

The pill in the future - pharmacological contraception in science fiction

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Abstract

Contraception dates back to Mesopotamian times. Science fiction (SF) has utilised many contraceptive plot devices and this paper will explore these stratagems from the pharmacological point of view. It will be shown that the oral contraceptive pill and the contraceptive implant were both predicted in SF as well as other forms of contraception of which we only, as yet, have tantalising research possibilities.

Introduction

Birth control is a wide term that includes techniques and methods that can be utilised in order to prevent fertilisation or to terminate pregnancy. These include contraception (the prevention of fertilisation), contragestion (the prevention of implantation of the blastocyst) and abortion (the removal or induced expulsion of the developing fetus from the uterus). Contraception methods are various and include barrier methods (such as condoms or diaphragms) and hormonal contraception which may be oral or parenteral.

Birth control is well documented in ancient Mesopotamia and Egypt and this includes the description of contraceptive pessaries with ingredients that included acacia gum, a natural spermicidal that is currently utilised in contraceptive jellies.¹ Plants (such as Silphium, Asafoetida, willow, date palm, pomegranate, pennyroyal, artemisia, myrrh, rue and Queen Anne's lace (*Daucus carota*)) containing natural contraceptive and/or abortifacient agents were used from about the seventh century BC in ancient Greece.¹

Science fiction (SF) is a specific genre of English literature. Actually defining SF is an endlessly challenging and disputatious task, one that has been deemed impossible since SF 'is the literature of change, it changes even as one tries to define it'.² Thus the slogan on the masthead of the first issue of *Amazing Stories*, the earliest SF magazine (1926): 'Extravagant Fiction Today, Cold Fact Tomorrow'.³

A reasonable and widely accepted definition of SF from the multitude available is that of Suvin, that SF is 'the literature of cognitive estrangement',⁴ a literature with a wide 'spectrum or spread of literary subject-matter, running from the ideal extreme of exact recreation of the author's empirical environment to exclusive interest in a strange newness, a novum'.⁴ Suvin elaborates further, stating that 'SF takes off from a fictional ("literary") hypothesis and develops it with extrapolating and totalizing ("scientific") rigor'.⁴ Suvin ably summarises: 'SF is, then a literary genre whose necessary and sufficient conditions are the presence and interaction of estrangement and

cognition, and whose main formal device is an imaginative framework alternative to the author's empirical environment'.⁴

SF has utilised many contraceptive plot devices and this paper will explore these stratagems from the pharmacological point of view. This work arises from a Ph.D. dissertation dealing with the wider topic of infertility in SF.⁵

Contraception

Natural methods

Voluntary infertility is used to prevent overpopulation on the island of Par'z in the far future in *One Million Centuries* (1967) where a delicious, naturally occurring fruit severely curtails libido, ensuring that few children are born.⁶

The oral contraceptive pill

Many texts, such as *The Twilight of Briareus* (1974) mention the pill in everyday use,⁷ but earliest mention of the equivalent of an oral contraceptive pill appears to have been in *Brave New World* (1932) where procreation and sex are completely divorced. Sex is solely procreational and safeguarded from conception in fertile women by the permanent and regulation carriage of a supply of contraceptives on a fashion accessory known as a 'Malthusian belt', which they are conditioned to wear from birth.⁸

More urgently, the pill may be used where it is crucial to avoid pregnancy, such as in astronaut crews. *Titan* (1979) empowers female astronauts with monthly implants and ever-wear diaphragms.⁹ Contraception for spaceship crews is also outlined in *The Wind People* (1959) wherein artificial gravity conditions are said to completely preclude female crew conception but have no effect on libido or potency, and this effect wears off after approximately three months. Automatic contraception is naturally a desired side effect of interstellar travel and on long planet layovers between trips, spaceship crews are routinely administered a contraceptive drug called 'anticeptin' to further continue to prevent pregnancies.¹⁰

Likewise, in *Luna One* (1973), women who form part of the first moon colony are given a contraceptive pill called 'P-C pill'.¹¹ On a different tack, in the interest of

cementing friendship between the various branches of the armed forces, in *Short in the Chest* (1954), sex between men and women is by roster, with women taking an 'oestic' drug in order to increase libido, and men take the equivalent 'priapic', with contraception ensured through women also taking an 'anti-concipient'.¹²

Contraceptive Patch

In *The Eleventh Commandment* (1962), anti-contraceptive matters are taken even further when the Vatican is vaporised in a nuclear exchange and a new pontiff is chosen from among the American cardinals resulting in a schism, with the establishment of an eleventh commandment: 'be fruitful and multiply and replenish the Earth', and contraception is made illegal. The protagonist, a human colonist from Mars, visits Earth and wears a contraceptive patch, but this fails, and the reason given is that the higher gravity of Earth rendered the patch ineffective.¹³

Contraceptive Implants

Islands of Tomorrow (1994) depicts humans travelling back in time and abducting humans into the future for breeding purposes, and one of the women has a contraceptive implant and hence, initially, fails to become pregnant.¹⁴

In *A Reasonable World* (1991), the impact of a totally foolproof contraceptive leads to the development of sexual intercourse as a performance art form.¹⁵ In *the Group* (1973) extrapolates the consequences of such technology into entertainment, where sexual experiences (including the input of all senses) during copulation are transmitted through technological means to the rest of the members of an entire group, a group that is dispersed around the world.¹⁶

The state subversion of population control into eugenics is also used in the *Known Space* stories. In this future, complete contraceptive birth control is achieved by the annual subcutaneous administration of a crystalline drug, a crucial system in the heavily overpopulated dystopia that comprises this future Earth.¹⁷

A greater level of detail with regard to population control in the closed environment

that constitutes a huge spaceship is given in *Paradises Lost* (2002),¹⁸ where 'conshots' are given to both genders by the medical staff, and individuals who fail to show up for their shots are tracked down by the ship's authorities. Exempt individuals include postmenopausal females, sterilised crew and those who are strict homosexuals or who have taken a pledge of strict chastity. The intention to conceive must be formally declared beforehand by both partners, and each individual is only allowed to have one child. Irregular or extra pregnancies are stopped by a morning after drug or by forcible termination and indeed, in *White Mars* (1999), the perils of inadequate contraception are shown when stranded colonists run out of contraceptives.¹⁹

More practically, in the *Vorkosigan* novels, women who have had a contraceptive implant wear a distinguishing earring to state that they are consenting and contraceptive-protected adults.²⁰

Iatrogenic chemical infertility

Widespread infertility may be a completely accidental and involuntary iatrogenic event in SF, a flawed cure as depicted in *The Douglas Convolution* (1979) and its sequels, set in a 22nd century Earth suffering from widespread female infertility brought on by the use of a contraceptive agent.²¹ Similarly, in *The Wind Obeys Lama Toru* (1967), fertility and sterility drugs act and counteract, driving human population levels up and down in a chaotic fashion.²² Likewise, in *They Shall Not Die* (1939), a drug is available that prevents all disease but sterilises all those who take it.²³

Deliberate and widespread state-induced infertility

Benefits (1979) traces the progress from state benefits for mothers to an overpopulation-prevention program, with the state ultimately dumping a universal contraceptive in drinking water, a drug which, when combined with the antidote that is given to approved mothers, proves to be a potent mutagen.²⁴ An identical population-control strategy is mentioned in *The Year of the Comet* (1955), where an anti-fertility agent is added to drinking

water, which, however, is said to have up to two percent mortality, with the majority of deaths conveniently being women, further reducing the population's reproductive potential.²⁵

Chemical infertility inflicted on animals

In *Auto da fe* (1966), a future humanity modifies dogs, giving them intelligence, speech, the ability to walk upright and lengthening their lifespan to some five centuries. However, these gifts come at a price in that the story depicts the world's last dog among a troupe of bitches, and their fertility is at a complete standstill because of contraceptive drugs that are dripped into their food at the behest of the last surviving human.²⁶

Aliens

In the *Star Trek* episode *The Mark of Gideon* (1969), the *Enterprise* crew discover a grossly overpopulated planet. Captain Kirk suggests to the rulers that his United Federation of Planets would be willing to provide any kind of contraceptive devices that the populace would need.²⁷

Contraception failure

Contraceptive failure is not uncommon in SF television series, and in the *Farscape* episode *Natural Election* (2002),²⁸ one of the protagonists, a military peacekeeper, becomes pregnant, and the only positive aspect is that the possibility of an arrested pregnancy is mentioned, implying that pregnancy may be temporarily suspended and gestation later resumed. However, the nature of any contraception used in this society is not discussed. The scenario posed in the *Star Trek Deep Space Nine* episode *The Dogs of War* (1999) is even more implausible as one of the protagonists finds herself pregnant since her partner forgot to take his birth control injection, and yet both are meant to be taking their injections.²⁹

Discussion

The daily contraceptive pill was developed in 1951 by Djerassi and colleagues, earning him the 1973 National Medal of Science,³⁰ and the concept of the pill itself appears to have been first mentioned in SF in 1932, twenty

years earlier. It is typical of medicine that a Nobel prize was also given to the scientists to who made great inroads into infertility treatment.³¹

Contraceptive implants were utilised in SF in the 1970s, prefiguring the actual development of long-acting implantable contraceptive agents, such as Norplant (developed in 1991 with a pregnancy rate of <1% over a five-year period) by twenty years. Injectable depot contraceptive hormones are now available for both sexes.^{32,33} With an estimated 60% of all unplanned pregnancies in the developed world occurring in women using some form of birth control, it is anticipated that this range of options will provide more effective contraception, albeit without preventing sexually transmitted diseases due to the lack of the barrier nature of these systems. Some American states are actually attempting to persuade certain sectors of the populace to implant such agents in order to curb the population growth of the underprivileged.³⁴

Interestingly, there are also several naturally occurring candidate compounds that could be added to food or drink in order to induce infertility or produce outright sterility. For example, the short term, oral administration of an aqueous or chloroform extract of *Carica papaya* seed has been shown to induce complete and reversible sterility in male rats and rabbits with no effect on libido, and this has been attributed to a decline in sperm motility and alteration in sperm morphology, as well as to reduced contractile response of the vas deferens, the conduit by which sperm is ejaculated out of the testis.^{35,36}

This brief sampling of SF stories demonstrates a typical and important property of the genre: the ability to predict the future, if for no other reason, then through the sheer multitude of stories and the inevitability of such narratives prefiguring future turns of events. In this way, SF prepares us for 'future shock', which has been described as 'a time phenomenon, a product of the greatly accelerated rate of change in society... the dizzying disorientation brought on by the premature arrival of the future. It may well be the most important disease of tomorrow.'³⁷ It is also simultaneously

evident that SF also offers 'inspiration to would-be inventors, spurs on technological progress'.³⁸

The genre also continually inflicts a 'reality-test' on itself, and does not break with the Aristotlean admonition that 'we must presuppose many things that accord with our highest hope, although the existence of none of them must be impossible'.³⁹ This returns us to back to the concept of novum in SF, in this case, a chemical contraceptive agent, a novel scientific/technological plot device that is validated by cognitive logic, that is, made to appear scientifically plausible, thereby making an SF narrative not only possible but also plausible.

References

1. Riddle John M. *Contraception and Abortion from the Ancient World to the Renaissance*. London: Harvard University Press; 1994.
2. Pohl F. *The Study of Science Fiction: A Modest Proposal*. *Science Fiction Studies* 1997; 24: 11-16.
3. Gernsback H. *A New Sort of Magazine*. In: *Amazing Stories*, April 1926.
4. Suvin D. *On the Poetics of the Science Fiction Genre*. *College English* 1972;34: 372-382.
5. Grech V. *Infertility in Science Fiction*. University of Malta. 2011 (Unpublished Doctoral Thesis).
6. Lupoff RA. *One Million Centuries*. New York: Lancer Books, Inc; 1967.
7. Cowper R. *Twilight of Briareus*. New York: The John Day Company; 1974.
8. Huxley A. *Brave New World*. London: Chatto & Windus; 1932.
9. Varley J. *Titan*. London: Futura; 1979.
10. Bradley MZ. *The Wind People*. If. February 1959.
11. Taves E. *Luna One*. *Galaxy*. July 1973.
12. St. Clair M. *Short in the Chest*. *Fantastic Universe*. July 1954.
13. Del Rey L. *The Eleventh Commandment*. New York: Ballantine Books; 1962.
14. Busby FM. *Islands of Tomorrow*. New York: Avon Books; 1994.
15. Knight D. *A Reasonable World*. New York: Tor Books; 1991.
16. Silverberg R. *In the Group*. In: *Unfamiliar Territory*. New York: Charles Scribner's Sons; 1973.
17. Niven N. *Protector*. New York: Ballantine Books; 1978.
18. Le Guin UK. *Paradises Lost*. In: *The Birthday of the World: and Other Stories*. Scranton: HarperCollins; 2002.

19. Aldiss B., Penrose R. *White Mars, or, The Mind Set Free: A 21st-Century Utopia*. London: Little, Brown & Co.; 1999.
20. McMaster Bujold L. *A Civil Campaign*. New York: Baen Books; 1999.
21. Llewellyn E. *The Douglas Convolution*. New York: DAW Books Incorporated; 1979.
22. Lee T. *The Wind Obeys Lama Toru*. Bombay: Khrishna S. Kurwar; 1967.
23. Parkinson HF. *They Shall Not Die*. London: Constable and Company Ltd.; 1939.
24. Fairbairns Z. *Benefits*. London: Virago; 1979.
25. Christopher J. *The Year of the Comet*. London: Michael Joseph; 1955.
26. Knight D. *Auto da fe*. In: *Turning On*. New York: Ace; 1966.
27. Taylor J. *The Mark of Gideon*. In: *Star Trek The Original Series*. January 1969.
28. Watson I. *Natural Election*. In: *Farscape*. July 2002.
29. Brooks A. *The Dogs of War*. In: *Star Trek Deep Space 9*. May 1999.
30. Djerassi C. et. Al. *Delta 4-19-nor-17alpha-ethinylandrosten-17beta-ol-3-one and Process*. 1556:United States; Patent 2744122.
31. Steptoe PC, Edwards RG. *Birth After the Reimplantation of a Human Embryo*. *Lancet* 1978;2:366.
32. Johansson ED et. Al. *Future Developments in Hormonal Contraception*. *Am J Obstet Gynecol* 2004;190:69-71
33. Kamischke A, Nieschlag E. *Progress Towards Hormonal Male Contraception*. *Trends Pharmacol Sci* 2004;25:49-57.
34. Moseley CA, Beard MT. *Norplant: Nursing's Responsibility in Procreative Rights*. *Nursing and Health Care* 1994;6:294-7.
35. Chinoy NJ, George SM. *Induction of Functional Sterility in Male Rats by Low Dose Carica papaya Seed Extract Treatment*. *Acta Europaea Fertilitatis* 1983;14: 425-32
36. Lohiya NK et al. *Reversible Contraception with Chloroform Extract of Carica papaya Linn. seeds in Male Rabbits*. *Reprod. Toxicol.* 1999;13:59-66.
37. Toffle A. *Future Shock* New York: Random House; 1970.
38. Parrinder P. *Learning From Other Worlds*. Liverpool: Liverpool University Press; 2000.
39. Aristotle. *Politics*. Books VII and VIII. 7.