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In this issue

EDITORS' MESSAGE

Global Science Fiction

Doug Davis and Jason Embry

THE 2011 MEETING OF THE SFRA in Lublin, Poland this summer was a resounding success. Featuring scholars from North and South America, Asia, the Middle East, and across Europe, the conference demonstrated the global scope of science fiction. We are happy to feature two "Feature 101" articles in this issue of the *Review* that began as papers at this year's annual conference. Each of these articles details a part of the deep history of SF film and literature in the Spanish language. In their article, "Draft for a Critical History of Argentine Science Fiction Cinema," Alfredo Suppia and Lúcio Reis Filho (both from the Federal University of Juiz de Fora), discuss the prolific output of South America's SF film community. In his article, "Recent Spanish Science Fiction and Its Modes," Fernando Ángel Moreno (from Universidad Complutense de Madrid) discusses the equally prolific recent output of Spain's SF writing community. The stories, films and national traditions discussed by Suppia, Filho and Moreno are not usually included in English-language histories of SF. We hope those of you unfamiliar with Spanish language SF will be as astounded as we were to learn of the amazing output of SF in Spain and Latin America.

With this issue, the *SFRA Review* expands its "Feature 101" offerings. Tightly focused and informative, yet also uniquely personal, the articles in our "Feature 101" series are the essay equivalent of a short course or lecture. They provide the SFRA's membership with concise, comprehensive surveys of both new trends in SF and aspects of the genre that readers may otherwise not know about. They are a forum for unique professional perspectives. They are a showcase for best practices in the SF classroom. The SFRA membership has been eager to write these kind of interesting and informative pieces. Thus, in this issue we feature four "Feature 101" articles. In addition to the two articles mentioned above, we also include two articles written from unique professional perspectives. In "'Not only the world as it is, but the world as it will be:' Medicine in Science Fiction," practicing pediatric cardiologist Victor Grech and his colleagues Clare Thake-Vassallo and Ivan Callus (from the University of Malta) review scholarship and survey the state of medicine in contemporary SF. In "Using Book History to Teach Science Fiction," Ryan Speer, a professional librarian who works with Georgia Tech's SF special collection, discusses ways to use historical books and magazines in the 21st century SF classroom. Forthcoming "Feature 101" articles in future issues of the *Review* will cover such topics as steampunk, SF video games, translating SF in the classroom, and teaching ecology through SF. Send us an email and let us know what you think of our expanded "Feature 101" offerings. ■

"Not only the world as it is, but the world as it will be:" Medicine in Science Fiction

Victor Grech, Clare Thake-Vassallo, and Ivan Callus

Introduction

DOCTORS AND MEDICAL ADVANCES have been fair game since SF's inception with Shelley's *Frankenstein* (1918), Stevenson's *The Strange Case of Dr. Jekyll and Mr. Hyde* (1886) and Wells' *The Island of Dr. Moreau* (1896), often as crucial components, giving birth to the mad scientist/doctor trope, with commensurate appalling and godlike powers, such as the skill to create or transform living beings, including humans. Inevitably powers are not only used but also abused, and inexorably, hubris paves the way for tragedy in all of these narratives. Interestingly, the medical profession has not only been depicted more frequently overall in Campbellian and post-Campbellian SF, but has also been portrayed in a much better light than in mainstream literature.

No Cure for the Future: Disease and Medicine in Science Fiction and Fantasy (2002), edited by Gary Westfahl and George Slusser, comprises the first authoritative attempt to appraise this aspect of SF in any detail. This work examines medicine in SF, commencing with the pessimistic axiom that both medicine and doctors have been oddly marginalised within SF.

No Cure for the Future includes contributions from two SF authors and several distinguished scholars in the field, who have examined the nature of canon formation, the role of scholarly journals in legitimising academic inquiry, and the cultural politics of intellectual gate-keeping. This book will be considered, along with various depictions of doctors and medicine that feature broadly in SF narratives. An interdisciplinary slant will intrude throughout as the first author of this essay is a medical doctor, such that real-life parallels will be pointed out, as well as excesses that go beyond the bounds of reasonable poetic license.

Works

The creation of life in human form is an old trope, with Hephiastos in the *Iliad*, for example, creating golden, young female assistants, prefiguring *Frankenstein* (Hard 167).

The introduction of *No Cure for the Future* acknowledges pioneering works of the 19th century by Poe, Verne, Wells and Bellamy, all of which integrated and reinforced the doctor-as-researcher fusion, and then attempts to rationalise the relative scarcity of SF works that deal with medicine and doctors despite the latter's celebrated lineage within the corpus of SF. Westfahl opines that this could be due to the relative dearth of medical advances in the 20th century when compared to innovations in the other sciences, thus losing appeal to traditional readers as "by the 1930s, it had become evident that most science fiction readers were adolescent males" (Westfahl 2). He also wonders whether "as medicine evolved into a vast, bureaucratic enterprise largely under the control of government, pharmaceutical companies and HMOs" (3) breaking with the traditional trope of the single, individual heroic doctor, this also decreased interest of medicine in SF. Later on in the collection of essays, it is also noted that both roles may coexist in film, as, for example, in *The Invasion of the Body Snatchers* (1956) in which the protagonist is a medical doctor who struggles against an entire town, including his girlfriend and medical colleagues, all of whom have been taken over by alien pods, totally depriving individuals of their emotions and humanity (Siegel).

Westfahl also sweepingly states that "to this day, the only way to achieve a successful series of medical stories in science fiction […] is to combine medicine with space travel"(3). He correctly states that doctors have not often been satirical targets, despite the public's perception of the medical profession as becoming increasingly bureaucratic and riven by financial considerations that often lead to dubious ethical decisions, such as in *The Space Merchants* (1952) by Pohl and Kornbluth, a savage criticism of advertising and consumerism.

The author also affirms that doctors are often used solely as "supporting characters" (3), ignoring the vital importance of personages such as *Star Trek* Doctors McCoy, Crusher, Phlox, Bashir and the Emergency Medical Hologram, Doctor Helena Russell in *Space 1999*, and many others who were not only central and vital to stories, but often the heroic protagonists in many an episode.

Westfahl additionally comments on cyberpunk which is depicted as a partial cyborg metamorphosis for the sake of vanity and novelty, not medically necessary and utilised solely for personal purposes, such as enhanced function or greater strength, and notes that authors fail to display or elucidate the medical procedures and individuals that cause this transformation. He also criticises SF for only dealing with medical problems and ef-

fects, discounting the profession itself, but he disregards James White's Sector General Hospital stories.

This series concerns a gigantic, 384-level hospital located in deep space, specifically designed to treat a wide variety of alien life forms and to house its equally diverse staff, with the ability to duplicate the living conditions for any species, and to reproduce suitable environments for previously unknown alien species. The series spans twelve books over four decades and stories revolve around exotic alien diseases: their aetiology, diagnosis and cure. Westfahl contradicts himself in a later chapter by commenting that

> Sector General strangely is a place that seems *designed* to drive doctors insane […] the problem of incipient madness is a result of deliberate policy decisions […] is bizarrely a medical facility without any specialists […] must be ready to deal with all medical problems involving all species at all times […] follows the policy of *preventing* doctors from working (114).

Staff must therefore instantaneously learn about alien physiology and pathology from "'Educator tapes" containing the recorded memories of the greatest physicians of various species' (46), arguably a certain recipe for multiple personality disorders. Doctors with particularly stable minds become permanent recipients of up to seven different such tapes. The situation is further aggravated by the hospital's chief psychologist whose ostensible role is to ensure the physical and mental well being of his staff. However, this is a medically unlikely appointment as he is medically unqualified, somewhat sadistic and a bully. There is clearly a manifestation to move from "crisis to crisis, but it is not clear that such crises come from outside to threaten a once stable and coherent entity. SF is produced from crisis, from its intense self-reflexive anxiety over its status as literature" (Luckhurst 47).

Mental instability is also highlighted by Greg Bear in an autobiographical section that emphasises the effectiveness of current mental therapy and contrasts it with representations of psychiatry in his novel *Queen of Angels* (1990), which continues in his novel *Slant* (1997) depicting bleakly "a society where therapy […] is absolutely essential' for the majority of the populace" (Westfahl 120).

Several interesting points are raised by the various contributors and these will be briefly mentioned. Franklin contrasts medical advances and inequalities of health care, with extremes such as thoese prefigured in Poe's "The Facts of M. Valdemar's Case" (1845) wherein a tubercular invalid is maintained in the mesmerised state at the exact point of death for several months.

The unfair assertion that "doctors' helplessness in the face of so many unknowns" (50), with medics seemingly only functioning as a 'greek chorus'" (33), and unable to clear up their own messes, is also highlighted several times. Several examples are quoted of particularly apocalyptic strains of SF, from early on in the history of SF, such as Shelley's *The Last Man* (1826) and Jack London's "The Scarlet Plague" (1915) wherein the medical profession is powerless to halt the ravages of plague. Early films also depicted mad doctors and scientists with a biological bent, such as *Frankenstein* (1910). A more positive view of the biological sciences has occasionally been depicted in films such as *Fantastic Voyage* (1966), and stories linked to nuclear warfare, as in Vonda M. McIntyre's *Dreamsnake* (1978) wherein a female healer is depicted in a dystopian, post-nuclear apocalyptic world, to doctor-biologist-researchers who develop potentially pestilential weapons as witnessed in Crichton's *Andromeda Strain* (1968), and more recently in Gilliam's *Twelve Monkeys* (1995). Thus, biological (or genetic) manipulation is the new misdemeanour, "and so, the molecular biologist has come to know sin" (60). Interestingly, HIV is an infectious disease on a mass scale that actually is sweeping over the planet, and although its effects are not instantly mortal, medicine has limited effects on this real disease, as is shown in Spinrad's *Journals of the Plague Years* (1995).

Doctors are also viewed as artificially surviving inside a "bell jar" (36), requiring an anachronistic shield, a time-bubble that strives to maintain the status quo, and a particular example cited is Dr. McCoy in *Star Trek* who demonstrates Luddite tendencies, lacking faith in the safety of the instantaneous matter transporter which is an essential tool in the *Star Trek* universe, thereby representing him as a homely, conservative and conventional individual. The bell jar analogy is reinforced by the fact that physicians occasionally deliberately isolate themselves, as does "Frankenstein in his laboratory, Tyrell in his huge bedroom, or virus-hunters of the *Andromeda Strain* in their hypersterilised laboratory" (37). Rather unfairly, doctors are labelled as being "anal-retentive" (33) since they continually scrub and change, but this is a mandatory part and parcel of on-the-job hygiene!

It must also be mentioned that SF's escapist and overall optimistic outlook is repeatedly reiterated, and compared to a "gnostic urge to be elsewhere: out of this time, out of this body, out of this chain of circumstance that we call life" (24). Similarly, the point that SF often

depicts "high-tech doctors employing futuristic techniques on futuristic diseases, wielding speculative medical tools to heal […] invented diseases" is frequently restated (32). This naturally leads to the Faustian trope, with doctors seeming to have access to a "vital force" that must be that can only be used or doled out in small portions (43). Any excessive release or abuse of this force is "hubris that challenges the natural order" (57), tantamount to an automatic Frankensteinian sentence. This unspoken rule brooks no exceptions, for punishment also results when doctors' powers are artificially augmented for altruistic purposes.

The potential for the deliberately evil misuse of medicine is also raised, as in Orwell's *1984* (1949), where curing thoughtcrime with doublethink appears to be the only role of IngSoc medicine, and medical practitioners are priests for the soul, teachers for the mind and inquisitioners, administering both physical and psychological torture with the aid of drugs, hypnosis and physical beatings. It must be noted that there is an inexorable trend for modern technology to be utilised in Big-Brother fashion, with CCTV cameras connected to image-recognition software that attempts to distinguish potential wrongdoers by detecting signs of anxiety. In more modern vein, magnetic resonance imaging and PET scanning have also been used to analyse brain chemical activity in order to correlate identify impressions, thoughts or memories (Kevles).

Howard V. Hendrix reinforces the deliberate misuse of medicine by citing Carpenter's *Escape from LA* (1996) where the protagonist is blackmailed into undertaking a hazardous mission by military handlers who claim to have infected him with a virus for which only they have a cure. He also compares the alien downfall by bacteria in Wells's *War of the Worlds* (1898) with the alien downfall by computer viruses in Emmerich's Independence Day (1996).

An overall conclusion for the entire book is that "of all the scientific fields, medicine as the science of the healer most clearly partakes of mystical and metaphysical powers" (146), and that the doctors' conventional single-mindedness on preserving health is inherently in conflict at a very fundamental level with the SF's desire to surpass and transcend the human body. However, throughout, the various contributors emphasize that the trope of an (initially) unfathomable medical problem, ignoring the obvious: that the problem and it's initially insolubility are an inevitable part of the storyline, preventing a premature ending to a story.

Medicine in SF has been ably summarised by Romain, who accurately stated that "Hollywood has often served as a predictor of science to come" (c5057), an assertion that additionally applies to all other SF narrative forms. Moreover, several vital potential consequences of biomedical technology are highlighted in this paper. For example, *Gattaca* (1997) depicts a dystopia where genetic testing is universal and leads to humans being binarily categorised into "valids" (with healthy genes) and "in-valids" (at high risk of specific diseases), such that in-valids are denied jobs and are treated virtually like second class citizens. The reality is that current testing is still far away from this situation, with current direct to consumer genetic testing producing "misleading and of little or no practical use to consumers" (Kurtz 4). This is because the risks defined by such tests are probabilistic by definition, it is very likely that consumers will receive results from these companies that do not comport with their knowledge of their own medical histories. […] the predications made by these companies also serve to illustrate the lack of robustness of such predictive tests. Moreover, experts fear that consumers may misinterpret the test results because they do not understand such distinctions (9).

However, Romain notes that the US government is taking potential genetic discrimination seriously, to the extent of promulgating a Genetic Information Nondiscrimination Act in 2008.

SF has embraced doctors in narratives of all forms, and all readers will be familiar with the exploits of the abovementioned *Star Trek* doctors who are all key protagonists in the episodes and whose skills often save not only lives, but the entire starship.

Virtually all other television series have included doctors as main protagonists, and these include Dr. Janet Fraiser from *Stargate SG-1*, Dr. Owen Harper from *Torchwood*, Dr. Simon Tam from *Firefly*, Dr. Carson Beckett from *Stargate: Atlantis*, Dr. Sherman Cottle from *Battlestar Galactica*, and Dr. Stephen Franklin from *Babylon 5*.

All of these medics are depicted as truly human with all of humanity's failings as well as merits. To give only one example, Dr. Franklin develops an addiction to stimulants in his efforts to cope with the space station's workload, and he not only faces this personal demon, but also overcomes it (Trevino).

Several series deliberately explore the role of doctors in SF. For example, Leinster's famous *Med Ship* series, features doctor protagonists (Med Ship Men) who are not allowed to marry, in the vein of knight hospitallers, somewhat naively implying that this will ensure their

celibacy. Med Ship Men are portrayed as volunteer doctors, similar to Médecins Sans Frontières International (Hakewill), who travel from world to world with no actual enforcement powers but are so respected that their medical advice is strictly followed.

Other series include Viehl's *Stardoc* series, which features the adventures and exploits of a human female doctor on an extrasolar frontier planet harbouring over two hundred sentient alien species, in true Sector General form.

Individuals trained in medicine have also successfully published SF. In the November 1954 issue of the *Magazine of Fantasy and Science Fiction*, Anthony Boucher commented that "Despite an occasional classic […] even Groff Conklin would find it impossible to assemble a specialised collection of medical SF." Both Noah D. Fabricant MD and Groff Conklin separately wrote to Boucher, protesting that each could, indeed, put together such a collection. Boucher put them in touch with each other and an anthology about medicine in SF was produced, to which some doctors also contributed (Shango).

The tradition of doctors writing SF continued, as evinced by Michael Crichton, Miles John Breuer, Clifton Dance Jr, David Harold Fink, David H. Keller, Alan E. Nourse, and Joseph A. Winter.

Michael Crichton graduated as a doctor, having paid his way through medical school by writing bestselling fiction under various pseudonyms but never became a licensed practitioner of medicine. Miles John Breuer was a recognized expert on tuberculosis. He is perhaps best known for the short story "The Gostak and the Doshes" (1930), and the title refers to a semiotic in-joke, a sentence with comprehensible grammar but meaningless words. The phrase was originally used in the seminal work in semiotics (Ogden and Richards). Clifton Dance Jr. was an anaesthesiologist who only wrote only story. Fink also only wrote just one short story. Keller was a psychoanalyst and a prolific medical writer, with nearly 700 articles and a ten volume set of books to his credit (Bleiler 210). Nourse was a prolific writer, publishing work in SF and also in non-fiction (Aldiss 262). Joseph A. Winter was an early proponent of dianetics but he soon became disillusioned, resigned from the Hubbard Dianetic Research Foundation.

Only one of these individuals will be briefly discussed. Nourse was a practising general practitioner and wrote several intriguing medical SF stories, including "The Mercy Men" (1955) which depicts medical experimentation on paid volunteers, and the ethics thereof. Nourse's *The Bladerunner* (1975) portrays an overpopulated dystopia where the general population's access to medical care is dependent upon their acceptance of medical sterilisation. His *Star Surgeon* (1959) improbably features an alien "Garvian," a tall and thin humanoid covered in fine gray hair whose anthropomorphic aim is to become the first alien doctor to practice on Earth. Comics have also frequently depicted doctors such as Dr. Pieter Cross who dons the mantle of Doctor Mid-Nite (Reisestein and Schmeier), Dr. Thomas Elliot who is also Hush (Loeb and Lee), Dr. Donald Blake, Thor's original alter ego (Lee), and Dr. Cecilia Reyes from the *X-Men* series (Lodbell and Pacheco).

Doctors have also been heroic protagonists in several famous individual narratives and only a few examples will be given. Vonda M. McIntyre's *Dreamsnake* (1978) depicts a female healer in a dystopian, post-nuclear apocalyptic world. Harrison's *Spaceship Medic* (1970) is a juvenile novel which portrays a doctor who saves the lives of crew and passengers on a spaceship that is struck by a meteor, first by using his scientific knowledge to solve an oxygen shortage problem by the electrolysis of water, and secondly, by controlling an outbreak of an alien disease that is contracted from micro-organisms on the meteor.

Yet another juvenile novel is Nourse's *Star Surgeon* (1959), a very tall and thin, humanoid alien whose body is covered with fine gray hair, and who comes to Earth with the somewhat anthropomorphic desire to become the first alien doctor to graduate from Earth's medical schools.

SF has also depicted almost Mills and Boon type of medical space romances, formulaicly portraying attractive nurses and handsome doctors (Webb).

Discussion

SF has been embraced by scientists in general, with many writers of SF being scientists who have, by definition, forayed into the humanities in order to create SF narratives. Doctors too have have successfully ventured into the genre, with stories that inevitably often have a strong medical slant. All of these narratives also tend to preserve Campbell's influence which "valorises a particular sort of writing: 'Hard SF', linear narratives, heroes solving problems or countering threats in a space-opera or technological-adventure idiom" (Roberts).

Russ also commented on scientific accuracy or inaccuracy in SF, a theme prefigured by Campbell, editor of *Astounding Science Fiction*. SF must perforce, frequently make assumptions with regard to new scientific

and technological advancements. While there can be no verifiability, there must be credibility, and assumptions must not be excesses that lead to inaccuracies that go beyond the boundaries of sensible and reasonable poetic license, as reasoned by Russ, "error-free science fiction is an ideal […] impossible of achievement […] not that […] the author can be excused for not trying; unreachability is, after all, what ideals are for" (113).

Medicine has advance to quasi-science fictional levels in its diagnostic and therapeutic abilities. Several critics have examined the ways in which SF narratives and scientific reality interpenetrate and prefigure each other, such as Steven Shaviro's *Connected, or What It Means to Live in the Network Society* (2003). The converse, that is, the effect of new technologies on contemporary fiction is elucidated in *Cognitive Fictions* (2002) by Joseph Tabbi who examines contemporary works by authors who "are creating a new order of realism […], actually imagining those aspects of a cognitive system that have sunk below the level of operational awareness" (130).

Only one example will be given, arising out of the influence of a thesis by the first author of this paper (Grech). Intracytoplasmic sperm injection (ICSI) is a revolutionary process in which a single sperm is injected directly into a harvested ovum, and the zygote is then implanted using in-vitro fertilisation (IVF) techniques. ICSI has completely reversed the approach to male infertility with very few cases of male infertility remaining untreatable. Even men who can only produce few sperm that are poorly twitching and completely morphologically abnormal can avail themselves of this technique to ensure fertilization and pregnancy. Success rates for this procedure are comparable to IVF in men with normal sperm counts. In the few cases where even ICSI is not possible, insemination with donor sperm remains a possibility. If a woman is completely unable to gestate, it is possible for a surrogate mother to carry a baby to term on a couple's behalf (Chew).

Unfortunately, these advanced assisted reproduction techniques frequently result in the creation of excess (more than two) embryos. Such supernumerary embryos are initially cryopreserved and if not used by the couple, are later discarded or used for scientific investigation such as stem cell research (Flamigni). While some religions, such as Catholicism, take the extreme view of frowning on almost all fertility treatments, many others would argue that this is equivalent to an abortion and at best, a waste of potential life (Schenker).

Even more worryingly, in species' survival terms, are scientists' concerns that males born by ICSI may inherit their fathers' infertility problems, and it has been estimated that even if even half of infertile men were to use ICSI to father children, then the incidence of significant male infertility could double in developed countries within seven generations, a truly science-fictional prospect (Faddy). IVF is now so commonplace that it is also being used to boost the numbers of endangered species, such as pandas in China, a truly ironic situation stemming from a country wherein the populace is strictly schooled to a one-family, one-child concept (Wildt).

SF's perspicacity, in all fields and not only in medicine, may also assist us by preparing us for "Future Shock" that results from potentially profound and fundamental transformations that our environment and our society may be forced to undertake due to the ever increasing impact of science and technology on everyday life (Toffle). Indeed, Istvan Csicsery-Ronay observes that "[a]mbitious theorists like Fredric Jameson, Jean Baudrillard, and Donna Haraway turn to SF topoi not only as a major symptom of the postmodern condition, but as a body of privileged allegories, the dream book of the age" (Csicseray-Ronay).

This genre's narratives are often thought-experiments of the "what if?" kind acknowledging, in Brockman's words, that "we now live in a world in which the rate of change is the biggest change." These investigations include the exploration of new technologies, including medical advances, with privileged insights as to possible actualities, or literalised metaphors that concretise aspects of everyday life. The commonest trope that emerges from these narratives is that of the cautionary tale, that excessive and Frankensteinian desire to wrest nature's secrets, ignoring potential catastrophic outcomes, with deplorable hubris being met with tragedy.

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