Future Imperfect: Science Fiction and the Future

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- *Future: a tense of verbs used when the action is to occur after the time of utterance*
- *Perfect: denoting a tense of verbs used in describing a an action that has been completed by the subject (from Latin per = through and facere (to do)*
- e.g. *Science Fiction will have predicted the future*.
- *Imperfect: denoting a tense of verbs used most commonly in describing continued or repeated past actions.*
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- e.g. *Science Fiction will have been predicting the future.*
- Did S.F. predict the future?
- Can it predict it now?
- But first, a safe prediction.

Firstly: what sort of S.F. are we looking at?

But these divisions are a little artificial: e.g.

- *"To see far off, and converse in thought with one another" said Gandalf.." each Palantir replied to each, but all those in in Gondor were ever open to the view of Osgiliath...But alone it could do nothing but see small images of things far off"*

  Lord of the Rings Tolkien

- is obviously fantasy
- *"To see far off, and amplify telepathic impulses" said Gandalf.." each sub-etheric radio communicated with each, but all those in in Gondor were in read-always mode with respect to Osgiliath...But as the quantum linkage failed, it could only work in a low-resolution mode"*

Short History of Science Fiction

Prehistory

7th c. BC, 1 cylinder seal, h. 3,9 cm, diam. 1,6 cm, with Enkidu, wearing a short kilt decorated with rosettes, hair and beard in curls, an axe in one hand, holding the tail of the Bull of Heaven in the other, the winged human-headed bull crouches down on its foreleg, in front Gilgamesh, wearing long fringed robe with rosettes, a double horned headdress, long curled hair and beard, holding one of the bull's horns while plunging his sword into its neck." Weblink: Schoyen Collection.

		1000

Gilgamesh (????)		~ 1000 B.C.
Frankenstein	*M. Shelley*	1818
Facts in Case of M.Valdemar	Poe	1845
From Earth to Moon (almost first space travel)	*Verne*	1865

- Flatland (First changed Dimension)
- *Abbott*
- 1884

Looking Backward (Future History)	*Bellamy*	1888
Time Machine (First Time Travel)	*Archiled*	1895
Ralph 124C41+ (Mechanical Man)	*Gernsback*	1911
R.U.R. (Origin of Robot)	*Capek*	1921

The Golden Age

- Amazing Stories (First Sci Fi Magazine)
- *Hugo Gernsback*
- 1926

- Astounding
- *John Campbell*
- 1930

Last & First Men	*Stapledon*	1930

- War of Worlds (book)
- *Wells(H.G.)*
- 1932

- War of Worlds (Broadcast)
- *Welles(Orson)*
- 1938

Brave New World(Dystopia)	*Huxley*	1932
Reason(First "Modern" Robot Story)	*Asimov*	1941
1984	*Orwell*	1948
Day of Triffids	*Wyndham*	1952

Fahrenheit 451	*Bradbury*	1953
Space Merchants	*Kornbluth*	1953
Death of Grass	*Christopher*	1955
Childhood's End	*Clarke*	1955
Deathworld	*Harrison*	1958
Starship Troopers	*Heinlein*	1959
Stranger in a Strange Land	*Heinlein*	1961
Clockwork Orange	*Burgess*	1962

New Wave

City of Illusions	*LeGuin*	1965
Left Hand of Darkness	*LeGuin*	1969
Barefoot in the Head	*Aldiss*	1969
Crystal World	*Ballard*	1966
Hichhiker's Guide to the Galaxy	*Adams*	1980
Eon	*Greg Bear*	~1985
Frameshift	*Robert Sawyer*	~1993

Technology in General

Hugo Gernsback: **Ralph 124C41**+: 1911

Invention	**Invented**
Fluorescent Tubes	~1940
Microfilm	~1930
Skywriting	~1930
T.V.	~1935
Packaging Machines	~1950
Radio Networks	~1935
Plastics	~1900
Vending Machines	~1960
Radar	~1940
Sleep Learning	?
Juke Boxes	~1945
Solar Energy	~1970
Hydroponics	?
Fibreglass	~1940
Tape recordings	~1920

Nylon	~1930
Loudspeakers	~1925
Antigravity	
Night Baseball	~1950
Blasters	
Aquacades	??

Verdict A+, but note

- *While Verne's characters frequently were stiff, Gernsback's characters have less dimension than the pages the novel is printed on. What characterization does occur is laughable, as is Gernsback's take on society. His world of the twenty-seventh century seems particularly naive, with a nebulous world government (which seems to have done away with actual surnames). ..... The best thing that can be said for Gernsback's writing style is that he was in desperate need of an editor and an English grammar. His prose is repetitive and basic. Steven H Silver*

Space Travel

Probably the first: Cyrano de Bergerac: from Encyclopedia Britannica---

- *1619-1655: French writer, around whose name a number of unhistorical legends accumulated.. Adopting the military profession, he fought at Mouzon and at Arras ..*
- *Cyrano also wrote two novels of imaginary travel: the États et Empires de la Lune (1657) and the Histoire comique des états du Soleil (1662) ....*
- *Rostand's play made Cyrano's name famous, but aggravated the errors committed by the romantics in emphasizing only the more extravagant aspects of his life and work....*
- Like Macbeth and Richard 111, he was more famous for being fictional than real....
- But seriously....
-

Date	Science	Author	Book
1860		*Verne*	Voyage to the Moon

Hale **The Brick Moon** 1899

- Note
- Fundraising a major part of the story
- Brick coating to avoid burn-up in atmosphere
- Intended to help navigation by making it easier to measure longitude: predecessor of GPS!

1900		*Wells*	First Men in the Moon (Antigravity)
~1920		*Tsiolkovsky*	Beyond the Planet Earth (Rockets)
1948	Geosynchronous Satellites	*Arthur*	

1948	Geosynchronous Satellites	*Clark*	
1957	Sputnik 1	USSR	
1948	Geosynchronous Satellites	*Arthur Clark*	
1961	Vostok 1	*Yuri Gargarin*	
1969	Apollo 11	*Neil Armstrong*	

Verdict: A

Most of the ideas correct, a lot of the problems forecast

Nuclear ("Atomic") Energy

 Fevrier - N 195, Couverture de Sniffen "Atomic Power Plant"

Date	Science	Author	Book
1903	$E=mc^2$	*Einstein*	
1913		*Wells*	World Set Free(Atomic Energy)
1917	Nuclear Atom	*Rutherford-Bohr*	
1938	(observation of Fission)	*Hahn-Meitner*	
1939	Memo on construction on Bomb	*Peierls-Frisch*	
1940		*Heinlein*	Blowups Happen(Near Disaster in Nuclear Power Station)
1942	First Pile	*Fermi*	
1944		*Cartmill*	Deadline (Construction of Bomb)
1945	Bomb (Fission)	*Oppenheimer et al*	
1952	Bomb (Fusion)	*Teller/Sakharov*	
1947?		*Anderson*	Tomorrow's Children (Nuclear Winter, Mutations)
1946		*Davis*	The Nightmare (Nuclear Proliferation, Terrorism)
1957		*Shute*	On the Beach
~1970	M.A.D		
~1979	Three Mile Island		

~1982	Nuclear Winter		

Verdict: A-

Computers

~2000 BC	Abacus		
1692	Adding Machine	*Pascal*	
1820	Programmable Computer	*Babbage*	
1909		*E.M. Forster*	The Machine Stops (Breakdown of machine-based civilization)
1925	Analog Computer	*Busch*	
1927		*Inus*	The Thought Machine "A device of a hundred thousand parts, that would perform...simple operations of the human mind."
1935		*Campbell*	The Mightiest Machine
1940	Digital Computer	*Turing/Neumann*	
1950		*Asimov*	The Machine That Won the War (Super computer with A.I.)
~1965	Integrated Circuit	*Noyes*	
1975	P.C.	Kaye/Wozniak/ Jobs	
~1985	Gigaflop machine	*Many*	
~1989	World-wide Web	*Tim Berners-Lee*	

Verdict: B

Even after invention of computers, SF was using slide rules!

- Comments:
- Hardware is always underestimated, software ignored e.g. Starwars S.D.I., 10 million lines code, 30,000 man years
- also usually seen as one monolithic machine, whereas the evolution is towards very distributed systems.

Time Travel

Date	Science	Author	Book
1895		*Wells*	The Time Machine
1905	Time becomes relative	*Einstein*	
1908	Time as 4-th Dimension	*Minkowski*	
1928	Universe with closed time-lines	*Godel*	
1948		*Bradbury*	Sound of Thunder (altered past)
1940's	Wormholes	*Wheeler and others*	
1956		Heinlein	All you zombies (Ultimate paradox story)
1958 onwards		*various*	Dr. Who
1980	Theoretical Example of time-travel machine	*Tipler*	
1999	Scientific American article	*Ford/Roman*	

Verdict: You tell me!

- Comment:
- If it's in the Ottawa Citizen, it must be true....

Failures

- Faster than light travel
- Telepathy/PSI Phenomena in general:Evidence shaky, if they are useful, why haven't they evolved
- Blasters/Death Rays: Star Wars
- Androids/Robots: No androids,General purpose Robots seem pointless
- Immortality

Societies

Must be read as parables not predictions

H.G. Wells

- "Shape of things to come"
- "When the sleeper awakes"
- "Food of the Gods"
- "Men like Gods"

- All have superior, enlightened subset of man imposing Utopia on reluctant masses
- Overpopulation -> Disaster controlled by birth control & elimination of unfit (Nazi Germany)
- Disastrous world war followed by scientific elite taking over (US in Japan)

Huxley, Aldous

- Brave New World (& Revisited)*(1935?)*
- Island(1939?)
-
    - Hallucinogenic Drugs (Valium and LSD, Ritalin) Soma
    - Cloning of Humans -> Designated roles in society

Vonnegut

- Player Piano
- Fully automated society, technologists ruled
- -> revolt by "Unemployed workers" (Japan soon?, Now???)
-

Pohl & Kornbluth

- The Space Merchants
- World dominated by advertising
- Chicken Little (Super Tomato!)

Ray Bradbury

- Fahrenheit 451

Society after war destroys all written material (Cambodia)

Anthony Burgess

- Clockwork Orange
- Randomly Violent Society,
- Restructuring of mind by drugs
- (Liverpool, New York...)

Overpopulation & Pollution:

Common themes e.g.

- *Harrison* Make Room, Make Room (Solyent Green as the movie version)
- *Nolan & Johnson* Logan's Run
- *Brunner*

  Stand on Zanzibar

  The Sheep Look Up
- *Silverberg* The Human Hive

The Future of (Predictive) Science Fiction

Science, Society, Technology

SCIENCE

- No Future: Science is too extraordinary and too complicated to be predicted
- e.g. Superstring Theory
- Particles as we know them (Protons, Electrons) are composed of strings in 10 dimensional Space-Time. 6 dimensional are compact -> forces in ordinary space.
- Sakharov suggests that different parts of space could have different dimensionality: e.g. 4-Space, No Time

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SOCIETY

No problem: Society cannot be predicted, but aspects can

TECHNOLOGY

10 most influential discoveries/inventions of all time

- Fire
- Domestication of animals
- Metal Smelting
- Agriculture
- Ceramics/Bricks
- Ships
- Moveable Type
- Powered Machinery
- Telephone/Wireless
- Aircraft

Are there any inventions left (ones that matter)

e.g. Lasers

- Communication: Million T.V. Channels by optical fibre
- Cuts cloth for customized suits: So do scissors
- Provides light shows: So do fireworks
- Holograms: We had 3D movies already
- Makes integrated circuits smaller: We had them already
- Makes CD's possible (but we had LP's
- Attaches retinae
- Does nothing fundamentally new, which will modify society

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e.g. Glass

- Since Roman time, transparency has increased by 1 trillion times (Did you notice!!!)

- *Shaw* Light of Other Days

  Slow glass has refractive index of 10^{18}, so light travels through it at the speed of 1mm/year.

- "Optical Molasses" effect discovered (1997): various odd materials slow down light to few m/s and allow light to be frozen (2005).
- What will we do with it?

What remains to be discovered?

Acknowledgements

- This is a very personal view of "predictive" Science Fiction. If you disagree, Email Peter Watson and I will steal your ideas!
- Notes at http://www.physics.carleton.ca/~watson/
- A useful source of generic SF info is http://www.sfsite.com/
- The pictures come (largely) from http://www.noosfere.com/showcase/