

Article

General Futurology and Its Six Methods, Yi and Parapsychology

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Abstract: General futurology as predictions of various future natural and social phenomena is discussed. We research its six methods: natural scientific methods, social scientific methods, computer simulation methods, cultural methods (including Chinese traditional Yi), religious methods, and mystical methods (including parapsychology). Then mathematical and physical methods are discussed. Further, we search Back Map and its some results. For the future and crisis usual analysis is divided into pessimism or optimism. But, we believe in the real strength and the progress of the society for our world.

Keywords: social science, futurology, methods, culture, Yi, parapsychology, Back Map.

1. Introduction

Futurology as a branch of the social sciences is the study on now changes and possible futures, and is an interdisciplinary field. Science fictions written by J. Verne, H.G. Wells and A.C. Clarke, et al., are already the literary futurology. Wells first advocated for ‘future studies’ in a lecture delivered in 1902. Then there are *Foundation Trilogy* by I. Asimov and *Starship Troopers* by R.A. Heinlein.

Soviet Union held State Planning Committee. In the United States President Hoover created the Research Committee on Social Trends. Then there is RAND Corporation. Several governments have formalized strategic foresight agencies to encourage long range strategic societal planning. Further,

general futurology is formed. Now World Futures Studies Federation (WFSF), World Future Society and the Institute for Global Futures, etc., are founded.

Rachel Carson (1962) in *The Silent Spring* opened a new direction for futures research on the environmental movement. Some books, *Limits to Growth* and *Future Shock* (1970), etc., were published. Meadows, et al. (1992) researched beyond the limits. Now futurology includes wide social and technological problems, for example, population growth, resource availability and use, economic growth, quality of life, and environmental sustainability, etc. Sociologists include O.P.K. Flechtheim, F. Polak, B. de Jouvenel and J. McHale, et al.

A well-known futurist Alvin Toffler (1970, 1980, 1990, 1995, 2006) published a series of books on futurology. Nicholas Negroponte (1970, 1991, 1999) proposed some futurological ways. Adrian Berry (1974, 1995) published some books on futurology. Howe and Wain (1993) edited *Predicting the Future* from science, economics, medical frontier, and Buddhist, etc.

David Pearce Snyder discussed five major trends: cultural modernization, economic globalization, communication network, transaction transparency and social adaptability, which will profoundly affect the whole world. Brockman (2002) edited *The Next Fifty Years*. Canton (2007) proposed ten future problems in the next 20 years: (1). Fuelling the future. (2). Innovation economy. (3). Future workforce. (4). Longevity medicine. (5). Weird science. (6). Securing the future. (7). The future of Globalization. (8). The future of climate change. (9). The future of the individual. 10. Future of America.

Jackson (2009) discussed prosperity without growth as the transition to a sustainable economy. Randers (2012) proposed the global forecast for 2052 as the next forty years. Sardar (2013) searched future of all that matters.

Modern futurology includes widely various big and small problems, and includes anthropology, complexity studies, computer science, economics, engineering, urban design, evolutionary biology, history, management, mathematics, philosophy, physics, political science, psychology, sociology, systems theory, technology studies, trend analysis and so on. Futurists may be professional, and academic groups as visionaries, foresight consultants, corporate strategists, policy analysts, cultural critics, planners, marketers, forecasters, prediction market developers, operations researchers, investment managers, actuaries, and other risk analyzers, etc. In this paper we research six futurological methods and some applications.

2. New Research of Futurology

Slaughter (1995) researched the foresight principle for cultural recovery in the 21st century. Bell (1997) discussed foundations of futures studies in human science for new era.

Methodology of futurology employ various approaches, models and methods, and includes mathematics, physics, chemistry, astronomy, biology, and social sciences such as economics, psychology, sociology, religion, culture, history, geography, and computer sciences, and business management (particularly strategy).

Futurology applied widely the probability, system theory and cybernetics. It includes various forecasts on society, science, technique, economy, military affairs and whole world, etc.

We define that general futurology is predictions of various future natural and social phenomena, and propose its six methods: (1) natural scientific methods, (2) social scientific methods, (3) computer simulation methods, (4) cultural methods (including Chinese traditional Yi), (5) religious methods, (6) mystical methods (including parapsychology).

In physics, chemistry, biology, astronomy and so on, various natural scientific methods and mathematics are mainly applied. It includes predictions for the solar system, Earth and earthquakes.

Social scientific methods apply often of mathematics and natural sciences, and are applied in economics, sociology, psychology, politics, etc. It includes of Rousseau (1712-1778), *Manifesto of the Communist Party*, and George Orwell (1903-1950) book *1984*.

Models of computer simulation may be correction, feedback and self-adaptability. Future psychology may include M. Csikszentmihalyi books: *Flow: The Psychology of Optimal Experience*, *The Evolving Self: Psychology for the Third Millennium*, *Creativity* and *Finding Flow*.

Strict causality and determination are the exact futurology, whose classical model is Laplace theory. But, future will be uncertain. Binde (2001) edited book *Keys to the 21st Century*, which discussed diversity, uncertainty, population, pollution, resources, culture, education, democracy, human rights, information, networks and globalization, etc. F. Mayor proposed that 21st century is century of human rights.

Cultural methods include history, geography, Chinese traditional Yi, and the Tui-Bei Tu (Back Map), etc.

Religious methods are generally a total pattern, and emphasize the causality and goodness (Chang 2018a). These are Doomsday in Christianity, and the cycle and six cycles in Brahman and Buddhism. China traditional culture emphasizes cycles, but which may be a higher level.

Combination of methods 1 and 4 derives the science fiction, such as W.O. Stapledon (1886-1950) book *Star Maker* (1937). As the founder of futurology in *The World Set Free* H.G. Wells (1914) predicted the invention and use of the atomic bomb. We think that in his book *The Island of Dr. Moreau* Wells predicted the Chinese Cultural Revolution. Their uppermost common character is two processes in fear on the transformations between people and animal each other. The former is a scientific fantasy, and the later is a national buskin. In many detail descriptions both possess

astonishing similarity. We propose that futurology may combines modern methods of the social sciences, Chinese traditional Yi and parapsychology, etc.

Mystical methods include Maya prediction, Nostradamus predictions, and parapsychology, etc.

3. Mathematical and Physical Methods on Futurology

It is well-known that natural sciences may often be predicted exactly. For example, Neptune was predicted by Newton gravitation mechanics, the observed deflection of light ray and gravitational wave was predicted by general relativity. In physics Bose-Einstein condensation (BEC), Higgs particles, etc., all are predicted.

Gell-Mann predicted mass of $\Omega^- (=sss)$ by the octet theory. In 10 July 2017 LHC (2017) announced to observe a new doubly charmed baryon $\Xi_{cc}^{++} = ucc$, whose mass is 3621MeV, and decay mode is $\Xi_{cc}^{++} \rightarrow \Lambda_c^+ K^- \pi^+ \pi^+$. In 1994 according to GMO mass formula and the more accurate mass formula, and the symmetry of s-c quarks in the same generation for heavy flavor hadrons octet and decuplet classified by SU(3) which made of u,d and c quarks, we derived the similar mass formulas only $S \rightarrow C$:

$$M = M_0 + AC + B[I(I + 1) - C^2 / 4], \quad (1)$$

and
$$M = M_0 + AC + B[I(I + 1) - C^2 / 2]. \quad (2)$$

We predicted $m(\Xi_{cc}) = 3715$ or 3673MeV (Chang 1994, 2012a). New experimental data agree more on Eq.(2), whose error only is 1.4% (Chang 2018b). Moreover, there should have $\Xi_{cc}^+ = dcc$, both form $I=1/2$ doublet with closed mass and decay mode $\Xi_{cc}^+ \rightarrow \Lambda_c^+ K^- \pi^+ \pi^0$. Further, we predict $m(\Omega_{cc}^+) = 3950.8$ or 3908MeV , etc (Chang 1994, 2012a, 2017d).

According to present second law of thermodynamics, entropy increase is a simple linear future. But, if entropy may decrease (Chang 2013b, 2014, 2015b), future will be nonlinear alterable. Prigogine (1997) proposed the end of certainty, and discussed time, chaos and the new laws of Nature.

It is known that historic developments possess chanciness, irreversibility and complexity. But, Gaddis (2002) discussed these are similar to complexity theory, chaos and fractal in modern science. There already are various economic forecasting. Popper (2008) discussed the selections of foresight methods. By social synergetics we proposed theorem of transformation from quantity to quality on social development. It should be a direction of social development in the new century. We must discard single linear expansion, and a developing aim should transform into multi-levels, high quality and variety for human overall development (Chang 2013a).

Moreover, futurology includes these books: Barbieri (1993) *Why Futures Studies?* W. Bell (1997) *The Foundations of Futures Studies*, J. Dator (2002) *Advancing Futures Studies*, R.A. Slaughter (2005) *The Knowledge Base of Futures Studies*, S. Inayatullah (2007) *Questioning the future*, and Z. Sardar (1999) edited *Rescuing all of our Futures*.

In *Visions* Kaku (1997) discussed future computer, molecular biology and quantum revolution. For many complex systems as contingent (sensitively dependent on complex environmental conditions) and stochastic (random within constraints), chaos theory, nonlinear science and evolutionary theory allowed us to understand these systems, but they are usually unpredictable. While if any system has periodicity, its future can be predicted. This includes economic developments and economic crisis. From this we may apply Fourier series and wavelet analysis, etc.

Based on the nonlinear equations of fluid dynamics, we derived approximately the magnitude-period formula of the earthquakes (Chang 1989, 1997, 2012b, 2017b), and some predictions can be calculated quantitatively and are already tested. If various modern scientific instruments, different scientific theories and some paranormal ways for earthquake are combined each other, the accuracy of multilevel prediction will be increased.

4. Predictions of Parapsychology and Back Map

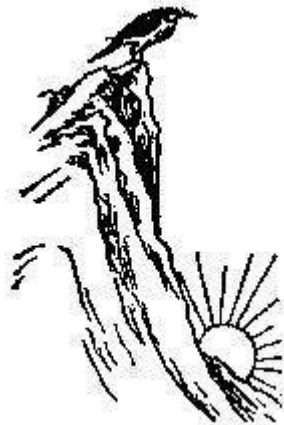
Parapsychology studies precognition, which is already a mystic prediction. We researched that early Greek scholars devoted their minds to rumination, which is very similar to Chinese sit quietly, and both produce easy some parapsychological phenomena (Chang 2017c), for example, some predictions by Democritus and Plato, et al. I think Nostradamus, Tesla and some writers of science fiction, et al., all possess the special functions of parapsychology, in which Tesla may see clearly later himself inventions. We proposed the extensive quantum theory of parapsychology, and combined the thought field and its different developing levels. The transformation of Yin-Yang and the human-nature induction all are the macroscopic entanglement. We researched its some applications, tests and predictions. The symbol of parapsychology is Psi (ψ), which is also the quantum wave function. This implies that theory of parapsychology is namely the extensive quantum theory (Chang 2018c). Moreover, we should research parapsychology by various mathematical and physical methods.

It is well-known that Chinese traditional Yi may predict future. This is a method between mathematics and parapsychology. We proposed three laws of prediction by Yi (and parapsychology): (1). Non-statistical law, whose results are far high than statistical and average values. (2). Fuzzy law, these predictions cannot be absolute nicety, and correspond to nonlinearity. (3). Levels law, there are bigger differences for different levels, and along with tipsters' level, and with big or small events of forecast, and with far or near of times (Chang 2012c, 2017c).

A well-known result of Chinese futurology is Back Map:



It was written by two famous personages Li Chun-Feng and Yuan Tian-Gang in the Tang Dynasty. This book is an outstanding representative of the Oriental mysticism and futurology. According to the current order, the sixty prophecies have successfully predicted the 43 maps. For example, Back Map 39 is:



讖曰：鸟无足，山有月。旭初升，人都哭。

The prophecy said: the bird is not foot, the mountain has month [it is island in Chinese word]. When the sun (national flag in Japan) is beginning rising, all men cry.

颂曰：十二月中气不和，南山有雀北山罗。一朝听得金鸡叫，大海沉沉日已过。

The Song said: there was no harmony in December [1936 Xian Incident, 1938 Wang Jingwei surrendered to Japan, 1941 Pearl Harbor Incident], the south had bird [Jingwei is a bird] and the north had Luo [Puyi, Roosevelt]. When the golden cock was heard, the sun falls into sea [1945 is cock year, Japan surrendered]. This prediction is very supernatural.

Back Map possesses three riddles: (1). Its gradation was throw into confusion by monarch in Song. Back Map 56 is:



讖曰：飞者非鸟，潜者非鱼。战不在兵，造化游戏。

The prophecy said: flying is not bird [airplane], and the dive is not fish [submarine]. War is independent of soldier, and is making games.

颂曰：海疆万里尽云烟，上迄云霄下及泉。金母木公工幻异，干戈未接祸连天。

The Song said: the huge sea is full of flames of war up to the clouds and down to the abyss. All is illusory, and arms meet not, but ruin rises already to sky [it implies the atomic bomb]. We wish that it should be former or later 39 Map, and reflect Second World War. Otherwise, it will be more fearful Third World War.

(2). In Back Map present gradation corresponds to 64 Gua in Yi: 1, 44, 33, 12, 20, 23, 25, 35, 14, 29; 60, 3, 63, 49, 55, 36, 7, 52, 22, 13; 41, 38, 10, 61, 53, 51, 16, 40, 32, 46; 37, 48, 28, 57, 17, 9, 42, 21, 27. 18; 30, 56, 50, 64, 4, 59, 6, 13, 2, 24; 19, 11, 34, 43, 5, 8, 58, 47, 31, 45. From this we known Maps 24 and 48 are all the same Tong Ren (Union of Men) Gua, but both ten Heavenly Stems and twelve Earthly Branches are different. Why it is so? Whether or not it will appear cycle?

(3). Back Map is empty of 5 Gua: 15 Qian (Modesty), 26 Da Xu (The Great Taming Force), 39 Jian (Arresting Movement), 54 Gui Mei (The Marrying Maiden, Propriety), 62 Xiao Guo (Small Excesses). Why it is? What these can predict?

DNA should have 64 codons, in which 3 condons have not corresponding amino acids. Now it found to represent termination. In Back Map there is a lack of 5 Gua, whether or not it corresponds to termination?

In Back Map their creative writing, careful thinking, and the magic of examination already surpassed the western Nostradamus great prophecy. Its theoretical basis is Yi. By a fatalistic expression of Chinese futurology, Back Map finally constructs a direction of development of China and world from the monarchy to the Republic and the era of great harmony. Both predictions by Back Map and Nostradamus are very different. Futures will test both accuracies.

5. Discussions

For the future and crisis general analysis is divided into two big groups: pessimism and optimism.

At present, most futurists believe Network=future society. Ray Kurzweil (1990, 1999, 2012) is an important futurist, his books include *The Age of Intelligent Machines*, *The Age of Spiritual Machines*, and *How to Create a Mind*. Brooks (2003) proposed the mixture of body and machines, and explored the startlingly reciprocal connection between humans and their technological brethren, and explained how this relationship is being redefined as humans develop increasingly complex machines. This goal is not simply to build machines that are like humans but to alter perception of the potential capabilities of robots. It is current attitude toward intelligent robots. Of course, this will increase our memory and cognition. If man builds in this chip, it will become a mixture unifying men-machines. But, is it man or machine, and progress or degeneracy? Without independent thinking, people may not be creative. Everyone will be the same and get the standard answers provided by the chip. It is similar to from small ant society with independence to bigger ant society in which every ant is all blind. This is a violation of the diversity of biological and social evolution, and violates especially sociobiology. Further, when the machine controls the person, then machines and persons of control machine will be able to control completely humankind. This will be probably a bigger terror and a chilling future, for example, in film *The Servant* directed by J. Losey.

Burrows (2014) pointed out that information technology will give the government unprecedented ability to monitor citizens, and it will become a powerful tool in the hands of dictators.

We proposed the social individual-wave duality, and researched the social topology and the social strain field, and searched the pattern dynamics and the damage mechanics in sociology. From this mechanism the crisis of society may be described mathematically by the qualitative analysis method, and discussed some social phenomenon and war crisis (Chang 2015a). Based on the social field and social dynamics, we researched systematically the social hydrodynamics as example of nonlinear whole sociology. This may include various social flows and patterns. An important result of hydrodynamics is to form waves, and social waves may form various social tides. Moreover, we discussed social justice and various defects as social crises. The social hydrodynamics and corresponding waves and tides may describe positive social progress and various negative social crises from mathematical and physical mechanism and methods (Chang 2017a).

From the Chinese history we discussed various stable social structures of different levels. The basis of the modern stable and harmonious society is equality. The comparison and combination at all times and in all over the world will redound to build a perfect society. We researched a beautiful dream on a final nice end-result of humankind—the cosmic Noah's Ark (Chang 2016a).

Lipton (2009) pointed out that increasing population and environmental pressure can push mankind to a new stage of evolution. We will condense into a global group. We are sacred, and must work together, not in the way of the survival of the fittest, but to develop in a way that can together help everyone and every thing on the earth.

6. Conclusion

Futurology as the nonlinear theory (Chang 2016b) possesses initial value sensitivity, chaos, fractal, self-organization and uncertainty (Chang 2016c), etc. This cannot have exact forecasts. But, when nonlinearity is simplified to linearity, then it may be predicted. Futurology with multiply connected topology may have many methods, many futures and many regions. Now futurists present multiple scenarios that help individuals and organizations prepare with flexibility.

C. Levi-Strauss divided society in cold and heat (Howe et al. 1993). Both are respectively stable and change. The social evolution and progress must combine them: social structures should be substable, and giant change will damage society and people. But, science, technology, and culture, etc., should change. This reflects social layer and complexity.

In a word, future will be uncertain. We proposed truth, goodness and beauty as three dimensions of ideal society and life, and researched their mathematics, calculus and colors (Chang 2018a). We should pursue science as truth, morality, democracy and religion as goodness, art and culture as beauty, then human may enter into higher civilization and more harmonious society. We believe in the real strength and the progress of the society for our world.

References

- Barbieri, E.M. (1993). *Why Futures Studies?* London: Grey Seal Books.
- Bell, W. (1997). *Foundations of Futures Studies: Human Science for a New Era*. New Brunswick, New Jersey, USA: Transaction Publishers.
- Berry A. (1974). *The Next Ten Thousand Years: A Vision of Man's Future in The Universes*. London: Cape.
- Berry A. (1995). *The Next 500 Years*. London: Headline.
- Binde J. Ed. (2001). *Keys to the 21st Century*. Soil Association.
- Brockman J. Ed. (2002). *The Next Fifty Years*. Vintage Inc.
- Brooks, R. (2003). *Flesh and Machines: How Robots Will Change Us*. Vintage Books.
- Burrows, M. (2014). *The Future, Declassified: Megatrends That Will Undo The World Unless We Take Action*. Palgrave Macmillan.
- Canton, J. (2007). *The Extreme Future: The Top Trends That Will Reshape the World in the Next 20 Years*. Plume.

- Chang Yi-Fang. (1989). Periodicity of change in Earth-Sun and research of period of earthquake. Yunnan Science Technology Press. *Phys.Abst.* 1990, 93, 1371, 30443.
- Chang Yi-Fang. (1994). *J. Yunnan University.* 16(2):100.
- Chang Yi-Fang. (1997). Research of nonlinear dynamical system on earthquake. *Exploration of Nature (China).* 1997, 16(3):51.
- Chang Yi-Fang. (2012a). *International Review of Physics.* 6(3):261.
- Chang Yi-Fang. (2012b). *International Journal of Sciences.* 2012, Nov.1.
- Chang Yi-Fang. (2012c). *Chinese Traditional Culture & Research of Parapsychology.* World Publishing Corporation. 242-251.
- Chang Yi-Fang. (2013a). *International Journal of Modern Social Sciences.* 2(1):10.
- Chang Yi-Fang. (2013b). *International Journal of Modern Social Sciences.* 2(2):94.
- Chang Yi-Fang. (2014). *International Journal of Modern Social Sciences.* 3(2):66.
- Chang Yi-Fang. (2015a). *International Journal of Modern Social Sciences.* 4(1):1.
- Chang Yi-Fang. (2015b). *International Journal of Modern Social Sciences.* 4(1):42.
- Chang Yi-Fang. (2015c). *International Journal of Modern Social Sciences.* 4(2):82.
- Chang Yi-Fang. (2016a). *International Journal of Modern Social Sciences.* 5(2):89.
- Chang Yi-Fang. (2016b). *International Journal of Modern Mathematical Sciences.* 14(1):63.
- Chang Yi-Fang. (2016c). *International Journal of Modern Mathematical Sciences.* 14(4):386.
- Chang Yi-Fang. (2017a). *International Journal of Modern Social Sciences.* 6(1):22.
- Chang Yi-Fang. (2017b). *World Institute for Scientific Exploration Journal.* 6(2):51.
- Chang Yi-Fang. (2017c). *International Journal of Modern Social Sciences.* 6(2):116.
- Chang Yi-Fang. (2017d). *Algebras, Groups and Geometries.* 34(3):273.
- Chang Yi-Fang. (2018a). *International Journal of Modern Social Sciences.* 7(1):25.
- Chang Yi-Fang. (2018b). *International Journal of Modern Theoretical Physics.* 7(1):16.
- Chang Yi-Fang. (2018c). *World Institute for Scientific Exploration (WISE) Journal.* 7(3):72.
- Dator, J. (2002). *Advancing Futures.* Westport: Ct, Praeger.
- Gaddis, JL. (2002). *The Landscape of History: How Historians Map the Past.* Oxford University Press.
- Howe, L and Wain A. (1993). *Predicting the Future.* Cambridge University Press.
- Inayatullah, S. (2007). *Questioning the Future: methods and tools for organizational and societal change* (third edition). Tamsui: Tamkang University.
- Jackson, T. (2009). *Prosperity without Growth? The transition to a sustainable economy.* Routledge.
- Kaku, M. (1997). *Visions.* Greenwood.
- Kurzweil R. (1990). *The Age of Intelligent Machines.* MIT Press.
- Kurzweil R. (1999). *The Age of Spiritual Machines.* Viking Press.

- Kurzweil R. (2012). *How to Create a Mind*. Viking Penguin.
- LHC Collaboration. Aaij R, Adeva B, Adinolfi M, et al. (2017). *Phys. Rev. Lett.* 119: 112001.
- Lipton, B.H. (2009). *The Biology of Belief: Unleashing the Power of Consciousness, Matter & Miracles*. Hay House. Inc.
- Meadows, D.H. Meadows, D.L. Randers, J. and Behrens III, W.W. (1972). *Potomac Associates*. Universe Books.
- Meadows, D.H. Meadows, D.L. and Randers, J. (1992). *Beyond the Limits*. Chelsea Green Publishing.
- Negroponete, N. (1970). *The Architecture Machine: Towards a More Human Environment*. Cambridge, Mass.: MIT Press.
- Negroponete, N. (1991). *Scientific American*. 265(3): 76.
- Negroponete, N. (1999). *Being Digital*. New York: Knopf.
- Popper, R. (2008). *Foresight*. 10(6): 62.
- Prigogine I, (1997). *The End of Certainty: Time, Chaos and the New Laws of Nature*. New York/London: Free Press.
- Randers, J. (2012). *2052: A Global Forecast for the Next Forty Years*. Chelsea Green Publications, White River Junction, Vermont.
- Sardar, Z. ed. (1999). *Rescuing All Our Futures: the futures of futures studies*. Westport, Ct: Praeger
- Sardar, Z. (2013). *Future: All That Matters*. London: Hodder Education.
- Slaughter, R.A. (1995). *The Foresight Principle: Cultural Recovery in the 21st Century*. London: Adamantine Press, Ltd.
- Slaughter, R. (2005). *The Knowledge Base of Futures studies*. London: Adamantine Press, Ltd.
- Toffler A. (1970). *Future Shock*. Bantam Books.
- Toffler A. (1980). *The Third Wave*. Bantam Books.
- Toffler A. (1990). *Powershift: Knowledge, Wealth and Violence at the Edge of the 21st Century*. Bantam Books.
- Toffler A. (1995). *Creating a New Civilization*. Turner Pub.
- Toffler A. (2006). *Revolutionary Wealth*. Knopf.
- Wells, (1914). *The World Set Free: A Story of Mankind*. Macmillan & Co.