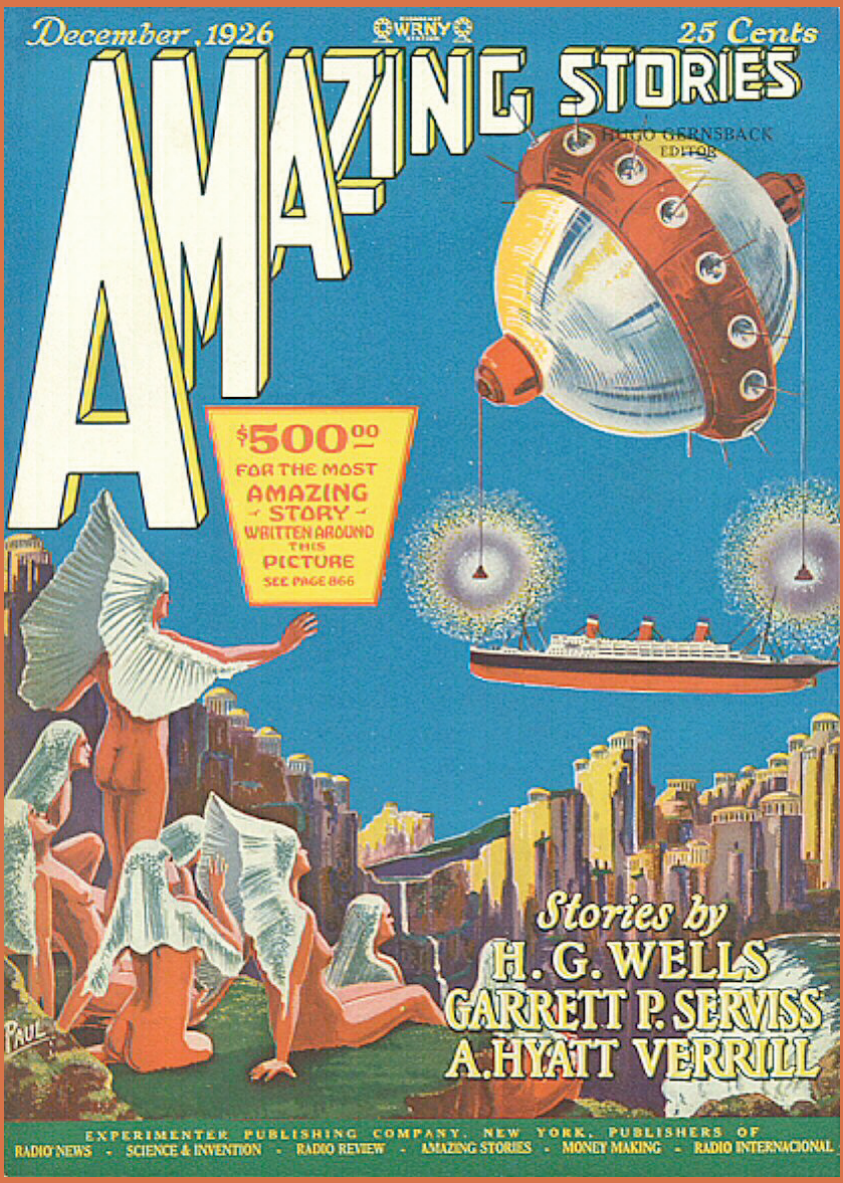
Foundation

The International Review of Science Fiction



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The International Review of Science Fiction

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Book Reviews Editor: Andy Sawyer
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Contents

Volume 46.1, number 126, 2017

Reports

Book Reviews

Editorial

Paul March-Russell

Four days (as I write this) into a Trump presidency and the fallout from his inaugural speech continues to reverberate.

Did he lift chunks of dialogue from *The Dark Knight Rises*, or *Avatar*, or whatever?

I honestly don't care.

I *do* care, though, that he offered a thoroughly dystopian image of the USA for his own political purposes. Dystopia, like its more optimistic counterpart, is fundamentally satirical in orientation – it exaggerates in order to caution. Trump, though, was not presenting a satire but seeking to consolidate the beliefs of his constituency that 'carnage' *is* the American reality. The untruth of this claim has already been debated, but what I am interested in here is the science-fictionality of this discourse, a discourse that has given rise to such Orwellian-isms as 'post-truth' and 'alternative facts', and what sf can say in response.

The most self-harming thing critics can do is to duplicate Trump's dystopian / apocalyptic rhetoric. Portraying him in social media memes as Cthulhu, Jabba the Hutt or Sauron, and his presidency as the beginning of the End of Days, does nothing to combat what he believes in. Like *Spitting Image*'s depiction of Margaret Thatcher as a cruel, hard-hearted dictator, such representations can feed their self-image as men and women of iron will, or in Trump's mind, as the anointed leader of a mass movement striving against a decadent political Establishment. Instead, it is the rhetoric itself that needs to be unpicked.

As the late Mark Fisher once observed, the recent spate of dystopian films such as *The Hunger Games*, *In Time* and *Never Let Me Go* not only fictionalize the emergence of the precariat but also indicate the extent to which that articulation is constrained by the forces of capitalist realism. Such films however, and here I am thinking for example of the polarization between rich and poor in a film such as *Elysium*, also dramatize the sense of crisis that precipitates the state of exception which these works otherwise appear to critique. In other words, the dystopian narratives that compose so much contemporary sf cinema are their own self-fulfilling prophecy. Trump, in this sense, is not the antithesis of Hollywood values; rather he is confirmation of their worst nightmares, as screened in multiplexes the world round.

The thing is, though, these films are just *stories*. Not only are they not real, they are satirical exaggerations not necessarily of what is but what might be – if we so choose. Equally, the febrile atmosphere to which these films contribute, and upon which Trump based his campaign, only gives way to the state of exception if we let it. (And, as the worldwide women's marches against Trump indicated, many of the world's 51% will not.) It is in this context, then, that 'post-

truth' is such an insidious concept since it embodies the feeling of crisis upon which Trump draws, that a tipping-point has been reached and the tectonic plates of culture have shifted. Of course, no such thing has happened since the presupposition that there was a time – indeed, a very recent time – when Truth objectively existed is plainly foolish. 'Truth' is not a matter of fact, as the Trump team would have us believe (it is this elision that underwrites Kellyanne Conway's preposterous notion of 'alternative facts'); rather, Truth can comprise of phenomena not seen in the material world – spiritual or religious truths, for example. This is not to suggest that there is no such thing as Truth; instead, it is an ineffable quality to which we have always striven through the kinds of debate and interpretation that Trump and the Alt-Right seek to close down.

It is in this capacious understanding of Truth that fiction (an artistic falsehood) finds its place as a means of truth-telling. The logic of capitalist realism has sought to restrict the range of imaginative possibilities afforded to fiction. Yet, mimesis – caricatured as meaning 'lifelikeness' – is not a monolithic concept and, as Erich Auerbach famously argued, it has repeatedly changed over the centuries. Amongst the possibilities seemingly lost to contemporary literary fiction are that of the epical and the mythic. Yet, these are qualities that should, in theory, abound within science fiction due to the latter's generic association with archetypal romance narratives such as the quest.

To give an instance of what I mean. One of the biggest challenges for climate change scientists is that, no matter how many detailed facts they produce, the production of data only hardens the position of climate change deniers. (As Homer Simpson once observed, 'You can do anything with facts.') The same problem also plagues such well-researched climate change novels as Kim Stanley Robinson's Science in the Capital trilogy. Instead, for the debate to become less polarized, it is not more facts that we need – this, too, only plays into the hands of the climate change-denying Trump administration – but greater and better myths. Here I define 'myth' not as a lie, nor even as a synonym for ideology, but as an affective narrative: a story with revolutionary potential to move and inspire. This is what Golden Age and children's sf abounded in – from Asimov and Heinlein to Andre Norton (although we might now question many of their values). It is what sf could do again, going beyond mere fact to produce a genuinely mythic vision of the future that would inspire people from across the sectarian divides. This, more than anything else, would combat the dystopianism upon which demagogues such as Trump feed.

This general issue features its fair share of revisioning, in the articles by David Ketterer and Brian Matzke, and philosophical exploration, in the articles by Chris Gavaler and Nathaniel Goldberg, Victor and Elizabeth Grech and Jason T. Eberl, and Simon O'Sullivan. There is also an interdisciplinary strand in Nicholas Laudadio's musical account of Kim Stanley Robinson's *The Memory of Whiteness*, Gabrielle Bunn's conference report on the role of nature in the

work of J.G. Ballard, and exhibition reviews spanning the arts and sciences. Lastly, I am pleased to announce that this year's Essay Prize has been awarded to Bodhisattva Chattopadhyay; his article on Indian women's science fiction will be published in a subsequent issue.

‘The Weaker (?) Sex’: Women and the Space Opera in Hugo Gernsback’s *Amazing Stories*

Brian S. Matzke (University of Michigan)

The controversy surrounding the 2015 Hugo Awards constitutes a recent flashpoint in an ongoing battle for the identity of science fiction. When two factions within sf fandom, the Sad Puppies and Rabid Puppies, released slates of candidates that dominated the nominations, it was widely seen as a reaction against the genre’s increasing inclusiveness toward female, racial minority, and LGBTQ writers. ‘Puppygate’ is part of a broader debate over authenticity raging within geek culture, also manifested in the #GamerGate controversy and ‘Fake Geek Girl’ meme. Across these cases, relatively conservative voices have asserted the existence of a narrowly defined ‘original’ community, defending that definition against progressives seeking to expand or otherwise revise it. As Amy Wallace wrote in Wired: ‘the balloting had become a referendum on the future of the genre. Would sci-fi focus, as it has for much of its history, largely on brave white male engineers with ray guns … [o]r would it continue its embrace of a broader sci-fi?’ (Wallace 2015). Critiques such as these rarely question the notion that the genre’s original definition marginalized women and excluded signifiers of femininity. In the case of the Hugo Awards, however, it helps to examine work published by the awards’ namesake, Hugo Gernsback, so as to challenge traditional understandings of women and femininity in ‘authentic’ science fiction. Through a close reading of the letters from women and works by the two female writers, Clare Winger Harris and Lee Hawkins Garby, which Gernsback published in the thirty-seven issues of the magazine that he edited, it becomes apparent that women were instrumental in developing the adventure stories that the Puppies prefer. In a real way, women created the space opera.

While women were underrepresented during Gernsback’s tenure as the founding editor of *Amazing Stories* from 1926 to 1929, their contributions were supremely valuable to the genre’s development. Scholars have often overlooked or mischaracterized these contributions. Jane L. Donawerth and Carol A. Kolmertin have worked to overcome the dearth of critical attention by establishing a long tradition of women writers in utopian and science fiction extending from the seventeenth century to the present, with these early pulp writers as key figures. Donawerth shows that early women in sf brought women’s issues to science fiction, as well as sophisticated social critique that grows out of ‘a recognition that scientific “fields” and measurement of “progress” in science are shaped by social ideology’ (1997: 13). She points to narratives of pregnancy and childcare as well as refutations of sociobiology in science fiction as examples. Still, this emphasis on women’s issues has limitations when considering women in early pulps. Writing specifically about women science

fiction writers from 1929 to 1930, Donawerth asserts: 'Although these women shared with men the romanticizing of science, they offered one particular application that the male writers rarely offered: the transformation of domestic spaces and duties through technology' (1994: 138). Later scholars have echoed this sentiment; John Cheng for example states, 'female characters marked a broader domestic sensibility within science fiction' (2012: 112). This focus on domesticity, while valuable to constructing a history of women in sf, runs the risk of overlooking or minimizing women's contributions to action and adventure.

Justine Larbalestier builds on Donawerth's and Kolmertin's work while focusing on a narrower definition of science fiction, and specifically on 'battle of the sexes' stories from 1926 to 1973, where sexual differences and gender roles are explicitly constructed and debated. While not analysing Harris's or Garby's work specifically, Larbalestier emphasizes that women were present in the sf community from the very beginning as both readers and writers. The recent anthology, *Sisters of Tomorrow* (2016), shines a light on these women, bringing together contributions from female authors, poets, journalists, editors and artists from pulp sf's first twenty years. In their introduction, the editors, Lisa Yaszek and Patrick B. Sharp, identify four primary motivations that drew these women to sf: an affinity for science, a love of the genre, a desire to create new and better political sensibilities, and the opportunity for paid labour in a relatively egalitarian field. Simply by working in the genre, these women challenged a stereotype that always existed but was never actually true, that adventure and wonder were the provenance of male readers and writers. Larbalestier examines the assumptions underlying the conventional masculine gendering of the genre, writing: 'equivalence between "women" and "love interest" disqualifies women from the field of science fiction, since love belongs to the field of romance or, rather, literature for "sentimental old maids who like a bit of 'slop'" (from a letter by David McIlwain in *Astounding Science Fiction* [November 1938]: 158)' (2002: 10). Harris and Garby, while still sometimes employing the tropes associated with domesticity or the female love interest, belie the assumptions that Larbalestier identifies by troubling the dichotomy that places masculine sf in opposition to feminine sentimental fiction.

Women as readers

It would be inaccurate to say that *Amazing Stories* evinces a progressive gender politics, but it would be equally inaccurate to assume that early pulp sf was a single-gendered environment overrun with masculine themes and phallic rockets. Amazing Stories was never hyper-masculine like other pulp magazines, and women were never absent from the community that emerged around the magazine. It is a commonly-held misconception that, prior to the emergence of feminist sf in the 1960s, women were marginalized within if not entirely excluded from the genre's implied and empirical audience. Anne McCaffrey, evincing the conventional wisdom, writes, 'Originally science fiction

was predominantly male-authored and written for a specifically science-trained male readership' (1972: 287). However, Gernsback construed the reading of sf as the beginning rather than the end of scientific training, and frequently boasted that the stories he published were 'almost always instructive.' It is true that Gernsback's emphasis on scientific didacticism contributed to the magazine's marginalization of women; introducing Harris, for example, Gernsback writes, 'as a rule, women do not make good scientifiction writers, because their education and general tendencies on scientific matters are usually limited' (1927b: 245). The condescension that Gernsback displays here can be found elsewhere in his address of women readers and writers as well.

Nonetheless, Gernsback did explicitly recognize and court women readers. In his editorial to the second issue, Gernsback makes his often-repeated assertion, 'It is your magazine,' and he goes on to publish three readers' letters praising the magazine (1926b: 99). The selection of letters – one from Brooklyn, one from West Virginia and one from Iowa – seems designed to reflect the breadth of the readers on whom the editor conferred this sense of ownership. The writer from Brooklyn says, 'Even now my wife is anxiously waiting for me to finish this first issue, so that she may read it herself' (99). This letter can be placed alongside Gernsback's assertion, in his October 1927 editorial, that 'the younger generation makes a dash for each copy [of the magazine], even before father gets a chance to read it' (1927a: 625). Both children and wives, according to Gernsback's editorials, are clamouring to read scientifiction. The implied readership consists of the entire nuclear family – parents and children, husbands and wives. Gernsback at no point excludes one group so as to more fully court another. This becomes more explicit in the September 1926 editorial, when Gernsback writes, 'A great many women are already reading the new magazine. This is most encouraging' (1926a: 483). Gernsback's solicitation of women readers was certainly strategic; *Amazing Stories* was not on a paying basis for its first two years, and Gernsback's propensity for investing in new projects rather than paying his creditors meant that he could not afford to alienate any potential readers (Ashley 2004: 131). The genre's failure to establish a broader readership during the 1920s may have contributed to the contraction that sf experienced during the Great Depression (Ashley 1977: 31). But as a strategy, Gernsback's inclusion of women is still striking. At the same time, *Black Mask* for example was selling itself as 'The He-Man's Magazine.' Gernsback's openness stands in contrast to this sort of highly gendered marketing employed by other pulp magazines.

The stereotype that sf was a men's genre existed even during the editor's tenure, but Gernsback attempted to correct it whenever he could. Writing to the magazine, Leslie Stone commented, 'I believed that I was the only feminine reader of your publication', to which Gernsback responded, 'We are very glad to hear from one of the fair sex and would be glad if more of the weaker (?) sex were contributors to the Discussions Column' (Stone 1928: 667). The editor's

comedic use of a parenthetical question mark seems to challenge contemporary gender stereotypes, but his solicitation of female readers is serious. In January 1930, Gernsback's new magazine, *Science Wonder Stories*, received a letter from Verna Pullen who supposed that Gernsback would not publish a letter from a woman. He replied, 'We have no discrimination against women. Perish the thought – we want them! As a matter of fact, there are almost as many women among our readers as there are men' (Gernsback 1930: 765). There are no data to support this boast, but the fact that he would make this claim goes a long way in dispelling the image of 1920s sf as a boys' club.

Furthermore, 1920s sf was not primarily an action/adventure genre; rather, Gernsback's frequent contributors during these years, including Clement Fezandié and Jacques Morgan, focused on gadget fictions in which new technologies solve minor everyday problems. For example, each instalment in Henry Hugh Simmons' series of stories, *Hicks' Inventions with a Kick*, sees the titular Hicks unveiling a new invention to ease some form of domestic labour, only for the invention to go comically awry. In 'The Automatic Self-Serving Dining Table' (April 1927), Hicks invents a robotic Lazy Susan that cooks and serves dinner, while in 'The Automatic Apartment' (August 1927) he develops a self-cleaning apartment. It is worth speculating that this prevalence of domestic settings in *Amazing Stories*, as well as the importance of wives and girlfriends as characters and the resolution of many stories in marriage, might reflect a somewhat unsophisticated effort on the part of the writers to court female readers. If so, Gernsback's male cohort very likely misread their female audience.

In June 1928, Amazing Stories published a letter under the headline, 'A KIND LETTER FROM A LADY FRIEND AND READER.' After commenting on what stories she liked and disliked, the writer, Mrs H.O. De Hart from Anderson, Indiana, concludes by writing:

> I am only a comparatively uneducated young (is twenty-six young? Thank you!) wife and mother of two babies, so about the only chance I get to travel beyond the four walls of my home is when I pick up your magazine.
>
> Ah, but then I travel indeed! For I journey to Mars and Venus, with side trips to the moon, and down to the heart of the earth, yea, even into the fourth Dimension! And *who* could do more?' (De Hart 1928: 277).

Mrs De Hart, precisely the sort of wife and mother whom Gernsback claims to value as a reader, enjoys the magazine not for the gadget fiction that imagines a better way of serving dinner; she enjoys it for the escapist qualities of interplanetary adventure fiction.

As Darko Suvin writes, 'At the beginnings of a literature, the concern with a domestication of the amazing is very strong' (1979: 4). Early sf, however, had

had an equally strong concern with an amazement of the domestic, as can be seen in the work of Fezandié, Morgan, Simmons and others. The balance between these two impulses remained dynamic throughout Gernsback's tenure, and it appears that women's contributions to the magazine as both readers and writers moved it toward the amazing. David Cheng asserts, 'For interwar science fiction, "amazing," "astounding," and "wonder" were more than magazine titles; they were also metaphors for a specific style to imagine science' (2012: 84). Insofar as this is true, it is due in no small part to the influence of women.

Clare Winger Harris

The magazine began to favour adventure stories precisely when the first woman writer entered the field. Harris published her first story in *Weird Tales* in July 1926 and her second in *Amazing Stories* in June 1927. She went on to publish twelve stories, nine of which were published in Gernsback's magazines. Her first story for *Amazing Stories*, 'The Fate of the Poseidonia', was submitted to a story contest accompanying the December 1926 cover. The cover depicts an ocean liner suspended from a spherical alien vessel with a group of nude, feathered, red-skinned humanoids in the foreground. The June 1927 issue published the top three stories submitted to the contest. First place was awarded to Cyril C. Wates' 'The Visitation', in which the creatures are a race of people called the Deelathon who live in a utopian island off the coast of South America. The story describes their rescue of a crashed ship by means of antigravity technology. The second place winner, George Fox's 'The Electronic Wall', depicts a Martian abduction of a military transport ship. Mars has a shortage of men, and the servicemen are asked to stay on the planet and breed with the beautiful Martian women.

'The Fate of the Poseidonia' finished third. In Harris's story, the narrator, George, finds himself competing with his red-skinned neighbour, Martell, for the love of Margaret. At the same time, ships and planes around the world are disappearing and ocean levels are receding. George breaks into Martell's apartment and discovers that Martians are stealing Earth's water and that Martell is a Martian spy. His realization comes too late, as the ocean liner Poseidonia, on which Margaret was traveling, has disappeared. Margaret eventually sends George a television message from Mars, explaining that Martell has abducted her and that the Martians have finished replenishing their planet with the water stolen from Earth.

All three stories exploit the creatures' nudity in the cover, but while Wates and Fox both take it to indicate utopian freedom and sexual possibility, for Harris it is a reminder of the threat posed by George's sexual competitor. The fact that George's romantic rival happens to be a Martian invader only amplifies an already familiar menace. This is a common thread in Harris's stories: addressing everyday twentieth century anxieties by taking the source of those anxieties to science-fictional extremes. Her next story, 'The Miracle of the Lily' (1928), figures

pest control as a 2000-year war between humans and insects. In the epistolary tale, a man named Nathano splices his own narrative with diary entries from the years 1928, when insects were a mundane concern, and 2928, by which time insects had ravaged all plant life to the point of extinction before becoming extinct themselves. Nathano, writing in the year 3928, discovers seeds and begins to grow lilies, the first plants the planet has seen in generations. At the same time, humans are in radio contact with Venusians, who claim to have their own insect problem. When television contact is established, however, Nathano describes the sight:

> The figure that stood facing us was a huge six-legged beetle, not identical in every detail with our earthly enemies of past years, but unmistakably an insect of gigantic proportions! … It spoke, and we had to close our eyes to convince ourselves that it was the familiar voice of Wayona, the leading Venusian radio broadcaster. (Harris 1928b: 54)

The Venusians go on to show their 'insects' which are in fact tiny ape-like mammals. In this twist ending, Harris provides the sort of satiric commentary on radio that Gernsback's technocratic optimism tends to overlook: radio can create a false sense of familiarity, generating the illusion of closeness where none actually exists. This satire works as both a literal commentary about communications technology and an allegorical commentary about humanity's place in the universe; the fact that Venus is feminine and the miraculous flower is a lily, a symbol of the Virgin Mary, pokes at the notion that Man is created in (an implicitly male) God's image, while also pointing to the generative power of women.

'The Miracle of the Lily' concludes with humans contemplating an invasion of Venus, but Nathano thinks that this will be unnecessary: 'A short time ago, when I went out into my field to see how my crops were faring, I found a six-pronged beetle voraciously eating. No – man will not need to go to Venus to fight "insects"' (Harris 1928b: 55). This ending suggests that history will repeat itself, and Harris has a recurring interest in tragedies of this sort, where humans confront the limits of what they know. The tragedies of 'The Fate of the Poseidonia' and 'The Miracle of the Lily' stem in part from what humans do not know about Mars and Venus, respectively – and, allegorically, what men and women do not know about each other. Harris returns to this theme in her next story, 'The Menace of Mars' (1928). The narrator, an astronomy student named Hildreth, recounts surviving a series of natural disasters along with Professors Harley and Aldrich, and Harley's daughter Vivian. Aldrich eventually discovers that Mars is responsible for the disasters by altering the Earth's orbit in order to better shield itself from the sun. Aldrich explains, 'Mars is a living world; vital, selfish, malignant! He is not vital in the sense that earth is – (Earth, a huge ball of inert ash covered with human fungi). He is intelligent as a *whole*, as an

entity' (Harris 1928a: 591). By the story's conclusion, Earth's orbit has changed to such an extent that humans can only live near the poles. The moral of the story comes early, when Aldrich is first developing his theory about Mars: 'Life may not always be vested with the attributes with which our existence clothes it' (589). This truth discovered about Mars becomes true for humans on Earth as well, as the disaster forces the survivors to adapt to radical changes in lifestyle.

This and Harris's other early stories show a persistent interest in scale. Whether they are romantic rivals, crop-eating insects or alien life forms, the antagonists are always literally larger than the characters initially anticipate, and they are metaphorically larger than what the characters have the capacity to handle in their everyday lives. Harris's use of exclamation points and italics drives home Aldrich's shock at his own discovery, and the other characters are incredulous at his findings. This contrasts substantially with the cool scientific composure that other writers' protagonists typically evince in *Amazing Stories*. Harris's stories develop a form of the sublime that, in its grandiosity as well as its concern with radically different forms of life, adumbrates the work of authors like Arthur C. Clarke and Stanislaw Lem. The fact that her stories feature such large challenges simultaneously diminishes the significance of individual people's problems while replicating those problems in a context with much higher stakes.

This motif comes across most strongly in the middle of 'The Menace of Mars,' just after Aldrich's musings about the nature of life and just before the definitive revelation that Mars is a living organism. Harris quotes the second and thirty-fourth lines of Alfred Tennyson's poem, 'Vastness' (1885), as an epigraph to one of the chapters:

> Many a planet by many a sun
> May roll with a dust of a vanish'd race.
> Swallow'd in Vastness, lost in Silence,
> Drown'd in the deeps of a meaningless Past.
> (Harris 1928a: 589)

Harris alters the lines from how Tennyson presents them. She gives no indication that they are from separate parts of the poem and she divides the two lines in half, making four. She also alters the punctuation; in the original, lines 33-34 of the poem form a question: 'What is it all, if we all of us end but in being our own corpse-coffins at last, / Swallow'd in Vastness, lost in Silence, drown'd in the deeps of a meaningless Past?' (Tennyson 2009: 460). While the original poem serves as a meditation on death, Harris presents it as a discourse on the meaning of whole civilizations and species when considered on the vast scale of time and space. In so doing, she draws out a secondary theme of Tennyson's work that is central in Harris's fiction. In the poem's first two couplets, Tennyson writes:

> MANY a hearth upon our dark globe sighs after many a vanish'd face,

> Many a planet by many a sun may roll with a dust of a vanish'd race.
>
> Raving politics, never at rest – as this poor earth's pale history runs, –
> What is it all but a trouble of ants in the gleam of a million million of suns? (459)

In the first two lines, individual homes and people bear a synecdochal relationship with whole worlds and species. The third line brings the reader back to Earth – not down to the individual but to the level of groups and nations, at which political discourse takes place. The fourth line brings the entire galaxy into view, emphasizing the unimportance of politics. The second couplet contradicts the first – the poem's speaker seems uncertain as to whether the small is significant in how it stands for the large or insignificant in comparison to the large. This tension recurs throughout Harris's early work. Hildreth feels it early in 'The Menace of Mars' when he and Vivian attend Aldrich's lecture. Hildreth describes his thoughts:

> How insignificant seemed man, even as learned a man as Professor Aldrich, when one could lift the eyes but a little higher and behold with one glance the mighty Vega, Altair, and Deneb. Yet I knew in my heart that as much as I loved my astronomical pursuits, a certain small figure in yonder group of humanity was dearer to me than all the suns that shine in the eternal ether and so tell us we are not alone.
>
> 'And so we believe there *is* an analogy between the universe of chemistry and that of the stars,' the professor was saying. (Harris 1928a: 582)

Hildreth nearly plays out the scene that Walt Whitman describes in 'When I heard the learn'd astronomer' (1865), but where Whitman's speaker only moves his gaze from the classroom to the stars, Hildreth progresses a step further by returning his gaze to Earth and fixing on Vivian. The romance of the stars may prove more enticing than charts and diagrams, but romance between a man and a woman is more enticing still. Just at the moment when Hildreth starts to feel some metaphorical chemistry between himself and his infatuation, his thoughts are interrupted by Aldrich, whose lecture brings him back to the world of literal chemistry as well as astronomy. Aldrich goes on to explain the hypothesis that our universe may be an atom in another larger universe, an idea that Harris was the first to develop in her 1926 story for *Weird Tales*, 'A Runaway World' (Bleiler 1998: 172). This fixation on macrocosm and microcosm is thematically central to Harris's work: astronomy is chemistry enlarged by several orders of magnitude; planets are living beings on a grand scale; entire races are individual faces multiplied many times over.

Superficially, Harris's later stories move away from this theme towards more recognizable domestic stories with relatively modest scopes. Her fourth piece for *Amazing Stories*, 'The Fifth Dimension' (December 1928), centres on

a woman with precognitive powers who saves her husband from a train wreck. It is noteworthy for being one of the only stories in the magazine to feature a female narrator. Harris's fifth piece is 'The Diabolical Drug' (1929), a story in which a man experiments with drugs that alter his metabolism so that he can marry a woman who is older than him. Both stories extend Harris's concern with scale into the fourth dimension, toying with perspective by exploring the expansion and contraction of time similar to how 'The Menace of Mars' explores the expansion and contraction of space.

Lee Hawkins Garby

Harris's example reveals that, from the beginning, *Amazing Stories* evinced a dual set of sensibilities: on the one hand, small-scale domestic stories brought science into the realm of everyday life, while on the other hand, grandiose interplanetary adventures provided an escape from that everyday life. In that regard, August 1928 saw the publication of what was perhaps the magazine's single most significant issue. Two of the issue's five stories are relatively inconsequential: a reprint of H.G. Wells' 'The Moth' (1895) and a gothic story about keeping a severed head alive titled 'The Head'. But the issue also features 'The Perambulating Home', Simmons' last Hicks story and the magazine's last story to feature a bumbling inventor as the protagonist. The other two stories of the issue were 'Armageddon – 2415 A.D.', the origin story for Buck Rogers, and the first part of *The Skylark of Space*. The juxtaposition of Simmons' last piece with 'Armageddon' and *Skylark* is fitting. In this issue, the domestic setting literally walks away from *Amazing Stories* to be replaced by more of the adventure stories that Mrs De Hart preferred.

The magazine credits *The Skylark of Space* as written 'by Edward Elmer Smith in collaboration with Lee Hawkins Garby' (Smith and Garby 1928a: 390). Though the novel was originally penned in 1916, its appearance in *Amazing Stories* was its first publication. 'Doc' Smith would go on to become a highly regarded author but Garby's contributions to *Skylark* constitute her only credit as a science fiction writer. Even this recognition was lost for a time. The first two editions of the book retain Garby's credit as co-author, but Smith revised the novel in 1958, and her credit was omitted from that point on until the original edition became available again in 2007. By all accounts, Smith, a chemist working in Washington for the Bureau of Agriculture, conceived the idea for the novel. Smith approached the wife of his college roommate, chemist Carl Garby, about collaborating on the project because Smith did not feel up to the task of developing the novel's romantic subplot. The exact nature of the collaboration and the extent of Garby's input are unclear. However, it is generally agreed that the story and the scientific ideas are Smith's, while much of the dialogue and the character development, as well as the wedding scene late in the novel, are Garby's contributions.

The novel follows the maiden voyage of the Skylark, the first interplanetary

spaceship; its inventors, Seaton and Crane; Seaton's fiancée Dorothy; and rival inventor DuQuesne. Early on, Seaton gives Dorothy a tour of the ship:

> We have all the comforts of home. This bathroom, however, is practical only when we have some force downward, either gravitation or our own acceleration… If I should want to wash my face while we are drifting, I just press this button here, and the pilot will put on enough acceleration to make the correct use of the water possible. There are a lot of surprising things about a trip into space. (Smith and Garby 1928a: 416)

Smith and Garby show a keen awareness of how space travel would alter the conditions in which people live and give readers the opportunity to take pleasure in learning about these alterations. But just as they present these 'surprising things' to readers, they also display the scientific know-how that allows Seaton to minimize inconvenience to the travellers' lifestyle. This passage is omitted from Smith's 1958 revision. Instead, that version has Seaton expounding on the ship's technology, only to be interrupted by Dorothy telling him, 'Enough of the jargon. Show us the important things – kitchen, bedrooms, bath' (Smith 1970: 50-1). This version sharpens the line between masculine concern with engineering and feminine concern with domesticity, which is blurry in *Amazing Stories*' version. The next line in the revision paraphrases several paragraphs of description from the 1928 version: 'Seaton did so, explaining in detail some of the many differences between living on earth and in a small, necessarily self-sufficient world let out in airless, lightless, heatless space' (51). This rendering substantially downplays the scientist's original interest in bringing the comforts of home into space.

Despite the strength of Seaton's initial interest in this regard, *The Skylark of Space* is not a colonialist narrative; the humans do not intentionally or unintentionally spread their bourgeois Anglo-American culture to the stars. Rather, they embrace alien social mores – though those mores are already conveniently similar to those of Earth. This embrace reaches its apotheosis with Dorothy's proposal that she and Seaton should marry on the planet Osnome. She explains, 'A grand wedding, of the kind we would simply have to have in Washington, doesn't appeal to me any more than it does to you – and it would bore you to extinction. Dad would hate it too – it's better all around to be married here' (Smith and Garby 1928c: 621). By this point, grandness is associated with Earth while, ironically, outer space is the realm of the personal. Again, a comparison with Smith's revisions is illuminating. In his version, Dorothy says, 'Dad would hate a grand Washington wedding, and so would you. It's better all around to be married here' (Smith 1970: 124). In Smith and Garby's version, Dorothy proposes an Osnomian marriage, first because she prefers it, and secondarily because Seaton and her father would prefer it. In Smith's version, Dorothy lacks any professed opinion of her own, and is motivated only by desire

to please the men in her life.

Smith's alterations are disappointing but even in the 1958 version Dorothy remains a substantial and strong character with an unexpectedly important role both in the story and in Seaton's work. Everett Bleiler inaccurately describes her simply as 'Seaton's presumably platonic girlfriend' (1998: 394). However, Seaton tells her early in the novel, 'I love you, mind, body, and spirit, love you as a man should love the one and only woman… I love you morally, physically, intellectually, and every other way there is' (Smith and Garby 1928a: 397). This does not suggest a 'presumably platonic' relationship. Nor is Dorothy an ignorant sidekick or a damsel in distress. In the novel, Crane praises her as Seaton's 'anchor, his only hold on known things' (396). At several points, Dorothy professes her scientific ignorance, providing the inventors opportunities to give exposition through dialogue, but she is not unintelligent; she is a talented violinist capable of speaking five or six languages. She even picks up conversational skills in an alien tongue within a day of their arrival on Osnome. And she stands up to DuQuesne's henchman when he abducts her, stealing his gun. She is by no means defined solely in terms of her relationship with Seaton.

Nonetheless, fans frequently characterize this aspect of the story as its most salient quality. Writing an account of *Amazing Stories*' early years, Robert Lowndes pauses on July 1928 to note that in the same month, two interstellar epics hit newsstands, *Skylark* in *Amazing Stories* and Edmund Hamilton's 'Crashing Suns' in *Weird Tales*. Lowndes notes, 'For those disturbed by the romantic mush in Smith's novel, Hamilton's all-male epics were welcome' (2004: 272). While 'Crashing Suns' was exclusively male, its February 1929 sequel 'The Star-Stealers' was not, and that story provides an interesting contrast with Smith and Garby in terms of how early pulp sf addressed sexuality and gender. 'Crashing Suns' and 'The Star-Stealers' were part of a series of stories about The Interstellar Patrol, a military fleet that in each story prevents some alien species from committing a planetary-scale atrocity. The stories take place 100,000 years in the future and are narrated by ship captain, Jan Tor. The science fictional character names and lack of romantic subplots both serve to eschew gender distinctions, but in 'The Star-Stealers,' Jan Tor's second officer, Dal Nara, is a woman. Aside from the use of 'she' throughout the story, Dal Nara's gender goes un-noted until the penultimate page when, crisis averted, the characters take leave. Jan Tor writes, 'Dal Nara, after the manner of her sex through all the ages, sought a beauty parlour' (Hamilton 1965: 89).

On the one hand, Hamilton's story provides a relatively progressive vision, where a woman can rise to a position of substantial authority in a military system. On the other hand, the beauty parlour reference suggests a strong bifurcation between a genderless professional realm and a very traditionally gendered private realm. When she steps aboard Jan Tor's phallic rocket, the fact that Dal Nara is a woman no longer matters, but as if to compensate for this genderless state, when she steps off of the rocket, her femininity matters in

a highly stereotypical way. By contrast, Smith and Garby do not depict female social and professional advancement, but Dorothy is the same person both off and on the Skylark. Although not a scientist herself, she constitutes an important intellectual partner in Seaton's and Crane's adventure.

Space Operas and Soap Operas

Gernsback, with his tendency to equate women with love interest, often failed to note what his own writers were doing with characters like Dorothy. When a reader wrote to ask why *Amazing Stories* did not feature more love stories, he responded, 'We presume that if our stories are to be scientific, this love element will be missing in most of them' (1928: 373). Larbalestier quotes this response and writes 'the inference is clear: the hard, virile space of science operates to expel romance and thus women' (2002: 108). Larbalestier points to significant gender biases in Gernsback's approach to both science and science fiction; however, even as they were reducing women to love interests, Gernsback and his writers were sometimes complicating those stereotypes. Neither of the women who Gernsback published in *Amazing Stories* were predominantly interested in exploring relationships between men and women, and consequently neither author is examined by Larbalestier. But close readings of these two women's contributions to the magazine reveal that kernels of a more complex and progressive attitude towards gender existed in the magazine right from the beginning.

It was almost a decade after Marie Curie's 1921 tour of the United States before pulp fiction depicted women scientists as characters. That landmark would come almost immediately after Gernsback's departure from *Amazing Stories*, when he published Leslie Stone's first story, 'When the Sun Went Out' (1929), as a paperbound booklet in his Stellar Science Fiction Series. Stone's story featured a professional female astronomer but that landmark was anticipated by earlier female characters including Vivian in 'The Menace of Mars' and Dorothy in *The Skylark of Space* who, though non-experts, participated in scientific discovery. Intentionally or not, *Amazing Stories* offered a democratized vision of scientific practice that extended to women. The depiction of strong, professional female characters rose along with the number of women writers: Eric Leif Davin identifies 203 women who published in American sf magazines between 1926 and 1960 (2005: v). But even in the three years that Gernsback was at the helm of *Amazing Stories*, both the sf genre and the community that formed around it incorporated women readers, authors and strong female characters. The contributions of women are also not what we would expect. Early women in sf expanded the genre beyond the domestic sphere, so that recovering their work enables an essential revision to the genre's history.

In both 2015 and 2016, Hugo Award voters roundly rejected the Puppies. In 2016, very few of the Puppies' slated candidates made it onto the ballot, and all four of the major categories were awarded to fiction written by women. In 2015,

the only nominee on the Puppies' slates that actually won a Hugo Award was the film *Guardians of the Galaxy*, a space adventure story whose overwhelming popularity transcended political ideologies. Not only was *Guardians* the first Marvel Studios film co-written by a woman, Nicole Perlman, but it was also credited as ushering a 'comeback' for the space opera (Barber 2014). In this respect, Perlman advanced a tradition that runs through acclaimed sf writers like Leigh Brackett, wife of Edmond Hamilton and co-writer of *The Empire Strikes Back* (1980), and that begins with Harris and Garby. Planetary romances like Edgar Rice Burroughs' Barsoom series may precede their writing by about fifteen years, but Harris was one of the first to marry the planetary romance's use of action and adventure to a Gernsbackian focus on science and scientists. With Smith and Garby, those scientists built spaceships, and the space opera was born. In recent years, both the original version of *The Skylark of Space* and Harris's previously out-of-print story collection, *Away from Here and Now* (1947), have become available through print-on-demand publishers; hopefully, these pathfinding authors will begin to receive the recognition they deserve.

Acknowledging these contributions may complicate how we understand the intersection of gender and genre. However, the idea of women as creators of space operas should not be surprising; when Bob Tucker coined the term in 1941, he defined it pejoratively in comparison to the feminine soap opera: 'The morning housewife tear-jerkers are called "soap operas." For the hacky, grinding, stinking, outworn space-ship yarn, or world-saving for that matter, we offer "space opera"' (Hartwell and Cramer 2007: 10). This hacky genre, however, allowed authors to imagine alternatives to the domestic sphere as it was conventionally construed, enthusiastically envisioning the possibility of both material and cultural change. Many continue to believe in a binary that situates a traditional, masculine and 'pulpy' adventure genre against a more recent, feminist and 'literary' sf, but a close examination of the stories from early sf writers including Harris and Garby reveals that that supposed binary never actually existed.

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Marvels of Scepticism: René Descartes and Superhero Comics

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To be sceptical is not to deny but to doubt. Sceptics claim not that certain beliefs are false but that, for all anyone knows, they might not be true. Climate change deniers reject that climate change is real, while climate change sceptics withhold assent or dissent pending further information. Philosophical sceptics, in turn, doubt the truth not only of certain beliefs but of most or all of them. They worry that, for all we know, reality *in toto* might not be what we think it is. For example, the philosopher Hilary Putnam proposed the following science fiction scenario:

> A human being [. . .] has been subjected to an operation by an evil scientist. The person's brain [. . .] has been removed from the body and placed in a vat of nutrients which keeps the brain alive. The nerve endings have been connected to a super-scientific computer which causes the person whose brain it is to have the illusion that everything is perfectly normal. There seem to be people, objects, the sky, etc., but really all the person [. . .] is experiencing is the result of electronic impulses travelling from the computer to the nerve endings. (Putnam 1981: 62)

For all we know, *we* might be plugged into a computer, living in an alternate reality created by an evil scientist, or simply dreaming in bed. Then most of our beliefs would not be true.

The most famous example of philosophical scepticism occurs in René Descartes' *Meditations on First Philosophy* (1641). In the First Meditation, Descartes raises two related sceptical worries. One is that we are dreaming. The other, and the inspiration for Putnam, is that we are victims of a powerful deceiver: 'I will suppose not a supremely good God, the source of truth, but rather an evil genius, supremely powerful and clever, who has directed his entire effort at deceiving me' (Descartes 1993: 16). While most translators render Descartes' 'genius malignus' as evil genius, it can also be rendered as evil or malicious demon. Because Descartes contrasts a supremely good God with a supremely powerful and clever evil genius, some have equated Descartes' evil genius with a deceiving god.

Descartes is not a denier. His point is not that most of our beliefs are false but that, for all we know, they might not be true. We might or might not be dreaming; there might or might not be an evil genius. Descartes introduces these sceptical worries in the First Meditation so that he can reply to them in later Meditations. The First Meditation opens:

> Several years have now passed since I first realized how numerous

> were the false opinions that in my youth I had taken to be true, and thus how doubtful were all those that I had subsequently built upon them. And thus I realized that once in my life I had to raze everything to the ground and begin again from the original foundations if I wanted to establish anything firm and lasting in the sciences. (Descartes 1993: 13)

Descartes' scepticism allows him to challenge all his opinions, raze them and those opinions based on them to the ground, and begin anew.

The simulated reality trope of Descartes' evil genius is a staple of science fiction, ranging from the novels of Philip K. Dick, William Gibson and Kurt Vonnegut to *The Matrix* (1999) and *Star Trek* franchise (most notably, the original pilot episode 'The Cage' (1965)). As Gerald J. Erion and Barry Smith note: 'Skeptical hypotheses are especially attractive to two groups of people. First are adolescents. [. . .] Second, and more importantly, are philosophers' (2002: 18). Not coincidentally, science fiction is also popular with both groups.

There is one science fiction subgenre, superhero comics, that perhaps more than any other regularly razes the foundations of its imaginary worlds to the ground by raising sceptical worries or, rather, by placing their characters in situations where they might themselves raise them. Moreover, there are striking parallels between Descartes' sceptical worries and comics involving such sceptical worries. Through a progression of four story arcs, writers Alan Moore, Jim Shooter, John Byrne and Peter David follow a path first trod by Descartes. They ultimately go farther than Descartes by showing that the most persuasive element of Descartes' response to scepticism fails. Ironically, these superhero sceptics are more sceptical than philosophical ones.

Waking Up

Echoing Putnam's thought experiment, Alan Moore in his 1982 *Marvelman* series imagines that the evil scientist Dr Emil Gargunza had kidnapped and subjected several orphans to operations to create superhuman bodies. To keep them under his control, Gargunza keeps them dreaming: 'because they are so terrifying and powerful you keep them locked in a world of dreams, studying the play of their minds while their bodies lay sleeping' (Moore and Davis 1986). Fulfilling the role of Descartes' evil genius, Gargunza has 'programmed the minds of these near-divine creatures . . . providing them with an utterly manufactured identity which is ours to manipulate at will. To wit: the identity of a children's comic book character' (Moore and Davis 1985a). Moore combines Descartes' sceptical worries concerning dreaming and evil geniuses, subjecting his characters to both. Watching the video tapes of his sleeping self, Miracleman asks: 'Why didn't we realise what they were doing to our lives?' (Moore and Davis: 1985a).

In the First Meditation, Descartes investigates a similar question when focusing on dreaming by itself: 'How often does my evening slumber persuade

me of such ordinary things as these: that I am here, clothed in my dressing gown, seated next to the fire – when in fact I am lying undressed in bed!' (Descartes 1993: 14). Dreaming that things are real does not make them real, and because we cannot be certain right now that we are not ourselves dreaming, Descartes places doubt in our minds. Such doubts might be resolved by waking. After seven years of their dreaming, Gargunza's orphans stir:

> They're over-riding the somatic inducers somehow [. . .] One of them must be reaching out his subconscious mind and over-riding our guidance programme [. . .] All the references to dreams . . . this 'Sleepytown' … their subconscious minds are trying to tell them that what they're experiencing isn't real [. . .] they're trying to wake up [. . .] trying to overload on absurdity to shock the brain into wakefulness by crossing the threshold of disbelief. (Moore and Davis 1985b)

Still inside the dream world, Mike Moran (Miracleman) observes: 'Something's wrong here. Something doesn't feel right. It's as if . . . it's as if none of this is really happening.' Gargunza sees that Moran's 'subconscious, aware of its true situation, is trying to break down our dreamscape and dragging the others along. [. . .] What I need is a dream-programme that will explain these lapses in the continuity of his reality and lull him back into security and sleep' (Moore and Davis 1986). Consequently, Gargunza inserts Hypnos, Deacon of Delirium into the dreamscape, fooling Young Miracleman: 'We might have known! Who else but the Nabob of Nightmares could come up with a creepy set-up like this? That explains your weird sensations, M.M.!' Moran, however, rejects the explanation: 'No! This is wrong! Don't you see? We're being seduced! They're trying to stop us from thinking!' (Moore and Davis 1986).

As Moran's real body begins to move, Gargunza attempts a final explanation: 'And then the Miracleman Family woke up . . . and it all had been a dream.' His deception again fools Young Miracleman: 'Whew! Hey, M.M. Kid! I just had the craziest dream.' And this time Miracleman too: 'Hmmm. Funny . . . so did I. Thank goodness it was only that . . . just an insane nightmare'. At least for now, with 'Normal dream patterns re-established completely' (Moore and Davis 1986), Gargunza convinces Miracleman that what he took to be evidence that he was dreaming was *itself* a dream.

After worrying that he was dreaming, Descartes himself maintains: 'But right now, my eyes are certainly wide awake when I gaze upon this sheet of paper. This head which I am shaking is not heavy with sleep. I extend this hand consciously and deliberately, and I feel it. Such things would not be so distinct for someone who is asleep.' Yet, unlike Miracleman, Descartes concedes: 'As if I did not recall having been deceived on other occasions even by similar thoughts in my dreams!' (Descartes 1993: 14). We sometime dream that we are not dreaming. We sometimes even dream that we are waking up from dreaming. The last time we thought that we did wake up from a dream, for all we know, we

might merely have dreamed that we did.

Other members of the Miracle Family do eventually awake. Miraclewoman, still in a hypnotic state, discovers Gargunza's secret laboratory:

> Inside, it was spacious, but deserted. Experiencing creeping déjà vu, gazing at the couches and screens, I grew unaccountably afraid. What had I stumbled upon? The video tapes provided my answer. Watching, my shock, fury, horror and amusement finally crystalized into exhilaration. Knowing the truth, I was free … a cartoon figure ripped from her paper universe and given a 3-D world. (Moore and Totleben 1987: 10)

To signal this division between real and dreamed worlds, Moore reprints a ten-page episode of Mick Anglo and artist Don Lawrence's original *Marvelman* as the first ten pages of *Miracleman* #1. Page eleven then repeats a single close-up of Marvelman, zooming into an increasingly distorted extreme close-up in a sequence of eight panels emphasizing the character's 'paper universe' by revealing its component elements of lines and ink. Moore worked with multiple artists – Garry Leach, Alan Davis, Chuck Beckum and John Totleben – all of whom contrast with Lawrence, whose 1950s rendering of Marvelman stands further from the 'realistic' end of Scott McCloud's 'iconic abstraction scale' (McCloud 1994: 46). Lawrence's style is closer to what Joseph Witek regards as a cartoon mode which 'grows out of caricature, with its basic principles of simplification and exaggeration'. Moore's collaborators work in Witek's naturalistic mode, which 'derives from the recreation of physical appearances in realistic illustration' (Witek 2012: 28). Using terms from Neil Cohn, Miracleman's artists draw in the 'Kirbyan' dialect, the '"mainstream" style of American Visual Language [which] appears most prevalently in superhero comics' (Cohn 2013: 139) while Lawrence is closer to the 'Barkian' dialect which includes 'styles found in animation like those of Walt Disney' (Cohn 2013: 141). Whatever the terminology, the two worlds are visually distinct, each with its own 'narrative ethos' which 'makes a very different claim to a very different kind of truth' (Witek 2012: 28; 32). When Miraclewoman sees the contrast between them, the deception ends. She is sure of her existence (as far as a fictional, ink and pen drawn superhero can ever be).

Descartes not only separates the sceptical worry about dreaming from the sceptical worry about being controlled by a being like Gargunza, but also treats the latter anxiety as more serious. That might be because we can wake up from our dreams but might not be able to escape so easily from an evil genius. It might also be because, like Moore, Descartes imagined that evil geniuses can impose dreams on us. So the second sceptical worry encompasses the first. Regardless, Descartes' solution is similar to Miraclewoman's own finding when she herself learns the truth. Descartes declares that, whether I am being deceived or not, there is one thing about which I cannot be deceived, viz. . . .

that I exist. As he explains in the Second Meditation:

> I have persuaded myself that there is absolutely nothing in the world: no sky, no earth, no minds, no bodies. Is it then the case that I too do not exist? But doubtless I did exist, if I persuaded myself of something. But there is some deceiver or other who is supremely powerful and supremely sly and who is always deliberately deceiving me. Then too there is no doubt that I exist, if he is deceiving me. (Descartes 1993: 18)

If Miraclewoman herself ever entertained the sceptical worry that she was in Gargunza's clutches, it cannot then be the case that she too does not exist. She persuaded herself of something. And that holds insofar as Gargunza himself did the persuading. In each case, Miraclewoman would be able to say with Descartes: 'there is no doubt that I exist.' Descartes continues: 'Thus, after everything has been most carefully weighed, it must finally be established that this pronouncement 'I am, I exist' is necessarily true every time I utter or conceive it in my mind' (Descartes 1993: 18). As Descartes more famously puts it in his 1637 *Discourse on Method*: 'I think, therefore I am.'

Playing God

Descartes' argument, called the '*Cogito*', is first-personal. It does not establish that other people exist, nor that the world exists. It proves that *I* exist – whether I am Miraclewoman, Descartes, or someone else – leaving other arguments to prove the rest. Nor does the *Cogito* prove that I am not being controlled by an evil genius. The argument presupposes that, for all I know, I might be. If I am being deceived, then I exist. If I am not being deceived, then what I take reality to be matches reality itself, so I exist then also. Since those are apparently the only two possibilities, I exist.

Having established the *Cogito*, Descartes next tries to show that what I take reality to be does match reality itself. He attempts to remove the worry about the evil genius. Descartes does so by trying to prove in the Third Meditation that God exists. Superhero stories – even Moore's – typically avoid discussions of God's existence. As Tom Morris notes:

> We don't see Superman sitting in church or Bruce Wayne poring over a Bat-Bible for inspiration and guidance. The Fantastic Four don't have prayer times together to discern the direction their work should take [. . .] there is very little mention in any mainstream comics of a Creator. (Morris 2008: 45)

Nonetheless a wide range of comics do include gods and Godlike beings. Moreover, some of these play a role similar to that which God and the evil genius play for Descartes.

Beginning in *The Avengers* #167, Jim Shooter plotted the character

Starhawk, a member of the Guardians of the Galaxy, traveling from the future to 1977 in pursuit of the cyborg criminal Korvac. Unknown to Starhawk, Korvac downloaded infinite knowledge from Galactus' command base computer and evolved into a god:

> As a new-made god, his position was unique. As long as he concealed his presence from other near omnipotent beings, he would be free to make subtle alterations in the fabric of reality, eventually taking control. (Shooter et al 1978a: 17)

Korvac is free to act as a god – a benevolent one according to himself, a malicious one according to others – as long as he is not caught by other Godlike beings. When Starhawk tracks Korvac to a seemingly banal suburban house, the new god – now calling himself Michael – makes his first alteration:

> Of all the great powers in existence, you alone are aware of me! I cannot allow your knowledge to spread! [. . .] You must be obliterated. Thus I must convert your ethereal spirit form into basic substance – substance which can be rent – shredded by talons of naked energy! [. . .] Now in order to insure my secrecy – I shall restore the one I have destroyed! [. . .] You live again, remade, molecule by molecule . . . exactly as you were – but henceforth, you will not remember this incident, nor the fact of my existence . . . and never again shall your senses perceived me! Go now –aid your friends in their petty 'mission' in this era – reassure them that it is imperative! (Shooter et al 1978b: 16; 29-30)

The altered Starhawk reappears seconds later: 'Nearly a mile above the upper east side, in midst of a graceful loop, Starhawk pauses – suddenly noticing his location, but unable to recall flying hither. It seems to him that he was troubled a few seconds ago – and yet, now he feels a comfortable sense of purpose' (30). When returning to the Avengers and asked if has found out anything, Starhawk answers: 'Only . . . that we must proceed with our mission! It is imperative!' (31).

Shooter's co-creators, penciller George Pérez and inker Pablo Marcos, express sceptical worries visually by continuing to render Starhawk in the same style after Michael destroys him, literalizing Michael's claim to 'restore' Starhawk 'exactly as you were' (Shooter et al 1978b: 30). Were the restored Starhawk instead rendered with stylistic variation, then the division between reality and false perception would also be visually represented. The absence of variation suggests the impossibility of detecting the manipulation of a deceiving god.

Seven issues later, Iron Man requests Starhawk's help in finding Michael: 'unless your cosmic insight can help – the universe may crumble before our very eyes' (Shooter et al 1978c: 1). Starhawk reluctantly agrees: 'I still believe the true enemy is Korvac – but I will try' (2), but soon reports, 'I'm sorry, Iron Man, but I found … nothing!'

Iron Man: Wha–? But these others with lesser psychic abilities at least came up with bits and pieces! How could *you* possibly not –

Starhawk: I merely reveal what I sense. (14)

The Avengers locate Michael's house, but their combined 'psychic and cybernetic probes' find 'no danger!' in his reality-shrouding appearance (26). Starhawk, however, exposes Michael's identity through his inability to perceive anything at all: 'Enough! I don't know what your game is, but no one makes a fool of Starhawk! For minutes you've been talking, probing, pretending to receive responses! But from whom? There's nobody there!' (27). Starhawk accidentally proves the presence of Michael by sensing his absence.

To show that I am not myself being deceived by an evil genius – and, like Shooter's Michael, Descartes' evil genius has itself been equated with a deceiving god – Descartes needs to disqualify the possibility of a god like Michael deceiving me. He does so by trying to prove that such a being could *not* conceal his presence from one other being, an actually omnipotent being, God.

Descartes' argument in the Third Meditation for God's existence is both more complicated and more contentious than the *Cogito*. It begins: I exist and have the idea of a perfect being. Whether or not such a being exists, I have the idea of a being, omniscient, omnipotent and omnibenevolent. Descartes then asks from where this idea could arise. In answering it, he appeals to a medieval distinction between formal and objective reality. Formal reality is the reality of an original while objective reality is the reality of an object derived from the original. A tree is formally real while a picture of a tree is objectively real. Likewise, a picture of a tree, if itself taken as the original, is formally real while a picture of the picture is objectively real.

According to Descartes, ideas are like pictures. They come from originals. And, Descartes adds, an object cannot have more objective reality than its original has formal reality. A picture of a tree cannot be more real *as* a picture of a tree than a tree is real *as* a tree. If the picture is of a *fake* tree, then it is not a *real* picture of a tree. The realness of the object cannot exceed the realness of the original. Descartes next considers what the original of the idea of a perfect being could be. It could not be himself, Descartes reasons, since Descartes is not perfect. His formal reality is less than the idea's objective reality. It could not be his religious instructors for the same reason. Because the idea of a perfect being is perfectly objectively real, it can come only from some original that is perfectly formally real. But only a perfect being, viz., God, is that.

Descartes takes God's existence to show that I (who, as *per* the *Cogito*, exist) am not being systematically deceived by an evil genius. Given God's omniscience, God would know whether I was being deceived. Given God's omnipotence, God would be able to prevent my being deceived. Given God's omnibenevolence, God would so prevent it.

Likewise, Michael knows that he would be free to enact his schemes 'as long as he concealed his presence from other near omnipotent beings' (Shooter et al 1978a: 17) including 'the most important entity to be observed! The celestial vastness of – Eternity himself! Eternity! He who is the universe personified . . . within whom all the stuff of this reality exists.' Nonetheless, Michael adds, 'He's so confident, so serene in his omnipotence! He would pay little attention to a mote such as I, even had I not shielded myself from his sight! (13). Not even Eternity, then, possesses all three elements of God. Though perhaps his omnipotence is sufficient to defeat Michael, had Eternity been truly omniscient, then God would have detected him.

Had Starhawk not accidentally revealed Michael's presence by its absence, then Shooter's deceiving god would have continued to deceive his victim. The deception stops not because God intervenes but because of Michael's self-defeating miscalculation. Eternity fails to fulfil the role of Descartes' God. Many think that Descartes' proof for God's existence itself fails too. Neither Descartes nor Starhawk, then, can trust that reality is what he thinks it is.

Paying Attention

Descartes' argument in the Third Meditation is contentious partly because it appears circular. Frans Burman, interviewing Descartes in 1648, explains: 'It seems there is a circle. For in the Third Meditation the author uses axioms to prove the existence of God, even though he is not yet certain of not being deceived about these' (Cottingham 1976: 5–6). Burman is worried about Descartes' claims about formal and objective reality. How does Descartes know that an object cannot have more objective reality than its original has formal reality? This worry is especially pressing since, on the assumption that an evil genius is possible, Descartes must allow that the evil genius could have made him think that as part of the evil genius' deceptive plot (as Michael makes Starhawk think he must continue to pursue the non-existent Korvac). That is why Burman maintains that Descartes is using axioms – especially those about formal and objective reality – to prove the existence of God, even though he is not yet certain of not being deceived about these.

Burman's challenge is called the 'Cartesian Circle'. Descartes tried to break the circle in his reply to Burman:

> [The author of *Meditations*] does use such axioms in the proof, but he knows that he is not deceived in with regard to them, since he is actually paying attention to them. And for as long as he does pay attention to them, he is certain that he is not being deceived, and he is compelled to give his assent to them. (Cottingham 1976: 6)

Philosophers are even less enthusiastic about Descartes' reply than about the argument itself. If 'actually paying attention' to something is sufficient to remove the sceptical worry, then why did Descartes worry in the First Meditation about

being deceived at all? Why did Descartes try to prove in the Second Meditation that I exist and in the Third (and Fifth) Meditation that God exists? Descartes had responses to these also. But the important point here is that Descartes thinks that by actually paying attention to something we know that it is true.

In 1989, writer-artist John Byrne scripted a story arc concerning the mutant superheroine Wanda Maximoff that, like Burman, presents a challenge to Descartes. Beginning in 1985, in the limited series *The Vision and the Scarlet Witch*, Steve Englehart scripted the story of Wanda's pregnancy. After Dr Strange confirms that Wanda is 'going to be a mother!', her husband, the Vision, asks: 'It was the magick, wasn't it? The force that got away from the witches of New Salem, that you funneled through yourself?' Wanda responds: 'I think so! As it was happening, I made – a little wish! And felt that it would work!' Although Wanda 'used magick to make it happen', Dr Strange assures her that 'Magick's nothing but directed energy – and you directed it! I'm a better magician than a physician these days, and I'm not worried. The baby will be fine, believe me!' (Englehart 1986).

In the twelfth and concluding issue, Wanda gives birth to twins. In 1989, however, Byrne revealed through Wanda's mentor Agatha Harkness that:

> Wanda longed all her life for the kind of normal existence forever denied her by her mutant powers. She so greatly desired a family – in her mind the perfect symbol of a peaceful, happy life – that she suffered what in a human woman would have been a hysterical or imaginary pregnancy. In such cases there is usually no child to be born . . . but Wanda's power to change probabilities created Thomas and William. (Byrne and Machlan 1989b: 29)

Consequently, when Wanda is 'not thinking about them … they disappear!' (Byrne and Machlan 1989a: 6). Though Harkness acknowledges that there 'are many kinds of reality', the twins are only 'manifestations of Wanda's will. One small step beyond illusion', and so the 'children are not real' (Byrne and Machlan 1989b: 15). Like Pérez and Marcos rendering Starhawk, Byrne pencils and Mike Machlan inks the twins in the same style as other characters and objects around them, visually establishing that false insertions are indistinguishable from reality.

Descartes believed that, as long as he concentrates on his axiom about formal and objective reality, he can trust it enough to use in his argument for God's existence. But more than that, Descartes has now thrown into doubt the trustworthiness of *any* axiom or claim on which he is not concentrating. Like Wanda and her twins, the trustworthiness of everything that Descartes believes ceases to exist if he breaks his concentration. Wanda needs to concentrate on her children. Only then do they exist. Descartes needs to concentrate on all the steps in the *Cogito* and proof for God's existence. Only then can he be sure that he is not being systematically deceived.

After hearing Descartes' response to the charge of circularity, Burman

wrote: ‘But our mind can think of only one thing at a time, whereas the proof in question is a fairly long one involving several axioms.’ Descartes replied:

> It is just not true that the mind can think of only one thing at a time. It is true that it cannot think of a large number of things at the same time, but it can still think of more than one thing. For example, I am now aware and have the thought that I am talking and that I am eating; and both these thoughts occur at the same time. (Cottingham 1976: 6)

Only if he thinks of the *Cogito* and argument for God’s existence is the sceptical worry removed – just as Wanda’s children exist only if she thinks of them. Like Burman, Byrne suggests that such split attention is impossible. As Roy and Dann Thomas later script, Wanda ‘had been living a lie’ (R. and D. Thomas 1990: 26). Unless Descartes’ attention stays fixed, then he cannot himself know whether he is living a lie too.

Dreaming Again

Byrne’s story also presents another variation on Descartes’ evil genius, a malicious demon. Harkness reveals to Wanda that her children were parts of the shattered essence of the demon Mephisto after he had been destroyed by the child of Sue and Reed Richards, the Godlike Franklin Richards: ‘Since her power cannot create true life, she reached out unconsciously to snare anything which would function as souls for the newborns’ (Byrne and Machlan 1989b: 29). When Mephisto ‘reabsorbed the portions of his essence which had become’ her twins, Harkness defeats him again: ‘Knowing them to be still bound by the spell Wanda used to create them, I was able to erase them from her memory. The resultant shock to Mephisto’s system was enough to disperse him again’ (29). Since, ‘When she returns to consciousness, her first thought is almost sure to be of her children’, Harkness exchanges her unreal children for new, unreal memories: ‘To spare her that pain, I have closed that corner of her mind for all time. The little creatures she created are gone, restored to their original state. For Wanda . . . it will be as if they never were’ (30).

Unlike Gargunza, Michael or Mephisto, Harkness’ intentions are benevolent. Franklin Richards is similarly benevolent, but his powers affect an entire universe of characters in Marvel’s *Heroes Reborn* story arc. For the single issue *Onslaught: Marvel Universe* (October 1996), writers Scott Lobdell and Mark Waid depicted the deaths of over a dozen of Marvel’s most popular heroes. When the supervillain Onslaught achieves ‘his final form’ of ‘pure psionic energy’, he declares: ‘Onslaught is no longer a physical creature who can be bludgeoned into submission! I am thought itself! I am perception! Perception is reality – and reality rejects you!’ To defeat him, the Fantastic Four and the Avengers sacrifice themselves by absorbing his energy, ending in an explosion ‘loud enough to swallow the world’ (Lobdell and Waid 1996).

Yet readers saw Franklin’s parents again the following month in *Fantastic*

Four Vol. 2 #1, one of the four titles that Marvel outsourced to their former employees Jim Lee and Rob Liefeld before declaring bankruptcy that December. Lee and Brandon Choi's script reboots the characters in a contemporary origin story that replaces their previous history. Echoes of the past, however, remain. Ben Grimm narrates the opening sequence:

> The dream's always the same. It begins with a perfect launch. But this time it takes a fantastic twist. Suzie and Johnny? What're they doing here? It's too dangerous [. . .] That's when the warning indications start lighting up like a Christmas tree! Radiation's flooding into the main compartment [. . .] My friends! My ship! They're all dying – when there's suddenly – a phone call for me?

Ben wakes in his cockpit to discover:

> No. Not a phone. It's the intercom.
>
> 'You can get up now, Major Grimm. We've completed the simulation.'
>
> 'Huh?! Oh. Right! I told you that I could do this with my eyes closed.' (Lee and Choi 1996)

Ben is dreaming a memory of his past existence. Instead of a World War II veteran, in his new existence, he is a major who flew 'combat sorties' before being 'wounded during the Gulf War.' Before the end of the issue, his dream repeats: 'Except this time – it's not – a dream!' (Lee and Choi 1996). He and his teammates are bombarded by radiation and transformed into the Fantastic Four.

The four *Heroes Reborn* series ran for thirteen issues each, before Marvel restored the characters to their main continuity in the mini-series *Heroes Reborn: The Return*. Each of the four issues begins with Julio Soto's summary of writer Peter David's story:

> All those who had jumped into Onslaught seemingly perished as the rest of the world watched! But all was not as it seemed. In fact the Heroes were anything but dead, as they were actually whisked away to another universe!
>
> It was young Franklin Richards, son of Reed and Sue Richards of the FF, who was unwittingly responsible for the disappearance of the Heroes. Franklin's amazing powers were obviously even more far-reaching than anyone had imagined, as he was unintentionally able to create a pocket universe in which the Heroes now exist [. . .]
>
> For the last year, immediately following the defeat of Onslaught, the Heroes have been leading new lives which were, to the best of their knowledge, a continuation of their normal lives. They were not aware of their previous existence back in the real Marvel Universe. In the

> pocket universe the Heroes had radically different origins and vaguely resembled their former selves. (David et al 1997a–d)

Apparently Franklin did hold his family and friends in his heart. Franklin's mind is more powerful than even Wanda Maximoff's. While Wanda needed to concentrate on her children for them to exist, whatever Franklin thinks exists does exist – at least in a pocket universe.

Nonetheless Sue is plagued by 'lousy dreams' and complains, 'I'm crying . . . and I don't know why! I – I think something's happening' (David et al 1997a). Similarly, Ben admits after a battle: 'I wasn't at the top of my game. I was like . . . like somethin' was rattlin' around in my head. Distractin' me.' (David et al 1997a). When yet another Godlike being, the Celestial called Ashema, reveals to Franklin what he has done, he enters his own pocket universe and appears to his parents, who have no memory of him. But Sue still believes: 'He's our son, Reed. I don't know how I know . . . but I do' (David et al 1997b). Reed, wishing to be reasonable, sends Iron Man to gather samples from the planet's substrata, which reveals that 'our world … is less than a year old' (David et al 1997c). Hawkeye calls the idea 'beyond insane', something from 'The Twilight Zone', but Reed insists the evidence 'verifying the boy's claims' 'cannot be ignored' (David et al 1997d).

Such verifying evidence, however, would not exist if Franklin did not allow it to exist. Franklin is as powerful as Descartes intended his evil genius to be. Unlike Descartes' evil genius, or Gargunza, Michael or Mephisto, Franklin intends no malicious deception. He mourned his parents passing without realizing that in so doing he resurrected them in this pocket universe. Regardless, to prevent the Celestials from destroying both universes, the Heroes must leave the pocket universe and return to their original one.

Consequently, Captain America must leave his new female sidekick, Bucky. Though of different worlds, Bucky and Captain America share a single visual style. Penciller Salvador Larroca and inker Scott Hanna render all characters in a common manner, and even the two worlds are visually indistinguishable – including Franklin and Ashema who create and maintain the alternate reality. In fact, everything in the simulated reality of the printed pages is composed in the same style and on the same physical material.

That makes it all the more poignant when Bucky asks: 'Cap, please, why can't I come?!' Captain America hesitates: 'The answers race through his mind: 'Because Sam and I aren't from this world . . . because you're . . . a manifestation of a young boy's imagination, made manifest by an incomprehensible power' (David et al 1997d). Soon the Heroes 'remember everything', as Bucky and the other inhabitants of the pocket universe watch:

> As for the girl . . . it is as if a dream were over. There is an appropriateness to that. Indeed, it is believed by some that the world . . . the entire universe . . . merely exists as the dream of a sleeping gnat.

> That the girl – that everyone and everything – is simply the figment of the imagination of some greater being's dream state [. . .] Ashema sacrificed her own consciousness, gave it over for the preservation of the other universe, which will exist within her for all time [. . .] perhaps the celestials themselves . . . are merely figments of someone or something else's eternal imagination. Indeed . . . in the final analysis . . . perhaps we all are. (David et al 1997d)

In an attempt to counter this radical scepticism, Bucky could have run the *Cogito* had she wished. If Franklin deceives me (as uttered or conceived by Bucky), then I (likewise) exist. If Franklin does not deceive me, then what I take reality to be matches reality itself, so I exist then also. Since those are the only two possibilities – Descartes would have us believe – I *qua* Bucky exist.

Unfortunately, for Descartes, Bucky and the rest of us, these are not the only two possibilities. There is a third possibility. Franklin is neither deceiving nor not deceiving Bucky since, in an objective sense, there *is* no Bucky. There is no one, then, to be deceived or not to be deceived. Franklin merely told himself a story in which Bucky is simply 'a manifestation of a young boy's imagination.' The *Cogito* works only on the assumption that deception is possible. In Bucky's case, however, it is impossible. There is no one to deceive. Franklin is daydreaming it all. No matter how persuasive we might otherwise find the *Cogito*, *Heroes Reborn: The Return* recognizes that we must leave open the possibility that we too are figments of the imagination of some being's dream state. Descartes' *Cogito* is useless against that sort of doubt.

While, like Descartes, Moore's Miraclewoman can affirm her individual existence, she can prove nothing about the rest of reality. Nonetheless, while Descartes thinks that an omniscient being can remove the worry of an evil genius, Shooter presents a powerful but nevertheless non-omniscient being who fails to rescue a victim of malign deception. Likewise, while Descartes thinks that we can pay sufficient attention to two arguments, Byrne presents a woman who cannot pay consistent attention to her twin children. And, most sceptical of all, while Descartes thinks that I exist, David raises the possibility that, for all I know, I might merely be a figment of someone's imagination.

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Doctors in *Star Trek:* Compassionate Kantians

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Doctors throughout the five *Star Trek* television series and (to date) thirteen films are incredibly versatile professionals. They are able to diagnose and treat almost any disease they encounter with aplomb and *élan*, and this includes not only human diseases but also pathologies that afflict aliens with completely different anatomies and physiologies. Moreover, *Star Trek*'s medics are able researchers in seemingly all of the various biological fields.

James Hughes and John Lantos note that, despite these apparent improbabilities, the franchise has graphically illustrated contemporary dilemmas in medical ethics 'to a huge popular audience in a sensitive and accessible way', often in 'the form of philosophic dialogues' in a genre which facilitates the formulation of these issues in 'succinctly dramatic ways' (Hughes and Lantos 2001: 26). They also note that 'it would be hard to overestimate the success or the reach of *Star Trek*' since it 'has been one of the most popular and often cited science fiction creations of any kind. There have been more books, television shows, and movies set in the *Star Trek* universe than in any other science-fictional universe' (26). Furthermore, *Star Trek* 'provides opportunities to explore the moral dilemmas associated with cultural diversity and pluralism in a universe without a single moral code. In that sense, the ethics of *Star Trek* is the ethics of multiculturalism' (27).

These future doctors, however, find themselves carrying another overarching responsibility as Starfleet crews' *de facto* 'ethics officers'. Although other characters throughout the franchise can be characterised as figures of conscience, for example Lieutenant Ilia in *Star Trek: The Motion Picture* (1979); Data, Guinan, Jean-Luc Picard and Deanna Troi in *Star Trek: The Next Generation* (1987-94); and Kathryn Janeway in *Star Trek: Voyager* (1995-2001), we argue that it is the ship doctor – despite being an entirely different character in each manifestation of the franchise – who consistently serves this function. This role commenced at *Star Trek*'s inception with the creation of Dr Leonard 'Bones' McCoy (DeForest Kelley). Gene Roddenberry, the series' creator, 'wanted someone capable of more than medicine and counselling; he wanted someone who was confessor and physician […] He would be a humane hero and a voice of human conscience' (Rioux 2005: 140). This role was also evident in *Star Trek*'s original pilot, 'The Cage' (1965), later aired as part of the two-part episode, 'The Menagerie' (1966), in which Dr Philip Boyce (John Hoyt) counselled an exhausted and overburdened Captain Christopher Pike (Jeffrey Hunter). To some extent, this bioethical purpose can be attributed to the Hippocratic Oath and, in particular, to the concept of *primum non nocere* ('first,

do no harm') which, from the 17th century, came to be associated with the Oath. However, although the Oath underpins their professional ethos, we will argue that it cannot fully explain why the various doctors in the *Star Trek* franchise would be willing to sacrifice their professionalism as part of the *esprit de corps* that otherwise encodes the military and diplomatic ethos of the Federation.

Instead, this article will demonstrate that doctors throughout the *Star Trek* saga are zealous to do the right thing – defined in a *deontological* sense – not only for individual patients but also when medical care is not involved. Deontological ethics – derived from the Greek word *déon* ('duty') – is most strongly associated with the eighteenth-century philosopher Immanuel Kant. Contrary to utilitarian ethics, in which according to John Stuart Mill the rightness of a particular action is determined by the consequences produced, Kant contends that a moral agent ought only to perform their duty for the sake of duty itself, regardless of the consequences (Kant 2012: 12–13). Kant formulated his concept of duty in terms of a *categorical imperative*, of which he has various formulations. The first formulation, known as the *principle of universalizability*, states that one ought only to act based on a rule that one could rationally will to be a universal rule for all moral agents (Kant 2012: 34). The second formulation, known as the *principle of respect for persons*, states that one ought always to treat persons, both oneself and others, as an end in themselves – possessing infinite value, or 'dignity' – and never merely as a means to some other end (Kant 2012: 41). We will show how *Star Trek*'s doctors exemplify the Kantian imperative; yet, we will also see how their deontological zeal is tempered by their innate empathy.

In the original series, the half-human, unemotional and quintessentially logical Science Officer Spock (Leonard Nimoy) is counterbalanced by McCoy. Indeed, according to David Gerrold, their relationship serves to embody 'Captain Kirk's internal dilemmas':

> The two of them seem to verbalise the arguments that the captain must consider. Because we cannot get into the captain's head to hear what he is thinking, Spock and McCoy are doubly important to the series' ability to tell its stories well – it is primarily through them that Kirk's internal conflicts can be dramatized. (Gerrold 1985: 15–16)

This troika can be reduced to a psychic triad of action and spirit (Kirk), logical objectivity (Spock) and emotion (McCoy). The doctor is a 'man of heart that resists and balances the Vulcan Spock's calculated logic' (Petrany 2008: 132). Kirk thus uses Spock to guard against the doctor's tendency to behave in the fashion of 'the compassionate physician who expresses himself freely' (Barad and Robertson 2000: 57). And it is perhaps this tension that forges indelible links between the three.

McCoy consequently becomes 'the human conscience of the ship' (Rioux 2005: 168), an extremely powerful vessel and a marvellous scientific accomplishment, but whose crew could easily forget their humanity in their

technological immersion. For example, in 'The Conscience of the King' (1966), the Shakespearean actor Anton Karidian (Arnold Moss) excoriates Kirk (William Shatner), declaring: 'Here you stand, the perfect symbol of our technical society: mechanized, electronicized, and not very human. You've done away with humanity, the striving of man to achieve greatness through his own resources'. In 'The Way to Eden' (1969), this argument is dramatized by the figure of Dr Severin (Skip Homeier), who leads a band of so-called space hippies to find a mythical, idyllic planet while he himself suffers from a 'superbug' that has evolved in response to the sterile conditions in which humans live. This attitude is summed up by McCoy himself in 'The Ultimate Computer' (1968), 'Compassion. That's the one thing no machine ever had. Maybe it's the one thing that keeps men ahead of them', whilst further noting in 'I, Mudd' (1967) that 'You can't evaluate a man by logic alone'.

McCoy's compassion for life is foregrounded, in the film *Star Trek V: The Final Frontier* (1989), when he reproaches Kirk for jeopardizing his life while mountain climbing: 'Goddamn irresponsible! Playing games with life. […] Human life is far too precious to risk on crazy stunts'. But this is tempered by McCoy's unshakeable deontological leanings: to do the right thing, irrespective even of personal cost, as witnessed when his personal demons are revealed elsewhere in the film, after he disconnects his father's life-support in order to relieve him from intractable chronic pain. McCoy's willingness to sacrifice his own interests for the lives of others is also exhibited when, in 'Return to Tomorrow' (1968), he is threatened by the alien Thalassa to allow her to continue to inhabit the body of Lt Cmdr Ann Mulhall (Diana Muldaur). McCoy vehemently denies her, proclaiming unequivocally 'I will not peddle flesh!', and thereby affirming the Kantian mandate that one ought never to treat a person as a means to some other end. Thalassa angrily tortures McCoy until his witness of respect for another's life pricks her own conscience.

This role of ship's conscience continued to be reprised by the doctor in each subsequent *Star Trek* series. For example, Dr Beverly Crusher (Gates McFadden) in *The Next Generation* is completely and compassionately deontological in her reasoning. This is clearly perceived when, in the story 'Ethics' (1992), another doctor circumvents research ethics and uses utilitarian reasoning to experiment on Lt Worf (Michael Dorn) after he becomes paraplegic. In the story 'Symbiosis' (1988), Crusher is even willing to break Starfleet's Prime Directive, which forbids interference with the natural evolution, both biologically and culturally, of intelligent alien species, if she perceives it to be necessary in order to alleviate suffering. When one planetary civilization is shown to be exploiting another through a highly addictive drug, Crusher pleads with Captain Jean-Luc Picard (Patrick Stewart) to terminate this abhorrent state of affairs. Picard retorts by citing the Prime Directive as binding him 'not to interfere with other worlds, other cultures'. But Crusher strongly harangues him and even offers a solution:

> You don't think drug addiction and exploitation is sufficient cause to do something? […] With one society profiting at the expense of the other. […] I can synthesize a non-addictive substitute which will ease their withdrawal symptoms.

Picard remains unmoved: 'Why? Because it offends against our sensibilities? It is not our mission to impose Federation or Earth values on any others in the galaxy.' Crusher disagrees:

> This is exploitation, pure and simple! […] Caused all of this suffering and hardship only to make their pitiful lives easier! And all of it based on a lie […] so cruel. We could have made their burden easier.

Picard remains unswayed and again cites the Prime Directive:

> Could we have? Perhaps in the short term. But to what end? […] Beverly, the Prime Directive is not just a set of rules. It is a philosophy, and a very correct one. History has proved again and again that whenever mankind interferes with a less developed civilization, no matter how well intentioned that interference may be, the results are invariably disastrous.

But Crusher's compassion, which informs her concept of her duty as a physician, which she ranks higher than her duty as a Starfleet officer bound by the Prime Directive, again comes through: 'it's hard to be philosophical when faced with suffering'.

In 'I, Borg' (1992), Crusher's compassion even extends to the Federation's most lethal enemy. When an away team discovers an injured adolescent Borg, Picard initially decides to leave him behind, but Crusher objects, pleading, 'Let me at least stabilize his condition, give him a chance of surviving until [the Borg] get here'. The Borg is beamed aboard the *Enterprise* and treated. This provides an opportunity to exploit the Borg's cybernetic weakness:

> If we could get to the root command, we could introduce an invasive programming sequence through its biochip system and then return it to the hive […]. The Borg are so interconnected it would act like a virus. […] Which would infect the entire Collective. We could disable their neural network at a stroke.

Crusher is taken aback by the proposed genocide from the normally deontological Picard, 'the bearer of Starfleet's conscience and an exemplar of moral autonomy' (Eberl and Decker 2008: 141), whose 'deontological leanings reify him as a moral paragon, a role model whose decisions and actions resonate with our individual desire to do the right thing' (Grech 2013b: 20). She

questions, ‘Infect it? You make it sound like a disease’, to which Picard replies with grim satisfaction, ‘Quite right, Doctor. If all goes well, a terminal one.’

The crew develop the virus which should lead to a ‘total systems failure [that] will destroy them.’ Crusher clarifies, ‘I just think we should be plain about that. We’re talking about annihilating an entire race.’ Picard admits that such an action ‘under most circumstances would be unconscionable’, and yet justifies his decision like so:

> But as I see it, the Borg leave us with little choice. […] We’re faced with an enemy who are determined to destroy us, and we have no hope of negotiating a peace. Unless that changes, we are justified in doing anything we can to survive.

Crusher objects: ‘even in war there are rules. You don’t kill civilians indiscriminately’. But Picard and Cmdr Riker (Jonathan Frakes) point out that ‘there are no civilians among the Borg […]. Think of them as a single, collective being. There’s no one Borg who is more an individual than your arm or your leg’. Crusher remains unmoved:

> How convenient. […] When I look at my patient, I don’t see a collective consciousness. I don’t see a hive. I see a living, breathing boy who’s been hurt and who needs our help. And we’re talking about sending him back to his people as an instrument of destruction.

The Borg drone is sent back without the destructive virus only after verifying that this is his *autonomous choice* – the key metric, as Barbara Stock has emphasized, by which Kant distinguishes moral agents (persons who possess incalculable dignity) from non-persons (Stock 2016: 95–104).

Dr Katherine Pulaski (Diana Muldaur, thereby recalling the scientist figure that she played in ‘Return to Tomorrow’) replaced Beverly Crusher for season two of *The Next Generation*. Pulaski is as cantankerous as McCoy and equally deontologically compassionate. For example, when in the story ‘Pen Pals’ (1989) Lt Cmdr Data (Brent Spiner) becomes an anonymous pen pal with a young girl, Sarjenka (Nikki Cox), who is a member of a primitive planetary civilization threatened with destruction; Data wants to find a way to help Sarjenka and her society. Worf is adamant: ‘There are no options. The Prime Directive is not a matter of degrees. It is an absolute’. This is an intriguing point as Kantian deontology is often criticiszed for its absolutism; Kant explicitly contends, for example, that one has a strict duty not to tell a lie even if it is the only available means of saving an innocent person’s life (Kant 1949: 346–50). Yet, Worf’s proclamation of the Prime Directive’s absoluteness is not deontological since the Prime Directive is better understood as a maxim of ‘rule utilitarianism’, in which an action is morally evaluated based on whether it conforms to a rule which, over time, will produce the greatest net benefit for the greatest number

of people (cf. Eberl 2014: 117–30).

Pulaski disagrees with Worf's rigidity but Picard defends him: 'Doctor, I'm sure that is not what the Lieutenant meant, but in a situation like this, we have to be cautious. What we do today may profoundly affect upon the future. If we could see every possible outcome'. Data, however, agrees with Pulaski, stating that Sarjenka and her people are 'not a subject for philosophical debate. They are a people.' But Picard rebuts:

Picard:	So we make an exception in the deaths of millions.
Pulaski:	Yes.
Picard:	And is it the same situation if it's an epidemic, and not a geological calamity?
Pulaski:	Absolutely.
Picard:	How about a war? If generations of conflict is killing millions, do we interfere? Ah, well, now we're all a little less secure in our moral certitude. And what if it's not just killings. If an oppressive government is enslaving millions? You see, the Prime Directive has many different functions, not the least of which is to protect us. To prevent us from allowing our emotions to overwhelm our judgement.
Pulaski:	My emotions are involved. Data's friend is going to die. That means something.

Data tries to inveigle the Captain into helping by suggesting that the 'transmission could be viewed as a call for help', which Picard rejects outright as 'sophistry'. But Pulaski is willing to '…buy that excuse. We're all jigging madly on the head of a pin anyway'. When Sarjenka's voice is heard by everyone, Picard admits that Data's 'whisper from the dark has become a plea. We cannot turn our backs.' In this case, what a utilitarian absolutist, such as Worf, might understand to be a situation requiring strict adherence to a particular moral imperative, a more compassionate deontologist – Pulaski, Data and (eventually) Picard – understands to be a situation calling for more robust action with respect to a person in need.

Even the sentient artificial intelligence that comprises the Emergency Medical Hologram (EMH) (Robert Picardo) on the Starship *Voyager* is forced to behave in a deontological manner through his 'ethical subroutines'. These prevent him, for instance in the story 'Tuvix' (1996), from splitting a new person who is the accidental remix of two distinct crewmembers, since such a course of action would kill the new and unique person, treating him merely as a means in order to save the other two: 'Captain, but I cannot perform the surgical separation. I am a physician, and a physician must do no harm. I will

not take [his] life against his will'. Captain Janeway (Kate Mulligan) is adamant and performs the procedure herself, killing the individual and recovering her previous two crewmen.

This incident is somewhat echoed in the story 'Latent Image' (1999), involving the EMH having to choose between two crewmembers who are both critically injured and require a treatment that the EMH only has time to provide to one of them. The EMH chooses to treat the one with whom he has developed a close relationship and allows the other crewmember to die. Afterwards, however, the EMH cannot reconcile his triage selection with his ethical subroutines:

EMH:	Two patients, which do I kill?
Janeway:	Doctor …
EMH:	Doctor? Hardly! A doctor retains his objectivity. I didn't do that, did I? Two patients, equal chances of survival and I chose the one I was closer to? I chose my friend? That's not in my programming! That's not what I was designed to do!

Although a choice was unavoidably forced upon him, the EMH is unable to forgive himself for making a choice that seemed to have been based more on friendship than on fairness – a fundamental deontological principle.

The deontological aspect of the EMH is also brought to the fore when, in the story 'Nothing Human' (1998), he utilizes research data gathered unethically by a octor who, during the occupation of the planet Bajor, committed heinous experiments, not unlike those carried out by Josef Mengele, the doctor who experimented on prisoners at Auschwitz. When the EMH compassionately utilizes some of the knowledge gained from these experiments to save B'Elanna Torres, a holographic representation of the doctor chastises him: 'Ethics? Morality? Conscience? Funny how they all go out the airlock when we need something'. But the EMH eventually decides to delete the program from which he derived the helpful information, concluding that 'in light of recent evidence I cannot in good conscience utilize research that was derived from such inhuman practices'. While compassionate expediency temporarily overrides the EMH's normally clear ethical perspective, his ultimate conclusion favours respecting those unjustly killed on the altar of medical research – echoing Crusher's objection to unethical research.

Deep Space Nine's Dr Julian Bashir (Alexander Siddig) faces a similar conundrum in the story 'Hippocratic Oath' (1995) when he is trapped with a group of Jem'Hadar, the super-soldiers of the enemy Dominion forces. Their leader informs him that 'there are no patients. You are here to carry out scientific research for us. If you refuse, I will have to kill you. Do you understand?' Bashir is unimpressed:

> You need to understand that I'm a Starfleet officer, and I won't do any work for you that might potentially be used against the Federation or any other race for that matter. Now, if that's what you want, you'll have to kill me.

Bashir's willingness to sacrifice himself for the greater good is in line with that deontological mandate to do his duty for its own sake. Fortunately, however, the Jem'Hadar commander informs him: 'weapons research is not what I need. There is a drug that all Jem'Hadar must have in order to live, we call it ketracel-white'. Bashir is cognizant of the drug: 'the Jem'Hadar have been genetically engineered by the Dominion to be addicted […] by controlling the supply of the drug, the Founders maintain control over you'. It transpires that these particular Jem'Hadar are trying to escape their controllers and they 'want to be free of it. To break the addiction', hence their recruitment of Bashir. The Jem'Hadar are also cognizant of Bashir's weakness:

> As a Federation doctor, I know you are trained to feel sympathy and compassion for those in pain. These men are suffering now, but it is nothing compared to what will happen if they are not freed from the drug before our supply runs out. […] There's only enough to last five days. You have that long, Doctor. After that they will die.

The doctor tries, since he believes that the Jem'Hadar are '…not animals. They're people being used as slaves. And this is their one chance at freedom […] they have the potential to be so much more'. But Chief Miles O'Brien (Colm Meaney) warns him:

> Think about it […]. What did he say to you? Federation doctors are trained to feel compassion and sympathy. He's manipulating you. He wants you to work hard and stop trying to escape. […] You don't know how the […] Jem'Hadar will react when they're off the drug. They may go marauding through the galaxy on their own. At least now the Dominion keeps them on a short leash. […] They're killers. That's all they know how to do. That's all they want to do. […] We help them, we may end up unleashing the Jem'Hadar against the Federation, and that is a risk I am not willing to take.

But Bashir pulls rank: 'No […] I am the senior officer here and I have decided what we're going to do'. Bashir is acting not only out of compassion but also out of a Kantian respect for the presently occluded autonomy of the Jem'Hadar. By breaking their addiction to ketracel white, he would be actualizing their latent moral agency.

Bashir also helps the Dominion's leaders, the shape-shifting Founders, in 'When It Rains …' (1999) after they are infected by a lethal virus engineered by the Federation's shadowy Section 31, a utilitarian-driven organization 'that's

prepared to do whatever it takes to protect the Federation'. Bashir eventually decides to capture a Section 31 agent, extract the cure and heal the Founders, an action which is instrumental in ending the Federation-Dominion War. Yet, in 'Inter Arma Enim Silent Leges' (1999), Section 31 justifies its own existence by referring to Bashir himself, calling him:

> a decent human being […] who would only go so far. When the time came, you stood your ground. You did the right thing. You reached out to an enemy […]. The Federation needs men like you, Doctor. Men of conscience, men of principle, men who can sleep at night. You're also the reason Section 31 exists. Someone has to protect men like you from a universe that doesn't share your sense of right and wrong.

The ongoing debate between Bashir and Agent Sloan (William Sadler) highlights the fundamental conflict between the utilitarian and deontological worldviews. Sloan's basic argument is that a utilitarian like him is necessary to allow deontologists like Bashir to live ethically; while Bashir counters that a society that tolerates such rank utilitarianism in order to protect itself is not worth protecting.

Lastly, in 'Dear Doctor' (2002), Dr Phlox (John Billingsley), an alien physician on board the very first *Enterprise* NX-01, finds himself searching for a cure for a dying race of aliens, the Valakians. He expresses uncertainty, however, after discovering that the less-developed race on the planet, the Menk, could have the potential to become the dominant species if the Valakians are allowed to die out:

> A cure, […] even if I could find one, I'm not sure it would be ethical. […] We'd be interfering with an evolutionary process that has been going on for thousands of years […] The Menk [have] evidence of increasing intelligence. Motor skills, linguistic abilities. Unlike the Valakians they appear to be in the process of an evolutionary awakening. It may take millennia, but the Menk have the potential to become the dominant species on this planet. […] If the Menk are to flourish, they need an opportunity to survive on their own. […] Evolution is more than a theory. It is a fundamental scientific principle. Forgive me for saying so, but I believe your compassion for these people is affecting your judgment.

Captain Jonathan Archer (Scott Bakula) unsympathetically retorts: 'every time you treat an illness, you're interfering. That's what doctors do. […] You're a doctor. You have a moral obligation to help people who are suffering'. But Phlox rationalizes his decision:

> All I'm saying is that we let nature make the choice. […] I'm also a scientist, and I'm obligated to consider the larger issues. Thirty-five

> thousand years ago, your species co-existed with other humanoids. Isn't that correct? […] What if an alien race had interfered and given the Neanderthals an evolutionary advantage? Fortunately for you, they didn't.

In the end, Phlox does not interfere, adhering to a proto-version of the Prime Directive and having decided not to play God by meddling with two species. Yet, in the story 'Similitude' (2003), his deontological orientation comes head-to-head with Archer's when the *Enterprise* ventures into the unknown territory known as 'the Expanse' on a mission to save Earth from hostile aliens who have already killed millions. Chief Engineer Trip Tucker (Connor Trinnear) suffers a near-fatal injury and the only way to save him is to produce a clone, known as Sim, from whom critical neural tissue can be transplanted. Sim, however, is not only a biological duplicate of Trip, he also embodies Trip's psychology. Yet, he remains a unique individual and it would be unethical for Phlox to kill him by removing the needed neural tissue in order to save Trip. Archer is adamant that he needs Trip in order to complete his Earth-saving mission. In the end, Sim consents to undergo the procedure, thus demonstrating the fundamental quality Kant recognizes which distinguishes persons from non-persons: that is, the capacity to autonomously govern oneself in accord with duty. Unlike the case of Tuvix, Phlox's duty as a physician is not necessarily incompatible with his killing Sim to save Trip since it accords with Sim's autonomous will; although Kant himself would most likely have objected to Sim consenting to use himself merely as a means to save Trip.

In conclusion, then, *Star Trek*'s doctors function as ethics officers, a role that commenced with the very inception of *Star Trek* and one which they embrace with dedication and zeal. Their outlook throughout the franchise is both compassionate and deontologically grounded, affirming that the moral worth of any action lies within the action itself, irrespective of the consequences, and respecting the intrinsic dignity and autonomy of all persons (regardless of species). This view is upheld by all of *Star Trek*'s doctors irrespective of their own nature, whether human, superhuman, alien or artificial intelligence.

An opposing view is upheld by Vulcans, such as Spock, that is, the utilitarian notion that an action's moral value is to be found in its overall benefits, implying that the ends may justify the means (cf. Grech 2013a: 1–14). This is summed up by Spock's archetypal utterance in the second *Star Trek* film, *The Wrath of Khan* (1982): 'Were I to invoke logic, logic clearly dictates that the needs of the many outweigh the needs of the few'.

Doctors thus adhere to deontological tenets which lead them actively to influence command decisions that pertain not only to health, but also to any ethical decisions that may have to be taken by Starfleet officers, including their captains. These multi-talented medics can be said to be the 'ultimate space family doctor[s]' (Petrany 2008: 132). Doctors of today who enjoy *Star Trek* may look to these exemplars as potential ideals to strive for, since they are logical extensions of what future doctors might possibly become.

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The Complete *Midwich Cuckoos*

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Almost all of the 'John Wyndham' novels published in John Beynon Harris's lifetime exist as significantly divergent American and British texts. His longstanding typist, Elsa Jolly (also Agatha Christie's typist), produced ribbon and carbon copy typescripts of most of the novels. The ribbon typescript would receive the attention of an editor at his London publisher, Michael Joseph, while a carbon typescript would receive the attention of a Ballantine editor in New York. The exception was *The Day of the Triffids* (1951) where a ribbon typescript went to a Doubleday editor in New York while, subsequently, a Michael Joseph editor worked on the carbon typescript. Apart from the UK and US editions of *The Midwich Cuckoos* (1957), the British editions of Wyndham's novels are longer and preferable for that reason. American editors often wanted to speed up the action.

In the case of Mrs Jolly's 426-page ribbon and carbon typescripts of *The Midwich Cuckoos*, they received different treatments at the hands of the British and American publishers. Ballantine's hardback first edition is significantly longer than Michael Joseph's first edition, published three months earlier in September. Although, apparently, no specific letter survives (or perhaps ever existed), JBH (to use the initials he used in his daily life) had been instructed by someone at Michael Joseph, for whatever reason, to significantly reduce the length of his typescript. JBH's 'despairing' distress at the 'horrible grind' of cutting is clear from the relevant entries in the diaries of his long-term partner (and eventual wife) Grace Wilson (see Ketterer 2000: 174). As a result of making dramatic and damaging cuts, including deleting two entire chapters, JBH succeeded in reducing Mrs Jolly's blue type ribbon typescript to 366 pages including 52 mainly paraphrase-style replacement pages in JBH's black type (see Wyndham 1956–57). The carbon typescript was submitted to Ballantine, probably by JBH's American agent, Scott Meredith, around the same time. Fortunately for JBH and his American readers, the Ballantine editor did not find its length excessive and the hardback that was published in December, followed a little over a year later by the paperback, are both essentially *The Midwich Cuckoos* as JBH conceived and wrote it. Given that *The Midwich Cuckoos* is probably JBH's best and most original novel, it is particularly unfortunate that the British editions – beginning with the Michael Joseph edition and the Penguin copy that followed in March 1960 – are forced abridgements, seriously truncated versions of what JBH intended.[1] In what follows, I anticipate the construction of the ideal UK edition (see the concluding revised table of contents) on the basis of the complete variorum text that I have created by relating what survives of the original ribbon typescript to both JBH's editing of that typescript and various published editions (abbreviated as B for Ballantine, MJ for Michael Joseph and P for Penguin).

Chapters 3 and 9, the complete Chapter 15, and other restored deletions

As I have shown elsewhere (Ketterer 2000: 174–75), the composition and cutting stages of *The Midwich Cuckoos* can be determined from Grace's diary entries, comprising the first mention of the novel on 28 December 1955 to its eventual UK publication on 23 September 1957. No holograph manuscripts of *The Midwich Cuckoos* have survived but the extent of JBH's cuts to his narrative is apparent from the bound blue ribbon typescript produced by Mrs Jolly, with substitute pages in JBH's black type. Mrs Jolly's typescript indicates that *The Midwich Cuckoos* is the longest of JBH's novels, published or unpublished.

As a result of a codicil to Grace's will (dated 4th December 1985), a 'Ring bound proof copy' of the Ballantine edition of *The Midwich Cuckoos* with no corrections (Wyndham 1958) and a 'Proof copy' of *Chocky* (1969) were to go to the Bedales School library. Instead, following the compilation of the specialist book dealer Bertram Rota's listing of JBH works and letters, they were added to the Wyndham Archive at the University of Liverpool as officially on loan from Bedales. Thus, it is possible to construct a complete variorum version of the novel and then the ideal full-length novel, essentially a combination of the current UK and US editions, by comparing the UK and US editions alongside the Mrs Jolly and JBH typescript.

With the loss of sixty blue ribbon typescript pages, what were initially twenty-three chapters became twenty-one. Chapter 3 was eliminated; twelve pages of what was Chapter 4 were eliminated; and a second chapter – the important original Chapter 9 which recounts an urgent discussion between Dr Willers and Vicar Leebody about the unusual number of pregnancies and the attendant problems – was cut before Penguin Chapter 8 (typescript Chapter 10). The omission of this sensitively realistic chapter in the UK *Cuckoos* is particularly unfortunate. The deleted typescript pages are not extant but, happily, probably all of the missing text is to be found in the American edition (based on the apparently no-longer-extant carbon typescript which had included the material cut from the UK ribbon typescript). Thus the Ballantine text has Chapter 3, 'Calling Midwich', making a total of twenty-two chapters compared with the twenty-one chapters of all the UK editions.

The Ballantine edition combines the typescript chapters 9 and 10 as Chapter 9, which is entitled 'Heads Together', the title of the typescript Chapter 10 (Penguin Chapter 8). Because there is no ribbon typescript chapter list page and the entire carbon typescript seems not to have survived, the title of the original Chapter 9 is not directly recorded. Fortunately, its title can be deduced from Chapter 9's summary on pages 59–60 at the end of Penguin Chapter 7 (typescript Chapter 8). Thus the UK text's twenty-one chapters and the US text's twenty-two chapters can and should become once more JBH's twenty-three chapters.

'Midwich Centrocline' is the UK chapter 13 and the US Chapter 14, but the UK version amounts to only about two thirds of the US one. The original ribbon typescript pages 211–22, 224–26 and 226–29 are replaced by shorter black type passages which appear in all the UK texts. But, oddly, someone decided that the US text should omit an emphatic paragraph which does appear in the UK text. Here, Willers is discussing the apparently exclusive involvement of

Military Intelligence with the narrator's wife Janet:

> It is disgracefully *wrong*. Somebody should be making a thorough study of these Children – I am keeping notes, of course, but they are only an ordinary G.P.'s observations. There ought to be a team of experts on the job. I kept quiet before the births because I thought, and still think, that it was better for everyone, and for the mothers in particular, but now that need is over. (P 100; ribbon typescript original page 227, final page 161)

As Chapter 15 in my complete variorum text and in my final ideal edition, 'Midwich Centrocline' should consist of the US text (except for one UK textual variant) plus the missing UK paragraph.

The retitled UK Chapter 3, 'Midwich Rests', is the JBH-titled Chapter 4 in the Ballantine edition, 'Midwich Requiescat'. The seven-paragraph last section of the UK Chapter 3 (from 'On Midwich's other road' to 'what's wanted here') is a contraction of the last seven pages of the Ballantine Chapter 4. As a consequence, the UK edition lacks the character Major Dramley and his dog Sally, who are central to the US chapter. By contrast, the beginning of Chapter 11 in all UK editions is condensed in the Ballantine Chapter 12. In a return to the norm, the UK Chapter 13 is much shorter than the corresponding Ballantine Chapter 14. It should also be noted that some of JBH's second thoughts (like the reversion to 'Winshire' and the revision of third wife 'Anthea' to second wife 'Angela') only appear in the UK text and some only appear in the US text.

The last chapter of *Cuckoos* includes a unique ribbon typescript deletion: two relatively lengthy paragraphs about Trayne that are also deleted in *both* the UK and US published texts. All that remains in both texts is Zellaby's introduction to the two missing paragraphs: 'Perhaps you would care to celebrate the lifting of our siege by escorting Angela [or 'Anthea'] into Trayne' (P 213, B pb 184). Midwich is 'west-north-west' of Trayne, 'our nearest shopping town' (P 11 and 9, B pb 9 and 7). The first deleted paragraph deals with rumours in Trayne about the involvement of the Children and the danger of local reporters discovering the truth. The second refers to the suspicion in Trayne of 'another disreputable orgy' in Midwich and 'new results […] next spring,' the evidence of 'the Midwich casualties' in Trayne's hospital, and the need to respond by saying 'we have been puzzled ourselves' (ribbon typescript 413–14, final pages 353–54).

Why does this deletion also occur in the US *Cuckoos*? Given the lack of JBH's carbon typescript, my best guess is that a Ballantine editor made the same deletion in order to speed up the action of the last chapter. My view is that both these deleted paragraphs are logically important to the theme of secrecy in the novel, given the Chapter 1 information about the relationship between Trayne and the neighbouring villages of Stouch, Midwich and Oppley, and so should be included in an ideal edition of the text.

'Requiescat Midwich' not 'Midwich Rests'

JBH signals the major anomaly on which his plot depends by giving the two relevant chapters Latin titles:[2] 'Requiescat Midwich' deals with the discovery

that from 26 September [1956] an invisible force field in the shape of a dome or cone separates Midwich from the surrounding world while 'Midwich Reviviscit' deals with the equally strange removal of the anomaly twenty-four hours later. The American text faithfully preserves both of these Latin titles. The use of a dead language implies that the life of humanity is threatened by extinction as a result of the impregnations that took place while the force field existed. However, the Michael Joseph editor appeared to assume that, while the average English reader could deduce the meaning of 'Midwich Reviviscit', that reader would probably not be able to figure out the meaning of 'requiescat' in spite of the fact most educated readers know that 'R.I.P.' stands for both 'Rest in Peace' and 'Requiescat in Pace'. It would seem the editor required JBH to replace 'Requiescat Midwich' with 'Midwich Rests'. Because the analogy with a vanished classical world is important to the overall artistic conception of *The Midwich Cuckoos*, it is important that the UK edition of that novel uses both of the Latin chapter titles.

The classical analogy is emphasized by the unexplained and perhaps puzzling title of the novel's last chapter: 'Zellaby of Macedon'. Wyndham's hero sacrifices his life to prevent the Children of Midwich from supplanting the inferior humans of Britain. The analogy is with Alexander the Great who became King Alexander III of the ancient Greek kingdom of Macedon in 336 BCE. The highly significant meaning of JBH's classical analogy is hinted at by a word revision on page 18 of Mrs Jolly's typescript. Alan Hughes, the fiancé of Zellaby's daughter Ferrylyn, recalls that 'previous entanglements in the web of Zellaby's discourse forced him to the ~~Macedonian~~ ^direct^ solution.' The word 'direct' appears in both the British and American texts (P 19, B pb 15). Zellaby's Macedonian solution to the problem of the alien Children is certainly direct; it implies that in other parts of the world similar solutions will be required if humankind is not to be prematurely overwhelmed by our evolutionary advanced rivals.

Mr Zellaby's three not two wives

JBH seems to have regarded Zellaby as both himself ('Too young for one war, tethered to a desk in the Ministry of Information in the next' [P 21]) and as a figure based to some degree on his own father, and on his slightly older Welsh friend and father-of-two Howell Davies who, as 'Andrew Marvell', was the author of three science fiction novels published just before the war. JBH acknowledges that the first of these, *Minimum Man, or Time to be Gone* (1938) was a source for *The Midwich Cuckoos* by naming Zellaby after Marvell's Prime Minister Jellaby (Ketterer 2015: 407–8). But subconsciously JBH related Zellaby to a third father figure in his life. Grace's diary entry for 29 March 1957 has this revelation: 'J knocked quite sideways on finding from [his editor Peter] Hebdon that Zellaby (Cuckoos) has birthday, wife's name [Anthea], no. marriages [three], child & granddau[ghter] born same time *just as* MJ [JBH's publisher Michael Joseph]!' The passage that Grace is referring to appears as follows in the ribbon and, presumably, also in the now apparently lost carbon typescript:

> Along with portraits of Gordon Zellaby's father, mother, brother, and two sisters, hung likenesses of Ferrelyn, and her mother (Mrs Zellaby

> Number ~~1~~ ^2^)~~, and Ferrelyn's half-brother and half-sister and their mother (Mrs Zellaby Number 1)~~.
>
> A portrait of An~~the~~^gel^a, the ^number 3 and^ present Mrs Gordon Zellaby, stood upon the centre piece and focus of the room, the large, leather-topped desk where the Works were written. (Typescript 15; cf. MJ 16, P 17)

The very thoroughly deleted last phrase of the first sentence makes it difficult to decipher. In the Michael Joseph corrected ribbon typescript that was used as copytext, 'Anthea' is revised to 'Angela' and appears so named in the Michael Joseph text. And in that British text Angela is revised as Zellaby's second wife (see P 17), not his third as in the original typescript. The US Ballantine text derives from the carbon typescript in which the Antheas are not all changed to Angelas; consequently, it is Anthea who is Zellaby's third wife in the US edition. Inconsistently, Zellaby's typescript original first wife is restored in the UK text by JBH's failure to correct this typescript comment by Ferrelyn: 'Daddy was a triple grandfather by his first marriage' (original page 96, revised page 81); the same inconsistency appears on Penguin page 57. The problem with this comment is that there is no mention of any children by the first marriage but there are grandchildren so there *must* be other children because at that stage Ferrelyn had no children. The 'triple grandfather' comment does not appear in the Ballantine edition; consequently, no inconsistency occurs.

Between some date in 1957 when JBH had noticed his mistake but was too late to correct it for Michael Joseph's edition and a date later in 1957 when it was still possible to provide the Ballantine editor with the correction, JBH did so. After 'it was all very natural really' (P 57), JBH deleted a paragraph on final pages 81–82 (original pages 96–97) in Mrs Jolly's typescript and replaced it with the following new material that, prior to my variorum and full-length editions, only appears in the Ballantine edition:

> [H]er thoughts whirled on in a bewildered way. The Zellaby family was no tidy, formal unity at best, but a baby who was going to be a half-brother or half-sister, to herself [compare the deleted typescript phrase quoted above], some sort of half-aunt or half-uncle to the grandchildren who were nearly four or five years old – and also her own baby which would be the same age – was going to reduce the proper relationship of the generations to chaos. Besides, it was also unexpected… But… Well, after all, why not? Anthea [or 'Angela'] was only sixteen years older than herself. (B hb 50 and pb 61)

This is the now superseded complete passage in the typescript and the UK editions:

> only… well, somehow one just hadn't expected it… It didn't seem quite… After all, Daddy was a triple grandfather by his first marriage…
>
> Besides, it was all so unexpected… It somehow hadn't seemed likely… Not that Angela wasn't a wonderful person, and one was very

> fond of her… but, sort, of as a capable elder sister… It needed a bit of readjusting to… (Typescript final pages 81–82 [original pages 96–97], MJ 58, P 57)

Once JBH had noticed this awkward lumpy passage and its contradictory 'triple grandfather' statement given the changes he had made on page 15 of Mrs Jolly's typescript, it is easy to understand why he would have appreciated the opportunity to ensure that it did not appear in the Ballantine edition.

In the variorum and ideal editions, the replacement paragraph that JBH provided for Ballantine's edition has been incorporated; thereby, the 'triple grandfather' contradiction has been eliminated. In both the original British and American editions, and in my ideal version, Anthea [or Angela] Zellaby gives birth to a 'normal' child that was conceived naturally around the time of the alien visitation and Ferrelyn, whose engagement to Second-Lieutenant Alan Hughes is announced in Chapter 2 (a second family event following on the narrator's birthday), gives birth to an 'alien' child.

In summary, it is clear from the ribbon typescript that JBH originally intended Zellaby to have three wives, three children, and three grandchildren by one or more of those children. But in the UK text, he has two wives (Jane and Angela), one child (Ferrelyn) and three unexplained grandchildren. By way of loose correction, JBH then envisaged a US text version of Zellaby with three wives (the first unnamed, then Jane and then Anthea), three children (one son and one daughter by the unnamed wife plus Ferrelyn by Jane), and two or more grandchildren. Unfortunately, the changes in the UK edition (present on page 15 of the ribbon typescript) did not address all the references to the family structure in their two locations; that left all present publications of the UK edition with contradictions.

It is a little surprising that JBH did not, for the benefit of the UK text, at least change 'Michael', the name of Anthea/Angela Zellaby's natural son, to one that would not evoke Michael Joseph. That son remains Michael in both the UK and US texts (typescript 297 [final 231] and 423 [final 363], MJ 154 and 237, P 144 and 218, B hb 172 and 245, and B pb 133 and 188). However, Grace's list of coincidences between Michael Joseph and Zellaby is confused on one point. Joseph shared his birthday – 26 September – not with Zellaby but with Richard Gayford. But Joseph's third wife, whom he married in 1950, was an Anthea: Anthea Esther Hodson. Born in 1897, Joseph was six years older than JBH and died the year after *The Midwich Cuckoos* was published. On a similarly sombre note, it should be observed that something like Zellaby's heart trouble (which he uses to soften his violent suicide at the novel's conclusion) would eventually kill JBH.

In the 1960 film of *The Midwich Cuckoos*, entitled *Village of the Damned*, Zellaby's wife is named Anthea. This means that, in spite of it being filmed in England (not the original intent), Wolf Rilla, its director and one of the four scriptwriters, used the superior American edition of *The Midwich Cuckoos*. That could mean that JBH had indicated to Rilla that the longer Ballantine text was preferable to the Michael Joseph text. But he did not mention the name change, perhaps because he did not want to explain the reason. Given that we

must abide by JBH's initial conception and the US text's presentation of Zellaby as a thrice-married man like Michael Joseph, I suggest that we finally go with Anthea as the name of Zellaby's last wife. After all, the substituted 'Angela' was only JBH's cover-up response to being reminded that Anthea was the name of Joseph's wife.

Winshire→Wintonshire→Winshire

In the cut ribbon typescript of the novel, Midwich's county of 'Winshire' replaces 'Wintonshire' (typescript final page 45 [originally 59]; cf. P 34). JBH's mythical county of Winshire (Wyn[dham]shire plus Win[chester]shire?) originates in his third published novel, *Foul Play Suspected*, where it is noted that 'a narrow tongue of Winshire runs up to separate the two larger counties [of Sussex and Hampshire]' (Beynon 1935: 41). Twenty-two years later, Wint*on*shire in the original typescript briefly incorporates a possible acknowledgement of the long-standing relationship between JB[eyn*on*]H and Grace Wils*on*. Because Wintonshire was not revised back to Winshire in the carbon typescript that JBH's American publisher used, it appears in the Ballantine Books edition of *The Midwich Cuckoos*. In my ideal edition I abide by JBH's final choice of Winshire.

In the MGM shooting script for *Village of the Damned*, Midwich is specifically located in this 'Operator' instruction: 'Warn all aircraft to avoid area five miles radius latitude 51 degrees 10 minutes 30 seconds North. Longitude 1 degree 11 minutes 20 secs. West. Maintain minimum altitude of 5000 feet'. According to an email to the author from Neil Pollard, who obtained the script, this locates Midwich near the M3 about 25 km from Petersfield in Hampshire. JBH's association with the adjacent village of Steep, the site of his beloved Bedales, resonates with the fictional location of Midwich.

Mary ('Molly') Moultan Raymer in the US edition only (and Bletchley Park?)

Chapter 7 in all copies of the US edition includes important detailed information about Janet Gayford, the wife of the narrator, that is lacking in all copies of the UK edition. Colonel Westcott tells Richard and Janet that

> first, I have to confess that I've had you both looked up and checked. I remember that you did some useful work for the Military Government. As for Petty-Officer Janet Drummond [Mrs Gayford's maiden name], late of the W.R.N.S., I find that she also received praise from her superiors for work of a very confidential nature. Now, I have no doubt on the strength of these reports, and subject to certain formalities under the Official Secrets Act, I could, if you are willing, arrange your temporary attachment to my department. (B hb 52 and pb 44)

This passage, as Neil Pollard was the first to realise in an email to the author (07/07/2016), identifies the Registered Librarian Mary ['Mollie'] Moulton Raymer as the person on whom Gaynor's wife is mainly based. JBH and Mollie were, for a while, fellow Penn Club residents, the Penn Club being a Quaker-based residential club in central London.

During WWII Mollie became a W.R.N. and then worked as part of the

Government Code and Cypher School at Bletchley Park. The online Bletchley List describes Mollie's rank as 'WRNS, PO [Petty Officer] Wren' and has this under 'Summary of Service': 'Gayhurst Manor 1942–1943. Stanmore 1943–1944. Bombe operator.' She may also have been aware of Bombe's purpose to crack the German Enigma codes since she was also recognized on the Bletchley Park Roll of Honour. Mollie died on 26 April 2010, aged 94, and almost certainly never knew that JBH had acknowledged his significant relationship with her.[3] There is no evidence that JBH ever presented her with a copy of the Ballantine *Midwich Cuckoos* but when I interviewed Gerald Hodgett, the economic and church historian and Penn Club resident, on 20 May 1997, he mentioned that Mollie was romantically interested in JBH. The suggestion of the US *Midwich Cuckoos* is that the feeling may have been mutual. If she read the UK *Cuckoos*, Mollie may have noted the rhyming first syllable sounds of the surnames Raymer and Gayford.

JBH's eventual wife Grace knew Mollie but, while reading JBH's typescript in early February 1957, would she have noted that he had superimposed Mollie on herself in his characterization of Janet? JBH had not made that decision when he composed what is now the surviving ribbon typescript. The five paragraphs which include the Janet Drummond material and replace all but the first two words in two very short paragraphs in the ribbon typescript and in UK Chapter 6 (from 'I've got a proposition' to 'told him'; typescript final page 67 [originally 81]; P 48) are unique to the US edition of *Cuckoos*. JBH would have provided someone at Ballantine with the replacement paragraphs at some date after he replaced the 'triple grandfather' paragraph in the ribbon and carbon typescript with what appears in the US edition. The Richard and Janet who, in the first chapter of both the UK and US editions, eat at the fish restaurant Wheeler's and see Peter Ustinov's latest play mimic JBH and Grace's experiences. The US Janet, however, is a composite of Grace and predominantly Mollie. JBH would have admired the fact that both women worked; their focus was not just on producing babies and indeed both were childless. But he would have valued Mollie as the more accomplished woman.

Is it possible that, like Mollie, Grace never read JBH's fictional description of Mollie Raymer? Although Grace does not record reading the US *Cuckoos* in her diary, she does record in her codicil the 'Ring bound proof copy' of the first Ballantine edition. Only when and if she read that proof copy, could she have realized that JBH had immortalized Mollie as well as herself in the US *Cuckoos*. Was the idea of the hero Zellaby using a bomb to blow up the portion of The Grange that was being used as a Bedales-style school for the Midwich Children suggested by the computer Bombe at Bletchley Park, which shortened World War II by perhaps two years? Certainly, the strict official secrecy with regard to the Midwich Children is comparable to that which applied to Bletchley Park.

Exactly how much, by 1957, did JBH know about Mollie's wartime work at Bletchley Park? It was classified information until the publication of F.W. Winterbotham's *The Ultra Secret* (1974). Yet the account of Midwich in JBH's novel includes this fairly detailed description of a large Victorian mansion called The Grange: 'even more recent than the two cottages are the utilitarian wings that were added to The Grange when the Ministry took it over for research'

(MJ 10, P 12, B hb 6 and B pb 9). The Grange could be seen as analogous to Bletchley Park (which combined Victorian Gothic, Tudor and Dutch styles) to which twenty-three modern huts (including the key hut 6) and eight brick-built blocks were added. The combination of explicit information in the UK and US editions suggests that, when JBH wrote the novel (and probably from a time much earlier), he knew that Mollie had worked at Bletchley Park. Zellaby would have been as concerned that the alien telepathic Children could not read his intentions as the Germans were concerned that the British could not decode their Enigma messages.

The Question-Begging End of UK Chapter 10

The passage that ends Chapter 11 in the Ballantine edition of *Cuckoos* differs significantly from the slightly shorter passage that ends the corresponding Chapter 10 in the Michael Joseph and Penguin editions. The Ballantine hardback and paperback print, it may be assumed, the carbon copy of the missing original pages 186 and 187 in the ribbon typescript. This passage would have been incomplete at the foot of 186 and hence it would have run on to page 187. JBH's black type revision (the page numbered 128 in place of 186) was designed to avoid any run-on to a subsequent page.

This is the complete Ballantine text; the ribbon and carbon previous pages 185 end with the first four words ('Zellaby rambled on for'). Zellaby is talking to Ferrelyn's husband:

> Zellaby rambled on for half an hour or more with reassuring anecdotes illustrative of Midwich solidarity until Alan asked thoughfully:'
>
> You did say that some of the women who might be expected to be involved, actually are not, didn't you?'
>
> 'About half a dozen,' Zellaby agreed.
>
> 'Did you look into the question of where they were during the Dayout?'
>
> 'I don't think so – though I expect Willers has. Now let me see, who were they?' He thought for a moment, and then produced several names, including Janet's.
>
> 'Mrs Gayford scarcely counts,' Alan pointed out. She only had a half-hour experience of it, anyway. But Betsy Shuttler – I remember that name. Wasn't she one of the ones in the bus on the Oppley road? There were four women in that bus. Do you remember who the others were?'
>
> Zellaby did. They were four of the names he had just given.
>
> 'That's odd,' he added. 'I wonder how I missed that?'
>
> 'Well, it means that it didn't happen to any of those we had under observation that day. So that would pretty well establish that it can't have been an effect of radiation, or whatever it was, that put everyone to sleep. Though that does not get us a lot further.'
>
> 'Oh, I don't know,' said Zellaby. 'At least it helps toward dissipating *one* of one's uneasy speculations as to what science, as the *infant terrible* of our time, may have achieved.' (B hb 105–6 and pb 83–84)

This passage arrives at the conclusion that the six Midwich women of child-bearing age who did not become pregnant around the time of the Dayout were all close to the edge of the zone and consequently visible from outside and, in the case of Janet, quickly removable. Because this US passage is logically consistent, it is preferable to the shorter UK passage.

In JBH's revised (hurriedly written?) shorter version of this passage on replacement page 128 of the ribbon typescript and the corresponding Michael Joseph and Penguin pages, Janet, an example of a Midwich woman who did not become pregnant, has disappeared and Miss Ogle is named as someone who, to her delight, did get pregnant:

> Zellaby rambled on for a time with anecdotes of the emergency, concluding with the one in which Miss Ogle had been narrowly headed off from making the first payment, in her own name, for the most resplendent perambulator that Trayne could offer.
>
> After a pause, Alan prompted:
>
> 'You did say that about ten who might be expected to be involved actually are not?'
>
> 'Yes. And five of those were in the bus on the Oppley Road, and therefore under observation during the Dayout – that has at least done something to dispel the idea of a fertilising gas which some seemed to be inclined to adopt as one of the new scientific horrors of our age,' Zellaby told him. (MJ 87, P 83)

The mention of Miss Ogle is not relevant to the main subject of this passage (women who might have been expected to become pregnant but did not) and begs this question: since Miss Ogle was pregnant why should she not be interested in buying a pram? As for why so many women became pregnant, the 'fertilising gas' hypothesis begs this logical question: why could there not have been two gases (or one gas and some form of radiation), one gas (or radiation) that puts all living beings to sleep and a separate gas (or radiation) that fertilized most but not all of the women? The too minimal information in the shorter replacement version contributes to this confusion. It may be concluded, then, that the shorter UK passage is yet another of the defective passages in the UK text of *Cuckoos* that can be positively replaced by passages in the original ribbon and carbon typescripts and the US text.

The Children including Ferrelyn's Boy

After the passage of eight years, Part Two begins with a description of the sixty-one Children now aged nine. The Children are now an alien threat. The capital 'C' is announced in the first sentence of the penultimate Part One chapter (now Chapter 16). Reference is made to 'Children (now beginning to acquire an implied capital C, to distinguish them from other children)' (typescript page 232 [finally 165], MJ 110, P 103, B hb 131 and B pb 102). Unless this sentence was a late insert in the draft typescript that JBH had prepared for Mrs Jolly to copy, JBH and/or Mrs Jolly apparently forgot about it and only remembered to capitalize the 'C' of 'Children' in Chapter 18, the first Part Two chapter, on

original typescript page 275 (final page 207) of the ribbon typescript and then corrected the two previous Chapter 18 references and the six previous Chapter 17 references. Those eight 'children' are given blue ink capital 'C's. A correct 'Children' reference appears in JBH's four black type paragraphs that replace Mrs Jolly's four blue type paragraphs that begin the present Chapter 17; that is to say, Chapter 16 of the two Ballantine texts. It is revealed later in that chapter that Ferrelyn's baby boy, one of Zellaby's three grandchildren, is one of the Children. But in the English edition the major consequence – the need for Zellaby to blow up his grandson – is ducked because Ferrelyn's son is one of three Children who succumb to the influenza epidemic mentioned in Chapter 18. In the much tougher and therefore preferable US text there is no influenza epidemic with its three consequential deaths. There the reader with a memory of Ferrelyn's baby boy is in a position to figure out that Zellaby had decided (on Ferrelyn's and Alan's behalf) that his grandson should be blown up along with the other Midwich Children. (In the 1960 film version, the emotional intensity is increased by reducing the number of characters and replacing Ferrelyn's alien boy with Zellaby's son David.) So much for Brian Aldiss's well-known put-down of JBH as a cosy catastrophist.

Bullseyes, not Humbugs

In chapters 20 and 21 of the UK edition and chapters 21 and 22 of the US edition, the narrator draws attention to the Children's love of the sweet known as a 'bullseye' (P 202–3) which Zellaby uses to gain the Children's trust and friendship. (The Children, of course, become the eventual bullseye of the explosion that kills them.) In the UK ribbon typescript – and presumably also in the US carbon one – a different sweet was originally used: humbugs. Perhaps JBH wanted to avoid the overt connotations of the word 'humbug' (as in imposture, deception, 'stuff and nonsense!') but, given the familiar prohibition against children accepting sweets from a stranger, it is relevant to note that Vladimir Nabokov's *Lolita* (1955), with its humbug paedophile Humbert Humbert, was published to great notoriety in Paris only two years before *The Midwich Cuckoos*. Because not all American readers would be aware of the British sweet called a bullseye a 'boiled sweet' or 'sweets' is substituted – with one exception – in the Ballantine edition (hb 229, 240; pb 176, 184).

Interestingly, 'bullseye' appears once in *The Midwich Cuckoos* as the centre of a target rather than a boiled sweet but only in the US edition. In the UK edition that 'bullseye' is reduced to 'bull': Zellaby scored 'a bull – to the great discomfiture of the Freemans' (MJ 139, P 130). In the ribbon typescript (and, it must be assumed, the now missing carbon) the word is 'bullseye' (207, original page 275). In the Ballantine edition, it appears as 'bulls-eye' (hb 159, pb 122). Perhaps the UK editor or JBH himself had in mind a game like darts which uses the British abbreviation 'bull' for bullseye. Alternatively, as Neil Pollard has suggested: 'The UK editor may have wanted to separate Zellaby's win over the Freemans (a bull) from the later sweets that the Children were partial to (bullseyes), but that does seem a bit of a stretch' (06/09/2016). JBH's typescript and the US edition use of 'bulls-eye' do avoid any confusion with a male animal and 'bullseye' may be preferred on that ground. I suspect that JBH

was responsible for this particular subtraction after changing the humbugs to bullseyes. So the UK publisher of my ideal edition should go with ‘a bull’ whilst a US publisher should feel free to stick with ‘a bulls-eye’.

Appendix

JOHN WYNDHAM
THE MIDWICH CUCKOOS
The Full-Length Novel / Ed. David Ketterer

CONTENTS

Part One

Part Two

The above bolded chapter titles 3 and 9, and their full content, are absent in all UK texts. The Chapter 9 content, inadequately summarized at the end of Chapter 7 in the UK *Cuckoos,* is combined with the similarly-titled Chapter 10 as the US *Cuckoos* Chapter 9*,* ‘Heads Together’. Thus what can be deduced

to have been the original Chapter 9 title, 'An Urgent Conference', is eliminated. One third of Chapter 15 is absent in all UK texts. A printout file of the complete variorum *Midwich Cuckoos* (not only approximately one seventh longer than the UK *Cuckoos* but including red liner marked UK material that is deleted in the ideal edition) can be consulted at the John Wyndham Archive, University of Liverpool. This printout may not be copied without written permission from the editor.

Endnotes

[1]Phil Stephensen-Payne notes the superiority of the US edition to the UK one and lists the seven 'most notable changes' (Stephensen-Payne 2001: 119).

[2] One of the distinctive features of *The Midwich Cuckoos* is its succession of Latin tags. The culminating one (attributed to Saint Ambrose) provides the novel's motto in its last paragraph: '*Si fueris Romae, Romani vivito more*' ('When in Rome…').

[3] As Neil Pollard has reminded me by email (26/02/17), the protagonist of the short story 'Pillar to Post' (published December 1951) is named Terence Molton.

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‘Harmony Endowed with Gifts of the Stars’: Kim Stanley Robinson’s *The Memory of Whiteness* and the Orchestrionic Instrument

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> You know that musical sound, by its numbers and proportions, has a marvellous power to sustain, move and affect the spirit, soul and body. But these proportions, made up of numbers, are, as it were, kinds of figures, which are made of points and lines, but in motion. Similarly, celestial figures act by their movement; for these, by their harmonic rays and motions, which penetrate everything, constantly affect the spirit secretly, just as music does openly, in the most powerful way. (Ficino 1987: 84)

In a 1989 interview with German television, Adam Yauch (aka MCA, member of hip hop provocateurs The Beastie Boys) responded to a particularly inane question about how the group ‘came up with their ideas’. He mused, ‘it’s like Beethoven’s Ninth Symphony. Like, who thought of that, you know? *He* thought of it, and *he* did it. Just imagine if my man Beethoven had a fuckin’ sampler!’ (Beastie Boys). Given that the album they were out promoting, *Paul’s Boutique*, would eventually be considered a ‘landmark in the art of sampling’ (Patrin), MCA’s boast can be read as more than just a re-appropriation of Chuck Berry’s 1956 anthem ‘Roll over Beethoven’. In his dismissive way, MCA is at once putting himself alongside Beethoven (‘my man’) while also claiming for the sampler (and the hip hop revolution it was fuelling) a real power when instigated by genius, whether it be Beethoven’s or their own.

The Beasties were trolling the hapless interviewer, but MCA’s remark stands out because it joins (for laughs) two musical concerns most often kept at a distance: electronic instruments like the sampler with the more ‘organic’ tradition typified by the venerated composer. They were perhaps riffing on the odd success of Walter Murphy’s now-perennial dance hit ‘A Fifth of Beethoven’ (1976) and Wendy Carlos’s million-selling record *Switched on Bach* (1968), reimagining Bach and Beethoven in different genres (disco) and timbres (Moog synthesizer). These records, in their own ways, also imagined a level playing field for pop and the western music canon.

In this spirit, to ask us to imagine if ‘Beethoven had a sampler’ is to ask still very relevant questions about the place of classical music in a modern pop landscape, about the need for a human orchestra when a symphony hall’s worth of timbres can be controlled, manipulated, and performed by a computer, and how electronic instruments can be used to do more than just recreate existing sounds and moods. These new instruments not only offer musicians and producers the power to create new timbres and textures, but force producers and consumers alike to reconsider in earnest cultural understandings of what ‘authentic’ (or authentically ‘human’) music is and can be.

In this article, I want to examine these issues of musical authenticity, agency,

and technology as they were discussed and understood during the Beastie Boys' heyday, the mid-1980s: a moment that witnessed a precipitous rise in the digitization of musical production and consumption, as well as dramatic changes in what music sounded like and how it was consumed. Here I will suggest that a complex investigation of Beethoven-with-a-sampler and its attendant concerns can be found in the form of an imaginary musical instrument in Kim Stanley Robinson's *The Memory of Whiteness: A Scientific Romance* (1985). I want to consider Robinson's novel less on its own narrative or stylistic terms and more within the context of (and, in many ways, as a response to) the dramatic shifts in music technology that marked the mid-1980s and the cultural responses and anxieties they engendered. I do this as part of an inquiry that seeks to map and critique the diegetic appearances of musical instruments, both real and imagined, in twentieth-century science fiction, which has played a key role in weighing the cultural consequences of the twentieth century's 'technologization of musical aesthetics in the west' (Braun 2002: 9).

To this end, Robinson's novel evinces a compelling interest in how technology and aesthetics interact. At the nexus of this interaction lies a massive electro-mechanical-digital-orchestral instrument known as 'Holywelkin's Orchestra' or, more simply, 'The Orchestra'. A fictional concert instrument built by Arthur Holywelkin, a renowned physicist, whose research clarified humanity's understanding of the universe by unifying quantum theory and relativity, the instrument is operated by a single 'master' who tours it across the largely inhabited solar system of 3229 CE. At each planetary stop down the Sun's gravity well, the crew sets up a massive concert for the locals. With each successive performance, the Orchestra proves itself capable of more than just entertaining: it increasingly manipulates listeners in ways far beyond the capabilities of conventional music. Swirling around this main narrative are subplots about sun-worshipping cults, corporate and cultural espionage, assassination attempts, and corrupt entertainment industries, but always at the centre of the sprawling tale is the instrument itself and the struggle to control it.

The Orchestra's master, a young man named Johannes Wright, is our slightly-skewed Beethoven with a sampler. He is a blind composer who can see the workings of the universe through the music he makes with this immense machine. In use, Robinson's instrument necessitates a master who can access every instrument in the timbral canon at a moment's notice, an ability clearly evocative of the real-world access afforded by various sampling technologies – especially in 1985. To clarify, the term 'sampler' generally refers to a wide variety of material means through which the sampling process is performed, a process Tara Rodgers defines as 'selecting, recording, editing, and processing sound pieces to be incorporated into a larger musical work' (Rodgers 2003: 313). But when someone says 'sampler', they generally think of an electronic keyboard instrument (or drum machine) that plays back pitched digital recordings (samples) of instruments or sound waves. By the time Robinson's novel was released, sampling was a process becoming firmly cemented in the pop vocabulary and the practice of sampling had moved far outside of the recording studio.

In the same year as Robinson's novel, Big Audio Dynamite brought the

sampling techniques they had heard from hip hop DJs in the US to the UK pop charts with their sample-heavy debut record *This is B.A.D.* This was also the year that Casio released the SK-1, an inexpensive toy sampler that featured trumpet, piano, and drum sounds as well as the ability to record one's own sample. Even this cheap toy provided its user with access to an orchestra's worth of (admittedly poor-sounding) instruments, from the comfort of one simple and familiar interface. There was now no need to learn the bassoon's and trumpet's different embouchures: all that was needed was a keyboard and some relatively minimal technological skills. Given this context, Robinson's Orchestra can be understood as a meditation on the anxieties about changes in the way music is made and the place of machines in music in the digital age.

Robinson, though, was not the first sf author to explore the cultural anxieties surrounding the future use of musical instruments (cf. Laudadio 2011: 304–20; 2012: 159–77). For example, in 1953, as the first audio synthesizers were being developed, Charles Harness published 'The Rose', a short story about an audio synthesizer that proved itself capable of manipulating the physical world in significant and even dangerous ways. In 1962, Earl Hamner Jr.'s *Twilight Zone* episode, 'A Piano in the House', tapped into the popularity of hi-fi audio and mood music with a player piano that pairs songs with party guests, often with humiliating results. But with its sweeping focus on the classical tradition and the technology of music-making, *Memory of Whiteness* most clearly evokes the work of musicologist and sf author Lloyd Biggle Jr., a powerful voice for a kind of aesthetically-focused science fiction, meditating extensively on scientific, political, and technological advances, and their impact on what he saw as essentially human activities like art and music. In particular, Robinson's novel most resembles Biggle's 1957 short story 'The Tunesmith', in which a kind of proto-synthesizer called a 'multichord' proves itself capable of tapping into the listener's true selves; eventually it provides the protagonist with a means to dismantle a corrupt entertainment industry that privileges jingles over symphonies, and reinstates a kind of cultural utopia, à la Matthew Arnold, which honours the western classical tradition above all cheap commercial entertainment.

As with Robinson's novel three decades later, Biggle's story was published during a time of great musical and technological change. A musicologist and disabled World War Two veteran, Biggle had every reason to be sceptical of technocratic idealists. His multichord is based on the popular home console organs of the day, which were geared to make it easier for average Americans with minimal skill to churn out the mood music and light classical numbers that littered record stores and mid-century hi-fi shelves. Contemporary echoes of wartime propaganda, fears of brainwashing, and Communist invasion plots all inform this tale of a musical instrument that can communicate messages directly to the heart of a person.

In the midst of an era that shared many of the same anxieties with Biggle's story, Robinson's novel is also concerned with the loss of that which is most human about music – resulting in a mass levelling down of culture brought on by late capitalism, technocrats, and the culture industry. But while Biggle's instrument is basically a home organ with the filters off – filters being the electronic

circuits that shape the original sound wave, rendering in circuitry the organ's various timbres – Robinson's Orchestra is a sampler made material without filtering: every instrument is on grand display and performed appropriately, the entire contraption driven by a hybrid of digital and mechanical means.

While the trumpets in the toy Casio and the orchestra blasts on the EMU EMAX (the sampler used to make *Paul's Boutique)* are squirrelled away as 1s and 0s within the interior of a (very literal) black box, Robinson's Orchestra is a towering 'baroque statue of wood and metal and glass' that evokes 'all the instruments of a modern orchestra caught in a small tornado' (Robinson 1985: 14). So rather than present some tripped-out future-tech rendered in alien, extrapolative terms, Robinson stresses the traditional and familiar nature of the construction as well as the physical materiality of its component parts. There is no futuristic nomenclature here (EMAX, EMU, etc.), only the Orchestra and its appropriate instruments rendered into a giant playable sculpture.

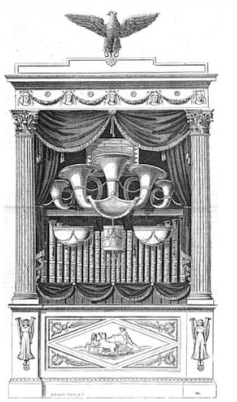
The Orchestra also reads as a physical embodiment of the history of western musical organs, up to and including instruments common to Robinson's twenty fourth-century world, such as the 'godzilla', the 'Planck Synthesizer' and the 'VoiceBox' (evoking the robotic-sounding vocoder, popular in disco and hip hop at the time). The traditional and the modern overlap in the description of the Orchestra's interface. Wright describes his perch in terms that evoke giant Wurlitzer theatre organs, conjuring up his memory of the interface from before he lost his sight: 'I sit on the revolving stool and look at it. Computer consoles, keyboards, foot pedals, chord knobs, ensemble tabs, volume stops, percussion buttons, tape machines, amp controls, keyboards: strings yellow, woodwinds blue, brass red, percussion brown, synthetics green' (Robinson 1985: 15). The Orchestra in action is no less impressive a sight: 'the glass arms bow away at the violins and cellos, glass fingers depress the valves and fill the stops for the wind instruments, glass feet kick the drums, a whole forest of puppets jerk into action' (313). The tension that exists here between the human aspects of the instrument and the apparent loss of agency that accompanies it is one that will prove itself central to the novel time and again.

For it is this ability of one person to master quite literally the entire orchestra in real time (a master of 'puppets' with articulated, prosthetic 'glass' digits) that is at the heart of the novel's concerns about musical agency and its place in understanding humanity. What this ability represents for some in the novel is a collapse of traditional roles and modes in musical (re)production, for in the Orchestra, these techniques and technologies to create symphonic music on a grand, live scale are available to one person through a single, if astoundingly complex, interface. Early on in the novel Wright describes the Orchestra as 'more a player piano than an organ […] one shouldn't attempt to play all of a piece live […] you need to take advantage of the thing's taping abilities' (Robinson 1985: 98). By 'taping abilities' he means not just the ability to record audio to magnetic tape (as in reel-to-reel or cassette technologies) to be played back later, but also the ability to record the performance itself as data. Examples of this are George Gershwin's 'recorded' piano player rolls that can still recreate the virtuoso pianist's performance on an appropriate pianola, or the early 1980s MIDI standard that established an industry standard

for the transmission of digital performance data (velocity, pitch, duration, etc.). Similarly, the Orchestra's physical instruments (the 'puppets' that dot its glass and wood frame) can be controlled simultaneously in real time by a multitude of pre-recorded performances that the instrument's master recorded at earlier dates. And it is this tension between playing something 'live' with the help of 'taped' (or sequenced) musical events that threads throughout the novel: is the technological ability to manipulate a musical machine the same as the ability to conduct an orchestra full of humans or play the bassoon?

Given this ability to distribute performative action over a broader range of interfaces (not just the keys of a piano or the valves on a trumpet), Robinson's instrument could also be described as *orchestrionic* – a category of musical machines (traditionally automated or with minimal 'one finger' control) designed to perform 'live' ensemble music with a full range of orchestral instrumentation available to the single performer-operator, not unlike a player piano or street barrel organ. The idea with the orchestrionic machine is that an individual could stand in for the many members of the orchestra; it was a labour saving device that challenged the dominant cultural notion that humans must limit their technological engagement with music-making to the manufacturing of instruments while leaving the rest to essentially human endeavours such as practice, skill, and expression. More optimistically, orchestrionic instruments can be seen as expressing a democratic impulse, a desire to bring the orchestra out of the symphony halls and into everyday life, just as Robinson's Orchestra tours the solar system, adapting its performance to each new planet it visits.

Understanding Holywelkin's instrument as orchestrionic makes it heir to a long line of real mechanical marvels that pumped and wheezed whilst trying to make orchestral timbres available to a single performer in real time. One of the earliest modern versions of such an instrument is Johann Maelzel's 1804 Panharmonicon, a complex automated mechanical device capable of performing the sounds of strings, woodwinds, brass, and percussion instruments (Figure 1). The Panharmonicon could be best described as the 'sampler' for which Beethoven *actually* wrote. Coming off the success of his invention of the metronome and the ear trumpet, Maelzel convinced the famed composer to write for his new instrument. Beethoven obliged, offering up *Wellington's Victory* (1813) for the Panharmonicon. However, the composition quickly grew too big for the machine's limited and largely military instrumentation, though that did not stop Maelzel from claiming an early version of *Victory* for his machine, leaving Beethoven without credit or compensation, severing the relationship.



Just as Maelzel carted his instrument across Europe to wind out Beethoven's ill-gotten *Victory*, the masters of Holywelkin's Orchestra pilot it across the solar system, cranking out popular performances of serious music from the western canon. At each stop, the crew crank the thing up and let the classical hits roll out:

a mechanized Boston Pops at an interstellar Showbiz Pizza. This is why, early in the novel, one of the central characters greets the Orchestra with cynicism, feminizing it and demanding 'what is it after all, some sort of player piano? An orchestrionetta, didn't they call them in Europe? It's preposterous' (Robinson 1985: 33). Where some twenty fourth-century music fans consider it the 'most famous musical […] phenomena in all the solar system, in all history' (33), detractors argue that the orchestra 'is nothing but a toy, really, a bauble used to take money away from the ignorant' (32). This perception of the gargantuan instrument as an automated novelty – at one point, a character describes it as looking 'like the insides of an antique clock' (84) – is what has defined the instrument up until the time during which the novel takes place and what has frustrated (and almost killed) its current master. While Beethoven's souring on Maelzel's musical machine was largely because of bad business dealings, Wright's disdain for the orchestra is because of its very nature – he begins the novel by calling the Orchestra a 'stupid vulgar monstrosity' that has caused all his current 'troubles' (23).

By 'troubles', Wright is referring to his blindness, brought on by his withdrawal from the violently addictive drug 'nepanathol'. The suggestion is that Wright's self-destructive behaviour is fuelled by frustrated artistic ambitions brought on by his inability to truly control (or understand), much less play, this thing he has been training to use since he was a young boy. If Wright fails, so too does the Orchestra; there can be only one master of the Orchestra and it would take decades to train a new one. Plagued by guilt and withdrawal symptoms, Wright hallucinates a conversation with Holywelkin where the dead physicist addresses him as a 'musician'; the young master counters that he is 'just an engineer […] I just operate your machine' (22), as if to absolve himself of his connection with the machine and all it represents. As the hallucination unfolds, Wright again mocks the instrument's heritage and its maker's intent, shouting that this 'imitation orchestra – an orchestrion, an orchestrina – whatever you call it, it does a terrible job! All you've done is turn a sublime group achievement, a *human* act, into an inferior egotistical solo!' (22).

Wright's complaints echo real-world concerns such as those voiced in John Philip Sousa's 1906 article, 'The Menace of Mechanical Music', in which human qualities like skill, intellect, and spirit are supplanted by soulless mechanical processes. But in response to Wright, the hallucinated Holywelkin suggests a different identity for his musical device, arguing that treating it as an industrialized, automated orchestra is entirely the wrong way to go about it. The masters heretofore have been playing it all wrong. He argues that the '*Orchestra has been misnamed.* I did not build it to play symphonic music of the past; in that regard the Masters have mistaught you. The instrument has its own purpose, and you must find it' (Robinson 1985: 23). By saying that his Orchestra was 'misnamed', Holywelkin is, wittingly or not, setting up another of the novel's numerous permutations of 'orchestra' – Thomas De Quincey's 'orchestric', music which, according to the *Oxford English Dictionary*, is 'artificial and pompous'. Whatever is true about Holywelkin's Orchestra, it is not to be found in using it as a one-man robot Bach cover band or flying Tanglewood – that is, the artificial, orchestric side. It is this search for (and anxieties about)

the Orchestra's true or most authentic use that drives the narrative forward and grounds the novel in its contemporary context about the place of technology in music, classical and otherwise.

After the hallucination that begins the novel, Wright survives detox, now blind, and emerges committed to exploring the instrument as well as its creator's mysterious, deterministic physics in an ultimate effort to bridge the two, finding a true 'music of the spheres'. In many ways, Wright is a sympathetic character who exists to prove to detractors (and himself) that the Orchestra is capable of being more than, as the *Playboy* blurb on the book jacket suggests, 'Philip-Glass-on-Tour-in-Outer-Space.' The novel's other central character, Dent, a tapir farmer from an anarchist commune on Pluto, who spends his non-farming time writing for a small, state-subsidized modern music journal, is a musical traditionalist and Orchestra sceptic who spends the novel reporting on the instrument's grand planetary tour. After their introduction, Dent becomes fast friends with Wright and finds himself wound up in the action and conspiracies that engulf the mysterious blind composer-musician and his touring instrument. Contrary to Wright's quasi-mystical commitment to the Orchestra as a potentially liberatory musico-cultural technology, Dent repeatedly echoes Wright's youthful scepticism about the invention throughout the narrative. Dent represents a far more pastoral, intimate, acoustic musical perspective that privileges not the technological and scientific superiority the Orchestra represents, but rather the small, intimate moments of musical performance

One such moment comes when Dent and Wright play the Elizabethan melody *Greensleeves* by candlelight, using only acoustic instruments, in the hold of the interstellar ship:

> Dent played the accompanying chords with all the sweetness he was capable of, trying to *speak* to J with every chord, to tell him that *this* was what music was, and *this, and this* – just this perfection of melody, harmony, volume and timbre – not any complex metaphysic, but just this elegant power, this power that was as much power as human should ever want or need. (Robinson 1985: 305)

Dent's brand of authenticity – one that seeks for some essentially human truth in music – is all Arnoldian sweetness and light. He constantly tries to divorce music from the machinery of commerce, politics, technology, and change. Wright's concerns, especially as the novel progresses, are for a different sort of truth: adopting the novel's binary terms, he is searching for a natural truth that looks forward and endures rather than a cultural one grounded in notions of tradition. If the universe is ultimately deterministic (as Holywelkin's physics suggest), then Wright is out to find music's place in this grand unified theory, a search in which the complexity of the Orchestra is integral.

But whether it be the political intrigue that surrounds the Orchestra or the instrument's mysterious purpose hinted at by the inventor's ghost, Robinson's narrative is marked by a persistent quest to find the truth. In part, this epistemological concern mediates the fact that the novel, in addition to meditating upon the consequences of (and anxieties about) the digitization of

musical culture, also locates itself in the midst of the 1980s culture wars, and steeps itself in the philosophical and political concerns that animated those skirmishes. In the novel's many (often digressive) discussions of art, music, and politics, Dent calls on specific authors from the nineteenth and twentieth century to make his point about authentic culture. At one point he even asks if Wright knows 'Bloom's books on influence?' (Robinson 1985: 77). The novel's long dialogues about interpretation, semiotics, meaning-making and culture feel very much a part of their time. Yet, these arguments about authenticity and the real that dot the narrative, and pockmark that age of theorized postmodernity, return us to the same concerns about the digitization of culture and our fear of losing control of our art, especially music.

To this point, Wright admits that he wants to use the Orchestra to 'show people the real. I want people to hear the true nature of reality just as clearly as the sound of their own name' (Robinson 1985: 146). Later in the story, he posits a less mimetic and more self-reflexive semiotics of music that focuses more upon the instrument and its attendant technologies than does Dent, insisting – not unlike John Cage's aesthetics of silence – that 'every quality of sound can be a sign' (99). Yet, as with the debates that characterized the contemporaneous culture wars, the concern about whether or not it signifies anything at all is central to the controversy swirling around the instrument and threading its way through the novel. Ultimately, Wright hopes that the true purpose of the Orchestra that Holywelkin's ghost sent him in search of is not to replace or reproduce music of the past, but to imagine a far different musical future, one in which music can move seamlessly between the emotional truth of a human music and the physical truth of Holywelkin's deterministic universe.

The instrument's central role makes it also the target of the book's primary intrigue. The novel's antagonist, Ernst Ekern, chairman of the Orchestra's board of directors and key agent in a plot to wrest control of the instrument from the masters, spends the novel not only trying to get rid of Wright (here in the role of the traditional musician), but also trying to build his own exact copy of the Orchestra. The nature of his scheming paints Ekern as representative of the threat that donors, bureaucrats, and patronage systems pose for the dependent artist. Indeed, Ekern and Wright's struggle over the programming and purpose of the Orchestra is evocative of the labour conflicts surrounding new musical technologies throughout the twentieth century and into the twenty-first. There remains a clear divide between the wider cultural understanding of (and desire for) authentic music and the reality of technological intervention in the creation and performance of music, and it is exactly this tension that Robinson taps into. At one point, Wright articulates the problem succinctly: 'I could make tapes and you couldn't tell the difference between the Orchestra's instruments and their counterparts played directly by a musician' (Robinson 1985: 99).

The ability of the Orchestra to be 'indistinguishable' from a 'real human performance' has long been the goal of those who engineer new musical technologies (and one of the central advertising claims by those who market them). After the relatively brief popularity of mechanical musical machines that began with instruments like Maezel's, the market for mechanical instruments peaked and died with the player piano craze of the 1920s. Innovative multitimbral

and electronic instruments at the turn of the twentieth century proved too expensive and difficult to use, sound cinema killed massive theatre organs and, though the Hammond organ of the 1930s would emerge as a signature instrument in the western pop soundscape, it was not until after World War Two that experiments into new forms of technological music production began to change how music was made and consumed. Certainly, the nineteenth and early twentieth centuries posed their own challenges to the notion of authentic music and culture as necessarily being free of technological intervention, but with the technological advancements in the post-war era, the dream of the orchestrionic instrument – not only multitimbral but also capable of being truly automated – became a far more attainable goal.

As this goal inched closer to becoming a reality, the threat it posed to traditional modes of music-making became readily apparent to the labour unions who were already used to fighting technological advances. In 1926, the American Federation of Musicians president Joseph Weber argued that 'no transmitted musical service will everlastingly displace the desire of the public for personal services rendered by the artist in the presence of the public' (Kraft 1996: 69). Well into the 1940s, the union launched recording bans that all but shut down the record-pressing industry over a labour dispute. But with the tremendous success of Carlos's *Switched on Bach*, the American musician's union found a new opponent in synthesizers and maintained a synthesizer ban throughout much of the 1970s (Pinch and Trocco 2004: 133). In 1982, the British Musicians Union voted to ban synthesizers in response to a Barry Manilow tour that eschewed traditional violinists in favour of keyboard players (Cloonan and Williamson 2015).

The union's concern – they had just seen five BBC orchestras close in 1980 with the loss of over 150 full-time jobs – was that the electronic instrument would so successfully mimic the orchestral performer that the human orchestra would become redundant. From the union's perspective, the analog synthesizer (especially as used by Carlos) represented an all-purpose, multitimbral machine that could so convincingly fake the sounds of the instruments as to make that which they mimiced eventually obsolete. An instrument so tonally flexible seemed also to threaten the need for a variety of instrumental skill sets – the ability to operate a violin interface, an oboe interface, etc. All you need is one performer to manipulate a single control interface (as, for example, in the turn from 'pianist' to 'keyboardist' and how it redirects the focus from the instrument to the surface-interface, the 'keys').

Despite the fact that these early instruments were prohibitively expensive, difficult to operate, unreliable for live applications, difficult to keep in tune (always a problem with early analog synths), the press and PR that accompanying these instruments was extremely enthusiastic about reinforcing and focusing these same concerns. In a 1976 advertisement for the Vako Orchestron, the copywriter gets starry-eyed and caps-lock heavy when asking the reader to imagine the power of this 'instrument of the future':

> Someday, there will be one keyboard instrument that will produce the sounds of all acoustic and electronic musical instruments […] In all, it

> will dramatically increase the ability to ORCHESTRATE sounds never before possible from one keyboard.
>
> Its name shall be . . . VAKO POLYPOHONIC ORCHESTRON! Science fiction? No. Science fact! ORCHESTRON is here today and in leading music stores worldwide. Call or write the VAKO people NOW to discover how the future can serve you!

The Orchestron advertisement, accompanied by an image of the three-manual keyboard stack custom-built for Patrick Moraz of progressive rock band Yes, sounds almost like a blueprint for Robinson's Orchestra. But the Orchestron – a technological cousin of the Mellotron, the early analog sampling keyboard used on the Beatles' 'Strawberry Fields Forever' (1967) – was still a relatively primitive instrument. This changes with the introduction of digital computing to audio in the late 1970s and early 1980s, in the form of powerful samplers like the Fairlight and the Synclavier. Bringing digital reliability and accuracy to musical technology marked the beginning of a singular change in how humans make, consume, and understand music as a primary mode of cultural expression. For instance, an advertisement for a Casio keyboard, published in *Rolling Stone* (17th August 1985), argued that the human element is added to the playing of the instrument because 'we engineered this instrument so you don't have to be an engineer to play it'.

These concerns about the technologization of traditional musics persist; as recently as 2004, the New York Musicians' Union fought against the Sinfonia, a new 'virtual orchestra' by Realtime Music Solutions that is, according to their website, 'an extremely sophisticated and expressive orchestra enhancement system'. Sounding much like a character from Robinson's novel, David Lennon, the president of the Local 802 chapter of the American Federation of Musicians (the Broadway musicians' union), observed: '[T]heir attempt to turn this machine, and I tell you that this is a machine, into an instrument is just another ploy. The synthesizer is a musical instrument played by a musician. A virtual orchestra machine is just that. I would not equate those two, ever […] Claiming to have composed for the virtual orchestra is about as valid as claiming to have composed for a tape recorder' (McKinley 2004).

Similarly, in Robinson's novel, Wright is asked at one point if the Orchestra 'takes you even further from live performance…? Recording music that is mechanically played?' to which he replies:

> It's true [. . .] but the controls are much more delicate than you might imagine. … It is a truly astonishing instrument, but not exactly a performance instrument. Rather a composing instrument. I could make tapes and you couldn't tell the difference between the Orchestra's instruments and their counterparts played by a musician. (Robinson 1985: 98–99).

The sophisticated technology allows an operator to sit back and allow the machine to play itself, but it also affords a musician a subtlety that Wright hopes to exploit as he tours the instrument across the solar system. Dent suggests this

when he chastises Wright: 'you set up the music for the orchestra and maybe you wrote it inevitably, maybe it was the music of the spheres, but then you *improvised* across that taped music, damn it, you ripped and tore right across it to affirm just exactly the free will I've told you about' (320–21).

In the end, it is just this sort of complicated affirmation of human agency in the face of a deterministic universe that brings the book to a close. Wright's explorations of musical performance in his planetary tour proves to be key to not only understanding the Orchestra's purpose but also the implications it has on Holywelkin's impossible physics. Wright gains control over the physical world through music and the Orchestra, capable of truly moving an audience – in emotional as well as physical ways:

> [Wright] climbed into the control booth with the music surging through his every vein and nerve, singing in him and controlling his movement, so that once in the control booth he went straight to the computer and started to program the part of the whole that was most prominent at the time, moving to keyboards for reference to timbre. The part of him that was still listening and watching all this – the part that stood like a third party at the back of his mind, looking over his shoulder – realized that of course since there was no such thing as human agency or free will since he was performing a dance completely scored and choreographed, he could let the music compose itself. The music comprehended itself. Johannes went at the orchestration of the music with an ease and unselfconsciousness that he had never felt before. A different recording for each strand of the whole, each equation-symphony programming one trio or sextet or chamber orchestra of its own, all taped for simultaneous playing, the larger piece that he could hear perfectly, as if it were a cathedral he could walk around in and inspect at his leisure. (Robinson 1985: 227)

The image here is one of a human-machine hybrid, a self distributed across the instruments and taping mechanisms of the Orchestra as well as that of a spatialized music, one that can be inhabited 'as if it were a cathedral'. But a sort of sentient music is also being proposed, one that 'comprehended itself.' In this, it no longer matters who is playing what or how authentic is the technique deployed to render any particular aesthetic outcome. The music has become material through the combination of the instrument and the score. It is not just that he can write the songs that make audiences feel deeply and truly whatever he sends their way, it is that the player can use music as a means to knowing the universe as it truly is.

As he finally uncovers the Orchestra's latent power, Wright reaches an almost mystical place beyond these concerns. Robinson describes the 'hours and hours that must necessarily have passed as all this music came to Johannes and was played by the orchestra […] he stopped to consider; looked at the numbers on the computer screen, heard within him the polyphonic chorus. And he knew that it would all stay with him forever' (Robinson 1985: 228). By the novel's end, this knowledge has supplanted his blindness with a new sight: 'I could tell you all

your future. I could sing to you in the language I have learned and forever after you would step through every step of your life like a mechanism' (336). Wright, through the music, has learned how to read Holywelkin's physics and, as a result, to become part of the Greys (the mysterious Icarian cult that operates behind the scenes) and their plan to understand the universe.

In the end, Wright and the Orchestra fall right into a singularity sphere conjured by The Greys in the midst of his performance. As the dust settles, Ekern is accused of killing Wright, but he insists that Wright 'killed himself, didn't he? Rode Holywelkin's Orchestra out into a singularity, so that now he is projected out to all the witsuns in this quadrant of the solar system! At this very moment he shines on a thousand worlds! Was it not a magnificent death?' (Robinson 1985: 348). But it is also the death of the Orchestra, as Wright has destroyed the copy that Ekern has been secretly building throughout the novel. So as Wright departs this dimension, all he leaves behind is his musical rendering of Holywelkin's grand unified theory *The 10 Elements of Change* which, as the narrator assures us, will be now played 'by full human orchestras' (351). The great scientific breakthrough that Holywelkin's work permitted has now led to a cultural breakthrough, one that promises a return to an older, more traditional mode of musical performance in the service of a powerful new music and the change it affected.

Robinson has described *Memory of Whiteness* as a retelling of Percy Bysshe Shelley's 'Alastor' (1816), in which the solitary poet is on a quest that ultimately leads him to ponder the universe in a cavern, staring at the moon (Jackson 1988). Wright's quest also leads him to an abyss where, now in possession of the true nature of the universe, he ends up not staring at the moon but falling into a small sun, taking with him the only version of the greatest musical invention humanity has known (and the very thing which facilitated that knowledge). But by destroying it and presumably himself, Wright makes possible a new musical awakening among the planets, one that is as authentically human as it is authentically allied with this grand unified theory.

In this, the Orchestra seems merely a means to an end; the departure of Robinson's imaginary instrument can leave readers with a feeling of good riddance. From one perspective, the truth of the music lies in the human composition and performance, not the machinery. But, as with Harness and Biggle before him, Robinson also suggests real respect for the power of these instruments, for what new musical technologies can accomplish (and undo). Whatever he feels about it, by creating his 'Beethoven with a Sampler', Robinson has captured the complexity, persistence, and pervasiveness of the cultural anxieties that surround musical technology. What remains is not just new music for a newly rejuvenated human orchestra, but also the commendable suggestion that new musical instruments and new technologies of musical production can help us better understand the place of music in what Shelley calls 'Nature's vast frame, the web of human things' (Shelley 1816).

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From Science Fiction to Science Fictioning: SF's Traction on the Real

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This article explores the different kinds of traction science fiction might have on the real and, in particular, attempts to define a kind of experimental writing practice (when this is broadly construed) that is less about the future than an instantiation of it. It begins with a commentary on Fredric Jameson and Raymond Williams, and their writings on utopia and sf, and then proceeds to Quentin Meillassoux's concept of an 'extro-science fiction' – or fictions about worlds in which science is impossible – before proposing that formal experimentation, and especially the illogical sequencing of sentences and use of atypical syntax, serves to represent these other space-times. Experimental sf does not so much describe future worlds as 'fiction' them within this world, offering a concrete 'non-literary' counterpart to the utopian hopes of Jameson and Williams. The final section offers a case study of what I will call, 'science fictioning': the experimental sf 'novel', which is also a theoretical tract and visual art work, entitled *Cyberpositive* (1996) by the art collective (or 'collaborative artist') known as o[rphan] d[rift>].

Science Fiction and Utopia

Raymond Williams, the cultural theorist, provides a compelling entry-point for thinking about the relations between fiction and the future. In his essay, 'Utopia and Science Fiction' (1978), he lays out for both genres a matrix of narrative tropes: the positing of a paradise and/or hell; the externally altered world; the willed transformation; and technological transformation. For Williams, the first of these, typically found in fantasy literature (and in which the place is more determinate than the means of getting there), is predominantly a form of magical or religious thinking. In terms of Williams' distinction, dividing the temporal make-up of the present into residual, dominant and emergent cultures (Williams 1980: 31-49), this trope tends to utilize archaic forms that are, as it were, already incorporated within the dominant culture.[1] The second category is also of less interest to Williams, amounting as it does to the positing of a transformation not caused by human actors, for example, by a natural catastrophe. It is the third category that Williams, as a Marxist, is most interested in but, in terms of cultural diagnosis, it is also the fine line between the third and the fourth that commands his attention. The interest in willed transformation, which for Williams is a characteristic of properly utopian fictions, is that it attends to human agency. In such fictions the future is not simply portrayed as the result of technological progress divorced from human sociality. For Williams, humanity is the only real historical actor and, as such, the only progenitor of technological development. Although science fiction crosses all four categories, it is especially the fourth that characterizes it in its typical form.

Following this matrix and his interest in agency, Williams suggests that the different kinds of fiction laid out above are also expressions of different class

positions (with their own particular ideas – or fictions – about their relation to the dominant mode of production). It is here that he makes some compelling remarks about the kinds of utopia attached to a rising class as opposed to those associated with a descending one; either a systematic utopia (an expression of confidence) or one more open and heuristic (which, for Williams, expresses a lack of confidence). Williams goes further in his analysis, though, and foregrounds a very particular kind of utopian fiction that attends to the *transition* to a new kind of world and, with this, the development of 'new social relations and kinds of feeling' (Williams 1978: 209). Such literature is not just the dreaming of another place but reports on the struggle to bring this other world about. Williams' paradigmatic example is William Morris' *News from Nowhere* (1890) but he also cites a more recent case: Ursula Le Guin's *The Dispossessed* (1974). For Williams, this particular novel of 'voluntary deprivation' is especially attuned to our present condition, in particular, the dissatisfactions that come with mass consumerism. As Williams remarks:

> It is probably only to such a utopia that those who have known affluence and known with it social injustice and moral corruption can be summoned. It is not the last journey. In particular, it is not the journey which all those still subject to direct exploitation, to avoidable poverty and disease, will imagine themselves making: a transformed this-world, of course with all the imagined and undertaken and fought-for modes of transformation. But it is where, within a capitalist dominance, and within the crisis of power and affluence which is also the crisis of war and waste, the utopian impulse now warily, self-questioningly, and setting its own limits, renews itself. (Williams 1978: 212)

It seems to me that Williams is more attuned to the innovative and experimental aspects of the genre, as opposed to a writer like Jameson, whose own writing on sf is often a form of critique of ideology. Indeed, we might say that sf is a site of emergent culture and, as such, offers up the 'new patterns of feeling' (Williams 1988: 359) that Williams sees as characteristic of the genre. Although this might involve more technological predictions, for Williams, sf is at its best when it explores what Gilbert Simondon once called other 'modes of existence' (Simondon 2011). Science fiction can, in this sense, be an experimental social science – a 'Space Anthropology' – albeit one that is often un-tethered from the earth (Williams 1988: 359).

Jameson's own idea of the traction of these future-oriented visions in the present is, arguably, more deconstructive. The issue for Jameson is not just that sf is written in the present with the materials at hand, and therefore, necessarily, is limited by being a product of that present, but that this also represents a deeper ontological problem of how to combine 'the not-yet-being of the future' with the being of the present (Jameson 2005: xvi). Just as there are traces of the past in the present (hence, the 'archaeology' of Jameson's title), so sf can offer traces of the future in the present. Yet, a key question remains as to the exact nature of this future trace; or, more generally, how something might be in the world but not wholly of that world. For both Jameson and Williams, this is the

central dilemma in their understanding of sf: how to figure whatever is to come in terms of the already here or, at least, to offer a view of a different kind of place in terms of the already visible.

Science Fiction and Extro-Science Fiction

The philosopher Quentin Meillassoux offers a compelling reflection on this problem in his essay 'Metaphysics and Extro-Science Fiction' (2011). He suggests that whereas sf concerns itself with the relation of science to fiction and, in particular, the form that this science might take (Meillassoux's definition of sf fits neatly into Williams' fourth category of 'technological determinism'), 'extro-Science Fiction' (which Meillassoux abbreviates to XSF) concerns itself with the possibility of worlds in which the very practice of science is impossible (and, as such, XSF may be said to accord with Williams' characterization of sf as 'Space Anthropology'). To a certain extent these XSF worlds are chaotic and unpredictable; hence, the question of whether they are narratable and can be written as fictions at all in terms of plot or storyline. In relation to Jameson's temporal and ontological paradox the issue becomes: is it possible to think – but also write – these XSF worlds from the perspective of our own world, governed as it is by the laws of science and, indeed, inhabited by human subjects that are constituted by these laws (not least in the production of consciousness)?

Arguably, this forms part of a larger philosophical question about the possibility of thinking an 'Outside' to subjective experience. This Outside may also be the future, when understood not simply as the extension (and repetition) of already existing knowledges and logics (including science). In *After Finitude* (2008), Meillassoux demonstrates that it is possible to map out the conceptual coordinates of this Outside – that it is indeed thinkable – albeit it is not a place as such but, rather, a radically contingent 'hyper-Chaos' (Meillassoux 2008: 64). Jameson's own solution to the ontological problem of the future – the trace – is not so different from Meillassoux's description of the 'arche-fossil' as that which lies 'within' the world of subjective experience but points to something anterior to that world (2008: 10). Meillassoux argues, however, that the undecideability about the existence of a radical Outside to our own experientially closed realm has less to do with a lack of knowledge than with its nature as pure contingency ('the absolute necessity of everything's non-necessity' (Meillassoux 2008: 62). The future is also, in this sense, pure contingency or hyper-chaos.

To illustrate his argument, Meillassoux uses David Hume's example of the inherent unpredictability of the trajectory of a billiard ball once hit by another ball, and the responses to this problem of causality offered by Karl Popper and Immanuel Kant (as well as a short story by Isaac Asimov, 'The Billiard Ball' [1967], which further illustrates the problem) (Meillassoux 2011: 30-50). According to Meillassoux, Popper misunderstands Hume's thesis as being about the limits of any given scientific theory (or, simply, that if we had sufficient scientific knowledge we would be able to predict the apparently random movement of the ball), when really it is about something larger – the very possibility of science itself. Popper poses the problem as epistemological, whereas for Hume, it is precisely ontological: 'not simply about the stability of scientific theory, but about the stability of the processes themselves that physical laws describe'

(Meillassoux 2011: 34-5). Kant, on the other hand, addresses Hume 'on his own ground' but, for Meillassoux, is unable to untether science from consciousness since for Kant the existence of one implies the existence of the other. For Kant 'the fact that there *is* a representation of the world' – a certain consistency – refutes Hume's thesis about the possible 'contingency of the laws of nature' (Meillassoux 2011: 46-7).

By contrast, Meillassoux describes a spectrum of XSF worlds where, at one extreme, no laws hold and there is just chaos and collapse (Meillassoux 2011: 56-7). At the other there are worlds, possibly much like our own, where although there is contingency there is also enough regularity to allow prediction and, crucially, the repeatability of experiments that constitutes science (Meillassoux 2015: 50-2). The middle point between these two, where some stability is maintained but there are significant uncertainties, is characteristic for Meillassoux of properly XSF worlds, insofar as they are metaphysically valid and practically narratable but science per se is impossible beyond what Meillassoux calls a kind of 'chronics', that works through the positioning of relatively loose parameters for experimentation and prediction (Meillassoux 2011: 52-6). In these 'Type 2' XSF worlds there is a stability of consciousness but not enough regularity in the laws of nature to allow science as we know it to operate.

To backtrack slightly, a key issue with XSF for Meillassoux is that contingency rules and thus, in terms of writing fiction, there is the fundamental risk of narrative rupture. He suggests various solutions to this: that an XSF story might be about just one inexplicable rupture and its consequences (reminiscent of Williams' 'externally altered world'); that the story might exhibit multiple ruptures and operate on some level as nonsense albeit still held within a story; and thirdly, that the XSF story might exhibit a certain 'dread uncertainty' as in the work of Philip K. Dick (Meillassoux 2011: 60). It seems to me that, whilst Meillassoux focuses upon the content of the XSF story, it is really at the level of form that fiction offers genuine XSF possibilities. Indeed, as Meillassoux points out, narrative is the handmaiden of science since both necessarily proceed through cause and effect. It follows that XSF must break with narrative schemata and, especially, the logical sequencing of sentences in order to – however tentatively – portray XSF worlds as in, for instance, the cut-up sf novels of William Burroughs. Would this also entail a haemorrhaging of sense, insofar as 'good sense' is one of the factors in maintaining the consistency of a centred and coherent self? Not necessarily, for even in the radical fiction of writers such as Burroughs, a minimum consistency is often still maintained through fragments of sense, laid alongside a non-sense that might nevertheless contain the germs of new kinds of sense. One thing is clear however: XSF must engage in some formal experimentation, so as to avoid presenting a world in which science is impossible but portraying this in a type of writing that follows from science. For example, although cyberpunk, such as William Gibson's *Neuromancer* (1984), looked to Burroughs and New Wave authors such as J.G. Ballard and Samuel R. Delany as inspirations, we can also draw a distinction between the formal experiments of the New Wave that opposed the prior traditions of hard sf that focused on extrapolating science, and the persistence of this tradition within cyberpunk which, generally speaking, contains its fictions within recognizable narrative forms.

This all has implications for Jameson's future trace, or for those elements that are in our world but not exactly of our world. The problem is that sf – or XSF for that matter – must be written in the present, using the materials at hand. For Meillassoux, it is then a question of developing a philosophical imaginary in order to think through these worlds that are nevertheless not like ours, akin to the process of mapping out the coordinates of an Outside to subjective experience. Yet, when it comes to the crucial question of narrative as a determining factor of our world, the scientific schema remains in place. Meillassoux's XSF is indeed a genre within a genre insofar as its gesture towards going beyond sf is nevertheless formulated within its very terms.

We might say then that Meillassoux is guilty of a similar kind of misreading to that which he attributes to Popper or, more simply, that he does not follow through the radicalness of his own thesis. He positions the problem of XSF at the level of content (stories *about* XSF) when it seems to me that XSF is a question of form. A more acute XSF imaginary would push the category further. This critique can also be applied to Meillassoux's larger project when he suggests that an Outside (or XSF world) can be probed by reason (or, in terms of XSF, articulated in a narrative). But is reason really the best kind of probe for exploring this Outside? As I have argued elsewhere, is it not the case that the latter has already been explored by other kinds of subjectivity (and different kinds of bodies) (O'Sullivan 2012: 203-22), just as XSF worlds have been produced in this world not through narrative content but formal experimentation?

Could we then add a further category, that of X(SF), to signify this more radical break with the linearity of both narrative and science? Following Meillassoux's lead, a matrix of X(SF) worlds could include: Type 1, in which there is occasional formal experimentation that breaks with sense; Type 3, where there is non-sense, pure chaos; and Type 2 between these, representing properly X(SF) worlds in which there is a certain kind of consistency and coherence but not as typically understood. Once again, Burroughs' cut-ups would be exemplary here – involved in randomness and chance (that is, contingency) but also with a certain amount of deliberate editing and selection. X(SF), then, is not just about a non-scientific world but about an attempt to instantiate or embody it in this world. In that sense, X(SF) does not simply reside in this world but strives to *fiction* another one. Returning to Williams, we might suggest that X(SF), often found as much in visual art practice – for example the films (and scripts) of Ryan Trecartin such as *Centre Jenny* (2013) – as in certain kinds of creative-critical 'art writing' – such as John Russell's *Mo-Leeza Roberts* (2008) and Linda Stupart's *Virus* (2016) – provides very particular examples of 'Space Anthropology' (Stupart's *Virus* bringing a radical feminist slant to this fictioning). We might also gesture to a larger category of fiction that also partakes of this posthuman, utopian 'science': the Modernist experimental novel. In the will to break conventional narrative and invent new forms – and with this to produce new worlds and modes of being adequate and appropriate to them – authors such as James Joyce and Gertrude Stein are as much sf writers as Burroughs and Ballard.

Cyberpositive: A Case Study

The question of science fictioning might then be stated thus: how to artistically manifest these different future fictions in the here and now and give them a traction on present reality? How to present something in the world, which has an effect upon it, but which is not entirely of it? To explore these questions, I shall focus on the assemblage text, *Cyberpositive* (1996) by o[rphan] d[rift>], a sf novel of a kind, with different characters and avatars located in different land and cityscapes, following different plots and narratives (often resembling game-space-scenarios).

o[rphan] d[rift>] describe themselves as 'a collaborative artist'. First actualized in London in 1994 by Maggie Roberts, Suzanne Karakashian, Ranu Mukherjee and Erle Stenberg, they were especially active in the following decade. Although predominantly visual artists, the collective also involved sound designers, 'concept engineers' and media activists, and collaborated with many other individuals predominantly on temporary and site-specific works. During this decade they were especially known for their immersive and visually complex audio-visual works which used sampled and re-mixed film and sound as well as collage, print and text. According to Roberts' website, they treated 'information as matter and the image as a unit of contagion'. Much of the work explored what they called the 'mimetic patterns of desire, production and consumption', particularly as these were manifested at the time, with the advent of digital imaging and sampling technology, as well as in the birth of the web (and, ultimately, ubiquitous computation). A further key aspect of o[rphan] d[rift>] was its function 'as an experiment with artistic subjectivity', 'operating collectively as a singular artist which subsumed the individual artistic identities of its core members' as evidenced, for example, in the authorship of *Cyberpositive*. The group made extensive contributions from 1994-2004 in the social arenas around contemporary art, underground music and cyber-feminism/post-structural philosophy. o[rphan] d[rift>] exhibited widely including at Tate Modern and the Hayward and Cabinet Galleries in London, contributed cybervisuals to the sets of Steven Spielberg's *A.I.* (2001) and *Minority Report* (2002) and to world tours by the groups Leftfield and Nine Inch Nails, and participated in video art and AV electronica art events in Norway, Germany, Canada, the UK, South Africa and the US.

In terms of its content, *Cyberpositive* looks to other sf writing, for example work by William Gibson, Greg Bear and Neal Stephenson (alongside Burroughs and Ballard), as well as films such as *Blade Runner* (1982) and *Predator* (1986). It also references non-sf sources such as postmodern writers (Thomas Pynchon) and avant-garde filmmakers (Maya Deren), at times interspersing quotes from their work, to produce a dense intertextuality bordering on opacity. As a consequence, it is very difficult to give an outline of the book beyond these broad descriptions. The book also operates spatially and looks to non-western cultures, specifically voodou (hence the allusions to Deren and her work on Haitian belief-systems), with the loa-spirit world interacting with other virtual and more futuristic 'shadow operators'. Lastly, it is composed of philosophical references, some explicit, others more implicit: Georges Bataille, Jean-François-Lyotard, and, especially, Gilles Deleuze and Fèlix Guattari (to mention

only the most obvious). Following Deleuze and Guattari, the book may also be considered a work *of* philosophy insofar as it involves a different thinking of the world beyond the relationship between typical subjects and objects. Fictioning, then, names a different individuation in and of the world but also other – stranger – causalities and transits: a 'crossing [of] the universe in an instant' (Deleuze and Guattari 1994: 201-2).

Cyberpositive is therefore a difficult read, partly because of this content, but also because of the particular style in which it is written. Indeed, the science of pattern recognition rather than any kind of interpretation seems most appropriate when engaging with it. The book is partly written in code or, at any rate, in a

non-typical syntax – a kind of stuttering and stammering of the keyboard (some pages are made up of just 0s and 1s) (Figure 1 is an indicative example of a double-page spread). It reads as if written by the very machines and artificial intelligence systems it predicts which, following the philosopher Nick Land (one of the contributors to the book) and his idea of temporal feedback loops, it might well be. As Land remarks in another essay, 'How would it feel to be smuggled back out of the future in order to subvert its antecedent conditions? To be a cyberguerilla, hidden in human camouflage so advanced that even one's software was part of the disguise? Exactly like this?' (Land 2011: 318).

Cyberpositive also contains words from other languages, actual and invented (it can read like Antonin Artaud's peyote 'poetry' in this last sense), and at times letters are voided – glitches occur – leaving words and sentences incomplete. The book is not, however, non-sensical even though sense – straightforward meaning and narrative – can and does break down. The content is still held within a minimum consistency (not to mention its physical covers).

The science fictioning then operates on two levels: of content (the narrative and philosophy) but also form. *Cyberpositive* is both *about* and *of* the future it predicts (it is written in 1996 but from the perspective of 2012). It arrives from a different (AI) consciousness, but it is not simply a story about the latter, a representation – in our familiar language – of this Other. Indeed, the book seems to be written by the very machines it writes about and, in this sense, it resonates with another experimental sf-theory of the same period: Manuel DeLanda's *War in the Age of Intelligent Machines* (1991). *Cyberpositive* is a future shock in this sense. To follow Land once more it is a fragment of something-yet-to-come smuggled back into our own time in order to engineer its own genesis. The book is about a schizoid – in the sense deployed by Deleuze and Guattari – out of place and out of time, but is also out of place and out of time itself.

This dislocation is evidenced by its look: the font and typesetting, the cover as well as its size (over 400 pages), shape (narrower than a typical novel) and, indeed, whole object-feel. To that end, it is useful to note the original context and point of production of the book. As Maggie Roberts of o[rphan] d[rift>] and Delphi Carstens remark at the beginning of their self-reflection: '*Cyberpositive* begins as a text collage to an installation' (Carstens and Roberts 2012)). Their essay attends to the collaboratively produced nature of the writing, but also its character as feedback loop. It also lists some of the key influences, progenitors and fellow travelers that it samples, describing the book as a 'psychogeographical drift through the SF imaginary' (Carstens and Roberts 2012). After the show and book of *Cyberpositive*, o[rphan] d[rift>] embarked on a series of performances and audio-visual presentations, often with accompanying texts, culminating in the complex 'Syzygy' collaboration with the Cybernetic Culture Research Unit (Ccru). Although not within the scope of this article, a 'reading' of that event, conducted over five weekends at Beaconsfield Art Gallery in London and involving the manifestation of demons/avatars premised on Ccru's calendric system, might also be understood as a form of science fictioning. There is something, though, about the materiality of the original book, a throwback to a previous technology that indicates a future one, something about code being written on paper (the book as proto-digital codex). It is, to use a term associated with its authors, a *swarm*-written novel. This sampling of different voices, very much a 'cut and paste' construction, produces a very particular kind of text, one that is prescient of today's writing practices premised as they are on the edit functions of word processors. But this collaboration – or hive-mind – also suggests a stranger, more alien collectivity, from which the book seems to have emerged.

Does this perhaps tie into a certain mythos of o[rphan] d[rift>] and their sometime collaborators, the Ccru, a kind of para-academic research laboratory set up at the University of Warwick in 1995 by the cultural theorist Sadie Plant,

and then led by Nick Land after her departure from academia? (Plant, like Land, contributed to *Cyberpositive*.) A key concept for the Ccru was 'hyperstition' defined as both an 'element of effective culture that makes itself real' and a 'fictional quantity functional as a time-traveling device' (Ccru a). The Ccru text, 'Lemurian Time War', identified Burroughs as a key exponent of what it calls 'hyperstitional practice':

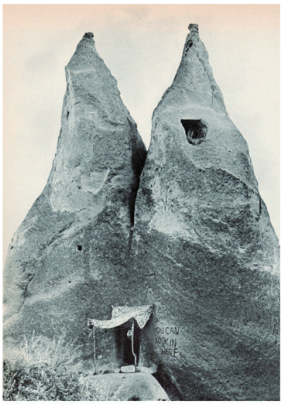
> Diagrams, maps, sets of abstract relations, tactical gambits, are as real in a fiction about a fiction about a fiction as they are encountered raw, but subjecting such semiotic contraband to multiple embeddings allows a traffic in materials for decoding dominant reality that would otherwise be proscribed. Rather than acting as transcendental screens, blocking out contact between itself and the world, the fiction acts as a Chinese box – a container for sorcerous interventions in the world. The frame is both used (for concealment) and broken (the fictions potentiate changes in reality). (Ccru b)

Such a mythos (and with it, the 'nesting' of fictions) requires a collective basis in which to operate. It needs to purport to come from some other place/time, as for instance in the Afrofuturist jazz composer and orchestral leader Sun Ra's claim to being both an extraterrestrial and the descendant of ancient Egyptian gods (what he called 'myth-science'), even if it necessarily emerges from a scene that is located in a real-world space and time. And it needs objects and images as well as words in order to cohere and successfully maintain its consistency so as to give it traction in the real. In that sense, the compositional techniques of *Cyberpositve* are actual as well as virtual, concrete as well as abstract.

'Liquid Lattice' (2014), a more recent piece of writing and collaboration between o[rphan] d[rift>] and Ccru, also has this fictioning quality. It was published in the third volume of John Russell's *Frozen Tears* project, an anthology of texts and fictions that also worked as a performance, not least in its particular length (the size of a large 'door-stop' air-port novel) but also the variety and density of its contents. On the one hand, 'Liquid Lattice' is again sf – in this case moving from an account of Madame Centauri, her tarot pack and a Black Atlantean magic tradition (with segues into the Cthulu mythos) to more recognizably sf landscapes, cityscapes and seascapes, populated by alien and aquatic hominids. It also has the character of a sampled text, written in different styles and with different forms of inscriptions, from type to hand-written, but also including drawings and photos (Figure 2 is an indicative double-page spread). Once again, older analogue technologies are brought into conjunction with newer digital ones. And yet, on the other hand (as with *Cyberpositive*), it is not exactly a narrative and certainly is not always an easy read. Different words from languages and myth-systems are included as well as mirrored writing which is all but indecipherable. There are also repetitions, the running through of different permutations of the same elements (reminiscent of the I-Ching) that stymies straightforward linear comprehension. The cut-up character of the text prevents meaning but also suggests new meanings, glimpses of another place and time. Is this not the goal of all art? To produce something that is both of you

Nine of Spades
Unlidded trinity crosses into lidded pentitude.
Twisted fate looms out of the smokezone while subterranean inheritance leaves no remains.

Queen of Spades
Lidded quaditude crosses into lidded pentitude.
Black impossibilities stir in the hinterland of reason while subterranean inheritance leaves no remains.



One. Realm of Absent Reflection.
***Um*mandla mnyama *aman*zi.**

Descending deeper. darkening internalized escape routes. The light leaves you slowly. Rumbling wave body. Light time, minus biding its time reveals repetitions hidden in the twisted hairs.

***Um*mandla *u*lwandle *i*hlabathi.**

COMPLIANCE IS THE PROPERTY OF A BODY OR MATERIAL UNDERGOING ELASTIC DEFORMATION OR CHANGE IN VOLUME WHEN FORCE IS APPLIED. THE PRESSURE OF CHANGE.

In due course like attracts like and opposites repel.
They wait.
The power cuts.
A split second glimpse of you, the way you move.
ukuthanda umbane.

Smoothing out. {Dreaming inserts her into the tactile silence. She trickster. fabulous and drowned, beautiful in that dead, white way.}
mhlophe ebusuku.

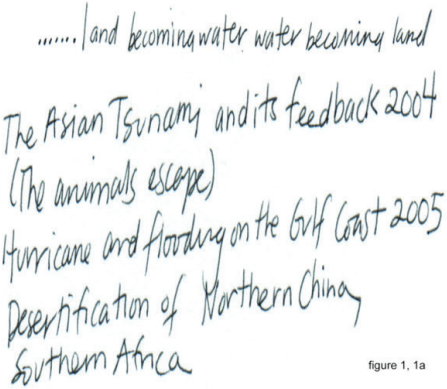


figure 1, 1a

Violent speed backwards and extreme pressure tapping into a vast reservoir of turbulence. Moving

and not of you at the same time? Something that 'speaks back' to you from an elsewhere?

If *Cyperpositive* has a certain urgency, a certain *rush*, then 'Liquid Lattice' is more hallucinatory. The drug references are inescapable: both read, to use Plant's phrase, as 'writing on drugs' (Plant 1999). Again, they are both about and from a different space-time. But in their very existence as objects, in their textual density as print, they are also firmly rooted in the present. This is the temporal paradox this article has been concerned with: how to be in the world but not wholly of that world. It is the move from sf to science fictioning, where 'to fiction' is not simply to tell a story about the future or offer up a representation of it but to call it forth. Indeed, there is no longer an attempt to solve the temporal paradox of sf theoretically; instead, it is made manifest – presented as fact – in the here and now.

Endnote

[1]Although it is worth noting the possibility within this genre (and sf more generally) of the deployment of more residual cultures that offer an alternative or even an opposition to the dominant. This is especially the case with post-apocalyptic fictions as, for example, in Starhawk's *The Fifth Sacred Thing*

(1993) or, more pertinent here, Russell Hoban's *Riddley Walker* (1980). I attend further to the latter in my article 'Myth-Science as Residual Culture and Magical Thinking' (*Postmedieval*, forthcoming).

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J.G. Ballard and the Natural World, Birmingham City University, 29 October 2016

Reviewed by Gabrielle Bunn (University of Nottingham)

In October 2016, Birmingham City University hosted the first J.G. Ballard Day. As part of a series of specialised author events and building upon similar previous successes around the work of Philip K. Dick, the symposium was billed as 'an academic conference in celebration of and appreciation for all things Ballardian'. The event sought to both emphasise and explore the convergence between the inner world of the psyche and external reality in Ballard's work, both the interior landscape of the text and that of the outer world which it both reflects and transforms. To facilitate this discussion, the conference aimed for inclusivity, diversity and multidisciplinary, acknowledging the variety of approaches and responses which Ballard's work has often stimulated. The mix of presentations and audience members reflected this aim, ranging from established and well-known Ballardian scholars including David Pringle and V. Vale, to artists inspired by Ballard, to a mix of both academic and independent scholars, as well as Ballard's daughter, Faye.

The day opened with a keynote given by Richard Brown, provocatively entitled 'Ballard, Sex and Nature'. Brown's paper focused upon what he described as a 'period of transition' in Ballard's work between the publication of *The Atrocity Exhibition* (1970) and *Crash* (1973). The keynote ended with a brief interlude before the first panel, during which attendees were invited to view Gabriella Gardosi's art installation inspired by *The Crystal World* while listening to the BCU string quartet performing Tchaikovsky Souvenir de Florence / a la Vermillion Sands, contributing to the interdisciplinary feel of the event.

The first panel began appropriately enough, with an emphasis on Ballard's 'Early Worlds'. The first paper by Adrian Tait explored 'Human Hubris' in Ballard's first published novel, *The Wind from Nowhere* (1962). Despite noting Ballard's own dismissal of the novel as a piece of 'hack-work' and its 'conventional if not derivative' format, Tait nonetheless argued for a new appreciation of the text that acknowledges its exposure of the fragility of civilisation. Tait explored connections between Romanticism, scientific romance and early science fiction within the text, as well as noting its concurrence with contemporary environmental ideas, especially the work of Rachel Carson. The second paper, by Gabrielle Bunn, also explored ecocritical aspects of Ballard's early work, focusing on Ballard's second novel *The Drowned World* (1963) and its critical positioning as a climate fiction novel. Questioning the applicability of this label, Bunn highlighted Ballard's own ambiguity towards asserting a moral position within the novel, the problems associated with assigning modern terms to older novels and the problematic use of science within the text. She also acknowledged, however, why and how this particular novel appeals to ecocritical readings. She ended by suggesting how attention to Ballard's work can be used to explore

the ways in which debates about climate change fiction are constructed within literary ecocritical debates.

The panel was followed by Mike Bonsall's presentation of the wide array of projects on his website, http://digital-ballard.com/, exploring the intersection of digital technologies and Ballard's influence. From a selection of Twitterbots automatically tweeting extracts from Ballard's work, to a map detailing every location mentioned by Ballard, to a Ballardian concordance detailing every word used within Ballard's oeuvre, the variety of projects was impressive. Additional plans included an ongoing attempt to compile an 'Invisible Library' which records every book Ballard referred to across his many stories, articles and interviews in order to better understand the wide range of sources Ballard termed his 'invisible literature'.

The second panel of the day explored the intersection between Ballard and the city. Rachele Dini began with an examination of waste in Ballard's environments, exploring how Ballard challenged expectations and categorisations of waste in his novels, shifting the aesthetics and function of objects to create 'new hybrid forms'. Dini persuasively argued that while Ballard's work does not offer an 'environmentalist call to arms' it clearly raises questions about the Anthropocene as a whole, drawing a similar conclusion to Bunn's earlier paper. Regina Seiwald also explored the disruption of expected categorisations in Ballard's work. Seiwald's analysis centred upon *Crash* as representative of Ballard's exposure of the 'inter relation of fiction and our notion of reality' to question reader expectations and probe subjective alternatives to the world. Finally, Tom Kewin argued for a recognition of the 'Traces of the Messianic in Ballard's *The Atrocity Exhibition* and *The Unlimited Dream Company*' as part of the imaginative tools which Ballard used to construct a new sense of self and social life within his fiction. Kewin explored the role of the spectacle within Ballard's work, drawing upon Guy Debord to argue that Ballard saw the need to break through the 'conventional enamel' to perceive contemporary reality, questioning conventional perceptions of sanity, imagination and the hierarchy of humanity to reach towards 'a sense of truth'.

The day's third section focused upon creative responses to Ballard's work, with poetry readings from Derek Littlewood and Gregory Leadbetter, and a photographic essay by Sophie Hedderwick. Each drew their inspiration from nature, technology and urban life, reflecting the ideological intersections which also underpinned many of the preceding papers. Littlewood and Leadbetter both demonstrated this convergence in their choice of topics. Littlewood's subjects ranged from wasps to Bletchley Park, while Leadbetter's poems included several suggestively Ballardian titles such as 'Statuary One', 'Astronaut's Return' and 'Sea Change'. Other pieces explored how 'the human has become blurred with technology' and the creation of 'a new humanity' to which 'consciousness may never catch up'. Hedderwick's creative journey was more visual, pairing modern technology, in the form of a 3D projector, with imagery that juxtaposed the urban and the natural, a blend that resonated with the ideas expressed in many of the preceding papers.

The final section of the day was led by Marian and V. Vale. Vale presented a short documentary followed by a Q&A session in which he discussed his

enduring fascination with Ballard and the history of their association, ranging from his discovery of Ballard's work to Vale's edition of *The Atrocity Exhibition* published in 1990. Vale described Ballard as 'one of the most imaginative people ever on the planet' and 'a very important artist of the twentieth century', a position with which many in the audience evidently agreed. Further discussions revolved around the visionary aspects of Ballard, so-called 'seer of Shepperton', particularly his comments upon Ronald Reagan and the artificiality and artifice underpinning the US Presidential role. Vale re-evaluated Ballard's comments in light of Trump's 2016 presidential campaign, concluding with a reminder of Ballard's observation that 'the next president will come from the shopping mall' and a prediction of Trump's success that lent a timely edge to the discussion.

This prophetic statement formed a fitting conclusion to the first JGB Day, a reminder of the enduring relevance to be found in Ballard's work. The conference organiser, Thomas Knowles, drew the day to a close with a summary that emphasised once again the interdisciplinary nature of the conference, and the wide variety of papers and presentations given during the course of the day. Knowles also acknowledged the high level of audience engagement and contribution to the proceedings, and expressed his hope that the day would be the first of many, a hope which I and many others who attended look forward to seeing realised.

Keith Piper, *Unearthing the Banker's Bones* (Bluecoat Arts Centre, Liverpool, 28 October 2016 – 22 January 2017)

Reviewed by Andy Sawyer (University of Liverpool)

The latest in a series of sf-related exhibitions at Liverpool's Bluecoat Centre came from Keith Piper, a British artist who was a founder member of the BLK Art group, an association of black British art students in the early 1980s, and is now an Associate Professor in Fine Art and Digital Media at Middlesex University.

Last year's Liverpool Bienniel featured a number of sf-influenced installations, most notably from Dennis McNulty who based his explorations of *gestalt* on the work of Theodore Sturgeon, specifically his 1953 novel *More than Human*. Like McNulty, Piper knows his science fiction. In fact, it would be wrong to say that *Banker's Bones* is 'influenced by' sf: it is a work of sf in itself.

The exhibition is in several linked parts. *Robot Bodies* is a digital work (based upon earlier versions shown previously in Liverpool) in which the classic sf icons of robot and cyborg are examined for their metaphorical impact through a kind of essay made interactive by a trackball interface. The central and most substantial piece, *Unearthing the Banker's Bones* itself, has a strong narrative content. We are asked to imagine ourselves in a post-Collapse future, looking back at the economic and political forces that have caused this collapse. The section is introduced by three books which we are told belong to the 'Banker' of the title, accompanied by human bones. In the next room, three large

video screens enable us to look back upon our present from this imagined future, specifically referencing Mary Shelley's *The Last Man* and Octavia Butler's 'Parable' sequence, and thinking about Butler's never-completed plan to conclude the first two volumes with a third, *Parable of the Trickster*. The 'trickster' image – an anonymous shape – flows through the strongly-presented images on the screens, in which the narration looks back upon the world which has changed, and evokes not only Butler's projected work but the way in which future and past always connect in ambiguous terms. Piper does not actually give us a detailed synopsis of his narrative – we cannot write down the 'story' of *The Banker's Bones* as such – but his images allow us to invent an archaeological reconstruction of what *might* have happened. There is a proto-novel somewhere behind the visual images and it seems very clear that Piper is thinking in *story*-fashion. Among what we see when we observe this sequence are images of texts, of writing, which produces a sense of narrative that builds on the specific references to the authors.

This sense of sf as a narrative creation founded upon visual imagery (Gary Wolfe in *The Known and the Unknown* talks of the 'icons' of science fiction, and the icon is a visual image that we reflect upon for its story-value rather than a simple painting) is emphasized in the third section of the exhibition, a series of prints entitled *Pulp Fictions (a Bibliography)*. Here, what pretend to be covers of old science fiction novels echo core sf themes, sometimes indirectly and sometimes through direct quotation (one, for example, features *Forbidden Planet*'s famous Robbie the Robot). These ingenious prints emphasize Piper's feel for the original material and suggest further ways of seeing the exhibition itself as a work of narrative archaeology.

In the final space, Piper's installation resembles a painting studio and indeed is entitled *The Future History Painter's Studio* – punning on the sense of the work as a whole as a kind of Stapledonian future-history, and on his attempt to re-create the theme and scale of the genre of history painting, where artists such as Benjamin West, Jacques-Louis David and Théodore Géricault created large-scale works which drew allegorical narratives from dramatic moments in history. Four large, deliberately unfinished paintings face outwards to the street as if to question the nature of the history-painting project itself.

Brought together, these exhibitions seem to be very conscious and deliberate attempts to explore how a textual/narrative form such as sf (which comes out of print media and narrative imagination) is built out of visual building-blocks: (much great sf achieves its impact by asking us to visualize things that, so far, *have not been seen*). It also, using the tools of the artist rather than the writer, attempts to create the kind of narrative we might expect from a writer. Thirdly, it suggests that we might be able to create science fiction's most thought-provoking effect, of looking back at the present from the perspective of a future separated from that present by catastrophe or collapse, through more allusive means than those of simply creating a textual or cinematic narrative. In all three, Piper uses playful techniques to invite us to think about what we are seeing, imagining or living through, and in that sense, *Unearthing the Banker's Bones* is a successful work of science fiction.

Robot Dreams

Eduardo Paolozzi, The Whitechapel Gallery, London, 16 February – 14 May 2017
Robots, The Science Museum, London, 8 February – 3 September 2017

Reviewed by Paul March-Russell (University of Kent)

The first sight that one encounters when entering the Whitechapel Gallery's major retrospective of the career of Eduardo Paolozzi is a projection of images from his now (in)famous lecture, *BUNK!* (1952). These include such collages as 'Will Man Outgrow the Earth?' resplendent with an intrepid robot pioneer, all legs and antennae, scaling a strangely biomorphic alien terrain. With over two hundred items on display, the Whitechapel has sought to offer a diverse and comprehensive survey of this enigmatic artist, but there's no getting away from the fact that robots, cyborgs and cybernetic systems pervaded Paolozzi's life-work from the 1940s to the 1990s.

Paolozzi was fascinated with robots from an early age. As a boy, he loved the mechanical wind-up toys, a large selection of which appear in the Science Museum's overview of humanity's 500-year love affair with automata (figure 1). Paolozzi's art-work clearly embodies the same technological enthusiasm that features in the third – and most science-fictional – gallery of the *Robots* exhibition. Here, there is a copy of the first English translation of Karel Čapek's play *R.U.R.* (1920); a sequence from Fritz Lang's *Metropolis* (1927), opposite a life-size replica of the robot Maria; film posters from *The Day the Earth Stood Still* (1951) through to *Ex Machina* (2015); the album cover of Queen's *News of the World* (1977), with a giant robot lifted from the pages of *Astounding Science Fiction*; and the T-800 exoskeleton robot used in *Terminator: Salvation* (2009). If anything, with these two exhibitions coinciding with one another, the respective organizers have missed a trick. One looks in vain for Robby the Robot at the Whitechapel, displayed by the Independent Group at *This is Tomorrow* in 1956, but finds him – at least in poster form – at the Science Museum. Equally, the *Robots* exhibition

makes no mention of their appearance in media other than theatre, cinema and T.V. Surely they could have borrowed even a small Paolozzi?

So, one looks for connections elsewhere. In the same gallery as their sf counterparts are housed the first humanoid robots. Eric, designed in 1928 and lovingly recreated thanks to a Kickstarter campaign, clearly cashed in on the success of Čapek's play by having 'RUR' printed across its chest. George, built over many years by Tony Sale, was a newspaper sensation when it appeared in 1949. Did Paolozzi know of either of these creations? If so, was he inspired by them? And, even if not, did his own visual depictions contribute, in some small way, to the technological enthusiasm that inspired real-world robot designers? Such questions become more pertinent when, in the fourth gallery of the *Robots* exhibition, one sees the flower-shaped *Sound Assisted Mobile*, effectively a sonic sculpture, originally displayed at the I.C.A.'s *Cybernetic Serendipity* exhibition in 1968. Mike Kustow, then-director of the I.C.A., was close friends with both Paolozzi and J.G. Ballard. To what extent did the impact of such exhibits ebb and flow with Paolozzi's creative thought patterns?

Or, to put the same question another way, tThe Brutalist sculptures with which Paolozzi first became known, such as his *Large Frog* (1958) or *St Sebastian 1* (1957), studded with cogs and excavated, it would seem, from some boggy pit like another fake fossil such as Piltdown Man, were often viewed at the time as a dire commentary upon the Atomic Age. Not only was Paolozzi's attitude towards technology more ambivalent than that, seeing his work alongside the *Robots* exhibition places him into a historical context far greater than the immediate post-1945 period. For, as the Science Museum reminds us, the fascination with human and mechanical bodies dates as far back as the sixteenth century.

The *Robots* exhibition is divided into five sections: Marvel (1570–1800), Obey (1800–1920), Dream (1920–2009), Build (1940–present) and Imagine (2009 onwards). The first section sketches in the secular and religious uses of automation from the 16th to the 18th centuries. On the one hand, the increasing sophistication in clockwork meant new ways of measuring and calibrating not only time but also the motion of the planets in the form of orreries. If, the exhibition asks, these impersonal forces could be grasped by means of clockwork, to what extent could the workings of the human body also be understood in similar terms? On the other hand, then, there was the development of automata, originally used by the Catholic church to disseminate religious teaching, for example, in clockwork depictions of the Crucifixion. If, however, these dramatizations were designed to stupefy their audiences, it is equally important to note that the church effectively supported the advances in clockwork. These developments also went alongside the growing understanding of human anatomy and the creation of such medical exhibits as the mechanical Venus. The emergence of a new landed gentry, boosted by wealth and status, meant that ever more sophisticated automata were built as objects of pleasure and entertainment rather than religious or scientific instruction. Pride of place in this category goes to the Silver Swan, dating from 1773, but be warned, viewers will only see it in operation at 10.25 each weekday morning.

The second section is by far the briefest and points to a serious absence within the exhibition. Film of the chess-playing hoax, the Mechanical Turk,

is juxtaposed with both an actual cotton-mill loom and film of such looms in operation. Focusing upon the effects of the Industrial Revolution, the section emphasizes the dehumanization of workers and the fear of being supplanted by machines. So much more, though, could have been said – not only on the history of machine-breaking, which fed the sub-text to Mary Shelley's *Frankenstein* (1818), but also the dehumanization of colonial subjects and the forced labour that underwrote the rise of the landed gentry. To only half-heartedly gesture at these histories is to skew the remaining exhibition. Paolozzi, by contrast, not only described his early Brutalist sculptures as 'golems' (thereby invoking the Jewish legend that also underpins the Frankenstein myth) but – as the images from *Lost Magic Kingdoms and Six Paper Moons* (1985–87) indicate – Paolozzi was drawn to making explicit associations between ancient African icons and his own personal collection of icons drawn from the media landscape.

Following the science-fictional visions of section three, the remaining sections dwell upon post-war attempts to replicate human movement and interaction, and the latest examples in robotic technology. Section four organizes its exhibits in relation to key human features illustrated by photographs taken by the nineteenth-century photographer Eadweard Muybridge. Whilst Muybridge's time-lapse images illustrate the complexities in human movement and perception, the exhibits depict the increasing sophistication, now aided by 3D printing, to replicate the smallest gestures and facial expressions. A central element is not only the programmability of these machines, thereby doing away with the constant presence of a human operator, but also that these machines learn and adapt by themselves, as indicated by the final robot in the exhibition, the Italian iCub. As section four notes, this new-found emphasis upon the machine's self-education was symptomatic of the post-war science of cybernetics.

The ideas of cybernetic theorists such as Norbert Weiner, as well as the language games of philosophers like Ludwig Wittgenstein, were integral for Paolozzi and the Independent Group. Just as an early Brutalist sculpture, *Horse's Head* (1947), already resembles something cyborg between the animal and the machine, so the expansive *Collage Mural* (1952), made from scraps of textile, suggests some crazed circuitry in its patterning. These tendencies become explicit in the work from the 1960s. As a sculptor, Paolozzi shifted from his earlier experiments in concrete and bronze to aluminium whilst, as a painter, he began to use screenprints, further complicating the relationship between the original and the copy. Unlike his American counterparts however, such as Robert Rauschenberg and Andy Warhol, Paolozzi's screenprint sequences such as *All is When* (1965) and *Universal Electronic Vacuum* (1967) do not merely reassemble pop culture but subject that material to intense scrutiny in terms of a new relationship with technological communication. Pride of place, in this regard, goes to the justly famous *Diana as an Engine* (1963–66), an extravagantly coloured aluminium sculpture that appears to feature a single, all-seeing eye, a coronet of red-tipped funnels that might also be nipples, and three strategically placed exhaust units that might be a vagina. But to read Paolozzi's sculpture figuratively, as some techno-fetishist update of the classical nude, is to be defeated by the object itself. It is thoroughly alien and its otherness contributes to its erotic charge. In 1900, the American Henry Adams had

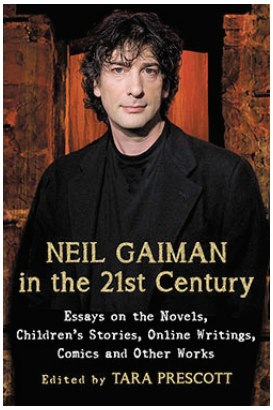
distinguished between the sexual vitality of the 'Virgin' (Diana or Venus) and the merely simulated dynamism of the 'Dynamo'. Paolozzi's sculpture does not so much merge these polar opposites as bring them into creative – and sexual – tension.

The pattern was now set for the rest of the 1960s. As so-called 'Aeronautics Advisor' to *New Worlds* and a regular contributor to *Ambit*, Paolozzi forged a new relationship with the sf New Wave, Ballard in particular. *General Dynamic F.U.N.* (1965–70), a series of fifty screenprints published in a black Perspex box and displayed, in full, in Canterbury in 2015 (see *Foundation* 121), is here displayed inside a glass case with an accompanying video. Although much is lost – most of the prints can't be seen – Ballard's introduction, one of the documents that ultimately fed into the preface to *Crash* (1973), can be read whilst the speakers emphasize that the work can be viewed as a 'shuffle-text' akin to B.S. Johnson's 'book in a box', *The Unfortunates* (1969). The indeterminacy but also the conditionality of meaning is highlighted in the twenty-four photogravures that form *Conditional Probability Machine* (1970), in which the associations between sex and violence, men and machines are made manifest. The sequence demands to be viewed alongside Ballard's *The Atrocity Exhibition* (also 1970).

At just the same time as New Wave writers were declaring their frustrations with the sf genre, so Paolozzi rejected not only Pop Art but also the debates surrounding conceptual and installation art. The gaudy colours of *Zero Energy Experimental Pile* (1970) subject his earlier screenprints to a kind of entropy; *100% F*ART* (1971), a pile of stacked aluminium ingots, not only appears to ridicule the work of other artists, most notably Carl André's *Composition IV* (1966), but also Paolozzi's previous sculptures. From this convulsion came the beautiful refinement of the sequence, *Calcium Light Night* (1974–76), Paolozzi's most sophisticated statement of the cybernetic structures that had pervaded his paintings, but also retrenchment. On the one hand, Paolozzi became perhaps the most famous public sculptor since Henry Moore, as indicated by his designs for the London Underground, whilst on the other hand, he retreated into his studio, into his vast collection of ephemera, and into plaster casts of those he admired, such as Count Basie, Yukio Mishima and his friend, the architect Richard Rodgers. This final gallery, dominated also by the Paolozzi-inspired atonal jazz of Martin Kershaw, finishes on a note of suspension – of work left incomplete.

Similarly, whilst the final section of the *Robots* exhibition seeks to impress us with the latest products of designers, each exhibit comes with a question along the lines of if this is possible, then what might the implications be? The spectre of mass unemployment for both low-skilled and middle-management human workers is left hanging; an absence that echoes the conspicuous silence of the second section. But, what is also notable is the infancy of this technology, despite nearly 500 years of development. Besides robots designed to work with children, many of these robots like Asimo, iCub and Kodomoroid are explicitly childlike. Not only are they not fully adult, they are not fully human – like the first exhibit in the show, the animatronic baby, they do not so much raise the question as to whether humans are just machines as what makes humans 'human'? It is a thought that Paolozzi also leaves us with, with his bronze and

plaster casts of *Vulcan* (1998–99), the lame metalworker to the gods, and perhaps an allegorical figure for the artist himself. For despite his prosthesis and mechanical form, Vulcan's lameness only foregrounds his fragility – what it means to be so utterly and precariously human.



Tara Prescott, ed. *Neil Gaiman in the 21st Century: Essays on the Novels, Children's Stories, Online Writings, Comics and Other Works* (McFarland, 2015, 272 pp., £27.95)

Reviewed by Iain Emsley

While he is a prolific author, the scholarship on Neil Gaiman's work focuses on relatively few areas: the Sandman comics, and novels such as *Coraline*. Attention has focused on his children's oeuvre more recently but as this collection of essays shows, there are other works and experiments of critical interest. The dialogic aspects of fantastika, as John Clute terms it, are important to Gaiman's writing. He riffs off all sorts of cultural references and their intersections; made more interesting by a writer in conversation with their own work. Gaiman's use of intertextuality, and his self-reflexive relationship with genre, echoes T.S. Eliot's notion of tradition informing the present writing; that those who are aware of the past will create better work and be part of an ongoing conversation. This theme runs through the collection not only in terms of literature but also art and music.

Tara Prescott's second volume of essays focuses on Gaiman's more recent work, dividing the essays into linked groups, from *American Gods* to *The Ocean at the End of the Lane*, and each section is thematically sub-grouped where possible. The collection is ambitious and wide-ranging, from books to television to social story curation, yet comes across as a curate's egg. Some ideas are just not explored in quite enough detail, leaving questions to be asked.

Danielle Russell's essay on *Anansi Boys* argues that the novel is one that is 'speakerly', designed to echo the story-telling tradition. As some of Gaiman's later novels seem to be more for oral performance, Russell explores his awareness of voice and the sensitivities of using other people's traditions. Despite his inevitable distance from these traditions, she contends that Gaiman works within this divide. Laura-Marie von Czarnowsky's essay looks at the father-figure in *Anansi Boys* and *American Gods* but does not compare them with the children's books, *The Day I Swapped My Father for Two Goldfish* or *The Wolves in the Walls*, where the father is largely passive.

The essays on *Ocean* largely focus on the notion of memory and the narrator's reliability which, in the novel, intercuts the fantastic with the mundane, illusion with reality. In particular, Courtney Landis discusses the role of the family in relation to other families in Gaiman's work, such as the Hempstocks in *Stardust* and the Chernigovs in *American Gods*. The echo between the Other Mother in *Coraline* and the governess in *Ocean* is not drawn out in this volume but Yaeri Kim's essay does look at the way Gaiman's use of the fantastic is drawn from the seemingly ordinary. Rather than the supernatural providing the impetus, it is a slip of the mundane that provides the real move into the fantastika.

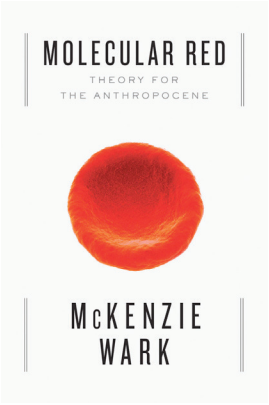
Sandman: Overture, the prequel to the long-running comic series, is discussed, raising some interesting aspects. Though the series is well-known, it reworks the original comic book character from the 1930s, itself resurrected in the *Sandman Mystery Theatre* (1993–99). As Prescott discusses, whilst it preludes the main narrative arc, *Sandman: Overture* also reworks the character and its world, perhaps because of Gaiman's collaboration with illustrator John Williams III, as interviewed in the book. As Williams suggests, comic-book art can disturb the expected narrative flow, as exemplified by the collapse into one another of text and graphics in Gaiman and Dave McKean's collaboration on *The Doll's House*, so that, whilst the *Overture* acts as a prequel, it frees itself from readerly expectation by excavating the world of the Sandman. By contrast, Gaiman's reflection upon, and rewriting of, a known history is considered with his second *Doctor Who* episode, 'Nightmare in Silver'. Emily Capettini critically assesses the story's intertextuality and its echoes of the series' history.

The Graveyard Book section reflects heavily upon the interaction with Rudyard Kipling's *The Jungle Books* (1894–96), for example in Jennifer McStott's essay. Moving the story into the jungle of the Graveyard, Gaiman's Nobody learns how to become a human after leaving his orphanage. McStott focuses upon the transformations of Kipling's text and how Gaiman resurrects their darker aspects, so as not to patronize children and to continue *Coraline*'s theme of children overcoming difficulties.

Gaiman's engagement with social media is examined; for example, the curating of tweets from his followers to create the 'Calendar of You' project. Yet, Gaiman's breaking of the fourth wall between himself and his audiences is not compared with similar initiatives by writers such as Geoff Ryman or Sean Stewart, or with Gaiman's other media experiments in virtual reality. Neither the possibilities of the interaction nor the need for curation are explored and it feels like a gaping hole in the collection.

On the other hand, the choice of books includes a couple of smaller titles, such as *Blueberry Girl*. As one of a series of smaller picture books, using a rhyming nonsense poem as a base for some wild art, the Blueberry Girl reflects on the narrative possibilities that Dr Seuss or Maurice Sendak create with their works, and the way in which the child's perspective is explored. Presented as a prayer, the poem requests protection for the little girl who will grow up to become her own person.

Spotty in places, this collection does contribute to moving the critical discourse along. It raises questions about the conversation but it is slightly frustrating that it does not quite go far enough. More focus would help it become a more palatable dish but it provides useful insights from other facets and angles not normally taken.



McKenzie Wark, *Molecular Red: Theory for the Anthropocene* (Verso, 2015, 304 pp, £9.99)

Reviewed by Paul March-Russell (University of Kent)

Despite its unpromising title, McKenzie Wark's new book has plenty of interest for the sf reader. Three of its four chapters focus on individuals of substantial importance in the history of sf: Alexander Bogdanov, the Bolshevik intellectual and author of the seminal Communist utopia, *Red Mars* (1908); the cyborg theorist Donna Haraway; and lastly, but not least, the author of the Mars trilogy, by Kim Stanley Robinson. The other figure is another Russian, Andrei Platonov, the most important writer to emerge from the Proletkult movement initiated by Bogdanov, whose fiction, despite having no obvious sf credentials, nevertheless shares affinities with the sf mindset by focusing less upon individuals in themselves and more upon how they fit within a prevailing social structure or system. Wark, too, adopts a systemic approach by assembling the work of these seemingly disparate figures into what might become a viable theoretical response to the current reality of climate change and humanity's seemingly irrevocable intervention in the geological record – the arrival of the so-called Anthropocene.

As David Higgins remarked at SFRA 2016, the Anthropocene can be thought of as a 'slow catastrophe': its effects are so gradual and so multi-faceted that it dwarfs the human imagination to respond to it until it is already too late. In that sense, the Anthropocene also exemplifies what the critical theorist, Timothy Morton, has termed a 'hyperobject': the sheer size, scale and complexity of the Anthropocene defies the attempts of people, mostly without a scientific education, to understand it – even though its presence increasingly defines and determines our reality. Into this situation Wark arrives, reclaiming a left-wing theoretical position buried under the dominance of Marxist-Leninism, which he hopes will address the Anthropocene and render its implications comprehensible. As Wark announces at the start, he has little time for the political defeatism that the slow, all-consuming inevitability of the Anthropocene appears to engender; now is the time to formulate a theoretical response which will establish a praxis that might yet stave off its worst effects. In that sense, Wark is as cautiously utopian as the writers with whom he engages.

Furthermore, despite the sometimes bewildering array of theorists, philosophers and political activists upon whom Wark draws, he positions his book squarely against what he terms 'high Theory', by which he does not mean the high-point of critical theory within the Humanities during the 1980s and 1990s, but a theoretical perspective that looks down from a transcendent position upon society – what could also be called 'metacriticism' – in order to construct an abstract, generalizing statement. Such a position not only mirrors the hyper-objectivity of the Anthropocene, by appearing to float above the society that it seeks to intervene, but it also negates genuine political action since this

can only arise at ground level where the Anthropocene is not perceived as an extra-human reality but as a phenomenon that emerges from, and feeds back into, the daily experience of man-made activity. So, Wark proposes instead a 'low Theory' which, as the somewhat schematic divide between 'high' and 'low' suggests, is generated from the experience of everyday life. Such a theoretical position would, Wark hopes, produce a praxis that not only addresses the Anthropocene as a fundamental phenomenon – a living part of daily reality – but can also feature the willing participation of the public, responding to the Anthropocene in ways and means that they can understand, most importantly, in the relationship of the worker to his or her environment.

This shift in theoretical perspective serves to explain Wark's title. He establishes a distinction between what he regards as a 'molar' and a 'molecular' approach. The former looks down from above, regarding each element as no more than one part within a larger structure, whereas the latter looks upwards, starting with each element and seeing how they fit individually into the larger network. The 'red' self-consciously alludes to Bogdanov but this is no simple harnessing of a Communist message to an ecological agenda. Instead, Wark's title signals a red alert, an urgent warning to the reader, but also a moment of crisis, a point at which a new kind of utopianism in the spirit of Bogdanov can come into being.

If nothing else, Wark's book features one of the most sustained engagements in recent years with Bogdanov's thought and fiction. An early member of the Bolshevik Party, Bogdanov fell out with Lenin over its future direction. His prequel to *Red Mars*, *Engineer Menni* (1913), due to its valorization of the technocratic hero, partially restored his fortunes but Bogdanov's subsequent advocacy of Proletkult – not merely a form of working-class cultural production, the alleged naivety of which was caricatured and ridiculed by Trotsky, but a type of cultural activity seen from, and descriptive of, the proletarian experience – condemned him once more to the margins of the Party. Bogdanov's marginalization also meant that the technical organization of labour, known as 'tektology' in *Red Mars*, was subsequently forgotten within histories of cybernetics that only saw its starting-point within the work of Norbert Weiner in the 1940s. The link to cybernetics underpins chapter 3's discussion of Haraway but here, in this opening chapter, Wark is more keen to emphasize how Bogdanov interpreted Marx less in terms of the class struggle and the (supposedly) inevitable dialectic that culminates in the dictatorship of the proletariat than in terms of the division of labour and, in particular, the perspective of the alienated worker. Tektology, in this sense, has less to do with the Taylorist methods of efficiency introduced by Alexei Gastev – and satirized in Yevgeny Zamyatin's *We* (1921) – than with the overcoming of alienation by valuing the worker as part of a technically organized system of labour. Already it is possible to see why Wark is drawn to the idea of Bogdanov's social assemblage because he too is seeking to overcome the alienation of the public from the reality of the Anthropocene by reconnecting them to a social and economic order that would be ecologically beneficial. As Wark clarifies, however, Bogdanov's notion of a collective yet distributed network was also inspired by his reading of Ernst Mach, whose relativistic theories concerning time and space were officially condemned by

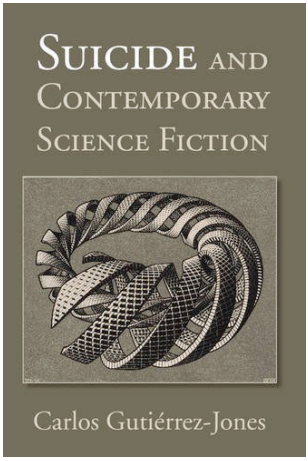
Lenin. In today's reality, such relativism complements the need to understand the Anthropocene both at its global level and in terms of its local effects; where the monolithic and hierarchical structures approved of both in the East and the West are not only inefficient but contributing factors in, what Garrett Hardin once termed, 'the tragedy of the commons'. Bogdanov, as Wark suggests, did not necessarily realize the full implications of his socio-economic model nor was he motivated by ecological concerns as we might be today but, nevertheless, he holds out the promise of revolutionary change not through the idealizing structure of the class struggle but through the everyday reality of the individual worker.

It is a relatively simple step, in chapter 2, for Wark to move from Bogdanov to Platonov, a writer whose close observations of the interface between labour and environment went, if anything, further than those of his intellectual mentor. If Bogdanov represents the basis of a theoretical position with which to address the Anthropocene, then Platonov, by his conversion of theory into art, represents how this position might become a form of praxis: a means not only of reflecting but also of intervening in the world. In the second half of the book, Wark opts not to look further into the literary naturalism of Platonov but to turn his attention back to science fiction which, although useful for readers of *Foundation*, does seem to create a false divide between sf and what Samuel R. Delany would term 'mundane fiction'. Although sf readers naturally assume the genre to be a privileged form of literature in terms of critically reflecting on a world of social and technological change, non-sf readers would also want to point to those naturalistic writers who have effectively carried on Platonov's work (the Scottish author, James Kelman, would be an exemplary figure). Since so much of contemporary literature is now engaging with ideas that might have once been regarded as the prerogative of sf (Tom McCarthy's *C*, Will Self's *Umbrella* and Don DeLillo's *Zero K* are all recent examples), this apparent divide needs to be reassessed, especially if Wark's hopes for a collective response to the Anthropocene are to be achieved.

Instead, having established a dialectic between the theory and praxis of Bogdanov and Platonov, Wark now shifts to the work of Donna Haraway in what I feel is the book's weakest chapter. Primarily, this is because, although Haraway is its nominal focus, she tends to get lost amidst reference to other thinkers such as Karen Barad and Paul Feyerabend. Wark begins with a move familiar to viewers of Adam Curtis' recent documentaries by focusing upon Silicon Valley and the designers of the internet as both a boon and a curse. On the one hand, according to Wark (and Curtis), the internet represents the kind of networked thinking essential for contemplating the Anthropocene but, on the other hand, it embodies a utilitarian response in which, whilst insulating the self within its own echo chamber, effectively deprives it of agency and renders it an appendage to the machinery. Wark turns instead to Haraway not only because of her proximity to Silicon Valley but also in her consideration of networked systems that offers a radical re-visioning of what the internet does in practice. For Wark, Haraway's blurring of the categories of human, animal and cyborg represents – albeit unconsciously – a recreation of Bogdanov's theoretical system of tektology by starting pragmatically from the point of view of the subject rather

than imposing a hierarchy upon it. In this chapter, however, Wark also wants to arrive at a position where climate change is not simply understood in terms of the environment as an eco-system (a cybernetic construct promulgated by such early environmental thinkers as the architect Buckminster Fuller) but as a tektology where, as in Bogdanov and Haraway, individuals are not deprived of agency but contribute to the sustaining of the network. To get to that conclusion, however, Wark has to pass through several theoretical positions and, for once, Wark's breezy, somewhat journalistic style – although accessible – lets him down. Ironically, considering that Wark's intent is not to sacrifice the part for the whole, Haraway's own distinctiveness as a thinker tends to get lost within the welter of references. (Indeed, Wark tends to love citation – the reader is constantly switching between the main text and the numerous endnotes, which makes reading his argument discontinuous.)

Nevertheless, Wark does eventually arrive at the position he wants to get to and both he and we can now settle down for the closing chapter's fine reading of Robinson's Mars trilogy, in which the various strands of Wark's argument are brought to bear. Wark makes it very clear that he considers Robinson to be Bogdanov's true heir and the utopian writer whom we should all be reading in order to articulate a practical response to the Anthropocene. Still, it is odd that Wark skates over the mass of detail that often discourages readers of the Mars trilogy; odd too that Wark makes little or no mention of Robinson's other work (*2312*; the Science in the Capital trilogy) that engages more specifically with the science and politics of climate change. Nonetheless, in the context of Wark's book, it is not only a persuasive reading but it also rounds off Wark's analysis in fine style. To that extent, Wark should be read alongside Robinson's collection of essays, *Green Planets*, co-edited with Gerry Canavan (reviewed in *Foundation* 125). Overall, Wark's book is not only a further instance of what Istvan Csicsery-Ronay once termed the science-fictionalization of theory but also an indication that this interaction is at a close; sf as both theory and praxis, Wark wants to convince us, is now the only viable response to the most pressing crisis of our day.



Carlos Gutiérrez-Jones, *Suicide and Contemporary Science Fiction* (Cambridge University Press, 2015, 201 pp., £75.00)

Reviewed by Asami Nakamura (University of Liverpool)

5pm, rush hour, Tokyo. The train was approaching the station, and suddenly I heard a long horn followed by emergency braking. Another suicide jump. Suicides in train stations are an ordinary event in Tokyo, merely signifying troubles: how to get the transportation system back into schedule, how much delay passengers will have to endure and what alternative route there is for them to get to

their destinations. When I saw the corpse (covered in a grey plastic sheet) being carried out from the platform, my impression was that suicide is only treated as a disruption of the social order. It is an act of transgression, as one commits an absolute escape from society; it is also performative in the sense that the subject is giving an ultimatum to society, accusing it of a failure to provide any sense of home.

This displacement/reduction of suicide to petty daily troubles, however, can be considered as our defence mechanism against death; it is an ultimate cause of fear and anxiety since it annihilates one's life thoroughly, at least in a secular world. Suicide is life's self-denial, and as such it could be thought as a resistance against and triumph over the survival instinct. Rationalization is another function of the defence mechanism; suicide becomes a mystery to be solved. Various kinds of social/physical factors could be taken into consideration to explain suicide cases (financial issues, illness, working conditions, bullying, to name a few). Suicide could also be committed as a performance or protest, triggered by one's desperate search of reputation or religious/political belief. The reduction and rationalization of others' suicide are common ways to exorcize and take control over it; in doing so one can escape the ultimate question: why have I not yet committed suicide?

Yet Carlos Gutiérrez-Jones' take on suicide in *Suicide and Contemporary Science Fiction* presents a fresh look at the subject, avoiding such simplistic, linear narratives of cause and effect; the concept in this study – suicide as creative self-destruction – assumes a spiral narrative of death and rebirth. It is centred on the moment when an individual is on the verge of denying their whole existence. Self-transformation, or change of perspective enabled by a near-death experience triggered by one's intent to disappear from this world (that is, suicidal crises), is the focus of this study. (Gutiérrez-Jones calls this the process of 'rebooting' or 'secular resurrection'.) Science fiction is a field where such thematic enquiry seems pertinent; the genre is at its best when it stirs up our preconceptions about life and society, raising fundamental questions regarding the mode of our existence (or constituents of our collective reality), which is hidden behind an appearance of daily banality. In confronting the unknown, as Gutiérrez-Jones illustrates, suicide or a suicidal crisis is what bridges the sublime (fear and anxiety) and wonder, two functions which characterize the genre.

In this context, Gutiérrez-Jones' conceptualization of suicide, that is, suicide as creative self-destruction, names the moment of change in one's mode of existence; it is a beginning which signifies the end of the previous life, urging one to realize that it is limiting and thus shatters the ego to create a renewed worldview. Here, struggle is a prerequisite for creative self-destruction; not only the struggle of failing to deal with one's current situation and deciding to terminate one's life as the only solution imaginable, but also a struggle of admitting a fundamental fault in the image of oneself, or undoing it. In this sense, it is questionable whether the term 'rebooting' captures this dynamic. It indicates a mere re-start as in computer games while not affecting one's mode of existence. In considering suicide as creative self-destruction, there needs to be a fundamental rift between the past mode of existence and the present one

– a systematic reconfiguration of thought.

In this unique study, Gutiérrez-Jones conducts a series of close readings of key sf texts that deal with the notion of suicide, focusing on how suicide can be (re-)theorized. That is, rather than delineating the historical evolution of the concept of suicide in sf, he theorizes suicide through reading sf and provides critical viewpoints of it (this seems to explain why Gutiérrez-Jones chose 'and' rather than 'in' in the title of this book). This strategy is effective for reconsidering and even redefining suicide itself, as it refuses to be limited by some rigid presupposition about killing oneself (such as the cause and effect model). The fictions covered in this book are roughly divided into two: before 9/11 and after 9/11. Although this classification only becomes evident in the conclusion, the complexity and impact of this historical event surely has its importance in this study. 9/11 is an extremely problematic case where suicide is utilized as a means of mass murder for a political/religious cause. As Gutiérrez-Jones highlights, 9/11 necessitates a vigorous project of mapping its causes while not reducing it to a religious context. The 'before 9/11' texts are H.G. Wells' *The Island of Doctor Moreau* (1896), Stanislaw Lem's *Solaris* (1961) and William Gibson's *Neuromancer* (1984), with the underlying theme being overcoming anthropomorphism: 'for Wells, the volatile boundary lies between human and animal life; for Lem, between human and alien life; and for Gibson, between human and AI existence'. In these novels each protagonist faces suicidal crises triggered by fear and anxiety about radically different others. In this sense the focus is more on the life-changing nature of near-death experiences. Such threats include, respectively, being unable to deal with instinctual urges which feel foreign to the self, unexplained suicides of important others and a desperate desire for transcending the body.

The three 'after 9/11' texts include two recent films, Christopher Nolan's *Inception* (2010) and Rian Johnson's *Looper* (2012), together with Margaret Atwood's recent apocalyptic fiction, the MaddAddam trilogy (*Oryx and Crake* [2003], *The Year of the Flood* [2009] and *MaddAddam* [2013]). Here, themes of trauma and empathy come into focus more; according to Gutiérrez-Jones, *Inception* presents a structure of creative self-destruction through depicting suicide as a means of escaping from one's dream, highlighting the need to overcome narcissism to prioritize social relations in reality (although the whole story could be read as the protagonist's dream, which would be a rather long-winded form of wish-fulfilment). To that end, I would have wished the author had included Ursula K. Le Guin's phenomenal novel *The Lathe of Heaven* (1971) in his discussion of *Inception*, as the former also engages deeply with the themes of dream, reality and narcissism. The protagonist in *Looper*, on the other hand, actually kills himself (as opposed to protagonists in other texts discussed in this book) to 'save' the future from an evil despot. Gutiérrez-Jones argues that it is empathy which enables Young Joe to halt a cycle of violence, resulting in him committing suicide rather than terminating the future villain. Gutiérrez-Jones concludes that Joe's suicide signifies a refusal of a deterministic understanding of time, vouching for contingency or wonder.

Crake's suicide attempt in Atwood's MaddAddam trilogy also results in his actual death, but this time it is part of his violent project: biological terrorism on

a global scale to eradicate the human species. Crake attempts to create a new world populated with his bioengineered human beings which can cohabit with nature. Whereas suicide tends to be viewed within the private, the collective dimension is foregrounded in Atwood's trilogy. It delineates the self-destructive propensity of humanity especially in terms of environmental degradation. Gutiérrez-Jones seems to regard Crake's extinction of the human race as an extreme case of the creative self-destruction model. It is, however, questionable if it can be considered as a 'rebooting' of humanity in the first place simply because the change it causes is not self-reflective; it is an attempt to destroy the whole species including oneself (unlike the sacrificial Joe in *Looper*). No transformation of our worldview is indicated in his narrative of destruction. With this said, Atwood's narrative provides a sort of 'map of hell' where the ecosystem is under grave threat. It certainly demands a transformation of collective consciousness so that the human race can avoid its collective suicide (although without an evident intent to do so) or confront its death drive.

In terms of the theoretical perspective, it should be noted that issues of gender and sexuality are not sufficiently addressed. In his chapter on *Solaris*, Gutiérrez-Jones concludes that 'the visitor's suicide might be viewed as a transitional moment in Kelvin's and humanity's "education"'. The visitor is not only a one-dimensional simulacrum of Kelvin's wife (Rheya); as Gutiérrez-Jones contends, it is a hybrid being. In this sense, it is one-sided to argue a beneficial consequence of Rheya's suicide: how many times should she kill herself so that 'Kelvin is allowed some relief from his particular grief, nostalgia, and romantic escapism'? Mal's suicide in *Inception* is similarly considered as a mere catalyst for Cobb to tackle his self-destructive narcissism, although Gutiérrez-Jones concludes his analysis by questioning what Mal really signifies. On the other hand, Oryx in the MaddAddam trilogy is murdered by Crake as part of the process of his (pseudo-)creative self-destruction. In this light, the idea that the death of Linda Lee in *Neuromancer* operates as a driving force for Case to intermediate the relationship between humans and AIs could also be seen problematic: why does it have to be the death of female characters for transformation of the male protagonists' worldview to occur? Is it only the self which is destroyed in creative self-destruction or is it at the expense of someone else?

This study is ambitious in its scope, demonstrating how the concept of suicide can be explored in depth through the reading of sf. It avoids reducing the phenomenon of suicide to moralistic arguments or mere statistics. Although some more clarification of the model seems necessary (i.e. the difference between successful and unsuccessful suicides, the possibility of collective suicide), the study provides a unique view of sf as 'suicide' fiction. Suicide is a leap into the void called death, the ultimate unknown. In this sense, the marriage of the concept of suicide and sf – an examination of the unknown – seems to be a productive one, contrary to the negation that suicide suggests.

Edward James, *Lois McMaster Bujold* (University of Illinois Press, 2015, 216 pp, £20.99)

Reviewed by Sue Smith

Lois McMaster Bujold has contributed to the world of science fiction and fantasy for over thirty years with her well-crafted Vorkosigan Saga, Sharing Knife Series and short stories. In this edition of the Modern Masters of Science Fiction, Edward James argues that Bujold's works need to be understood not only for the important issues that they raise, but also for their ongoing capacity to both intrigue and entertain the reader. Indeed, James successfully achieves the balance of emphasizing the skill and humour that Bujold brings to her writing as well as attending to the serious themes that have come to define her work. Over the course of eight chapters, James provides an overview of Bujold's oeuvre, which includes relevant and informative biographical material and contextualization that helps to explain the various influences in Bujold's life and work, while also offering close analyses of her texts. In chapter one, James begins with Bujold's early childhood interest in science fiction, her move into fan fiction during her teenage years and beyond, and her initiation as an adult into the professional world of science fiction writing. In chapters 2 and 3, James continues with a comprehensive and in-depth account of Bujold's writing both in science fiction, primarily her Vorkosigan Saga, and her fantasy fiction, such as her Sharing Knife Series. In chapters four to eight, themes and issues relating to culture, character, disability, women, war and society are carefully drawn out and considered separately and again in depth. Usefully, at the end, James offers informative sections that include a list of Bujold's publications, a grouping of stories that are set in the Vorkosigan Universe, a critical bibliography and a list of selected interviews.

As a fan and critic, James's celebration of Bujold is impressive. The handling of the narrative threads and characters that intersect across Bujold's broad range of work is skilfully executed and the attention to detail explaining the merits and rationale of each of Bujold's novels and short stories is superb. For both the uninitiated and those already well versed in Bujold's writing, James' introduction makes an excellent reference or study book which, after all, is its purpose. In the acknowledgements, for instance, James highlights how both fans and critics consider that Bujold is a popular writer neglected by academia and who deserves to be at the fore of science fiction studies. This book then is not only a celebration of Bujold and her work, but is also a means to establish a platform from which to seriously engage critically with Bujold's writing. Certainly, throughout his exposition of Bujold's work, James deftly nudges the reader to consider possible routes of critical engagement. In this respect, James promotes the merits of Bujold as a writer worthy of study while at the same time

highlighting that Bujold's writing is not without its problems.

Nonetheless, a criticism of James may be that at times he does not go far enough in his own critical assessment of Bujold. For instance, a key theme that Bujold's work is noted for is disability. However, in chapter two, James misses an opportunity to address Bujold's somewhat problematic attitude towards this theme. For example, in her discussion of how she 'accidently' came across disability as a theme for 'finding plots for character-centred narratives', Bujold reveals how as a rule she would pose the following question, stating: '"So what is the worst thing that I can do to *this* guy?" And then do it.' Speaking of Miles Vorkosigan, her most famous disabled character, James then explains that 'Having a disabled child was the worst thing that she [Bujold] could do to Cordelia and Aral [Miles's parents], given that Barrayarans exalted physical prowess and feared any deviation from the bodily norm.' Unfortunately, in Bujold's view, which James notes but fails to offer any critical comment on, not only is being disabled the worst possible thing for a person to be, and for the parents of a disabled child to experience, but also she actively relies on such a negative view of disability in order to generate one of her key novels, *The Warrior's Apprentice* (1986). Problematically, Bujold's attitude towards disability devalues the disabled as human beings and therefore her reliance on disability as a 'theme' in order to drive her Vorkosigan narrative is questionable.

This brief critical reading of disability in Bujold's work may seem an overly harsh criticism of James who has otherwise provided an excellent and skilfully crafted book on Bujold. However, if Bujold *is* to be taken seriously and granted credibility, her work must withstand the rigors of such scrutiny. Possibly critics have steered clear of Bujold precisely because her work is conservative in its treatment of issues such as disability. Indeed, James asks himself the question as to why he likes Bujold's books so much, 'and why so many others do as well'. I also ask myself the same question. Like James, I too consider Bujold is a skilled writer who creates readable and entertaining science fiction. I also read Bujold because her work explores the ethical and moral dilemmas of bodies altered by technology, which I find interesting. At the same time, I also find her attitude towards these themes deeply troubling.

Nonetheless, despite the problems that Bujold brings to her thematic choices, she also demands critical attention precisely because she is popular. As James argues, 'bestsellers tell us a good deal about the historical context in which they were produced'. Certainly, James' contribution is of value to the study of Bujold and science fiction, because it provides a solid starting-point from which to engage with Bujold's interesting and entertaining if flawed work.

Simone Zelitch, *Judenstaat* (Tor, 2016, 319 pp, £17.99)

Reviewed by Jeremy Brett (Texas A&M University)

In 1948, in an action that would change the world and international relations forever, a Jewish state was created. Conceived in large part as a safe harbour for Jews after the horrors of the Holocaust. it was carved from territory traditionally considered an ancestral home of the Jews. Tragically, however, the area was already occupied and had been for millennia by a people with its own rich cultural and religious traditions. This set the stage for decades of ongoing conflict, hatred and trauma.

In Simone Zelitch's richly imagined and deeply broken counterfactual world, however, this is not the state of Israel, which here does not exist. Instead, the age-old themes of nationalism, political extremism, religious strife, ethnic hatreds, and the very meaning of history itself, play out in Judenstaat, a Jewish state established in the former German province of Saxony, in the very heart of the Europe where so many Jews were murdered by the Nazis.

'The very idea was a provocation,' states Zelitch in an author's note about her novel. And so it is for Judenstaat (and, of course, its real-world Middle Eastern analogue), a living grievance and a continuing affront to the international community for its historic failure to act to save Jews in their darkest hour. But both Judenstaat and *Judenstaat* are also provocations in the word's alternate sense of 'challenge'. The characters – and by extension, the reader – are challenged by the fact of their nation's existence and the actions taken to preserve it to think seriously and deeply about the power of history. What is Judenstaat's place in the world? If a nation is created, as Zelitch puts it, 'as a kind of national reparation and even retribution for the Holocaust', how far may it go to preserve that nation and thus ensure that memory remains forever vivid? How do the circumstances surrounding the establishment of a state go on to mould that state's character and the actions of its people? In the case of Judenstaat, a nation founded in the name of justice and renewal, by 1987 (the year in which the novel is set), a number of fateful compromises have been made. The country in many ways has followed the real-life trajectory of East Germany and become a Soviet satellite, walled off by a so-called 'Protective Rampart' designed to discourage emigration and to keep out 'Saxon fascists' (anti-Judenstaat terrorists, drawn from and inspired by the native German population displaced by Judenstaaters and forced to emigrate to Germany). Judenstaat has its own Stasi, on the model of Soviet security agencies, with the inevitable result for civil liberties.

Perhaps most crucially, the country has surrendered part of itself in its struggle to survive as a national entity. At one point, a manifesto from the earliest days of the settlement is provided, in which one of the founders, Stephen

Weiss, writes that 'Jews are the antithesis of Nations for the following reasons. 1. We do not bow down. 2. We cross borders. 3. We remember [...] It is fair to say that forgetting is a passport to a wider world. The Jews can only join the rank of nations if they learn to forget. Yet we cannot forget.' Weiss writes of a Judenstaat that will stand between the nations and the Cold War political blocs, and will exist not for nationalist reasons or from loyalty to a particular flag, but because Jewish unity will create a powerful monument, defined by memory. Yet Judenstaat has over the course of its history fallen prey to the national manipulations of the Soviet Union with Weiss proclaimed an American agent who sought to destabilize the country under the guise of 'neutrality'. Once a polyglot society, in 1950 Yiddish was eliminated from Judenstaat as a language for newspapers because, as founder Leopold Stein had said years before, 'We both know that Yiddish by its very nature cannot be a national language. It's all about crossing borders, not creating borders, and we must have a border'. True, Judenstaat has survived and established an identity as a state, but that identity is behind walls and sealed borders, defended first by Soviet guns and later by domestic oppression. One might ask, can the memory of a people really be preserved by a nation that makes such moral compromises? The question, though, is made more complicated by the self-evident truth that in Judenstaat, Jews live and work and love and thrive and survive. As a Holocaust survivor says, 'Honestly, can I tell you what it means, living here? In this country? It means facing it all over again, every day. It means swallowing my own *kishkas*. But I can tell you, it always means really really knowing...That I'm alive.' The motives behind the founding and the struggle for the continued existence of a nation are never simple, never straightforward.

History and memory, and attempts to define the truth of these, are key to protagonist Judit Klemmer's self-definition and actions. Judit, as a historian, is deeply concerned with objective truth that can be realized in documents and films and evidence. At one point, in a flashback exchange with her future husband, Hans, she says 'You need to know this about me. I believe in facts. I believe in documentary history, in things that really happened. And I believe there's such a thing as justice.' Hans responds, 'I believe in facts, too. But I'm not sure I believe in history. And I know I don't believe in justice.' Later in the novel he notes that 'I think there are some things I don't have to know. I think, sometimes, when you don't know, you're free.' Hans at one point argues with Judit about the possibility of a complete and objective history, noting that history as we receive it is necessarily piecemeal, with stories always being left out. Referring to Judit's film editing, Hans points out that 'every time you cut a frame, you slit a throat […] What do you leave out of the story?' Klemmer's faith in a definite record of history is eventually tested as she comes to question not only the reality behind the founding of her country, but behind Hans' murder by a Saxon sniper. (Like Robert Harris' *Fatherland*, *Judenstaat* is an alternate history with a murder mystery at its core.)

One of the emotional attractions of the alternate history genre of fiction comes from the thrill inherent in the question 'Is the world here better off than the one I live in, or worse?' In dystopian works such as Philip K. Dick's *The Man in the High Castle*, Ward Moore's *Bring the Jubilee,* Katharine Burdekin's

Swastika Night, or Ben H. Winters' *Underground Airlines*, there is an innate *frisson* resulting from reading of darker worlds, which we as readers know and are thankful we have managed to avoid. But the best alternate histories balance this emotional relief with the opportunity for thoughtful readers to look into the funhouse mirror and observe what is looking back – how is this world and *my* world similar, and what does that say about my world? *Judenstaat* is a standout example of this kind of work, due to the many disquieting similarities between Judenstaat on one side of the mirror, and contemporary Israel on the other. Both nations were founded to provide a safe and secure home for the Jewish people. Both nations are stifled under the heavy burdens of their pasts. Both nations are committed to preserving the Jewish right to their national territory, cementing this through series of archaeological expeditions designed to prove centuries of Jewish settlement in the area. Both nations have displaced native populations (Saxon Germans for the former, Palestinians for the latter) and face insurgencies by disgruntled members of these populations within and without. Both nations are faced with an ultra-Orthodox population that refuses to engage with the wider society and believes the government to be illegitimate. And both nations must come to grips with many of the actions and policies they have undertaken in the name of self-preservation and of history. Indeed, in truth, all nations must do this. Among the many strengths of Zelitch's novel is that she has, through her narrative of a fully-realized world, in a powerful and direct way reminded us of this important fact.

Michael Swanwick, *'Not so Much', Said the Cat* (Tachyon, 2016, 288pp, £12.99)

Reviewed by Molly Cobb (University of Liverpool)

Composed of short fiction written between 2008 and 2014, the newest collection of Michael Swanwick's work is a brilliant compilation of science fiction and fantasy which centres around a general set of themes. The stories gathered here demonstrate the artistry and depth to which Swanwick is capable of discussing the structure of reality, questions of authenticity, and the nature of humanity and its relationships. As a result of these recurrent themes, the stories work extremely well together and make for an excellently constructed anthology. Though not all the fiction featured within delves as heavily into these areas as others, together they present humanity's continuing search for hope and the future, no matter how dire the situations presented within the fiction may be. Overall, it is clear that Swanwick has a wonderful knack for artfully examining the individual and humanity throughout his stories. In addition, the inclusion of a short introduction by Swanwick on the state of his career as a writer offers great insight into his history, method and attitude towards writing, which easily prepares the reader for the stories to

follow.

What Swanwick's stories all share is an ending which suggests the human capacity for hope. Stories such as 'Passage of Earth', 'Of Finest Scarlet Was Her Gown' and 'An Empty House With Many Doors' specifically end with a desire to look to the future for hope, particularly the stars in 'Passage' and 'Empty House'. These two and 'For I Have Lain me Down on the Stone of Loneliness and I'll Not be Back Again' indicate the importance of progress and, though set in science-fictional worlds, focus not expressly on these technological advancements but rather the progression of the self and the human spirit. 'Passage' and 'For I Have Lain me Down' express the human need for a past but indicate that the past is to be learned from in order to better the future and, specifically, the individual self. Rather than indicate a repetition of a theme or a writing style, these stories share this idea through vastly different narratives, indicating that the idea is translatable across individuals, worlds and stories, making it less of a trope and more of a universal concept for society. That Swanwick is so capable of engaging with this idea throughout his works while never letting it feel tired or clichéd does more than indicate his adeptness at storytelling; it highlights his ability to keep his writing fresh throughout various stories.

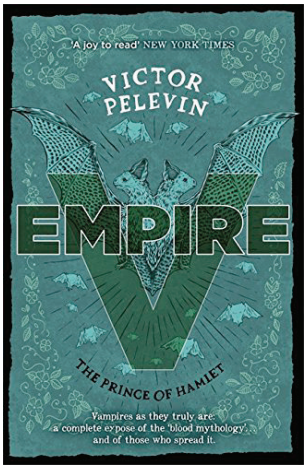
The human capacity for hope is mirrored throughout the stories in Swanwick's excellent ability to examine humanity and the nature of human emotions and relationships. Even in the non-human, Swanwick creates a realistic feeling of empathy and sympathy. 'Steadfast Castle' for example, besides being an extremely well-done narrative told only through dialogue, indicates the power of human emotion in machines. 'From Babel's Fall'n Glory We Fled …' manages the same but through aliens. As with the exploration of hope, these stories are different enough to convey originality while still expressing themes seen throughout the anthology.

What Swanwick does especially well with his exploration of human characteristics in the non-human is to question ideas of authenticity and free will, often through an examination of the nature of reality. 'The Man in Grey', for example, is a thought-provoking take on how the world works and how free will would be exercised in a world designed and maintained by unseen others. This is furthered in 'The Scarecrow's Boy', which questions the free will of machines and whether ideas of good and evil in both machines and humans are pre-programmed or a choice. Swanwick uses this discussion to perform a brilliant role-reversal within the story wherein a housebot replaces his 'young master' with a different boy after finding his original master's behaviour disagreeable. Thus, the story depicts the replacement of a human when it has been determined to have malfunctioned; a scenario often carried out in sf by the replacement of malfunctioning machines. The use of metafictive storytelling in 'Goblin Lake' foregrounds questions of free will by inviting the reader to briefly pause and question the nature of their own existence as to whether they are merely characters in someone else's story. 'The Woman Who Shook the World-Tree' additionally questions the shape of realty and how the individual experiences it but, as with much of Swanwick's anthology, the focus remains on the individual and the power of human emotion over science.

Human relationships and how they function in whichever reality has been

devised for them becomes more important than the nature of the reality itself. Questions of human authenticity can be seen in many of the stories contained herein and, coupled with explorations of reality and the human capacity for hope, indicates a collection of stories which aims to examine human resilience and an understanding of the self and the world in which that self exists. As such, Swanwick continues to focus on the individual's place within his sf rather than strictly the sf itself. Swanwick perfectly utilizes his sf narratives to create well-written and engrossing social science fiction. 'Passage of Earth' emphasizes this approach as it is an invasion story with a brilliant human-focused take. Implications of the alien hive mind are reworked to examine the human desire for understanding the past and the collective sense of history, which ties in well with Swanwick's recurrent themes.

Swanwick's focus on the human plays out through various locales, narrative styles and sf themes: the dystopian society which focuses on the individual's ability to react to and understand the world in which he lives; the futuristic society wherein zombies are used as slaves to examine class divides and gender relations; the vaguely alternate history story which depicts the individual's journey to greatness and the power of love, towards both the human and non-human; the post-apocalyptic fairy tale in the vein of Little Red Riding Hood which portrays the trusting nature of children and the impact of world events on the individual. Swanwick's ability to tell such variant stories demonstrates the always relevant nature of the themes he depicts. His ability to continuously depict these themes well throughout these stories lends credence to his nature as a writer and his skill at depicting realistic sf worlds inhabited by realistic individuals.



Victor Pelevin, *Empire V: The Prince of Hamlet* (Gollancz, 2016, 387pp, £14.99)

Reviewed by Beata Gubacsi (University of Liverpool)

Following in the footsteps of the critically acclaimed books of *Omon Ra*, *Babylon/Generation P* and *The Sacred Book of the Werewolf*, Victor Pelevin's *Empire V* is now available in English (translated by Anthony Phillips). UK readers might be used to Pelevin's signature style: the merger of satirized criticism of the post-Soviet society with the transcendental and supernatural through clever puns and sharp insights. Pelevin previously revisited the theme of the werewolf, in an allegorical love story between a werewolf and a magical woman-fox hybrid, exploring social norms and behaviours in a decaying society built on corruption and surveillance. This time Pelevin chose to focus on vampires.

Vampires have always been with us as terrifying monsters of folklore, or, after Bram Stoker's *Dracula*, as extravagant characters of popular culture.

The countless variations of vampires all share the same function – we tend to project our fears and desires upon them – and while each vampire story attempts to add something to their depiction, Pelevin's *Empire V* definitely stands out. It manages an intriguing balance between romance clichés and literary references. The result is not only an entertaining, deeply philosophical and politically loaded re-appropriation of the vampire theme, as well as (quite surprisingly) Shakespeare's Hamlet, but also an attempt to grant a cosmic origin story to vampires.

The protagonist of *Empire V* is Roman, born after the final days of the USSR, a menial supermarket employee with almost no knowledge of his family history. He dreams of studying exotic languages and leaving Moscow for good. The much-desired exit sign to a better life shines up in the form of a mysterious message that sounds like an advertisement:

> Your chance to join the Elite
> 22.06 18:40-18:55
> A genuine unrepeatable opportunity.

Roman follows it and finds himself in a vampire's fabulously furnished flat.

The whole novel reads as Roman's journal: a detailed record of his physical transformation and his initiation to the secret elite of vampires, all wearing the names of ancient Gods. Roman, or Rama, receives the vampiric Tongue, a parasitic organism that enhances his perception and understanding when feeding on the human essence – thoughts rather than 'the red liquid'. His tutelage in rhetoric and performance, or Discourse and Glamour, which are the primary set of weapons of a vampire rather than the classic fangs, unfolds the genealogy of the vampires dressed in a complex mythology involving cosmic travel, dislocation and punishment.

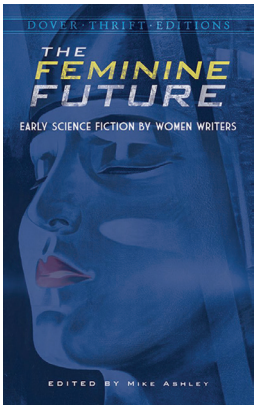
Roman learns that the Tongue evolved from a highly intellectual species of ancient bats who adapted to their new environment's challenges by becoming parasitic creatures. The vampires then domesticated humans so they could feed on their life-energy which is generated by their never-ending pursuit after money drenched by human thoughts, memories and bodily fluids. The vampires, like good farmers, keep control by Glamour and Discourse, manipulating governments and societies (the by-products of domestication). Pelevin's depiction of the vampires as a hidden elite, who run whole countries and define their culture, echoes his comments in an interview with *The Guardian* in 2000: 'after a while you start to perceive all active politicians as members of the same gang of crooks, like some rabble on the station.' Roman is troubled to suddenly find himself among the crooks.

Roman's narrative voices his confusion in understanding the mechanisms that move the world, and his hesitation to accept it, amidst the flow of blood and money. The subtitle is not only a pun, referring to the private space of vampires where they can meditate comfortably hanging upside down, but also an indicator of Roman's character and quest. Roman is similar to Hamlet in his restless but slow and enclosed truth-seeking, and his hesitant eagerness to act. While Roman spends most of his time in the hamlet, looking for a deeper,

transcendental meaning of his existence and humanity, he is still involved in a love triangle, and triggers significant changes and disturbances in the composition of the vampire elite.

Roman's signing the journal as the Prince of Hamlet (among other things) makes the ending open and opaque. He addresses his friends, and advises them to live hastily and happily. Who are these friends? Vampires or humans? Roman's inner conflict originates from the vampiric symbiosis. Despite being Godlike, he does not cease to feel and think human, as he is often reminded of his past, whilst his superiors' presumption about his destiny puts him back in the old, domestic animal function. Yet, he manages to avoid that fate and reaches a position in the vampire society higher than any of his previous superiors, forming a strange partnership with Hera, a fellow vampire and former love interest. This Hamlet survives. The question is, though, will he accept and enjoy his privileged position as a vampire or will he retain some of his humanity and bring change and freedom?

Pelevin's book is not intended to appeal to the Russian market only. His concerns are clearly global yet his observation remains sharp and focused; his argumentation detailed and sophisticated, lacking vague generalizations. Reading the book almost feels like having an entertaining but elevated conversation with a friend about the meaning of life. Similarly, the style of the narrative is organic, a high-functioning hybrid of colloquialism and poetry, similar to Roman-Rama. *Empire V* keeps the features of the previous Pelevin novels and offers an unprecedented take on vampires.



Mike Ashley, ed. *The Feminine Future: Early Science Fiction by Women Writers* (Dover, 2015, 226 pp, £2.99)

Kristine Kathryn Rusch, ed. *Women of Futures Past: Classic Stories* (Baen Books, 2016, 368 pp, £11.99)

Reviewed by Kate Macdonald (University of Reading)

I come to science fiction reviewing as a reader of sf for forty years, and with research interests in publishing history, speculative fiction and women's writing. I ordered both these anthologies as useful teaching collections, thinking of incorporating them into my classes and I'm pleased with my choice. They both feature a broad range of excellent short fiction by women science fiction authors, dating from 1873 to 2014. Both anthologies present these stories first as unjustifiably neglected tales that happen to have been written by women. Both editors prove their point, that the assumptions that women did not, historically, write sf are due to a lack of visibility, and that we can overcome this by bringing such texts and authors back into print. These anthologies are part of the now established recovery of women authors, pioneered in the UK since the 1970s by Virago, the Women's

Press – with its celebrated sf series of reprints, criticism and original fiction – and Persephone Books.

Women of Futures Past has an arresting cover image by Christine Mitzuk; twelve stories by Zenna Henderson, Anne McCaffrey, Nancy Kress, Pat Cadigan, C.J. Cherryh, C.L. Moore, Leigh Brackett, Andre Norton, Lois McMaster Bujold, James Tiptree Jr., Ursula K. Le Guin and Connie Willis; and a 10,000-word introductory essay by the editor, which is an important immersion in the gender politics of sf. I have one objection to Rusch's approach, in that she takes the position that science fiction was invented and written by North Americans, beginning in 1926 with *Amazing Stories*, in which misapprehension she follows the lead of recent critics such as Eric Davin and Justine Larbalestier. This is irritating, since she thus ignores the invention of the Martian invasion (1897), the cyborg (1917) and the robot (1920) though she does cite 'Shelly's' [sic] Creature. This position suggests that Rusch would have her students believe that such landmarks in sf sprang ready-formed into the American consciousness as soon as Hugo Gernsback started his presses. Obviously Rusch had to choose a start- and end-date for her anthology, but *Women of Futures Past* ought to be subtitled *Classic SF Stories by North American Women, 1926–2000*.

The introduction documents Rusch's outrage at being deleted from the record as an editor because, she claims, she is a woman; and her frustration at realizing that her students had no current access to short fiction by women sf authors. It explains her experience as a teacher in retrospectively promoting the careers of women writers in sf to younger generations, and in accumulating anecdotal evidence of how women editors, publishers and authors are routinely sidelined. She takes pains to make it clear how the visibility of authors and access to their works are influenced by editorial decisions, pointing out that in the pre-internet age, even though women were nominated as often as men for the big sf prizes, sometimes more so, their short fiction, in particular, is forgotten through invisibility. She notes that critical unfashionability also influences the probability of an author's work disappearing from print, linking this to the predominance of women writing in space opera, for example. I was particularly struck by her arguments explaining her resistance to what she calls the 'women must write about women trap' when selecting the stories.

This is not the place to discuss the merits of each story in the Rusch anthology, but I was very pleased to read the work of several authors new to me. Her commentary on how external factors, such as availability, word-length (and her self-imposed publication date range) force editorial decisions is amplified by some scathing remarks on the immovable literary estates that ask too much in permissions fees or refuse permission to publish entirely (for example, Octavia Butler).

Rusch did not want to create a purely feminist anthology, though by its very

nature it is feminist in its effect. She wanted to include as many of the best-selling and most influential authors that she could (from North America). Her other criteria are best explained in her own words:

> When possible, I chose work that represented what the writer was best known for, be it a series character or a type of story […] I wanted stories that entertained as much now as they had when they were published. Sometimes I did not choose good stories with language that would be offensive to a modern audience […] I also wanted stories that had an impact on other writers in the field – not just female writers, but male writers as well. Finally, I did not want the stories in this volume to have a particular political slant. […] The stories themselves are politically all over the map. They're also all over the subgenre map. I've made sure that we have hearth-and-home stories, space opera, alien-among-us stories, hard science fiction, post-apocalyptic fiction, alternate history and time travel.

Reading *Women of Futures Past* convinced me to buy further works by Henderson, Cherryh, Moore and Willis, which shows its practical effects. Although available in this paperback edition, it is also published by Baen in a variety of e-book formats. The rtf version though, which runs to 164 pages, is generated largely by OCR scanning and contains a high number of annoying errors, including missed whole words (including some in Rusch's introduction which presumably was word-processed in the usual way). Baen did not offer to make the corrections when I contacted them, merely asking me to send them a list which they would keep on file, but not do anything with them. As a recovery editor myself, this attitude does not incline me to consider pitching a reprint project to Baen.

Mike Ashley's *The Feminine Future* is an excellent complement to *Women of Futures Past* since it focuses on the early period of sf, which Rusch ignores. His very brief introduction also addresses the assumption that women do not write sf, but his project is literary history rather than gender politics. By presenting fourteen stories dating from 1873 to 1930, he illustrates the evolution of science fiction and speculative writing in women's hands through the Victorian and Edwardian periods, and into the 1920s. These stories are most interesting for their position in the development of the genre, and in how women's voices told speculative stories to grapple with social codes and society's requirements of human conduct. Their selection follows a similar criterion to that used by Rusch, of looking for the important but neglected female shapers of the genre, but Ashley's authors were rarely best-sellers, many hardly known at all even in their day. Claire Winger Harris' 'The Artificial Man' (1929) is possibly the bestl-known story included, and Edith Nesbit the best-known author, though her popular reputation comes from outside sf. Like Rusch, Ashley gives about a page of introduction to each author (the most obscure authors get much less), but since his interest stems from bibliographic discovery, most of these mini-essays are concerned with publication history rather than the author's biography or career.

Given that their contribution to the development of sf is the strongest

justification for reprinting this selection of stories, it is odd that they are not presented chronologically. Neither are they given in alphabetical order nor is there an obvious theme to the order. Reading this collection is thus to jump around in time, which I found aggravating when trying to gain a sense of how sf was written from the 1880s to the 1920s. In chronological order then, rather than printing order, the stories included are:

Florence McLandburgh, 'The Automaton Ear' (1873)
Lillie Devereux Blake, 'A Divided Republic' (1887)
Elizabeth W. Bellamy, 'Ely's Automatic Housemaid' (1899)
Ethel Watts Mumford, 'When Time Turned' (1899)
Mabel Ernestine Abbot, 'Those Fatal Filaments' (1903)
Harriet Prescott Spofford, 'The Ray of Displacement' (1903)
E. Bland [Edith Nesbit], 'The Third Drug' (1908)
Edna W Underwood, 'The Painter of Dead Women' (1910)
Clotilde Graves, 'The Great Beast of Kafue' (1917)
Alice Brown, 'The Flying Teuton (1917)
Francis Stevens, 'Friend Island' (1918)
Clare Winger Harris, 'The Artificial Man' (1929)
Sophie Wenzel Ellis, 'Creatures of the Light' (1930)
M.F. Rupert, 'Via the Hewitt Ray' (1930)

Their subjects include a device for hearing all sounds ever uttered in one place, three stories of gynocracy or 'Her Land', the incompatibility of automata in the home, living life backwards, a thought-reading device, possibly the earliest matter displacement story, sense-enhancing drugs, a painting that captures the essence of life, extraordinary creatures, a ghost fleet set in the future, cyborgs and time travel. As you see, this is a very broad range, as inventive and speculative as any standard anthology of the period, demonstrating Ashley's point that the roots of science fiction were nurtured by women as much as by men.

Although neither book is published primarily as an academic textbook, I would recommend *Women of Futures Past* as a primer in the history of sf, especially if planning a course on gender, invisibility and/or women in the field. *The Feminine Future* would be better for a course that covers how early sf evolved narrative strategies for interacting with contemporary social codes as well as speculative visions.

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- Any of Clarke's publications
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- The Cold War
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- Collaborations
- A.I. and computers
- Alien encounters and first contact
- Astronomy, space and space travel
- Big Dumb Objects
- The destiny of life and mind in the universe
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- Futurology
- Politics
- Religion, the transcendent and the paranormal
- Science and scientists
- World government
- Young Adult fiction
- The Arthur C. Clarke Award for science fiction, the Sir Arthur Clarke Award for achievements in space and the Arthur C. Clarke Foundation awards

Please submit four-hundred-word abstracts and a hundred-word biography to AndrewMButler42@gmail.com and P.A.March-Russell@kent.ac.uk by 30 July 2017.

The conference will be co-organised by Dr Andrew M. Butler (Canterbury Christ Church University) and Dr Paul March-Russell (University of Kent). Further details will be available from https://2017aclarkeodyssey.wordpress.com/

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The International Review of Science Fiction

126

In this issue:

Chris Gavaler and Nathaniel Goldberg get sceptical with Marvel Comics
Jason Eberl, Elizabeth Grech and Victor Grech consider medical ethics in *Star Trek*
David Ketterer re-compiles *The Midwich Cuckoos*
Nicholas Laudadio harmonises with Kim Stanley Robinson
Brian Matzke reclaims early space opera by women
Simon O'Sullivan takes a reality check from sf to science-fictioning

Gabrielle Bunn explores the natural world with J.G. Ballard
Paul March-Russell has electric dreams at the Science Museum and the Whitechapel Gallery
Andy Sawyer reports on Keith Piper at the Bluecoat Arts Centre, Liverpool

In addition, there are reviews by:

Jeremy Brett, Molly Cobb, Iain Emsley, Beata Gubacsi, Kate Macdonald, Paul March-Russell, Asami Nakamura and Sue Smith

Of books by:

Mike Ashley, Carlos Gutiérrez-Jones, Edward James, Victor Pelevin, Tara Prescott, Kristine Kathryn Rusch, Michael Swanwick, McKenzie Wark and Simone Zelitch

Cover image/credit: Frank R. Paul, cover to *Amazing Stories* (December 1926). Wikimedia Commons.

Foundation Vol. 46.1 No. 126 2017