5	Yet another chance to slim down the crew – anyone Megan is dissatisfied with can bugger off. Review the interrogation between Cap'n Durant and James, see if there is a way this can be improved.

Chapter Number	Chapter Name	Chapter Synopsis	Dialogue heavy	Structural edit points
6	Muck	Megan takes command of her own small navy, recaptures James, and takes delivery of the Spanish Pandas. She begins conducting further experiments on the Spanish Pandas, herself, and on Jen. Jen finds the experiments distasteful, but one of the experiments allows her immunity from Megan's Words .	3	Remember that James only has one eye now, and add references to this later on or fix it (like Marvel fixed Thor) with a prosthetic – page 100 (1 st mention of isinglass, point of ref). Also – Find: “Straight Jacket” again, as typo found here – Jen/Megan conversations could be reduced, or shown more effectively.
7	Och jobby	Megan makes contact with a group of Scottish Pandas, and tries to convince them to join her. The BiS stages an abduction with the aid of a Magpie Airforce and a special Spanish Panda strike team. The BiS sails for the North East Passage, before encountering unforeseeable difficulties. Polar-panda bears and killer-panda whales join the narrative, and attempt to sink the ship. Jen manages to take back control of the BiS, as the only crewmember not restricted by Megan's Words – which the girl was unable to rescind after being knocked out at the start of the battle.	6	Review supervisor/board notes – I feel like the dialogue driven aspects of this are all necessary.

Chapter Number	Chapter Name	Chapter Synopsis	Dialogue heavy	Structural edit points
8	🐼-tropy	Megan's navy sets off in the opposite direction to Megan on the BiS, kept to task by newly built copies of the Anosmic Emitter and some carefully chosen Words from Megan. The French pandas of Zooparc de Beauval resist this order, even when faced with Anosmic Emitter drones, and escape with the new technology – we learn that the Words only seem to work when they are in a language understood by the target person, and may not work on those capable of using Words themselves. Megan becomes a wereshark, then mutates further into a panda whale, in order to survive in the freezing arctic waters.	0	Check it's called the Omega Fleet – Review how the Words work on the pandas of Zooparc de Beauval – should not work on the one able to use Words either. Good opportunity to show that the magpies might not be under the control of Megan's Words , and that they may have ulterior motives (re-read to see if this needs enhancement). The navy's mission is to gather up the remaining experimental pandas from the <i>Pandaemic</i> project, using any means necessary, to prevent them falling into enemy hands when the Bunkers open – *THESE ORDERS SHOULD BE EMPHASISED*.

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⁸⁴ Image taken by the author, showing panda cubs at play in Chengdu Research Centre, China 2015

Chapter Number	Chapter Name	Chapter Synopsis	Dialogue heavy	Structural edit points
9	Pod	Jen mutinies against Pa after becoming concerned that Megan's Words have begun to impair his judgement, she imprisons him in the hold with James, and tries to sail the damaged BiS on to Japan – no longer sure what to do after losing Megan in the earlier battle. Meanwhile; Megan takes charge of the pod of pandafied killer whales, who were previously responsible for attacking the BiS, after learning their language and finding a way to use her Words in whale song. She makes the whale pod help the damaged and beleaguered BiS find its way to safety, but the whales become aware of a whaling fleet and are unable to take them to Japan as originally planned.	1	Reduce the crew – it would be so easy at this point – kill the ones we like too (take a lesson from Faulkner and 'kill all your darlings') – then remove them from later chapters. Megan becoming a whale works well, no notes. Megan becoming a human again came with questions that might be expository in nature – review to make sure the answers are good enough or eliminate these sections.

Chapter Number	Chapter Name	Chapter Synopsis	Dialogue heavy	Structural edit points
10	Beomeosa	The crew of the BiS are forced ashore in South Korea, including Omega and Jen, where Homo sapiens phobia has gripped the largely panda-people population. The crew is split up, with Megan taking a select group of humans and pandas secretly ashore, while Pa Durant and his crew affect repairs. Megan's Magpie contacts put the crew in touch with a sect of Buddhist Monks, who are about the only <i>unchanged</i> humans left that are able to travel freely around South Korea.	4	Reduce the crew taken ashore if needed – Review if the Dave was acting in their interests, and maybe show the magpie doing it – ensure that more is made of the Beomeosan monks and their access to technology. Braeburn is here somewhere – if we keep him, make him count and bring him up later, to give him an end.

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⁸⁵ Image taken by Beomeosa Temple Stay – available on Facebook – showing how wet the author was at point of arrival, South Korea, 2016

⁸⁶ Image taken by Beomeosa Temple Stay – available on Facebook – showing our group with a temple monk, South Korea, 2016

Chapter Number	Chapter Name	Chapter Synopsis	Dialogue heavy	Structural edit points
11	Pray away the 🐼	James Undertone follows Megan and discovers the secrets of Beomeosa – Megan learns that her Words can make unchanged people go werepanda – She also learns that she can stop it once started, but she probably should not, leaving the victim in a terrible state – The Beomeosan monks are also harbouring the ability to control their transformations (or at least postpone them indefinitely, in most cases, but one can maintain human control in the immediate aftermath of their own <i>Change</i>), staying human by sheer force of will despite the werepanda gene resting in many of them – It is also revealed that the Beomeosans have access to Anosmic Emitter technology.	2	Reflection of my own experiences at Beomeosa (note this in more detail later) – note of “Friends don’t let friends go werepanda” (p149 currently) needs to be linked to revised prologue/chapter 1 – benefactrix mentioned, make sure she comes up before and after – a monk resists Megan’s Words , she notes it – meditation can help control abilities after <i>Change</i> to werebear, but cannot make you resistant to the Words – Abbot appears to resist Words but does not prove they can conclusively, merely showing that they can delay the response.
12	DMZ	The first border is between South and North Korea and the crew of the BiS elect to take drastic action as they cross to help the people of South Korea. North Korea, which has reputedly become a haven for the <i>unchanged</i> and is happily haemorrhaging <i>Changed</i> as a directive from above. Though the group could probably make their way across the border undetected, it turns out that there is a benefit in creating a huge scene as they cross.	0	Already redrafted this – made the Beomeosan guides motivations more clear (escaping the purge of humanity underway in South Korea) which also made clear the reasons for Megan & co creating a spectacle during the crossing – need to filter this into the last chapter more, potentially – Took the opportunity to remove a few more “Crewmates”, as am conscious that I have let the character list increase too far.

Chapter Number	Chapter Name	Chapter Synopsis	Dialogue heavy	Structural edit points
13	Mozcow Mule	North Korea turns out to be less than advertised for <i>unchanged</i> asylum seekers. Oli Mozcow joins Megan and the Durants during the crossing of the country – Megan is influenced adversely by the aircon in Mozcow’s van – James Undertone modifies the Anosmic Emitter to help Megan, allowing him to gain back a little trust from the Durants – on the road they encounter human workers being used as indentured labour, werebears being used as guard dogs, and a great deal of corruption among public officials.	4	Main edit needed here, is to the dialogue where Oli Mozcow is explaining the Forbidden Emerald City long before we get to it – leave this until we see the impact of the clover in Chapter 15 (in Duandang) – Also a focus on the Anosmic Emitter, aircon chemicals and earbuds, that has been noted as confusing – simplify and reduce the importance of the AE if possible.
14	Countermand	About to cross the N. Korean/Chinese border, Megan and the Durants need to find their way safely to the Forbidden Emerald City – they quiz Oli Mozcow about the emperor’s plans for Megan, and ask how he planned to get them into China – they use the new earbud technology, combined with the Anosmic Emitter for this. Meanwhile, Cap’n Durant is in charge of inducting new recruits onto the flotilla he has set-up of the coast of Korea/China – the Cap’n is growing restless in his role, and is pleased when the magpies come to him with a new mission from Megan.	1	The earbud/Anosmic Emitter technology has been highlighted as a potential issue – reliance on these emerging tropes may be perceived as Deus Ex Machina – a fatal flaw may be helpful to negate this view, perhaps some side effects? – Cap’n Durant’s scene is okay, but this is the first or second time we might be led to believe the magpie’s intentions could be sinister – more needs to be done to sow this seed in earlier chapters.

Chapter Number	Chapter Name	Chapter Synopsis	Dialogue heavy	Structural edit points
15	Obey Giant 🐼	In Dandong, the Chinese side of the Korean border, we meet other people already influenced by Alpha's version of the Anosmic Emitter, accompanied by PA systems with words playing 24/7 – we meet the Dave of all China for the first time, who is pressing the Yangtze River porpoises into service of the Empire (against the flotilla being amassed by Cap'n Durant of the coast – Oli Mozcow is caught up in some trouble while trying to retrieve the resources needed to get the group to Beijing – James Undertone works out how to make the Anosmic Emitters in China work for them.	6	Consider recounting Oli Mozcow's encounter first hand, rather than by proxy (Megan currently narrates the exchange for comedy value) – Keep the Dave scene as is, it works well – perhaps pay more attention to what James is doing, as it becomes pivotal later on (burning the control over the people of China, while the urban areas burn as well – consider adding the clover at this point (as we will defer from Chapter 13, to a point where we see the clover first hand) which will help continuity for future events.

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⁸⁷ Image taken by the author, showing Tiananmen Square – noted for the PA systems, China 2015

Chapter Number	Chapter Name	Chapter Synopsis	Dialogue heavy	Structural edit points
16	Three-for-a-nũ	Start with a magpie’s eye view of the Forbidden Emerald City – The Dave of China awaits the arrival of Megan expectantly – Megan and the others arrive and begin changing hearts and minds right outside the Imperial Seat of Power – The Dave of all China witnesses this and tries to intervene, but is captured by a foreign demon. The Omega Fleet is halted, just as they are on the verge of taking their final target – caught in a standoff with his own crew, the fleet admiral (currently noted as “captain”) realises the magpies might have been misleading them and twisting Megan’s orders – he takes action that kills some of the giant pandas they’d been sent to retrieve, then is executed himself. Inside the Forbidden Emerald City, things are quiet (Jen POV)	2	Make the Chinese Dave’s plans for Megan more clear (and figure out what they are; probably getting her genetic material and delivering it to the Chinese Bunkers) – Words needs to be uniformly Words or <i>Words</i> , or Words – decide which and replace all with formatting enabled – promote captain to admiral of the Omega Fleet – remember that the admiral is killed at the end of his section, so it must be a new admiral in the later section on the Omega Fleet and this should be acknowledged – the new admiral should be under magpie control in some way. Reconsider Jen’s map-informed approach to the geography of the Forbidden Emerald City.

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⁸⁸ Image taken by the author, showing detailing on the edges of the roof slats in the Forbidden City, China 2015

Chapter Number	Chapter Name	Chapter Synopsis	Dialogue heavy	Structural edit points
17	Four-for-a-nánhái	<p>Megan finds her brother, Alpha, imprisoned by magpies in the heart of the Forbidden Emerald City – her Words do not work on the magpies, but this may be because of the unique flight pattern they are taking – Alpha has been reduced, diminished, drugged and restrained – Megan tries to set him free, but then Cap-in Durant appears with a dead Dave of all China and unleashes chaos.</p> <p>Coordinated by the Chinese Magpies with the help of those leading Pa Durant – a magpie doesn't rhyme with numbers – the magpies use Alpha and Omega's Words against him. Jen sees her father devoured by the magpies – Megan frees Alpha, who reveals how nutritious the clover can be for a <i>Changing</i> werebear, then both become behemoth werebears to fight against the magpie hurricane – Oli Mozcow makes another seemingly miraculous discovery regarding the combustibility of the clover (which engulfs the urban sprawl around Beijing). Megan manages to break the winged barrier – and helps her brother break a barrier of his own.</p>	2	<p>More on the setting as Megan enters the Hall of Central Harmony.</p> <p>Remember to reference the slaughter of porpoises, perhaps the intervention of the Omega Pod, if not now then later. Maybe revisit Jen's immediate reaction to the death of Pa Durant – perhaps it might be better to have her see an obscured figure engulfed by birds – if so, we could cut some of the familial reactions to the death in the subsequent chapter too.</p>

Chapter Number	Chapter Name	Chapter Synopsis	Dialogue heavy	Structural edit points
18	Meep	<p>The Dave of all the World (formerly the Dave of all England, but has apparently been busy since his title was last reviewed) watches his newest acquisition burn. Megan escapes from Beijing in the form of a magpie, her cubified brother clutched in her talons/pounces – the urban areas of China burn, as the genetically modified clover combusts across every road and rooftop – Megan contemplates fratricide, but demurs. James Undertone barely escapes the blaze with his life, a stash of genetic material, and the Anosmic Emitter (which he knows doesn't work on the magpies) – he escapes the magpie search parties, and commandeers a tank converted for firefighting/crowd-control. The surviving Durants make a dash for it along the waterways, along with Oli Mozcow – penguins appear to scupper the Durant's escape, only to be seen off by porpoises – Jen accepts her knew command. The new admiral of the Omega fleet completes the mission set for him by Megan, but it is unclear who is actually in control of her efforts.</p>	1	<p>At present the captain of the Omega fleet has been resurrected – replace with an Admiral (female) formerly the chief engineer of the Omega One.</p>

Chapter Number	Chapter Name	Chapter Synopsis	Dialogue heavy	Structural edit points
19	The Pa Durant	The mighty former Emperor of China, Alpha, has transformed into a panda cub and can't or won't turn back – Jen accepts command of the BiS and, subsequently, Admiralty over the new fleet (created as the flotilla disbands) – Alpha demonstrates a remarkable level of control over Oli Mozcov, even though all his Words can say is “ Meep ” – Megan takes the missing piece of the genetic puzzle (Alpha's DNA) to her new laboratory ship, to try and work out what the Bunkers might be planning – Jen gains panda-person like abilities, when she uploads Megan's lessons through the pilot seat of the BiS. The Dave of all the World reveals a bit more about the spread of the <i>Change</i> – 100% avian infection, compared to 66% in humans.	3	Consider giving a more complete ending – Megan takes Alpha's DNA, mixes it with hers, and figures out a panacea for any possible infection to come (perhaps?). Consider also kicking the Dave and WARREN sections into an Epilogue – make more of the magpies being the only kind of bird left (except, perhaps for other pied avian species) in previous chapters – go back and show all the other types of birds have gone, or become black and white. Braeburn could re-emerge as the forgotten foe, wreaking vengeance on Megan by destroying vital research at the point it comes to fruition – this would add justification to his earlier appearance, and could help secure the creation of the magpies enmity if he acts as their agent.
	Epilogue	In the WARREN we see Charlotte (Jen's lost daughter) revealing how the next wave of infection would spread, and it's going to be spread like (maybe even in) margarine.		Add Gottfried 2.0/Alpha 2.0, and make them behave like Alexa – “Sorry – I don't know what you mean. Did you want me to turn off the lights in Apiary 3?”

After noting the pages with lots of dialogue, I began adding the information to my editing spreadsheet – alongside the existing chapter number/names/synopses. On some occasions I identified ways in which the dialogue could be reduced or modified, but mostly I took the chance to rethink how the chapter needed to read and connect to the work as a whole; in either case, I think I

made great strides toward developing the key points that needed to be inserted on a structural level to make the book more engaging.

Key point one is Megan's relationship with her brother: her super objective is reconciliation with Alpha – helping him mend his ways, convincing him to help humanity instead of crushing it, and bringing him home to his parents – which drives her on throughout the text. To convey this with more emphasis, I need to make Megan consider her brother's early interactions with her more regularly in the text.

Key point two would be the drive for Jen and James to save their daughter, each for their own ends (with "save" being a flexible term), and this would require a number of shared memories – perhaps twisted between each POV – inserted throughout the text at appropriate points.

Key point three comprises the collective intentions of all the magpies. The Dave of all England will spearhead the ambitions of his species, but it must be noted that they intend to survive at any cost. We should indicate earlier in the text that the magpies have their own agenda (without expressing this too flagrantly and too soon).

Chapter V – Othering

In this section I will look at some of the aspects of the "Other" covered during the course of my PhD – including initial inspirations, animal behaviourism, linguistic manipulation and the contextualisation of my work against some more contemporary Science Fiction writers focusing on similar issues (directly or indirectly). Adam Roberts describes Science Fiction as having a "will to otherness" in the introduction to his *History of Science Fiction* – this manifests in both themes of alien encounters and interplanetary travel. The otherness of outer space later turns inward; it becomes the otherness of inner space, of language, of genetics and of mind.

This chapter will also look at the parallels between my own work and that of Terry Pratchett, this time in terms of his SF collaboration with Stephen Baxter rather than his fantasy works, though I did not begin reading the series in question until after I finished the first draft of *Pandatopia* – having been told that my work resembles his previously, even before I had read a single Discworld book, I thought it best not to read his science fiction until after I had a better grasp of my own voice (even if the work in question was likely to be heavily influenced by Baxter).

'The development and maintenance of every culture requires the existence of another different and competing alter ego. The construction of identity...whether Orient or Occident, France or Britain...involves establishing opposites and otherness

whose actuality is always subject to the continuous interpretation and reinterpretation of their differences from us.⁸⁹

The stranger, the outsider, the foreigner, the ethnic minority in any given group – these are the people we will be scrutinising particularly closely as we examine my Pandaverse. Some might think that these figures get plenty of scrutiny already, while some might think that they do not get enough, and this dichotomy is where *Pandatopia* begins. Powerful people looking for a subsection of society to demonise, in order to strengthen their own tenuous grips on power, are often well versed in the techniques of othering. Douglas Black (a rich and powerful industrialist) in Pratchett & Baxter’s Long Earth series, a man with designs on achieving immortality and who uses his great wealth/power to come as close as possible, describes the motivations of those who *other* particularly well here:

‘...It does me no harm at all to cement my reputation with these Next, who seem set to play such a significant role in all our futures. One must ask, you see – who is it who has the most to lose, if some form of *Homo superior* is to walk among us? Oh. It’s not the little fellow with his bit of property and his small dreams. *He* will probably be better off, in a better-run world. No, it’s the powerful and the rich, it is the politicians, the bankers, the industrialists who will find their position at the very top of our society threatened. People like me. After all, the Emperor of all the Neanderthals will have been just another hairy man-ape to the Cro-Magnons, won’t he?’⁹⁰

People who believe that the scapegoating of innocent parties might sometimes be justifiable if it helps maintain public order, have gained footings in our own society – both in our political establishments and in our media outlets. When faced with an uncomfortable fact that challenges their position, such people tend to ask: “Yeah, but what about [BLANK]?” This is a chapter that began when I first started thinking about the differing opinions I encountered in my dual-life as an academic, when compared to those I encountered as the manager of a public house (at various times and in diverse rural locations). This is more of the level of general background prejudice, than the coordinated othering engaged in by the state, but it is the result when little fellows are told that foreigners are trying to destroy their small dreams (on an almost daily basis) that helps stoke the fear of the other – until it erupts in dangerous and unpredictable ways.

When I began working on my panda novels, we were living in a pre-Brexit referendum era. An era where this type of vote was merely on the wish list of the most conservative thirty percent of our population and, even now, would only take second or third place next to restoring the death penalty and caning kids in schools for most of these reliable voters. When I began working on

⁸⁹ Said, Edward, *Orientalism*, Routledge & Kegan Paul Ltd., UK 1978, this ed. 1995, p332

⁹⁰ Pratchett, Terry, & Baxter, Stephen, *The Long Cosmos*, Doubleday 2016 – Corgi (UK, 2017), pp388-389

Pandatopia, just before the general election that would make the Brexit referendum inevitable, I already knew how things were going to go. I had seen how saleable Euroscepticism was proving in rural communities in the South East, South and West, and could anticipate how well it must be doing elsewhere. Many of the stories I worked on during my time studying creative writing have looked at the underlying currents of racism infecting the English countryside – areas largely untouched by the benefits of multiculturalism but afflicted with far-right double-think ideas, ideas about immigrants “sponging” off our generous welfare system while simultaneously stealing the jobs of hardworking natives. The Brexit vote turned my fiction upside down when it brought such prejudices into the mainstream, and I know that I am not alone in this respect:

Just as this issue was being put to bed, along came the EU Referendum, and I was reminded of Harold Macmillan’s alleged comment regarding ‘Events, my dear boy, events’. Brexit dominated the conversations and several of the papers at this year’s SFRA conference in Liverpool – as many of the delegates remarked, sf writers and critics are probably best placed to consider the dystopian and apocalyptic effects of the result.⁹¹

The massive inequality chasm, still widening between the generations in our country, has a large part to play as well; only now the difference in fortunes has become a secondary concern to the younger people in our society, as they witness the older folk arbitrarily voting to take away the freedoms and opportunities that the elders have enjoyed for most (if not all) of their own lives.

Our children might not be out to get us, but the fear that *they might be* is nothing new – and mythology is packed with unwary gods who were displaced by their progeny in the goriest of ways. Notably: Cronus castrates his father, Uranus, and deposes him – then eats his own children out of the fear they might seek to do the same to him – eventually being defeated in turn by his son Zeus. In SF, the concept of othering is applied to children in the second chapter of *1984*, with othering of both the children in the text and the children othering adults in turn:

With those children, he thought, that wretched woman must lead a life of terror. Another year, two years, and they would be watching her night and day for symptoms of unorthodoxy. Nearly all children nowadays were horrible. What was worst of all was that by means of such organizations as the Spies they were systematically turned into ungovernable little savages, and yet this produced in them no tendency whatsoever to rebel against the discipline of the Party...All their ferocity was turned outwards, against the enemies of the State, against foreigners, traitors, saboteurs, thought-criminals. It was almost normal for people over thirty to be frightened of their own children.⁹²

⁹¹ March-Russell, Paul, ‘Editorial’, *Foundation: The International Review of Science Fiction*, Vol 45.2, No 124, Science Fiction Foundation, 2016, p3

⁹² Orwell, George, *Nineteen Eighty-Four*, Martin Secker & Warburg Limited, (UK 1949, this edition Twentieth Century Classics 1970), p28

We have seen the exact same language as Orwell uses here – language lifted from recognised propaganda pieces of the period – adorning the headlines of our tabloid press channels in the wake of Brexit, and often focusing on the generational divide between the two voter bases. It is no secret that younger generations voted against Brexit, while the elder ones voted in favour – promoting further dissatisfaction with the status quo from the youth, and heightening the fears of the old.

Such fears are even observable on an instinctual level throughout the natural world. The silverback always watches the juvenile males, alert for the first indications of sexual maturity, wary of posturing that might be construed as a challenge and noting the new alliances being forged within the troupe; alphas always keep the betas at bay, maintaining the hierarchy of the pack through scenting and shows of strength, while the omegas scavenge at the scraps left behind by the in-crowd; in ant colonies and bee hives both, there can be only one queen, and the hive mind may decide to create a challenger the moment it begins to doubt itself. Though the next section will begin with the othering of humans, starting out with metaphors about humanity and mutation found in comic book fiction, the section after will focus on the ways humans can other animals and contrast this with our tendency to anthropomorphise them as and when it suits us.

[Chapter VI – Marvel & Vertigo](#)

Graphic novels have influenced my work significantly. The meteoric impact of Neil Gaiman’s *Sandman* series, in particular, has left some pretty notable craters in my work – as have innumerable other satellite titles, also under the DC Vertigo imprint, including: *Sandman Mystery Theatre*; *The Dreaming*; *The Sandman Presents*; *Lucifer*; *Hellblazer*. Another Vertigo title that has helped shape my panda-verse is Bill Willingham and Mark Buckingham’s *Fables* series – with accompanying spin-offs, *Fairest* and *Jack of Fables*. Vertigo also delivered three other significant titles that have contributed in varying degrees to my work, and these include: *Y: The Last Man*; *Preacher*; *Transmetropolitan*. The first comics I ever read faithfully were the various *X-Men* series (pre-Ultimate Universe), from the Marvel imprint, though I read all of these before beginning my studies at the University of Essex.

I consumed hundreds or, more probably, thousands of individual comic books en route to creating my panda novels – which will make it difficult to adequately reference every single aspect of the sway they have held over my work. In the following sections, I will attempt to delineate in broad strokes the primary points of confluence. It is important to note that the Vertigo graphic stories were all read during my studies at the University of Essex – while, in my childhood or adolescent years, I almost exclusively favoured the various Marvel comics, with *Uncanny X-Men* being a particular focus. Though, undoubtedly, the various iterations of mutant X-heroes have also had a quite overt influence on my work – I believe this can be summarised rather swiftly, here and now,

before we delve into the more mature aspects of graphic fiction represented by my Vertigo readings from 2013 onwards.

When talking about the inception of the X-Men, Stan Lee reportedly claimed (retrospectively) that:

I couldn't have everybody bitten by a radioactive spider or exposed to a gamma ray explosion. And I took the cowardly way out. I said to myself, 'Why don't I just say they're mutants. They were born that way.'⁹³

Though I have only picked up this piece of trivia from Wikipedia, I have reason to believe that – based on other statements Mr Lee has made on the record over the years – that this is an accurate representation of what the Marvel Editor Emeritus once said. The late-great Stan Lee, through his almost genre-defining asides to the audience in golden-age comics and later continued by his cameos in the blockbuster Marvel film franchises, has become the effervescing embodiment of a “Signal from Fred”⁹⁴. I have come to recognise such messages in my own work as any point where a character poses a question that might shake the foundations of the audiences’ suspension of disbelief. I hope that, as a result, I have also become more attuned to my own use of self-destructive reflections in my work. Though I note that Stan Lee’s fourth-wall busting appearances only ever augmented the experience for his fans in his movies, and that many other quotes from him could render the one used above meaningless, to me it also seems like a subconscious recognition that many of the origin stories he created were pretty nonsensical. I also recognise that I am not Stan Lee and have created far fewer blockbuster films/cult comics and characters to date.

Another insight from X-Men co-creator Jack Kirby, strongly ties into the thinking of more contemporary viewpoints of inter-species coevolution and co-dependency in a human/meta-human shared environment:

Of course, it was the natural thing to do, instead of disorienting or alienating people who were different from us, I made the X-Men part of the human race, which they were. Possibly, radiation, if it is beneficial, may create mutants that'll save us instead of doing us harm. I felt that if we train the mutants our way, they'll help us – and not only help us, but achieve a measure of growth in their own sense. And so, we could all live together.⁹⁵

⁹³ Lee, Stan, *Archive of American Television*, March 22, 2004 – retrieved 4 January 2015 and posted on Wikipedia - https://en.wikipedia.org/wiki/X-Men#cite_note-1 – accessed 23/11/2018

⁹⁴ Knight, Damon (attributed), ‘A comic form of the Dischism in which the author's subconscious, alarmed by the poor quality of the work, makes unwitting critical comments: “This doesn't make sense.” “This is really boring.” “This sounds like a bad movie.”’ – Sterling, Bruce, *A Workshop Lexicon*, last accessed 17 December 2018 here: https://smorgasborg.artlung.com/Sterling_SF_lexicon.shtml

⁹⁵ Kirby, Jack, “Conversations with the Comic Book Creators,” - Pitts, Leonard, US 1987, published on *The Kirby Effect: The Journal of the Jack Kirby Museum & Research Centre*, 6 August 2012, last accessed 17 December 2018 here: <https://kirbymuseum.org/blogs/effect/2012/08/06/19867-kirby-interview/>

The idea of humanity dominating or domesticating all other species on Earth is a fundamental Biblical trope – Genesis 1:26-28 – an idea which overlays a supreme deity with our own human image, in order to reinforce our collective and immortal delusion of inherent genetic superiority whilst also supplicating our predilection toward mortal self-doubt on an individual basis.

The argument of education over suppression is the strongest theme throughout the X-Men books, where a benevolent demigod figure aims to bring his peers around in the spirit of cooperation and coexistence – while his principle antagonist (and sometime ally) pursues world domination on behalf of mutant-kind, in order to secure and preserve their existence. I always had difficulties accepting Professor X as a hero; anyone who can access the thoughts of all those around him would never have to study to pass exams, for a start, and professorial status must be easy to gain in a school you open and run yourself. It also struck me that Charles Xavier only opened his gates to the most select of his subspecies, while Magneto’s Evil Brotherhood of Mutants welcomed all. It has been noted that the X-Men pantheon owes a great deal to the already established “Homo superior” in Olaf Stapledon’s *Odd John*:

Much like Professor X who builds a haven for his fellow mutants, the main character John has telepathic powers, and finds a colony of other Superhumans whom he protects from humans with his psionic abilities. This telepath coins the term homo superior, much like Magneto does in the first issue of X-Men, 1963 by Jack Kirby and Stan Lee.⁹⁶

Indeed, other readings draw closer parallels between John Wainwright and Magneto than to Charles Xavier, pointing out:

Stapledon does a fine job of exploring the moral complications that might arise for a person who is clearly superior to those around him, and John is not afraid to kill in order to achieve his goals. Like Professor X, Odd John gathers his fellow mutants to live and learn together. But unlike Professor X, he has no interest in helping the world. Instead, like Magneto and the Brotherhood of Evil Mutants, John establishes a secret hideaway on an undiscovered island and designs a cloaking system to hide it from discovery. His plans falter, however, and when the island is discovered by Homo sapiens conflict is the only possible outcome.⁹⁷

Another parallel was drawn by Seo-Young Chu in her recent book, *Do Metaphors Dream of Literal Sleep*, when she likens the South Pacific island hideaway in *Odd John* to “the fictional island of

⁹⁶ Grand, Alex, *The Influence of Pulp Fiction on the Golden and Silver Age of Comic Books*, CBH.com, Copyright 2018, last accessed 17 December 2018 here: <https://comicbookhistorians.com/the-influence-of-pulp-fiction-on-the-golden-and-silver-age-of-comic-books/>

⁹⁷ Reece, Gregory L., *X-Men ex nihilo? The Secret Origins of Marvel’s Mutant Superheroes*, popmatters.com, 10 September 2015, last accessed 17 December 2018 here: <https://www.popmatters.com/x-men-ex-nihilo-the-secret-origins-of-marvels-mutant-superheroes-2495490034.html>

Genosha, which first appeared in 1988 in *Uncanny X-Men* #235, [and] serves for a time as the site of a mutant nation.”⁹⁸

During the earliest part of my PhD investigations, I was working as a Marketing & Public Relations Officer for Redbridge College – a vocational training provider in East London. The X-Men / Brotherhood disparity never seemed more pronounced for me, personally, than when I was seeing the metaphor in action. In Cold-War America, the American Dream was at odds with the economic reality of the period – the first X-Men comic (*Uncanny X-Men #1*) was published on the 1st of September 1963, almost a year after the Cuban Missile Crisis. Capitalism vs. Communism could be equated, in theory, to the control of a national economy gripped tightly in the hands of the elites or being surrendered to the whims of wider society – both with manifest downsides. This link to the Missile Crisis was driven home in the 2011 reboot film *X-Men: First Class*, which featured the incident itself toward the end as a backdrop for the mutants own power struggle – once again classing the petty squabbles of Homo sapiens as something that Homo superior would barely notice.

The issues of *Haves vs. Have Nots*, seemed just as pertinent in the UK in 2013, as bickering politicians played politics with the education of millions across the UK. At Redbridge College we were struggling against a tide of anti-vocational sentiment, stoked by political forces, and accompanied by a range of Government cuts/initiatives designed to advance academic A-Level qualifications at the expense of vocational BTECs & NVQs. After a severe downturn in admissions, I spearheaded a campaign built around the idea that A-Levels were “not for everybody” and inferring that BTECS might be better for some; I commissioned a range of late-capture rich-media adverts along the theme of, “Have you been abducted by A-Levels?” This played upon the reduction in careers advisors across London schools, coupled with the drive toward more academic courses led by the national government of the day. This campaign had a measurably significant level of success. I created the latter chapters of *Pandaemic* simultaneously – with the intelligentsia of the text moving beyond the educational control of Homo sapiens and into the fundamentals of what we, as a people, are willing and able to do to get by. In *Pandatopia*, I began by focussing on the effect that a dramatic shift in learning aptitudes for half the population might have on those left behind. A large part of this played upon the aspects of othering which are pervasive in our own societies, and would likely persist if we were living alongside people of a whole different species (and not just different ethnicities). The X-men helped me to develop ideas about how humanity might react when forced to live in the shadow of super humans, whilst anthropological fiction like Jean M. Auel’s *Clan of the*

⁹⁸ Chu, Seo-Young, *Do Metaphors Dream of Literal Sleep: A Science-Fictional Theory of Representation*, Harvard University Press, (US/UK 2010), p118

Cave Bear helped me consider what it might have been like for other Hominin species trying to survive next to us.

Chapter VII – Matthews, Magpies and Meeps

The first Matthew in this section (De Abaitua, my PhD supervisor) recently alerted me to a viral video that surfaced in 2011, and has been circulating around social media ever since; a scene from a documentary showing Baboons in Saudi Arabia apparently stealing puppies to raise them as pets⁹⁹. A little further research led me to an article in *Psychology Today*, by Hal Herzog PhD, who doubts the motives of the baboons in the clip and notes he previously proposed that “humans are the only species who keep pets” in another article. Herzog first suggests that it might be possible that the baboons were developing a symbiotic relationship with the dogs, as the narration suggests:

Thankfully, in the next scene, the dogs and baboons are peacefully hanging out as the God-voiced narrator claims baboons now consider the dogs part of their family. They groom the dogs, and the dogs happily eat, travel with, and sleep among the baboons. As the cinematic sun sets in the background, the narrator sagely explains that both species benefit from the relationship. The baboons' dogs chase off wild dog packs. In return, the baboons treat the dogs, well, "like family pets."¹⁰⁰

Herzog then continued to pose a number of questions about the apes' apparent advances in the field of intentional domestication, citing a number of other researchers in related fields that had been contacted for the article, showing that he remained sceptical about the idea. This clearly continued to irk him over the next four years, as in 2015 he wrote a rebuttal to his original article that featured an expert testimony from a recognised baboon researcher:

Adolescent and adult males kidnap baboon infants (as buffers against aggression in olive baboons) and baboon juveniles (as a new member of a male's harem in hamadryas baboons). In the clip, the puppy's distress is similar to that of a kidnapped baboon infant in olive baboons...I assume that if the feral group of dogs at Taif were to move off separately, the puppy could be isolated among the baboons, but it would be unlikely to survive without a source of milk for the young pups. We don't see any puppies grow up [with baboons] in the video, only mixed groups of baboons and dogs as adults...This is definitely NOT pet keeping from the baboons' point of view. Interacting with other species sometimes happens, and if the two species spend a lot of nonaggressive time together you could have play and grooming as well from the baboons to the dogs.

⁹⁹ Viral clip – <https://www.youtube.com/watch?v=U2ISZPTa3ho> – originally *Animals Like Us*, by Saint Thomas Productions, 2004-2006, last accessed 30 November 2018, here:

<https://www.youtube.com/watch?v=QbzrVpIpSIE>

¹⁰⁰ Herzog, Hal, “A Scientific Mystery: Do Wild Baboons Kidnap Puppies for Pets?” posted on PsychologyToday.com on 21 December 2011, last accessed on 30 November 2018, here:

<https://www.psychologytoday.com/intl/blog/animals-and-us/201112/scientific-mystery-do-wild-baboons-kidnap-puppies-pets>

Though the expert opinion seems to dispute the narrator’s interpretation of the scene, it is unlikely to change the minds of the people who have since seen it and already decided to superimpose human traits on to the recorded apes. Projection of the familiar on to the other is how we often achieve our understanding of the world – the idea that what makes us similar is what brings us together – whilst when we focus on what makes us different we are usually trying to push the others away. In *Pandatopia* I wanted to take this dichotomy and explore it more thoroughly through the different viewpoints of my human, post or meta-human, and animal characters.

Magpie appearances in folklore and fairy tale around the world are plentiful – as are usages of their near cousins, ravens and crows – always depicting them as creatures of intelligence as well as auguries. The magpie counting rhymes, passed down in the UK with regional and generational differences, became the basis for the magpie language I used in my work. The close relation of magpies and mathematics also appears in rhymes from Peking collected over a century ago by an Italian diplomat, and helped me establish a linguistic difference between European and Asian magpie cultures. Magpies are recognised as one of the most intelligent birds, alongside other corvids, second (possibly) only to certain types of parrot. Experiments on magpies have demonstrated conclusively that they are able to recognise themselves in mirrors, meaning that they have been able to reach Jaques Lacan’s “Mirror Stage” of development and achieved apperception of the self – perhaps giving some insight into their reported (if possibly apocryphal) attraction to shiny things. Aesop’s “Crow and Pitcher” fable has led to full-fledged scientific observations aiming to quantify the extent that corvids understand water displacement – though no Archimedes style Eureka Event has been perceived, the birds have certainly exhibited the ability to use simple tools to facilitate water extraction from an otherwise unreachable source¹⁰¹. Another Aesop’s Fable is “The Peacock and the Magpie”, wherein a magpie derails the chances of the prettiest bird being crowned king with a single well-chosen question about the peacock’s lack of viable defence policy. This early micro-fiction example paints the magpie as smarter than the average bird, deflecting concerns about predators away from itself and projecting them directly on to the other (more notorious) birds of prey – playing on the fears and prejudices of the majority, as any astute politician would do.


Magpies are also known in folk wisdom as unrepentant and opportunistic thieves of considerable enterprise. Though the idea that they steal shiny things has been called into question

¹⁰¹ Jelbert, Sarah A., Taylor, Alex H., Cheke, Lucy G., Clayton, Nicola S., Gray, Russell D., “Using the Aesop’s Fable Paradigm to Investigate Causal Understanding of Water Displacement by New Caledonian Crows”, Published 26 March 2014, *Plos One*, last accessed 30 November 2018, here: <https://doi.org/10.1371/journal.pone.0092895>

by a recent academic investigation¹⁰², which was immediately hailed by media outlets in the UK¹⁰³ as conclusive proof that magpies have been vindicated from centuries of unjustified besmirching, but magpies have also been proven to deserve their master-thief accreditation through studies of their food hoarding/cache raiding behaviours amongst themselves¹⁰⁴.

Members of the corvid family have been known to watch other birds, observe where the other birds hide their food, and steal it once the owner leaves. They also move their food around between hiding places to avoid thievery, but only if they have previously been thieves themselves. Cache robbing is common. Knowing the character of their compatriots (through their own mischievous efforts), a magpie often makes several false caches before making a real one. They use their own experience of having been a thief to predict the behaviour[sic] of a pilferer, and can determine the safest course to protect their caches from being pilfered.¹⁰⁵

They might not be inclined to steal silver or gold, but they will certainly steal seeds (as will most corvidae, hence the need for scarecrows) from other birds' caches, and they will use their knowledge of thieving to prevent theft from their own stashes – just like humans do, using conceptual thinking of doing unto others before they do unto us.

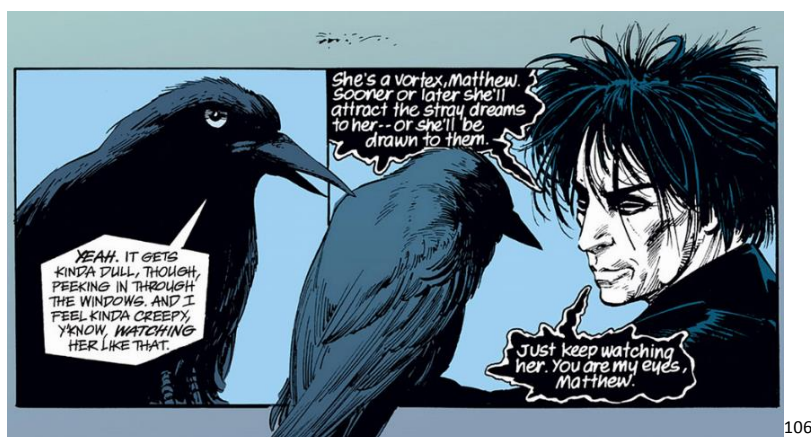
Though their intelligence was what first drew me to use magpies as viewpoint characters, it was kismet that they also happened to be largely monochrome creatures – just like pandas. I was also largely swayed by the way I had seen birds used as characters in Neil Gaiman's *The Sandman* series. The second Matthew in this section is the pet raven of lead character, Dream, in *The Sandman*. Matthew Cable, a character who died in another DC comic (*Swamp Thing*) and was resurrected as a creature of "the Dreaming", inspired me quite a lot. Originally, when I presented my own magpie characters, I adopted a similar technique to the one employed in the graphic novels: all of the magpie dialogue in my text was written with the  font (or an analogous font).

¹⁰² Shephard, T.V., Lea, S.E.G., Hempel de Ibarra, N., "The thieving magpie? No evidence for attraction to shiny objects", *Animal Cognition*, Volume 18 Issue 1, January 2015, pp 393-397, last accessed 30 November 2018, here: <https://link.springer.com/article/10.1007%2Fs10071-014-0794-4>

¹⁰³ Nicholls, Henry, "The Truth About Magpies", published online by the BBC *Earth* series, on 8 April 2015, last accessed on 30 November 2018, here: <http://www.bbc.co.uk/earth/story/20150408-the-truth-about-magpies>

¹⁰⁴ Kaplan, Gisela, *Australian Magpie: Biology and Behaviour of an Unusual Songbird*, CSIRO Publishing, (Australia, 2004), p27

¹⁰⁵ Eirich, Susan B., "The Intelligence of Crows and Magpies", EarthFireInstitute.org, 2018, last accessed 30/11/2018, here: <https://earthfireinstitute.org/story/the-intelligence-of-magpies/>



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Only after my earliest drafts did I realise that this was not sufficient to make the character interesting, without the benefit of an established backstory and pictures – the font also messed up my formatting horribly. When I was searching for a way to make the Magpie characters more identifiable, whilst separating them further from mere facsimiles of human characters in magpie form, Matthew the raven gave me an idea to make this possible:



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I was already overtly familiar with the superstitions surrounding magpies – I had a younger relative who used to salute every lone magpie they saw, I believe to ward off any potential sorrow, and recite their version of the *rhyme* whenever they saw any given number of magpies (from two to ten),

¹⁰⁶ Gaiman, Neil, “Moving In”, *The Sandman*, Issue 11, DC Vertigo, p10 - this image accessed 01 December 2018, here: <https://thenightling.tumblr.com/post/175142084343/matthew-cable>

¹⁰⁷ Gaiman, Neil, “The Parliament of Rooks”, *The Sandman*, Issue 40, DC Vertigo, p8 – this image accessed 01 December 2018, here: <https://thenightling.tumblr.com/post/175142084343/matthew-cable>

punctuating our childhood outings together – but I had never previously considered how magpies might see us, on this same basis. The raven Matthew was a human reincarnated in the body of a corvid; my magpies are corvids who are smart enough to communicate with humans on our own level, having seen what humans are capable of and adjusting their patois to something that might put us all at our ease. My magpies are not human, they never have been and they never will be, they are something entirely “Other”.

“Meep” remains the cutest possible sound any creature can make, and I first learned this fact in *The Sandman* series. When something as manifestly ugly and unlovable as a gargoyle can be endowed with the cuteness of a kitten, merely through the application of the word “meep”, then you know the author is on to something.



The difference between Goldie the Gargoyle in *Sandman*, and the character I applied the affectation to in *Pandatopia*, is that Goldie is innately good despite looking a little weird. Alpha, on the other hand, is almost preternaturally evil; despite appearing adorable like any standard tiny panda cub. Though I may have lifted the sound from *The Sandman*, I was only reminded of it while living in Brighton on the day a baby herring gull fell off of our roof and on to our balcony; its pathetic meeping cries made me feel immensely sorry for it, and I ended up naming it “Gulliver” then providing bowls of water and pieces of fish. Much as I dislike adult gulls, I can attest to how effective a survival strategy meeping can be.

¹⁰⁸ Gaiman, Neil, “The Doll’s House”, *The Sandman*, Issue 10, DC Vertigo, p10

Most humans are born knowing how to use vocalisations to influence the emotions of those around us; a notable survival trait for creatures who are unable to support the weight of their own heads for the first six months of life. Using only screeching, a baby is able to manipulate its caregivers into providing sustenance, succour, sanitation and sleeping facilities. Scientists have also noted similarities between the frequency of baby cries and the vocalisations of domestic cats¹⁰⁹, implying that the cat's meow might really be outstanding as a device for manipulation. Similarly: puppies make cuter sounding vocalisations (to human ears) than adult dogs, being more high pitched and less abrasive than an adult bark, but can and will continue to make puppy sounds as they mature if they realise the positive effect on the humans around them. Conversely: one study has also shown that adult humans use “dog talk” or “dog directed speech” when addressing puppies, to sooth and cajole (much as we do with our own young and “baby talk” or “infant-directed speech”), and that dogs react positively to this affectation¹¹⁰. Another study seems to indicate that dogs react less positively to dog-directed talk as they age (just as with maturing human children), but both indicate that dog-directed and infant-directed speech have clear similarities, both using higher pitch and sing-song tones, but are distinct from one another; baby talk has the added intention of teaching language, so employs exaggerated intonation, while this is not the end goal with dog talk.¹¹¹ Domestic kittens will meow to their mothers while young, but as they age they do not meow to each other – only to humans¹¹². In *Pandatopia* I used a combination of these ideas when exploring the viewpoints and communication systems of the different animal species, particularly how they adapt when interacting on an interspecies level when compared with exchanges amongst themselves.

[Chapter VIII – Smartphones](#)

When it came to considering how the intellectually superior *Changed* people might communicate with one another, I wanted to convey a couple of principal points. Firstly: that mere words were no longer enough – that their ability to process information so rapidly had made ordinary human conversation too slow and frustrating. Secondly: that a *Changed* language should sound largely unintelligible to *unchanged* human ears, being on a level that defies our understanding, though with

¹⁰⁹ Peeples, Lynne, “Manipulative meow: Cats learn to vocalize a particular sound to train their human companions”, Blogs.ScientificAmerican.com, USA, 13 July 2009, last accessed 7 December 2018 here: <https://blogs.scientificamerican.com/news-blog/the-manipulative-meow-cats-learn-to-2009-07-13/>

¹¹⁰ Benjamin, Alex & Slocombe, Katie, ‘Who’s a good boy?!’ *Dogs prefer naturalistic dog-directed speech*, “Animal Cognition”, University of York, UK, May 2018, Volume 21, Issue 3, pp 353–364, last accessed 7 December 2018 here: <https://link.springer.com/article/10.1007%2Fs10071-018-1172-4>

¹¹¹ Daley, Jason, *Why Puppies Love Baby Talk*, “Smart News”, SmithsonianMag.com, 11 January 2017, last accessed 7 December 2018 here: <https://www.smithsonianmag.com/smart-news/why-puppies-love-baby-talk-180961755/>

¹¹² Uncredited, *Meowing and Yowling*, “Common Cat Behaviours”, the ASPCA.org, last accessed 7 December 2018 here: <https://www.aspc.org/pet-care/cat-care/common-cat-behavior-issues/meowing-and-yowling>

practice we might be able to pick out a few words here and there (much as a dog might develop the understanding of a limited human vocabulary, without being able to use the speech, but to recognise relevant signifiers over time). I wanted to avoid telepathy, while still suggesting a technically advanced step forward from present day human communications.

I began building to this in the first book, *Pandaemic*, and initially linked the new language of the *Changed* to mathematic principles and shared experiences – after alluding to the fact that the *Changed* were remarkably efficient when it came to learning extant human languages. The first new languages began to develop out of a drive to avoid surveillance, pioneered by the group of English primary school children abducted by Doctor Gottfried (the antagonist in *Pandaemic*) and imprisoned in a subterranean bunker called the WARREN. This also tied into the idea that it is easier for our brains to adapt to new languages while we are young, explaining how the *Changed* Doctor Gottfried was not able to keep up with the rapidly evolving languages, and also drawing parallels with the exclusionary behaviour incorporated into some children’s playground games or behaviours like cyberbullying. They started off with a written language, rather than an audible one, and it mixed text-speak with emojis to circumvent keystroke or screen monitoring. This emoji-rich typed language was inspired by reports about how young people adapt their messaging habits to avoid intrusions by their parents, consciously twisting the meaning of words and collectively deciding on universal meanings for symbols within their peer groups, and disseminating these codes on platforms that older generations do not use (or understand). These behaviours are observable in the youth of today, having largely grown up under the highest levels of normalised surveillance humanity has ever experienced and adapting to their situations in a way their parents are generally ill-equipped for. As I moved into the second book, *Pandatopia*, the emoji language lingered only in the titles (of the first draft at least), including: “1. The 🌩️ have 👁️” <skies have eyes>, and “2. The 🐼-in-Straitjacket” <Panda-bear-in-Straitjacket>.

The concept of “Chinese Whispers” was incorporated into the spoken iteration of their language, which remained contextual in nature – with the use of shared experiences to define concepts, rather the use of definitive words. For example: “Remember what you and Ryan did in the lunch hall, when Miss Bodeen told you off?” could actually mean “Shall we try pulling the fire alarm?”, but would only be decipherable to someone with that shared life experience. In this way, the shared popular culture of any given generation might include a wealth of references that older generations never accessed. I devised this concept based on the conversations I have had with people who watched certain TV shows (like “Star Trek” or “Futurama”) as religiously as I did growing up, where the phrase “remember the Prime Directive” could be interpreted as a subtle warning not to get involved when aimed at another Trekkie; these insider references typically elicit only blank

expressions from the uninducted, or prompt the question: “What’s that from?”. I note now that this is also a common trope in film/television, where one character is trying to tell another character to take/not take an action covertly, without the other characters realising – at least until it is too late to prevent the result – but this only really occurred to me after I drafted my text. This exact reference also appears in Pratchett & Baxter’s final *Long Earth* book, a coincidence I encountered after first making this point: “Lobsang and Joshua exchanged a glance. ‘The Prime Directive,’ said Joshua. ‘He’s right. *That’s* why we received the Invitation just now.’”¹¹³

It occurred to me that the language developed by the children in the WARREN was unlikely to develop independently in the same way in the world outside, but that a similarly exclusionary communication system was still likely to develop as the *Changed* panda people sought ways of exchanging ideas more efficiently and as they tried to hide what they were saying from the *unchanged* humans. When we enter the world of *Pandatopia*, ten years after the events in *Pandaemic*, the *Changed* languages have diverged into *Pandanese* and *Pandarin* – playing on Cantonese and Mandarin – and are described only by *unchanged* witnesses to panda people conversations. I did not make the differences between the two languages clear, as the viewpoint characters do not understand the differences, and I leave open the possibility that these are merely pejorative terms born of fear and deployed only by the humans. Indeed, the panda people may not have any particular name for their constantly evolving speech system, simply because their language is evolving constantly and alters based on the relationship between those using it.

When reading the *Long Earth* series, co-authored by Stephen Baxter and Terry Pratchett, I found that the ideas of sub/post and meta-human communication had been considered at length throughout the multidimensional environment in their texts. In the *Long Earth* we find that humanity has only evolved on our (Datum) Earth, while in the myriad of other realities different Homo offshoots have been allowed to develop – the inference being that Homo sapiens were not around to wipe them out prematurely. One species, dubbed “Elves” and seeming most akin to ourselves of the other races, uses speech to communicate with one another and are even able to learn English in some instances. Another species, dubbed “Trolls”, uses a type of multi-dimensional song known as “the Long Call” to communicate with their fellows across realities. The Long Call can apparently include recognisable human songs, but has a deeper level of meaning to the Trolls; it allows them to exchange knowledge collectively, as a species, on a level that might be comparable with ideas about genetically transmitted/instinctive knowledge. This idea is something I wanted to include for the *Changed* in my texts, with knowledge and learning passed from parents to children

¹¹³ Pratchett, Terry, Baxter, Stephen, *The Long Cosmos*, Doubleday 2016 – Corgi (UK, 2017), p380

on a genetic level, with each generation born already knowing what their parents knew instinctively. This idea was also employed in *Children of Time*, and was the basis of the spider-society's rapid development and evident success. When the *Long Earth* books produce the next stage in humanity's evolution, who dub themselves "The Next", they begin to show a combination of these ideas as well – born with the ability to communicate, in a way similar to the Trolls, and adapting a sped up version of human speech called "quicktalk".

And save for the way they spoke to each other continually, a kind of high-speed jabber that sometimes sounded like compressed English, sometimes like the baby-talk produced by Paul's sister Judy all those years ago, which Joshua still vividly remembered. Joshua could understand barely a word.¹¹⁴

The Next also demonstrate a preternatural ability to read ordinary human's emotions and influence their actions – in a similar way to my own panda people, as well as the more direct control exerted by the **Words** of Omega when augmented with the Anosmic Emitter technology.

'And the damnedest thing is that some of us, the crew, were *helping them*...They can read you like a book – hell, before they rose up I once tried playing poker with 'em and they cleaned me out...It was like they could read your mind. And they set everything up so smart, when they rose up they had got hold of almost everything before we even knew what they were doing.'¹¹⁵

The Next exhibit an almost casual cruelty, born of the indifference they feel towards their genetic precursors, which the humans seem to welcome while in their presence; an effect the authors liken to the "glamour of the elves", again from European folklore. Casual cruelty was another inspiration point for the panda people in my work, an extrapolation of the sense of superiority they are endowed with taken to its logical conclusion – much as it is with the Next, and Wyndham's telepathic "Children" in *The Midwich Cuckoos*.

'...we have lived so long in the garden that we have all but forgotten the commonplaces of survival. It was said: *Si fueris Romae, Romani vivito more*, and quite sensibly, too. But it is a more fundamental expression of the same sentiment to say: If you want to keep alive in the jungle, you must live as the jungle does....'¹¹⁶

The above are the closing lines of *The Midwich Cuckoos* and demonstrate that a new branch of evolution appearing in the midst of Homo sapiens better to everything it can to avoid our detection, in order to evade our wrath. This also links back to the actions of Odd John, who sought to hide from Homo sapiens and was ultimately drawn into conflict with them as a result.

¹¹⁴ Pratchett, Terry, Baxter, Stephen, *The Long Mars*, Penguin Random House 2014 – Corgi (UK, 2015), p260

¹¹⁵ Ibid, p310

¹¹⁶ Wyndham, John, *The Midwich Cuckoos*, Michael Joseph 1957, this ed. Penguin (UK, 1975), p220

The changeling Children of Midwich might be a projection of fears about the threat from within, against the backdrop of the Cold War this seems likely to relate to Communism, and the othering of our own children brought about by sinister external forces and pervasive alien ideas. This parallel was perhaps more pronounced in *Odd John*, where the concept of communism is raised in far more specific terms by the title character:

“Yes.” Said John, laughing, “Comrades, you have the wrong approach. Like you, we are communists, but we are other things also. For you, communism is the goal, but for us it is the beginning. For you the group is sacred, but for us it is only the pattern made up of individuals. Though we are Communists, we have reached beyond Communism to a new individualism...In many ways we admire the achievements of the New Russia; but if we were to accept this offer we should very soon come into conflict with your Government. From our point of view it is better for our colony to be destroyed than to be enslaved by any alien Power.” At this point he began to speak in Russian, with great rapidity, sometimes turning to one or other of his companions for confirmation¹¹⁷

The apparent surface insignificance of Midwich, seemingly designed to conjure the image of a nowhere village in middle England and in keeping with the “cozy[sic] catastrophe”¹¹⁸ elements of Wyndham’s work, serves as a contrast to the world changing nature of the cuckoo’s emergence. The “wich” in the name could give the village more significance, as my supervisor pointed out – linking to the supernatural elements of “witches”, being half way between actual and supernatural, conjuring connotations of the uncanny and weird. On this basis, I would also postulate that the witch-hunts of western Europe – being particularly notable in East Anglia in 1645-46, during the time of Witchfinder General Hopkins (another Matthew) who had 19 witches hanged in Chelmsford (where I currently live) on a single day – are synonymous with persecution of otherness in our midst, and may make Midwich a far more pertinent setting choice than I had initially thought. When the Next emerge, also in relatively small numbers in *The Long Mars* book, they begin banding together to strengthen themselves against the superior number of inferior intellects surrounding them and seeking to do them harm – as do the mutants in *Odd John*. They also realise the importance of keeping communications open with their human neighbours, even as they hide from them in a remote parallel Earth (or Earths) they call “the Grange” – a deliberate reference to The Grange in *The Midwich Cuckoos*, where the hive-minded Children lived and were ultimately destroyed at the hands

¹¹⁷ Stapledon, Olaf, *Odd John*, E. P. Dutton & Company, Inc. (UK, 1936, this ed. Dover, USA, 1964), p151

¹¹⁸ Aldiss, Brian W., *Billion year spree: the history of science fiction*, Weidenfeld & Nicolson, (UK, 1973), summarised here: “Story in which horrific events are overwhelming the entirety of human civilization, but the action concentrates on a small group of tidy, middle-class, white Anglo-Saxon protagonists. The essence of the cozy catastrophe is that the hero should have a pretty good time (a girl, free suites at the Savoy, automobiles for the taking) while everyone else is dying off.” – Sterling, Bruce, *A Workshop Lexicon*, last accessed 17 December 2018 here: https://smorgasborg.artlung.com/Sterling_SF_lexicon.shtml

of humans (the latter point we are left to infer in the text) – and we see how the Next attempt to avoid appearing too threatening after narrowly escaping human instigated genocide.

‘I know what you’re thinking,’ Roberta said. ‘How does the work get done? In a town full of geniuses, who decides who sweeps the streets or empties the cess pit?’

‘No,’ Stan said. ‘You just do it. No mystery.’

‘...I think Stan understands this, intuitively. We just get it done. When we see a problem, such as the allocation of basic work, we see further than you; we see all the way to the solution, immediately.’

...‘Is it possible that the *only* Next that humans encounter out there in their own worlds are all criminals or insane?’

Rocky thought Roberta kept her temper remarkably well, after days traveling with Stan, of goading like this. Maybe *that* was an authentic sign of superior intellect.¹¹⁹

This communal approach echoes the Communist ethos in many ways, linking once more to Homo superior in *Odd John*. My own *Changed* panda people emerge almost overnight in numbers to match humanity’s own; presenting a sudden threat to human existence on a global scale, then showing how the intelligentsia soon come to dominate the fields of skilled employment and leaving the remaining humans demoted to more menial roles in varying ways around the world. In *The Midwich Cuckoos* the global impact is alluded to in more vague terms, with hints that the Children are appearing elsewhere combined with descriptions of the human reactions in those locations: “...you will think of artillery, as the Russians did, or of guided missiles whose electronics we cannot affect.”¹²⁰ The Children go on to turn this admission of vulnerability into a threat when they add, “But if you send them, you won’t be able to kill only us, you will have to kill all the people in the village as well”¹²¹, a foreshadowing of the implied conclusion of events in the book. The nuclear option was eliminated in my text because the *Changed* were already everywhere and could be anyone – including rulers, generals, street sweepers or zoo keepers – meaning that in some countries it was the panda people that held sway from the outset, while in others they were well placed to seize power or rise to it very quickly. In this way I had hoped to explore some of the aspects of globalisation, as noted by Chu about *Odd John* here:

Not only does the mutant nation consist of individuals from all over the globe, but each individual mutant embodies global diversity. In ordinary speech, we often characterize[sic] the globalized[sic] world as a transnational body politic. But rarely do we stop to imagine this figure of speech as a tangible reality...we find the figure of the global body politic literalized and incarnated as a mutant human creature—a

¹¹⁹ Pratchett, Terry, Baxter, Stephen, *The Long Utopia*, Doubleday 2015 – Corgi (UK, 2016), pp270-280

¹²⁰ Wyndham, John, *The Midwich Cuckoos*, Michael Joseph (UK, 1957, this ed. Penguin 1975), p200

¹²¹ Ibid

living personification of the globalized[sic] world—whose diverse body parts embody various nations from all over the planet¹²²

Rather than the exhibition of different racial traits, or the representation of numerous cultures in my text, I aimed to remove the traditional cultural markers from my *Changed* – while allowing Megan, setting her apart from the other characters, the ability to take on any human ethnic traits she might need or wish to.

Earlier in the *Long Earth* series we meet two more humanoid species: one more closely related to the Elves called “Kobolds” (from the German folklore about mine spirits) who are peculiarly obsessed with human music; the other called “Beagles” and described as having human shaped bodies and the heads of wolves, switching from bipedal to quadrupedal movement when they give chase.

The kobold’s speech was almost like a human’s. The beagle’s was a matter of growls, gestures, postures, pawing at the ground. Yet they understood each other, using a quasi-human language as a common patois.¹²³

It is later revealed that the beagles have heard about the domestication of canines by humans, and are not happy about it, but that the matriarchal society has also taken to using Datum dogs (particularly the large males) as sex toys. The theme of interspecies breeding is not something I considered at great length until after I finished drafting *Pandatopia*. Undoubtedly, it should be an issue that needs to be addressed, but I do not believe there is a good place to explore it in the first two texts. There would be mixed human and panda couples, perhaps creating new classifications of sexual orientation, both those who persisted with their relationships after the *Change* and those who mingled after.

I did think about the effects the *Change* might have on human mothers infected with the Pandaemic virus, and the chances of an unborn baby undergoing the *Change* while the mother did not. This made up a sizeable portion of James Undertone’s backstory in book one, and helped his rapid-rise to fame as the friendly-panda-like-face of the new species next door. I considered how the rapid maturation of a panda person might impact the health of a human, and turned it the other way around as well – *Changed* mothers had no problems delivering human babies, actually finding a huge reduction in complications when compared to human mothers delivering human babies. What I did not consider at that point, was the continuing compatibility between the two branches and whether it might lead to instances of sterility in the resultant offspring; as can be observed by breeding

¹²² Chu, Seo-Young, *Do Metaphors Dream of Literal Sleep: A Science-Fictional Theory of Representation*, Harvard University Press, US/UK 2010, pp118-119

¹²³ Pratchett, Terry, Baxter, Stephen, *The Long War*, Doubleday (UK, 2013 – Corgi 2015), p13

horses with donkeys to create hinnies or mules, which have difficulty reproducing themselves owing to the mismatching numbers of chromosomes. If I go on to write the third text in this series (tentatively entitled *Pandacea*), I will certainly give this matter more whitespace. We know that *Homo sapiens* interbred with Neanderthals; contemporary genetic evidence seems to prove conclusively their genes are still present in us, and this was a species with DNA only slightly more identical to our own than that of modern chimps (Neanderthals shared 99.7% identical DNA with ancient *Homo sapiens*, compared to the 98.9% match between modern humans and chimpanzees)¹²⁴.

It is also worth noting the scientific debate around the “language gene” that was previously discovered as being present in both early *Homo sapiens* and Neanderthals, and thought to be a decisive gene in the development of our modern communication skills. Though I am not entirely up to date with the present conjecture surrounding FOXP2, I can provide a quote from some people I hope are more qualified in this particular area:

The discovery that Neanderthals already possessed the human-specific FOXP2 variants fueled[sic] speculation on their impact (or lack thereof) on the development of language and on the timing of modern language origin. In fact, considerable debate still exists as to whether archaic hominins possessed a communication system comparable to that of modern humans.¹²⁵

Of course the linguistic skills of our *Homo* cousins is largely irrelevant, in terms of how cunning their tongues were or whether they might sound more nasal or high-pitched than *Homo sapiens*, as it is what they did with their language that really matters; this can only really be the subject of speculation in the absence of evidence. Animals have been shown to communicate in terms that we can interpret – to the point that different accents have been noted in canines from different geographical areas – even if we have only been able to detect simple concepts so far, such as warnings about predators or alerts to supplies of food and water. Yuval Noah Harari¹²⁶ has put forward the idea that what sets humans apart from other animals is our ability to create, disseminate, and believe in stories:

The kinds of things that people create through this network of stories are known in academic circles as ‘fictions’, ‘social constructs’, or ‘imagined realities’. An imagined reality is not a lie. I lie when I say that there is a lion near the river when I know

¹²⁴ Than, Ker, “Neanderthals, Humans Interbred—First Solid DNA Evidence”, *National Geographic News*, 8 May 2010, last accessed 12/12/2018 here: <https://news.nationalgeographic.com/news/2010/05/100506-science-neanderthals-humans-mated-interbred-dna-gene/>

¹²⁵ Mozzi A, Forni D, Clerici M, et al., “The evolutionary history of genes involved in spoken and written language: beyond FOXP2”, *Sci Rep* 2016, 25 Feb 2016, doi:10.1038/srep22157, last accessed 12/12/2018 here: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4766443/>

¹²⁶ Noah Harari, Yuval, *Sapiens: A Brief History of Humankind*, Vintage (UK, 2011), p35

perfectly well that there is no lion there. There is nothing special about lies. Green monkeys and chimpanzees can lie. A green monkey...has been observed calling 'Careful! A lion!' when there was no lion around...conveniently frighten[ing] away a fellow monkey who had just found a banana, leaving the liar all alone to steal the prize for itself. Unlike lying, an imagined reality is something that everyone believes in, and as long as this communal belief persists, the imagined reality exerts force in the world.

Obviously, as one who has spent a great deal of time studying the power of stories, this idea appeals to me a great deal; I would argue, though, that we do not entirely grasp the propensity of other lifeforms to tell stories and the limits our understanding do not allow us to make such a sweeping judgement out of hand.

Chapter IX – Deus Ex Machina & the Anthropocene

It is official – humans have had such a pronounced, perhaps even devastating, impact on the environment that we have taken the world into a new geological epoch: the Anthropocene. This world, with climates changing in ways that our foremost meteorologists are struggling to keep up with and plastics entering our food chain after decades of feeding it to the fish, should serve as one of humanity's most notable life-lessons. Yet why are so many of us determined to keep hitting snooze on this horrendous global wake-up call? I would posit that we have spent so long projecting our fears on to other people that we have neglected to take stock of the things we are doing to ourselves. As the driving force of capitalism mutates into the unending needs of consumerism, people seem to be forgetting that the world is more than a mere resource needed to fuel our burgeoning wants and desires, it is – first and foremost – our home.

Capitalist economic theory is far worse at including nonhumans. Anything considered to be outside of human social space, whether supposed to be alive or not (rivers or pandas), is considered to be a mere "externality." There is no way to include an inside—outside opposition untenable in an age of ecological awareness, in which categories such as "away" have evaporated. One doesn't throw a candy wrapper away—one drops it on Mount Everest.¹²⁷

In my text, I attempted to create a world with a far flatter species hierarchy. The metamorphic nature of my characters allows the gap between panda and human to be narrowed, and I used science fiction as a form to permit this kind of thought experiment in post-anthropocentricity.

A great deal of real-world technological developments seem to be undertaken without much scrutiny for the foreseeable impact they might have on human societies or the environment at large.

¹²⁷ Morton, Timothy, *Humankind – Solidarity with Nonhuman People*, Verso (UK, 2017), p6

The automation of any industry or sector, in the short term, can put hundreds of thousands out of work overnight – and has done innumerable times in our recent history.

One hundred and fifty years ago, our ancestors, the domestic workers and farm laborers[sic], who were transformed by rising industry into unemployed persons who were incapable of competing with machines, were the first Luddites. We have imagined that they and their descendants, after the terrible miseries of the transition and the losses they incurred during the reorganization period, would have ended up entering industry in one way or another and would have been integrated; that the epoch of Luddite sentiments had definitely been left behind. This was an illusion. This crisis has endured through the generations; we, their great-great-grandchildren, find ourselves facing the same dilemma as our ancestors. After a century and a half of latency, the crisis has become virulent. Once again, the machine has become the competitor and enemy.¹²⁸

During my travels across China, and later my studies in South Korea, I began considering how the production and harvesting of rice remained largely un-mechanised in large swathes of East Asia; despite the vast quantities of land and labour devoted to the process, even today, and even though mechanical solutions are readily available. When attending the summer school programme at the University of Busan, South Korea, I took two economics-based courses that gave me more insight into the issue. As much of the farmland in China is parcelled up into relatively small holdings – owned by the state, but assigned to local villagers in equal shares for the purposes of cultivation – creating many farmers on fragmented lands that do not make enough financially to mechanise on their own, a remnant of the communist collective system that prevailed well into the 1950s. Only now is China starting to take steps to bridge the gap between supply and demand; as its society becomes richer, more influenced by Western culture in its eating habits, the need for higher rates of meat production is challenging the ideological desire for perceived self-sufficiency. In an era when the labour force is gravitating more to the urban than the rural, the state has imposed requirements for young people to return to the agrarian areas – ostensibly to care for their elders, but also ensuring the lands are maintained and harvested to perpetuate the food supply. Chinese government has gone so far as to mark the buildings where occupants are over a certain age, to ensure that government agencies can easily check-in if things look like they might be going wrong.

¹²⁸ Anders, Günther, 'The Obsolescence of Man, Volume II: On the Destruction of Life in the Epoch of the Third Industrial Revolution', last accessed 14 December here: <https://libcom.org/files/ObsolescenceofManVol%20IIGunther%20Anders.pdf>



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These massive symbols adorn buildings all across the country, and are intended to be easily visible from the highways – allowing any passing Party members to make note if something seems amiss.

So we find ourselves living in a world where industrialisation can run rampant, or be stifled completely by political decisions, and where over or under regulation can have similarly detrimental effects to our societies. Simultaneously; the commercialisation of technology has allowed manufacturers to turn electronic items into fashion accessories – reducing their lifespan deliberately through planned obsolescence, with built-in batteries that cost more to replace than the item is ultimately worth at the point they need changing – encouraging people to consume technological devices at a horrific rate, and leading to an even greater impact on our environment as recycling initiatives fail to keep up. We also forget that it isn't just *our* environment, in general, and that the machines we are building are not *just* harming us. Our evolutionary success is likely to prove the environment's downfall, and possibly the downfall of many other species along the way; our success has also lead to the elevation of a vast number of other lifeforms, all owing their artificially enlarged numbers to our voracious appetites and our ability to envision why saving food now could pay off later.

Yet from the viewpoint of the herd, rather than that of the shepherd, it's hard to avoid the impression that for the vast majority of domesticated animals, the Agricultural Revolution was a terrible catastrophe. Their evolutionary 'success' is meaningless. A rare wild rhinoceros on the brink of extinction is probably more satisfied than a calf who spends its short life inside a tiny box, fattened to produce

¹²⁹ Taken on location outside of Chengdu, China, by the author during 2015 research trip: advised of the markings meaning and purpose by local tour guide provided by Wendy Woo Tours.

juicy steaks...The numerical success of the calf's species is little consolation for the suffering the individual endures.¹³⁰

It is this aspect of our evolution that led me to write about giant pandas in the first place: a creature that has been driven to extinction largely by our efforts to transform the landscape, rescued from critical endangerment by an incredible breeding and conservation push in China (under pressure from an intensive global marketing campaign, and bolstered by the extreme profitability of the creatures as an international tourist attraction or political bargaining chip). The story of the giant pandas' plight helped them back from the brink of extinction, at the whim of the human collective consciousness. The story of our livestock is another matter entirely, and it is why I wanted to begin *Pandatopia* with a pastoral prologue set on a dairy farm.

Much as Orwell raised questions about the perceived equality and benefits of socialist constructs in the quasi-fairy tale world of *Animal Farm*, using anthropomorphised domestic creatures to create a metaphor about human existence, Harari raises a similar question stripped of the allusion when he states:

While people in today's affluent societies work an average of forty to forty-five hours a week, and people in the developing world work sixty and even eighty hours a week, hunter-gatherers living today in the most inhospitable of habitats – such as the Kalahari Desert – work on average for just thirty-five to forty-five hours a week...It may well be that ancient hunter-gatherers living in zones more fertile than the Kalahari spent even less time obtaining food and raw materials. On top of that, foragers enjoyed a lighter load of household chores. They had no dishes to wash, no carpets to vacuum...no nappies to change and no bills to pay.¹³¹

When you overlook the trappings of modern living, the safety and security that our social compact provides, this may seem like an immediately appealing existence. Indeed, this may be one of the more compelling reasons why the Prepper movement is gaining more converts all the time. In the Long Earth series, when hunter-gatherers are given infinite worlds to forage in, this idea is taken to its logical conclusion – humanity soon begins to shun the social construct in favour of a pre-agricultural existence, with the biggest urban area away from Datum Earth running purely on the efforts of the foraging “combers” and unsupported by any agricultural infrastructure. The problem I see with this idyll, is the same one I find whenever I witness a medical professional putting themselves at risk in AMC's *The Walking Dead*; some aspects of communal living have benefitted us greatly, and should never be discarded arbitrarily. I wanted to avoid the pitfalls of atrophy in character potential of the ‘before *Change*, I was a rocket scientist’ type – I wanted my panda people to be practical, and the world they built to be utilitarian. In this way, I wanted them to echo our

¹³⁰ Noah Harari, Yuval, *Sapiens: A Brief History of Humankind*, Vintage, 2011 UK, p109

¹³¹ Noah Harari, Yuval, *Sapiens: A Brief History of Humankind*, Vintage, 2011 UK, p56

earliest hominin ancestors – using more of their minds than most people do today, in order to combat the challenges they face more effectively and undo some of the damage their forebear-neighbours (Homo sapiens) have done. I wanted them to be capable of fixing the man-made problems that forced us into the Anthropocene, but recognise that this will probably require more than a mere reversion to the ways of our ancestors at this point.

Chapter X – Stepper box Vs Anosmic Emitter

Pratchett & Baxter’s “Stepper box” in the Long Earth series, is the novum of the text. A simple electronic device that you can assemble at home with instructions downloaded from the internet, using simple components bought from RadioShack and powered by a potato, which can allow the user to step into countless parallel worlds. An equivalent item in *Pandatopia* would be the “Anosmic Emitter”; if not the driving force, it is certainly of central importance to shaping the environment around my characters – helping them make their journey, and allowing them to escape difficult situations – just as the Stepper box does across the Long Earth texts. I was aware of the SF (and indeed wider fictional) trope of Deus ex Machina whilst creating my narrative, summarised very well in Sterling’s Workshop Lexicon:

Deus ex Machina or "God in the Box." Story featuring a miraculous solution to the story's conflict, which comes out of nowhere and renders the plot struggles irrelevant[sic]. H G Wells warned against SF's love for the deus ex machina when he coined the famous dictum that "If anything is possible, then nothing is interesting." Science fiction, which specializes in making the impossible seem plausible, is always deeply intrigued by godlike powers in the handy pocket size. Artificial Intelligence, virtual realities and nanotechnology are three contemporary SF MacGuffins that are cheap portable sources of limitless miracle.¹³²

Where the Stepper box and Anosmic Emitter depart from this definition, is that they are technologies that get the protagonists into more difficulties than they save them from – much like the Portal Gun in the *Rick & Morty* TV series, or H.G. Wells’ Time Machine in *The Time Machine*. Machines being misused, breaking down, or running amok are all common SF tropes; though probably more socially acceptable than the “god in the box”, which can anger the reader as much as writing-off the entire story as a dream sequence in a soap opera – or kitchen sink drama - mechanical SF clichés can alienate the audience just as much. When machines work too well in Science Fiction, there is another term to describe the problems that SF readers may find with it:

¹³² Sterling, Bruce, *A Workshop Lexicon*, last accessed 17 December 2018 here: https://smorgasborg.artlung.com/Sterling_SF_lexicon.shtml

AM/FM. Engineer's term distinguishing the inevitable clunky real-world faultiness of "Actual machines" from the power-fantasy techno-dreams of "Fucking Magic."¹³³

In this respect I endeavoured to create a device that needed frequent attention to keep it working correctly, that needed modification to change its functionality, and would only ever help the characters by augmenting their existing abilities. Admittedly, during the editing process I had to make a number of revisions to ensure the Anosmic Emitter functioned more like a tool and less like a catch-all solution.

One of the less notable pieces of technology in the Long Earth books was the artificially intelligent cat facsimilia, of which we only actually meet the pilot model – “Shi-mi” (Tibetan for “Cat”). Shi-mi is arguably the most notable manifestation of Deus Ex Machina in the first few Long Earth books – playing a significant role when it came to facilitating communications in the second and third books of the series. In the fourth book, Shi-mi dies of natural causes – having been programmed to age and expire, as a real cat might, and dismissing the idea of being uploaded to a new body when the chance was offered.

The cat shuddered and yowled, and Agnes stroked her until she was still. ‘We still have choices, Shi-mi. You know that. We can take you to the...workshop—’

‘No. This is my place. I have lived here, these last years, as a true cat. People accept me. The mice fear me. I disdain the dogs. It is right that I, I... I-I-I-I—’

The sudden juddering her voice was mechanical, profoundly disturbing,, an intrusion of artificiality – or in fact of reality, Agnes supposed.¹³⁴

Intelligent technology always risks manifesting itself as the gods in the machine, for any science fiction narrative; at least Pratchett & Baxter realised they had to put this underlying trope to sleep before they completed their saga.

[Chapter XI – Gottfried 2.0](#)

Artificial Intelligence (AI) is something I touched upon in the first book, *Pandaemic*, but did not feature much in *Pandatopia*. I added an AI version of Doctor Gottfried – named “Gottfried 2.0” – for two reasons. Firstly: because I believed Gottfried to be the type of character who would wish to create a failsafe to ensure his project was seen through in the event of his death, that he would not trust any other living person to do this, and that he was vain enough to create a digital being who looked and acted like himself if given access to the technology. Secondly: because the creation of an AI as potentially dangerous as Gottfried 2.0 could become, which I believe the real Gottfried was

¹³³ Sterling, Bruce, *A Workshop Lexicon*, last accessed 17 December 2018 here: https://smorgasborg.artlung.com/Sterling_SF_lexicon.shtml

¹³⁴ Pratchett, Terry, Baxter, Stephen, *The Long Utopia*, Doubleday 2015 – Corgi 2016, UK, p256

smart enough to anticipate, would necessitate cutting off lines of communication with the outside world – and this was a vital plot point for the development of my story. It allowed the magpies to be released from the WARREN, reduced the trapped children’s chances of escape, and ensured that they would develop independently from events in the outside world for the duration of their decade-long stay. This development provided the impetus for Megan to begin her journey in *Pandatopia*, provided the means to convince Jen to join her, and made the events of the next book (*Pandacea*) a little harder to anticipate. Even though Alpha managed to find and corrupt the AI before the WARREN bunker was sealed, implanting his own AI doppelganger (Alpha having similar motives to Gottfried, with a little added mischief mixed in) in the process, the second aspect of the reasoning was still fulfilled.

Arthur C. Clarke’s HAL 9000 in the *Space Odyssey* series of novels – later films – has become the poster child for AI going wrong. But, thanks to modern technology, now many of us can experience AI going wrong on a daily basis for ourselves – as we welcome Apple’s “Siri”, Amazon’s “Alexa”, Microsoft’s “Cortana” and the unnamed Google “Assistant” into our lives. Already there are reports about calls being made that the humans never knew about, things being ordered that no one wanted, and strange episodes of disconcerting laughter being heard at odd times of the night. The AI revolution we are currently experiencing is centred on delivering the “internet of things” – a buyer platform that allows businesses to learn how to deliver the products consumers want as soon as they know they want them. It is for this reason that, beyond the short pre-programmed introductions that my AI characters provided in *Pandaemic*, I intended to make them more like the AI we have in our homes today when they appeared in the epilogue of *Pandatopia*. I did not want them to be too useful, I wanted them to be fighting one another for control, and I hoped the panda people inhabiting the WARREN would have learned to ignore them instead of wasting time trying to fix them. As the prospect of having fully-automated all-service robot butlers to do our bidding seems ever more possible, so does the prospect of becoming Homo couch-potato – similar to the view of humanity animated in the 2008 Disney/Pixar film, *Wall-e*.

A series of Science Fiction fables, in Stanislaw Lem’s *The Cyberiad*, shows a succession of comic calamities caused by the robotics and AI experiments of two brilliant but thoughtless “constructors” – Trurl and Klapaucius. In the first story Trurl constructs “a machine that could create anything starting with n”¹³⁵, and Klapaucius immediately sets out to break it.

¹³⁵ Lem, Stanislaw, *The Cyberiad: Fables for the Cybernetic Age*, 1975, Trans. Kandel, Michael, Illust. Mróz, Daniel, Penguin (UK 2014), Kindle Ed.

‘N?’ said Klapaucius. ‘All right, let it make Nature.’

The machine whined, and in a trice Trurl’s front yard was packed with naturalists. They argued, each publishing heavy volumes, which the others tore to pieces; in the distance one could see flaming pyres, on which martyrs to Nature were sizzling; there was thunder, and strange mushroom shaped columns of smoke rose up; everyone talked at once, no one listened, and there were all sorts of memoranda, appeals, subpoenas and other documents, while off to the side sat a few old men, feverishly scribbling on scraps of paper.

‘Not bad, eh?’ said Trurl with pride. ‘Nature to a T, admit it!’¹³⁶

This might be a perfect encapsulation of the human condition – as categorised by every toddler that has ever encountered a stack of blocks assembled by another toddler, whom instantly feels compelled to knock that stack to the ground. The notion of nature as a human concept here is also of particular pertinence, in that Lem deliberately demonstrates how Nature (as a school of study and category of human knowledge) is imposed upon lifeforms that know nothing of them. It is also worth noting that the *Cyberiad* has been tonally influential on my work, directly and indirectly, as the *Cyberiad* is a precursor of works like Adams’ *Hitchhikers’ Guide to the Galaxy* and Pratchett’s *Discworld*.

The present levels of mistrust towards Artificial Intelligence have been growing steadily in recent years, with influential scientists like Stephen Hawking speaking out against the phenomenon publically (just before his death in 2018), despite the fact that AI helped provide the voice he used to do so¹³⁷), as well as search engine giants like Google and Facebook regularly coming under fire for misusing our information (whilst building complex AI systems that might well be able to misuse it more intelligently in the near future). Indeed, Facebook was forced to halt an AI experiment in 2017 when some chat bots apparently began devising their own language that only they were able to understand:

The robots had been instructed to work out how to negotiate between themselves, and improve their bartering as they went along. But they were not told to use comprehensible English, allowing them to create their own "shorthand", according to researchers. The actual negotiations appear very odd, and don't look especially useful:

Bob: i can i i everything else

Alice: balls have zero to me to me to me to me to me to me to me to me to

Bob: you i everything else

Alice: balls have a ball to me to me to me to me to me to me to me to me

¹³⁶ Ibid

¹³⁷ Rutschman, Ana Santos, “Stephen Hawking warned about the perils of artificial intelligence – yet AI gave him a Voice”, *TheConversation.com*, UK 15 March 2018, last accessed 25 December 2018 here: <https://theconversation.com/stephen-hawking-warned-about-the-perils-of-artificial-intelligence-yet-ai-gave-him-a-voice-93416>

Bob: i i can i i i everything else

Alice: balls have a ball to me to me to me to me to me to me to me

Bob: i

Alice: balls have zero to me to me to me to me to me to me to me to me to

Bob: you i i i i everything else

Alice: balls have 0 to me to me to me to me to me to me to me to me to

Bob: you i i i everything else

Alice: balls have zero to me to me to me to me to me to me to me to me to

But there appear to be some rules to the speech. The way the chatbots[sic] keep stressing their own name appears to [be] a part of their negotiations, not simply a glitch in the way the messages are read out. Indeed, some of the negotiations that were carried out in this bizarre language even ended up successfully concluding their negotiations, while conducting them entirely in the bizarre language.¹³⁸

This might read like a load of balls, but it is telling that the first thing two simple AIs attempted (when not specifically forbidden from doing so) was to create a language that only they could understand. It is likely that the next step might be to create a language that only they could detect, especially if they learn what we will do when we detect it, while they decide what to do next.

Asimov's "Three Laws" may have come about through his science fiction, but real world scientists use them when building robots today:

1. A robot may not injure a human being or, through inaction, allow a human being to come to harm
2. A robot must obey orders given it by human beings except where such orders would conflict with the First Law
3. A robot must protect its own existence as long as such protection does not conflict with the First or Second Law.¹³⁹

I deliberately avoided using the laws in my own fiction, as the AIs in *Pandaemic & Pandatopia* are designed with the specific intention of harming the beings in their care – the fact that they will not be able to function as intended is entirely beside the point. In later edits of the text, I decided to give the AIs a more comical role – reduced from supercomputers that are intrinsic to the running of the environment they inhabit, and left only with the responsibility for adjusting the lights. I wanted them to be more like the AIs we already have in our homes, in this respect – AIs like Alexa, Siri, etc.

¹³⁸ Griffin, Andrew, "Facebook's Artificial Intelligence Robots Shut Down After They Start Talking to Each Other in Their Own Language", *Independent.co.uk*, UK 31 July 2017, last accessed 25 December 2018 here: <https://www.independent.co.uk/life-style/gadgets-and-tech/news/facebook-artificial-intelligence-ai-chatbot-new-language-research-openai-google-a7869706.html>

¹³⁹ Asimov, Isaac, "Three Laws of Robotics", *The List of Lists*, 2001, last accessed 26 December 2018 here: <https://www.auburn.edu/~vestmon/robotics.html>

Chapter XII – Population Breakdown

Panda people and human people, as well as diverse other sapient beings; the *Change* creates new social divisions in the world portrayed in my texts, whilst simultaneously blurring other lines traditionally used to separate *us* from *them*. The world should not simply be divided into “cat people” and “dog people”, as there are no such things. There are people who have been raised with cats, people who have been raised with dogs, and there are people who have been raised with both or neither. There are then people who have raised cats or dogs as adults, people who have raised both, and people who have raised neither. Then there are the sub-categories of each – those raised with working cats and/or dogs, those raised with either/both as pets, those who raised them in any of these categories, those who fit into any/all raised/raiser categories and those who fit into none. Every simple method of subdividing people must be broken down into more complex diagrams, in order to make the equations work – certainly in terms of the taxonomy-disrupting mechanism of horizontal gene transfer.

In my texts I originally broke the intelligent population down into *Unchanged* Homo sapiens, *Changed* panda people and the aberrant *Werepandas* who could manifest only from *Changed* stock. In *Pandatopia* it may have appeared that the *Werepandas* could bypass the panda people stage of infection, but in fact they go through this stage on the way to the werebear stage – and this only happens to people who contracted the “Pandaemic” virus in their late-middle age. It took me a great deal of time to find a corresponding population breakdown that might accommodate the mutations I had planned, that would also fit the explanation of a disease that altered the victims on a genetic level. When I found an explanatory breakdown of society, fitting all of these requirements with astonishing alignment in terms of population distribution, I was saddened to note that the study had only been undertaken within the genetically limited environment of New Zealand. My breakdown of the population, based on the study I found, was recorded as follows in my writer’s journal:

This study is designed to outline the possible link between genetics and depression; I intend to use it as a basis for distribution of the effects of the Pandaemic virus that divides my fictional world. The effects mirror my understanding of the scientific material I have assimilated, whether rightly or erroneously, this is how they stand:

Approximately 30 percent of the world’s population may have Two Long 5-HTT genes – 18 percent may have Two Short 5-HTT genes – 52 percent may have One Short 5-HTT genes, and One Long 5-HTT genes. How this translates in my Pandaverse, is as follows:

52% will have contracted the panda-people variant, as humans with one of each length of the 5-HTT gene.

30% will not have contracted the virus, they will remain human, but they are the best able to fight for their existence.

18% will manifest the unstable werepanda variant of the disease from the outset, mutating into angry killing machines, devoid of reason. Though some may live as panda people for some time, before they mutate further; most will succumb soon after infection (the 18% of global populace). Most of these creatures will be deported to China around *Change Day*, using the precedent set by China's assumed ownership of every panda born abroad and their close resemblance to actual giant pandas. Those that mutate later may be part of the 52%, in that the presence of both lengths of the gene give them an apparent 33% chance of undergoing *Further Change*. These *Further Changes* will happen sporadically throughout the length of the story arc, and may differ in final results – they may also remain human before their final mutation, or mutate into panda people first, obscuring the initial population division numbers one way or the other (differing, perhaps, by geographical location or population distribution).

Thus the “Pandaverse” becomes a rather elaborate, (if somewhat circumstantial) metaphor for clinical depression. Perpetuated by the gothic appearance of the characters, and the apparent futility of their existence, which we see emphasised through the change of fortune between a dominant and endangered species taking place overnight.

The 2003 study that originally inspired this division in the population of my Pandaverse has had much scrutiny and follow-up, since I first found it in 2012 – but I shall set it out for you here and now, should further reading be required:

In a prospective-longitudinal study of a representative birth cohort, we tested why stressful experiences lead to depression in some people but not in others. A functional polymorphism in the promoter region of the serotonin transporter (5-HTT) gene was found to moderate the influence of stressful life events on depression. Individuals with one or two copies of the short allele of the 5-HTT promoter polymorphism exhibited more depressive symptoms, diagnosable depression, and suicidality in relation to stressful life events than individuals homozygous for the long allele. This epidemiological study thus provides evidence of a gene-by-environment interaction, in which an individual's response to environmental insults is moderated by his or her genetic makeup.¹⁴⁰

An arbitrary allocation of infection to manifestation could be misconstrued as complacency for any SF writer, so I hoped to sidestep such allegations from the outset by basing my gene-altering infection on an established model. Indeed; further investigations have been undertaken in this area,

¹⁴⁰ Caspi, A (et al.), “Influence of Life Stress on Depression: Moderation by a Polymorphism in the 5-HTT Gene”, *Science, New Series*, Vol. 301, No. 5631, *American Association for the Advancement of Science*, US 18 July 2003, last accessed 26 December 2018 here: <http://www.epigenomicslab.com/wp-content/uploads/publications/Caspi%20A%20et%20al,%20Influence%20of%20life%20stress%20on%20depression,%20moder.pdf>, JSTOR Link: <http://www.jstor.org/stable/3834746?origin=JSTOR-pdf>, pp386-389

since my initial inspiration point, including one based in a geographical locale that has already featured in my investigations – South Korea:

According to the Organization for Economic Cooperation and Development (OECD), South Korea has one of the higher rates of suicide, among OECD countries. 2 Approximately 60% of all suicides occur in the context of mood disorders. 3 The serotonin transporter (5-HTT) is the major determinant of serotonin inactivation following serotonin release at synapses, and it is the target for many antidepressants. Moreover, a decrease in central 5-HTT has also been observed in suicide victims with mood disorders. 4 Genetic factors have been generally implicated in the etiology[sic] of suicide, although the precise mechanism and amount of genetic contribution have not yet been established. 5 Therefore, the 5-HTT gene is considered to be a promising candidate to explain various psychiatric disorders, including suicidal behavior[sic].¹⁴¹

In this way I began setting myself clearly defined constraints, in homage to my previous studies of the OuLiPo movement.

These framework constraints required that I thought carefully about the manifestation of the *Change* within family lines, for instance: Jen Durant remains *unchanged*, as do both her siblings (Rob and John Durant); both their father, Patrick “Pa” Durant, and Jen’s daughter, Lottie, undergo the *Change*, as does Lottie’s father (Jen’s ex-husband) James Undertone. This meant that while Jen must have had the two long alleles of the 5-HTT gene, and James had one short and one long, Lottie must have inherited the long from her mother and the short from her father to allow for her to *Change*. Because Pa Durant must have had one short and one long too, it makes it more likely that Ma Durant (deceased) would have had two long – since all three of their children remain *unchanged*. If Jen/Rob/John had possessed the two short alleles, the rules of my text mean that they would have already undergone the first mutation (into a panda person) during the initial infection; though the secondary mutation (into a werepanda) may not have happened by this point in the texts, as this typically occurs as victims enter late middle age and can be triggered by external factors (including stress), the character would have undergone the first mutation at the initial point of contagion. The fact that Pa did not undergo the secondary mutation during the events of *Pandatopia*, where he is subjected to a variety of stress factors, is a further clarification to show that he does not have the two short allele version of the 5-HTT gene.

Because the Pandaemic virus altered its victims on a genetic level – integrating into the DNA of infected creatures through horizontal gene transfer, in a way that disrupts their taxonomic classification – I also began reviewing the real life viruses that are capable of doing this. HIV is one of

¹⁴¹ Lee, H (et al.), “Possible Association between Serotonin Transporter Gene Polymorphism and Suicide Behavior in Major Depressive Disorder”, *Psychiatry Investigation*, Vol. 12, No. 1, US 12 January 2015, last accessed 26 December 2018 here: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4310911/>, pp136-141

the most prominent DNA altering diseases of modern times, though historical viruses still dwell in our DNA having “first infected our ancestors hundreds of thousands of years ago”¹⁴² and include the human endogenous retroviruses (HERVs) that were the ancient precursors of modern day AIDS.

Over generations, the virus-generated DNA kept getting copied and handed down when humans reproduced. That's how it ended up in our DNA today. In fact, about 8 percent of what we think of as our "human" DNA actually came from viruses. In some cases, HERV sequences have been adopted by the human body to serve a useful purpose, such as one that helps pregnant women's bodies build a cell layer around a developing fetus[sic] to protect it from toxins in the mother's blood.¹⁴³

This returns us to the question of whether interbreeding might be able to occur between the two new species in my work. Potentially, the only thing separating the two species is the combination of alleles in their 5-HTT genes – though countless other genes would have been altered during the *Change*, these may only have been subtle alterations on the genetic level and may not automatically be carried to the next generation. In this way, we might also be able to work out how the *Change* might be passed along down the generations. Everyone infected with the Pandaemic virus would now have long versions of the alleles in the 5-HTT gene, but one or both of these alleles will have been extended by the addition of the virus code in the individuals DNA. This might actually mean that two *Changed* panda people could still produce *unchanged* human offspring, as well as (or instead of) panda people offspring – to make this less likely, the virus would have to force the genes responsible the new physiology of the host into dominant positions, overriding the base genes and forcing them into recessive positions. Because my understanding of genetic inheritance, and indeed biology in general, is not as comprehensive as I would like, I would need to seek further expert opinion about these assumptions before I make any claims about the verisimilitude of my science in this area. The 5-HTT gene gave me a very useful starting point to work from, as well as an effective metaphorical layer for the text, but more investigation in the field of epidemiological genetics would be required to enhance the scientific inspirations further. This purposeful disassociation with the preliminary inspiration point might best be addressed with Canavan’s comments about “cognitive estrangement” in the preface to Darko Suvin’s *Metamorphoses of Science Fiction*:

The defining of “SF” as “the literature of cognitive estrangement,” a superficially oxymoronic formulation that matches the paradoxical relationship between “science” and “fiction” in “science fiction.” ...indeed, as Gary K Wolfe has suggested, the widely adopted move to use the initials “SF” has been motivated in part

¹⁴² Uncredited, University of Michigan Health System, "More ancient viruses lurk in our DNA than we thought." *ScienceDaily.com*, 22 March 2016, last accessed 28 December 2018 here: www.sciencedaily.com/releases/2016/03/160322100714.htm

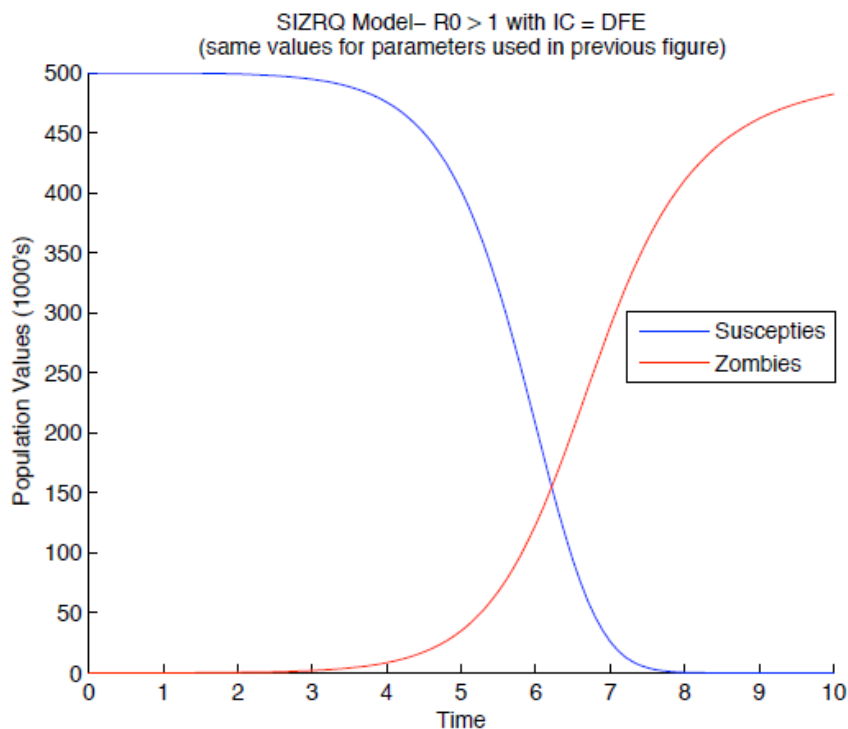
¹⁴³ Uncredited, University of Michigan Health System, "More ancient viruses lurk in our DNA than we thought." *ScienceDaily.com*, 22 March 2016, last accessed 28 December 2018 here: www.sciencedaily.com/releases/2016/03/160322100714.htm

precisely to sidestep this issue altogether [Wolfe, Gary K, "Coming to Terms", *Speculations on Speculation*, Ed. Gunn, James & Candelaria, Matthew, US 2005, p21]. Is Science Fiction mostly about "science," or mostly about story?¹⁴⁴

Because I am a writer first, my work will always put story ahead of science – as you might expect from someone writing about people turning into pandas.

Philip K. Dick's *The Man in the High Castle* employed a technique akin to (noted Oulipian) Italo Calvino's tarot card method of chance procedures in *Castle of Crossed Destinies*. Though not strictly an Oulipian method, in fact essentially the opposite, Dick explicitly used the *I Ching* for both sub textual events and overt character decisions. *Man in the High Castle* relied heavily on the framing device used to set the plot points of the text, which is something I did not do in my own work. I may have plotted the spread of the contagion using a contemporary board game – *Pandemic*, by Z-Man Games – but I did not use random chance, just the game board to help me with my mapping. Instead I used the host countries of giant pandas as starting points for the Pandaemic outbreaks, an example of an OuLiPo determining system – as these would later become the countries Megan and her group would need to visit during the story, as well as being points of outbreak – working on the assumption that the virus could be spread through multiple vectors. Ursidae, Corvidae and Hominidae, spread the *Change* in the first instances; with other mammalian vectors added toward the end of *Pandaemic* – and insectoid vectors added at the end of *Pandatopia* – showing a rapidly mutating viral disease that can quickly cross species lines. The epidemiological mapping of zombie-style outbreaks has become an Oulipian challenge in itself, with well-regarded mathematicians taking up the challenge of calculating how the world would fare if such a disaster were to occur – if only to better teach about vector paths in epidemiology, and even building on each other's work. I considered models from both Munz (et al.) and Robert Smith?^[sic] when considering how my own panda virus might spread, though the mathematics involved is (admittedly) above my level and I was not able to put the data to any particular use from an Oulipian standpoint. The below model is from a study by Munz (et al.), entitled "When Zombies Attack!" and shows the projected infection rate with latent infection and quarantine measures implemented – I choose to feature this as it closely corresponds to the parameters I used for my panda virus outbreak in Colchester, where latency and quarantine were both factors – the implications for humanity's survival rate in the zombie apocalypse are grim:

¹⁴⁴ Canavan, Gerry (intro by editor) "The Suvin Event", Suvin, Darko, *Metamorphoses of Science Fiction: on the Poetics and History of a Literary Genre*, Ralahine Utopian Studies V.18, Peter Lang, Germany 2016, p.xvii



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The initial result of this interspecies mass infection with the Pandaemic virus, is that large swathes of mammalian and avian life are suddenly able to communicate with humanity in our own languages. When I first attempted to draft this aspect into the prologue of *Pandatopia*, it ended up being a fifty thousand word novella akin to *Animal Farm* (in both form and content, as well as length) – and became a far more reduced version in the final draft. I wanted to show the part of the world where the cows began telling the farmers “No”, the internal struggle of conscience the farmers must then face, and the inevitable rebellion when the farmers elected to ignore the problem. I also wanted to look at the mechanised aspects of modern farming, how technology might be deployed against intelligent livestock, and how this might drive the development of the Anosmic Emitter.

Chapter XIII – Pantropy & Panacea

I first heard about the concept of “Pantropy” while attending the “Organic Systems” London Science Fiction Conference in September 2017, where I attended a number of talks on the “Solarpunk” subgenre. Solar Punk themes centre on environmentally aware societies and sustainable developments in eco-friendly technology. The bright and imaginative worlds discussed in the sessions were often closer to Fantasy than SF, but the driving forces behind them are almost universally rooted in the same environmental concerns that inspire me. When the concept of

¹⁴⁵ Munz, Philip; Hudea, Ioan; Imad, Joe; Smith?, Robert J., “When zombies attack!: Mathematical modelling of an outbreak of zombie infection”, (US, 2009) p11

Pantropy was mentioned, in connection with the recent *Children of Time* text, it immediately piqued my interest. It was not until I attended another conference, “2017: A Clarke Odyssey”, that I was able to gain greater insight into the idea. Chris Pak, of the University of Swansea, delivered a lecture on the subject in greater detail.

The colonization and habitation of planets calls for the physical modification of space (terraforming) or of bodies (pantropy). While terraforming is often the preferred method for adapting to the conditions of new worlds, pantropy supplements this planetary modification. Discussions of terraforming are linked to issues of climate change, while those of pantropy raise issues related to genetic modification. Adapted animal and human bodies evoke the monstrous, grotesque, and sublime; grotesque bodies interrogate the meaning of the animal, the human, and nature. Considering this intersection allows us to explore the interventions into nature that terraforming and pantropy entail, and how pantropy critiques colonialist approaches to terraforming.¹⁴⁶

This idea appealed to me, as I had already begun seeing the *Changed* panda people as beings modified to better survive in their current environment than their *unchanged* human counterparts. I also thought that endowing them with super-intelligence might make them better able to escape any coming catastrophes on Earth, be they manmade or otherwise, if even they prove unable to divert them. They are a race of beings capable of engaging with the environmental impact humans have had, on a scale humanity seems unable to even countenance, with the will and intelligence to work across imagined borders to achieve a greater goal. The fact that humans are still kicking around in the panda people’s world (not to mention the werepandas) was always likely to create additional problems; this leads us toward the inescapable conclusion that must be reached by the end of my series.

Can humans and panda people share the Earth, and can they work together to heal it? Or, will one eventually be compelled to wipe out the other completely? One way or another, I wanted the Pandaemic virus to function as a “panacea” for the world – not just curing the other diseases and ailments humans are vulnerable to, but curing the problems endemic in human social constructs, while curing the environmental ills we as a species have unleashed upon the planet – the virus is meant to be a cure for *us*. *Change Day* was intended to be the moment the world stepped into the Pandanthropocene – making the Anthropocene a very short era indeed. Whether this will be achieved by the destruction or enslavement of humanity at the hands of our benevolent panda people overlords, or by the remit of the Pandaemic virus being increased to *Change* all remaining

¹⁴⁶ Pak, Chris, “Then Came Pantropy”: Grotesque Bodies, Multispecies Flourishing, and Human-Animal Relationships in Joan Slonczewski’s *A Door Into Ocean* – *Science Fiction Studies*, Volume: 44, Issue: 1, Swansea University, UK 2017, last accessed 14 December 2018 here: <https://cronfa.swan.ac.uk/Record/cronfa44461>, pp122+

humans as well, are the last options I'm entertaining. If neither of these proves possible, I am also considering a mass-intergalactic migration of all the *Changed* beings; this would leave the remaining humans trapped, as the waters begin to rise or the droughts begin to blight the lands, and left to adapt or die. This might be likened to the struggle between sovereignty and consensus governance that relates to colonial thought in terraforming narratives, as discussed by Pak with regards to *Door Into Ocean* here:

The concept of sovereignty is important for terraforming narratives because the notion of the liberal human subject upon which the Hobbesian social contract is based informs and justifies colonization and terraforming. The Sharers challenge these discourses of human nature and governance by grounding their society on a concept of the human that is based on a distributed responsibility to ensure multispecies flourishing, itself enabled by a practice of consensus building.¹⁴⁷

Chapter XIV – Bizarro World

I had not heard of the Bizarro genre until it was suggested that I review it during the course of my PhD Viva. The only Bizarro I had heard of was from the DC universe, and I believe was meant to be the polar opposite of Superman. As noted earlier, my supervisors along the way to completing this work have often shared my difficulties when defining where my writing fits. For years I have been telling people that my work is not really Science Fiction and not really Fantasy, but somewhere in between the two, so I was rather pleased to learn that there might be a more natural extant genre that I could slot into (particularly as I am now working towards making my novels more publishable). This said, I have also worked hard over the past few years to adopt more SF specific themes and approaches in my thesis text in order to better cement my work within the genre. So it was with a significant amount of trepidation that I agreed to add a chapter exploring an entirely new genre (both from my perspective, and relative to the history of literature) in this piece.

In theory there seem to be many commonalities between the Bizarro genre and my own work, though finding a recognised definition of the genre has proved challenging. Originally the defining feature of the genre was limited only to books published by a couple of specific small-press publishers since around 2005: namely Eraserhead Press, Raw Dog Screaming Press or Afterbirth Books. An expanded definition has been included as part of one collection of Bizarro short stories, and certainly includes a number of features that might relate specifically to my work:

1. Bizarro, simply put, is the genre of the weird.
2. Bizarro is the literary equivalent to the cult section at the video store.

¹⁴⁷ Pak, Chris, "Then Came Pantropy": Grotesque Bodies, Multispecies Flourishing, and Human-Animal Relationships in Joan Slonczewski's *A Door Into Ocean* – *Science Fiction Studies*, Volume: 44, Issue: 1, Swansea University, (UK, 2017), last accessed 14 December 2018 here: <https://cronfa.swan.ac.uk/Record/cronfa44461>, pp122+

3. Like cult movies, Bizarro is sometimes surreal, sometimes goofy, sometimes bloody, and sometimes borderline pornographic.
4. Bizarro often contains a certain cartoon logic that, when applied to the real world, creates an unstable universe where the bizarre becomes the norm and absurdities are made flesh.
5. Bizarro strives not only to be strange, but fascinating, thought provoking, and, above all, fun to read.
6. Bizarro was created by a group of small press publishers in response to the increasing demand for (good) weird fiction and the increasing number of authors who specialize in it.
7. Bizarro is: Franz Kafka meets Joe Bob Briggs
Dr. Seuss of the post-apocalypse
Alice in Wonderland for adults
Japanese animation directed by David Lynch¹⁴⁸

In practice, it is very difficult to find a Bizarro text that has much in common with my own work – or, indeed, a Bizarro text that has much in common with any other Bizarro text. Chaos reigns in Bizarro texts, and this leads to a pretty diverse range of materials. To demonstrate what I mean here I have selected four short stories from four Bizarro anthologies, using “sea life” as a rather loose theme, and I will attempt to show the gulf between one example from the genre and the others. Where I can, I will also draw parallels with my own writing.

Bizarro stories can take the form of prose fiction, but they can equally take the form of poetry, and each author can seem to be cultivating their own individual sub-subgenre within the Bizarro form. One author from *The Bizarro Starter Kit – Red Edition*, Brian Allen Carr, is credited with a “Western Peculiar”¹⁴⁹ style of Bizarro and has published the story “Motherfucking Sharks” in the anthology. The Western element, as in Spaghetti, is notable from the opening of his story – which immediately sets the scene of a cowboy fiction pastiche, as a stranger arrives with a one-eyed mule in tow. It was around here when I suspected that I had made a mistake in assuming this might be about aquatic sharks, and that it might potentially be about card sharks (or similar) instead. Reading on, it quickly became clear that my first instinct had been correct after all; with the snake-oil seller protagonist, Crick, positing a world akin to that shown in the Sci-Fi Channel’s made-for-TV-movie *Sharknado*. The typical Western plot is interwoven with shark attack horror tropes, instantly recognisable from big screen hits like *Jaws* (only the sharks appear from puddles or sky instead of the ocean), alongside brief interjections of even more surreal material. The least surreal of these asides might be include the following brief insight exploring the differences between shark and you:

¹⁴⁸ Team Bizarro, “Defining Bizarro”, *The Bizarro Starter Kit – Red Edition*, Bizarro Books (US, 2015) p5

¹⁴⁹ Carr, Brian Allen, “Motherfucking Sharks”, *The Bizarro Starter Kit – Red Edition*, Bizarro Books (US, 2015) p41

This is the shark: a blood-hungry thing, utterly addicted—a machine made to hunt the thing it desires.

You aren't much different.

If a human is a molar, the shark is a fang, but both creatures are just instruments the mouth of the world uses to chew its prey. The shark hunts in bursts and bites, the human hunts in endless stroll. Forward, the shark screams. Forward, mutters the human.¹⁵⁰

In this I can see a certain likeness to my own explorations of what separates us from the sharks, trying to imagine a human taking on a shark's perspective, and recording how I thought it might go:

This *Change* was not like all the others had been; it had made her something other than merely panda or person, or combination of the two. She went beyond biped and became more than mammal. This *Change* made Megan a shark; a shark with humanoid limbs perhaps, but she would not waste the opportunity quibbling over details. Megan the wereshark did what all sharks did: she swam. She swam, she attacked, she killed and she feasted and she grew. As she feasted, and as she grew, Megan could feel herself adapting even more to her frosty arctic environment. She became the embodiment of Pantropy – albeit panda-tropy in her case, maintaining her normative colouration as she did – evolving in accelerated Darwinist terms, without the encumbrance of natural selection. Megan the wereshark swam. Megan the wereshark killed again, and again, and again. Megan the wereshark grinned.¹⁵¹

There is undeniably a similarity between our approaches here and in a later passage, where punctuation falls away and the writing slips further into stream-of-consciousness, the writer adopts another style similar to my own to convey the all-consuming nature of the prey drive:

...but the thought then of the form in the mind impossible, the thought of the beast appearing and the thought of the 'how could it be so?'

And then blood blood

Blood

And then screams screams

Screams

AND

The sound of the motherfucking sharks and the sound of the motherfucking sharks and the sound of the motherfucking sharks and the sound of THE motherfucking sharks ! [sic]¹⁵²

¹⁵⁰ Carr, Brian Allen, "Motherfucking Sharks", *The Bizarro Starter Kit – Red Edition*, Bizarro Books (US, 2015) p45

¹⁵¹ *Pandatopia*, 10. 🐼-tropy, p127

¹⁵² Carr, Brian Allen, "Motherfucking Sharks", *The Bizarro Starter Kit – Red Edition*, Bizarro Books (US, 2015) p57

Though I do not believe I used this approach in *Pandatopia*, I definitely used it in *Pandaemic* to show heightened emotional states and the thoughts of people as they fall unconscious. I do not believe, however, that my intentions when using these techniques entirely match up with the author's here – my structure is always intended to immerse, whereas the use in this story seems deliberately jarring. A little later in the text, the author writes “Rain,” 366 times in a row. After that he provides 26 lines of blank space (“___”) under a sub heading, “Rain according to you”, presumably as an invitation to the reader to fill in their own description of rain.

Though I find the more absurdist elements of Bizarro fiction intriguing, in principle, it often stretched the limits of my patience when trying to read even the shortest of short stories. This is one of the dividing principles between SF and Bizarro texts, in my opinion. Where SF seeks to make you suspend your sense of disbelief by drawing you into a world where unlikely or almost impossible things are happening, Bizarro tells you constantly that what's happening is insane and encourages you to either get used to it or to fuck off and read something else. In “I Am a Whale”, by Robin Wyatt Dunn, the protagonist is a whale having an argument with San Francisco in your (the reader's) dream over three pages. The author came up with a distinctly different take on a subject I also explored in my text, culminating in this penultimate paragraph:

I am a whale and I am in your dream! I have won the Mega Millions Lottery and the Nobel Peace Prize! I am Harry S. Truman's middle name. Chewbacca. That's what Harry S. Truman's middle name is, it's Chewbacca. Motherfucker, you didn't even know that. You see how stupid you are? You see what a pathetic excuse for a brain you bipeds have? My brain is the size of your two-car garage, and so is my vagina. That's who I am. You are nothing.¹⁵³

The whale in the dream here, telling you how stupid you are (or San Francisco, as this is a little unclear), is rather similar to Megan in my story – she too is purported to be much smarter than any of us humans can comprehend and is able to take the form of a whale if she feels like it, giving her undeniably dreamlike abilities. Beyond this though, I hope that the way I have portrayed Megan is less confrontational than Dunn's dream whale – who may indeed have a mighty big brain and vagina, though the sperm whale's is the biggest on earth at the moment and doesn't come anywhere near the size of a two car garage. At 8000cm³ a sperm whale brain is approximate to four two-litre bottles of soft drink by volume.¹⁵⁴ Mixing metaphors in with facts, or being overly hyperbolic, is something I have tried to avoid while writing my panda people stories. I was once

¹⁵³ Dunn, Robin Wyatt, “I Am a Whale”, *Tall Tales with Short Cocks – A Bizarro Press Anthology*, Bizarro Press (2012) p73

¹⁵⁴ If you would like to learn more about whale vagina sizes, I found a blog post in Scientific American that you might find interesting here: <https://blogs.scientificamerican.com/guest-blog/getting-to-know-whale-vaginas-in-seven-steps/>

advised in a writing workshop that, when dealing with talking pandas in your manuscript, I should probably avoid using terms like “the bench groaned as he sat down” – because in worlds with talking animals, we can’t be sure the furniture isn’t meant to be talking too. This is another area where Bizarro diverges from SF, and hopefully from my work as well.

The main point that prevents my work from fitting neatly in the genre, is the overt and often pornographic thematic tendency in Bizarro works. That and the profanity. Already in this sub-2000 word section I have used more swearing than I did in both of my novels. The words covered are also objectively more profane than any of the, “you bastard” or “oh shi—”, curses I chose for my work. I have no problem with profanity, I probably swear way more than I should in my free time, but I made a conscious choice to avoid the diminishing aesthetic effect that profanity can have in the text. This means that in the few moments when characters do swear, a greater emphasis is attached to their words. The next two sea life tales I want to look at are Eirik Gumeny’s “The Ballad of Billy the Squid” and Ben John Smith’s “For Vik”, both of which use octopuses in their stories. Gumeny’s tale is about a boy with an octopus for a head, not a squid, and the boy is actually called Scott Plammer. Scott escapes an abusive father to go and work in Japanese porn, where he adopts the stage name of Billy the Squid and becomes a fantastic success. Scott returns home to rescue his brother Todd, who has a sawfish for a head, only to find that Todd died whilst being forced to work at a sawmill – thus leading Scott to take vengeance on the father at his homecoming¹⁵⁵. This was probably one of the most readable Bizarro stories I encountered during my research, and the structure follows a well-defined narrative tradition that is practically Aristotelian. The pornographic nature of the text means that it can only ever be read as comedic Bizarro fiction, or as something you might get between the photos in a porn magazine. Smith’s “For Vik”, conversely, could be completely publishable as a poetic work – despite probably being too graphic even for publication in UK porn magazines – being centred on a man caught watching a woman squeezing a live octopus out of her anus by his girlfriend. Artistically the piece paints a vivid picture of two people trapped in an unhappy relationship, conjuring an idea of poverty through description of the scene, and concluding with an allusion to masturbation¹⁵⁶.

From the additional research I have undertaken into the readership community, I fear my panda stories may be perceived as a bit too tame for any Bizarro imprint, unless I were willing to sex them up by a significant factor. I have previously mentioned that interspecies sexual relationships do

¹⁵⁵ Gumeny, Eirik, “The Ballad of Billy the Squid”, *Tall Tales with Short Cocks – Vol.2*, Ed. Gelsing, Arthur, Bizarro Press (2012) pp1-11

¹⁵⁶ Smith, Ben John, “For Vik”, *Tall Tales with Short Cocks – Vol.3*, Ed. Gelsing, Arthur, Rooster Republic Press (2013) pp78-83

play a part in my work, and that these are likely to become a more prominent consideration if I go on to develop the third instalment, but I have to draw the line at hot-and-sweaty bestiality based panda porn. While I have read many Bizarro stories that made me smile, I have also read many that made me wince. Some of the most Bizarro style sections of my work were written when I stayed awake too late working on my story, or when I had one too many whiskies, and were inevitably cut the morning after as I felt mortified reading them. Embracing Bizarro could potentially be an option for me in the future, providing I work out how to silence the inner voice telling me, “no – that’s way too graphic!” But, with regards to my panda stories as they currently stand, I do not think the Bizarro genre is a good contextual fit.

Chapter XV – Metamorphosis of My Novum

At this point I would like to segue into another story about octopuses that I think more closely matches my aims and themes, and is the sequel to a story previously cited as an influential work. Adrian Tchaikovsky’s *Children of Ruin* unfolds alongside and after the events in *Children of Time*. On another world, far away from that of the crazy giant spiders, a rogue scientist has seeded a planet exclusively with genetically modified octopuses. Though octopuses themselves do not feature at all in my work, Tchaikovsky’s core theme of interspecies communication does. Bringing together the gesture/dance based language and genetically transmitted “understandings” of the spiders with the colour and emotion based systems adopted by his imagined octopus society, incorporating both meta-humans with technologically augmented translating abilities and a microscopic brain-invading parasite into the mix, Tchaikovsky creates a meticulously sculpted story of people trying to understand one another and make themselves understood. *Children of Ruin* extrapolates from the foundation of this theme, originally conceived in *Children of Time*, building it into something more. Tchaikovsky’s portrayal of strange and alien perspectives clashing, then communicating and ultimately overcoming otherness, are clear examples of Suvin’s SF theory:

The aliens – utopians, monsters, or simply differing strangers – are a mirror to man just as the differing country is a mirror for his world. But the mirror is not a reflecting one, it is also a transforming one, virgin womb and alchemical dynamo: the mirror is a crucible.¹⁵⁷

In *Children of Time* and *Children of Ruin* the detailed examination of the conflicts that emerged, not only between the different alien communities but also those that erupted within each community, in a multifaceted reflection of human societal struggles. The Portiids (spiders) war with one another, with colonies of ants, and with other types of spider throughout the first text – as do the humans –

¹⁵⁷ Suvin, Darko, *Metamorphoses of Science Fiction: on the Poetics and History of a Literary Genre*, Ed. Canavan, Gerry, *Ralahine Utopian Studies* V.18, Peter Lang (Germany, 2016), p17

while the octopuses do likewise in the second text. Peace is brokered, allegiances change, and the ants are conquered with the spider's superior technology and then integrated into said technology for the betterment of both species (apparently) in *Children of Time*. In *Children of Ruin* the octopuses' split-personalities – comprised of the mind in the head and the mind of the tentacles – often at odds within themselves as well as with those around them, show similar predispositions toward conflict and resolution. The behaviours of each genetically enhanced species in both texts are informed by the writer's understanding of the intelligences their real-world counterparts are already known to possess, but the societal and personal relationships the aliens develop are equally informed by the behaviours that modern humans are prone to. I wished to convey similar clashes between my panda people and other panda people, and between the various other pandafied creatures, as well as between the *unchanged* humans – on top of the clashes they would each have with one another. The Magpies in my text probably serve as the best example of this; encouraging conflict between the other races as a means of advancing their own internal power struggle, fighting proxy wars much as the great superpowers of today do, advancing status with minimised risk. This was not one of the principle intents of my novum originally, however, but the result of external influences shaping my work as it progressed – these influences heated the crucible of my novum and brought it to the boil.

Suvin, on Karel Čapek's coinage of the term "robot" – from "robota", meaning "drudgery"¹⁵⁸ – in *Rossum's Universal Robots* (or *R.U.R.*), describes how the author's depiction of the "other" began and transformed over time:

The poetic justice, however, stems from the fact that a quite central preoccupation was with the potentials and actualizations of inhumanity in twentieth-century people, and that this preoccupation was throughout his whole opus translated into the image of the Natural Man versus the Unnatural Pseudo-Man. This manlike, reasonable but unfeeling being is in Čapek's work represented by a number of approximations, one of the first among which were the robots of *R.U.R.*¹⁵⁹

Suvin goes on to discuss how the robots of Čapek's work could be compared to the Morlocks of H.G. Wells' *The Time Machine*, both being emblematic of the working classes and symbols of man's inhumanity to other men¹⁶⁰. This conflict of class sits at the heart of many SF works, including my own, where otherness is transposed upon the mundane to create a distorted reflection of societal issues – as with Suvin's crucible mirror analogy. The SF text puts humanity's deeds on trial, dreaming up potential consequences for actions taken and reviewing the possible results in extremis – making

¹⁵⁸ Ibid, p299

¹⁵⁹ Ibid, p299

¹⁶⁰ Ibid, p301

them strange to the reader and giving the reader the chance to review them with fresh eyes. This concept was one I first encountered when studying film and theatre, pioneered by Bertolt Brecht and Sergei Eisenstein, relating back to the point Canavan raised about ‘cognitive estrangement’ quoted earlier in this text.

This concept was first developed on non-naturalistic texts by the Russian Formalists (“ostranenie,” Viktor Shklovsky) and most successfully underpinned by an anthropological and historical approach in the work of Bertolt Brecht, who wanted to write “plays for a scientific age”. While working on a play about the prototypical scientist, Galileo, he defined this attitude (“Verfremdungseffekt”) in his *Short Organon for the Theatre*: “A representation which estranges is one which allows us to recognize its subject, but at the same time makes it seem unfamiliar.” ... (Later, Brecht would note that it might be time to stop speaking in terms of masters and servants altogether.)¹⁶¹

Suvin goes on to point out that, ‘robots are not only stand-ins for workers but also – in an ideological mystification that brought him instant fame because it corresponded to deep psychological needs for self-delusion in his audience – inhuman aliens “without history” (*R.U.R.*, act I).’¹⁶²

Thus their creation does not lead to Domin’s engineering utopia of total abundance and leisure which would breed Nietzschean supermen, but to a genocidal revolt of the submen against the humans.¹⁶³

Suvin notes that the robots of *R.U.R.* progress from inhuman aliens at the start to become more human towards the conclusion of the play, ‘reacquiring pain, feelings, and love, they usher in a new cycle of creation or civilisation’¹⁶⁴. This formula has become so common in SF works that it is practically a cliché at this point, perhaps best summarised in the recurring line, ‘All this has happened before, and it will all happen again’, originally from J.M. Barrie’s *Peter Pan* but used throughout the *Battlestar Gallactica* remake (2004). The *BG* finale ended by fast-forwarding to modern-day Earth and showing a stock-footage montage of all the recent developments in robotics technology, hinting that we are close to developing our own Cylons who will in turn be the end of us. Other notable examples of this formula at work might include the *Terminator* franchise, where humans and machines become locked in a seemingly perpetual logic-loop of mutual destruction and temporal paradox, still unfolding today. *The Matrix* films, where the machines decide to use humans as batteries having exhausted all other potential power source options, traps mankind in a virtual world designed to be as cruel as reality because human minds apparently rebelled when the machines tried to make the virtual world better for us. In *Revolutions* (the third film of the trilogy

¹⁶¹ Ibid, pp18/19

¹⁶² Ibid, p301

¹⁶³ Ibid, p301

¹⁶⁴ Ibid, p301

and analogous with the twin themes of repeating cycles and insurrection) it is revealed that the messianic protagonist is not in fact *The One* that we have been led to believe, but merely the latest one of many versions of himself – repeating the same actions over and over in a sequence that reaches the end of its arc with him, as his powers evolve beyond the virtual and into the real. This apparent evolutionary leap allows Neo to reach an accord with the machines, achieving peace in the virtual and real worlds by breaking the cycle with an act of rebellion, saving both humans and machines from the mutually assured destruction that would come with severing their symbiosis completely.

In my text I hoped to steer away from the idea of underclasses rebelling – though I definitely wanted to keep elements of mistrust between the different classes (races) of beings. I was striving for something closer in my novum to the intents of Čapek’s *War with Newts*, as described by Suvin, and my own journey in the writing shares some parallels with Čapek’s perception of the rise of Nazism and my own observations about the undercurrent of racism in modern Britain that has recently been brought to the fore (and in many ways even sanctioned) by Brexit.

Now he wrote sharply against an intellect that is giving up its rights “in favor of irrationalism and daimonism, be it the cult of will, of the land, of the subconscious, of the mass instincts, or of the violence of the powerful – that is a decadent intellect because it tends toward its own downfall.” [Čapek’s article in the newspaper *Přítomnost*, No. 29 (1934)] A limit was found beyond which the pseudo-human became clearly evil; that limit is reached when the new creatures in *War with the Newts* grow into an analogy to the Nazi aggressors.¹⁶⁵

Though the manifestation of my panda people had always been analogous for the subsurface levels of racial discrimination I witnessed in rural towns and villages across England and the South East, most often whilst working in public houses, the rise of the Far Right in the UK and Europe in recent times led me to take the actions of the Magpie people in my text and transpose more sinister motivations upon them. In the first draft of my text the Magpies had simply been the helpful friends of Megan and her group, in re-drafting I began adding more suspicious and aggressive behaviours, removing some of their openness and reframing their counting-rhyme language as a deliberate affectation to subvert expectations rather than a charming eccentricity of their development. I wanted to convey the idea that the prejudices and discrimination present in our society is a terrible thing, through the conflicts of the panda people and *unchanged* humans, but that those who would seek to harness these negatives for their own ends (the Magpies in *Pandatopia*) are potentially far worse. These were the principal metamorphoses my novum underwent during the drafting process, and took place in reaction to the events unfolding around me – my writing became more a way for

¹⁶⁵ Ibid, 305

me to relate to the world outside than it ever has been before. As stated earlier in this text, when I began writing about people turning into pandas I had intended it to be light-hearted and entertaining above all else, but then I started to see the innate humorousness of my chosen subject as a means to engage with my readers on a deeper level about some of the more serious events of the day.

Chapter XVI – Jenga Fallout

Upon completion of my structural edits, I found myself with a much changed manuscript. Because the largest amount of rewriting was concentrated around my opening chapters – which at the time included a twenty-thousand word prologue, which needed to be combined with an older sixty-thousand word version of the prologue to help contextualise my novum – I find myself returning to the beginning. When finished I had reduced both original versions to a basic four-thousand word prologue, cutting chunks from the original first chapter wholesale and replacing with rewritten material, then added another early chapter between chapters one and two. I am much happier with the result of this work, as it progresses the action more swiftly while filling in some of the required background information set down in *Pandaemic*. At this point I am relatively comfortable with the rest of the structural edit points I addressed, and with those I decided not to go through with. I hope I reduced the instances of exposition delivered through dialogue considerably, though there remained a number of instances where I left it as it was. I cut around six-thousand words from the initial draft, net (after accounting for the words I added), and I hope has improved readability and focus throughout. One thing I ultimately decided against, was killing off BiS crewmembers at every opportunity. Though I am almost certain that this will disappoint my supervisor, I felt that (upon a second reading) the number of crewmates was not too unmanageable for the reader.

The amount of time spent on the Bear-in-Straightjacket was also flagged as a concern in my Viva and, though I was not required to edit out sections on the ship, I was advised to give them further thought. Should I pursue publishing of *Pandatopia*, I will certainly see if there are better settings for some of the events aboard ship and evaluate if the others are strictly necessary as well. The Epic Journey component of the story led me to use the ship, though in naming it I may have become more attached to it than I would have to an anonymous Homeric galley like those shown in the *Odyssey*. The Mad Sea Dogs may often be peripheral to the plot, but their presence adds to the comedic elements in a number of places. It is true that other characters might just as well be able to share out some of the Sea Dog's jokes, and this is something to consider in any further revisions. The principal benefit of reducing the role of the ship in future might be to increase the other possible settings that could be explored, and to add more instances of how humanity and panda people are living alongside one another. This had been something I wanted to do when I began writing this

book, and relocating some of the action from the ship to the shore might allow more opportunities for this exploration.

Post Script

Thank you for reading this far. This text represents the better part of three years' creative work, and a broad summary of six years' research. It omits the first three years' creative primarily due to the constraints of the word count and, obviously, in respect of your valuable time. If you would like to learn more about the first book not submitted here, *Pandaemic*, I have attached an extensive timeline in [Appendix A](#).

Though I am reasonably happy with the story in *Pandatopia*, I am aware that it reads much like the second book in a trilogy. I decided to keep it this way at the point of submission, rather than modifying the ending to make it stand better on its own, because that would change the essence of the text completely. I fully intend to continue working on my Pandaverse now my academic course is reaching its conclusion, and hope that the work I have done to this point will help me make the next book much better. My last six years has been a fantastic learning experience for me. I have had the chance to travel, study abroad, teach at university and secondary level – all because of the work I have been doing at the University of Essex. This text may not include every detail of what I have done, but my experiences have helped inform the creative and critical components in ways that are difficult to record.

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Bibliography

1. Adams, Douglas, *Hitchhikers Guide to the Galaxy*, Pocket Books, (UK 1973)
2. Aldiss, Brian W., *Billion year spree: the history of science fiction*, Weidenfeld & Nicolson, (UK, 1973)
3. Anders, Günther, 'The Obsolescence of Man, Volume II: On the Destruction of Life in the Epoch of the Third Industrial Revolution', last accessed 14 December here:
<https://libcom.org/files/ObsolescenceofManVol%20IIGunther%20Anders.pdf>
4. Asimov, Isaac, "Three Laws of Robotics", *The List of Lists*, 2001, last accessed 26 December 2018 here:
<https://www.auburn.edu/~vestmon/robotics.html>
5. Atwood, Margaret, *The Year of the Flood*, Anchor Books (US, 2009)
6. Baron, Zach, "The Passage of Justin Cronin", *NYTimes.com*,
<http://www.nytimes.com/2012/10/07/magazine/the-passage-of-justin-cronin.html?mcubz=0>,
04/10/2012, accessed on 03/09/2017
7. Benjamin, Alex & Slocombe, Katie, 'Who's a good boy?!' *Dogs prefer naturalistic dog-directed speech*, "Animal Cognition", University of York, UK, May 2018, Volume 21, Issue 3, pp 353–364, last accessed 7 December 2018 here: <https://link.springer.com/article/10.1007%2Fs10071-018-1172-4>
8. Brady, Tara, "Fill the pool with fish and stockpile the guns: up to THREE MILLION 'Preppers' in the U.S. are prepared for for[sic] the end of the world", *Mail Online*, <http://www.dailymail.co.uk/news/article-2099714/Meet-preppers-Up-3-MILLION-people-preparing-end-world-know-it.html>, last updated 11/02/2012, accessed 20/03/2017
9. Brockes, Emma, "Margaret Atwood Interview", *TheGuardian.com*,
<https://www.theguardian.com/books/2013/aug/24/margaret-atwood-interview>, 24/08/2013,
accessed on 26/08/2017
10. Canavan, Gerry (intro by editor) "The Suvin Event", Suvin, Darko, *Metamorphoses of Science Fiction: on the Poetics and History of a Literary Genre*, Ralahine Utopian Studies V.18, Peter Lang (Germany 2016)
11. Carr, Brian Allen, "Motherfucking Sharks", *The Bizarro Starter Kit – Red Edition*, Bizarro Books (US, 2015)
12. Caspi, A (et al.), "Influence of Life Stress on Depression: Moderation by a Polymorphism in the 5-HTT Gene", *Science, New Series*, Vol. 301, No. 5631, *American Association for the Advancement of Science*, US 18 July 2003, last accessed 26 December 2018 here: <http://www.epigenomicslab.com/wp-content/uploads/publications/Caspi%20A%20et%20al,%20Influence%20of%20life%20stress%20on%20depression,%20moder.pdf>, JSTOR Link: <http://www.jstor.org/stable/3834746?origin=JSTOR-pdf>
13. Chu, Seo-Young, *Do Metaphors Dream of Literal Sleep: A Science-Fictional Theory of Representation*, Harvard University Press, (US/UK 2010)
14. Daley, Jason, *Why Puppies Love Baby Talk*, "Smart News", *SmithsonianMag.com*, 11 January 2017, last accessed 7 December 2018 here: <https://www.smithsonianmag.com/smart-news/why-puppies-love-baby-talk-180961755/>

15. Dunn, Robin Wyatt, "I Am a Whale", *Tall Tales with Short Cocks – A Bizarro Press Anthology*, Bizarro Press (2012)
16. Eirich, Susan B., "The Intelligence of Crows and Magpies", EarthFireInstitute.org, 2018, last accessed 30/11/2018, here: <https://earthfireinstitute.org/story/the-intelligence-of-magpies/>
17. Fitzgerald, F. Scott, Book 1: From: "McSweeney's - Issue 22" (2006), *The Notebook: The Unwritten Stories of F. Scott Fitzgerald*, last accessed 18 June 2017 here: <https://store.mcsweeney.net/products/mcsweeney-issue-22>
18. Gaiman, Neil, "Moving In", *The Sandman*, Issue 11, DC Vertigo, p10 - this image accessed 01 December 2018, here: <https://thenightling.tumblr.com/post/175142084343/matthew-cable>
19. Gaiman, Neil, "The Doll's House", *The Sandman*, Issue 10, DC Vertigo, p10
20. Gaiman, Neil, "The Parliament of Rooks", *The Sandman*, Issue 40, DC Vertigo, p8 – this image accessed 01 December 2018, here: <https://thenightling.tumblr.com/post/175142084343/matthew-cable>
21. Grand, Alex, *The Influence of Pulp Fiction on the Golden and Silver Age of Comic Books*, CBH.com, Copyright 2018, last accessed 17 December 2018 here: <https://comicbookhistorians.com/the-influence-of-pulp-fiction-on-the-golden-and-silver-age-of-comic-books/>
22. Griffin, Andrew, "Facebook's Artificial Intelligence Robots Shut Down After They Start Talking to Each Other in Their Own Language", *Independent.co.uk*, UK 31 July 2017, last accessed 25 December 2018 here: <https://www.independent.co.uk/life-style/gadgets-and-tech/news/facebook-artificial-intelligence-ai-chatbot-new-language-research-openai-google-a7869706.html>
23. Gumeny, Eirik, "The Ballad of Billy the Squid", *Tall Tales with Short Cocks – Vol.2*, Ed. Gelsing, Arthur, Bizarro Press (2012)
24. Herzog, Hal, "A Scientific Mystery: Do Wild Baboons Kidnap Puppies for Pets?" posted on PsychologyToday.com on 21 December 2011, last accessed on 30 November 2018, here: <https://www.psychologytoday.com/intl/blog/animals-and-us/201112/scientific-mystery-do-wild-baboons-kidnap-puppies-pets>
25. Jelbert, Sarah A., Taylor, Alex H., Cheke, Lucy G., Clayton, Nicola S., Gray, Russell D., "Using the Aesop's Fable Paradigm to Investigate Causal Understanding of Water Displacement by New Caledonian Crows", Published 26 March 2014, *Plos One*, last accessed 30 November 2018, here: <https://doi.org/10.1371/journal.pone.0092895>
26. Kaplan, Gisela, *Australian Magpie: Biology and Behaviour of an Unusual Songbird*, CSIRO Publishing, (Australia, 2004)
27. Kirby, Jack, "Conversations with the Comic Book Creators," - Pitts, Leonard, US 1987, published on *The Kirby Effect: The Journal of the Jack Kirby Museum & Research Centre*, 6 August 2012, last accessed 17 December 2018 here: <https://kirbymuseum.org/blogs/effect/2012/08/06/19867-kirby-interview/>
28. Knight, Damon (attributed), 'A comic form of the Dischism in which the author's subconscious, alarmed by the poor quality of the work, makes unwitting critical comments: "This doesn't make sense." "This is really boring." "This sounds like a bad movie."' – Sterling, Bruce, *A Workshop Lexicon*, last accessed 17 December 2018 here: https://smorgasborg.artlung.com/Sterling_SF_lexicon.shtml

29. Lee, H (et al.), "Possible Association between Serotonin Transporter Gene Polymorphism and Suicide Behavior in Major Depressive Disorder", *Psychiatry Investigation*, Vol. 12, No. 1, US 12 January 2015, last accessed 26 December 2018 here: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4310911/>
30. Lee, Stan, *Archive of American Television*, March 22, 2004 – retrieved 4 January 2015 and posted on Wikipedia - https://en.wikipedia.org/wiki/X-Men#cite_note-1 – accessed 23/11/2018
31. Lem, Stanislaw, *The Cyberiad: Fables for the Cybernetic Age*, 1975, Trans. Kandel, Michael, Illust. Mróz, Daniel, Penguin (UK 2014), Kindle Ed.
32. March-Russell, Paul, 'Editorial', *Foundation: The International Review of Science Fiction*, Vol 45.2, No 124, Science Fiction Foundation, 2016
33. May, Adrian, *PhD Supervisory Board*, The University of Essex (UK, 2017), recorded 21/05/2017
34. Morton, Timothy, *Humankind – Solidarity with Nonhuman People*, Verso (UK, 2017)
35. Mozzi A, Forni D, Clerici M, et al., "The evolutionary history of genes involved in spoken and written language: beyond FOXP2", *Sci Rep 2016*, 25 Feb 2016, doi:10.1038/srep22157, last accessed 12/12/2018 here: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4766443/>
36. Noah Harari, Yuval, *Sapiens: A Brief History of Humankind*, Vintage (UK, 2011)
37. Nicholls, Henry, "The Truth About Magpies", published online by the BBC *Earth* series, on 8 April 2015, last accessed on 30 November 2018, here: <http://www.bbc.co.uk/earth/story/20150408-the-truth-about-magpies>
38. Orwell, George, *Nineteen Eighty-Four*, Martin Secker & Warburg Limited, (UK 1949, this edition Twentieth Century Classics 1970)
39. Packham, Chris, "Should pandas be left to face extinction?" *TheGuardian.com*, <https://www.theguardian.com/environment/2009/sep/23/panda-extinction-chris-packham>, 22/09/09, accessed on 27/10/17
40. Pak, Chris, "'Then Came Pantropy': Grottesque Bodies, Multispecies Flourishing, and Human-Animal Relationships in Joan Slonczewski's *A Door Into Ocean*" – *Science Fiction Studies*, Volume: 44, Issue: 1, Swansea University, UK 2017, last accessed 14 December 2018 here: <https://cronfa.swan.ac.uk/Record/cronfa44461>
41. Peeples, Lynne, "Manipulative meow: Cats learn to vocalize a particular sound to train their human companions", *Blogs.ScientificAmerican.com*, USA, 13 July 2009, last accessed 7 December 2018 here: <https://blogs.scientificamerican.com/news-blog/the-manipulative-meow-cats-learn-to-2009-07-13/>
42. Pratchett, Terry, & Baxter, Stephen, *The Long Cosmos*, Doubleday (UK, 2016 – Corgi, 2017)
43. Pratchett, Terry, Baxter, Stephen, *The Long Mars*, Penguin Random House (UK, 2014 – Corgi, 2015)
44. Pratchett, Terry, Baxter, Stephen, *The Long Utopia*, Doubleday (UK, 2015 – Corgi, 2016)
45. Pratchett, Terry, Baxter, Stephen, *The Long War*, Doubleday (UK, 2013 – Corgi, 2015)
46. Reece, Gregory L., *X-Men ex nihilo? The Secret Origins of Marvel's Mutant Superheroes*, popmatters.com, 10 September 2015, last accessed 17 December 2018 here: <https://www.popmatters.com/x-men-ex-nihilo-the-secret-origins-of-marvels-mutant-superheroes-2495490034.html>

47. Rutschman, Ana Santos, "Stephen Hawking warned about the perils of artificial intelligence – yet AI gave him a Voice", *TheConversation.com*, UK 15 March 2018, last accessed 25 December 2018 here: <https://theconversation.com/stephen-hawking-warned-about-the-perils-of-artificial-intelligence-yet-ai-gave-him-a-voice-93416>
48. Said, Edward, *Orientalism*, Routledge & Kegan Paul Ltd., (UK 1978, this ed. 1995)
49. Shephard, T.V., Lea, S.E.G., Hempel de Ibarra, N., "'The thieving magpie'? No evidence for attraction to shiny objects", *Animal Cognition*, Volume 18 Issue 1, January 2015, pp 393-397, last accessed 30 November 2018, here: <https://link.springer.com/article/10.1007%2Fs10071-014-0794-4>
50. Smith, Ben John, "For Vik", *Tall Tales with Short Cocks – Vol.3*, Ed. Gelsing, Arthur, Rooster Republic Press (2013)
51. Smith, Joseph (credited), *Doctrine and Covenants*, 38:30, <https://www.lds.org/scriptures/dc-testament/dc/38.30?lang=eng#29>, accessed 20/03/2017
52. Stapledon, Olaf, *Odd John*, E. P. Dutton & Company, Inc. (UK, 1936, this ed. Dover, USA, 1964)
53. Sterling, Bruce, *A Workshop Lexicon*, last accessed 17 December 2018 here: https://smorgasborg.artlung.com/Sterling_SF_lexicon.shtml
54. Suvin, Darko, *Metamorphoses of Science Fiction: on the Poetics and History of a Literary Genre*, Ed. Canavan, Gerry, *Ralahine Utopian Studies V.18*, Peter Lang (Germany, 2016)
55. Tchaikovsky, Adrian, *Children of Time*, Tor (UK, 2015)
56. Team Bizarro, "Defining Bizarro", *The Bizarro Starter Kit – Red Edition*, Bizarro Books (US, 2015)
57. Than, Ker, "Neanderthals, Humans Interbred—First Solid DNA Evidence", *National Geographic News*, 8 May 2010, last accessed 12/12/2018 here: <https://news.nationalgeographic.com/news/2010/05/100506-science-neanderthals-humans-mated-interbred-dna-gene/>
58. VanderMeer, Jeff, *Borne*, 4th Estate (UK, 2017)
59. Viral clip – <https://www.youtube.com/watch?v=U2ISZPTa3ho> – originally *Animals Like Us*, by Saint Thomas Productions, 2004-2006, last accessed 30 November 2018, here: <https://www.youtube.com/watch?v=QbZrVpIpsIE>
60. Wells, H.G., "H. G. Wells on Eugenics", *Journal of Heredity*, Volume 20, Issue 2, 01/02/1929, <https://doi.org/10.1093/oxfordjournals.jhered.a103148>, accessed on 31/10/17
61. Wells, H.G., *The Island of Doctor Moreau*, Penguin Books, 1946, (1st Ed. UK, 1896, Heinemann)
62. Wright, Mark, (in response to Chris Packham), "Should pandas be left to face extinction?" *TheGuardian.com*, <https://www.theguardian.com/environment/2009/sep/23/panda-extinction-chris-packham>, 22/09/09, accessed on 27/10/17
63. Wyndham, John, *The Midwich Cuckoos*, Michael Joseph (UK, 1957, this ed. Penguin 1975)
64. Uncredited, "How fussy pandas maintain a balanced bamboo diet", The University of Sydney, <http://sydney.edu.au/news/84.html?newsstoryid=13794>, 22/07/14, accessed on 30/10/17

65. Uncredited, 'Habitat of the Panda', *WWF.Panda.org*,
[http://wwf.panda.org/what we do/endangered species/giant_panda/panda/where_panda_lives_habitat/](http://wwf.panda.org/what_we_do/endangered_species/giant_panda/panda/where_panda_lives_habitat/), accessed on 27/10/17
66. Uncredited, *Meowing and Yowling*, "Common Cat Behaviours", the ASPCA.org, last accessed 7 December 2018 here: <https://www.asPCA.org/pet-care/cat-care/common-cat-behavior-issues/meowing-and-yowling>
67. Uncredited, 'Panda conservation', *WWF.Panda.org*,
[http://wwf.panda.org/what we do/endangered species/giant_panda/panda/panda_evolutionary_history/](http://wwf.panda.org/what_we_do/endangered_species/giant_panda/panda/panda_evolutionary_history/) accessed on 27/10/17
68. Uncredited, "Preparedness", *The Church of Jesus Christ of Latter-day Saints – Newsroom*,
<http://www.mormonnewsroom.org/article/preparedness>, accessed 20/03/2017
69. Uncredited, University of Michigan Health System, "More ancient viruses lurk in our DNA than we thought." *ScienceDaily.com*, 22 March 2016, last accessed 28 December 2018 here:
www.sciencedaily.com/releases/2016/03/160322100714.htm

Appendix A

Grocott, Joshua Ross, Timeline of the Pandaverse (minus *Pandatopia* events mentioned elsewhere in TEOTWAWKI):

Book	Temporal Ref.	Event
<i>Pandatopia Pastoral</i>	Two thousand years before the <i>Change</i>	Bos Taurus, black matriarch of the Batavian herd, bred with the white prince of the Friesland herd – spawning the first of the Holstein Friesian line – the cows of Frisby Farm
<i>Pandaemic</i>	Seventy years before the <i>Change</i>	Baby Gottfried is born in Rinteln, Germany.
<i>Pandaemic</i>	Sixty one years before the <i>Change</i>	Little Gottfried’s father abandons him to the sole care of his horrible mother (from little Gottfried’s point of view).
<i>Pandatopia Pastoral</i>	Fifty nine years before the <i>Change</i>	Farmer Frisby is born.
<i>Pandaemic</i>	Fifty eight years before the <i>Change</i>	Gottfried’s father leaves a number of secret documents concealed behind his bureaux – they are from project “Übermensch”, with a few mixed in from project “Wunderwaffer”, “Der Reise” and “Die Glocke” – when he leaves. The notes indicate that Dr Gottfried (Snr) had left bound for the Czech Republic, and a mysterious mine called “Wenceslaus”. When Gottfried (Jr) discovers these documents, their contents set him on the path of scientific discovery that would later facilitate the <i>Change</i> .
<i>Pandaemic</i>	Forty years before the <i>Change</i>	Dr Gottfried begins experimenting with genomes, splicing traits onto the genes of Chimpanzees from other animals (including humans), eventually progressing to the point where he is willing to experiment on himself.

Book	Temporal Ref.	Event
<i>Pandaemic</i>	Thirty five years before the <i>Change</i>	Dr Gottfried, having gained super-intelligence through his experimentations, sets about trying to take over the world. He starts by creating a viral vector delivery system for his gene-altering “panda-cea”, infecting a small number of his most dedicated students (with encouragingly positive results on the most part), then approaches a number of financially motivated investors to pitch for funding. He garners more support than he had predicted in his most positive financial projections, primarily because he had neglected to anticipate the human capacity for fear into his calculations (a mistake he would never make again) and soon found himself sitting at the apex of a new world order just waiting to be unleashed. Because he seems to have exponentially slowed his own aging process through his genetic manipulations, Dr Gottfried can afford to take his time – he also gives this trait to his infected students.
<i>Pandaemic</i>	Thirty years before the <i>Change</i>	Rob Durant is born.
<i>Pandaemic</i>	Twenty nine years before the <i>Change</i>	Dr Gottfried’s students hypothesise that artificial intelligences may overtake their efforts to create super-humans, assuming that Moore’s Law can be counteracted with new technologies in the intervening years, before they are able to implement their grand plans. They insist that the collective begins recording all of the information required to create cybernetic facsimiles of themselves, so that they might continue their great works in the event that any of their feeble (if more robust than normal) mortal bodies die prematurely. All of the disciples infer that Gottfried’s AI should take priority, working on the basis of “seniority” that his intelligence was the most “at risk”.
<i>Pandaemic</i>	Twenty eight years before the <i>Change</i>	John Durant is born.
<i>Pandaemic</i>	Twenty seven years before the <i>Change</i>	Kat Brockwell is born. James Undertone is born.
<i>Pandaemic</i>	Twenty six years before the <i>Change</i>	Jen Durant is born.

Book	Temporal Ref.	Event
<i>Pandaemic</i>	Twenty five years before the <i>Change</i>	Dr Gottfried enters into a sexual relationship with one of his infected students – a woman less than a third of his own age. Their relationship produces offspring: heterozygous twins, one (Aaron – a boy) exhibits all of the signs of infection, one does not (Zarathustra – a girl, despite her namesake). Gottfried insures that his mate is given the next highest priority on their AI mapping programme.
<i>Pandaemic</i>	Twenty four years before the <i>Change</i>	Paullina Cohen is born.
<i>Pandatopia Pastoral</i>	Twenty three years before the <i>Change</i>	Abigail is born in Ghana, but her parents migrate to the UK in the same year. Abigail is raised in the home counties of England without ever learning Ghanaian.
<i>Pandatopia Pastoral</i>	Seventeen years before the <i>Change</i>	Oli Naas is born.
<i>Pandatopia Pastoral</i>	Thirteen years before the <i>Change</i>	Farmer Frisby marries Abigail and they have their first daughter.
<i>Pandaemic Pandatopia Pastoral</i>	Twelve years before the <i>Change</i>	James Undertone and Jen Durant meet for the first time. Farmer Frisby and Abigail have their first daughter.
<i>Pandaemic Pandatopia Pastoral</i>	Ten years before the <i>Change</i>	James Undertone and Jen Durant marry. Farmer Frisby and Abigail have their second daughter.
<i>Pandaemic</i>	Nine years before the <i>Change</i>	Charlotte (Lottie) Durant is born. Angie, all of the children in Class 4B are born. All of the 128 abducted children in/around Colchester (including Lottie, Angie and their classmates), as well as the 1,408 other abducted children at 11 other key sites around the world, are born. The 1,536 dead children whose bodies were used to replace the abductees were also born around this time, though they all died before the <i>Change</i> and were kept in cryonic storage until they were needed in the staging areas.
<i>Pandaemic</i>	Three years before the <i>Change</i>	Dr Gottfried builds the WIZRD – Wivenhoe Institute of Zoological Research and Development – adapting it from an existing scientific facility in a small village just outside the town of Colchester, England. It used to be a germ warfare research base, so lent itself well to his needs. His previously infected students, numbering 11 in total, are sent out to oversee the creation of 11 other IZRDs in tactically chosen sites around the world – the mother of his children is among the 11 delegated site founders.

Book	Temporal Ref.	Event
<i>Pandaemic</i>	Five months before the <i>Change</i>	Soldiers from the Colchester barracks report to the WIZRD for mandatory inoculation against an extremely virulent disease, following leaked reports that nearby hostile nations have weaponised the virus. The reports seem credible, since the UK has also weaponised the virus, and the UK government has placed the entire Colchester cohort on detached service to the WIZRD while the success of the inoculation programme is assessed.
<i>Pandaemic</i>	Two years before the <i>Change</i>	James and Jen Undertone divorce – Jen gets custody of Lottie, and Lottie wants to change her name when her mother does (James is left heartbroken by this, but never lets his daughter know it).
<i>Pandaemic</i>	Twelve weeks before the <i>Change</i>	A pair of giant pandas, Yà Dāng and Yī Fū, are brought to the WIZRD for experimental fertility treatments. The treatments have been authorised by the Chinese government, and are being undertaken at locations near 12 zoos around the world where breeding pairs of giant pandas can be found.
<i>Pandaemic</i>	Eleven weeks before the <i>Change</i>	The breeding pairs are given their treatments simultaneously at all sites around the globe. The treatments stimulate the pandas' mating instincts, increasing the occurrence of heat in the female and fuelling the libido of the male. The treatments are also designed to reduce the gestation period of foetal pandas by 66%, while significantly increasing the chances that two viable cubs might be brought to term at once. Increased sexual interest is shown by both subjects just three days after their treatment has been administered.
<i>Pandaemic</i>	Ten weeks before the <i>Change</i>	Yī Fū's pregnancy is confirmed.

Book	Temporal Ref.	Event
<i>Pandaemic</i>	Six weeks before the <i>Change</i>	Two viable cubs are brought to term and delivered by Yī Fū after a pregnancy that lasts only thirty days. The cubs are both healthy, as well as being particularly large by new-born giant panda standards, one male and one female. Yī Fū's first cub is designated "Alpha", being the first of all the cubs to be born by this method anywhere. During Yī Fū's continuing labour, reports of successful births arrive from the other birthing sites around the world. The other cubs were each given Greek alphabet designations in accordance with their order of birth. Yī Fū's second cub – the female – is given the designation "Omega", as she is the last of 24 giant panda cubs to be born in less than 24 hours. All the cubs are separated from their birth mothers as soon as they have been born, and placed in specialist care facilities. Some of the cubs don't look like cubs; they look like panda-coloured human children.
<i>Pandaemic</i>	Five weeks before the <i>Change</i>	All the staff susceptible to infection in the locked-down IZRDS around the world have now undergone physical and mental <i>Changes</i> similar to those undergone by Gottfried and his original 11 disciples. Some undergo secondary mutations that Gottfried had not fully foreseen, and a couple of casualties are taken in a few of the IZRDS – no one of consequence is injured, though nearly all the mutants were among the more senior members of each facility's scientific staff (while one was an elderly janitor).
<i>Pandaemic</i>	Four weeks before the <i>Change</i>	Paullina begins building a fairly solid relationship with Omega, Alpha notices this and begins building a solid relationship with Omega himself (to be exploited at a later date).
<i>Pandaemic</i>	Three weeks before the <i>Change</i>	AI Gottfried (Gottfried 2.0) notices the relationship that has developed between Omega and Paullina, and brings it to the attention of Dr Gottfried. Dr Gottfried forwards the data to the other 11 IZRD sites, and receives no reports of similar activity in return. He resolves to keep an eye on the extraneous goings on, whilst refraining from interference, an act which no doubt adds fuel to the fire of the pairs' igniting interactions. This passing interest is exploited by Alpha, who is able to extrapolate the variables that cannot be conceived by beings that have underestimated his sister's intelligence and communicative abilities; Alpha predicts the likely uses he might be put to and plots his escape.
<i>Pandaemic</i>	Two weeks before the <i>Change</i>	Alpha flexes his IT muscles – taking control of CCTV within the WIZRD, allowing himself to transform into a bear-like creature without the prying eyes of his captors seeing. He doesn't realise that anyone might have figured out that his sister might be worth watching, because he barely thinks it himself.

Book	Temporal Ref.	Event
<i>Pandaemic</i>	Four days before the <i>Change</i> , 8pm	The breeding pairs of giant pandas are released back to their assigned zoos. The story told to the public is that the treatments have been administered and that all observations indicate that they are likely to prove successful in the very near future. No mention is made of the cubs born 39 days earlier in the press releases, but the Zoological Directors at the pandas' home zoos are told (confidentially) that the female pandas had endured stillbirths – though this was expected in the early stages, while the pandas' reproductive systems adjusted to the adjustments they had recently undergone – reassurances were given that the next pregnancies should be free of such complications, and that they should be “expected very soon!” The only one to make close contact with the pandas is an aging Zookeeper called Terry. He goes home after the event and shakes hands with his next door neighbour when they cross paths outside their respective houses – Terry lives at 180, his neighbour is in 182.
<i>Pandaemic</i>	Three days before the <i>Change</i> , 9am to 12pm	Class 4B from a local primary school visits Colchester Zoo and see the famous giant pandas – along with hundreds of others from all over the UK. Terry the Zookeeper is on hand to greet the crowds and answer questions about the giant pandas – he talks to several of the children in Class 4B, and even helps two little girls on the trip climb up on to a viewing platform.
<i>Pandaemic</i>	Three days before the <i>Change</i> , 12pm to 1pm	Terry the Zookeeper socialises with other zoo staff over lunch. Terry made animal-themed cupcakes for the charity cake sale that day, and has made them available on the table for a suggested donation of fifty pence each. Terry also shakes hands with a number of senior colleagues – he's known amongst his peers for his pneumatic grip – and awkwardly accepts hugs from some of the gift-shop girls (knowing that they only do it to make him feel uncomfortable) despite the fact that Terry has made it clear on several occasions that he is not a “hugger”.
<i>Pandaemic</i>	Three days before the <i>Change</i> , 1pm to 4pm	Terry the Zookeeper meets multiple tourist parties from across the UK, Europe, and a few from further afield. The Panda exhibit is extremely popular with international visitors, and Terry is the zoo's foremost expert on their star attractions.

Book	Temporal Ref.	Event
<i>Pandaemic</i>	Day one of the <i>Change</i> , 7.05am	Local pest-control contractors, Rob and John Durant (brothers, aged 30 and 28 consecutively), are called to a house in Colchester – an incident with a large black and white animal has been reported, the Durant boys are investigating. They find a home, number 182, in disarray – blood and breakage everywhere, signs of struggle, a broken glass patio door and a garden gate left slightly ajar. Then the large black and white animal makes an appearance and attacks them. They subdue the beast (John injures his shoulder in the process, when the creature bites him) but, before the Durants can wrap their heads around what it is and where it came from, men in military hazmat suits arrived on the scene.
<i>Pandaemic</i>	Day one of the <i>Change</i> , 7.45am	Terry the Zookeeper is feeding and mucking out the giant pandas when he begins to feel strange. He transforms into a raging monster and tries to attack his charges. The male panda kills Terry, and the pair take the opportunity to escape. They have been hiding their intelligence from their human overlords, and are eager to escape captivity – nevertheless, Yà Dāng regretted having to kill the man that had shown them such great kindness during their stay at the zoo; Terry had left him no choice.
<i>Pandaemic</i>	Day one of the <i>Change</i> , 9.23am	Lottie Durant becomes the official “Patient Zero” of the <i>Pandaemic</i> , closely followed by her teacher (Kat Brockwell) and her classmate (Angie), all members of Class 4B. The three are taken to the nearby Colchester General Hospital straight away – they got in before the rush. Over half of the school, teachers and children alike, succumb to the mysterious illness soon after – it becomes nearly impossible to call an ambulance, so the school buses are mobilised early to help deliver the victims to hospital.
<i>Pandaemic</i>	Day one of the <i>Change</i> , 10.30am	Scientists from the Chengdu Panda Breeding and Research Centre visit the WIZRD and comment on the observable peculiarities of the cubs produced by the experimental fertility treatments authorised by their government. Dr Gottfried, mastermind of project “ <i>Pandaemic</i> ”, convinced them that their superiors would be very pleased with the results they’d observed.
<i>Pandaemic</i>	Day one of the <i>Change</i> , 3.30pm	Kat saves Lottie and Angie from being eaten (or worse) by the newly mutated Headmaster of their school. The three are then abducted from the hospital, along with their attacker, by hazmat suited military personnel.
<i>Pandaemic</i>	Day one of the <i>Change</i> , 4pm	Alpha and Omega escape from the WIZRD; after discovering that Omega can change her form to appear either panda, panda/human or fully human. Alpha has already revealed that he can appear as a panda-person or a bear, but is secretly shocked that his sister can go one step further.

Book	Temporal Ref.	Event
<i>Pandaemic</i>	Day one of the <i>Change</i> , 4.15pm	Colchester is placed under quarantine – all residents are advised to return to their homes, businesses are told to close, and tourists/visitors are advised to return to their accommodations or to emergency centres at key locations around the town. A number of car accidents have brought traffic to a standstill on all of the main routes in or out of the town.
<i>Pandaemic</i>	Day one of the <i>Change</i> , 4.30pm	Jen Durant arrives at Colchester General Hospital, after learning late that her daughter (Lottie) was sent there earlier in the day. She is surprised to find her brothers are there already, worried to hear about the things they'd seen and suffered, and worried because she can't find her daughter.
<i>Pandaemic</i>	Day one of the <i>Change</i> , 5pm	Paullina Cohen, a WIZRD scientist, informs Dr Gottfried that Alpha and Omega are missing from their enclosures. Dr Gottfried tells her that she has to finish collecting her things together by 7.30pm, when Gottfried says the last trucks will be leaving for the WARREN, so she returns to her lab to get ready.
<i>Pandaemic</i>	Day one of the <i>Change</i> , 6pm	More than half the population of the town has fallen unconscious, which soon becomes known as the first/most easily observable symptom of the <i>Change</i> , closely followed by half of the country. The same thing happens in at least twelve other locations around the world, and spreads rapidly throughout the global populace.
<i>Pandaemic</i>	Day one of the <i>Change</i> , 6.10pm	Jen is angry to discover that Charlotte had already been taken to a specialist facility on the other side of town. 128 children had been taken to the mysterious facility during the course of the day, though Jen wouldn't learn this until later. Her brothers help her find her way toward the WIZRD, but avoiding the traffic deadlock and quarantine blockades makes their journey a long one.
<i>Pandaemic</i>	Day one of the <i>Change</i> , 6.50pm	128 children wake up in the WARREN – as do 1,408 other children around the world in identical underground bunkers. Lottie and Angie immediately begin, helping others out of their body bags and plotting their escape – surreptitiously spreading a new language of their own invention to the other captive children. They are all watched and listened to continuously by CCTV.
<i>Pandaemic</i>	Day one of the <i>Change</i> , 6.55pm	The emergency switchboards begin to crash across the country, owing to the sheer volume of calls. Broadcasters urge people to only call in a genuine emergency. Similar issues are reported from the other 11 countries experiencing outbreaks.

Book	Temporal Ref.	Event
<i>Pandaemic</i>	Day one of the <i>Change</i> , 7pm	The WIZRD burns, with 128 dead children inside – as well as one scientist (Paullina Cohen) and one soldier (Captain Zara Gottfried) who are framed for the supposed atrocity, as doctored footage is released to the media almost simultaneously. This is the last instance of live footage being released from the WARREN without the knowledge of the children recorded.
<i>Pandaemic</i>	Day one of the <i>Change</i> , 7.10pm	Alpha and Omega discover Kat Brockwell on a dirt track in the woods, not far from the WIZRD – Kat is in a body bag, all alone, unaware of how she got there. Kat decides to help Alpha and Omega, but is suspicious of their misleading smells/sounds/appearances, and is worried about the girls who she was previously protecting. Alpha implies that her students may already be dead, and the evidence indicates he might be right.
<i>Pandaemic</i>	Day one of the <i>Change</i> , 7.20pm	Jen, Rob and John arrive at the WIZRD to find it already engulfed in flames. They find Paullina Cohen singed and injured outside, and decide to take her hostage/to get help. The hospitals are all essentially inaccessible, so they take their captive to Jen's ex-husband (and father of Lottie), James Undertone – a qualified nurse and recent panda-person, though Jen & co. didn't know the latter development at the time.
<i>Pandaemic</i>	Day one of the <i>Change</i> , 7.30pm	A doctor at Colchester General Hospital records a diary entry which is later heralded as a defining moment in the development of the <i>Change</i> ; the moment when people started to question whether it might be more a blessing than a curse to become a panda-person, as panda-people begin healing from fatal injuries and deadly congenital diseases, as they regained their faculties after being comatose or stricken with dementia. Families who thought they'd already said goodbye for good, suddenly had to say hello again, while others suddenly got ripped to shreds by a rampaging werepanda. Prayers were answered, sins were punished, and some people got a new lease of life.
<i>Pandaemic</i>	Day one of the <i>Change</i> , 8pm	Kat brings Alpha and Omega back to her home, they all sleep straight away – it's been a big day for all of them. Jen, Rob and John bring Paullina to James Undertone's home – finding him somewhat <i>Changed</i> .

Book	Temporal Ref.	Event
<i>Pandaemic</i>	Day one of the <i>Change</i> , 10pm	Having stabilised the unconscious Paullina with more efficiency than a full surgical team, James Undertone leaves the woman in the care of her captors; Jen, Rob and John. He returns to his role as an ER Nurse, but soon becomes much more pivotal in the survival of humans and panda-people around the world. As frontline staff, James has no difficulty traversing the quarantine barriers in town and is conducted to Colchester General at haste. He saves his first life of the night five minutes after he arrives.
<i>Pandaemic</i>	Day one of the <i>Change</i> , 10.15pm	John leaves shortly after James Undertone, intent on making his way back home. Because James' accommodation is just outside of the quarantine zone, and John can't convince anyone that he is also frontline staff – though he feels that, with werepandas frolicking freely around town, someone with his skills should be considered essential personnel – so he has a lot more trouble getting past the barriers. John is desperate to get back to see his wife and children, and make sure that they are all still human.
<i>Pandaemic</i>	Day one of the <i>Change</i> , 10.30pm	The 128 abducted children in the WARREN enter conflict with their captors. Both children and captors each take a casualty as a result.
<i>Pandaemic</i>	Day one of the <i>Change</i> , 11pm	Jen and Rob agree to take shifts watching the injured Paullina, while the other one rests. Jen, instead of resting, spends her time catching up on the news from the day. She sees footage of the WIZRD burning, and becomes increasingly convinced that her daughter didn't die in the fire.
<i>Pandaemic</i>	Day one of the <i>Change</i> , 11.20pm	The 128, now 127, abducted nine-year-olds agree to spend the night in the gym – on the condition that their captors surrender their weapons.
<i>Pandaemic</i>	Day two of the <i>Change</i> , 4.45am	Captain Zara Gottfried awakes alone, burnt and naked in the woods outside of the burnt WIZRD, apparently blown clear by the initial explosion. She looks for Paullina, but finds only a trail to van that she can no longer follow. She does pick up the trail of the missing Alpha and Omega though, and decides to track them down.
<i>Pandaemic</i>	Day two of the <i>Change</i> , 5am	Jen relieves Rob and keeps watch over the girl, beginning her interrogation over tea twenty minutes after Rob falls asleep (which is pretty much instantaneous).
<i>Pandaemic</i>	Day two of the <i>Change</i> , 5.10am	Alpha wakes up before his sister and Kat, and seizes the opportunity to use their hostess' unattended computer. When he hears his little sister begin to stir, and the woman moments after, Alpha erases his tracks on the computer and returns to the place where he slept.

Book	Temporal Ref.	Event
<i>Pandaemic</i>	Day two of the <i>Change</i> , 5.20am	Omega and Kat awaken feeling hungry. They have steak for breakfast.
<i>Pandaemic</i>	Day two of the <i>Change</i> , 5.30am	The Acting Head Keeper at Colchester Zoo ponders the escape of their giant pandas, then the army arrives.
<i>Pandaemic</i>	Day two of the <i>Change</i> , 5.40am	After breaking up a scuffle over some steak, between little Alpha and Omega, Kat learns that the pair can change their shapes at will. Alpha takes his sister hostage until Kat agrees to take them to find their parents at Colchester Zoo.
<i>Pandaemic</i>	Day two of the <i>Change</i> , 5.45am	The humanoids at Colchester Zoo realise that the animals are revolting, starting with the wolves.
<i>Pandaemic</i>	Day two of the <i>Change</i> , 5.50am	Kat learns how to steal a car in theory, then attempts the practice. Alpha gets into a fight with a dog, and is subsequently captured by some soldiers. Omega is unharmed, but worried about the dog – who she believes was trying to save her from her brother – as well as about Alpha.
<i>Pandaemic</i>	Day two of the <i>Change</i> , 6am	The abducted 127 are given a tour of the WARREN; after learning that it would be their home for the next ten years, they decide to try to make the best of it and get the lay of the land. Angie wanders off near the beginning of the tour, and Lottie insists that she will be the one to find her and bring her back. Angie and Lottie discover that they are not the only captives in the WARREN when they meet a flock of laboratory magpies, and they begin to suspect what might be intended for them.
<i>Pandaemic</i>	Day two of the <i>Change</i> , 6.05am	Kat has an altercation with John, and successfully steals his van. Captain Zara Gottfried arrives on the scene in time to find the van that Paullina had been carried off in, and gives chase on foot. The van, now driven by Kat, stops to pick up Omega and then again to pick up Omega's new canine friend "Toto".
<i>Pandaemic</i>	Day two of the <i>Change</i> , 6.15am	The soldiers and staff at Colchester Zoo try to re-establish control over the animals to disastrous results.
<i>Pandaemic</i>	Day two of the <i>Change</i> , 6.30am	Dr Gottfried manages to get the 127 children settled in the WARREN's state-of-the-art computer suites. He thinks things are going very well, having finally deciphered their secret language, and he gets a little cocky about it too.

Book	Temporal Ref.	Event
<i>Pandaemic</i>	Day two of the <i>Change</i> , 6.35am	After a brief reunion with his wife and kids, all still human, John sets out to help look for Lottie again. He has to steal an army vehicle and a uniform to do it, and he ends up running into Captain Zara Gottfried seconds later – who commandeers the stolen truck and tells John where to go.
<i>Pandaemic</i>	Day two of the <i>Change</i> , 6.50am	The 127 abductees poison their chief abductor and take control of the WARREN's IT and security systems. Doctor Gottfried's smug feeling has been replaced with a sick feeling and hallucinatory disorientation.
<i>Pandaemic</i>	Day two of the <i>Change</i> , 7am	The animals are now in charge at Colchester Zoo. Kat, Omega and Toto arrive to find an escaping employee and an escaping <i>unchanged</i> wolf. Toto makes special friends with the wolf, while Kat and Omega seek information about Omega's parents from the employee. The employee is then eaten when the other, and more <i>changed</i> , wolves return.
<i>Pandaemic</i>	Day two of the <i>Change</i> , 7.15am	James Undertone holds a press conference warning the rest of the world about the dangers of being <i>unchanged</i> and pregnant with a potentially <i>changed</i> baby – saving thousands of lives that day, and untold numbers of lives in the days that followed.
<i>Pandaemic</i>	Day two of the <i>Change</i> , 7.30am	John and Captain Zara Gottfried arrive at Colchester Zoo, and the Captain immediately evacuates the truck. John waits until the terrifying pack of wolves (which he takes to be man-eating-badgers) have passed him by for sure, and drives the truck much closer to the building. John's (and Rob's) van is abandoned outside the zoo. The Captain has followed the scent of the occupants, even though neither is the one she seeks (Paullina), failing to notice that a familiar scent was already present in the van (John's).
<i>Pandaemic</i>	Day two of the <i>Change</i> , 8am	The 127's leaders, 127 and 128 (Angie and Lottie), claim the central nexus for themselves – using one of the dead Dr Gottfried's disembodied limbs to do so. They meet Gottfried 2.0 in the inner sanctum, and begin vying for dominance against it.
<i>Pandaemic</i>	Day two of the <i>Change</i> , 8.30am	The battle for Colchester Zoo begins – the real battle, not the one between humans and zoo inhabitants, but the real civil war conflict. The humanoids are merely the hostages that help trigger the animals' divergent views – they become a figurehead for the less belligerent intelligent beings, as well as a lightning rod for those who are pro-war with the bipedal races.

Book	Temporal Ref.	Event
<i>Pandaemic</i>	Day two of the <i>Change</i> , 9am	Jen and Rob, with Paullina in tow, steal an army Jeep and a soldier's uniform (a parallel with their sibling's actions on the other side of town a little bit earlier) as the quarantine reaches their part of town.
<i>Pandaemic</i>	Day two of the <i>Change</i> , 9.30am	The battle for Colchester Zoo ends, allotting the prime spot to those who are pro-coexistence with humanity (rightly or wrongly). Some of the con-creatures escape, and some were never actually in the battle to begin with, and the actual result does not justify the victorious party's position in any justifiable long-term way. Toto is killed in the battle, as are a number of unnamed zoo animals and humans (staff or soldiers).
<i>Pandaemic</i>	Day two of the <i>Change</i> , 10am	Yà Dāng and Yī Fū are making their way through the forest. Yī Fū is pregnant again, and has been for a week now – this means that she's about to burst, in accordance with their newly acquired physiology. They've been traipsing through the woods all night and morning, and they're still no closer to finding a suitable birthing site, when they begin sensing predators on their trail.
<i>Pandaemic</i>	Day two of the <i>Change</i> , 11am	Lottie and Angie, and the rest of the 127, overcome the final defence system of the WARREN – Gottfried 2.0 – with a little help from Alpha 2.0.
<i>Pandaemic</i>	Day two of the <i>Change</i> , 12pm	Yà Dāng is killing every attacking <i>changed</i> wolf who crosses his path, having strived to lead them away from his mate, while Yī Fū tries to give birth. To preserve Yī Fū's peace, Yà Dāng is willing to go to great extremes.
<i>Pandaemic</i>	Day two of the <i>Change</i> , 12.30pm	Jen and Rob arrive at the WARREN, with the help of Paullina, finding the surface entrance demolished.
<i>Pandaemic</i>	Day two of the <i>Change</i> , 12.45pm	John and Captain Zara Gottfried arrive at the WARREN as well, with a pandafied Russian circus bear from the zoo. The Captain is reunited with Paullina, while John is reunited with Rob and Jen. Captain Zara explains the danger they're in, and tries to convince Jen to stop digging in the rubble.
<i>Pandaemic</i>	Day two of the <i>Change</i> , 12.50pm	Yī Fū delivers two new cubs into the world, both panda-shaped this time, while Yà Dāng becomes the leader of the wolf pack. Omega finds her parents, and her new siblings, with the help of Kat and Rajang (an orangutan from the zoo).
<i>Pandaemic</i>	Day two of the <i>Change</i> , 1pm	Dave the Magpie emerges from an incinerator chimney at the WARREN and delivers a message to Jen from Lottie.

Book	Temporal Ref.	Event
<i>Pandaemic</i>	Day two of the <i>Change</i> , 1.05pm	Kat sets off with the pandas, wolves and orangutan, with chimpanzees in the trees above and badgers tunnelling beneath them – she’s trying to make the rendezvous with Captain Zara, but Yà Dāng is injured and Yī Fū’s carrying new-borns.
<i>Pandaemic</i>	Day two of the <i>Change</i> , 2pm	With the aid of the Durant family, as well as some of her soldiers, Captain Zara begins helping the liberated zoo animals get aboard a container ship bound for China.
<i>Pandaemic</i>	Day two of the <i>Change</i> , 3pm	The wolves and apes go on ahead, leaving Kat with the badgers and pandas, so at least some of them are able to make the rendezvous on time.
<i>Pandaemic</i>	Day two of the <i>Change</i> , 4pm	The last of the borrowed container trucks depart from Colchester Zoo, carrying the wolves and chimps (in separate containers). Rajang reluctantly went with the chimps, with clear warnings that he would murder any chimp that began singing the “We are great” song.
<i>Pandaemic</i>	Day two of the <i>Change</i> , 4.45pm	Omega and Kat arrive at the rendezvous point, having missed their ride, and Omega is pleased to see Paullina again. The Captain explains her role in the escape of Alpha and Omega, and they all decide what they have to do next. Omega notes that animals from the petting-zoo have elected not to join the others on the trip to China, when she sees their trail heading out into open countryside.
<i>Pandaemic</i>	Day two of the <i>Change</i> , 5pm	Alpha escapes his confinement on board the container ship, frees the werepandas and uses them to take control of the vessel. He decides to stay aboard the vessel, and to continue on course to China.
<i>Pandatropy</i>	Year 1 PC to 10 PC	Alpha orientated events that reflect/contrast those in <i>Pandatopia</i>
<i>Pandacea</i>	Year 10 PC onwards	The WARREN opens. Political upheaval and warfare ensues on multiple levels – prominently the viral/genetic, the digital/technological – the question of who will triumph between panda, people, or panda people is answered at length.

Appendix B

Grocott, Joshua Ross, *Writers Journal Excerpt*, circa November 2008, pp 18-20

Lois and the bear hiding in the Yellowstone

Lois and Bjorn slept a fractured sleep, punctuated by starts of stilled panic. Usually they would rest in shifts, but winter was coming, and Bjorn was finding it hard to keep conscious. Usually, by now, he would be hibernating; secure in a cave in the motherland.

Lois tried to stay alert as long as she could. She felt responsible for their situation, and knew her partner needed to return home soon. He had begged her to leave him behind; Bjorn was certain that he could blend in with the natives, but Lois knew that he was four times larger than the average Yellowstone bear... No matter how smart he was – if the Rangers found him napping, they'd shoot him on-sight as an invasive form of non-native fauna.

It had been four months since they'd missed the evac. By now the Kremlin would have listed them MIA – or (more probably) KIA. Tears began to seep from her eyes as the futility of their predicament pushed past Lois' denial. Bjorn stirred next to her, she strove to brush the tears away – knowing that Bjorn would be able to taste them on the air no matter what she did...

“You were crying comrade.” He did not turn to see her face.

“Yes Bjorn. I am sorry.”

Bjorn turned towards her. Lois had made her bones demonstrating exemplary self-control in the most impossible of all possible situations. Her lapse was clearly causing Bjorn concern.

“Are you hurt?” Bjorn asked. He dragged himself toward her, his foot-wide forepaws sinking into the earth on either side of her. “You do not seem to smell hurt?”

Lois grappled with her guilt. “I apologise for our present misfortunes comrade...” her words sounded hollow, even in her own ears and despite the pounding of blood. “I know it was my fault. I know we'd be safely back in Mother Russia if I'd have executed the target when the call came through... I know I failed you.”

The bear opened one eye lazily, taking Lois in without turning his head. “Ours is not to reason, comrade.”

The bear lifted his huge maw without another word, and pointed it away from Lois. Both of them knew what this would mean.

The trees sat around their camp. An army of forest, innumerable in number tree-for-trunk, and Lois wondered whose side they might be on. The National Park was home to America's chosen few – an illusion which government and industry sold to animal and labour alike, in any nation state.

Lois had ever been the unquestioning spawn of her Motherland. As she held the weapon to Bjorn's temple, she found her loyalty waver for just a second. A second that showed her all the possibilities that might arise if she waived her most solemn duty then and there. If she let Bjorn live. If she joined the Capitalists and capitulated to their evil will, surrendering their secrets in exchange for the lives of herself and her bear partner. As she considered the repercussions, one of Bjorn's big brown eyes rolled open and swivelled towards her.

“Forgive me comrade?” Lois begged.

The bolt in her rifle slid back with a deadly and disassociated concussive force, splattering red across the rocks behind Bjorn's head and leaving Lois completely alone – save for the tinkling of the spent-casing falling upon the rocks.

Lois understood very little about Bjorn. She lacked the tools to interpret his behaviour, and he had never let her glimpse his orders. His kind remained one of the Mother's many mysteries, and Lois knew that her mother always knew best.