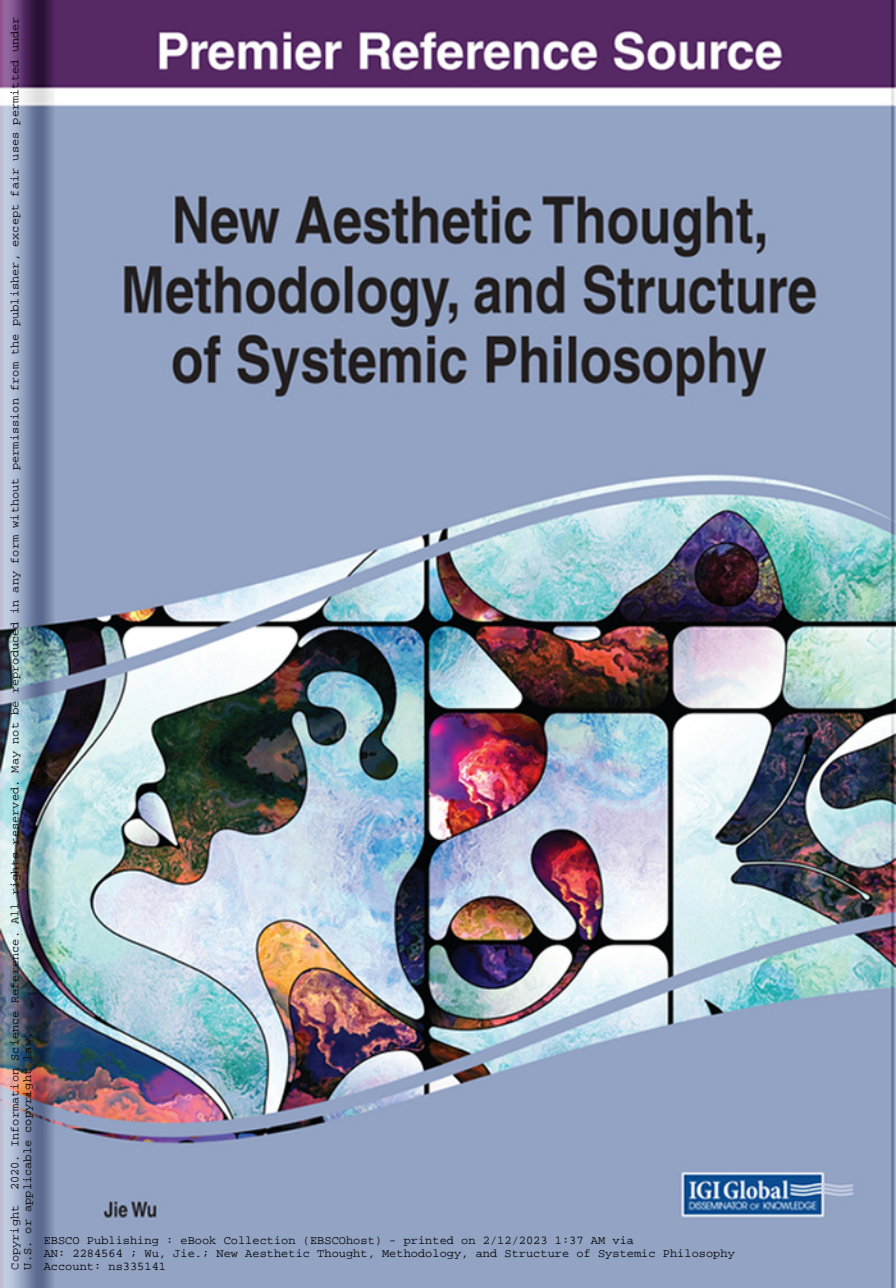


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# New Aesthetic Thought, Methodology, and Structure of Systemic Philosophy



Jie Wu

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# New Aesthetic Thought, Methodology, and Structure of Systemic Philosophy

Jie Wu

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## Foreword

Systems theory has developed in its own way since the 1940, not only through the use of scientific principles, but essentially through the creativity that allows new ideas to emerge and become adopted into a scientific field. However, it is rare to come across a systems text in which the synergy between creativity and propositional science is so clear as in Jie Wu's book *Systemic Aesthetics*, a branch of philosophy that explores the nature of art, beauty, and taste, with the creation and appreciation of beauty.

In passing, Wu refers to Spenser Brown in his preface, and this is not surprising. While there are a number of systems texts that are concerned with philosophy, George Spenser Brown's 1969 book *Laws of Form* is an esoteric work within the field of cybernetics that stands out as ground breaking, creating a calculus of indications from which distinctions are defined. According to Schiltz (1979) making distinction is the primal injunction, and consistent with an operation of "observation" where delineation of something *simultaneously* indicates one of the sides separated by the distinction. Haim Shaul (Whitaker, 2011) tells us that *Laws of Form* is a rather mystical tract that nods towards the Chinese Tao Te Ching written by Lao Tzu in 500BC by giving the Tao quote in his book as the front plate to chapter 1 無名天地之始, translated as "the beginning of the nameless word."

This underscores the realization of an intimate connection between Spenser Brown's concepts of distinction which underscores living system theory in modern science, and the Tao which is taken as a metaphor for all living things (Ye and Yolles, 2010). Modern living systems theory has embraced the concept of autopoiesis proposed by Maturana and Varela (1984), and like Tao it is process orientated. The latter begins with the idea is that *chi* energy is a starting point for any process, after *wuji* (nothing) and *taiji* (something). Thus, one sees a distinction between something and nothing as with Spenser Brown. The Tao moves beyond this however by generating a "systemic" hierarchy that occurs through processes of transformation that starts with

nothing but allows increasing complexities of distinctions. Spenser Brown adopts principles of recursion to complexify his systems, this seemingly being related to the recursive technique of Tao where an infinite hierarchy forms with multi-levels that go from the macroscopic to microscopic. Thus, processes that occur at a microscopic level of detail can be responsible for macroscopic systems. So, for instance, the hierarchy embraces the dyad through yin-yang dualism, and simultaneously defines synergy due to the intimate relationship between yin and yang through their distinctions. There are other levels of distinction and synergy beyond the space here for discussion (see for instance: Kuide, 2008; Ye and Yolles, 2010).

So, Tao is about both distinctions and through them synergies. That Spencer Brown was able to derive through an association with Tao a logical theory of distinction is on the one hand an exceptional deduction, but on the other hand he had before him the clearly seen seeds for its emergence. An inherent multidisciplinary, Spenser Brown (1969) recognizes that “mathematics, in common with other art forms, can lead us beyond ordinary existence, and can show us something of the structure in which all creation hangs together.”

While this is not a book about Spenser Brown, such philosophical positioning as he had authored also inherently reflects in the work of Wu Jie. Both authors are concerned with fundamental concepts, though their briefs are different. Spenser Brown’s book is concerned with distinctions that imply synergies. Wu’s book is concerned with synergies that imply distinctions. Recognizing disciplinary distinctions, he shows cross-disciplinary synergies that sometimes impute mystery, connect philosophy, mathematics, and physics that arises from a clear idea of history, and he does so through a thesis that is continually punctuated by art that thereby intentionally providing illustration of beauty, a notion that is absolutely central to this book.

An internationalist, Wu has a powerful systemic background that easily broaches both Western and Chinese regions. This makes for an inherently sound basis for a book on aesthetics that crosses the two cultural divides. While his book is essentially esoteric, it broadens its audience by elaborating on synergies that exist between Chinese and Western philosophy. Its distinction embraces art forms directly as punctuation for a solid prosaic descriptive text that lies in contrast to an appreciative perspective with art, but cultural synergies exist between them, as shown by Sorokin (1962). The work is an epistemological study of beauty and nature through the eyes of aesthetic systems thinking. Aesthetics as a branch of philosophy deals with such notions as *what is beautiful*, with a view to establishing the meaning and validity of critical judgments. As part of science it refers to those principles governing

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the nature and appreciation of beauty, and the principles underlying or justifying judgments that define it. While this is relevant to the visual arts, it also applies to physics and mathematics and the views of nature they provide, and their attributes of beauty, truth and goodness. Aesthetic systems are, in Wu's book, related to society and its sociocultural activities over time and space, and the social processes that produce these activities according to the aesthetic precepts of variety, this latter term referring to the distinguishable elements of "essential variables" that define a system (Ashby, 1958).

Wu more than nods towards complexity and living systems theory, his thesis being that the theoretical bases that underly them also lie at the roots of what we consider to be beauty. This is where the art punctuates the propositions of this book, reflectively. In contrast to traditional philosophical approaches in aesthetics which focused only on the discussion of whether beauty is objective or subjective, this study creates a breakthrough and solves the quantification problems of beauty.

This book is innovative in that it examines the beauty of design, and it has posited a new understanding of the connotation and structure of natural beauty, artistic beauty and design beauty. The research field of aesthetics is expanded on, and the bounded limitation of traditional aesthetic research is transgressed. Three things have been accomplished here: (1) aesthetic development has been framed on a foundation system philosophy; (2) a new field of quantitative research has been opened-up to the optimization problems in social science; and (3) the new field of social systemic aesthetics identified and researched. A "big aesthetics" theory has also been provided that is based on systematic aesthetics, and this not only deepens the research paradigm of system philosophy, but also innovates the methods and paradigms of aesthetic research. This gives it a profound new significance for aesthetic research.

The approach arises through the application of systematic philosophy to aesthetics, resulting in a highlighting of the organic connections between philosophy, mathematics and aesthetics. An outcome is the confirmation that the universality and scientificity of system philosophy and its application to other fields of human sciences and can be proven mathematically. In this monograph, research into the definition of beauty, the laws of beauty, the levels of beauty, and the structure and function of beauty properly answers the questions that until now been controversial in the history of aesthetics, this concerning the laws, levels, structure and the function of beauty. As such it offers important progress to contemporary aesthetics, and it infuses to it new philosophical thinking and methodological principles. In responding to this, the book discusses the unified relationship between truth, goodness and

beauty, and clearly shows the identity, internality, and integrity of mathematical logic and humanistic logic relating the mathematics to prosaic expression. As part of this both natural logic and humanistic logic are shown to be in harmony, that is, able to function together as a single unity.

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## Preface

Aesthetics is about beauty, but what this is has not always been defined in a way that is consistent, either within or across fields. Since interest lies in part in mathematics and art, it may be usefully to refer to these two fields at least. Brinkmann and Sriraman (2008: 1) in reference to mathematical beauty cite Dirac (1977, pp. 136) who says that both Schrödinger and he have “a sort of act of faith... that any questions which describe fundamental laws of nature must have great mathematical beauty in them. It was a very profitable religion to hold and can be considered as the basis of much of our success.” Rota (1997), also considering the beauty of mathematics, notes that it is inherently a phenomenon of *enlightenment*, this term normally avoided because of its fuzziness. For Man (2006) mathematical beauty rather relates to creativity, a topic also discussed in some depth in relation to aesthetics by Brinkmann and Sriraman (2008). Moving to the field of art, while Rota explains professional artists are more likely to stress beauty in terms of its technical rather than the aesthetic aspects, Lorand (2002), whose interest lies in beauty and art, rather explains that beauty is a form of interpretation about aesthetic order, which is both quantitative and qualitative, interprets experience and expresses values, cultural and individual preferences, and has a sense of necessity. More broadly, for Hardy (1941) beauty is excellence where it is accurate, interesting. Richards (2001: 59-60) tells us that “We humans participate in beauty as open systems in ongoing process, coevolving with all of existence. Beauty offers us conscious awareness and resonance with deeper life patterns. We sense our interconnection and the ‘bounded infinities’ of potentialities related to chaotic ‘strange attractors.’ A study of aesthetic preference not only supports preference for the fractal forms of nature but suggests, tentatively, that creative persons prefer forms of even higher ‘dimensionality’.” As a part of this she sees that beauty has adaptive aspects that includes roles in the evolution of information and our-selves. It also addresses the powerful aesthetic appeal of many fractal forms of nature,



including homologous forms found broadly across inorganic and organic life forms.

However, authors define beauty in their different ways, in order to approach a generic understanding of beauty, we refer to a statement from Albert Einstein that the most incredible thing about the Universe is that it is incredible at all. This can be adapted to say that the most incredible thing about beauty is that it is credible at all. So, not only can beauty be explained, but beauty and nature share the same birthplace, and a future world of excellence is filled with truth, goodness, and beauty - where for the British poet Keats, truth is beauty, beauty truth.

Back in 2006, I put forward the notion that “any system that is consistent with the least action principle is harmonious” (Wu, 2006, pp. 245) in my book *Harmonious Society and Systematic Paradigm*. I went on and proved this notion in both physics and mathematics in another one of my books called *Mathematical Theories in Systematic Philosophy* in 2013. The substantiation of my notion is of great scientific and theoretical value as it contributed a lot to the inter-disciplinary exchanges between mathematics and philosophy. The book also builds a new platform for comprehensive scientific research by indicating the fact that philosophy, mathematics, and physics can be integrated. It says a lot about how scientific, pragmatic, and instructive philosophy can be, and how philosophical, comprehensive, and profound mathematics and physics are.

In doing these things, the book underscores my earlier proposition that any system that is consistent with the principle of least action is harmonious, this being valid in both physics and mathematics. The mathematical model is provided for this (a variational equation – one which describes change) from which beauty can be assessed and evaluated through mathematical modelling. The current thesis in this book shows how thermodynamic principles arise from the least action principle, thus underlying notions of complexity as explained by Prigogine (1967) and Prigogine and Stengers (1984), and which in turn explain the cybernetics of living systems, thereby inherently creating connections with the work of Spenser Brown (1969).

*Mathematical Principles of Systematic Philosophy* also suggested that harmonious society is not just a baseless concept or ideal. Instead, it is a “self-existing” object with a good purpose. It can be made possible as long as it is consistent with the least action principle.

Since “systematic philosophy” is the analysis and summary of nature’s laws based on natural and systematic science, it is therefore able to prove and explain various situations mathematically, especially when Internet

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thinking is merged with all kinds of knowledge, and when super-computing theories and experiments are highly integrated. The integration of liberal arts and natural science has become today's main trend with the "systematic paradigm" setting the foundation for the overall optimization of knowledge as it becomes an indispensable factor and a mainstream ideology.

The consistency and compatibility between philosophy and mathematics has greatly inspired me to conduct mathematical research on philosophy since I know that philosophy, science, and aesthetics are intimately tied together as an organic whole structure.

According to Einstein, those who throw themselves into scientific research are people who pursue the beauty and harmony in nature. "The religious feeling of scientists takes the form of a rapturous amazement at the harmony of natural law." (Pais, 1982, pp.40)

Questions raised by both Einstein and Frank Yang such as: why is nature is endowed with a superb level of "rational harmony"? why did the universe come along as a result of "beauty concept" and "mathematical structure"? and why is nature the way it is today? should also be answered by us. Paul Dirac, the famous British physicist, was once quoted as saying that beauty is the only requirement. If there are experiments that fail to conform to the concept of beauty, I say, let's forget about those experiments!

The American physicist Murray Gell-Mann said that: beauty offers a very effective criterion for us to choose the right theories. The German physicist Heisenberg also noted that truth has its aesthetic criteria, while beauty is the glamour of truth. The French philosopher Denis Diderot (2006) once said: the so-called answer to beauty is actually a simple answer of a complicated question. French philosopher and mathematician Jules Henri Poincaré said that universal harmony is the source of all beauties of the world, and inner harmony is beautiful and worth striving for. According to German astronomer Kepler's book *Harmony of the Worlds* in 1618, Kepler's third law of planetary motion was named by him as the "law of harmony". As a result of his pursuit to use mathematics to express the beauty of symmetry, he ended up discovering the three laws of planetary motion, laying the foundation for Newton's mechanics.

The above accounts indicate that the importance of the pursuit of beauty and harmony is self-evident to scientists since it is one of its key contributors. Besides, aesthetics, science, and philosophy are inseparable from one another as they are all the reflections of nature's rationality on different levels.

This book has redefined aesthetics as well as the connotation and structure of natural beauty, artistic beauty, and design beauty. It is underpinned by a variational equation that has been substantiated in this book, with the left

side being the least action, and the right side being the beauty of harmony. The two sides are linked by a mathematical symbol, standing for the unity and harmony between nature and human, as well as the emergence of a new category of science. As a full display of grand beauty, the equation is such an incredible thing that is of great value to aesthetics.

The Greeks once noted that harmony lies in beauty, while beauty lies in harmony as well. As hard as it is to use mathematics to prove this notion, we have been able to do that in this book. In this way, people utilize this variational equation to design the most beautiful, good, and true things in the world. For example, Dr. Li Chen - the vice president and tutor of doctoral students in Taiyuan University of Science and Technology, used this variational equation to decide the ideal number of newly recruited students. (Li, 2016)

The *National standards for Arts Education* in America wrote that the success of children's education is determined by whether a civilized, creative, imaginative, and competitive society can be built. This, as an objective, is determined by whether children can understand and contribute to this world through their creativity. Art facilitates their sensibility and imagination, and without art children are very likely to become mature with incomplete world values, and such things shall not be allowed. (National Council for Arts Education, 1994)

Theoretically speaking, Philosophers like Plato, Kant, and Hegel all started with philosophical theories and use aesthetics to complement the philosophical system. And there's exception for us as well as systemic aesthetics is just the complementation of "systematic philosophy".

This book explains and discusses Chinese and western aesthetics in a simple and succinct way, seeking to determine what aesthetics has given us and what is missing from it. As we all know, today, we live in an economically integrated, flat, and diverse age where big data has gone online, while theories, experiments and super-computing are becoming integrated. Systematic science and systematic philosophy have become the major trend of this era with internet holding firm its dominant position. In this case, what should aesthetics prepare for?

Plato's question that "what is beauty" still awaits a definitive answer from one of the people in this generation. Benoit B. Mandelbrot once said, the intersection of so many disciplines must be an empty set. I am sure to say that both "intersection" and "empty set" are part of the grand beauty.

## The Approach and Structure of the Book

The methodological approach adopted in this book is consistent with the title: *systemic aesthetics*, where aesthetics is explored within the context of the social sciences, and in drawing on perspectives and methods of system philosophy to show the universal and scientific validity of beauty, truth and goodness. It is through systemic aesthetics that the beauty of harmony is explored and represented through the principle of least action. This relies on the inter-disciplinary exchanges that occur between mathematics and philosophy, with strong pointers to physics.

The book adopts an essay approach to aesthetics that embraces artistic visual license by a selection of images to underscore an artistic dimensionality. From the grand perspective of systematic philosophy, it interprets and constructs a system of systemic aesthetics and re-establishes the essence, levels, structure and methodology of aesthetics.

The structure of this book is formulated for its readership, identified as final year undergraduate and post graduate students taking courses in philosophy, physic, mathematics, systems and complexity science, and it will be of interest to academics and researchers in the same fields, as well as those generally interested in aesthetics.

In presenting the theory of systemic aesthetics, this book is structured into 10 chapters that might be separated into 3 parts. Part 1 (chapters 1-2) is historical, part 2 (chapters 3-5) is definitional, and part 3 (chapters 6-10) is developmental. Through the retrospection of the history of Chinese and Western aesthetics, it creatively deconstructs and reconstructs the traditional philosophy of aesthetics with the methodology of system philosophy. New answers are given to the definition of beauty, the laws of beauty, the levels of beauty, the structure of beauty and the function of beauty.

In its historical part, chapter 1 is on the Western aesthetics central to the thesis of this book, considering artists only briefly since such works are so popular in the west. It studies the development and basic ideas of Western aesthetic thoughts by reviewing the aesthetic history of ancient Greece and the Middle Ages and by investigating the modern and contemporary aesthetics. It initially discusses the dominant classical Greek aesthetics, the medieval aesthetics, the 19<sup>th</sup> Century aesthetics, and finally the modern aesthetics. While Western art is reflected in contemporaneous philosophical thinking, their relationship has not been considered because of the complexities that

would be embraced, especially when Sorokin (1962) has so well explored them. The impact of Western art on aesthetics is similarly limited, again because of reflections on Sorokin's thesis of sociocultural dynamics in which he argues that art is a reflection of culture, and in the current period at least there has been a decline in Western cultural that has had a profound effect on a simplistic analysis. Chapter 2 is a valuable discourse on Chinese aesthetics. It studies the development and basic ideas of this by reviewing the history of aesthetic perspective from the Han Dynasty, the Wei, Jin and Southern and Northern Dynasties, the Tang Dynasty, the Five Dynasties, the Song and Yuan Dynasties and the Ming and Qing Dynasties. Essentially the chapter is extensive and art-centric since the book originates from a Chinese perspective that is not so usual in the West. These two chapters are indicators of cultural flow, each of which follow their own trajectories. It is because of this that little attempt is made to analyse the relationship between the flows, that would be better undertaken through a Sorokin schema.

In the definitional part, chapter 3 discusses the methodology of aesthetics, where consideration is made of the modern realist "democratic aesthetics" of Russian thinkers (i.e., the *Utopians* like Proudhon and Tolstoy, and the revolutionary democratic conceptions of thinkers like Belinskii and Herzen; and the *Proletarian socialist aesthetics* of Marxism-Leninist thought), and the modern Chinese cultural aesthetics approach of Qian Xuesen. This results in the emergence of a set of methodological values of system philosophy and concludes that system philosophy constitutes the methodology of aesthetic research. In the next chapter 4, consideration is made of the fundamental ontological principles and laws that drive systemic aesthetic philosophy. It notes that the philosophical ontology of system aesthetics is also the ontology of the systems philosophy, and it points out that system philosophy is the foundation of systemic beauty and explains the basic rules of systemic aesthetics. Chapter 5 looks the mathematical foundations of aesthetics, and how mathematical methods have been used to explore the principle of aesthetics. It is here that it is explained that the principle of minimum action is the fundamental law of harmonious beauty. The mysticism one may find there begins with steady prose, and for the titillation of the readership sometimes moves to tautology.

In the developmental part, chapter 6 is concerned with defining aesthetics and beauty, and it discusses the structure and levels of beauty. Its fundamental orientation is to focus on philosophy more than on art since this is of fundamental importance to the purpose of the book, and a discussion of art here, while useful, would likely distract the reader from that purpose. It therefore lacks in providing a synergy between art and philosophy, primarily

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because it does not wish to enter a study of cultural dynamics as considered above. The next chapter is about the beauty of nature, important if one since it relates the inherent attributes of beauty and ugliness. Chapter 8 concerns the beauty of art, and it explains the levels, structure and manifestation of artistic beauty. Chapter 9 looks at design and beauty, and the associated principles. Finally, the concluding chapter 10 points out that beauty is a developing system and truth, goodness and beauty are unified. It also answers the questions on the essence of beauty.

Placing this book within the horizon of literature, systemic aesthetics is found in modern areas of systems theory, for instance as illustrated by Jorinde Voigt 2016 book on *The Aesthetics of Sustainability: Systemic Thinking and Self-organization in the Evolution of Cities*. However, its cross-disciplinary nature is shown through outlets in, for instance, Shannon Jackson's 2010 *Social Works: The Infrastructural Politics of Performance* published by Routledge.

Systemic aesthetics is thus an important cross-disciplinary area of study. This view is supported, for instance, by the 2005 research paper by René Stettler's "Mind, matter, and quantum mechanics: towards a new conceptual theoretical framework" who argues for cross-disciplinarity in understanding reality, arguing that the origin of knowledge has a wider scope that goes beyond the conventional frameworks of scientific and artistic exploration. It is not only physics that is the subject of aesthetic inquiry. Aesthetics in mathematics has been explored by Uliano Montano in his 2010 book *Explaining Beauty in Mathematics: An Aesthetic Theory of Mathematics*. Back to physics, Alexei Tsvelik's 2003 book *Quantum Field Theory in Condensed Matter Physics* published by Cambridge University Press is interested in the aesthetics of physics. Here, Tsvelik stresses that aesthetics is concerned with form, and from this perspective the importance of Spenser-Brown (1996) work is apparent where it reaches out towards the aesthetics of logic and mathematics. Having said this, strictly speaking the book neither centres on logic or mathematics, but rather is a synergy of the two: forming a basis for *form* that underlies linguistic, mathematical, physical, and biological science.

While aesthetics in science is deemed as cross-disciplinary, there is no comparative text other than those produced previously by the author. It has already been related to Spenser Brown's book, and while there are books on systemic aesthetics, none are comparable to this work in its balance between Chinese and Western aspects, and its final journey toward defining from a mathematical framework what it is that underpins beauty. However, there is no text that competes with Systemic Aesthetics. This is because its intentional

cross-disciplinarity establishing systemic principles that cross mathematics physics is unique, providing a new perspective on beauty and its structure.

## Credits

My special appreciation goes to Dr. Cui Yubin from the College of Design in Shenzhen University and Ma Ruiguang, the chairman of the FLYHORSES Service Co.,Ltd, for his elaboration on systematic beauty. I would also like to thank Baoshang Bank Limited for its tremendous support, and Li Chen, the president of Shanxi Radio&TV University, for his valuable advice. Also, as the first reader of the book, my wife Zhen Yun has offered me her full support and pertinent advice, ensuring that it fulfills its intended purposes.

Finally, I would like to ask everyone to bear in mind the lines that were once quoted by Marx from the *Divine Comedy. Inferno*: At the entrance to science, as at the entrance to hell, the demand must be made: “here must all distrust be left; All cowardice must here be dead.” (Max, 1904, pp.15)

Beijing, Oct. 20, 2019

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As the first reader of the book, my wife Ms. Zhen Yun has offered me her full support and pertinent advices.

# Chapter 1

## Western Aesthetics

### ABSTRACT

*This chapter studies the development and basic ideas of Western aesthetic thoughts by reviewing the aesthetic history of ancient Greece and the Middle Ages and by investigating the modern and contemporary aesthetics. It initially discusses the dominant classical Greek aesthetics, the medieval aesthetics, the 19th century aesthetics, and finally the modern aesthetics. The chapter finds that while the history of aesthetics is marked by countless schools of thoughts, only a few people of rare talent have made significant contribution to the entire human civilization through their aesthetic theories and ideas.*

### INTRODUCTION

While the history of aesthetics is marked by countless schools of thoughts, only a few people of rare talent have made significant contribution to the entire human civilization through their aesthetic theories and ideas.

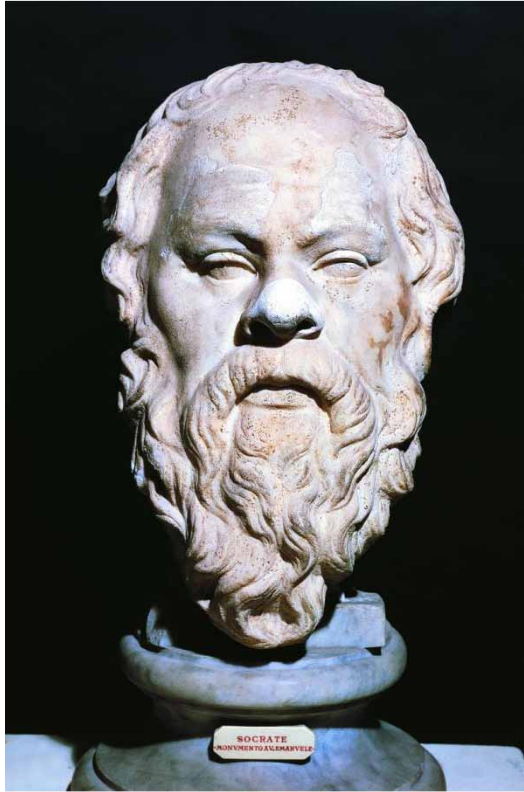
### CLASSICAL GREEK AESTHETICS

The Greek civilization, originated by Socrates, Plato, Aristotle and other philosophers, is a well-formed and sublime exemplar of culture, whose timeless vitality and creativity have made it a breeding ground for the western civilization.

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Figure 1.



## Socrates' Aesthetics

Socrates (1997) believed that beauty is that which is appropriate, and it was not the nature but the soul that forms the essence of beauty.

By saying “know thyself” (Xenophon, 1994) in one of his quotations, Socrates suggested that one should know his/her soul. Since the essence of the human soul is rationality, the knowledge of beauty can therefore be acquired through first the knowledge of soul and then the knowledge of rationality. Soul-rationality-beauty, in this order Socrates came to understand what beauty truly is. This way of understanding beauty marked the birth of rationalism and spiritualism, the advent of idealism, and a great leap forward for the aesthetic epistemology.

In Socrates' view, beautiful things are relative, yet beauty itself is eternal and unalterable. There are many beautiful things but only one universal

*Figure 2.*



concept of beauty. He thus articulated the notion of “One” and “Many”. (Plato, 2008, pp. 49)

Beauty is purposive, and purposiveness is the basis and intrinsic quality of beauty. This purposiveness is gods’ plan (here gods refer to multiple gods in ancient Greek myths, not a singular God).

Beauty depends on utility and purpose. Since both beauty and goodness are useful and purposive, they are hence compatible with each other.

Socrates believed that virtue is knowledge, and that virtue is the basic concept of the ethics (Plato, 2012). He thus pointed out the nature of morality.

To conclude, beauty lies in people’s rationality, consciousness and soul. The creation of mankind is the utmost artistic beauty. Therefore, art shall imitate reality and be as vivid and true as possible.

It is in this manner that the aesthetics of Socrates was carried forward by his disciple Plato, and then by Plato’s disciple Aristotle to the whole world.

Figure 3.



*Figure 4.*



## **Plato's Aesthetics**

Plato (1953) believed that beauty is Form. Form is invisible and can only be perceived with the mind's eye. Form is a priori. Form and matter are different, and Form determines matter but not the other way around.

Form has the following characteristics:

First, Form is eternal;

Second, Form is absolute;

Third, Form is a priori and unique.

The most ideal Form is the combination of truth, goodness and beauty.

From Plato's point of view, the universe is the perfect unity of rationality and sensibility. He divided the soul of universe into two parts: the eternal existence—homogeneity, and the generative existence—heterogeneity. (Plato, 2000)

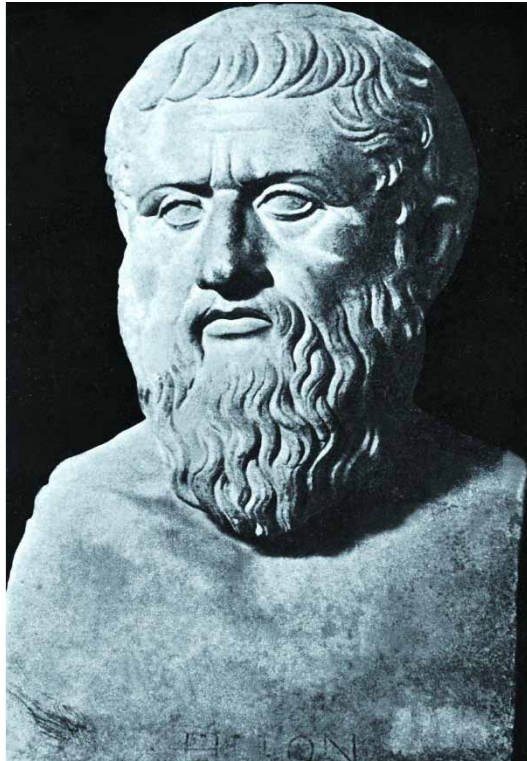
The universe's perpetual rule of motion is the ultimate and utmost beauty. Universe is the most beautiful and complete existence where beauty comes on top of everything else.

To be in the most beautiful state in the universe, the harmony between the beauty of mind and the beauty of body is essential.

Form is the core of Plato's aesthetics, they rise above everything else with goodness and beauty being the highlight. The combination of truth, goodness



Figure 5.



and beauty represents the basis of Plato's aesthetics and the ontology of aesthetics.

As an inheritor of the philosophy of Pythagoras, Plato held that universe was formed in accordance with the golden mean and operated in a kind of musical harmony. According to him, the universe is a three-dimensional object while the world is a perfect creature. (Plato, 2012)

He designed, in his "utopia", a unity of truth, goodness and beauty.

Plato's most important contribution is his Theory of Forms. By using this theory, he managed to replace the gods with Forms and therefore turned the Forms into another kind of god. Plato's theories in aesthetics, philosophy, cosmology, and Forms in particular, have left a profound and far-reaching influence on the whole world.



*Figure 6.*

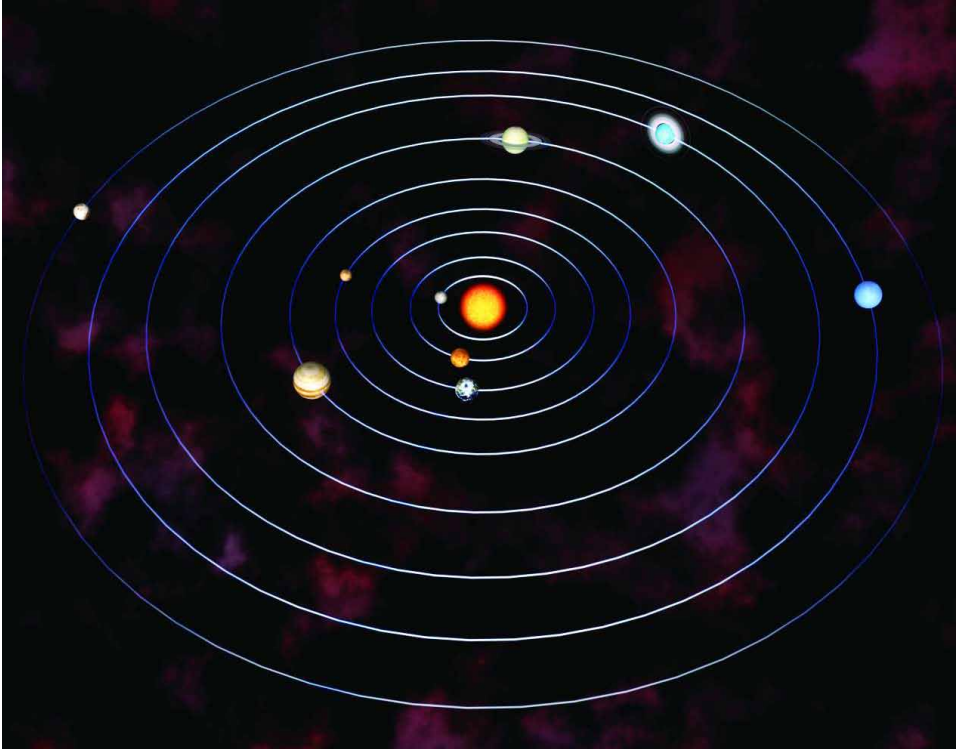


## **Aristotle's Aesthetics**

As Plato's student, Aristotle is recognized by Engels as the "Hegel in ancient times".

The universe, according to him, is the beautiful organism. The rationality of the universe is the highest existence and the utmost and ultimate beauty, which transcend all other beauties. (Aristotle, 2016)

Figure 7.



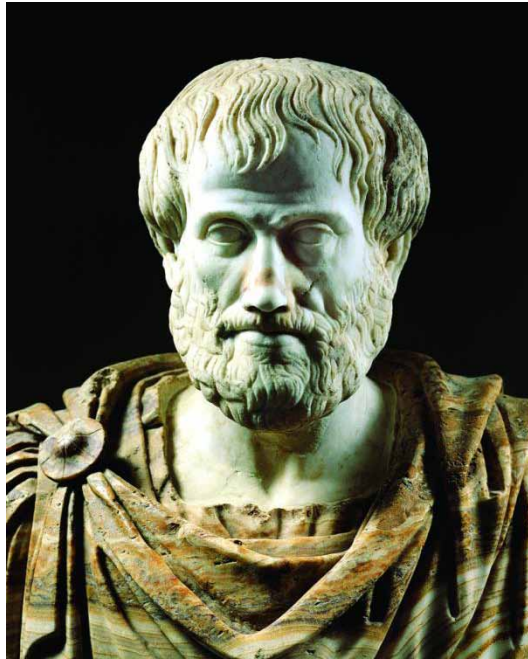
The rationality of the universe is a unity of subject and object, and of subjectivity and objectivity. It is a self-being existence and so is beauty. It is, therefore, also the apex of joy and happiness.

Aristotle believed that all beauties were good in nature, and to convert goodness into beauty, joy was required. In his view, the highest form of beauty is order and symmetry, and the beauty of certainty lies in quantity, size and order. (Ibid)

Aristotle's aesthetics is based on the Principle of Four Causes, which refers to the idea that things take place because of the material cause, formal cause, moving cause and final cause. Among the four causes, the form is similar to the Form put forward by Plato except for the fact that Plato argues that universals (Forms) are separate from particulars (the objects) while Aristotle argues that universals are embodied in particulars. (Ibid)

Since the purpose of all pursuits is to strive for the highest beauty of the universe's rationality, it is therefore fair to point out that the purpose of all pursuits is least action, is the least energy consuming and most efficient

*Figure 8.*



evolution. The least action is hence the highest beauty and goodness in the universe.

Apart from that, we should also face up to the fact that the movement of the universe is the highest aesthetic object, and the human body itself is a perfect mini universe whose beauty is the combination of goodness and joy.

Aristotle built upon Socrates and Plato's theories in philosophy, aesthetics, cosmology, biology and geometry, thus leaving a huge influence on later generations.

## **Pythagoras' Aesthetics**

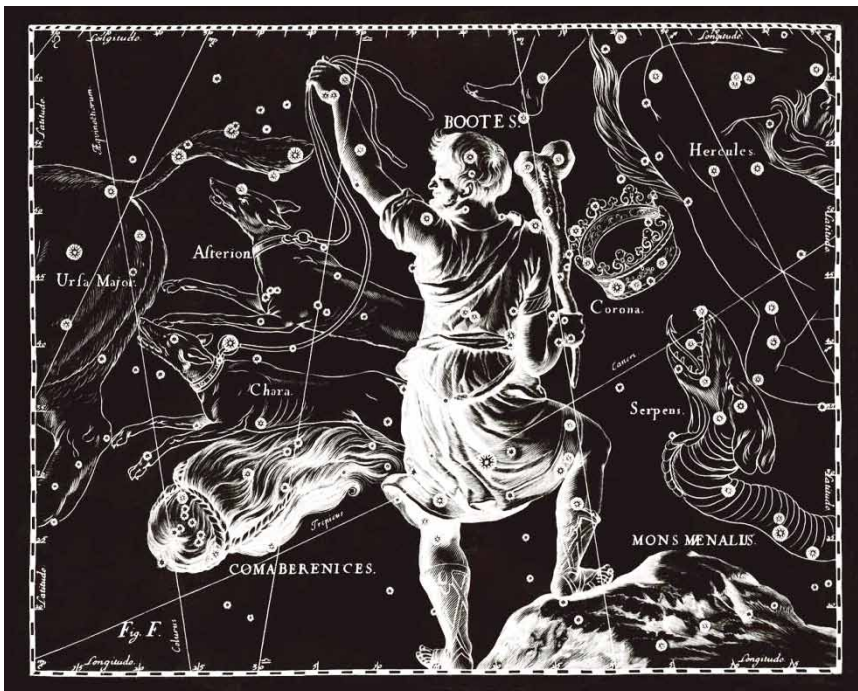
It will be unfair though not to mention the great Pythagoras when introducing the western aesthetics as his presence and theory came earlier than that of the other three.

Pythagoras and his Pythagorean school came up with a set of unique theories by integrating philosophy, mathematics, astronomy and aesthetics. In their opinions, mathematics is the origin of the universe where number, as a form of creativity and vitality, is the soul of everything.

*Figure 9.*

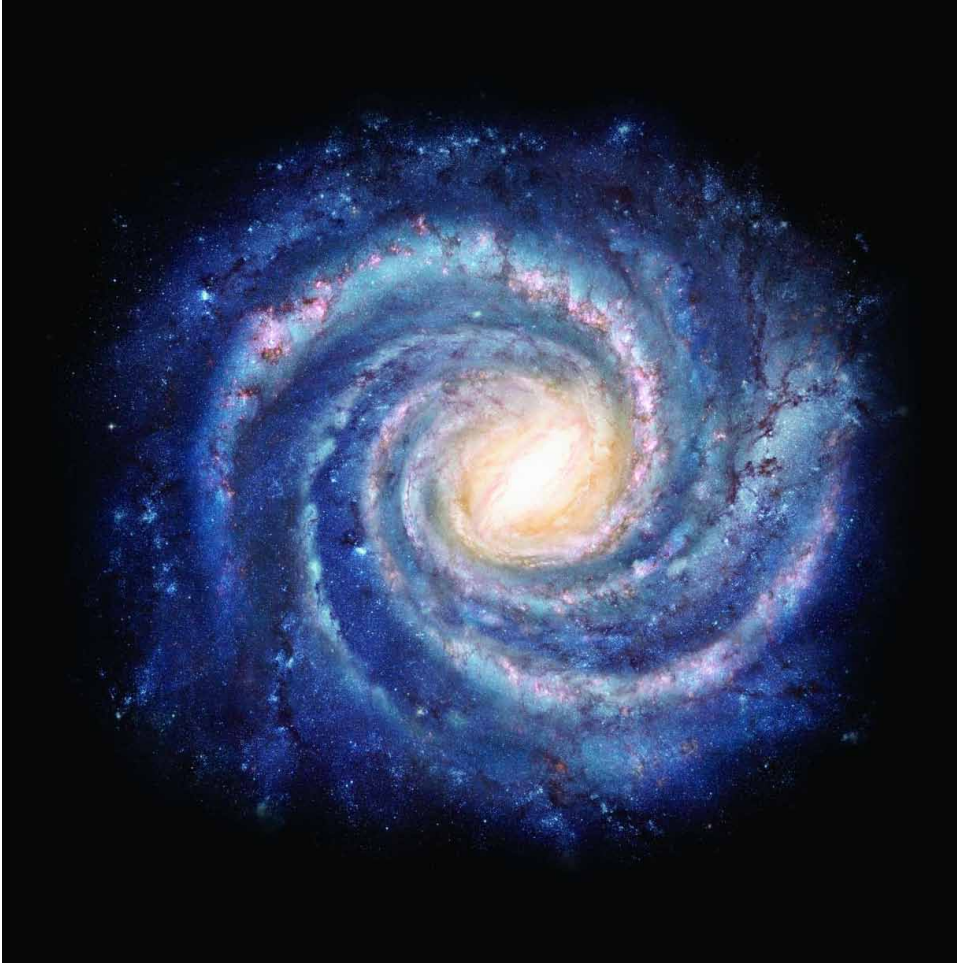


Figure 10.





*Figure 11.*



According to them, all celestial bodies in the universe move in perfect harmony with one another. Those who are far away from the earth tend to move faster and generate sharp sounds, while those who are close to it tend to move slower and generate sonorous sounds. The sounds made by the celestial bodies are concordant, thus forming an universal choir of harmony. (Fauvel, Flood & Wilson, 2006)

They also found that the pitch of a musical note is in inverse proportion to the length of the string that produces it, and that intervals between harmonious sound frequencies form simple numerical ratios. It is their belief that a visible and sensible universe is the highest form of beauty. (Piero & Richard, 2008)

*Figure 12.*



Scientists in later generations believe that this beauty of harmony contemplated by the Pythagorean school is a great discovery.

The beauty of harmony, according to the Pythagoreans, can be applied to all physical, mental and art-related activities, while the theory of harmony can be used to explain the composition and beauty of the universe.

As far as the Pythagoreans are concerned, everything is made in a certain geometric structure, namely the points, lines, planes and bodies. Therefore, even the earliest Greek aesthetics can be exemplified by the concepts of structure, shape and style. Furthermore, the beauty of harmony in numbers, according to them, is of epistemological and ontological significance.

When answering the question of what the most appropriate ratio is to cut a straight line, the Pythagoreans came up with the idea of golden ratio (the god's ratio) and figured out its approximate value, namely 0.618. It is fair to say that no art or artistic beauty would have ever existed without this ratio.

Since they perceived the world the same way they perceived a geometric structure, they had made ratio, scale, harmony, equality and order as the basic principles for aesthetic judgment.

Pythagoras and his theory on the harmony of the universe have made great contribution to the development of science and technologies in later generations, and have also inspired many scientists, including Ptolemy, Copernicus and even the great physicist Einstein. These scientists all based their own theories on the harmony of the universe.

By summarizing the ancient Greek aesthetics and the prominent figures thereof, we can easily come to the realization that:

First, the tremendous historical significance of the Greek civilization lies in the fact that it remains as the source and origin of many influential ideas and innovations. In their book *The Lessons of History*, famous American scholar and philosophy professor Will Durant and his wife Ariel Durant said:

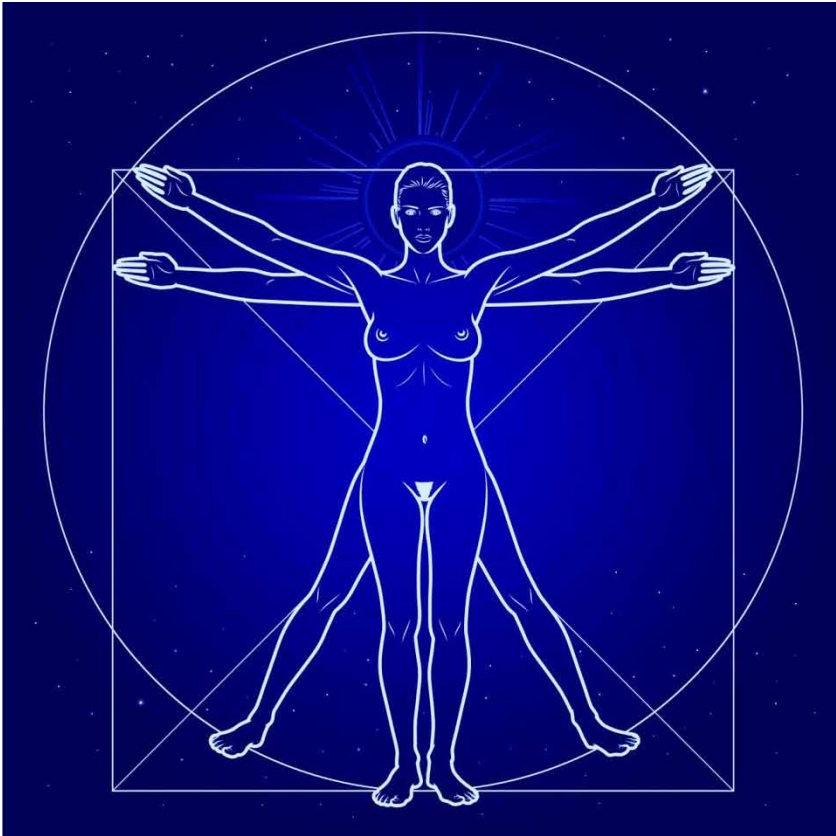
*Greek civilization is not really dead; only its frame is gone, and its habitat has changed and spread; it survives in the memory of race, and in such abundance that no one life, however full and long, could absorb it all.*

*Rome imported Greek civilization and transmitted to Western Europe; America profited from Europe civilization and prepares to pass it on, with a technique of transmission never equaled before.” “Such significance is even truer when it comes to Aesthetics. (Durant & Durant, 1968, pp. 93-94)*

Second, just as it is believed that “in various forms of Greek philosophy, we can find the embryo and germ of all kinds of after-world's view.” (Marx & Engels, 2009, pp. 188)

Similar statements can also be found from A.N. Whitehead who was quoted as saying that twenty-five thousand years of western philosophy is but a series of footnotes to Plato. (Whitehead, 1978, pp. 39)

Figure 13.



Third, numbers, from which all things are generated, are the origin of the universe. This idea is the earliest exposition of the cosmological systems aesthetics and an important guiding principle for even today's science, art and culture. It is in perfect consistency with today's systems science, systems philosophy and internet theory.

## MEDIEVAL AESTHETICS

Medieval aesthetics is by nature theology. It was believed in this age that the fundamental source of all beauties is God. Beauty lies in harmony and unity. God is theutmost beauty and the ultimate exemplification of harmony and unity, and the utmost beauty must be divine. God (not the gods in the Greek



**Western Aesthetics**

*Figure 14.*



*Figure 15.*



Figure 16.



myths, but the God in Christianity) thus becomes the regulator of beauty and all forms of artistic theology.

## AESTHETICS IN THE 17<sup>TH</sup> AND 18<sup>TH</sup> CENTURY

*“I think; therefore, I am”, an idea widely considered to be the first and foremost principle of aesthetics, was put forward by Rene Descartes. According to him, rationality, as the evidence of being, is the source and basis of all knowledge; while beauty, on the other hand, is the harmony among different structures and the balance between the whole and the segments. (Descartes, 2012)*

Beauty, according to British philosopher Francis Bacon, is an objective property, whose excellence is expressed by the strangeness in the proportion. The beauty of motion, in his opinion, is preferred to the beauty of stillness. (Bacon, 1985, pp.132)

Unlike Bacon, preeminent 18<sup>th</sup> century British philosopher David Hume (2012) rejected the objectivity of beauty and believed that beauty exists merely in the mind which contemplates them.

*Figure 17.*



The German thinker, philosopher and astronomer Immanuel Kant (2000) regarded beauty as a disinterested and free pleasure, which differs from physical or moral pleasure. He believed that beauty was “purposive without purpose”, and the purposiveness of beauty was the medium that linked the regularity and final purpose of an object. Art is by nature a “free game”.

Johann Wolfgang von Goethe (1980), another famous German thinker, pointed out that beauty lay in nature and nature was beauty. Art, in his eyes, is the imitation of nature, and can therefore be both natural and supernatural.

While Friedrich Schiller (1967), the renowned aesthetician, suggested that the sensuous drive and formal drive were two things that constituted human’s aesthetic value.

Hegel (1975), the master of western philosophy, believed that beauty was the sensuous expression of idea, while nature was the self-alienation of idea.

## **AESTHETICS IN THE 19<sup>TH</sup> CENTURY**

Arthur Schopenhauer (2014), the German philosopher, put forth the notion that “the world is my representation” and “the world is my will”. According to him, the essence of the subject is will and man’s thoughts and rationality are both the reflection of will. Will is everywhere and is the nature of the world.

Schopenhauer carried forward the theory of Form from Plato and the classical French philosophy, suggesting that beauty is the expression of Form (Idea).

Fellow German philosopher Nietzsche (1968) believed that there is only one world, where the will and representation are inseparable. Will is the nature of the world. Beauty and art are intoxication, that is, the over-great fullness of life.

French historian and critic Hippolyte Adolphe Taine (1873) held the view that art was affected by race, environment and era (la race, le milieu, le moment).<sup>1</sup>

## **MODERN AESTHETICS**

Modern aesthetics is represented by a series of schools featuring anti-tradition, anti-rationality and anti-metaphysics, with phenomenological aesthetics, hermeneutic aesthetics, existentialist aesthetics and pragmatist aesthetics being prominent examples.

Aesthetics, according to German philosopher Edmund Husserl, is the phenomenology based on the idea of “going back to the things themselves”. (Husserl 2001, pp. 168)

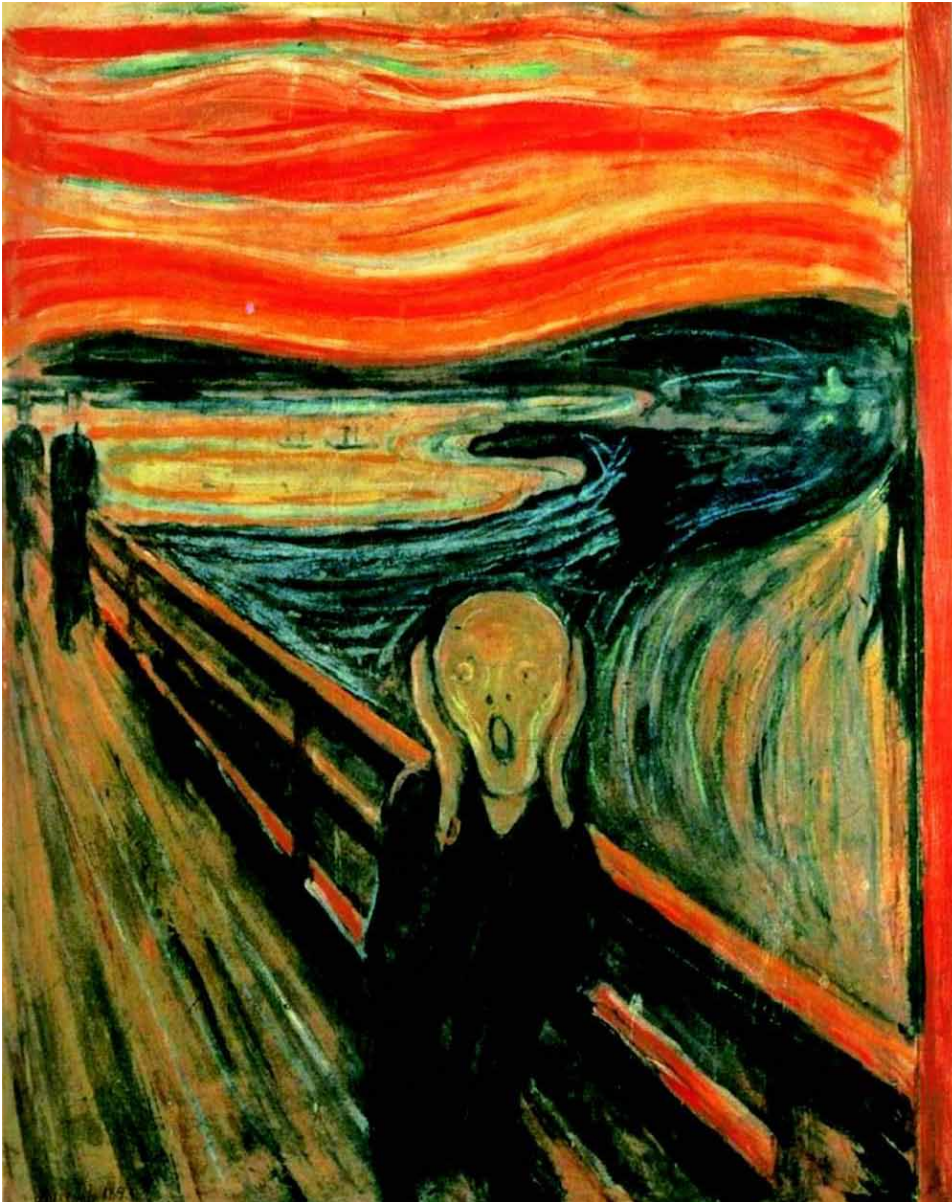
Martin Heidegger, the fellow German philosopher, did not answer what exactly beauty is, instead, he pointed out that aesthetics is “what determines beings as beings”. (Heidegger, 1962, pp. 6)

Jean-Paul Sartre, the famous French philosopher in the 20<sup>th</sup> century, believed that art and beauty were essentially a world made by imagination where being-in-itself and being-for-itself were integrated. (Sartre, 2004)

Theodor Lipps, the German psychologist and philosopher, is a firm proponent of the theory of empathy. While Austrian psychologist Sigmund Freud developed the aesthetics featuring the impulsion, repression and sublimation of people’s instinct.



*Figure 18.*



Modern art seems to be contingent, arbitrary and uncertain, and primarily concerned with random mental activities as if people's life and mentality is all about all about entertainment and fun. They can hence be seen as surrealistic. Schools such as Romanticism, Fauvism, Dadaism, Pop art and

Figure 19.



Graffiti art all belong to modern art, with imagination, mockery, comedy as well as dissoluteness as their features.

For example, there was this show in which three naked women painted themselves with all kinds of colors and rolled their painted bodies on a big canvas to form various patterns and traces. This, as far as modern art is concerned, can be called as an artwork.

The most typical way of making modern artwork is to construct all kinds of outlandish images and pictures by utilizing different visual, audio and electronic technologies, so that people's emotion, desire and will can be magically integrated like in a kaleidoscope. The principle of modern artists is: resistance is the norm and art is an extreme way to vent emotion and desire.



Figure 20.



Purposeless intoxication, purposeless madness and purposeless fun have made art and beauty a game played on a “bottomless chessboard”<sup>2</sup>, in which the world of art is destroyed by nihilism. Modernism and post-modernism underpinned by novelty and distinction is the combination of madness and illusion. Together, they have pushed nihilism all the way to the apex from which there’s no turning back.

Like a group of counterfeit artwork dealers, Post-modernists put forth the concept of “the death of god, the death of human, and the death of subject (namely the death of writer and reader)” in an attempt to live up to their slogan: painting is no painting.

Such concept was vividly exemplified by Marcel Duchamp, the French painter who name a urinal “fountain” and thus ironically broke the fine line between life and art.

Moreover, Duchamp rejected traditional beauty and art. By adding a moustache on Mona Lisa, he rendered his sarcasm as rude as it could ever be.

Figure 21.



In this sense, consumers can purchase any artwork regardless of its authenticity since it simply doesn't matter anymore.

In the long history of western aesthetics, beauty has been interpreted by many philosophers in different ways:

According to Anaximander, beauty lies in the entirety of things; to Pythagoras, it is all about harmony; to Socrates, the foundation of beauty is virtue. Bacon, on the other hand, argued that beauty was an objective quality; and Goethe suggested that beauty lay in nature and nature was beauty. These philosophers all hold the view that beauty is part of nature as nature itself is beautiful. Therefore, they all belong to the naturalist school.

However, many other philosophers think otherwise. Plato, for example, put forth the theory of Form. Hegel, on the other hand, believed that beauty was the sensuous expression of idea. Voluntarist philosophers and aestheticians such as Schopenhauer and Nietzsche replaced objective beauty, artistry and utility with sensibility, will and idea. These philosophers all rejected the natural quality of beauty and their inheritors all went on the road of nihilism.

After the collapse of Hegel's philosophical system in the 19<sup>th</sup> century, philosophy fell into crisis. Yet neither philosophy nor aesthetics faded away.



Instead, they evolved into systems philosophy and aesthetics as they were always supposed to be.

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## ENDNOTES

- <sup>1</sup> By “race” he meant the inherited disposition or temperament that persists stubbornly over thousands of years. By “milieu” he meant the circumstances or environment that modify the inherited racial disposition. By “moment” Taine meant the momentum of past and present cultural traditions.
- <sup>2</sup> In his book *Force et signification*, French philosopher Jacques Derrida offered the metaphor of a “bottomless chessboard”, to which “there is no meaning beyond itself, no deep, underlying ground that supports it and speaks through it”.

## Chapter 2

# Chinese Aesthetics

### ABSTRACT

*This chapter studies the development and basic ideas of Chinese aesthetics by reviewing the history of aesthetic perspective from the Han Dynasty; the Wei, Jin, and Southern and Northern Dynasties; the Tang Dynasty; the Five Dynasties; the Song and Yuan Dynasties; and the Ming and Qing Dynasties. The ancient Chinese artists pursued the artistic conception of beauty, namely, the integration of mind and objects, sentiments, and scenes, and the fusion of subjective emotions and objective landscape. Nevertheless, this conception overlooks the function of practice, the intermediary between mind and objects. Actually, there are three fundamental elements: emotion (first feeling) of aesthetic subjects; artistic conception sensed through the painting brush in practice (perception); poetry, books, songs, and paintings as artistic finished products (containing essence and sentiments). It is the combination, conformity, and harmonious co-existence of these three essentials (namely subject–practice–object) that constitute the art system aesthetics or design aesthetics.*

### INTRODUCTION

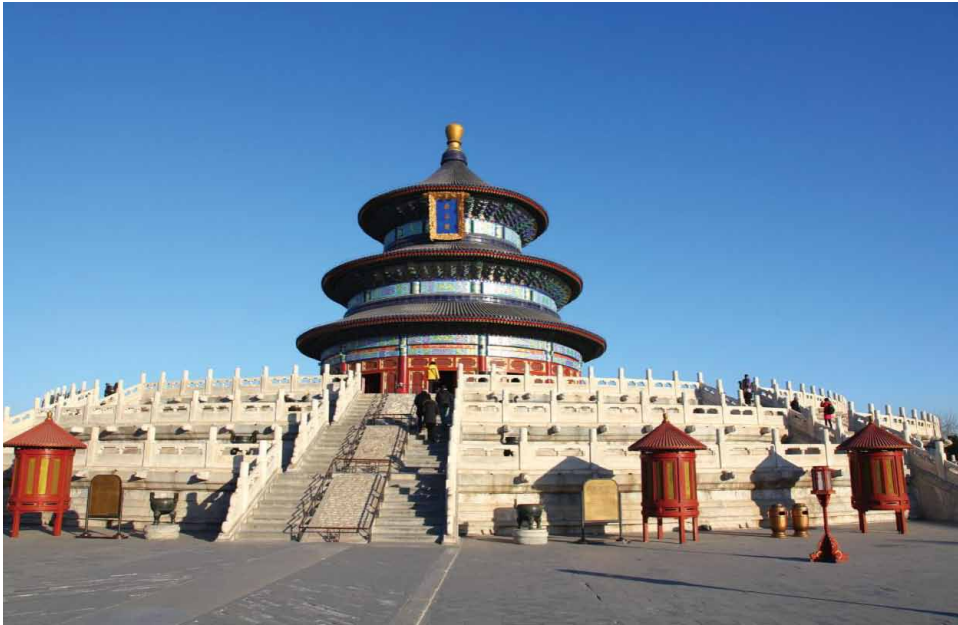
As an old Chinese saying goes, everyone has a heart of beauty.

However, only a few Chinese have made a thorough study of the aesthetic theories in China since ancient times. Liang Qichao (1922), a Chinese scholar who inspired other Chinese scholars with his writings and reform movements, once said that Chinese culture was characterized by generality, arbitrariness,

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*Figure 1.*



conventionalism and hypocrisy, and could only be sensed rather than being explained.

From Western aesthetics scholars' views, there is no real aesthetics but only some fragmented aesthetic discourses in China. The beginning of the 20th century marked the commencement of the formal study of aesthetics in China, since Chinese scholars began to introduce the concept of aesthetics from Japan and translated a lot of books on Western aesthetics.

But actually, the origin of Chinese aesthetics was rooted in the Spring and Autumn period (from approximately 771 to 476 B.C.), when other schools of thoughts and philosophy also began to emerge in China.

This is in line with the German scholar Karl Theodor Jaspers' famous proposition of *Achsenzeit* (Axial Age, from 800 to 200 B.C). According to him, major breakthroughs took place in various civilizations in this era as great spiritual mentors emerged in these civilizations, including Socrates, Plato and Aristotle in ancient Greece, Jewish prophets in Israel, Shakyamuni in ancient India, and Confucius and Lao Zi in China, etc. Their ideological principles shaped different cultural traditions and continued to influence the thought and practice of all societies. (Jasper, 1953, pp 1-25)

Figure 2.



The “awakening of the ultimate concern” in the Axial Age in the human history is the “mutation” happened when the social system evolved to a certain stage, and completely changed the process of human society.

Then, the further expansion and development of China’s aesthetic thought took place in the Wei and Jin period (from 220 to 420 BC) and Southern and Northern Dynasties (from 420 to 589 BC). This is the second mind liberation in China.

After the Spring and Autumn period, the Warring States Period (from 476 to 221 BC) and the Qin Dynasty (from 221 to 207 BC) when China achieved unification, China’s aesthetic thoughts converged into Chinese classics such as *Lao Zi* (also referred to as *Tao Te Ching*), *Zhuang Zi* and *Zhou Yi* (also known as the *Book of Changes*).

Lao Zi established a system of philosophy which centered on Tao (natural order of the universe), and brought up philosophical concepts such as Tao,

Qi (the life breath), semblance, being, nothingness, existence, nonbeing, hollowness and truth and so on. Lao Zi's ideological system exerted enormous influence on China's philosophy and aesthetics and even contemporary Chinese philosophy and aesthetics are inseparable from it. In the Chinese classics *Dao De Jing* (Lao Zi, 2007):

1. The Tao is the original "chaos". Lao Zi believed that "there was something undefined and yet complete before the universe was born." This view is in accordance with the principles of contemporary cosmological models and singularity theory, which hold that the universe was in a zero-space-time quantum state where time and space were both zero and the radius of the universe was also zero.
2. The Tao produces one; one produces two; two produces three; three produces all things. Thus, the universe came into formation, and then emerged galaxies, the Sun, the Earth, the human beings and so on. This view conforms to contemporary physics, cosmology, biology, etc., if we replace the Tao with singularity;
3. The Tao follows nature, which refers to the self-organization and self-evolution of nature. Driven by the principle of time- and energy-conservation, nature evolves automatically without the need of any external force. This view conforms to the contemporary system theory;
4. The Tao is the unity of being and nonbeing and of yin and yang, just like the unity of elements at a singularity point;
5. Lao Zi's concepts, such as Tao, Qi, semblance, being and nonbeing, solid and void, beauty and ugliness, easy and difficult, long and short, high and down and cleaning always all distracting thoughts and keep the heart and soul as pure as mirror with a flaw, all play a positive role in philosophy and aesthetics.

Such thoughts and concepts have profound influenced the aesthetic theory and the thought of following generations, especially the combination and unity of solid and void, beauty and ugliness, good and evil, and the proposal of cleaning always all distracting thoughts and keeping the heart and soul as pure as mirror with a flaw, which become crucial categories in Chinese aesthetics.

Another example is the Chinese painting. One of the important features of the Chinese painting is the combination of the stroke and the blank. These two symbolize the solid and void and become the basic elements in Chinese painting.

Figure 3.



Besides, Chinese calligraphy also stresses “blank”. Chinese architecture, garden, art, drama and so on all follow the principle of solid and void, which has become one of the most important characteristics of Chinese art.

Zhuang Zi believed that Tao was the highest absolute beauty. Though beauty and ugliness are relative, they are both Qi in essence and the “great beauty” between heaven and earth is Tao. Tao is the essence of the universe, the objective existence and the ontology of the philosophy and aesthetics.

According to Zhuang Zi, “(The operations of) Heaven and Earth proceed in the most admirable way, but they say nothing about them; the four seasons observe the clearest laws, but they do not discuss them ; all things have their complete and distinctive constitutions, but they say nothing about them. The sages trace out the admirable operations of Heaven and Earth, and reach to and understand the distinctive constitutions of all things; and thus it is that the Perfect Man (is said to) do nothing and the Greatest Sage to originate nothing, such language showing that they look to Heaven and Earth as their model.” (Legge, 1962, Part I, pp. 60)

These views of Zhuang Zi are like those of the ancient Greeks, who believed that the universe was the greatest and absolute beauty. Moreover, Zhuang Zi believed that, to achieve the “absolute beauty and joy” and high-degree freedom, the only way was to abandon all selfishness and personal considerations, and achieve the state of “no (thought of) self, none of merit, none of fame.” (Legge, 1962, Part II, pp.169)

According to him, if the beautiful one is only too aware of her own beauty, we don’t think of her as beautiful; if the ugly one is only too conscious of her own ugliness, we don’t think of her as ugly. In another word, beauty can be



converted to ugliness if a beautiful individual admires his or her own beauty too much and ugliness can be converted to beauty if an ugly individual recognizes his or her ugliness. Beauty and ugliness, both of which are essentially Qi, can be converted to each other in certain conditions without an absolute border. Characterized by the mentality of transformation and evolution, these theories are extraordinarily clear and interesting, known as the primary stage of contemporary black-or-white thinking.

Zhuang Zi proposed the concept of “mind nourishing” or “heart-mind fasting”, a state of deep trance or intense absorption, during which no trace of ego-identity is felt and only the underlying cosmic current of the Dao is perceived as real. This concept exerts a significant impact on the Chinese aesthetics, particularly in the Wei, Jin and Southern and Northern Dynasties.

The philosophical system centered by Yin-Yang theory in *Zhou Yi* represents the philosophical thinking in Pre-Qin Period. Similar to *Laozi*, *Zhou Yi* perceives the world in ceaseless change, holding that “the daily renovation which it (Tao) produces is what is meant by ‘the abundance of its virtue.’ Production and reproduction is what is called (the process of) change.” (Legge, 1963, pp.356)

That is to say, the world is in dynamic change through the conversion between Yin and Yang. The following sentence also indicates the similar ideology: “When a series of changes has run all its course, another change ensues. When it obtains free course, it will continue long.” (Ibid. pp. 383)

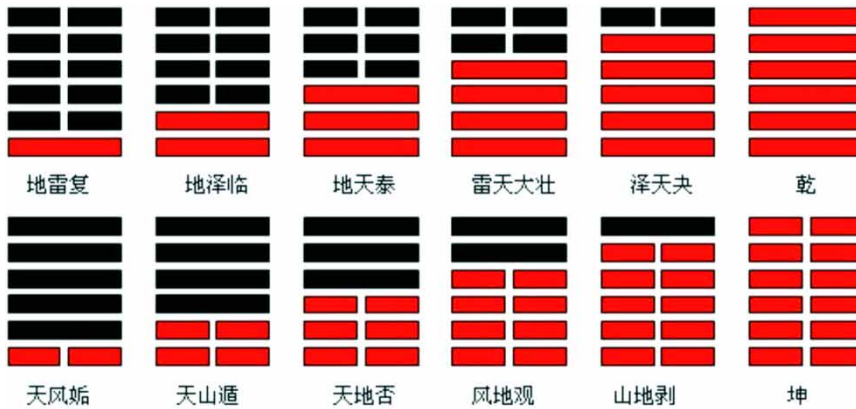
*Zhou Yi* indicates that change occurs in the conversion between Yin and Yang, which are two extremes that create all things in the world through their interaction. Inheriting Lao Zi’s theory, the ideology of Yin and Yang’s being opposite and complementary to each other has influenced China for over two thousand years, and it can even find itself in our current black-and-white thinking.

*Zhou Yi* puts forward the propositions of “making emblematic symbols to set forth fully one’s ideas” and “establishing emblematic symbols by observing objects”, both of which exert tremendous influence on the formation of aesthetics. (Ibid, 376)

The school of philosophy represented by *Lao Zi*, *Zhuang Zi* and *Zhou Yi* proposes the ideology of structure and spatial-temporal ordering, an excellent ideology particularly stressed by *Zhou Yi*.

According to *Zhouyi*, the Eight Trigrams, the overlapping of which produces Sixty-four Hexagrams, consist of two types of Yao (Yao is a basic sign of Sixty-four Hexagrams): Yin Yao (--) and Yang Yao (—). Three Yaos are combined and sequenced each time. For example, Zhen Trigram (☳), Gen

Figure 4.



Trigram (䷂) and Kan Trigram (䷁) are all combined by one Yang Yao (—) and two Yin Yaos (--). The number of Yaos to form a trigram is the same, but their sequences can be different. Different combination and sequence convey different meanings and produce different things. A high-degree mixture of the idea of contradiction and systems thinking makes *Zhouyi* intriguing, but highly incomprehensible among ordinary people. (Ibid)

The thinking of spatial-temporal ordering is tremendously precious because it echoes the contemporary systems thinking.

It is widely known that the nature of things is determined by structure, which depends on three aspects of element. The first aspect is the characteristics of element; the second one is the average scale and expansion efficiency of element's quantum fluctuation; the third one is the way to connect elements, namely the order of space and time (briefly known as spatial-temporal quantity or spatial-temporal ordering). Generally, these three aspects, the interaction of which decides the structure's nature, play different roles in determining the structure and nature of a system.

This thinking of spatial-temporal ordering was already proposed by our ancestors over two thousand years ago, which is a very remarkable achievement.

The Yin-Yang dualism is prominently shown in Chinese aesthetics thoughts, such as “the Tao of the world solely lies in Yin (softness) and Yang (firmness)” (Xu, 2009, pp. 186). Here is an excerpt of an article that embodies this theory: “Literature, which embodies the essence of Heaven and Earth, is where Yin, Yang, Firmness, and Softness is manifested. For (a man of letters) endowed with the duende of Yang and Firmness, (his) works of literature will strike like thunder, like lightning, like a galloping horse,

like high mountains and lofty peaks, like a gale gusting past a valley, and like a river that comes bursting out through (the debris of its) barrier. The brilliance of [his] works will be comparable to a bright sun, to fire, and to iron gilded with gold.” (Ibid) It seems that all types of beauty, ranging from that of nature to that of art and design, are all composed by two extremes. But obviously such a proposition is highly partial and inaccurate, because similarity can also be found in the formation of things.

*For [a man of letters]*

*endowed with the duende of Yang and Firmness, [his] works of literature will strike like thunder, like lightning, like a galloping horse, like high mountains and lofty peaks, like a gale gusting past a valley, and like a river that comes bursting out through [the debris of its] barrier. The brilliance of [his] works will be comparable to a bright sun, to fire, and to iron gilded with gold.*

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The philosophy and aesthetics demonstrated by *Lao Zi*, *Zhuang Zi* and *Zhou Yi* have had an enormous impact on the thoughts and acts of generations of Chinese. This impact is as profound as the entrenched influence of

Figure 5.



Confucianism on the development of Chinese politics, ethics, literature, art and society. Confucianism led by Confucius and Taoism by Lao Zi have been interconnected since their birth and have determine Chinese people's destiny for thousands of years, as well as their ways of thinking and their aesthetic paradigm.

Confucius argued that art should be "benevolent". He linked art with social education and emphasized that "beauty" and "kindness" were unified,

with “beauty” as the form and “kindness” as the essence. From Confucius’s perspective, art should be beautiful with its ideas being kind, so as to achieve benevolence in both “form” and “essence”.

Confucius (2010) insisted that “The wise find pleasure in water; the virtuous find pleasure in hills. The wise are active; the virtuous are tranquil. The wise are joyful; the virtuous are long-lived” (pp.50). This statement shows that a wise man can adapt himself to the environment and enjoy his life, and live and act with freedom and openness like flowing water; while an ethical and moral man is as splendid as a high mountain, capable of knowing himself well and living for a long time.

In the *Analects of Confucius*, Confucius described morality as “greatness”. “Great indeed was Yao (king of the Xia Dynasty from approximately 2070-1600 BC) as a sovereign! How majestic was he! It is only Heaven that is grand, and only Yao corresponded to it. How vast was his virtue! The people could find no name for it. How majestic was he in the works which he accomplished! How glorious in the elegant regulations which he instituted!” (Ibid, pp. 70) This excerpt shows the connection among aesthetics, morality and personal quality established by Confucius, and the connection between aesthetics and movements, as well as that between happiness and longevity.

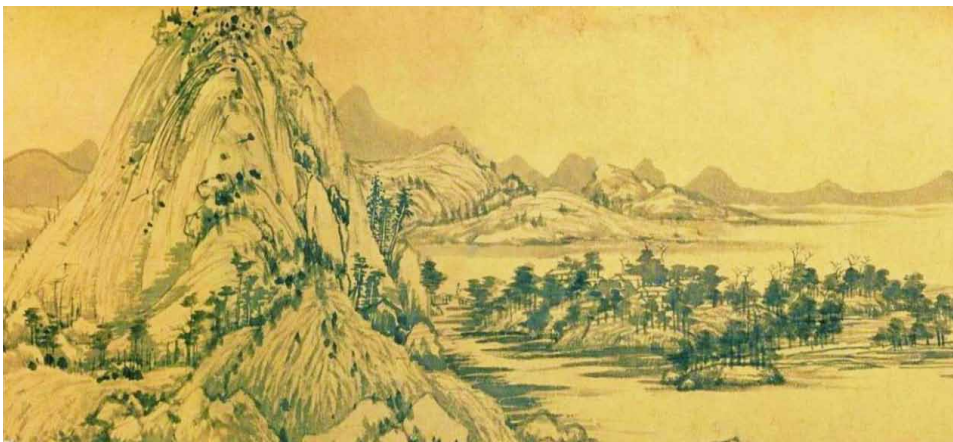
In terms of the functions of poetry on society, Confucius clearly proposed the concepts of “stimulation, contemplation, communication, and criticism.” Through “stimulation”, people can be mentally inspired and advance bravely; through “contemplation”, people can learn about the society and the author; through “communication”, people can exchange opinions, maintain cooperation and coexist in harmony; through “criticism”, a great diversity of opinions can be expressed, a sign of social tolerance

These four concepts proposed by Confucius are doubtlessly interconnected and indicate the social functions of culture and art from all aspects.

According to the *Analects of Confucius—Internal Benevolence*, being benevolent and honest is a symbol of kindness, and staying with people of morality shows one’s integrity (Ibid). The beauty indicated here is that of ethics and morality, as being reflected by views such as “the superior man shall seek to perfect the admirable qualities of men and refrain from encouraging their bad qualities,” which means that the righteous helps people do good things and never encourage wrongful deeds. In this case, beauty and kindness are the same.

Mencius also suggested that “He whose goodness has been filled up is what is called beautiful man”, that is, a man of virtue.

Figure 6.



The aesthetics of Confucius and Mencius is confined to the understanding of things, namely the epistemology of aesthetics, which is different from that of Lao Zi and Zhuang Zi, who specified that Tao is the supreme and absolute beauty and the greatest beauty between Heaven and Earth is Tao.

Lao Zi and Zhuang Zi's view that Tao is the greatest aesthetic beauty coincides with the ancient Greek's view that the cosmos is the greatest beauty and that the greatest beauty and happiness are accessible. However, this aesthetic thinking of Lao Zi and Zhuang Zi failed to be inherited by future generations, who would encounter difficulty in developing it due to the non-scientific and non-rational essence of Tao .

The above-mentioned thought of Zhuang Zi is exactly the cradle of the Chinese aesthetic ontology, and the birthplace of Chinese natural beauty. The Western aesthetics is based upon natural science, while the Chinese aesthetics is based upon uncertain concept. This is, we shall say, the essential difference between the two. But both agree that the cosmos is the greatest beauty.

The Chinese aesthetics is traditionally considered to be the presentation of ideas, the creation of context, and the combination of sentiments and surroundings, which belongs to idealism. By contrast, the western aesthetics is the recreation and lifelikeness of materials, which belongs to materialism. Nonetheless, both views are narrow and partial. For example, the western aesthetics of vivid recreation is the most natural, reasonable and charming way to show natural beauty, while the idealist and contextual Chinese aesthetics fits in for the creation of the beauty of art and beauty of design, but not appropriate for natural beauty. Therefore, we may say that different

types of beauty should be presented with different methods. The problem is that neither Chinese nor western aestheticians tell of the difference between the beauty of nature, art and design.

## AESTHETICS IN THE HAN DYNASTY (FROM APPROXIMATELY 202 TO 220 BC)

Representative works on aesthetics in this period include *Huai Nan Zi* (Huai Nan was a vassal state in the Han Dynasty) compiled by writers led by Liu An, the king of Huainan, and *Lun Heng* (*the Theory of Balance*) by Wang Chong, both of which broke the limitation set by Confucianism, insisted on Huang-Lao ideology and embraced Lao Zi and Zhuang Zi's philosophy again. For instance, the pair of concepts of form and spirit evolved into the theory of "Form and Spirit" in the Han Dynasty, which in the Southern and Northern Dynasties further evolved to become "excellently convey the spirit and exquisitely portray the image of a figure."

Both *Huai Nan Zi* and *Lun Heng* inherited the concept of Qi by Lao Zi and established their own theory of "natural pneuma", holding that everything stems from such "natural pneuma", and all things are produced with the Qi from Heaven and Earth. They believed that "the convergence of Qi of Heaven and that of Earth gives life to all things." (The Editorial Committee, 2015, pp. 45)

What's more, they acknowledged that beauty is objective and relative. For example, people believed that beauty can be found even in Momu, a legendary ugliest woman in Chinese history, and imperfection can be detected even in Xishi, a gorgeous beauty in Chinese history. Another example is that beautiful women have different figures and facial features, which shows the diversity of beauty. Of course, such description only applies to artistic beauty, instead of natural beauty.

Wang Chong proposed the unity of truth, goodness and beauty and believed that art should be both true and useful. He pointed out in *Lun Heng* that only truth can lead to beauty and insisted on the unity of these three components. Wang Fuzhi and Ye Xie in the early Qing Dynasty also agreed to such unity, even though it is only in a primary stage.

## AESTHETICS IN THE WEI, JIN PERIOD (FROM 220 TO 420 AC) AND SOUTHERN AND NORTHERN DYNASTIES (FROM 420 TO 589 AC)

The study of Confucian classics in the Han Dynasty was characterized by rigidness and dogmatism. Confucianism in that form can neither be applied to ruling the country or maintaining stability, nor serve as a shortcut for achieving fame and fortune. Therefore, people started to find a substitute for it.

A series of theoretical works with respect to aesthetics stood out in this period, such as the *Classics Criticism* by Cao Pi, *Theory of Emotionless Music* by Ji Kang, *The Literary Mind and the Carving of Dragons* by Liu Xie and *Literature Theory* by Lu Ji.

Influenced by Xuanxue, also known as Chinese metaphysics, the development of the aesthetics in the Wei, Jin and Southern and Northern Dynasties was a resurgence of Lao Zi and Zhuang Zi's philosophy. After its evolution during the Han Dynasty and the reign of Wang Mang, Confucianism had proven to be capable of neither revitalizing the country nor enriching people. Under this condition, Taoism started to be used to explain Confucian classics. Such combination of Confucianism and Taoism gave birth to "Xuanxue", a special ideology that is seemingly Confucian but essentially Taoist, which became nationally popular at that time. At that era featuring mind liberation, the study of Confucian classics and the authority of a single sage was replaced by Xuanxue and the competition of various sages, and Lao Zi replaced Confucius as the cultural leader.

In fact, the emergence of Xuanxue indicates the failure of Confucianism as a "national religion".<sup>1</sup> For example, regarded as the "first socialist in China", Wang Mang showed faithful adherence to Confucianism, but ended up with the greatest failure ever been seen.<sup>2</sup> Wang Mang's failure meant that Confucianism and its theory had failed, but successors did not take this lesson, so ideologically China would still be under the ceaseless reign of Confucianism.

The emergence of Xuanxue in the Wei, Jin and Southern and Northern Dynasties was a movement of mind liberation. In light of Confucianism's failure to fulfill its political goals, such as the failure to eliminate academic corruption during the reign of Wang Mang, people naturally turned to Lao Zi and Zhuang Zi's philosophy. Such shifts in public belief had a huge impact on all fields of the society, including Wang Xizhi's calligraphy, Gu Kaizhi's



Figure 7.



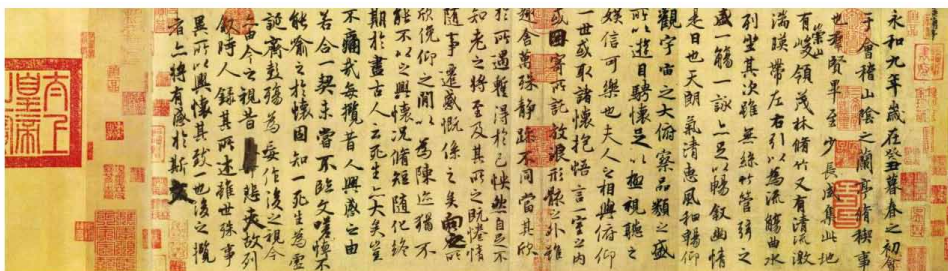
paintings, poems of Cao Zhi, Ruan Ji, Tao Qian, Xie Lingyun and Xie Yao, and the Buddha statues in Yungang and Longmen Caves, etc.

Taken as three bibles of Xuanxue in the Wei and Jin Dynasties, *Lao Zi*, *Zhuang Zi* and *Zhou Yi* were all highly praised by both political figures and artists. *A New Account of the Tales of the World* is the right example to explain the characteristics of Xuanxue in the Wei and Jin Dynasties.

The focus of Xuanxue shifted from the moral goodness and beauty emphasized by Confucianism to the vigor, grace and glamour of people. Similarly, the focus of the public shifted from the political functions of the theory to its artistic and aesthetic functions.

As for calligraphy, more importance was attached to freestyle than pragmatism. And when it came to aesthetic taste, it was more popular to describe a person with the natural beauty than virtue standards since the natural beauty itself started to be commonly appreciated, as being shown in *The Ode to the Goddess of the Luo River* by Cao Zhi. Zhuang Zi once proposed that “words are employed to convey ideas; but when the ideas are apprehended, men (can) forget the words” (Legge, Part II, pp. 141), which was further developed by Wang Bi, a scholar on the Xuanxue of the Wei and

Figure 8.



Jin Dynasties, who held that “the symbol can be forgotten when meaning is perceived”. (Wang, 2002, pp. 382)

The *Discourse on the Nature of Sounds As not Having Sorrow or Joy* written by Ji Kang, a famous thinker, musician and writer in the Wei and Jin Dynasties, intended to convey that the essential beauty of music lies in its form instead of the sentiments it conveys, which seems excessively negative.

Gu Kaizhi, a painter, painting theorist and poet of the Eastern Jin Dynasty (from 1115 to 1234 AC), laid great stress on paintings’ “vivid portrayal of spiritual (characters),” which suggest that painters should “convey the spirit through images.” (Bush & Shih, 2012, pp. 33-34) “Vivid portrayal of spiritual (characters)” means that painters ought to grasp an object’s internal spiritual charm by breaking through the shackle imposed by its external form before starting to paint. “Convey the spirit through images” indicates that painters should express an object’s spirit more vividly through good description of its artistic image during aesthetic creation. These two propositions show how aesthetic conceptions are materialized to aesthetic creation. They demonstrate Gu Kaizhi’s aesthetic view on and aesthetic pursuit of “form” and “essence” (spirit) in difference phases of figure painting,

Xie He, a painter of the Southern Qi era, can be regarded as the earliest painting theorist by putting forward the six principles of Chinese painting in the book *Critique of Ancient Paintings*. These principles are as follows:

First, “Spirit Resonance”, or vitality, which refers to the flow of energy that encompasses theme, work, and artist; Second, “Bone Method”, or the way of using the brush, which refers not only to texture and brush stroke, but to the close link between handwriting and personality; Third, “Correspondence to the Object”, or the depicting of form, which would include shape and line; Fourth, “Suitability to Type”, or the

Figure 9.



application of color, including layers, value and tone; Fifth, “Division and Planning”, or placing and arrangement, corresponding to composition, space and depth; Sixth, “Transmission by Copying”, or the copying of models, not only from life but also the works of antiquity. (Liu, 1957)

These six principles were important to the Chinese aesthetics and came to serve as the standard for the evaluation of ancient Chinese paintings.

In terms of painting, the aesthetics in the Wei, Jin and Southern and Northern Dynasties, enormously influenced by the three classics, *Lao Zi*, *Zhuang Zi* and *Zhou Yi*, was remarkably philosophical. For example, Wang Wei, a painter of the Southern Song Dynasty (from 1127 to 1279 AC) and the author of *The Depiction of Painting*, an important literature regarding early landscape paintings, expressed in the book that one could use one small brush to draw the infinite vacuity (the universe in its undifferentiated state) (Wang, 2003, pp.24). This resonated with what Wang Xizhi said in *Langting Xu* (*Preface to the Poems Collected from the Orchid Pavilion*), “on looking up we responded to the vastness of the universe, and on bending down were



Figure 10.



struck by the manifold riches of the earth”, both of which indicate painting’s capability of presenting a “diverse world” and sensing the true feelings towards the Heaven and the Earth. (Wang, 1977, pp. 8-9)

Basically, the western aesthetics stresses “recreation”, “simulation” and “lifelikeness”, while the Chinese aesthetics emphasizes “expressiveness”, “expression of sentiments”, “free sketch” and “artistic conception”. In conclusion, the former is roughly regarded as the “recreation of reality”, while the latter is deemed as the “expression of implicit meanings”. But such classification of the aesthetics is partial and leaves room for further discussion, because it ignores the fact that the beauty of nature, art and design should be expressed in different ways.

Liu Xie, a literary theorist in the Southern and Northern Dynasties, occupied an important position in Chinese literary history for his book *The Literary Mind and the Carving of Dragons*. Liu was in favor of the theory of Yin Xiu, with Yin referring to the recondite elements of a literary composition, or the weighty ideas beyond expression, and Xiu referring to the conspicuous, or

*Figure 11.*



the startling excellencies in the piece. This theory provided a more profound interpretation of “the sentiment and ideas beyond linguistic expression” and emphasized the unity between Yin and Xiu.

The “wind and bone” (content and language) emphasized by Liu Xie attaches equal importance to both the content and language of a literary piece, which serves as a summary of artistic style as well as a requirement for artistic beauty.

The theory of “spiritual thought or imagination” held by Liu Xie put emphasis on the mutual impact and conversion between imagination and physical things, which marked a huge progress from the theory of “establishing emblematic symbols by observing objects” prevailing in the Pre-Qin Period and the theory of “acquiring inspiration through the incorporation of painter’s subjective imagination to an object” that was popular in the Wei and Jin Dynasties. (Liu, 2015)

*Figure 12.*



Figure 13.



From Liu Xie's perspective, it is difficult to find a "soul mates" in terms of art, since people tend to "value the ancient and despise the modern", "esteem themselves and look down upon others" and "be blind to truth and credulous of falsehood". Liu argued that the essence of art is Yi Xiang (idea-image)<sup>3</sup>, which exerted a positive impact. (Ibid)

## **AESTHETICS IN TANG DYNASTY (FROM 618 TO 907 AC) AND FIVE DYNASTIES (FROM 907 TO 979 AC)**

Paintings in the Pre-Tang China were colored. Wang Wei, a renowned poet of the Tang Dynasty, was the first ink painter in Chinese history, who drew uncolored landscapes with Chinese ink. Influenced by Taoist and Zen Buddhist philosophy, Wang Wei believed that Tao and "mystery" were the purest elements containing and producing five colors of the nature, and that the color of Chinese ink is closest to Tao and "mystery", namely the essence of nature (Huang, 1993). This view influenced the painting of future generations greatly.

Jing Hao, a painter of the Five Dynasties, proposed “six essentials of painting” in *A Conversation on Methods*, his famous theoretical work of ink painting. These six are respectively vitality, rhythm, thought, scenery (motif or subject matter), brushwork and ink-work. Jing believed that the color of Chinese ink is closest to that of nature and thus the idea-image of landscape in ink paintings can be “true”. Therefore, the “true” of the Chinese aesthetics, which represents Qi and Tao, namely the vitality of the nature itself, is not identical with that of the western aesthetics. (Xu, 2010. pp.249) Jing Hao’s view shows that the theory of Qi and Tao can be traced back to a long time ago and has had long-term impact on the Chinese aesthetics. It is, however, a self-deception.

Bai Juyi, a famous poet of the Tang Dynasty, held that poems can “express the inner thoughts and feelings of the people” and help the government to “examine the politics of the times”. Reflecting common people’s suffering and rampant corruption of the ruling class, Bai’s poems, among which *New Yuefu Poetry* and *Song of a Pipa Player* stand out, were widely popular with the country and achieved remarkable prestige.

Yin Fan, a writer of the Tang Dynasty, proposed the concept of Xing Xiang, namely “the employment of evocative images” for the first time in *He Yue Ying Ling Ji* (the Collection of 234 Tang Poems from 714 to 753), which required poetry to come to be naturally wonderful. (Chen, 2007, pp. 468)

Wang Changling, a famed poet of the Tang Dynasty, was good at the capture of typical scenes with a high degree of generalization and great imagination. He put forward the three realms of poem in his article *Poetry Style*: physical conception, emotional conception and artistic conception. Physical conception is to depict the landscape; emotional conception is to integrate one’s sentiments to the scene; artistic conception is to express one’s ambition through objects. (Zhou, 1991, pp.19)

The *Twenty-Four Modes of Poetry* by Sikong Tu, a poet of the late Tang Dynasty, reflects Lao Zi’s philosophy that the essential of cosmos is Tao and represents the aesthetic essence of “artistic conception”. For example, Su Dongpo suggested that the artists should “visualize the complete bamboo in their heart and thought,”<sup>4</sup> and “transform their bodies into bamboos entirely” prior to painting a picture of bamboo. He also put forward the concept of “all artistic conceptions being expressed in non-being”. The “non-being” here is Tao, namely the “nothingness” proposed by Lao Zi, which is materialized to blankness in Chinese paintings. Painters of the Song Dynasty valued the creation of “artistic conceptions”. Su Shi (Su Dongpo) gave more credit to Wang Wei’s paintings than Wu Daozi’s exactly because of the excellent



Figure 14.



Figure 15.





“artistic conception” in former ones. (Wu Daozi was a celebrated painter of the Tang Dynasty excelling at fresco.)

## **AESTHETICS IN THE SONG DYNASTY (FROM 960 TO 1279 AC) AND YUAN DYNASTY (FROM 1271 TO 1368 AC)**

People in this period paid more attention to “sentiments and scenes”, holding that the only way to create beauty is the blending of these two elements. That is to say, “sentiments can be sensed in scenes, and scenes are depicted through sentiments”. Besides, Su Shi proposed the blending of poetry and painting, or “paintings in poems and poems in paintings”. He also advocated a lofty spirit realm and insisted that beautiful images should be “pure and antique”, “tranquil” and “plain” because such beauty can produce “implication”, “savor of authenticity”, “savor of supremacy” and “savor of profoundness”. Tao Qian (Tao Yuanming)’s works meet Su’s standards most.

## **AESTHETICS IN THE MING DYNASTY (FROM 1368 TO 1644 AC)**

Wang Lv, a painter and poet of the late Yuan and early Ming Dynasties, proposed that “I learned from my heart, my heart learned from my eyes, my eyes learned from Hua Mountain,” which denies the idealism of “learning from ancient masters, learning from heart and learning from nature” held by painters of previous dynasties. (Ye, 1985, pp.325) The relation between “idea” and “semblance” proposed by Wang Lv was identical with the “sentiment-scene” relation prevalent in the Song and Yuan Dynasties, which required paintings to return to the “depiction of images and expression of ideas” and emphasized the conformity between “sentiment” and “scene”.

Su Shi stressed that what a painting values is vividness, and what a poem values is charm.

By contrast, Lu Xun, a Chinese writer, essayist, poet, literary critic and leading figure of modern Chinese literature in the early 20<sup>th</sup> century, believed that the pursuit of artistic conception had been very popular for Chinese paintings since the Song Dynasty: painters “draw only two dots as eyes without a notable shape” and “draw a bird which can hardly be identified as an eagle or swallow.” (Wu, 2006, pp.70) Excessive emphasis had been put

Figure 16.



on aloofness and simplicity, which turned out to be nothing but nothingness and a coverup for one's laziness and emptiness.

Li Zhi, a thinker and writer of the Ming Dynasty, was opposed to the neo-Confucian dogma of “elimination of human desires with the reservation of the heaven law (principles)” held by Cheng Hao and Zhu Xi, and rejected the personality cult of Confucius, whose criteria on right and wrong were taken as a universal law to judge the world. Li believed that every single individual was born to be useful and insisted on the theory of “virginal mind” or a “sincere mind” when it came to aesthetics. (Fu, 2007, pp. 288) He added that people would lose the “virginal mind” as soon as they studied the *Six Chinese Classics* (the *Analects of Confucius*, the *Great Learning*, the *Doctrine of the Mean*, *Mencius*, *Tao Te Ching* and *Zhuang Zi*), which made people hypercritical, as well as what they said, did and wrote. Thus, Li Zhi insisted that literary works should present one's “virginal mind” and attributed *Water Margin* to the outburst of human emotions. He believed that people with a “virginal mind” can reject what was fake and stick to what was pure and true, which was the great quality embraced by all people at the beginning of their life. He argued that only with a “virginal mind” can the human nature be presented properly. His opinions injected vitality into the development of novels and poetry in Ming and Qing Dynasties.

Tang Xianzu, a dramatist and writer of the Ming Dynasty, proposed the “Theory on Genuine Emotions”, which pursued “people with sentiments” and a “world with sentiments”. Tang also stressed that drama was inspired by the outburst of sentiments and should endeavor to make the audience sympathize with the characters. (Jiang & Han, 1993, pp. 280)

Both Li Zhi's idea of “virginal mind” and Tang Xianzu's “Theory on Genuine Emotions” shook the traditional Confucianism. Li Zhi insisted that

literature should be an unforeseen eruption of power having been preserved for a long time; a writer should scream crazily with exciting tears during literary creation; and such outburst of emotion occurred uninterruptedly as soon as a writer caught sight of scenes that evoke strong sentiments.

The Confucian Doctrine of the Mean (Zhongyong in Chinese, which is a guidance to perfecting oneself through creating internal balance and harmony) had been enormously impacted by the end of the Ming Dynasty. Si Maqian's "indignant determination to write great works", as well as Han Yu's "outcry against injustice" was inscribed on the banner of Confucianism and became the evidence of such impact.

The Ming Dynasty witnessed the emergence of the "four legendary books", including Romance of the Three Kingdoms, Water Margin, Journey to the West and Jin Ping Mei (The Golden Lotus), which marked the prosperity of the popular culture, and the doubt cast on the traditional Confucianism which had gradually lost its popularity with people. Li Zhi's thoughts and theories were the real soul of novels in the Ming and Qing Dynasties, in which the Chinese culture embraced by the majority of rural peasants reached its peak.

Ye Zhou, a novelist and dramatist of the Ming Dynasty, argued that basically a novel should obtain "lifelikeness", "vivid depiction of objects" and "perfect expression of artistic essence".

With respect to the sentiment-scene relation, Wang Fuzhi, a thinker of the Ming and Qing Dynasties, maintained that "sentiments are evoked in the observation of scenes, and scenes can be found in sentiments. Therefore, scenes cannot be separated from observer's sentiments and sentiments have been injected into the scenes." In short, Wang's aesthetics centers on idea-image.

The garden art of the Ming and Qing Dynasties, which typically embodied the theory of artistic conception and expressiveness valued by the Chinese literature and art, was innovative and worth appreciation. In garden art, the artistic conception is created through the distribution and organization of space, examples including the techniques of borrowing scenery, separating scenery, diving scenery and opposite scenery in garden design. The shadow of moon, flowers, water and cloud, the sound of water, birds and objects like pavilion and tower all exist for the creation of a wonderful artistic conception. The garden art is entitled to be called as "a solid poem or a three-dimensional painting".

Figure 17.



Figure 18.



## **AESTHETICS IN THE QING DYNASTY (FROM 1636 TO 1912 AC)**

The rational aesthetics held by Ye Xie, a poet of the Qing Dynasty, deemed Qi as the essence of everything in the world, the motion of which gives rise to the interaction among three unified objective elements: law, matter and emotion, which in turn constitutes beauty. Ye attributed artists' aesthetic creativity to four essentials that integrate the views on literature, art and cosmos: talent, courage, knowledge and strength. He alleged that everything could be understood through "laws, matters and emotions", which were also the origin of beauty and art. The essence of beauty is the motion of Qi. Since Qi is objective, so is beauty. (Cai, 2005, pp. 347)

Ye Xie labelled himself as the most rebellious artist who would not surrender himself to others' preference. He criticized the famous, the greedy and the snobbish, and despised them for taking the tedious "textual research on previous texts" as the essential of knowledge. (Jiang, 1988)

Ye Xie proposed that when it came to art, "the laws are profound and subtle; the matters are imaginary and mythical; and the emotions are obscure, perceivable but indescribable." He was in favor of the diversity of artistic conceptions and styles because it was such diversity that maintained the vitality of art and enable it to innovate and improve with each passing day. (Cai, 2005, pp.258)

Shi Tao, a painter and artistic theorist of the early Qing Dynasty, is well-known as an explorer and innovator of painting. He once said, "I do exist for a purpose" (every single individual is different, so artists should break the shackle of tradition and establish their distinct styles), and that "a draft should not be made until all peculiar mountains in the world are seen". Influenced by Lao Zi's ontology of Tao that "Tao produces One, One produces Two, Two produces Three, Three produced all things", Shi put forward the "one stroke theory". Since "One" is the beginning of Tao, the transition from Tao to "One" is from being invisible to visible, and thus the "one stroke" is the root of everything.

With a stroke containing everything of the world on the paper, images come into being when a stroke is set down on the paper. Supposedly the overall design and layout should appear prior to that "one stroke", which then leads to the development of layout. Given this, Shi regarded painting as aesthetic creation.



Figure 19.



Figure 20.



To sum up, systematic studies of aesthetics from the perspective of philosophy has been rarely seen in China since the Pre-Qin period, but theories of artistic aesthetics based on artistic practice have sprung up frequently. Thus, the ancient Chinese aesthetics features the following aspects:

## Artistic Conception of Beauty

The ancient Chinese artists pursued the artistic conception of beauty, namely the integration of mind and objects, sentiments and scenes and the fusion of subjective emotions and objective landscape. Nevertheless, this conception overlooks the function of practice, which is the intermediary between mind and objects. Actually, there are three fundamental elements to systems aesthetics or design aesthetics: emotion (intuition) of aesthetic subjects—artistic conception sensed through the painting brush in practice (perception) – poetry, books, songs and paintings as finished artistic products (containing essence and sentiments). It is the combination, conformity and harmonious co-existence of these three essentials (namely subject–practice–object), rather than the dual essentials of subject and object, that constitute the systems aesthetics or design aesthetics. These three essentials can also be defined as intuition, perception and sentiment.

For instance, in *Poems on Paintings* Zheng Banqiao proposed “three essentials” for drawing bamboos. The first essential is the “bamboo in eyes”, which means the “impression” or “intuition” evoked by the first glance of the physical image of a bamboo in reality; the second one is the “bamboo in heart”, namely the shift from “impression” to artistic image in artists’ mind (“artistic conception” or “perception”). The third one is the “bamboo in hands”, an artistic image of bamboo painted in accordance to the “bamboo in artists’ mind”. (Ye, 1985, pp. 546) It is, therefore, obvious that the three essentials for painting are physical image, artistic conception and artistic image and sentiment, which are also known: aesthetic subject–practice–(finished) work. Specifically speaking, impression or the intuition is evoked, and then converted to artistic conception (perception), which finally becomes an artistic image (with human sentiment). These are exactly the three essentials that create artistic beauty.

Meanwhile, due to Zheng’s persistence in artistic creativity and diversity of artistic styles, he was in favor of inheriting tradition without “taking it as the holy dogma”. According to Zheng, one shall never be confined to a certain style before he set out to paint and shall never leave a trace of any



style after the painting is completed, which means that no restriction should be imposed before a painter starts painting, and no regret and no rules should be felt after the completion of works.

In addition, Zheng had his own methods for drawing bamboo. “While teaching in a private school<sup>5</sup> located along a river, I was used to observing bamboos on the morning of late autumn when the mist, sun shadow and dew could be seen through the sparse bamboo branches and dense leaves. Tremendously inspired by this gorgeous scene, I became interested in drawing bamboos. In fact, the bamboo in mind is not the same as that in eyes, so the bamboo drawn after milling ink and extending the paper will not be identical to the imaginary one. In a word, it is a universal law that artistic conception presents itself before the paintbrush is picked up, but whether breakthrough can be attained in fixed formats and traditional painting methods will hinge on artists’ creativity. This is a law merely found in the painting world!” (Zheng, 2002, pp.340) Based on careful observation, Zheng’s “theory of bamboo’s three essentials” is an epistemology of creating artistic beauty and is also the reflection of objective laws of artistic beauty.

Zheng also held that drawing bamboo should start with the big ones, which is easy to draw from his perspective, but which people believe to be difficult. Zheng proposed that every single bamboo is drawn each day, and five will have been drawn on the fifth day, seven on the seventh. In this way a general layout is set up, after which light-colored bamboos, small ones and scattered ones are dotted among those big ones. Following a general layout, bamboos can be painted in a relatively casual way, either sparse or dense, either dark or light, either long or short, either thick or thin. After small bamboos have been painted, the structure of a painting comes into being. (Ibid, pp.362) That is to say, once those big bamboos that are considered difficult to draw is drawn, it becomes easy to draw the light-colored, smaller and scattered bamboos.

Zheng also said that small details will be easier to handle with the previous construction of a layout. In fact, it is the artistic conception that determines the painting methodology. Difficulty may even be encountered when a painter is drawing just a hill or valley, or dotting grass and small flowers, while sometimes it may somehow be easy to draw an intricate big picture. Zheng considered the most challenging part of drawing bamboo to be a painter’s wise decision on how much should be drawn. Redundancy should not exist when it looks better with fewer, and insufficiency is not allowed when more should be added. Reducing the number of leaves and branches drawn for better artistic expression was a method that Zheng was not able to figure out until he was more than 60 years old. (Pan, 1980. pp.48) To sum up, when drawing

bamboo, a painter should know when it looks best, with no permission for redundancy or insufficiency.

The following are Zheng's theories on drawing bamboo. "A thin bamboo is drawn with thousands of light-ink strokes"; "prior to picking up the paintbrush, a painter should conceive an artistic conception in mind, and dark-colored ink should be accompanied by light-colored one in painting"; "Painting bamboo is like cutting bamboo. After a few joints of bamboo are cut, the rest can be cut effortlessly without much further work; after the initial few strokes are painted, the rest can be easily painted without much further contemplation." (Ye, 1985, pp.415)

As for drawing rocks, Zheng Banqiao echoed Mi Fu's (a calligrapher and painter of the Northern Song Dynasty) view that a gorgeous rock shall be lean, wrinkled, vuggy and clean and transparent, which, in fact, goes hand in hand with Lao Zi and Zhuang Zi's philosophical ideas of "strangeness" and "peculiarity".

Apart from his unique approach to drawing bamboo and stone, Zheng demonstrated his calligraphic peculiarity through the combination of the Han clerical script, running-regular script and cursive script, as well as the methods for drawing orchid and bamboo leaves. To distinguish his own calligraphic style from the clerical script of the Han Dynasty known as "eight-point script", Zheng denominated it as "six-and-a-half-point script" characterized by its magnificence and liberty. Absorbing other artists' excellent techniques without losing its uniqueness, this script is also called "Banqiao style" or "script like random gravels scattering on the ground", a perfect blend of poetry and painting. Thanks to their sincerity and humor, Zheng's calligraphy and paintings acquired tremendous popularity with ordinary people, making him the well-deserved representative of Eight Eccentrics of Yangzhou (a group of eight Chinese painters in the eighteenth century, who were known in the Qing Dynasty for rejecting the orthodox ideas about painting and being in favor of an expressive and individualist style).

Zheng considered the following things as symbols of noble personality: forever blossoming orchids, evergreen bamboos, everlasting stones, and people never betraying their virtue in the whole course of their life. (Pan, 1980, pp.26) Cheered up by such thinking, Zheng conferred peculiarity on his ideas, articles, calligraphy and paintings, and decided to abandon complexity and embrace brevity, to display strength through conciseness and clarity, and to blend dark and light ink in his paintings in which both density and sparseness are notable.

Figure 21.



Another spectacular example of expressing one's sentiments through objective images is the *Gallop Horse* painted by Xu Beihong, a renowned Chinese painter during the War of Resistance against Japanese Aggression. Endowed with wildness, strength and aspiration to liberty, these horses fully conveyed Xu's patriotism, his concern about the nation's destiny and apprehension of the potential full-scale occupation by the enemy, as well as his stout faith in resistance against Japanese invasion.

In the following painting of *Gallop Horse*, sentiments and artistic conceptions are evoked before the painter (designer) starts painting, integrated to the objective images during painting, and explicitly expressed in the finished work. The combination of these three steps in this painting, namely the combination of three essentials (aesthetic subject, practice and artistic work), contributes to the subtle indication of what the painter (designer) was reflecting on, and makes it one of the best artistic works in both the War of Resistance against Japanese Aggression and the post-war period.

Another example is Qi Baishi's painting of shrimp, which succeeds in a high degree of integration among aesthetic subject (the artist), practice

Figure 22.



and painting (finished work). In fact, most of Qi's paintings achieved such integration. He believed that the secret of art lay between likeness and unlikeness, too much likeness is kitsch, no likeness is deception. Of course, this theory only applies to Chinese painting.

Apart from paintings on paper, the *Flying Apsaras* in the Wall Paintings of Dunhuang is another notable representative of the above-mentioned combination of aesthetic subject, practice and painting. As a peculiarity of the Han-Hu cultural fusion occurring in the Northern Wei period (from 386 to 534 AC), the *Flying Apsaras* stunned the Zhongyuan Culture (the significant headstream of the Chinese culture) by granting people immense room for imagination solely with elegant clothing and strips soaring in the air, instead of inscribing wings and feather on the wall as what tradition did. The *Flying Apsaras* is a masterpiece hugely inspired by cultural exchange.

*Figure 23.*



It is an outburst of inspiration, whose imaginativeness has made it transcend the general artistic rules.

## The Beauty of the Unification of Structure and Function

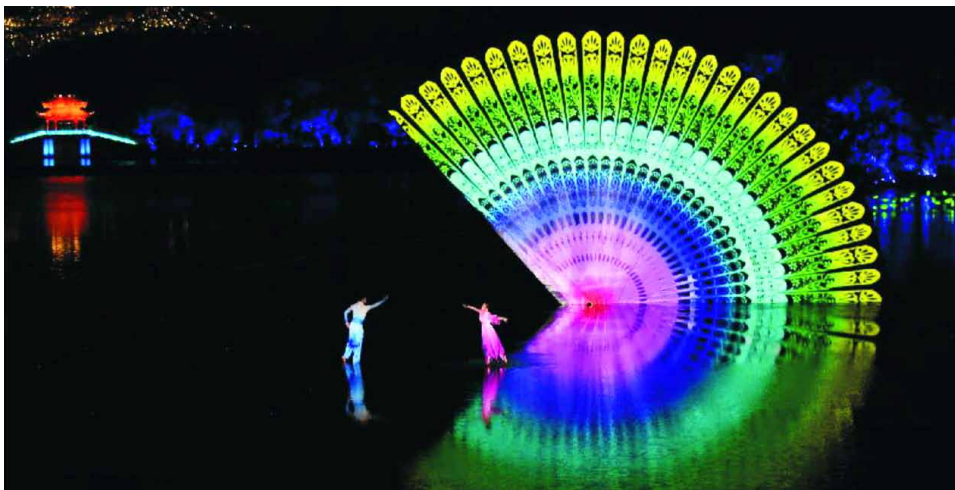
Both structure and function are composed in a multi-tiered and multidimensional manner. In the Jin Dynasty, the theory of “conveying essence through image” prevailed, which held that artists should not only pursue the functional lifelikeness of an external image when reflecting the objective reality, but also strive for the resemblance to the internal essence of a depicted object, namely the optimization of essentials so as to “describe and convey the essence”. Resonating with the above theory, Liu Xie advocated “writing articles for sentiment’s sake”, rather than the “deliberate evocation of sentiment for an article”. Zhang Yanyuan, a painter of the Tang Dynasty, contended that “artistic conception should come into being before a painter starts to paint and should be presented in the finished work”. Both artists attached equal importance to content, structure and function, and called for good form and function that serve to be a crucial criterion for the “combination of image and essence” and “conveying essence through image” in plastic arts. In fact, the requirement for a high degree of combination of structure (multi-elements) and function (multidimensional) also applies to those three essentials, the aesthetic subject, practice and artistic work.

Structure involves a painting’s layout, momentum, brushwork, tone and gradation, etc, while function means the efficacy from the perspective of human visual system. A high degree of combination of these two should constitute the supreme beauty of painting.

For instance, the *Lotus Screen* by Bada Shanren (the pseudonym of Zhu Da, a celebrated painter of the Ming and Qing Dynasties) depicts a lotus pool replete with lush lotus leaves and dynamic lotus stems. By virtue of its ubiquitous dynamism and the liveliness permeating the blankness, the painting is inclined to evoke freshness among people when it comes into view, as if the lotus pool were in a world secluded from the earthly hustle and bustle.

Another example is the *Pillar Stone* by Zheng Banqiao. The pillar stone depicted is sharp, lean and straight, standing tall and firmly between heaven and earth, like an ode to integrity. As a metaphor for Tao Yuanming, the pillar stone is personified, and thus beauty is visible by means of the consistency of structure and function (human visual system).

Figure 24.



However, on the whole, homogeneity and lack of passion can be obviously detected in Chinese painting's approach to expression, a fundamental flaw that is difficult to eliminate.

## Research on Beauty Based on the Artistic Integral Optimization

In Chinese history exist critical works in relation to aesthetics like *Critique of Poetry*, *Critique of Ancient Paintings* and *Literary Critique*, among which *Critique of Poetry* illustrates concepts like “the expression of essentials without even a single word”.

Paintings including *Landscape and Peach Blossom Spring* (equivalent to “Utopia” in western culture) by Shi Tao, a painter of the early Qing Dynasty, and *Peony and Landscape* by Gao Fenghan, a painter and calligrapher of the same period, demonstrate beauty on the basis of artistic integral optimization, which is featured by Chinese art. In fact, this concept resonates with the theory of “typical personas in typical contexts” summarized by Engels, which explains in detail how to research on, express and create beauty based on artistic integral optimization.

The song and dance in the opening ceremony of the G20 Summit held in Hangzhou in 2016 is another example of artistic integral optimization, which, according to Zhang Yimou, the director of the ceremony, only aims to create



an integral artistic conception, or more specifically, an artistic conception with integral optimization.

China is arguably a country enjoying art flourishing, with its own aesthetics nurtured by long-term artistic practice, particularly in poetry. Nevertheless, Hippolyte Taine, a French artist and philosopher, asserted that art depended on geographical environments, custom, habits and time spirit, and varied among ethnic groups, so sharp distinction can be detected between the Chinese aesthetics and art and the western ones given the difference in these determinants.

China is different from ancient Greece and Rome. It did not share what the Western experienced in medieval era, or the history of aristocratic monarchy and modern democracy. The respective ethnic, environmental, cultural and ideological differences naturally end up with an immense gap between the Oriental and Occidental arts.

## **Simplicity, the Soul of Chinese Art**

Simplicity is the soul of many Chinese cultural elements and is most strikingly noticed in painting and poetry.

Simplicity is also highlighted in cursive script in Chinese calligraphy and flower arrangement. Xu Wei, an artist of the Ming Dynasty, was a proponent of such simplicity, which culminated with paintings by Bada Shanren, a painter and calligrapher of the late Ming Dynasty and early Qing Dynasty. We can appreciate some of his works in the following aspects:

The fish, ducks and birds drawn by Bada Shanren present images of resistance and proud nobility with peculiar countenance, staring at the world proudly with eyeballs upward. Endowed with vivid semblance and implicit essence, Bada Shanren's paintings excel at the transmission of profound meanings with simple techniques immune to artificiality.

Slim as it is, Bada Shanren's lotus also succeeds in conveying ideas concisely. Similar to an axe, the proud lotus erects upright as if it would break through the paper and rise to the sky.

The *Duck Asleep* depicted by Bada Shanren is another reminder of how he valued every drop of ink. Despite being alone in the scene, this asleep duck huddles, with its neck retreated and eyes closed, amid a vast blank area filled with nothingness, which, somehow, sparks the imagination of infinite waters, and renders the feelings of empty loneliness.

At the left bottom of Bada Shanren's painting *Lone Bird* stretches a withered branch, at the very end of which a bird, with its wings half-open, sustains itself with only one thin leg and observes what is happening in the world with its delicate and crystal-clear eyes. The extreme simplicity and blankness in the painting creates an atmosphere of loneliness and solidarity.

In another painting titled as *Waterfowl with Lotus* by Bada Shanren, rocks of peculiar shape are scattered everywhere, on which a waterfowl, huddling its body and shrugging its back, stands alone in tranquility. With an upside-down lifeless lotus hanging above its head, this waterfowl seems to have been ready to flee hastily driven by terror. Such a solitary, apathetic and melancholy bird, depicted with the frugal consumption of ink, evokes senses of depression and solitude.

In one of his works, Bada Shanren only drew a chick on the paper. Located beneath the center of the scene, the furry chick inclines forward apprehensively with its head towards the left, as though it has just hatched out. In face of this world completely strange to it, the chick, still unable to move upright, manages to grope its way ahead with absolute prudence like an infant, who is learning how to walk by stumbling ahead in small steps. Despite the extreme simplicity of techniques and colors, this chick offers people vast room for imagination.

The paintings of Bada Shanren are featured with vast blank space and simple and concise strokes, which create smoothness and lasting charms. So is the *Catfish* drawn by him, the characteristics and charm of which are vividly recreated with a few strokes that convey profound meanings. As a masterpiece of Chinese artistic beauty, *Catfish* is the best symbol of his artistic perspectives and pursuits.

The core conception of the Chinese art and artistic aesthetics lies in simplicity instead of a large quantity of objects depicted in a single painting.

Neither Bada Shanren's fish nor Qi Baishi's shrimp is drawn with water as backdrop, the absence of which in the scene produces blankness that convinces people of the existence of water. The profound ideas conveyed through scarce ink is exactly what art aspires to the most.

With adherence to the artistic conceptions held by Bada Shanren, Qi Baishi maintained "simplicity" as the soul of his works, many of which are so splendid that they have become immortal in art history. The flowers, birds and insects drawn by Qi consist, in their simplicity, the essence of the Chinese aesthetics and reflect the principle of least action. Beauty was recreated with the minimum amount of ink and enormous visual tension was achieved in an energy-efficient and time-saving manner. Such simplicity culminated with

paintings in which black and white predominate, in compliance with the essence of Lao Zi's philosophy. Nevertheless, a universal law should also be recognized that simplicity can exert negative impact on art when going too far.

The above principle of simplicity greatly fits in with artistic forms like comic, cartoon, paintings of various types and engineering design. Art is the symbol of the aesthetics of a nation. Chinese calligraphy, with simplicity as its soul, can best represent the unique characteristics of Chinese art. Chinese calligraphy, which has evolved into free and diverse curvilinear movements and spatial structures, exhibits a wide range of demeanors, sentiments and strength, and forms the unique calligraphic art of Chinese square characters. Precisely speaking, calligraphers' complicated emotions and ideas are expressed and displayed by such curvilinear movements, and what calligraphers reflect on is brought to life in a special conceptional world deprived of colored lines.

This simplicity is clearly shown in Chinese people's daily life, who, in particular the elderly, prefer dark and neutral tones like grey; by contrast preference is given to warm colors by western elders.

Western art seems to aim to present a colorful and luminous world where dynamic natural and physical beauty is recreated via color and light. In contrast, Chinese art is more like a black-and-white world filled with simplicity.

The enormous chasm between Chinese and Western aesthetics can be observed in Greek mythology, in which exists a "Goddess of Love and Beauty" (Aphrodite), and the well-known Trojan War was originated from a quarrel between the goddesses Hera, Athena, and Aphrodite over beauty (over "who is the fairest").

## **Flaws of Chinese Painting**

Rao Zirang, a painter of the Yuan Dynasty (from 1271 to 1368 AC), pointed out the twelve taboos of painting: crowded painting layout; mixture of the distant and nearby scenes; omission of the aura of the mountains; river without source; plain landscape without change and transformation; path without beginning and ending; rock shown in a single dimension; tree without branches; bent persona; disorderly alignment of buildings; inappropriate combination of dark and light colors; and improper ink and brush work. (Yu, 2003, pp.110) Among them, mixture of the distant and nearby scenes, bent persona and improper ink and brush work are the most severe ones.

Bent persona is particularly inconceivable, so we can't help raising a question: are ancient Chinese unable to stand upright?

In response to this question, Liang Kai, a painter of the Southern Song Dynasty, recreated the image of Li Bai, one of the most phenomenal poets in Chinese cultural history, as a carefree poet with his head held high and immune to earthly burden. Featuring technical simplicity and boldness, this painting depicted vividly the image of the poet, singing poems while walking, with only a few strokes.

With chest remaining upright and head held high, the Chinese depicted by Liang Kai was a wonderful exception to mainstream art.

As in mainstream Chinese painting, ink painting is characterized by the blend of only three colors: black, white and grey. Chinese painting not only treats ink as two colours, but also imagines it as infinite space, colour and layers, which actually show an inconceivable high degree of mind restriction. As a matter of fact, such restriction came into being with no alternatives, rather than being a result of selection among multiple choices available.

Despite the progress in painting after the Song Dynasty, figures like Jan Van Eyck from Netherlands, the inventor of oil painting in 15<sup>th</sup> century, were scarcely found in China then because of the economic and technical underdevelopment, along with the restriction imposed by the social ideology.

As the only goal pursued by painting, simplicity was not able to eradicate the problems related to distance, light, colors, texture, shape and distribution. These problems had hindered Chinese art including painting and literature from further advance, and had given rise to invincible obstacles against Chinese art.

In addition, when it comes to the appreciation of ancient Chinese paintings, people put too much focus on the history of the paintings instead of the paintings themselves. Too much attention has been given to textual research, such as the painters' anecdotes, their poems, preface and postscript on paintings, paintings' authenticity and their collection value. Such importance attached to elements unrelated to paintings themselves is a striking feature of Chinese aesthetics and is also the alleged "textual research on previous texts" disdained by Ye Xie, a poet of the Qing Dynasty.

Theoretical partiality could also be detected in aesthetic theories and visual language system for paintings. After the propositions of "charm", "essence", "wisdom" and "artistic conception" were raised in the Southern and Northern Dynasties, the supremacy of "vivid charm", "ingenious artistic conception" and "subtle use of ink" in artistic theories and paintings served testimony to such partiality, which provoked the lack of attention to a paintings' structure, layout, momentum, usage of painting brush and tone. This absence of attention to a string of important elements was probably caused by Chinese people's

Figure 25.



laziness and lacking in artistic sensitiveness. As is commented by Lu Xun, the excessive emphasis on artistic essence and conception cunningly serves to justify one's laziness and emptiness.

Chinese and Western painting took different, even opposite paths in the transitional period from the ancient times to modern times. An example of this divergence was the mainstream post-Song literati paintings' opposition to sensory attraction, an idea embraced by the "Four Wangs" (Wang Shimin, Wang Jian, Wang Zhao and Wang Yuanqi). Chen Duxiu, one of the significant leaders of the New Culture Movement culminating in China from 1915 to 1919, advocated that to bring improvement to Chinese paintings, "Four Wangs'" ideas must be abandoned, and the realism of Western paintings must be adopted.

The development of both Eastern and Western aesthetic cultures involved the complementarity and harmonious co-existence of a great diversity of elements. With an emphasis on "lifelikeness" and "recreation", the Western ancient aesthetics culturally differs from the traditional Chinese aesthetics that lays importance to "idea" and "expression of artistic conception". Despite the consensus reached by both aesthetic cultures on "encouraging artistic innovation and peculiarity" and "demonstrating personal style" in modern era, enormous discrepancy between them could still be seen.

## **Homogeneity and Conservatism of Chinese Aesthetic Philosophy**

The Chinese aesthetic philosophy has not undergone substantial transformation, with Lao Zi's concepts put forward over two thousand years ago, including "Taoism", "Qi", "semblance", "existence", "nothingness" and "voidness" and so on, as its unaltered cornerstone.

"Tao, deemed by Zhuang Zi as the supreme and absolute beauty, is the unity of existence and nothingness, and of "Yin" and "Yang".

Wang Wei, a renowned poet of the Tang Dynasty, held that "Tao" is the purest element and contains the five fundamental colors of the nature. He contributed to the progress of aesthetics by advocating that the color of ink is closest to Tao and the essence of nature.

Jing Hao, a painter of the Five Dynasties, proposed in *A Conversation on Methods* that the color of ink is closest to the color of nature, and that the ink paintings of landscape meets the requirement of "true" and represents "Qi"

and “Tao”, that is the vigor of nature itself. (Ye, 1985) There is, however, not much theoretical novelty of Jing’s proposition.

Wang Changling, a celebrated poet of the Tang Dynasty, divided poetic conceptions into three categories: physical conception is to depict the landscape; emotional conception is to integrate one’s sentiments to the scene; artistic conception is to express one’s ambition through objects. Despite the detailed subdivision of poetic conceptions, this theory failed to illustrate the essence of beauty.

Sikong Tu, a poet of the late Tang Dynasty, equalized “Tao” to “artistic conception”. In his book the *Twenty-Four Modes of Poetry*, he proposed that “Tao” was the essence of cosmos and “artistic conception” was the essence of aesthetics.

Li Zhi, a thinker of Ming Dynasty, held that only with an “virginal mind” can the human nature be presented properly, an argument that resembles the western artistic realism.

Ye Xie, a poet of the Qing Dynasty, alleged that everything could be understood through “law, matter and emotion”, which were also the origin of beauty.

Shi Tao, a painter of the Qing Dynasty, believed that “One” was the beginning of Tao, so the transition from Tao to “One” was from being invisible to visible, and thus the “One stroke” was the root of all things. One stroke contains all things of the world. With the drawing of one stroke, images come into being as chaos is dispersed. This is an alternative expression of Lao Zi and Zhuangzi’s thoughts.

The “One stroke theory” by Shi Tao was the theoretical outcome of the thousand-year evolution of Lao Zi’s Taoism, which reveals Chinese aesthetics’ proneness to homogeneity and conservatism. The failure of Chinese aesthetics to break the conceptional shackle imposed by “Yin-Yang Theory” (a structure in the form of two contradictory and complementary elements, such as mind and object, form and idea, sentiment and scene, subtlety and comprehensibility, void and reality, essential and charm, immobility and dynamism, essence and “Qi”, the blend of dark and light ink, sufficiency and complement, division and co-existence, emotion and rationality, elegance and popularity, resemblance between image and essence, artistic style and personal integrity, conception and image, the compatibility of external form and internal essence, and the integration of sentiment and scene, etc.) intensified the difficulty in describing complex aesthetic systems.

Furthermore, the insufficient cultural exchange with Western aesthetics hindered the theoretical advance of Chinese art. Nevertheless, the ideological



system of Lao Zi and Zhuang Zi is far from being the only culprit for the homogeneity of Chinese artistic thoughts.

It is widely known that, in 136 B.C., Dong Zhongshu, a significant Chinese scholar of the Han Dynasty, put forward in his work *Three Schemes for Interaction between Heaven and Mankind* the Confucian concept of “Great Unity”, which held that cultural supremacy should be granted to Confucianism and all other schools should be suppressed in order to ensure political unity. This concept was recognized and put into practice by the great Emperor Wu of Han. From then on Confucian temple has gradually been elevated to a national cultural symbol, a witness of the Confucian domination in China for more than two millennia. Therefore, the mutual impact between Confucianism and social political system converted the former to a religion as well as a national apparatus, which was the root cause for the ideological homogeneity.

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## ENDNOTES

- <sup>1</sup> Confucianism is today seen as material philosophy of social order. Its failure to emerge as a national religion occurred since it posited no spiritual domain, there arose no priestly advocates, and no symbolic places of “holiness or sanctuary” were defined.
- <sup>2</sup> Wang Mang (Chinese: 王莽) was a Han Dynasty official and consort kin who seized the throne from the Liu family and founded the Xin (meaning “renewed” Dynasty, 新朝), ruling 9–23 AD. Wang Mang sincerely believed that he was reviving the perfect Confucian state (the Zhou Dynasty). Attempting to model an ideal society in accordance with the principles set forth in the Confucian Classics, he promoted sweeping reform efforts that conflicted gravely with entrenched interests and therefore encountered resistance. Large landholders were affected by his attempts to distribute land more equally, and his frequent currency reforms caused property values to decline, a blow to the interests of both merchants and commoners. His reform of tax policies simply could not be fully implemented, since corrupt officials easily discovered loopholes in the proposed statutes and exploited them for their private gain. His effort to institute large-scale reforms which, coupled with natural disasters, led to escalating agrarian rebellion. His rule was overturned and himself slayed by the rebels.

- <sup>3</sup> *Yi* literally means an author's feelings and thoughts, and *xiang* refers to the image of a material object in the external world, an artistic image reflecting the author's thoughts and feelings. In literary creation, idea-image refers to those images in nature with which an author's feelings and thoughts are associated.
- <sup>4</sup> Chinese Proverb Xiong You Cheng Zhu (胸有成竹), literally means having the complete image of bamboo in one's heart. As an analogy, it implies that someone have the winning plan in his heart or is full of confidence.
- <sup>5</sup> Traditional Chinese private school where classical literature and Confucianism used to be taught.

## Chapter 3

# Methodology of Aesthetics

### ABSTRACT

*Consideration is made of the modern realist “democratic aesthetics” of Russian thinkers (i.e., the Utopians like Proudhon and Tolstoy and the revolutionary democratic conceptions of thinkers like Belinskii and Herzen and the Proletarian socialist aesthetics of Marxism-Leninist thought) and the modern Chinese cultural aesthetics approach of Qian Xuesen. This results in the emergence of a set of methodological values of system philosophy and concludes that system philosophy constitutes the methodology of aesthetic research.*

### INTRODUCTION

The methodology of aesthetics is the theory and method of systems philosophy as well as the highly abstracted scientific theoretical system of systems science.

In 1968, Jack Burnham, an American writer on art and technology, proposed that a “systems esthetic” will become the dominant approach to a maze of socio-technical conditions rooted only in the present. (Burnham, 1968)

After the theory of relativity and quantum mechanics, system theory changed again the global scientific landscape and the contemporary way of thinking by scientists. Thus, it is bound to profoundly influence the natural sciences and all the fields of human sciences.

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*Figure 1.*



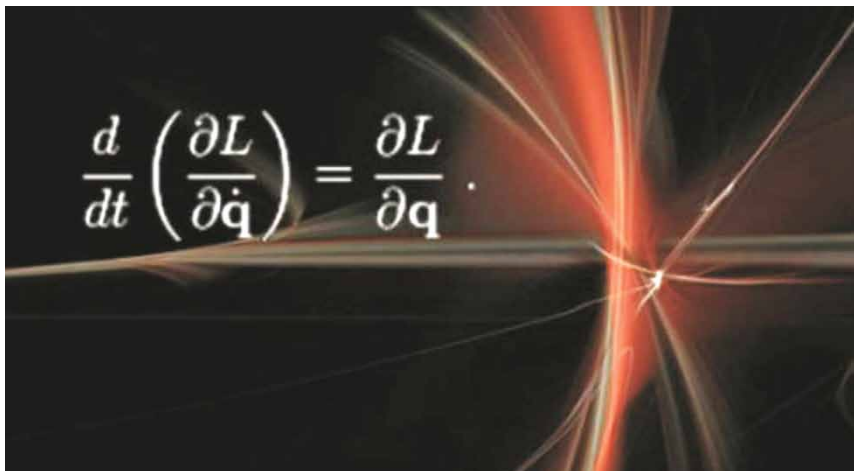
## **SCIENTIFIC EXPOSITION OF THE MARXIST-LENINIST**

Marx wrote, “The concrete is concrete because it is the concentration of many determinations, hence unity of the diverse.” (Max & Engels, 2009, Vol. 8, pp. 25) For example, any social reproduction process is composed of production, exchange, distribution and consumption: an organic unity of four aspects. If we want social reproduction to continue normally, these four links must develop together in a coordinated and harmonious matter. They are equally important. He further preached, “The circuits of the individual capitals intertwine, presuppose and necessitate one another, and form, precisely in this interlacing, the movement of the total social capital.” (Max & Engels, 2009, Vol. 6, pp. 392)

According to Engels, the whole of nature accessible to us forms a system, an interconnected totality of bodies... the fact that these bodies are interconnected has already implied that they react on one another, and it is precisely this mutual reaction that constitutes motion. (Max & Engels, 2009, Vol.9, pp. 514)



Figure 2.



*One and many are two concepts that cannot be separated and penetrate each other. And one is contained in many, vice versa. The diversity and the quantity can be included in a so simple concept, one. (Engels, 1984, pp. 166-167)*

Here we can see that Engels has specifically put forward dialectical thinking of the relation between one and many: one can be divided into many parts and many parts can integrate with each other to form a unity.

Referring to the oversimplified white-and-black thinking, Engels said: “What these gentlemen all lack is dialectic. They never see anything but here cause and there effect. That this is a hollow abstraction, that such metaphysical polar opposites only exist in the real world during crises, while the whole vast process proceeds in the form of interaction (though of very unequal forces, the economic movement being by far the strongest, most elemental and most decisive) and that here everything is relative and nothing is absolute--this they never begin to see.” (Max & Engels, 2009, Vol.10, pp. 599)

According to Lenin, the interdependence and the closest and indissoluble connection between all aspects of any phenomenon (history constantly revealing ever new aspects), a connection that provides a uniform, and universal process of motion, one that follows definite laws—these are some of the features of dialectics as a doctrine of development that is richer than the conventional one. (Lenin, 1988, Vol. 26, pp. 57)

*Dialectics requires an all-round consideration of relationships in their concrete development but not a patchwork of bits and pieces. (Lenin, 1986, Vol. 40, pp. 288)*

*In the (objective) dialectics, the differences between relative and absolute are also relative. (Lenin, 1995, Vol. 2, pp. 557)*

Mao Zedong once said, “Learn to ‘play the piano’. In playing the piano all ten fingers are in motion; it won’t do to move some fingers only and not others. .... We must look after the work in all the areas, armed units and departments, and not give all our attention to a few problems, to the exclusion of others.” (Mao, 1991, pp. 1142)

Besides, “In this world, things are complicated and are decided by many factors. We should look at problems from different aspects, not from just one.” (Ibid, pp. 1157)

Deng Xiaoping once said, “Learn to play the band well.” And he also creatively put forward the theory of “one country, two systems”. (Zhang, 1994, pp. 243)

According to the discourse of Marxist classics, we can and should draw three conclusions:

1. Unconditional absoluteness does not exist. In the past expressions like “the struggle is absolute” “movement is absolute” “non-equilibrium is absolute”, are not consistent with the original meaning of Marxism-Leninism. The so-called “absolute” is only under certain conditions and to a certain degree
2. It is not enough to think of things in the mode of white-and-black or in the aspects of opposition and unity. Things are composed of many parts as a whole system. In other words, one is divided into many parts and many parts can be transformed to an integrated system. It is this idea that greatly develops and enriches the thinking of “one divides into two”. Viewing problems with a contradictory view or with a systematic view can deliver different outcomes, although the contradiction also attaches importance to the connection.
3. We have only studied Marxism-Leninism’s “two-point theory” and “contradiction theory” and neglected the overall thinking of Marxism-Leninism. In fact, Marxism-Leninism has an extremely rich and profound system theory. (Wu, 1991, pp. 1-30)

## **THE IDEA OF SYSTEMS SCIENCE, THE THEORETICAL THINKING IN THE FUTURE**

Systems thinking reflects the trend of modern scientific development, the characteristics of modern socialized production as well as the complexity of modern social life, so the system theory and methods can be widely applied.

Systems thinking provides not only the theory and method for the development of modern science, but also the methodology base for solving various complex problems in political, economic, military, scientific, cultural and other fields in modern society. The system concept is penetrating every field.

The forecast group jointly organized by the Chinese Academy of Sciences and Xinhua News Agency made a prediction on “the top 10 technological trends that will significantly influence human development in the 21st century”. Among these, the third place was given to Earth System Science, a science field which studies the overall behavior of the Earth system from a holistic, systematic and multi-temporal-and-spatial perspective.

The ground-breaking development of the Earth System Science will enable human beings to be better aware of the environment on which they depend, and more effectively prevent and control the potential damage caused by unexpected catastrophe. In the 1980s, the focus of systematic study shifted from basic theory to complex problems.

European scholars, especially Ilya Prigogine, proposed the prominent slogan of “exploring complexity”, which saw the research on complexity as a new science beyond traditional science. This view exercised a widespread influence.

Prigogine and Haken, who were confident that their theories and methods should be applied to the field of complex phenomena such as biology, economy and society and so on, started to establish complex science and formed important schools of complexity research in the world.

This *National Science Education Standards (NSES)*, published in the U.S.A in 1996 stated:

*As a result of activities in grades K-12, all students should develop understanding and abilities aligned with the following concepts and processes: systems, order, and organization; evidence, models, and explanation; change, constancy, and measurement; evolution and equilibrium; form and function. (National Research Council, 1996, pp. 103)*

*It added, "The natural and designed world is complex; it is too large and complicated to investigate and comprehend all at once. Scientists and students learn to define small portions for the convenience of investigation. The units of investigation can be referred to as "systems." A system is an organized group of related objects or components that form a whole. Systems can consist, for example, of organisms, machines, fundamental particles, galaxies, ideas, numbers, transportation, and education." (National Research Council, pp.116)*

Thus, system and systems science has become the most comprehensive, most valuable and important basic concept and science of contemporary.

The most noteworthy of the global complexity research boom is the establishment of the Santa Fe Institute (SFI) in 1984. Their ambitions are to carry out an unprecedented scale of interdisciplinary research on all major issues in the world today, including life, economy, organization and management, global crisis management, arms race and sustainable development etc., and to establish a complex system on the unified theory of complex systems, which in essence is system science.

## ENGELS' "SATISFACTORY SYSTEM"

In *Ludwig Feuerbach and the End of Classical German Philosophy* (written in 1886 with offprint published in 1888), Engels expressed, "With each epoch-making discovery even in the sphere of natural science, it (materialism) has to change its form." (Engels, 1946, pp. 4)

In the same article he added: "thanks to these three great discoveries, and the other immense advances in natural science, we have now arrived at the point where we can demonstrate the interconnection between the processes in nature..., and so can present in an approximately systematic form a comprehensive view of the interconnection in nature by means of the facts provided by an empirical science itself." (Engels, pp. 3)

Four questions in this statement are worth probing into: firstly, what is "epoch-making discovery"; secondly, has there been any "epoch-making discovery" since 1886; thirdly, which form of materialism must be transformed; finally, what is exactly the "satisfactory natural system".

Firstly, "epoch-making discoveries" before 1886:

*The "heliocentrism" proposed by Copernicus overthrew the predominant "Geocentrism" held by Aristotle and Ptolemy in Europe for over 1400*

*years. It is known as “Copernican Revolution” because the “Geocentrism” it overthrew was in line with the Bible, which advocates a world created by the God with Vatican as its center.*

*By 1616 the “Heliocentrism” had been banned by the Roman Church for more than 200 years, but it was still gradually accepted by people, among whom Bruno, in defense of this theory, ended up with being burnt to death on stake after seven-year imprisonment.*

*In 1632 Galileo published Dialogue Concerning the Two Chief World Systems, in which Copernicus’ theory was verified with mathematical approach and scientific experiments. One year after the publication of this book, Galileo was sentenced to lifelong imprisonment in 1633 by the Pope, which was not revoked until 1979, 343 years after the conviction.*

*In Mathematical Principles of Natural Philosophy published in 1687, Newton proposed the notion of absolute time, space, motion and rest, and argued that the universe is infinite and multi-center.*

Secondly, “epoch-making discoveries” after 1886:

*In 1900, Planck proposed Quantum Theory;*

*In 1912, Niels Bohr, a renowned Danish physicist, proposed the Principle of Complementarity;*

*in 1927, Heisenberg put forward the uncertainty principle, completing the Quantum Theory;*

*Between 1905 to 1915, Einstein developed the Theory of Relativity;*

*In 1922, Alexander Friedmann, a Russian and Soviet physicist, developed a model for the expansion and contraction of the universe with the help of mathematical calculation.*

*In 1929, Edwin Hubble proved the universe is expanding;*

*In 1948, George Gamow, a Soviet-born scientist fleeing to USA for asylum, proposed the important “Big Bang” model;*

*In 1951, Pope declared the scientific correctness of the Big Bang Theory.*

*Other arguably “epoch-making discoveries” include gene theory, the double helix structure of DNA, the quark model, the Periodic Law, the theory of continental drift and plate tectonics, the Big Bang Theory, system theory, cybernetics and information theory, etc.*

*Between 1873 to 1886 when Engels wrote this article, at least a dozen of “epoch-making discoveries” were found all over the world, which urged materialism to undergo transformation in its form.*

Thirdly, cognitive enlightenment and “form in need of transformation”.

In 1886 Engels wrote *Dialectics of Nature*, an unfinished work in the form of draft. In 1925, based on the version published in 1888, the Soviet Union compiled philosophical materials and published the book of *Dialectics of Nature*. This book was introduced to universities in China in the 1950s, after which no major transformation has occurred in the philosophical system.

However, from these epoch-making discoveries since 1886 we can still learn the following lessons:

1. The Theory of Relativity and Quantum Theory denied Newton’s absolute spatial-temporal view and unveiled the conformity and relativity among time, space, matter and motion. However, the reversibility of time justified by the Theory of Relativity and quantum mechanics was then negated by the Theory of Dissipative Structure, which conceptually shattered the symmetry between past and future, solved the conflict between Darwin’s Theory of Evolution and Clausius’ Theory of Heat Death and depicted a lively world of generation evolution. Clausius asserted that with the invariable amount of energy the cosmos will stay in permanent motionlessness due to the thermal balance achieved with the cosmological tendency towards maximum entropy that constitutes a lack of order or total homogeneity over a space of consideration. Those supporting fractal theory believe that the whole is generated by the evolution of fractals, which is a repeated and self-similar process of replication, seen as contradictory to the “generation through opposition”<sup>1</sup> embraced by *the Book of Changes*. The fractal theory provides us with an important methodological principle
2. Cognition of time: human life extends for one more second on a plane traveling around the earth. Four-dimensional and the eleven-dimensional<sup>2</sup>

space-time has been detected, but at present the advance of human brain only allows us to see the two dimensions of three-dimensional space (such as film), and the cosmos we see is merely what it was eight minutes ago.

3. The correlation between the speed of time and that of the concentration of fortune. Both time and order mean power and fortune.
4. The form of time: quantization (with time, space and material inseparable) and directivity.
5. Whether reversible or not marks the difference between the time shown on a clock and the time for the evolution of a physical system, which means that every physical system as well as every single particle has its own independent time space. For example, there are three fields in which matters exists: material field, gauge boson field and the Higgs field. In terms of time, systems and matter exist in a unidirectional way, namely the time vector. The cognition of time basically enables us to learn about matters and the world.
6. The negation of Laplace' casual determinism revealed the statistic law of the micro world, such as the "butterfly effect" provoked by the unpredictability of long-term conducts in complex macro-social systems like market. The micro world and the macro universe are integrated to jointly form a major system with the likelihood of mutation.
7. The following characteristics of system can also be detected: the probability of mutation in system, and irreversibility and quantum oscillation occurring in the evolution of physical system, as well as inherent randomness deriving from certainty.
8. Quantum field theory put an end to the contradiction between particles and fields (waves). After making all-round research on five string theories once considered distinct from each other, Edward Witten, a well-known physicist specialized in string theory, suggested that these five were in fact not distinct ones. He also mathematically calculated eleven dimensions, which were beyond human perception due to the limitation of human brain evolution. It is believed that the quark (the fundamental constituent of matter that composes other particles) and all particles are composed by strings, and each elementary particle is just a different vibration mode of a string. Such a mathematically perfect theory is considered by physicists as absolutely true, just like a 2D film can present multi-dimensional images.
9. Left-right asymmetry is a basic natural law, so the current universe is asymmetric, which, however, before the Big Bang was in the state of



singularity, the highest degree of symmetry. Thus, the research respectively on micro elementary particles, macro matters and vacuum should be coordinated to understand things from a holistic and complementary perspective.

10. The intersection between the macro and micro evolutionary sequences, such as:
  - a. Intersection among the origin of metagalaxy, elementary particles and quarks;
  - b. Intersection between the emergence of rocks undergoing macro evolution and that of crystal going through micro evolution;
  - c. Intersection between the macro social development and micro development of human brain. Therefore, these intersections desperately necessitate research on the cosmological system as a whole, and also illustrate the evolutionary conformity and cooperativity of physical systems. Numerically speaking, matters, ranging from cosmos and atoms to humans, are determined by some physical constants.
11. In theory, attraction must be accompanied by repulsion, which, however, has not been found. Neither has magnetic monopole been discovered yet. As is mentioned, left-right asymmetry is one of the basic natural laws, so the human race would vanish in a symmetric state. Therefore, antimatter, rarely found in the universe, and normal matters are logically asymmetric, and so are positive and negative electrons. What is more, we still have little knowledge of over 90% of dark matters in universe, so when we refer to the world we live in, we mean the conceivable and measurable part of the world.

Nonetheless, in the subatomic world where most complicated systems come into being spontaneously, causation does not exist and there is only “probability”.

12. The humanities, such as policies, seems to be symmetric, but in fact they are not, due to different implementation conditions.

Policies feature periodicity (quantum oscillation), probability, mutability, and temporality as well as irreversibility. Thus the same policy does not necessarily deliver the same outcome.

The convergence of economic cycles in all countries and the emergence of stateless economy indicate the following characteristics of policies: quantum oscillation, non-periodicity and multi-dimensional symmetry.

13. According to the humanities, in certain spacetime, productivity and relations of production are reciprocally determined, so are the relation between economic base and superstructure, and that between social existence and social awareness, etc.

Therefore, the systems thinking and its philosophical theory are the exact new formats for the transformation of traditional theories.

An important fact should be born in mind that in his reply to Bernstein's letter on June 30<sup>th</sup> 1924, Einstein expressed his opinion on the manuscript of Engels' *Dialectics of Nature* by saying:

*if this manuscript were to originate from an author of no interest as a historical personality, I would not advise publication; for the content is of no special interest, either from the point of view of modern physics or even for the history of physics. On the other hand, I can imagine that this text would be considered for publication as if forms an interesting contribution toward the illumination of Engels' intellectual personality. (Buchwald et al. Ed., 2015, pp. 265)*

#### STATEMENTS MADE BY QIAN XUESEN AND OTHERS

1. Qian Xueseng (1990) pointed out that the core of Mao Zedong thought was to address problems from a holistic perspective. As a matter of fact, systems thinking, as new format of Marxism, proves itself to be in line with Marxism-Leninism, Mao Zetong Thought and Deng Xiaoping Theory.
2. Qian Xuesen (1987) once mentioned that socialist modernization entailed a new system project, which referred to a social systems project or a social project for social transformation, development and administration. (pp.31)
3. On January 7th, 1986, Qian said that since the predictability of the prospect of the current reform in China was poor, we were wading across the river by feeling the way, taking one step and looking around before taking another. But in fact, it was always the case that "we had already crossed the stream before we groped for the stones in it". Qian

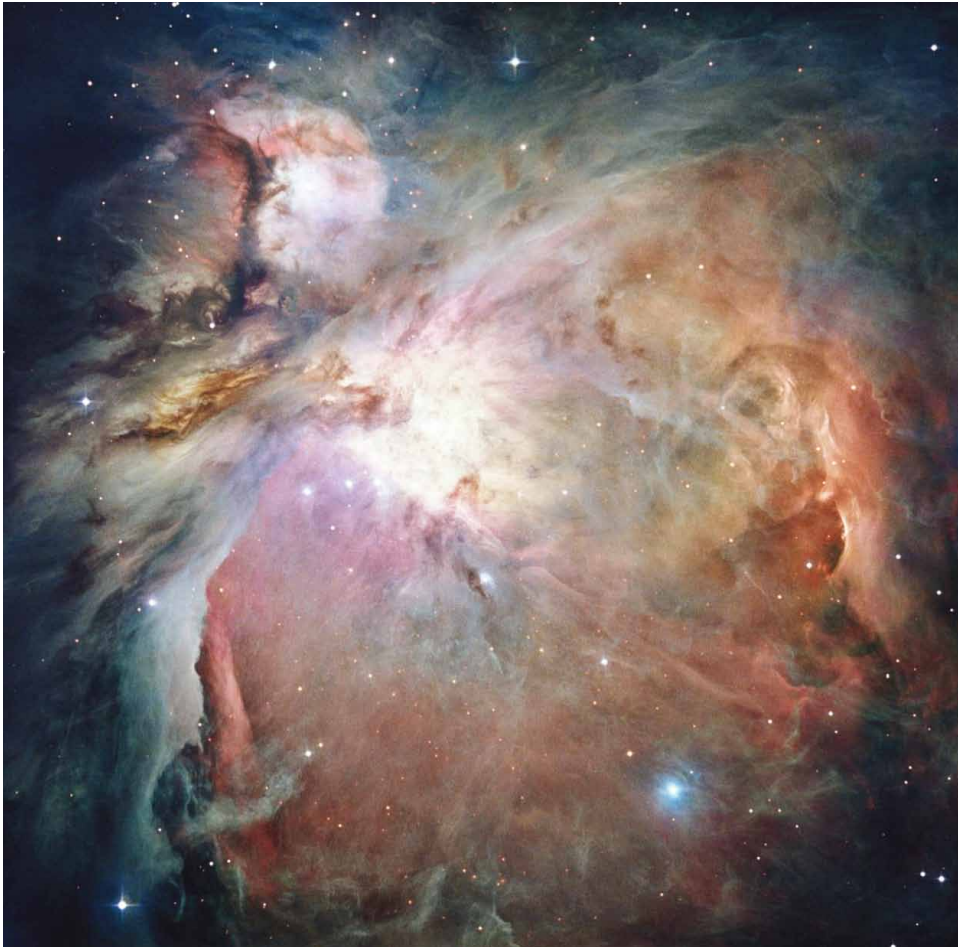
later added that launching an artificial satellite was doomed to failure without being able to predict the potential outcomes delivered by each step, and such predictability stemmed from science, or specifically systems science. (Qian, 2007, pp. 10)

4. In January 7th, 1986, Qian defined the establishment of systems science as a scientific revolution, as important as the discovery of the theory of relativity or quantum mechanics. (Ibid, pp.11)
5. In 1987, Qian suggested that a country should function as a whole. (Ibid, pp.25)
6. In January 1995, Qian stated that three industrial revolutions in the 21st century (namely the fifth revolution of information industry, the sixth revolution of genetic biological engineering and the seventh revolution of human science), along with the revolution of organization and management triggered by systems science and system engineering, would lead China to the third social revolution after 2050 (the first: 1921-1949; the second: 1978-2050). China would enjoy unprecedented prosperity and strength. (Qian, 2011)
7. Systems science is the fundamental approach to the good governance of a country. (Qian, 2011)

## **Systems Theory and Traditional Thinking**

Systems theory can be perfectly integrated with traditional Chinese culture. Many scholars from both the East and the West have agreed on the notable differences between the ways of thinking embraced by orientals and westerners. Ji Xianlin, a famous Chinese scholar, once said, "I think the most fundamental difference between the Eastern and Western cultures lies in the way of thinking. Oriental way of thinking is characterized by synthesis, while the Western one features analysis." The differences between the ways of thinking of the East and West are so obvious that they could easily be found in philosophy, politics, ethics, literature and art, and even agriculture, astronomy, geography, medicine and health care and other aspects. Owing to Chinese people's psychological formation and special way of thinking, they inevitably pay more attention to the unity (collectivity, ethnic group, society and family) in value, ethnic obedience, ancestor worship with the three cardinal guides and the five constant virtues and Yin-Yang theory (unity of universe and humanity) in ideology. The unique notion that the happiness and harmony of the group serve as the prerequisite for individuals' survival

*Figure 3.*

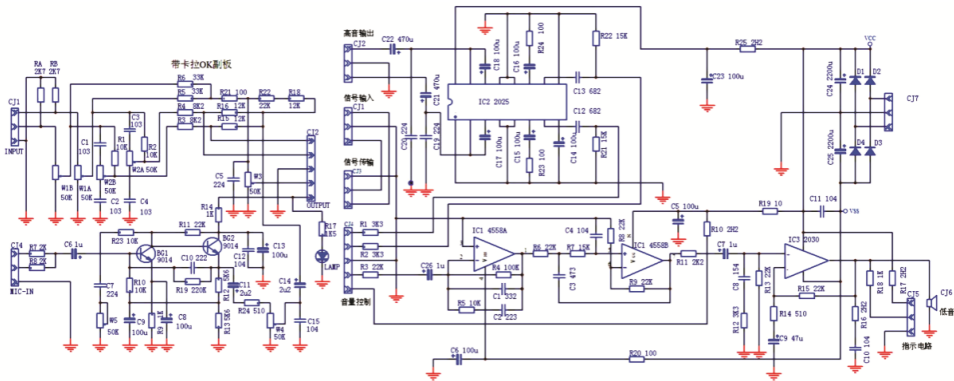


and development has penetrated into the traditional Chinese philosophy, politics, economy and culture, characterized by the emphasis on the whole, the contempt for individual and the belief that the existence and value of part depending on the whole. This concept can be regarded as a vague, rough and primitive holistic thinking.

The systems paradigm marks the progress and evolution of the human way of thinking from “material object-centred theory” to “contradiction-centered theory”, and then to “system-centred theory”.

Regardless of nature, human society, or human thinking, all manifest themselves as systems. The concept of system is a general one with the

Figure 4.



greatest inclusiveness and coverage and is of equal significance to the concept of material.

For further explanation, we all recognize that the world is material, but we know that material is systematic, so system and material are clearly of the same meaning, but they reflect different observation angles. Therefore, it is safe to say that system and material are interdependent, neither material without system nor system without material exists. Besides, natural beauty is associated with the material.

We should not forget:

*The probabilistic revolution has changed our worldview and outlook on life. Probability bridges the differences between determinism and non-determinism.*

Contingency, evolution and diversity, are more common and fundamental than simplicity, inevitability and stability.

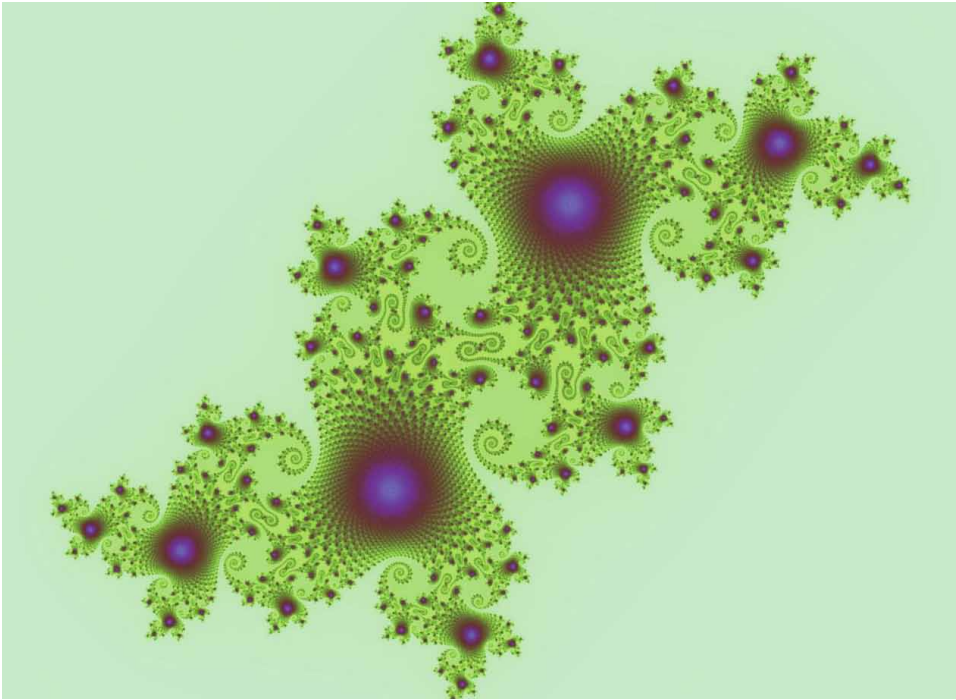
The macro irreversibility is a manifestation of micro randomness.

The past and future is asymmetric.

In short, as a scientific thought and method, the system paradigm can be briefly summarized as the following:

First, everything in the world is made up of internal elements. The overall function of the system can be described vividly as  $3 > 1 + 2$ , because of the non-additive property. It is also because when a new system is produced, new characters will emerge, which is not included in individual elements or lower-level elements.

*Figure 5.*



Second, there is a complex nonlinear relationship among elements, and complexity in the overall structure. Understanding the whole is not only about knowing the elements, but also their relationship, in other words, their correlation (such as the current industrial structure and social institutions in China), because of their complex vertical and horizontal structures.

Third, the system is evolutionary with a historical process of emergence, development and wane, which is irreversible both in respect of time and process. There are a variety of options, possibility of mutation and the unpredictability of results at the critical points, so the system behavior trajectory is not absolute and inevitable but conditional.

Fourth, the structure of the system determines its function and behavior. For example, despite containing the same molecule, diamond is dazzling and hard, while graphite is black and soft. That is because the carbon atoms in diamond molecule are three-dimensional, while those in graphite are horizontal. Their different atomic arrangements result in their respective functions. Another example: economic structure, industrial structure and organizational framework jointly determine macro benefits. In addition, the

*Figure 6.*



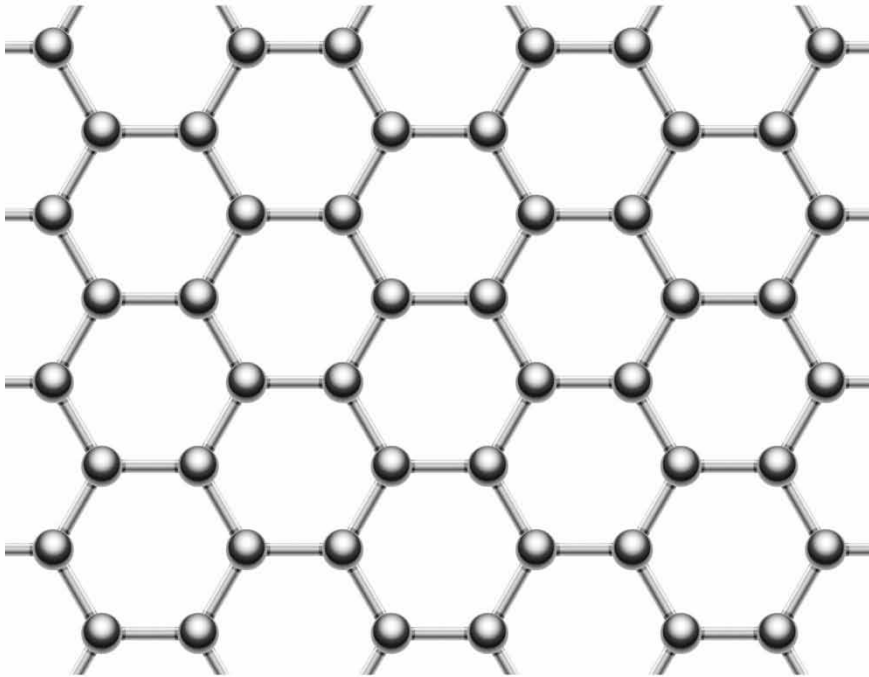
Chinese characters “太” (much) and “犬” (dog) are different in structure of the order; “木”(tree or wood), “林”(woodland) and “森”(forest) differ from each other in quantity; and the universe is a sequence structure composed by three basic particles (quarks, leptons and media sub) and four basic forces.

Human is an organic body composed by more than 90 kinds of elements; DNA is a different arrangement of four different nucleotides (A, G, C, T) in space and time. Four different nucleic acids form more than twenty kinds of amino acids that compose all the proteins, determining the biological diversity including human.

Fifth, the evolution of a system is a multi-tiered and multi-directional process, with tremendous randomness. Besides, its long-term behavior faces enormous uncertainty with a sudden “butterfly effect”.



*Figure 7.*



Sixth, a system is open, exchanging energy, material and information with the external environment.

Seventh, as far as values are concerned, we only pursue the optimization of the overall system instead of each element. Under certain conditions, optimization can only be relative, such as for the overall design of aircraft, cars, and machinery.

Specific methods are: (1) systematic synthesis; (2) systemic self-organization; (3) systematic-holistic method; (4) systematic-structural method; (5) systematic collaborative method; (6) systematic hierarchical method; (7) systematic analysis; (8) systematic engineering method. Applicable to all industries, these are actually organization management methods or techniques, such as preferred method, co-ordination, queuing theory, game theory, engineering economy, comprehensive integration, computer simulation and so on. Main programs include: the target selection, system integration, system analysis, program optimization, the determination of the best program, program implementation, accompanied by overall planning and design, system modeling and simulation. These methods are adapted to various subsystems of the macro or micro management as well as the social system.

Figure 8.



Figure 9.

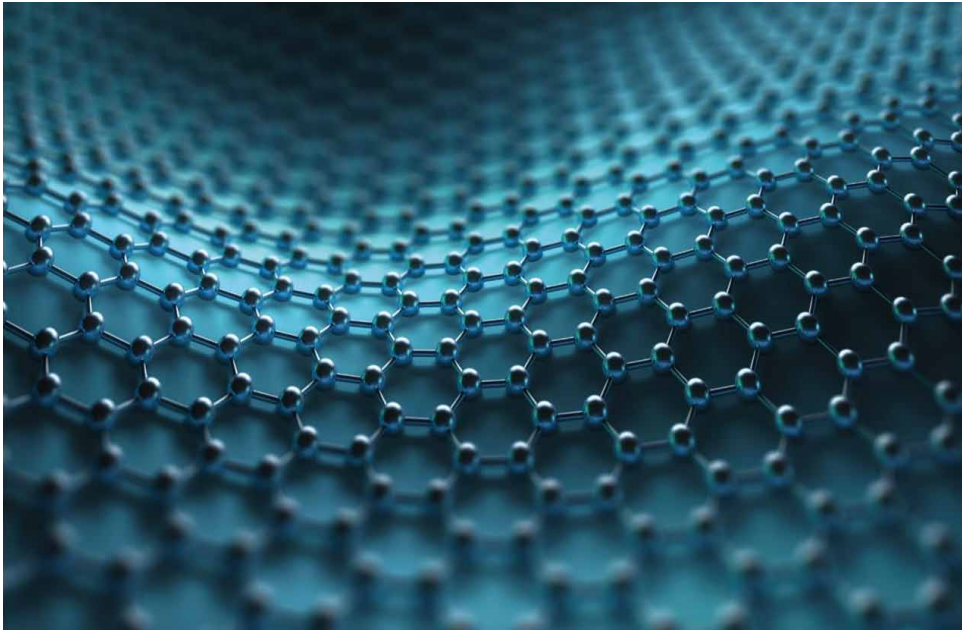


Figure 10.



The five laws and categories of systems philosophy are the fundamental ideas and basic methods that we must study. The *Mathematical Principles of Systems Philosophy* published in 2013 proves that the five laws of systems philosophy are scientific, fit-for-purpose and pragmatic from the perspective of physics and mathematics. It opens up a fundamental way to study aesthetics, provides a mathematical platform for comprehensive art aesthetics and design aesthetics, and lays a solid theoretical foundation for these subjects. (Wu, 2013)

The change in the way of thinking has always been radically revolutionary, which marks the rise and revitalization of a nation. As Alfred North Whitehead once said:

The great conquerors, from Alexander to Caesar, and from Caesar to Napoleon, influenced profoundly the lives of subsequent generations. But the total effect of this influence shrinks to insignificance, if compared to the entire transformation of human habits and human mentality produced by the long line of men of thought from Thales to the present day, men individually powerless, but ultimately the rulers of the world. (Whitehead, 1932, pp.259-260)

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## ENDNOTES

- <sup>1</sup> This relates to Taoism and the contradiction of the yin-yang opposites. The yin and yang are in continual interaction, and when they are not balanced the result is a complex process from which systematic emergence can arise giving new outcomes.
- <sup>2</sup> There are different theories about how many dimensions there are. In superstring theory, it is 10-dimensional. There are a number of competing string theories. In the unifying string called M-theory it is 11-dimensional.

## Chapter 4

# The Fundamental Principles and Laws of the Ontology of Systems Aesthetic Philosophy

### ABSTRACT

*This chapter notes that the philosophical ontology of system aesthetics is also the ontology of the systems philosophy and points out that system philosophy is the foundation of systemic beauty and explains the basic rules of systemic aesthetics. According to the view of systems philosophy, beauty lies in the unity of system diversity: the regularity and the rationality of the unity, the symmetry and non-conservation of the universe, the fit-for-purpose of the least action principle, and the hierarchy and structure of optimization. Those all constitute the overall beauty of systems aesthetics.*

### INTRODUCTION

The philosophical foundation of systems aesthetics is systems philosophy. The philosophical ontology of systems aesthetics is also the ontology of the systems philosophy.

According to the view of systems philosophy, beauty lies in the unity of system diversity: the regularity and the rationality of the unity, the symmetry and non-conservation of the universe, the fit-for-purpose of the least action principle, and the hierarchical and structural features of optimization. Those all constitute the overall beauty of systems aesthetics.

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*Figure 1.*



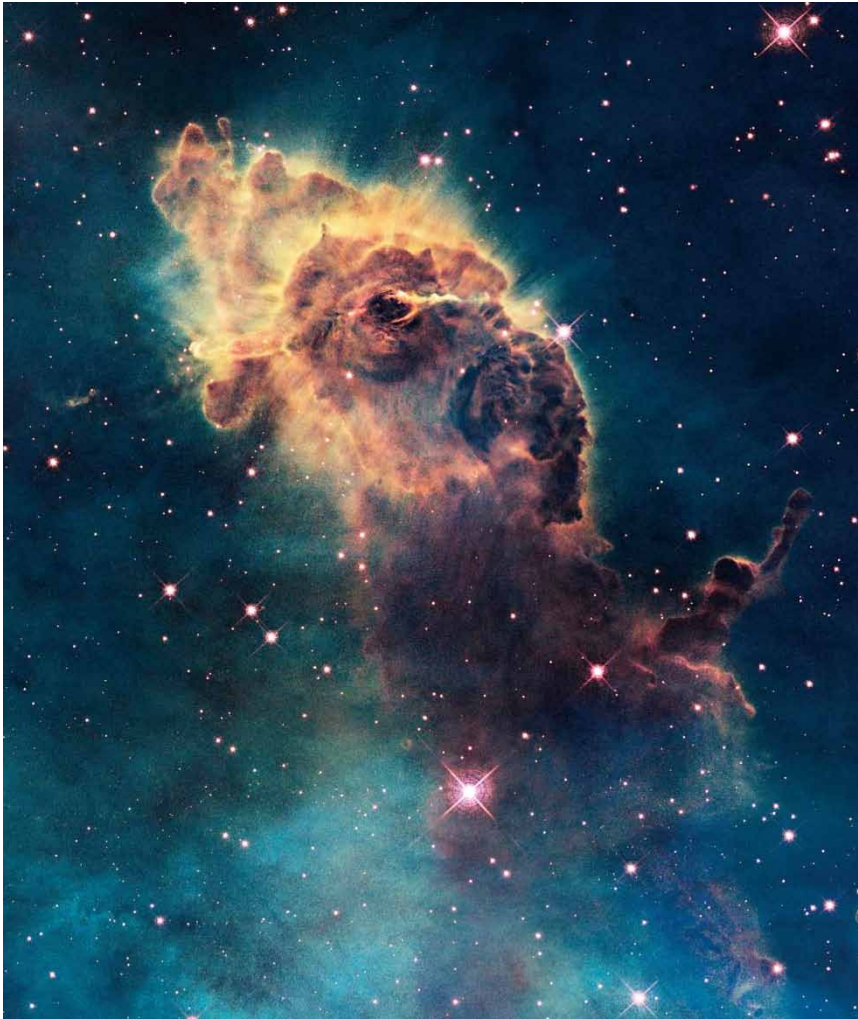
What is beauty? Beauty is systematic and is the result of the optimization of the overall system. The beautiful system is the optimization of the organic whole formed by various subsystems at different levels.

The universe is a huge and complex system. It is, therefore, the largest-scale beauty, the highest-level beauty and the most perfect beauty. This view is entirely in line with Plato's and Zhuangzi's view that the universe is the highest, the ultimate and the independent and self-existent beauty, instead of the "form" beauty. Because the so-called "form" beauty is only the external beauty.

The universe is a systematic material world, and a world of systematic beauty.



Figure 2.



## **NATURE AND NATURAL BEAUTY IS UNITED AND SYSTEMATIC**

The 2008 edition of *Systems Philosophy* and *Mathematical Principles of Systems Philosophy* published in 2013 used mathematics and physics to prove that the system is the basic way of existence and the fundamental attribute of the physical world, that is, nature is naturally systematic. Therefore, the original ecological beauty and the beauty of nature are systematic, so are the beauty of human society, the beauty of art and the beauty of design. Human

society is also systematic, so is the human thinking. In brief, the universe is a systematic material world, a world of material with systematic beauty, which shows the fundamental difference between idealism and materialism.

The denial of the primacy of physical systematic beauty and the system itself is the denial of the primacy of the material and the inheritance of Hegel's absolute idealism or absolute conceptualism.

## **TIME AND BEAUTY ARE THE BASIC DIMENSION OF MATERIAL EXISTENCE**

The 2008 edition of *Systems Philosophy* and *Mathematical Principles of Systems Philosophy* published in 2013 used mathematical and physical principles to prove that time is the basic dimension of material existence. The denial of time is equivalent to the denial of existence. So, the world is a generative and evolutionary material system, and beauty is also an evolutionary system of material generation. Time is irreversible, so is natural beauty. (Wu, 2008; Wu, 2013)

The universe started from the Big Bang 13.7 billion years ago, then time and beauty are engraved in the material of the universe. The material universe is the largest-scale and the highest-level beauty.

## **THE BEAUTY OF SYSTEM EXISTS EVERYWHERE**

The 2008 edition of *Systems Philosophy* and *Mathematical Principles of Systems Philosophy* published in 2013 used mathematical and physical principles to prove that nature, human society, human thinking and human aesthetics are all manifested as systems. Philosophically, the concept of system is identical to the concept of material. For example, we all recognize that the world is systematic, and so are system and beauty. Clearly, material, system and beauty have equivalent and indispensable overall philosophical significance, where originates both the ontology of aesthetics and the ontology of aesthetic philosophy. (Ibid)

## **THE FIVE LAWS OF SYSTEMS PHILOSOPHY IS THE FOUNDATION OF SYSTEMS AESTHETICS**

The Five Laws of systems philosophy are universally applicable to nature and society, human thinking and various man-made systems. It is also suitable for aesthetic system and the system of natural beauty, design beauty and artistic beauty.

According to the above principles of system philosophy, the most elementary law of system aesthetics is the harmony (unity) of diversity, the harmony of difference and overall system optimization. It is not only the principle that forms the evolved and optimized beauty (natural beauty, artistic beauty, design beauty, etc.), but also the basis for the whole systems aesthetics. It is the elementary law and basic regularity proposed by systems aesthetics. Bruno held that the beauty of the universe lied in its unified diversity, which is the same as the “unity in diversity” proposed by Leibniz.

## **THE BASIC LAW OF AESTHETICS**

The harmony in diversity and differences is the basis of beauty and the basic principle of aesthetics. The harmonious beauty is rooted in the diversity as well as the multi-directional, multi-spatial and multi-temporal features of systematic things. It is not only the underlying law of formal beauty, but also the fundamental principle of aesthetics.

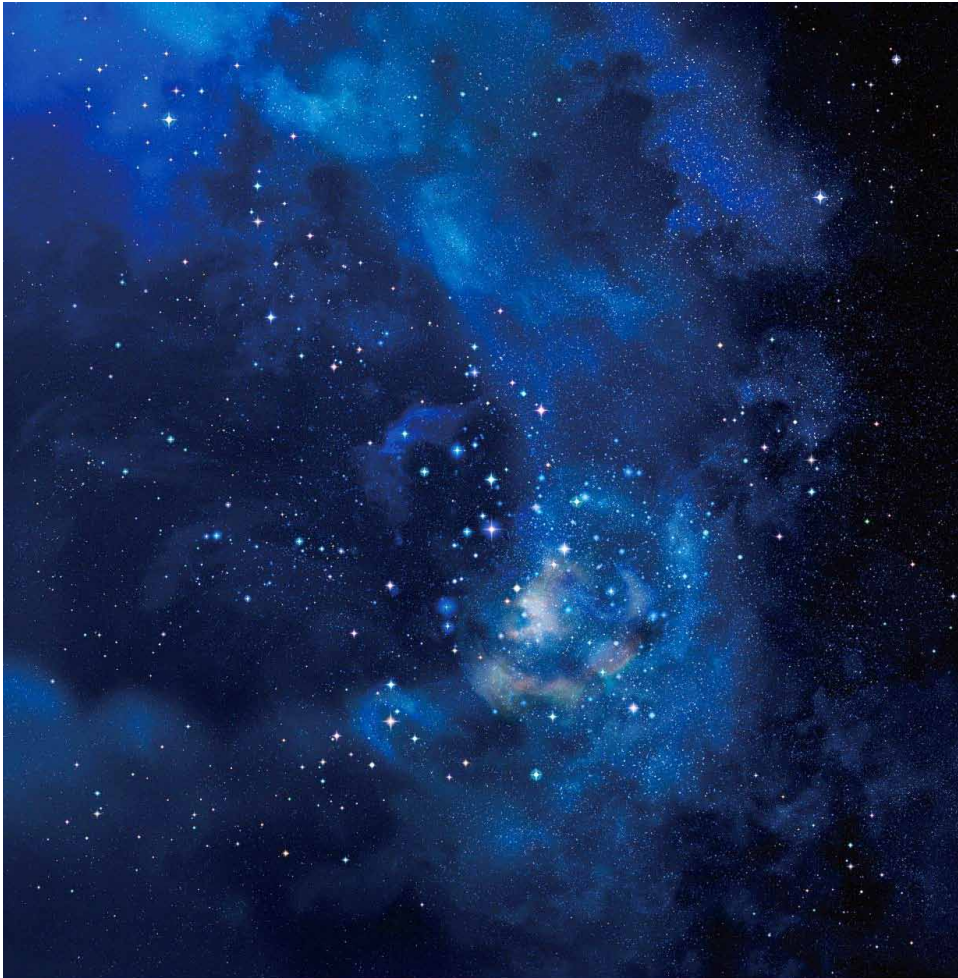
### **The Unity and Harmony of Diversity**

Harmony includes the harmonious beauty of the starting point (such as singular point), the harmonious beauty of the process (such as co-evolution, mutual promotion and common amplification), the harmonious beauty of the result (the ultimate state) in an equilibrium state, as well as the harmonious beauty of the similar repeated cycles.

Nature represents the harmony of diversified beauty, in which regularity can be found.

The beauty contained in the harmony among various forms of movement, among macro, meso and micro perspectives, among the four basic forces and among nature, society and thinking is the most profound and in-depth

*Figure 3.*



summary of the natural diversity and the harmonious unity of process, and the external representation of nature's "inner harmony" and "inner beauty".

Music charms audience thanks to the harmony of different tunes in the band; food pleases eater for the harmony of different flavors; arts amuse people for the blend of seven colors. Those examples all illustrated the relationship between the unity in diversity and harmonious beauty.

The organic and diversified whole of differences is the foundation of harmonious beauty. The diversity and multi-direction feature are the source of harmonious beauty.

Figure 4.



The diversified biological chain of an ecosystem which is unified in diversity is a perfect example:

1. Plants are the producers and consumers at the first level;
2. Herbivores such as grasshopper are the consumers at the second level;
3. Predators/carnivores such as voles are the consumers at the third level;
4. Hypercarnivore/secondary predators/top carnivores such as eagles are the consumers at the fourth level.

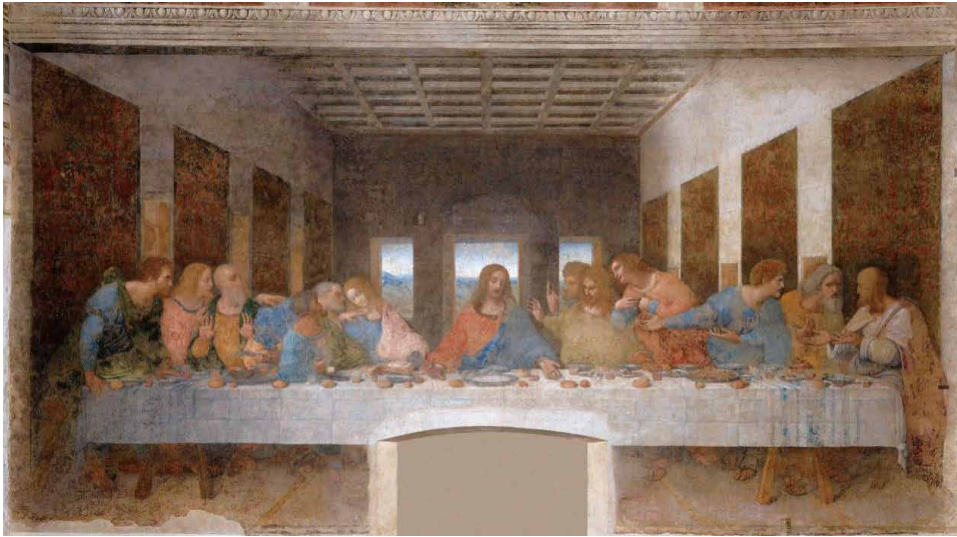
The relationship between them is:  $A : B : C : D = 1 : 0.1 : 0.01 : 0.001$ , which is called the “productivity pyramid”. Under such conditions, the biological chain is reasonable, orderly and stable and can be recognized as harmonious and unified beauty. There are many such chains, for example, cyclical oscillation of the ecosystem composed by hares, cats, clover, soil bees and snakes. They are in the pursuit of a relatively stable system, which is in its ultimate state and characterized by unified and harmonious beauty. This system is the basis of ecological civilization.



*Figure 5.*



Figure 6.



The inherent harmonious beauty of nature is also manifested by the beauty generated by the harmony and unity of the diversified organic and inorganic. In the biological world, the beauty of harmony among diversified creatures is reflected in the unified genetic laws and the genes in the system of genetic materials.

The ancient Greek scientist Pythagoras believes that: heterogeneity leads to the unified and harmonious beauty in music.

Without diversity, there is no art, not to mention artistic beauty and design beauty. Another example is Da Vinci's work based on Matthew, *The Last Supper*. It depicts a famous scene from Holy Thursday, in which Jesus and his Apostles were sharing a final meal before his death and resurrection. During the dinner, Jesus revealed that one of his disciples would betray him. All the disciples were taken by surprise and began to ask who. Jesus answered, "the one who dips his hands will." The painting demonstrated various demeanors of his disciples in vivid detail.

With the diversity of drama conflicts and the diversity of demeanor as perfect elements, this painting is better than all the other paintings centered on the same theme and becomes immortal. It is this harmonious external beauty, structural beauty and functional beauty that generated by harmony in diversity that makes the work a masterpiece known to the world.



*Figure 7.*



Another example is the medieval Gothic architecture, which was once referred to as “high-straight building” in Chinese. This type of building is

characterized by the following features: spacious portals and windows which allow for sufficient lighting; different numbers as implication of various religious meaning (for example, number 1 represents God, number 10 represents *the Ten Commandments* and so on). Besides, the Gothic architectures are normally high-rises, piercing the blue sky with unpredictable height. All these features emphasize that the church is the center of society, with the Clericalism being the sun and the monarchy being the moon, meanwhile bring about a religious atmosphere of “divine ecstasy”. The Gothic style is a mixture of religious and secular thoughts and a fusion of various architecture elements. It is imbued with humbling transcendence and loftiness and is typical beauty of “harmony in diversity”.

Another case is the buildings of the Summer Palace in Beijing, which also reflects the coordination of difference, the principle of harmony and the unity of diversity.

“The unity of monotony and the ever-changing” proposed by Liang Sicheng refers to the same things. Liang believed that buildings are the ideal space created by people’s free thought. According to him, Chinese architectural style is represented by the “Hao Jing” in the Tang, Liao and Northern Song Dynasties, which means the diversity of architectures in these dynasties and their beauty of harmony and unity. (Liang, 2016)

The unity and harmony of diversity applies also to poetry. Let’s take the poem *Changsha—to the tune of Spring in a Pleasure Garden* written by Mao Zedong in 1925 for example:

## **Changsha—to the tune of Spring in a Pleasure Garden**

Mao Zedong, 1925.

*In autumn cold stand I*

*Of Orange Islet at the head*

*Where River Xiang northward goes by*

*I see hill on hill all in red*

*And wood on wood in a deep dye*

*The river green down to the bed*

*In speed a hundred barges vie*

*Far and wide eagles cleave the blue*

*Up and down fishin shallows glide*

*All creatures strive for freedom under frosty skies*

*Lost in immensity*

*I wonder who*

*Upon this boundless earth, decide*

*All beings' fall and rise.*

*With many friends I oft came here*

*How thick with salient days the bygone times appear*

*When, students in the flower of our age*

*Our spirit bright was at its height*

*Full of the scholar's notable rage*

*We criticized with all our might*

*Pointing to stream and hill*

*Writing in blame or praise*

*We treated like dirt all mighty lords of old days*

*Do you remember still*

*Swimming mid-stream, we struck waves to impede*

*That boats which passed at flying speed? (Xu, 2006, pp. 16)*

Figure 8.



In the middle of the booming revolution, Mao founded the Xinmin Institute, announced the creeds of “no hypocrisy, no laziness, no extravagance, no gambling and no prostitution,” and called for members to strive for progress.

This poem demonstrates Mao’s boldness and unconstrainedness at that time. Through the depiction of autumn scenery in Changsha, Mao blended the beauty of nature, the beauty of virtue and the beauty of social revolutionary struggle in a single poem, which manifests not only Mao’s personal ambition but also the spirit of the age, and spurs people to achieve headway.

Meanwhile, the beauty of revolution is explicit through the beauty of both nature and artistic images brought to life, such as the following verse by Mao: Do you remember still/Swimming mid-stream, we struck waves to impede/That boats which passed at flying speed? This verse shows the perfect combination of harmony, authenticity and virtue and profoundly reflects the principle of “mature ideas before writhing, express ideas while writing and present ideas in the finished poem.”

Here is another verse of *Changsha*, “Lost in immensity/I wonder who/ Upon this boundless earth, decide/All beings’ fall and rise.” History has proven that only Mao and his comrades could help the new China (People’s

Republic of China founded in 1949) accomplish the great success, and such grand historic beauty distinguishes the poem from others.

In 1936, Mao wrote *Snow—to the tune of Spring in a Pleasure Garden*:

*See what the northern countries show:*

*Hundreds of leagues ice-bound go;*

*Thousands of leagues flies snow.*

*Behold! Within and without the Great Wall*

*The boundless land is clad in white,*

*And up and down the Yellow River, all*

*The endless waves are lost to sight.*

*Mountains like silver serpents dancing,*

*Highlands like waxy elephants advancing,*

*All try to match the sky in height.*

*Wait till the day is fine*

*And see the fair bask in sparkling sunshine,*

*What an enchanting sight!*

*Our motherland so rich in beauty*

*Has made countless heroes vie to pay her their duty.*

*But alas! Qin Huang and Han Wu*

*In culture not well bred,*

*And Tang Zong and Song Zu*

*In letters not wide read.*

*And Genghis Khan, proud son of Heaven for a day,*

*Knew only shooting eagles by bending his bows.*

*They have all passed away;*

*Brilliant heroes are those*

*Whom we will see today! (Ibid, pp. 65)*

This is a poem brimming with pride and giving full rein to Mao's ambitious momentum.

Published on the KMT (Kuo Min Tang) controlled newspaper in Chongqing in 1945, Mao's poem exerted an explosive impact on this mountainous city and then became familiar to people nationwide. Liu Yazi, a Chinese poet and political activist regarded as the "last outstanding poet of the traditional school", even asserted that *Snow* is of unprecedented success and cannot be copied in the future.

Endowed with firm revolutionary determination and stout faith to revolutionary goals, this poem unveils the author's far-sighted mind, tolerance, boldness, and enthusiasm for gorgeous landscapes of motherland, as well as the aspiration to fighting for a brighter future.

If we can only recognize stout faith in *Changsha* written in 1925, then in *Snow* written in 1936, we can already sense the looming light before sunrise, which is the prophecy for ultimate victory and marks the beauty of this poem.

There are plenty of ambitious and passionate poets and poems in Chinese history, such as Li Bai's *Hard Roads in Shu*<sup>1</sup>, *Bringing the Wine* and *An Imaginary Farewell Tour in Mount Tianmu*, etc.

Praising the nature and human boldness to struggle, Li Bai's *Hard Roads in Shu* is like a soul-stirring and heart-rending symphony sung by one person and then echoed by more. The notable variability of rhythm and tone confers remarkable peculiarity on this poem.

Li Bai's *Bringing the Wine* reveals his indifference to fame and fortune, contempt for the rich and the privileged, and personal quest for independence and freedom. The romantic image of the "God of Wine" is so fully and vividly depicted in the poem,

Another example is *the Red Cliffs* by Su Shi:

*The great river eastward flows;  
With its waves are gone all those  
Gallant heroes of bygone years.  
West of the ancient fortress appears  
Red Cliff where General Zhou won his early fame  
When the Three Kingdoms were in flame.  
Rocks tower in the air and waves beat on the shore.  
Rolling up a thousand heaps of snow.  
To match the land so fair' how many heroes of yore  
Had made great show!  
I fancy General Zhou at the height  
Of his success, with a plume fan in hand,  
In a silk hood, so brave and bright,  
Laughing and jesting with his bride so fair,  
While enemy ships were destroyed as planned  
Like castles in the air.  
Should their souls revisit this land,  
Sentimental, his bride would laugh to say:  
Younger than they, I have my hair turned grey.  
Life is but like a dream.*



*O Moon, I drink to you who have seen them on the stream. (Xu, 1986, pp.107)*

Deemed as a monumental masterpiece eclipsing works by both his predecessors and successors, this poem conveys Su's impassioned aspiration, tremendous ambition to perform his brilliant talent and his tribute to historical heroes.

Another representative poem is *The Expression of Feelings—to the tune of the Moon Over West River* by Xin Qiji, a celebrated poet of the Song Dynasty. As a satire of the social ill, this poem shows touching sincerity through the precise exposure of social problems, in which the “three phases of conveying ideas” are well-organized and sublimated, and the beauty of harmonious and unified diversity is illustrated.

*The Moon Over the West River -- Written at Random*

*Drunken, I'd laugh my fill,*

*Having no time to be grieved.*

*Books of the ancients may say what they will;*

*They cannot be wholly believed.*

*Drunken last night beneath a pine tree,*

*I ask if it liked me so drunk.*

*Afraid it would bend to try to raise me,*

*“Be off!” I said and pushed its trunk. (Ibid, 184)*

The elements that make up music are in great variety, such as melody, rhythm, beat, mode, conditioning, harmony, polyphonic, texture, musical form, etc. These elements are interdependent and synergized, and form a very complex and harmonious whole, a typical example of beauty of harmony in differences and diversity. The thought of harmonious beauty plays a shocking role in music.

In the field of art, music is the most typical example of the diversity unity and harmonious variety of the overall beauty of art. Take symphony, which involves a dozen musical instruments ranging from low pitch to high pitch, for

example. In a symphony, musical instruments with their own characteristics are played in different methods, ensemble, solo and so on. The volume, the strength, the rhythm and the tune also vary. But under the shared command, the most wonderful beauty of harmony in diversity can be achieved.

Yan Su, in the lyrics for the theme song of TV series *Journey to the West*, wrote that “Where is the road ahead? /The road is under your feet!” What a heroic and impressive piece of lyrics! Only such a high degree of integration of lyrics, melody and meaning can lead to the great beauty in the music.

The modern “country music” and so on, are also examples of artistic beauty with harmonious diversity.

Lenin said: “diversity will not only undermine the unity of the main, fundamental and essential issues, but will ensure its unity.” The material unity here refers to the “inner harmony of the system” (Lenin, 1995, pp. 399)

The beauty of diversity is not only the first aesthetic principle, but also the fundamental law of aesthetics.

## **The Beauty of Overall Optimization**

As a basic law of systems philosophy, overall optimization is rooted in nature, human society and noetic science. Combined with the philosophy of self-organization emergence, it becomes the most common and most regular law of the universe system.

In the celestial system, the galaxies have their own distribution, structure, state and operational orbit, and evolve in the way of overall optimization.

In the solar system, for example, the sun is in the center, glowing and heating with an enormous weight; around it run the nine planets along the same direction at their respective speed, in their respective elliptical orbit; all the planets except Mercury and Venus have their own satellites and asteroids running around them. In accordance with the gravitational standard, this phenomenon is the result of overall optimization and reflects the beauty of the overall optimization.

Following examples also manifest the beauty of overall optimization: in the geoscience system, the earth structure, such as earth core, mantle, crust, hydrosphere, biosphere, and anthroposphere arrange orderly and rationally; seasons alternate regularly; seven continents and four oceans geographically distribute reasonably.

In other natural science systems, things such as the ideal gas, absolute blackbody, ideal experiment, inertial system, various critical points,

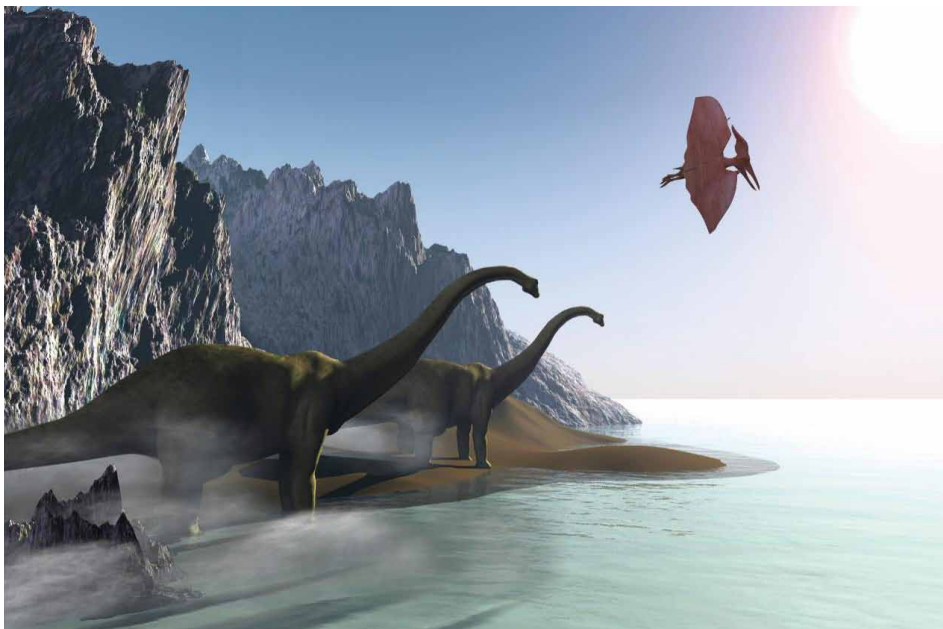
equilibrium states etc. in physics, are all manifestation of the beauty of overall optimization in terms of their objective functions.

In the periodic table of elements, each period has the elements with the strongest and weakest metallic and non-metallic properties. The same can be said with respect to chemical properties. This also reflects the beauty the overall optimization of various elements.

In biology, assumptions like natural selection and the survival of the fittest proposed by Darwin are the results of the beauty of overall optimization. Systematic things are eliminated due to the loss of their optimal state. Existing things (systems) are not necessarily the best or the most reasonable, because the optimal state, optimal process, optimal function, optimal beauty are only born in the interaction between the external environment selection and the self-organization whose internal differences are systematically synergized.

Is the extinction of dinosaur an overall optimization? If we see dinosaur as a closed system, its destruction is an overall deterioration of its species. But if we regard dinosaur as an element of the nature, then only its extinction can make other animals' and plants' survival and development possible, so that nature can achieve its overall optimization. Therefore, Dinosaur's extinction

*Figure 10.*



is subject to the inherent law of nature and external conditions. If dinosaurs had survived beyond the constraints of the natural law, it would have led nature to the overall deterioration.

In social systems, the development of human history, from primitive society, slave society, feudal society, capitalist society, to the more advanced society, shows the overall optimization and perfection.

People's thinking also witnesses an advancement from a single-way thinking, to black-and-white thinking, to systematic philosophical thinking, during which the human cognitive ability has become stronger and stronger, so that it can better interpret and reflect the original appearance of the objective world. This advancement demonstrates the overall optimization and beautification of people's thinking.

The objective universality of the beauty of overall optimization does not preclude the deterioration of local elements, or the phenomenon that the whole is inferior to the sum of the parts for a short period of time in the development of the system. These problems, however, do not affect the objective universality of the beauty of overall optimization. As the basic law of natural, human society and human thinking, overall optimization dominates the development in all these respects. Individual illnesses and

*Figure 11.*



deaths do not affect the overall optimization of humanity. On the contrary, facing these deterioration phenomena, researching them scientifically, finding the mechanism of inferiority and giving treatment will make the overall optimization of human groups behave more faultlessly.

Some people ask, can the story in a Chinese proverb “One monk will shoulder two buckets of water, two monks will share the load, but add a third and no one will want to fetch water” be called overall optimization? Our answer is no. Instead of being overall optimization, it is the deterioration of some elements. However, this deterioration is only a temporary performance. If we regard the three monks as a closed system, they will die because of their unwillingness of carrying water and then the closed system will disappear. The objective law of the existence of natural biology requires three monks to choose ‘thirst to death’ or “water for survival”. The answer for them is absolutely the latter rather than the former. To survive, the three monks always have to make efforts to find water, rather than “one monk will shoulder two buckets of water, two monks will share the load, but add a third and no one will want to fetch water”.

The three monks can only undertake the task of water-fetching in the best organization method to ensure that they all have water to drink, which is the



*Figure 12.*



optimization of the whole system. The proverb just proves overall optimization is the inevitable trend of the development in another way.

The beauty of overall optimization embraces difference and hierarchy, in another word, in the process of the overall optimization, wide diversity and differences are always shown, which demonstrates the beauty of harmony in difference and hierarchy. Synergy and organicity, and difference and hierarchy are the premise of the overall optimization.

If there is no difference, there is no synergy, let alone the beauty of optimization. Synergy of differences is the basic law of overall optimization, with the contents of both being compatible, complementary and interlinked. In the objective world, overall optimization and beautification are very practical, subjective and initiative. Besides, the beauty of overall optimization is objectively realistic.

In Engels's "typical character in a typical environment", the "typical environment" refers to the environment which has been overall optimized and beautified, and the "typical characters" refers to the optimized and beautified representative characters in an overall beautified environment.

In the drama, for example, both the "typical environment" and the "typical character" are typical extreme forms of optimization or deterioration. Art

Figure 13.



pieces born in this way are either extremely “beautiful” (comedy) or extremely “ugly” (tragedy). In either case, they are of great representative significance.

The masculine and feminine beauty are also good examples. Both Da Vinci’s *Mona Lisa* and Michelangelo’s *David* are typical representative characters in ancient Greece environment while Ah Q in the *True Story of Ah Q* written by Lu Xun is a counterexample, a typical tragedy.

## **The Beauty of Harmony in Symmetry**

Symmetry is a kind of harmony arising from the natural beauty produced by the internal interaction within the system. It is also the possible beauty of harmony in the ultimate state of certain phases. It is produced in the process of evolution, positively correlated to the interaction among the difference.

The symmetry in the system is the harmony among the various elements in the system. Symmetry, in general sense, means that the system material world and process all have or produce their corresponding aspects, that is, the aspects that is corresponding and similar in shape, structure and function. From macro to micro, from life to non-life, all have this symmetrical beauty.

For example, calculations of the symmetry elements and symmetry operation of crystals find that there are 32 symmetry groups (point groups) that define the external symmetry of crystals and 230 symmetry groups (space



groups) that define their internal symmetry. These symmetry groups reveal the similarity, invariance and common regularity of all crystals in both form and internal law. Proportional harmony and structural rationality are of great harmonious beauty among the differences within the system.

Any regular systematic thing may produce the harmony of symmetrical beauty and symmetry itself is the harmonious beauty of system of differences. For instance, there are many repetitive and cyclical laws in nature, such as rhythm, seasonal changes, alternation between day and night, biological holographic law, biological clock and so on.

The periodic table developed by Mendeleev in the 19th century arranges the natural elements in accordance with their inherent harmony and the principle of symmetrical beauty and has become as an important theoretical basis for chemistry.

It reveals the differences of these elements in chemical properties, which are determined by the size of the nuclear charge on the atomic structure, the number of electrons in the electron shells outside the nucleus, the number of electron shells, the number of electrons in the valence shells and the beauty generated by the harmony of differences in the distance between electron shells and between the nucleus and electron shells.

The natural beauty of symmetry, harmony and unity is also reflected in mathematics. For example, the gravitational potential in Newton mechanics and the electrostatic potential in electricity can both be described by quadratic partial differential equations.

The idea of the harmony of symmetry of the universe provides the ideological resources for Copernicus and Kepler's theory of cosmic theory.

Einstein used the idea of the beauty of symmetrical harmony as his scientific method in the establishment of the Special Theory of Relativity and named the unity of the material world as "internal harmony", "inner perfect" and "mysterious harmony". Therefore, it should be recognized that the "inner beauty" of material system is harmony, and the "external beauty" of material system is generated by its "inner harmony". In fact, symmetry itself is the external beauty of system and of the synergy of differences.

Regularity is the harmonious beauty of the movement, change and development of systematic materials. Harmony can only be achieved when regularity is achieved. Therefore, regularity is the symbol of harmonious beauty. Various laws of conservation symbolize the beauty of unity and harmony in nature, and our task is nothing more than leading the development of systematic things towards the direction of harmonious beauty. Because there are countless differences in systems, there are numerous directions.

*Figure 14.*



And we must aware that even in the same direction, there are many different purposes. The harmony of the system is relative and is limited within certain hierarchies of materials. Harmony has conditions and boundaries and is a process of system conversion.

Similarity is also the harmonious beauty of the internal differences, including that of phenomena, forms, properties, structures and laws.

The above principles provide an important scientific theoretical basis for the beauty of synergy of differences and the beauty of harmony. In addition,

the principle of “self-consistency” and “bootstrap dynamics” in superstring theory also shows that the differences of things cause quantum fluctuation, and the new orderly structured beauty produced by coordinated self-organization can be called as the forth regulations, such as self-organization evolution of the universe, the earth and the human beings.

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## ENDNOTE

- <sup>1</sup> Shu is was an ancient state in what is now Sichuan Province.

## Chapter 5

# Mathematical Foundations of Aesthetics

### ABSTRACT

*Mathematical methods were used to prove the principle of aesthetics. It was pointed out that the least action principle is the fundamental law of harmonious beauty. This chapter establishes a variational equation of the beauty of harmony, with the left side of the equation being the least action principle, which represents energy efficiency and time efficiency, while the right side refers to harmony and beauty, namely the beauty of harmony. The mathematical symbol linking the two sides suggests that physics, philosophy, and aesthetics are unified in a harmonious and organic way. Its beauty lies in the fact that the two sides of the equation are not only symmetric, congruous, orderly, and succinct, but also in the fact that it has a very beautiful look.*

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## **INTRODUCTION**

Systems aesthetics, mathematics, and physics have profound relations and connections and form an inseparable entity.

## **NATURAL EVOLUTION AND THE LEAST ACTION PRINCIPLE**

The theory of self-organization emergence and the theory of overall optimization illustrate the self-organization evolution mechanism of the universe from singularity into emergency system. This self-organization evolution mechanism is the most profound and most general law of the universe, which presents the coordinated and synergized evolution of the universe from bulgoscopic to littoscopic scales and demonstrates the development trend and direction of harmonious beauty. This inner tension for overall optimization is the motive power for the universal evolution, and what we called in physics the least action principle, which resembles “the first move of immovability” raised by Aristotle in function.

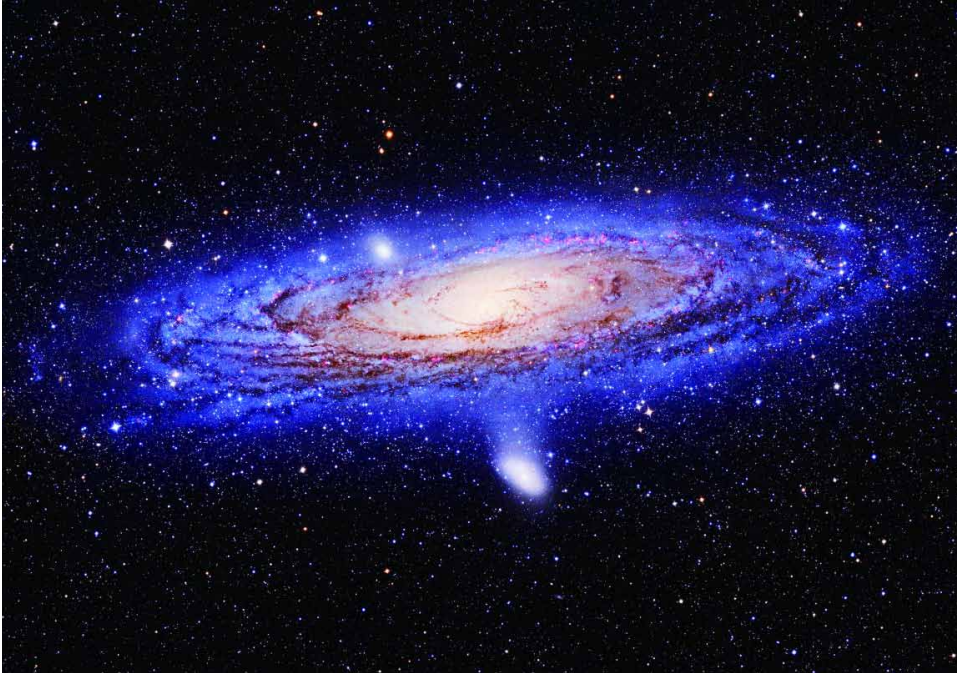
For example, during the evolutionary process of nature, the formation of sun and earth, the origin of animals and plants, the progress of human society etc., the overall emergence generated by evolution of each level is the optimal and most beautiful state of that level.

Optimization is the trend, direction and purpose of the development of systems and even the whole objective world. The value that human society pursues persistently is the structural and functional optimization of all systems in human society, which is also the pursuit of the beauty of the ideal society and the world of great harmony.

What optimization signifies is that during the evolution process of systematic mass (substance), the path under the direction of saving time and energy (the least action principle) finally reaches the most optimal end, as well as the most beautiful end.

Systems of animals, plants, creatures and lifeless system are all consistent with this route, which is neither the arrangement of God, nor the will of hierarch, but the fit-for-purpose of the nature evolution, and the tension and trend of the physical logic of nature.

*Figure 1.*



*Figure 2.*





*Figure 3.*



The road of evolution starting from the singularity is a path of saving time and energy, and a path of creating beauty. The mechanism of energy and time saving is not only the momentum for but also the purpose of systematic evolution, and the essence of the evolution of systematic beauty, corresponding to the theory of “final cause” of Aristotle.

Throughout the systematic optimization process, till the extreme of optimization is reached, system exhibits the most stable and harmonious state, which is also the most beautiful state of this level.

Up until this point, we can say that the evolution of systematic beauty reaches its extremum and beauty itself reaches singularity. The beauty starting from singularity reaches “pre-established harmony” proposed by Gottfried Leibniz in “monadism”, namely the harmony between natural logic and human logic at singularity.

What is beauty? Beauty is harmony, beauty is universe, and the universe is the highest level of beauty and existence. This is all the connotations and the highest level of connotations of systematic aesthetics. Meanwhile, it is the ontology as well as the starting point and destination of systematic aesthetics.



*Figure 4.*



This definition of beauty returns to Aristotle's "starting point", where we cannot help but be stunned by the profoundness and preciseness of Greek's thoughts.

This "pre-established harmony" is neither arranged by the God, nor the will of monarchs of other religions, but the fundamental rule and the essence of nature, which is settled by the nature itself.

The essence of systematic beauty is tightly linked to systematic emergence, systematic optimization, extremum, singularity, black hole, temporal distortion, strange attractor and cosmological constant etc.

The natural beauty or original ecological beauty before human society is the source of realistic beauty (artistic beauty, design beauty) and all the other beauty after the emergence of human society.

The beauty of freedom proposed by Kant is equivalent to the beauty of nature we discussed here.

The golden ratio method is nothing but the balance of proportion and the symmetry of the "inner beauty" in mathematical sense.

*Figure 5.*



The least action principle on physics is the core of systematic evolution, the endless source of power of universal evolution, the first driving force forever, and the process cause, the final cause and the ultimate cause of evolution. While beauty is only its token.

The thoughts, awareness, emotions, aesthetic feelings, and aesthetic consciousness of human society are only the appearances of the “inner beauty” of nature. Likewise, the intelligence, emotions and information of humanity all have material carriers, and are all derivatives of movement energy transformation of substance, and of the change and hierarchization of its movement forms.

Because the evolution of substance has fractal properties and similarities, thought, as a reflection of the material world, can also generate fractal properties and similarity, as can emotions and consciousness. The similarity and fractalness of both matter and thought are thus generated. Hierarchization of the evolution of substance leads to the hierarchization and similarity of thoughts. The reason why people feel that the substance generated by natural evolution is beautiful is that humankind itself is also naturally evolved and hierarchical beauty.

*Figure 6.*



We often say that nature is a big universe, and humanity is a small universe. This is the origin of the pre-established harmony, and the reason why Bruno called nature the God of things.

Modern systematic science and systematic philosophy suggest that the thoughts, emotions, information, aesthetic feelings and aesthetic consciousness without material carrier do not exist. The fractalness and similarity of human thoughts originate from those of substance.

## **HARMONIOUS BEAUTY AND FRACTALNESS**

In 1967, Mandelbrot (1976), a young British mathematician, published an article discussing the issue of the length of the coastline of Great Britain. His answer in this article not only amazed people, but also became the symbol of an academic subject (pp.636-638).

*Figure 7.*





*Figure 8.*



## **The Evolution and Growth Rule of Nature**

Mandelbrot (1967) believed that the formation and growth of coastline is infinite (pp.636-638). More precisely, its length is infinite because the coastline varies with the changes of measurement scale. Therefore, the length of a stretch of coastline depends on the scale of measurement applied by viewers, for example, the length observed through a satellite is much less than the length observed while on the Earth.

There are many similar things, such as branch-like mountains on the earth, curving and beautiful rivers, floating clouds, galaxies spinning in the outer space, plants with similar growth attributes, animals breed in the similar way, etc., which all grow and evolve in a fractal way and resemble each other.

Another example is the genetic code in biology. In the system of life, evolution at various levels has its own rule to follow, while on the other hand, there are fractal similarities among those rules. This arises because systems at different levels coevolve, for example, the coordinated evolution at microcosmic and macroscopic levels forms the harmonious beauty of large systems like the universe. The similar fractal structures of the DNA and RNA of creatures throughout inheritance lead to the law and state of fractal evolution and growth in the evolutionary process of creatures.

The fractal growth mode of nature is exactly the law of growth, and the most actual state of existence, which amazes humanity.

One feature of the fractal theory is self-similarity, i.e. the constancy of the fractal, which refers to the repetition of the same transformation rule at different scales. The unified universe, the human society and various things all have this feature.

The features of the fractal theory are illustrated as follows:

- Complex and irregular appearance;
- No characteristic scale, that is, scale-free;
- Self-similarity;
- Infinitely fine structure, that is infinitely nested geometric structure, as in the set of Russian dolls;
- The actual dimension bigger than the topological dimension;
- Generated in a way that is simple.

Those are the simplest features of everything throughout the course of evolution.

Nature utilizes the fractal rule to create the world and exist in a fractal way. From the Big Bang to the dawn of civilization, from the formation of atoms to human society, from the reproduction of cells to the similar generation of plants and animals, fractal is everywhere.

Take biogenesis for example: the organism evolves rapidly in a concise and condensed way during the period of embryo evolution, which is the principal representation of the evolutionary phase of this race.

Another example is cognitive evolution theory, which believes that the cognition of every ordinary individual repeats the main phases of the development of human cognition and is an epitome of the evolution history of human civilization.

From the earliest emergence arising from the Big Bang and the universal expansion, such as quark, lepton, vector meson and other fundamental particles, to the creation of human society, natural evolution has lasted for over a billion years. Throughout those years, the universe, nature and human society not only existed in a fractal state but also were generated in a fractal way and kept evolving.

This process signifies that:

- The hierarchy of evolution and the emergence generated by evolution are both related to fractal and hierarchical beauty. They are both the

*Figure 9.*



generation and evolution, and the optimization and perfection of hierarchical beauty, that is, the generation process of beauty, great beauty and harmonious beauty.

- Nature is the teacher of humanity, because every naturally beautiful thing produced by the nature are also regarded as beautiful by humanity.
- Natural beauty is the resource of design beauty, artistic beauty and all the other forms of beauty.
- Design beauty and artistic beauty always pursue, approach and reproduce natural beauty. Conversely, design beauty and artistic beauty can be created by the imitation of natural beauty.

The coastline is winding, sloppy and cliffy, which impresses people as beautiful; the grasses, flowers, trees, green plants and fruits, etc. makes people feel comfortable and enjoyable. But it does occur to us that those beautiful things can be described in mathematical way.

## **The Mathematical Expression of Similarity and Fractal**

In algebra, recursive function can be used to describe the features of fractal:



$$F(x_n+1)=f(x_n)$$

Given an initial value  $x_0$ , the result of this equation can be substituted into the equation itself to exert an influence on the result of the next calculation. Repeating the calculation continuously, we can find the recursive feature (fractal feature) and the potentials of the system, and the generation, evolution and perfection of the beauty which emerges hierarchically.

The beauty presented by the hierarchy of this equation is the beauty generated through natural evolution and emergence, and the beauty we feel in our daily life, which also signifies that the essence of beauty is based on mathematical foundation and structure.

In human society, the ups and downs of the stock market, the fluctuation of prices, and the development of society are all phenomena of fractal and are all linked tightly with social beauty.

Furthermore, the natural growth coral and sponge in the ocean, the urban expansion, the activity of the brain are also the phenomena of fractal, which can be calculated by creating mathematical models.

Mandelbrot (1967) once said something to the effect that the intersection of so many subjects must be an empty set (pp.636-638). But I believe that the collection of “intersection” and “empty set” must be the composition of great beauty.

The harmony of differences in the generation, the emergence, the hierarchy and the beauty of evolution similarity leads to the certainty of beauty, that is the evolutionary beauty of certainty and the certainty of evolutionary beauty.

The growth and evolution of everything needs space, which is an inseparable whole with the growing and evolving entity. Therefore, the space and the growth and evolution of the entity form a similar fractal, and the whole formed by space and entity is a beautiful structure.

Here are some more examples:

In literary and artistic creation, everyone pursues the establishment of typical characters, contexts and plots, to create a typical event which makes the readers feel familiar yet strange. A character in the literature represents many people in the real world. A complete artistic image brings readers joy and impress them as being vivid and heart-shaking. This is the typical character in typical context in Engel’s words. The work of Lu Xun *The True Story of Ah Q* created the figure of Ah Q, a typical jobless vagrant at the bottom of the society, causing tremendous repercussions in the society.

Besides, metaphor and resemblance are the important expression methods of all literature and art, such as “like”, “seem”, “the same”, etc.

Figure 10.



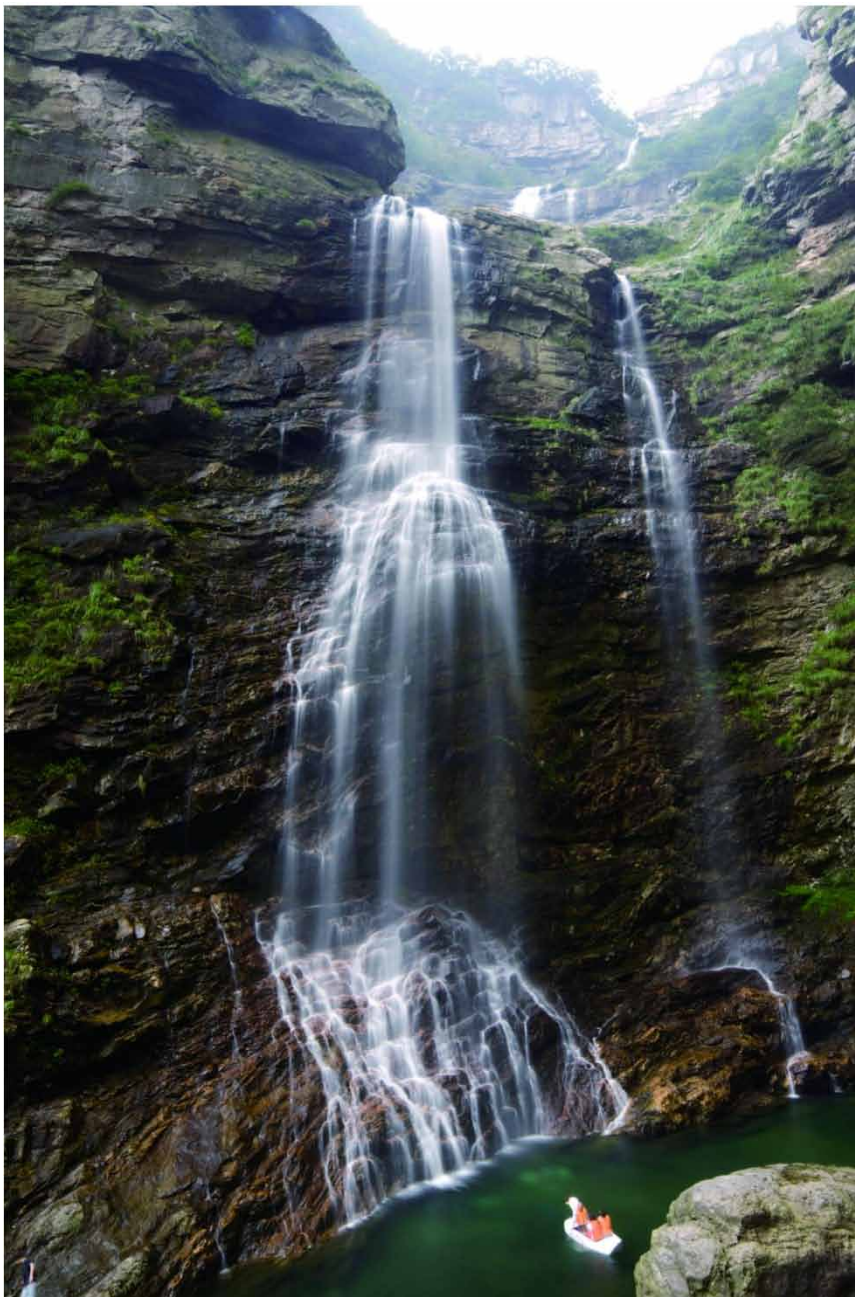
In the book *My Old Home*, Lu Xun (2013) said “I thought hope cannot be said to exist, nor can it be said not to exist. It is just like roads across the earth. For the earth had no roads to begin with, but when many men pass one way, a road is made. (pp.67)” Here the similarity between “hope” and “road” and figurativeness and profoundness of this metaphor are vividly expressed.

It will be meaningless to talk about the existence of road without the “road of hope”, for only those with dreams can see hope and find the way to success (Ibid, pp.8). This is an unquestionable truth, which Lu Xun visualized and made artistic and caused tremendous repercussions. The metaphor also makes us feel the beauty of words and the beauty of thought of Lu Xun.

The duality is also a representation of the beauty of similarity, which can bring readers vivid and appropriate feeling in the way of comparing human to object because of similarities between them.

*A reed on the wall cannot stand firmly  
for its heavy leaves, fragile stems and insecure roots;  
A bamboo in the mountain is hollow-hearted  
despite its pointed sprout and robust cortex.*

*Figure 11.*



This poem uses reed and bamboo to refer to people, which gives the readers the impression of vividness.

Of course, we hope that there are fewer people like this around us, but more people like Lu Xun and Li Bai.

Li Bai (2011) wrote in his poem *Viewing the Waterfall at Mount Lu* that:

*Sunlit, the Incense Summit, aglow in smoke and steam;  
To afar like a shimmering curtain, a waterfall hangs up-stream:  
Rolling, flying, fluttering-plunging three thousand feet,  
As if 'twere the Silver River, falling from Heaven Supreme. (pp.52)*

In this poem, we can feel the beauty of Mount Lu under the shroud of clouds, as if we've already seen the splendor of the waterfall of Incense Stone and the glamour of the Incense Stone with phantasmagoric changes of light and color. Under the bright beam of sunshine, thin layers of mist turn into purple, leaving people the impression that they have reached "the ninth height of Heaven".

This poem not only presents a wonderful view of waterfall, but also the great talent of the author. The exciting and enjoyable feelings of readers are greatly aroused by the poet's imagination, exaggeration as well as vivid metaphors. The "waterfall" extremely resembles the "Milky Way", which has stunned the readers and elevated their thoughts. This is a classical representative of the beauty of similarity. The words are precisely appropriate, and the context is incomparably beautiful.

There is a famous quotation about waterfall written in Su Shi's poem: "the fall of Lu Mountain, the Milky Way sent down by the Heaven; since ancient time, only Li Bai's poem can best portray this scenery", which praises that the poem *Viewing the Waterfall at Mount Lu* by Li Bai as an unprecedented masterpiece throughout the ages

Li Bai in *Thoughts in the Silent Night* wrote that:

*Beside my bed a pool of light.  
Is it hoarfrost on the ground?  
I lift my eyes and see the moon.  
I bend my head and think of home. (Ibid, pp.50)*

Although this poem seems simple and flat, it is recited repeatedly from days of old until now. In this poem, he creatively compared the "hoarfrost" to the "pool of light," which not only described the pure whiteness of moonlight,

but also the peacefulness of the night and the beautiful scene of “hoarfrost scattering on the ground”.

There are only 20 Chinese characters in this poem. The time, location and environment are concisely depicted with only a few words, which were fluent, natural and thought-provoking. The connotations hidden in this poem is exactly the marvelous thing that appeals to readers’ imaginations.

The “theory of empathy” proposed by the German psychologist Theodor Lipps is an expression of the similarity among the evolution of things. As far as human emotions are concerned, empathy is not a reverse process, but an interactive process. Natural beauty acts on the emotions of the viewers, the viewers then deepen the empathy and transfer it to physical matters with natural beauty.

The Russian educationalist, Ushinski (2007), said that the function of empathy is essentially only similar to an association of ideas, which means everything is the association of fractal evolution (pp. 175).

The cuckoo’s song resembles human’s crying, and the plum blossom blooming in cold winter resembles noble and lofty traits and personality. Therefore, there are many metaphors, such as the crying cuckoo and the noble and unyielding character like a branch standing straight in coldness and frost, etc. These are all the results of association of ideas arising from the similarity of human’s thoughts, in another word, the leading role played by the fractal nature of human’s thoughts.

Lenin said, in the *Conspectus of Feuerbach’s Book Lectures on the Essence of Religion*, that “everything in the nature is analogical” (Lenin, 1972, pp.61). The imitation, verisimilitude, reappearance, empathy and illusionism etc. in arts and literature are all the images, feelings and ideas triggered in our hearts by the similarities of things.

Therefore, fractal theory and artistic beauty are inseparable. Fractal theory suggests that similarity is the core of all artistic beauty and demonstrates the harmony among and fractal unification of natural beauty, artistic beauty and design beauty as a whole.

Without the features created by fractal similarity of matter, there is no literary and artistic beauty. While the molds of similar evolution present the artistic beauty of mathematics. Their unification and harmony represent the integration of natural beauty, artistic beauty and designing beauty, as well as the inner unification of mathematics, physics and aesthetics.

## THE BEAUTY OF HARMONY AND THE LEAST ACTION PRINCIPLE

In the book *The Harmonious Society and the System Paradigm*, we have mentioned that all material systems and thoughts consistent with the least action principle are harmonious (Wu, 2006, pp.95). Then in the book *Mathematical Principles of Systems Philosophy*, we proved this statement using the methods of mathematics and physics. Now, we take a quotation from this book (Wu, 2013, pp.94).

*Systems philosophy* argues that all physical systems that comply with the least action principle are harmonious, which is to say harmonious systems are beautiful. In the following passage, we will illustrate this argument more specifically. (Wu, 2008, pp.137)

To prove that all systems consistent with the least action principle are harmonious, we mainly need to explain these two points:

1. The relationship between the least action principle and the laws of thermodynamics.
2. Can systems tend to be stable despite fluctuations, and form an entirety and demonstrate the features of overall optimization?

Here, there are several situations:

Firstly, can the system tend to be stable when it is near to the equilibrium state, which is the linear area of non-equilibrium state?

Secondly, when the system is far away from the equilibrium state, which is the nonlinear area of non-equilibrium state, what features will it have?

Thirdly, when the interior part of the system performs fluctuation or encounters external disturbances, will it tend to achieve overall stability?

To solve these questions, we should make an introduction about the development of the least action principle, and what is “action”?

In reality, nature always resorts to the courses that result in the smallest product of time and energy, that is to say, the courses that are both time-saving and energy-saving. The product of time and energy is called the “action”.

Pierre Louis Moreau De Maupertuis (1689-1759), a French mathematician, came up with the least action principle in 1740. In fact, he once published a thesis entitled *Law of Bodies at Rest*, in which he looked for “a science of higher level” than physics and conceived of the idea of least action principle (Xu, 1996, pp.79-83).



In 1744, in the thesis named *Agreement of Several Natural Laws that Had Hitherto Seemed to be Incompatible*, he put forward the least action principle clearly. He defined the “action” as the product of quality, speed and distance (Ibid, pp.79-83).

Euler made a mathematical statement for the least action principle, and proved this principle using strict variation methods.

Karl Gauss (1777-1855), a famous German mathematician, developed the least action principle in 1828. Based upon this, mathematician Lagrange developed analytical mechanics, called Lagrangian mechanics.

Someone regarded the least action principle as a pearl in the crown of physics.

The action A is defined as:

$$A = m \int u ds$$

where  $m$  is mass (substance),  $u$  is *speed*, and  $ds$  refers to change in distance  $s$ .

The initial form of the least action principle is ( $\Delta$  is the symbol of unequal variation):

$$\Delta A = \Delta \left[ \sum_i m_i \int u_i ds_i \right] = 0$$

where  $m_i$  is the  $i$ th substance,  $u_i$  is the speed of the  $i$ th substance,  $ds_i$  is the distance that the  $i$ th substance moves during an interval of certain time. ( $i=1, 2, \dots, n$ )

When the system moves in any possible space configuration, among the movements that take the same amount of energy, the actual movement of the system shall make action A take the extreme value, then above formula can be written as:

$$\Delta \int_{t_1}^{t_2} 2E_K dt = 0$$

where E represents the kinetic energy of the system.

For a single subsystem, if time parameter is eliminated,  $\Delta$  could be replaced by the symbol of contemporaneous variation  $\delta$ .

$$\Delta \int_{t_1}^{t_2} 2E_k dt = \delta \int_{p_1}^{p_2} mvd s = 0$$

where  $p_1, p_2$  represents two points in the  $n$ -dimensional space,  $m$  represents mass,  $v$  represents velocity,  $s$  represents the path from  $p_1$  to  $p_2$ . The above formula denotes the calculus of variations of the path passing through these two points.

Hermann Ludwig Ferdinand von Helmholtz gave the following common expression of the least action principle:

$$\int_{t_1}^{t_2} \{ \delta (-\Psi + E_k) + \delta A \} dt = 0$$

$\Psi = E - TS$

where  $\Psi$  represents free energy,  $E$  represents potential energy of system.  $T$  represents absolute temperature,  $S$  represents the entropy of system.  $\delta A$  represents the work that the outside does on the system when those parameters vary.

Helmholtz proved that the least action principle is consistent with the laws of thermodynamics. In fact, the expression of the least action principle can be changed into:

$$\delta A = \delta \int_{t_1}^{t_2} \left( \delta L + \sum_i f_i \Delta \delta q_i \right) dt = 0$$

$L$ , in this expression, means Lagrange function. In fact,  $L$  is the internal energy of the system  $U$  (if  $S, F$  are chosen as parameters) or the free energy  $\Psi$  (if  $T, V$  are parameters),  $f_i$  is the potential energy of the  $i_{th}$  unit volume,  $\Psi q_i$  represents generalized displacement.

Therefore, for some scaling coefficient  $u$ ,

$$L = -E + TS + uE_k$$

Max Planck and Albert Einstein established the relativistic thermodynamics system. If we choose the least action principle of the relativistic thermodynamics system, the following formula can be used:

$$\int_1^2 (\delta L + K \cdot \delta r) dt = 0$$

In this formula,  $L = -\gamma^{-1} m_0 c^2$ ,  $k$  is a generalized force.  $\delta r$  means the generalized displacement vector,  $\gamma$  is temperature transformation coefficient,  $m_0$  is the quality of a stationary object,  $c$  is the speed of light.

The basic formula of the relativistic thermodynamics is:

In this formula,  $P = (\partial L / \partial T)_V = -(\partial \Psi / \partial T)_V$ ,  $P = (\partial L / \partial V)_S = -(\partial \Psi / \partial V)_S$ ,  $P = (\partial L / \partial V)_T$ .

Therefore, it's not hard to derive the second law and the first law of thermodynamics, which are more general:

$$dW + dU = TdS$$

$$dW + dU = dQ$$

Helmholtz concluded that all processes in nature could be depicted by the fluctuation of energy that never fades away or increase, and this fluctuation theorem of energy could be included into the least action principle completely. Helmholtz expounded, from mathematical perspective, that least action principle is a complicated issue that describes the laws of nature.

From the above discussions and arguments, conclusions can be made as follows:

1. The laws of thermodynamics can be derived from the least action principle. Moreover, Prigogine proved the principle of minimum entropy production premised on the laws of thermodynamics, which means the least action principle is consistent with the principle of minimum entropy production.
2. The principle of minimum entropy production guarantees the stability of thermodynamics linear area and the non-equilibrium and equilibrium state. Therefore, the least action principle also has these features.
3. In the nonlinear area of non-equilibrium state, when the system is disturbed and departs from the equilibrium state to a certain threshold quantity,

the non-equilibrium state will lose its stability. At that time, entropy production does not necessarily take the minimum value. The principle of minimum entropy production is no longer valid, because entropy and entropy production no longer conform with the thermodynamic potential function.

At that time, the direction of the development of process cannot be determined solely by thermodynamic method, instead, the detailed dynamic behaviors should be studied at the same time to analyze the stability of system.

When the control parameter  $\lambda$  exceeds certain threshold value  $\lambda_0$ , that is to say, when the system's deviation from the equilibrium state exceeds a certain threshold distance, the non-equilibrium reference state may lose its stability. During the process of exchanging substance and energy with the external environment, any small disturbance can make the system develop into a new sequential state through fluctuations (that is through dissipative structure), meanwhile the system comes into a new equilibrium state.

Now let us take a look at the relationship between the least reaction principle and kinetics equation. In the above passage, we've already obtained Lagrangian form of the least reaction principle:

$$\Delta \int_{t_1}^{t_2} 2E_k dt$$

Considering Lagrangian fluctuation  $L=E_k - V$ , it is not hard to deduce the following Lagrangian equation and the general equation of dynamics,

$$\frac{d}{dt} \left( \frac{\partial L}{\partial \dot{q}_k} \right) - \frac{\partial L}{\partial q_k} = 0$$

It means that the least action principle is equivalent to the movement equation of integral system.

$$\sum (F_i - m_i a_i) \cdot \delta r_i = 0$$

The above passage illustrates that the thermodynamic principle and the general equation of dynamics can be deduced by the least action principle,

which means the least action principle is in consistency with thermodynamic principle and the general equation of dynamics.

Therefore, any system consistent with the least action principle can be analyzed by the method of thermodynamics or dynamics, or both of them, to study its integral stability.

Therefore, from the principle of Liapunov instability of energy system and the above discussions, it can be concluded that the secondary deviation of the entropy  $\delta^2 S$ , or the production of the “super entropy”, can be used as a Liapunov function. The positive and negative properties of  $\delta^2 S$  depend on the value of the control parameters and dynamics parameters of the system. These parameters reflect the degree of system deviation from the equilibrium.

That is to say, any substance (system) that is consistent with the least action principle tends to be global stable, no matter it is in equilibrium state, near equilibrium state or far away from equilibrium state, and not matter how much it is disturbed by internal or external disturbance. With global stability, the system’s features of beauty of overall optimization and enhanced harmony can be easily concluded based on the method of systems philosophy.

The reasoning process above has proved that all substance consistent with the least action principle is harmonious, and the significant principle that anything harmonious is beauty, which has, therefore, proved the consistency of the least action principle and the beauty of harmony.

Systems philosophy points out that with the development of technology, the world presented in front of humanity is colorful (Wu, 2008, pp.46). During the evolution process of the systematic physical world, many new things have emerged, which is the hierarchization process of beauty.

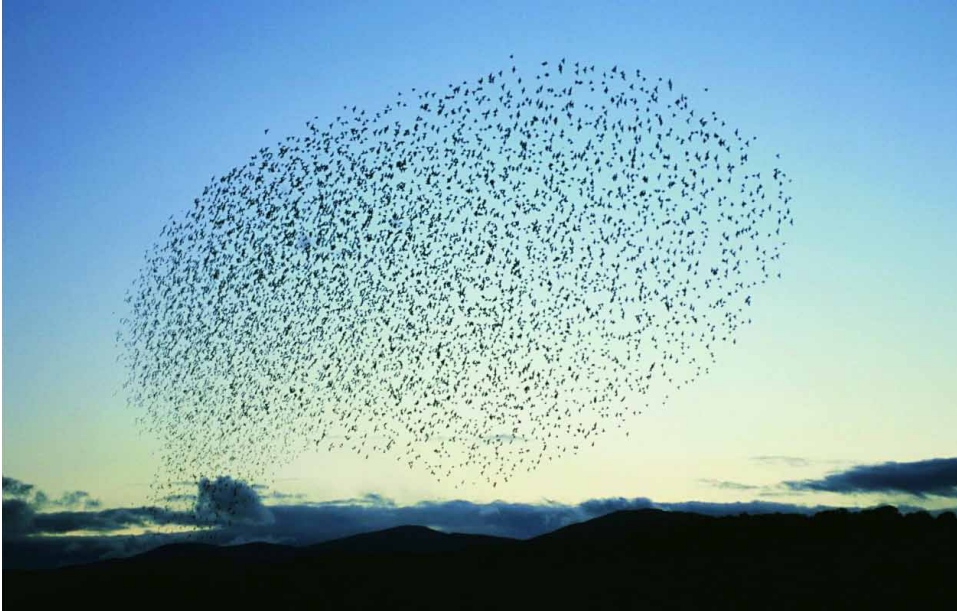
Every emergence is an innovation and development and tends towards extremum of optimization, whose core is the least action principle and whose manifestation is what we called beauty. Optimization and beautification are the resultant process of the least action principle and, even more, humanity’s pursuit process of the value of truth and kindness.

Least action principle is the motivation of systematic evolution. Its soul is the beauty of rationality, truth and science, and its manifestation is the incomparable beauty of nature.

The general tendency of the least action principle is an optimized and beautified world, which is the ultimate destination of nature, as well as the humanity’s universal aspiration for and general pursuit of kindness.

The universe always develops and evolves towards truth, kindness and beauty, with the beauty of rationality as its soul and the least action principle as its core, to achieve the extremum of systematic optimization and

Figure 12.



beautification. Its manifestation is the beauty of simplicity, profoundness, symmetry, harmony and conservation.

Moreover, the degree of freedom and initiative of these new emergence are so high that massive random activities appear in massive complicated systems. To grasp the law of evolution of systems in those nonlinear random movements, the method of statistical averaging is needed, which hence changes the traditional method that uses the laws of dynamics of the initial state to deduce all states of evolution. This is a development and revolution of the classical mechanism, and a revolution of management science, philosophy, aesthetics and design theory.

Those thoughts can be conveyed by the following mathematical logical expression:

$$\delta \int_{p_1}^{p_2} m v d s = 0 \Leftrightarrow H$$

In this expression, H denotes harmony. The mathematical symbol  $\Leftrightarrow$  means equation.  $\delta$  is a symbol of variation. The variational equation on the left of the equivalence symbol ( $\Leftrightarrow$ ) is a representative expression of Maupertuis's



least action principle. In this equation, the range of integration is limited to be the starting point and ending point of the movement of materials.

This variational equation scientifically suggests that the universe is harmonious and hence beautiful and represents the highest level of beauty of the physical world. The harmony and beauty of the universe can be expressed by mathematics and physics. The least action principle is a precise expression of it.

The least action principle is the essence of universal evolution, the embodiment of universal vitality, and the mathematical and physical foundation of universal beauty. This equation means that all systems can achieve overall optimization and beauty through evolution, including humanistic systems. The structural and functional optimization of the social systems can only be achieved if the ecological system and the social political, economic, and cultural systems achieve the optimal benefits with the least resources through their interactions with the environment. Only in this way, the human society can evolve into a harmonious and beautiful society, in which, the least action principle plays the fundamental role.

In the system of human society, the most profound and effective way to express the beauty of society is the mathematical and physical logics. Because through this equation, the best and most beautiful things can be calculated and designed, but the human society can get to this ideal state through reforms.

China's reforms will design an overall beautiful reform plan by following the laws of the beauty of society, to achieve the beauty of harmonious society.

Jacques Derrida (2016), a contemporary French philosopher, once said that, the driving force of universe is eternal and ubiquitous, which leads to different movements (pp.83). This ubiquitous force is an energy and time saving force, that is, the least action principle.

The variational equation and mathematical model of similar fractal we discussed above prove the opinion of ancient Greek philosopher Pythagorean and his school that number is the origin of universe, which exists in the harmony of numbers, and that number is the soul of matters. The universe is harmonious and, therefore, so does beauty. Harmonious universe is the highest level of beauty. The variational equation and mathematical model also prove the harmonious co-existence of mathematics, physics and systems aesthetics and answer the questions raised by Einstein and Chen Ning Yang.

Pythagorean and his school believed that beauty is the balance, symmetry, proportion, order and golden ratio of everything. We can see from the variational equation that the least action principle not only generalizes the

*Figure 13.*



balance, symmetry, proportion, order and golden ratio of everything, but also discloses the motivation of systematic optimization.

For example, human beings are the fruits of the evolution of the universe for tens of billions of years. From the perspective of mathematical proportion, order, symmetry and balance, people are composed of countless golden ratio values. Simply speaking, the navel is the golden ration point between the upper half body and lower half body of an individual. The human body is symmetrical and beautiful as long as it conforms to the golden ratio, which makes people happy, excited and envious.

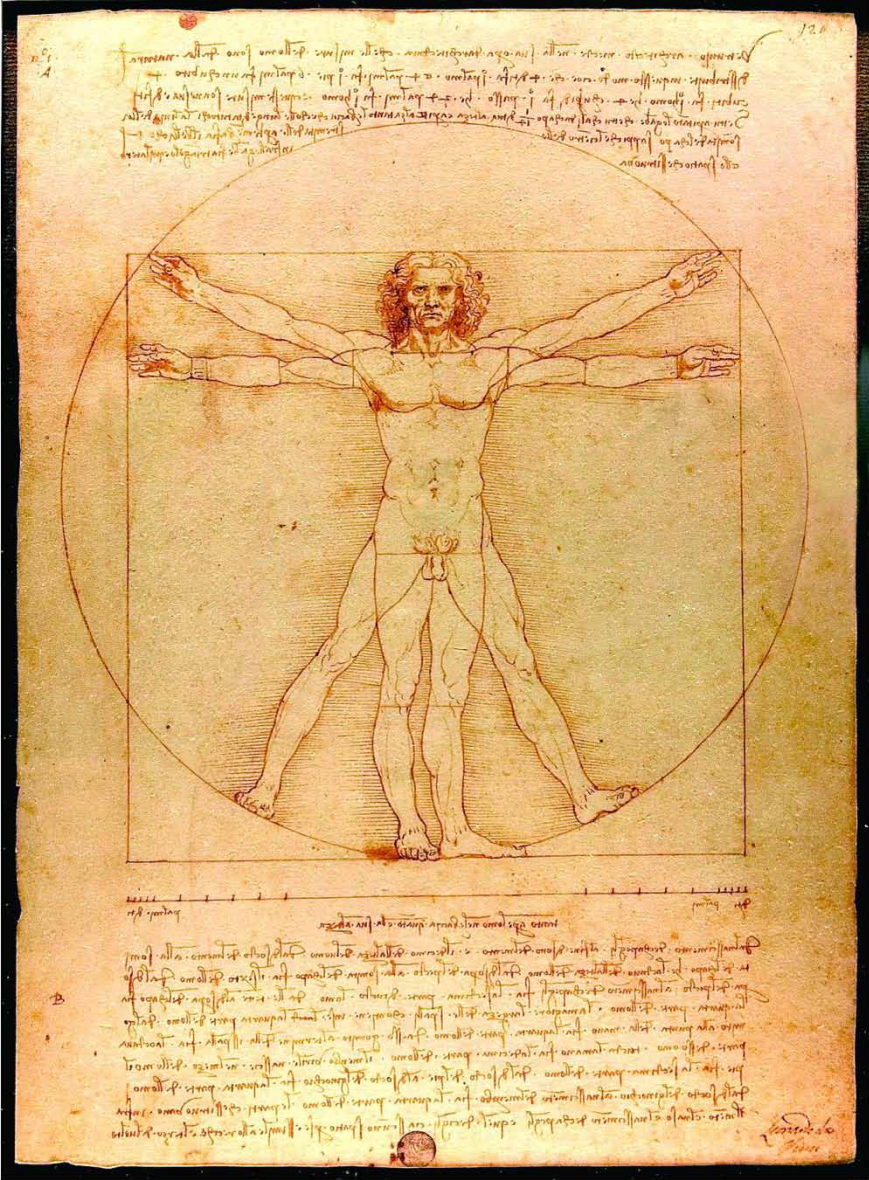
From the perspective of physics and mechanics, the races with this kind of posture must be most optimal, energy-saving and efficient, and can be aesthetically seen as the classical nature beauty. The naked body of people is beautiful due to the least action principle, the golden ratio method, its harmony and optimization, and its marvelous structure. Exquisite shape is the eternal source of artistic creation, and the unity of purposiveness and lawfulness.

The point that Liang Qichao raised “Truth is beauty, and only truth is beauty” means exactly the same thing (Chen, 1984, pp.62-71).

Like time, beauty was already carved into substance at the singularity of universe.

If there were a spokesman for the universe, he/she would definitely say: “Beauty is me and I am beauty!” Beauty is systematic, and system is beautiful. From an objective and scientific perspective, beauty lies in itself, and the

Figure 14.



material universe is its origin. Mathematics is the essence of beauty. All these have proven the scientificity of the ancient Greeks' thoughts, and that the least action principle is the core and driving force of this material universe.



Figure 15.

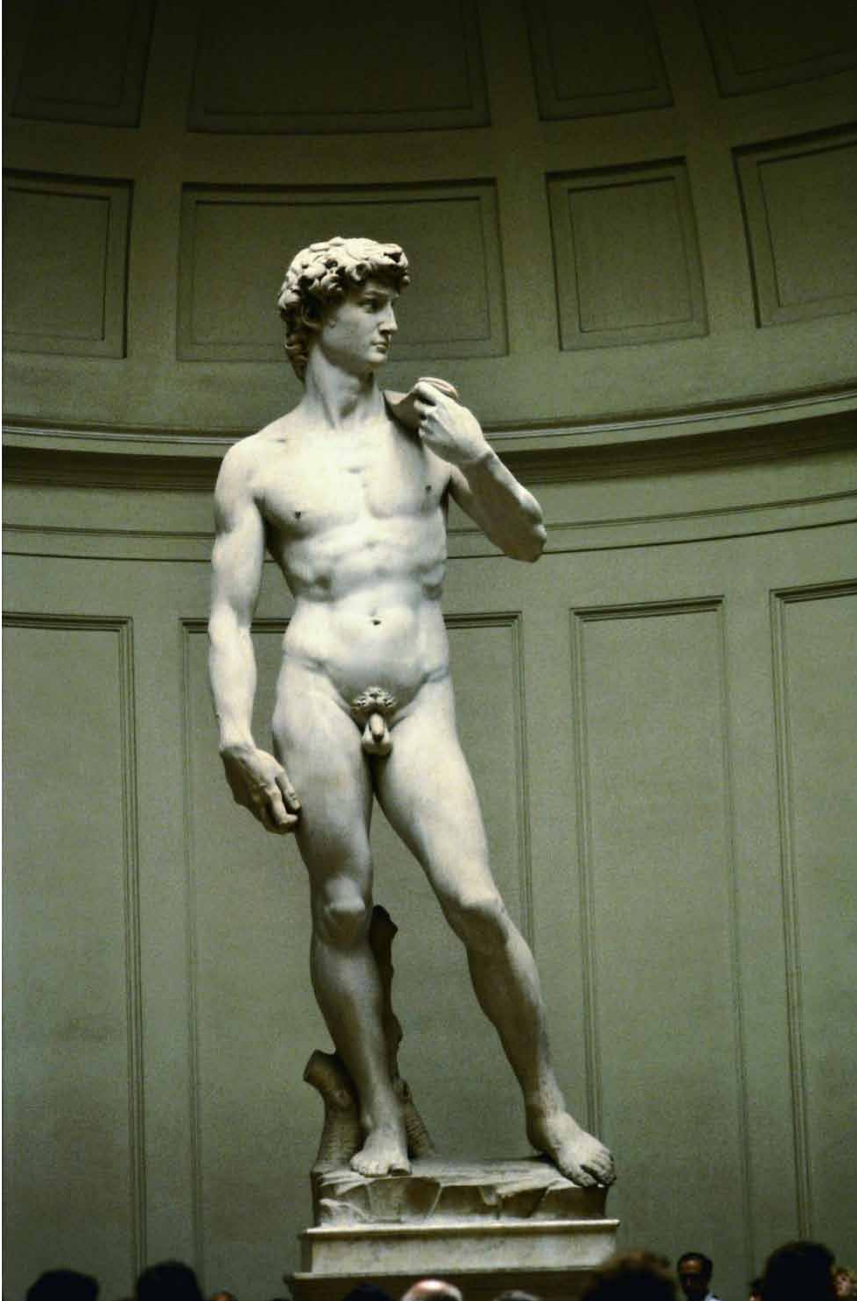


The outstanding scientist Einstein once said that a man who devoted himself to science is someone who pursues nature, harmony and beauty (Huang, 1997, pp.108-114).

There is an abundance of things characterized by high degree of integration of natural beauty, artistic design beauty and mathematical principles in real life.

Michelangelo's *David*, created based on human anatomy, is a notable example of these things. The sculpture embodies golden ratio proportions

*Figure 16.*

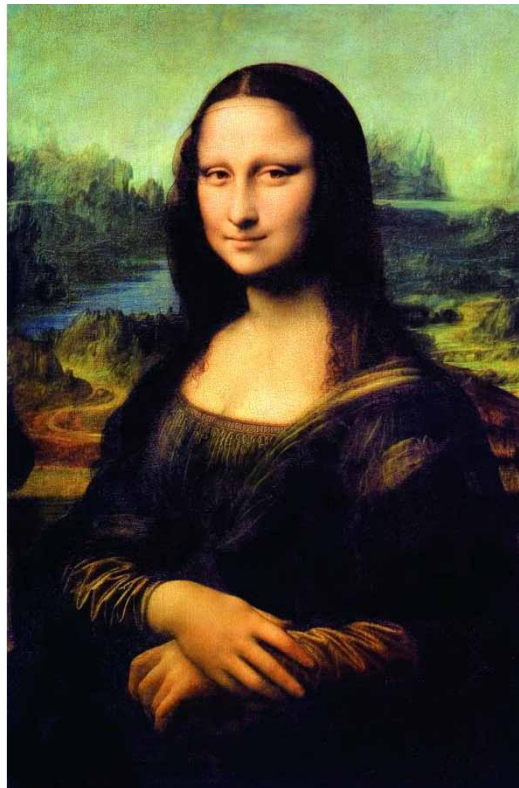


and human mechanics, demonstrates the tension in a static and relaxing state, and impresses the viewers as highly confident. Confidence, firmness and justice are meant as praise of human beings and their marvelous strength. An individual needs self-salvation, a generation of people more so. *David* is the symbol of self-salvation of the Renaissance. Michael Angelo became a hero of the self-salvation period of Renaissance.

*Venus de Milo* presents the pure beauty of human. It is a total combination and exhibition of anatomy, mechanics and the “proportion of God”, and is the highest level of integration of love and beauty.

The center of gravity of the goddess’s body falls on her right foot, thus forming a rotational movement and its coordination, which, together with her peaceful posture, constitutes the soul of the goddess, a perfect integration of truth, kindness and beauty.

*Figure 17.*



The proportion of *Mona Lisa*, a masterpiece of the human history of art and the most mysterious portrait by the Italian painter Da Vinci, is completely based on the golden ratio method.

A faint, sad smile on the face of *Mona Lisa* brings people infinite fantasy and becomes an unfathomable enigma. It is no wonder that Da Vinci regarded painting as a collection of philosophy, science and mathematics.

In the inner structure of human body, blood vessels are in the form of tree-shaped fractal and the distance between cells and blood vessels cannot exceed 3 to 4 cells, which is incomparably better than the traffic design and administration of our cities. Our lungs have the biggest area but take the smallest space, which is the most economical way of existence and brings the highest function efficiency.

The DNA double helix in molecular genetics and the golden ratio method are also related to each other. The DNA double helix are beautiful, no matter viewed from the front or side. (Gan & Yang, 2010, pp.352) Linking the double helix with the five-star through geometric projection reveals not only natural beauty, but also the realistic beauty formed by the combination of the

*Figure 18.*





mathematical and physical beauty and natural beauty, and at the same time demonstrates the relationship between “the proportion of God” and DNA.

It is suggested that “the proportion of God” has existed in various genes for a long time and has been linked to the genetic material of life, which proves that the beauty of harmony exists everywhere. Beauty is embedded in the revolution and development of materials. Beauty is life, life is beauty.

The ancient Greeks believe that the world is a perfect creature and a living organism. The beauty of heart and the beauty of body exist in harmony and form a whole. This opinion is the same as the points we have illustrated above.

The connection between the vertical line and the horizontal line of Greek Parthenon Palace corresponds to “the proportion of God”. Corbusier, an ancient architect, put forward the theory of basic dimensions of design based on “the proportion of God”, which has a profound influence on worldwide architectures.

Applying the theory of “the golden ratio” and the least action principle to the design of armaments can ensure the least material consumption and the fastest production speed. From the radian of the blade of saber, the summit of the ballistic curves of bullets, cannonball and ballistic missiles, to the relationship between the length of supply lines and the turning point in a war, etc, all manifest the least action principle and aesthetic principle. (Qiao & Wang, 1999, pp. 167)

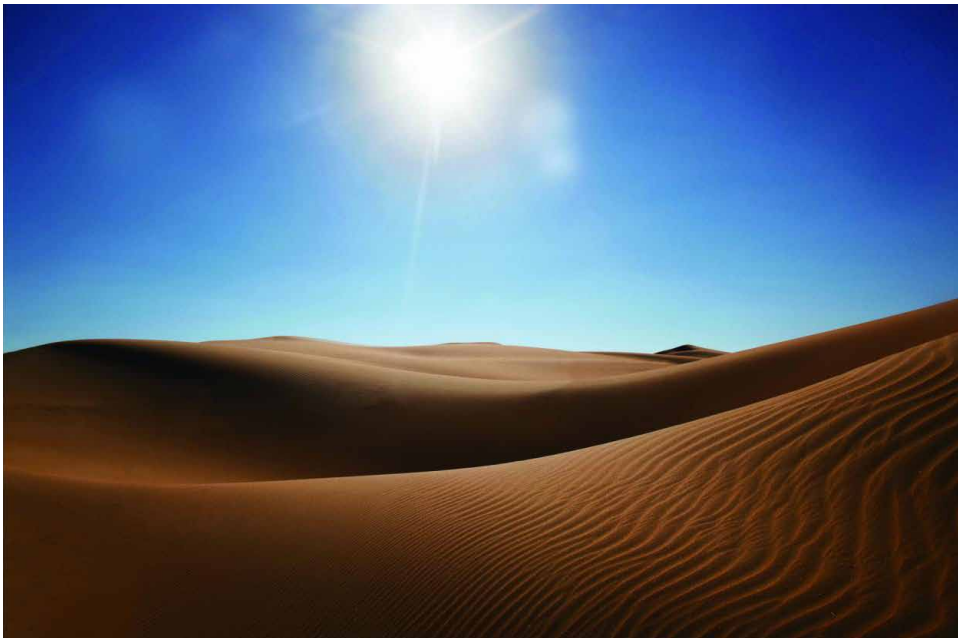
For example, it turns out through experiments that when the golden ratio  $\Phi$ : 0.618 is adopted, the length, width or thickness of pens and pencils, etc. are the most beautiful. The most perfect and safest tactics on battlefield is minimizing risks and injuries, maximizing safety, which is the essence of tactics.

Moreover, desserts swept by wind form undulated sand slopes, dunes and ripples, which is beauty of emptiness and freedom. Why could this happen? Because during the interaction between the sand and wind, the wind follows the path of least resistance and passes the desserts in a way that is in conformity with the least action principle.

From the formation of ocean waves, the curving shape of coastline, the willow-leaf shape of mountains, the excitation of lightning, the snow, the galaxy, the clouds, the biological recurrence, the holographic phenomena of creatures, to the similarity in the growth of plants and flowers etc., wherever the least action principle is applied, natural beauty reaches its peak.

In 1630, Galileo raised the question that what is the path along which an object would slide frictionlessly, under the influence of gravitational field, in the shortest possible time from a given point to a lower point (which is not

*Figure 19.*



*Figure 20.*



vertically beneath the starting point)? Later scientists proved the cycloid to be the brachistochrone curve (the curve of fastest descent) through variational principle. Why is that? Because cycloid creates the least resistance and meanwhile looks beautiful.

All of these contribute to the natural beauty under the influence of the least action principle. The beauty of plants' growth, the beauty of rain and lightning and the beauty of drops of water are all examples. Natural emergence at every level is extreme natural beauty.

There are many famous sceneries in China, such as the magnificent Mount Tai, steep Huashan Mountain, pretty Emei Mountain, boundless Inner Mongolia grassland, as well as mount Everest of the Himalayan Mountains, the world's highest peak, whose height, steepness and magnificence make it the most marvelous mountain under heaven. Mount Everest rose out of the ground to balance the huge tension caused by the extrusion of the plates on earth, which not only balanced the impact released by plates but also conformed to the least action principle by rising from the place with the least resistance. This process reveals the miracle of the natural orogeny (the process by which mountains are formed) and the super rationality of nature.

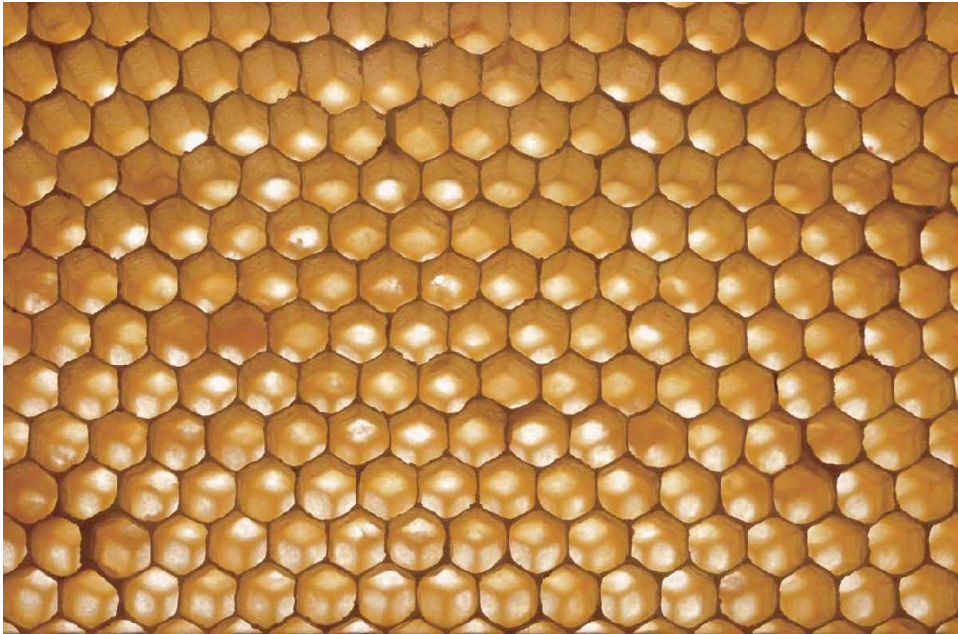
## **THE LEAST ACTION PRINCIPLE AND THE ANTI-ENTROPY EFFECT OF SYSTEMS AESTHETICS**

As one of the most fundamental principles in both natural and social sciences, the least action principle exerts great impact on universe transformation, natural evolution and social development, and unveils the simplest natural and social laws, as well as the evolution of hierarchical beauty.

The pursuit of theoretical simplicity, unity and symmetry is an eternal theme in scientific research. Scientists' enthusiasm for these three elements never declines, in their efforts to find a general principle to reveal the laws of nature. Scientific research has proved that the least action principle is the universal law with the best simplicity, unity and symmetry.

The least action principle is summarized in natural sciences as following: "Nature always acts in the simplest possible manner to produce its effects. Whether a material body should travel from one point to another without encountering an obstacle, or encountering an impenetrable obstacle, Nature always leads it along the path of shortest distance and briefest time." (Maupertuis, 1744) . In social sciences this principle is described as: all

*Figure 21.*



matters and systems observing the least action principle are harmonious. The core of this principle is to make the evolution of nature orderly, and to make the social system harmonious and highly-efficient through the simplest way.

The unity in diversity is the philosophical basis of the systems beauty. It is the unity in diversity that enables people to sense rationality in a great diversity of colors and to realize the least action principle is associated and of the same origin with systems beauty.

The essence of both is to let people understand the harmony, simplicity and rationality of the whole world, and to figure out the laws in a muddle of seemingly irrelevant things. They are both anti-entropic.

Entropy represents the thermal state of objects and systems and free energy. The lower the level of energy, the higher the level of entropy. No energetic transformation can occur when the entropy reaches its maximum, and in this case, there is no free energy. Every closed system has to develop towards the state of maximum entropy, an equilibrium with no energetic differentiation, that is, the so-called static equilibrium. From this point of view, entropy can be defined as a measurement of the degree of chaos. The tendency opposite to increasing chaos has an anti-entropic effect, but only those open, dynamic, non-linear and highly-organized system can resist the law of entropy change.

*Figure 22.*



Entropy is always incremental and irreversible, so entropy invariably changes towards one single direction like time, more concretely, the direction opposite to the hierarchization of beauty.

Aesthetic appreciation guides people to appreciate harmonious beauty in both natural and social fields. The least action principle encourages people to find and uncover the natural and real beauty.

System beauty represents the superficial characteristics of anti-entropy, while the least action principle reveals the nature of it.

Beauty is an order, which is confrontational to the disorder of entropy. Therefore, what is disordered is far from beauty, such as turmoil and war.

The least action principle is the unity of truth, goodness and beauty. Seeking truth, beauty and utmost kindness is the sublime goal of human development and the ultimate goal pursued by systems aesthetics.

The least action principle is the law of optimization observed by both natural sciences and human society. Systems aesthetics is the manifestation and reflection of the law of optimization in both natural sciences and human society. The least action principle and systems aesthetics can therefore be traced to the same origin.

In the process of self-organization evolution, nature generates a force, a force of creativity and tension, which is consistent with the least action principle. This also proves Engels' argument that Nature is rational. It is rational only in itself and nothing else, and is thoroughly anti-entropic

My previous book the *Mathematical Principles of Systems Philosophy* has proved that under certain conditions, the principle of minimum entropy generation is equivalent to that of least action. In other words, the least action principle is consistent with the principle of minimum entropy generation.

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## Chapter 6

# The Definition of Aesthetics and Beauty

### ABSTRACT

*This chapter proposes the definition of beauty and discusses the levels of beauty and the structure of beauty. This chapter points out that Aesthetics should be a science that studies beauty in general, including natural beauty, artistic beauty, design beauty, and aesthetic feelings. Beauty, just like material and thinking, is the foundation of everything, without which the world won't even exist. Beauty is an evolutionary existence, an objective and natural existence, and an existence of emergence. It is hierarchical, structural, and dynamic, and its core is the "least action principle".*

### INTRODUCTION

Since the German philosopher Alexander Gottlieb Baumgarten (1968) defined aesthetics as "the science of the sensitive cognition" in 1750, the essence of beauty has always been at the core of aesthetic controversy. This controversy lasted for centuries without a conclusion, showing the dualistic dilemma of traditional Hegelian epistemology (i.e., phenomena and essence, the essential world and the phenomenal world). In fact, we can use the theory of harmony of differences and the theory of overall optimization in systems philosophy to illustrate the nature of art and beauty. The fundamental problem of aesthetics will be solved so as to change a method and a perspective. This also conforms to contemporary internet thinking.

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## THE NATURE AND DEFINITION OF BEAUTY

Plato, the earliest scholar of aesthetic issues in the history of Western aesthetics, proposed that “beauty is a form”, which, instead of solving the controversy of the nature of beauty, left a huge room for imagination to the following generations. As Li Zehou said, Plato hoped to find “a form of beauty”, the imitation of which could make things beautiful.

Plato (1953) believed that the essence of beauty lies in the form” the “form of beauty” is beauty itself and the creator of beautiful things, and beauty itself is eternal and absolute. He made beauty an absolute concept and denied its objective nature. He also concluded that beauty was not appropriateness, usefulness or kindness because forms are distinct from existence.

Form is the core of Plato’s aesthetic thoughts and is higher than things. This view is typical idealism, apparently unscientific. However, in that era, the proposal of the concept of “form” is a significant step forward.

The unity of the true, the good and the beautiful is the foundation of Plato’s aesthetic thoughts. He also designed a community of those three components in the book *Res Publica*. His thought of form and a series of discourses have produced deep and far-reaching impact on aesthetics around the world. Without Plato’s “form”, there is no later thought and theories and the development of many schools.

Plato’s “theory of madness” also affected the ideas of future generations. Important contemporary thoughts like absurdism, Nietzsche’s philosophy and so on are all derived from this theory.

The ancient Greek philosopher Aristotle (2016) regarded the theory of “four causes” as the cornerstone of aesthetics. He held different views from his teacher Plato and believed that “form” is the “general” abstracted from the “individual” and “form” and “beauty” were never separated from things. Aristotle argued that beauty is among things themselves, whose chief forms are “order” and “symmetry” and “definiteness”, which confirmed that beauty lay in the form and the proportion of things. He insisted on the ancient Greek naive materialism and denied the conceptualism (the so-called idealism). This view had a great impact on the future art practice.

Medieval philosophers and estheticians Aurelius Augustine and Thomas Aquinas did not go beyond the ancient Greek aesthetics. Thomas listed three essential conditions of beauty: integrity, proportion, and clarity. (Emery, 2010, pp. 336)

Aesthetics of the Renaissance is humanistic, which appreciates the beauty of the earthly life.

Leonardo da Vinci held that beauty existed in life and could be sensed as well as recognized. His ideas are totally in line with modern systems science and systems philosophy. As we have proved in *Mathematical Principles of Systems Philosophy*, the human body is well proportioned by the golden ratio, or the “divine proportion”. Not only human being, but also all things in the world are able to be described by fractal theory and mathematical growth model in the process of self-organization evolution. (Wu, 2013) This is a very important development.

Leonardo da Vinci believed that beauty was entirely based on the “divine proportion” (the proportion of 0.618) among various parts and every single part should be in “divine proportion” with the whole. He also believed that human body should be consistent with mathematical principles and was the most perfect thing in nature. (Pacioli & Da Vinci, 2014)

Here I shall add that human body is not only in accordance with the laws of mathematics, but also the principles of mechanics in physics. The structure of human body is in full compliance with the requirements of least action principle: energy-saving, highly efficient and time-saving.

Leonardo da Vinci’s work, *Mona Lisa*, is the most profound portrayal of his artistic and scientific achievements. This painting is very vivid and interesting and is in sharp contrast with the rigid, stiff and indifferent characters of the religious icon.

Alexander Gottlieb Baumgarten (1968), the German philosopher of the Enlightenment period, defined aesthetics as an epistemology, without realizing that natural beauty itself was an ontology and was about the natural existence of beauty. In fact, other kinds of beauty derived from natural beauty, such as artistic beauty and design beauty, can be regarded as epistemological problems. This misleading view affected many aesthetics scholars including Hegel and is still affecting a lot of people until today.

Kant was believed to have effected a “Copernican revolution” in philosophy and aesthetics. He put forward the argument of natural order and the argument of moral order and the coordination of the two, that is, the critique of pure reason (thoughts and view, such as law of identity), the critique of practical reason (morality, the moral law) and the critique of judgment (the combination of epistemology and ethics). It can also be said as the unity of logics (truth), ethics (morality and virtue), and aesthetics (emotion); the integration of instrumental rationality structure, practical rationality structure and emotional rationality structure; the unity of the true, the good and the beautiful; and

the integration of intellect, emotion and volition. Kant considered beauty as subjective, as an emotional judgment, not rational. (Kant & Beck, 1976)

Hegel believed that beauty is the sensuous expression of idea, and the root of beauty lies in absolute spirit. He believed that the true beauty is artistic beauty. He cited “Gothic architecture” for example, which showed that beauty is the externalization of spirit and the perceptual manifestation of ideas. The forms, space, shape, color, sound effect, etc., of Gothic architectures all reflect the religious life, religious beliefs and religious spirit. Hegel believed that the “the life of beauty lies in the appearance.” His definition is more appropriate for artistic beauty, but apparently unscientific and unreasonable for natural beauty. (Hegel 1975, Vol.1)

Hegel believed that the object of aesthetic research is limited to only artistic beauty because natural beauty is only the conscious existence of the percipient and beauty is the perceptual manifestation of the idea. His exposition of the essence of beauty embodies the unity of reason and sensibility as well as the content of perception and the form of sensibility. But regrettably, it lacks the most basic persuasive power and fails to explain the source of artistic beauty. Hegel said that “the life of beauty lies in the appearance,” which reflected the initiative and creativity of idea. The most outstanding artistic ability is imagination and imagination is creative. The beauty of art is higher than the beauty of nature, as “the beauty of art is beauty born of the spirit and born again.” (Hegel, 1975, Vol. 2, pp. 1-2) This concept of beauty was progressive back then.

Nikolay Gavrilovich Chernyshevsky (Николай Гаврилович Чернышевский), a Russian philosopher and writer, believed that aesthetics is the study of the general laws of art. Although this view ignores the existence of natural beauty, his views such as “beauty is life” and “ought to live like this” still do not explain clearly what beauty is, because things are not necessarily beautiful in themselves. (Leatherbarrow & Offord, 2010)

William Hogarth, the British painter and art theorist, once proposed that the S-shaped curve (the serpentine line) is “the line of beauty.” According to him, the S-curve signifies liveliness and activity and excite the attention of the viewers. However, the beauty of the curve is conditional and relative, and not suitable for all conditions. (Hogarth, 1997)

The ancient Greek artist Zeuxis, who, in an attempt to portray the perfect beauty of Helen, combined the best physical features of the Greek beauties to make a composite ideal. This is the earliest typical, universal law of shaping beauty. (Destrée, &, 2015, pp.221)

*Figure 1.*



J.H. Langlois, a professor of psychology at the University of Texas, discovered the universal standard of facial beauty through computer image synthesis techniques. The experimental results show that the attractive face that people recognize is actually the average face, or the norm, namely the composition of various types facial features, a typified universal beauty. This averageness expresses exactly the universality of the golden ratio (0.618) and the least action principle and its structural immanence. (Langlois & Roggman, 1990)

Chinese painters do not pursue lifelikeness and realism. Instead, they focus on their own individual characteristics. This is an important feature of Chinese aesthetics.

The Post-Wei and Jin Period (About 771-476 B.C.) witnessed the boom of Laozi and Confucian philosophy, and Chinese art started to emphasize the charm instead of specific form or shape, pursuing the state of likeness



in spirit (shen-si) and likeness in conception (yi-si). All paintings endowed with either masculine or feminine beauty at that time were featured with the emphasis on charm instead of form. A spectacular example of this artistic trend was that Imperial Art Academy of the Northern Song Dynasty included the verses of Tang Dynasty poetries, such as “on the wild waters without a soul, there lies a lonely boat”, in its selection exams for talents. The paintings of the Southern Song Dynasty had great importance attached to nature in pursuit of “simplicity” like the lotus that sprouts out of the water, while the paintings of the Northern Song Dynasty laid stress on “delicacy” of “ornate decoration”. The conceptual underpinning of the former is the “harmony” embraced by Confucianism, while the theoretical foundation of the latter is Taoist aesthetics, which is in favor of “rareness” and “peculiarity”.

Chu Ci (poetry prevailing in the warring state of Chu), proses of the Han Dynasty and parallel proses of the Six Dynasties were characterized by their “delicacy of ornate decoration”, namely their “purple patches”. By contrast, Wang Xizhi’s calligraphy and poems composed by Li Bai and Su Shi all demonstrated the natural charm, the simplicity and the freedom possessed by new-born lotus. Such a sharp contrast naturally raised the question: why had Chinese philosophy and aesthetics undergone such a significant transition since the Wei and Jin Dynasties?

According to *A Brief History of China* by Fan Shuzhi, such a transition was caused by the following reasons: first, the study of Confucian classics in the Han Dynasty was obsessed with the superstitious Confucian mythology; second, the study of this period put excessive emphasis on the tedious explanation of ancient classics; third, such study was stiffly restricted by the traditional Confucian doctrines and blindly inherited what their teachers preached. (Fan, 2010) These unveil the restriction, rigidity and dogmatism imposed on the Confucianism in Han Dynasty. A social norm confined by the Confucian classics could work in few social fields in the turbulent era of Wei and Jin Dynasties. People of that era resorted to the philosophical thinking of Laozi and Zhuangzi to rid themselves of the conflicts in reality and to return to nature. The convergence of Confucianism and Taoism formed the “Xuan Xue” (Neo-Taoism or mysterious learning literally) peculiar to the Wei and Jin Dynasties, which featured naturalism equal to the Taoist “nothingness”. This transition was reflected in philosophy, literature and aesthetics. Examples include the “Jian’an literary style” in literature, which requested the literary pieces to be simple, concise, free, natural and conceptually rigorous; and the relation between “image-essential” in painting, etc.

In the great tradition, featuring natural beauty without any artificial decoration became the mainstream, like the lotus rising out of crystal-clear water depicted by Li Bai. While in the little tradition (the folk art), the “delicacy granted by ornate decoration” was still popular, which were evident in the imperial architectures and costumes. Such a contrast indicates that cultural demands vary among different social groups.

In *Art and Visual Perception*, the Gestalt psychologist Rudolf Arnheim wrote that the rhythms and the formal structures of the natural world have an isomorphic effect corresponding to human physiological-psychological responses. That is to explain the source and nature of beauty with the isomorphism of subject and object. (Arnheim, 1954)

In fact, this is the phenomenon of self-similarity in growth and evolution according to fractal theory. All things are similar in the process of growth and evolution, so similarity exists at the same level and among different levels. The closer the levels are, the stronger the similarity is. This applies to both material and mind.

Humans also follow the laws of beauty to shape, and this law is the mathematical model of the growth of things.

From Jingjie Theory (the theory of poetic and artistic state) that features the unity of subjectivity and objectivity, to the famous contemporary esthetician Zhu Guangqian’s theory of interplay between subjective consciousness and objective nature, and Professor Li Zehou’s definition of beauty based on the interaction between subjective practice and objective reality, neither Chinese aesthetics nor foreign aesthetics in the end answer the question of what is beauty? As Socrates said, “all that is beautiful is difficult” (Plato, 1980, pp. p. 1548), because it is difficult to define what beauty is.

Therefore, some people say that beauty is relative because it varies for different persons and there are no objective criteria. Beauty embraces numerous phenomena and various forms, for instance, feminine beauty and masculine beauty. From ancient times till now, many believe that there is no need to study beauty due to its variety of forms.

Some scholars believe that aesthetics is a combination of German aesthetic philosophy, British psychology and French literary criticism theory. Of course, this view only embraces the surface of the problem rather than its essence.

The contemporary Chinese aesthetician and educator Mr. Zhu Guangqian believes that beauty is the dialectical unity of subjectivity and objectivity; that beauty is neither subjective nor objective, but the unity of the subjective and the objective, and the unity of nature and society. He cited the plum blossom as an example and believed that its image and beauty were produced by the

“intuition” indicated by Benedetto Croce. This constitutes a pure aesthetic view. After Mr. Zhu studied Marxism and Leninism, he came to the thought that the natural existence of plum blossom is only the condition of beauty. The beauty of plum blossom is not in itself. Rather, it is the “intuition” that forms the image of the plum blossom within people’s subjective consciousness through artistic processing. This image of the plum blossom is the beauty that unifies subjectivity and the objectivity and the beauty in aesthetic sense. (Zhu, 2012)

Here, Mr. Zhu Guangqian denied the beauty of plum blossom in material form, that is, denied the material plum and thus fell into the pit of idealism. Plum’s natural beauty is the beauty in structure and in material form. Without human “intuition”, plum’s natural beauty will still exist. The function that people have is nothing more than finding its beauty. Just as natural law itself is an objective reality, which scientists can only discover instead of creating. (Ibid)

Zhu also said that the beauty of plum blossom is only the result of processing by human consciousness, which is of no difference from Hegel’s conceptualism (that is, the idealism). His view that the beauty of the plum is the product of human thought, of course, is not consistent with the fact. We have denied this view in the chapters above with sound proof: the beauty, the system and the material are the concept at the same level. Beauty is the characteristics such as energy-saving and time-saving engraved in material and system and reflects the least action principle. (Ibid)

Mr. Zhu had previously thought that the beauty of the plum blossom originated from the “intuition” of Croce. Then he raised his understanding from the level of “intuition” to the level of “the natural plum blossom is only the condition of beauty”. But he did not recognize the consistency of the materiality of beauty. This “materiality” view is difficult to understand, and more people hold the view that natural beauty is the reflection of people’s ideas, which is a replica of Plato, Kant, Hegel, Nietzsche and Crowe’s conceptualism. (Ibid)

The view that beauty is the unity of the subjective and the objective is the core of Mr. Zhu’s aesthetics at his later years, which refers to the mutual advance of “humanized nature” and “human objectification”. This view holds a great weight in both Chinese and foreign aesthetic theories, but, regrettably, it is the product of conceptualism (i.e., idealism), instead of scientism.

Mr. Zhu advocated “intuitionism”, “theory of empathy” and “theory of psychological distance” in his early years and later embraced the “unity

of subjective and objective”. None of them, however, touches the core of beauty. (Ibid)

For example, the deaf, mute and hideous bell-ringer of *Notre Dame* met a beautiful young Gypsy street dancer who was naturally compassionate and kind. The bell-ringer intuitively felt that the dancer was beautiful. This “intuition” did not require conceptual. Instead, it is a natural, honest and holy beauty of appearance, which is firstly material, and then conceptual, but fundamentally material. It must be consistent with the mechanical principles built upon the golden ratio in the first place, to be able to generate beauty in general and natural beauty. The bell ringer’s intuition only found the girl’s natural beauty.

In the movie of *Notre Dame*, the girl’s natural beauty did not need conceptual processing and she was an embodiment of the least action principle. In the play, the naturally ugly bell-ringer evolved artistically into spiritual beauty, moral beauty, and personality beauty. The two characters impressed the audience as being lofty and graceful, because the girl had always been beautiful.

Natural beauty and ugliness and artistic beauty and ugliness are at two different levels, with different connotations, which shall not be confused. “Humanism” has created one-sided thoughts like “man is the soul of the universe” and “human is the standard of all things in the world”.

Li Zehou (2003) once said that the categories, laws and principles in Chinese classical aesthetics are all functional. As a contradictory structure, they emphasize the infiltration and coordination, rather than the exclusion and confliction, between the opposites.

I think Li Zehou’s view is only half correct. To be more precise, it is contradictory opposition and coordination rather than contradictory exclusion and conflict. However, Chinese aesthetics is not only a “contradictory structure”, but also a three-tier structure or three elements structure. For instance, Zheng Banqiao proposed “three essentials” for drawing bamboos: the first essential is the “bamboo in eyes”, which means the “impression” or “first feeling” evoked by the first glance of the physical image of a bamboo in reality; the second one is the “bamboo in mind”, namely the shift from “impression” to artistic image in artists’ mind (“artistic conception” or “perception”); the third one is the “bamboo in hands”, an artistic image painted by the artist in accordance with the “bamboo in his mind”. This three elements structure is in line with the laws of modern art, the requirements of diversity, and the methodology of systems thinking.

Li Zehou thought that beauty is the unity of regularity and purposiveness. In his subjective practice philosophy, freedom (human nature) and the form

of freedom (the essence of beauty) are neither heaven-sent nor natural, but objective forces and actions people build up themselves. (Ibid) Here he forgot that human and human body are the products of natural evolution themselves.

Li Zehou said that beauty came from the essential strength of the historical practices of the human society. He also believed that nature was a difficult problem in terms of the essence of beauty. (Ibid) These two expressions are obviously inconsistent. The human society can only create artistic beauty and design beauty and cannot create natural beauty such as people, earth and celestial bodies on any condition, as these are the inevitable result of the evolution of the universe. Li Zehou held that there was no natural beauty without the formal beauty of the humanity, and that natural beauty was the product of human history. This conclusion just reversed the relationship between formal beauty and natural beauty in life.

In fact, human society is the product of nature and the evolution of the universe. Of course, there is a similarity between them. No wonder that people regard the optimized (beautified) things emerged from natural evolution as beautiful, as it is a feature of fractal theory we mentioned above.

Professor Li's other references: empathy, psychical distance and the play drive are all worthy of verification.

What is beauty, in another word, what is optimization? Beauty is the product of the evolution of the universe. When things evolve to the level of optimization, beauty is the ultimate form at this level. Human society is also the product of the evolution of the universe. Human society gradually understands and recognizes the optimized things (the beautified things) and realizes that beauty and optimized things are the ontology of the existence of things. Only after human society realized the existence of natural beauty that it began to create the beauty of art and design. This is the epistemology and the process theory for recognizing optimized things and a progress of the mankind.

Before Copernicus, people held that the sun ran around the earth and human beings were the center of the universe, who in turn centered their life around God and the Pope. Due to these beliefs, people thought that beauty was the result of the subjective consciousness of human and that God was the highest-level and the greatest beauty. It was an inevitable historical phenomenon, which had become impossible to understand and imagine after the emergence of systems science and systems philosophy.

Optimized form, optimized things (the form of beauty, the beautiful things) and the evolution of natural beauty along with the evolution of material things are interlinked.

*Figure 2.*



In the preface of this book we mentioned that nature and beauty share the same origin. At present, there is a tendency to think that aesthetics studies should focus mainly on aesthetic feelings, artistic beauty and design beauty, instead of natural beauty (pure beauty). I find this view very strange, for if there is no natural beauty, how can artistic and design beauty exist?

Aesthetics should be a science which studies beauty in general, including natural beauty, artistic beauty, design beauty and aesthetic feelings. Of course, aesthetics is still undergoing growth and development, constantly perfecting. But if there is no beauty, would the world exist? If there is no beauty, can a prosperous society exist? If there is no beauty, how can people's thinking, imagination and creativity exist? Beauty, just like material and thinking, is the foundation of everything, without whom the world won't even exist.

In the special period of the 1970s, beauty was equated with "revisionism". People not only became afraid of mention beauty, but also abandoned irony, humor, crosstalk, comic, comedy and so on. At that time, beauty and ugliness were confused, even reversed. This is a tragedy in history. However, according to Marx's point of view, it should be comedy after tragedy.

With regard to Marx's view of "the objectification of essential human forces" or "the humanization of nature," we should understand that "essential



*Figure 3.*



human forces” refer to human’s evolutionary and progressive forces, that is, the least action principle featuring energy-saving, time-saving and natural evolution.

So what is beauty? Does beauty exist? Is beauty a force? Is beauty a noumenon? Is beauty the emergence arising from natural evolution? Is beauty the optimized system? The answer should be positive.

Beauty is an evolutionary existence, an objective and natural existence and an emergent existence. It is hierarchical, structural and dynamic and its core is the “least action principle”.

The essence of beauty has been described for more than two thousand years and there are hundreds of definitions, but not a single definition is satisfactory. The main reasons are as follows:

First, as the ancient Greek thinker Socrates mentioned: beauty is difficult. The difficulty lies in the complex objects and the numerous contents involved, ranging from the universe, the planets to human society, covering all areas and all walks of life. The issue of beauty exists in everything.

Secondly, the means of study is relatively simple, mainly Hegel’s paradigm of bipolar structure: the phenomenon and essence, and the form and content. However, beauty is the unity of diversity. In short, the paradigm is rigid and fails to explore an innovative way.

Finally, no distinction has been made among natural beauty, artistic beauty and design beauty. Due to their distinct sources and different connotations, they shall be expressed in different way.

## **THE HIERARCHY OF BEAUTY**

Simply speaking, beauty is divided into natural beauty, artistic beauty and design beauty, among which natural beauty is the source of beauty.

As we have already considered, beauty is the external manifestation and external representation of the least action principle, whose core is the inherent tension of natural evolution, the inherent power within the system and the most primitive driving force. Engels once said: “Nature is rational.” This “rationality” is the least action, that is, the essential power of nature; then the beauty is the external manifestation of this rational power, the essence of this power is saving time and energy.

The ultimate trend of nature, human society and human thinking is to evolve and beautify along an energy-saving and time-saving path. This is the most basic needs of natural survival and development and makes the least action principle a special favorite of the nature. The emergent characteristics arising from this important evolution and development, that is, the integration of beauty and nature, the integration of beauty and natural laws, the harmonious coexistence of beauty and nature, are the most important features and fundamental conditions of the beauty of natural evolution. We have proved this mathematically in previous discussion.

Above is not only the most important content of systems aesthetics, but also the difference between the natural beauty and the artistic and design beauty, at same time demonstrates the different nature of the three types of beauty.

Artistic beauty, as Hegel said, is the “the sensuous expression of idea”. However, the “idea” here is not Hegel’s “absolute idea” and “absolute spirit”, but the artistic concept, artistic thought and the way of thinking in line with the law of art.

Artistic beauty is the result of the free creation of human artistic thought. This is the “ontology” of artistic beauty. Without the free expression of artistic thought, there is no art or art design. But artistic thought must meet the most fundamental laws we have put forward: the unity and harmony of diversity, the natural regularity of emergence, and the purposiveness of optimization and beautification. This is especially true in architectural design and architectural art. Without the guidance of the least action principle in mechanics, it is

*Figure 4.*



impossible to build the even simplest bungalows. Guiding architectural design with the “absolute concept” is even more incredibly weird. In the world of artistic beauty, the art form which has the largest space for imagination and involves the least brushwork and ink-work are the abstract painting, the Chinese black-and-white sketch, the comic, and the “non-conventional and anti-traditional” art and painting of the Ultra-modernism. It is another matter as to how these works of art are evaluated by the contemporary and future generations.

In fact, these art types are diversified in vitality and conception. It is, therefore, very hard to form a consolidated opinion on their social impact and social evaluation. But the nature of artistic beauty will not change. It is the free creation of the art ideas and the re-creation of natural beauty through conceptualization.

*Figure 5.*



### **AESTHETIC FEELINGS (AESTHETIC EXPERIENCE, AESTHETIC AWARENESS, AESTHETIC APPRECIATION, AESTHETIC JUDGMENT)**

People appreciate beauty, because beauty is the summit of free creation; people like beauty, because beauty is the fruit and wonder of free creation which brings about pleasure; people love Beauty, because it provides a feast for the eyes and the mind, pleases the heart and soul, subtly influence people and adds sublimation to their life.

Aesthetic feeling is, first of all, spiritual pleasure, and its' utility is contained in joy and pleasure. The essence of aesthetic feeling is the freedom to show creativity, is the freedom of the soul, is the harmony in diversity, is the practice of least action principle (such as painting, poetry, comics, etc.),

Figure 6.



is to illustrate the greatest imagination and strongest creativity with the least brushwork and ink-work.

Aesthetic feeling is the free re-creation of the aesthetic subject and the aesthetic object in practice; is the equal exchange and dialogue between the aesthetic subject's aesthetic consciousness, aesthetic hobby, aesthetic taste, aesthetic phenomenon, aesthetic standard and the aesthetic object; is the free re-creation of the interaction between the aesthetic subject and aesthetic object.

French philosopher Poincaré (1956) said: "invention is discernment, choice." The choice is inevitably dominated by scientific aesthetic feeling. How important aesthetic feeling is for invention and innovation! Beauty is truth, truth is beauty; beauty is the source of inspiration for scientists.

In 1953, Watson and Crick jointly discovered the DNA double helix structure. They believed that DNA should have a simple, harmonious and beautiful structure. They denied the original structure which lacked beauty and harmony and confirmed the smooth and harmonious structure we see today. The book *New Aesthetic Thought, Methodology, and Structure of Systems Philosophy* further demonstrated the relationship between the Golden ratio and DNA structure, and indicated that natural beauty was rooted in life, in

the beginning and the origin of life. It is not a “non-life thing”, but a “living thing” and a “thing in itself”.

Poincaré also preached that person without aesthetic feeling would never be a true creator and believed that unspeakable beauty is the perfect standard of scientific theory. (Ibid)

Mr. Cai Yuanpei, the famous Chinese educator, suggested to replace religion with aesthetic education. The current exam-oriented education system in China accelerates the development of the left brain and slows down the development of the right brain. It speeds up aging by keeping people in a constant nervous state and makes people “disabled” due to the lack of artistic and literary training. Therefore, the education of beauty admiration is very important, of which we are too scarce. (Jiang, 1999, pp. 276)

## **THE STRUCTURE OF AESTHETIC FEELING**

The structure and origin of aesthetic feeling mainly come from three aspects:

*First, the emergence (optimization) in the process of natural evolution, which is the source as well as the optimizing process of natural beauty. Why the emergence (optimization) arising from natural evolution is beauty? Because only in the object world can people identify themselves, recognize themselves and adore themselves, then can they appreciate their own free creation, and reshape and develop themselves. Inspiration is thus born and becomes aesthetic feeling. The ultimate stage of aesthetic feeling is also the most joyful stage, which is not only the emergence of inspiration, but also the final cause of emergence.*

*Second, the rationality of nature (i.e. the least action principle). For example, painting, poetry, music and drama all take the least action (the least brushwork and ink-work, the least space, and the least cost) to express infinite space, imagination, thoughts and feelings. Any work that falls into this category can transcend time and space and become a treasure passed down for generations. This rationality can be called moving cause.*

*Third, the harmony in diversity. The most representative example of the harmony in diversity is the earth's ecological chain, known as the “golden earth line” and “Pyramid of productivity”. Under such condition, the whole ecological chain is orderly, stable, and harmoniously unified. There are also*



Figure 7.



*a lot of similar chains, namely the harmonious unity of diverse elements. For example, the laws of conservation are signs of unity and harmony in nature. The melody, rhythm, beat, mode, tonality, harmony, polyphony, form and so on in music are all harmony contained in the unity of diversity. The German philosopher William Von Schelling (1989) once said, “architecture is a frozen music.” Later, German music theorist Moritz Hauptmann put it that music is flowing architecture. The similarity, unity and harmony can, therefore, be seen between the two. The similarity is mainly manifested in melody, rhythm, polyphony and harmony. Despite various schools hold different and peculiar ideas and these ideas change at a dizzying speed, the harmony in diversity remain unchanged.*

Gestalt psychologist Rudolf Arnheim (1954) believed that the reason architecture and music were able to demonstrate abstract emotions and touch people’s heart was that the structure of the “force model” or the “force field of brain” was similar, even the same, to the “force structure” of architectures. We can now say without any doubt that the “force model” is the least action principle. Therefore, this “force model” is the same, which is the driving force of the evolution of the universe, as well as the core force of beauty.



*Figure 8.*



The elements of architecture include appearance, shape, volume, cluster, space, and surroundings, etc. Aesthetic feeling is created by these elements. Liang Sicheng, a renowned Chinese architect and scholar, once said that apart from the “poetic splendor” and “pictorial splendor,” he could also feel the joy of “architectural splendor”. Musical instruments are also a variety of combinations, so are the bands, paintings, and Chinese poems, so on and so forth. All the works of art shows harmony in diversity.

The three characteristics are interdependent and coordinative and form a world of aesthetic feeling. These characteristics are the essence of the laws of beauty, similar to what Aristotle called the material cause.

## **THE HIERARCHY OF AESTHETIC FEELING**

The first stage of aesthetic feeling is composed by sight, hearing, taste and touch. They complement and coordinate with each other to achieve a blurred

*Figure 9.*



*Figure 10.*



and fragmented feeling, which can be called as “intuition”. This “intuition” includes both tangible and intangible aesthetic feeling.

The second stage of aesthetic feeling is aesthesia, which is the sublimation and elevation of the first stage. The aesthetic object has formed a clear, rational and systematic whole.

The third stage of aesthetic feeling is emotion (including association, imagination, and illusion). Aesthetic emotion is different from ethical emotion, wisdom, love and affection. It is the harmonious unity of the three.

The highest stages of aesthetic feeling are inspiration and epiphany, among which inspiration is the fruit of intuition, aesthesia and emotion, as well as the beginning of a new round of creation.

From aesthetic feeling to inspiration, then back to aesthetic feeling, it is the fundamental law of artistic aesthetics and design aesthetics. This cyclical process becomes faster, more advanced and more magnificent, finally reaching the realm of great beauty, or the sublime state of heaven. The classics handed down from ancient times all share this feature.

Generations of people appreciate beauty, inherit beauty, create beauty and happily forge ahead. Why what are circulated from generation to generation is the most beautiful? What is beauty? How can beauty be everlasting?

The above discussed are the fundamental causes of beauty where also lies the power of it.

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## Chapter 7

# The Beauty of Nature

### ABSTRACT

*This chapter argues that beauty of nature is the intrinsic quality of things and examines various types of natural beauty, including the beauty of landforms, the beauty of animals and creatures, the beauty of flowers, the beauty of trees and the natural in poetry. It also studies the hierarchy of natural beauty and finds that all objects, be it the universe, the solar system or the earth, are all of the same origin, and things evolve from a singularity and are in similar shapes rather than different shapes. It holds that the structure of natural beauty consists of three factors, namely the moving cause, the final cause, and the formal cause, and that these three factors (namely the structure of beauty) determine the function, the effect, as well as the characteristics of beauty. This chapter concludes that the utmost beauty is the natural beauty which emerges in the coordinated evolution of the universe, nature, and the human society. It is the origin of all artistic and design beauty.*

### INTRODUCTION

The beauty of nature is everywhere: the azure sky, the rising sun, the spectacular sunset, the magnificent rosy dawn, the bright and clear moonlight, the waterfall over the cliff, the vast swathes of grassland, the roaring sea, the towering mountains, and the winding rivers. These sights epitomize the beauty in nature, in heavenly bodies and in landforms and vividly reflect the beauty of appearance, form, function and structure.

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*Figure 1.*



## THE BEAUTY OF NATURE IS THE INTRINSIC QUALITY OF THINGS

The symmetry of shapes, the proper mixture of contrasting colors, and the harmony among diversified melodies and beats all represent the intrinsic qualities of natural beauty.

A brook, a little star, a piece of cloud, a green leaf, a drop of water, and a little flower can all be perceived as naturally beautiful.

### The Beauty of Landforms

**Mount Everest**, like anything else on earth, is a naturally formed object. It is the highest mountain on earth with an altitude of 8844.43 meters, a number that would evoke tremendous respect and adoration. Mount Everest, whose beauty lies in its sublime, mystery, and transcendence, has fostered people's respect and appreciation of nature.

**Mount Kailash**, referred to as “the king of all mountains”, is considered holy by multiple religions. Shaped as a round pyramid, mount Kailash towers

*Figure 2.*



high up in the sky with its shimmering mountain top resembling a buddha's crown.

It is referred to as the “center of the world” in Buddhism and Hinduism and is recognized as the highest mandala on earth by Bon. Every year, pilgrims coming from different places make it here and pay their tribute in their own ways. Tibetans prostrate themselves in prayers and grovel their ways around the mountain. The magnificent sky, the pure cloud, along with the towering mountain and its sacredness, are what this place is all about.

**Three major peaks of Mount Huang.** The famous Chinese writer Xu Xiake once said: “as magnificent as The Five Great Mountains are, they are belittled by Mount Huang.” (Han, Zi, 1959, pp.52) Originally named Yishan, the world heritage did not earn its current name until the time of Emperor Li Longji in Tang Dynasty, who changed its name in Honor of Emperor Huang Di<sup>1</sup> as legend stated that Mount Huang was the place where Emperor Huang Di ascended to heaven. Known for its pine trees which “strangely jutting granite peaks”, hot springs, winter snow and views of clouds, Mount Huang boasts 72 mountain peaks among which three stands out with a sense of tremendous power. They are the splendid Lotus Peak, the grand Bright Peak, and the mind-blowing Celestial Peak.



*Figure 3.*



Known for its sea-like cloud view, Mount Huang is also dubbed as “Huang Sea”. When being in the mountain, one will find himself in a place immersed with a vast sea of clouds with strange rocks and antique pine trees looming underneath. It is, therefore, the vivid reflection of the poem *Chulao* in which the author wrote: “the edge of the sea is the sky, while the peak of the mountain is me.” (Lin, 2002, pp.361) Because of such beauty and splendor, Mount Huang has earned itself the name of “The most fantastic mountain in the world.”

Furthermore, its beauty was also noted in the Poem that read “with thirty-six peaks soaring into the sky, Mount Huang becomes a heavenly place with gods on it.” (Huang, 1989, pp.16) Mount Huang, a place like no other, is the fruit of all people’s imagination: it is vigorous, amazing, beautiful, yet very masculine and charming in a way that mesmerizes its visitors.

**Mount Tai**, widely referred to as the “most revered of The Five Great Mountains”, boasts a fantastic yet sublime scenery where fault-block mountains are intertwined with pine trees and huge rocks with misty cloud surrounding them.

Visitors who come to this natural heritage can look up to his magnificence while expressing their respect for the mother nature. At the same time, the

*Figure 4.*



myths and legends related to mount Tai will evoke people's adoration from the bottom of their hearts. It is often believed that when being on the top of the mountain, one cannot help but reach back to Du Fu's famous poem (Zhang, 2011, pp.81) that goes "I must ascend to the mountain's crest for it dwarfs all the peaks under my feet."

**Mount Hua**, also known as the west mountain of The Five Great Mountains, earned itself the reputation for steepness by featuring tall and graceful cliffs, narrow pathways, and precipitous tracks. Widely referred to as the "most dangerous mountain in China", mount Hua is also a popular place for Taoist pilgrimage and is believed, in Taoism, to be the "fourth passage to heaven".

Since Mount Hua is much more precipitous than the rest of The Five Great Mountains, it is, therefore, very important to keep cautious and to refrain from looking around while hiking. In addition, special attention needs to be paid when going across the precipitous pathways as one shall watch his step and hold tight to the railings alongside. If one wants to fully appreciate the wonder of Taoism by climbing the Mountain and enters the state of "universal and eternal Tao", he/she can never be too careful about his safety on the way up.

*Figure 5.*



**Yangtze River**, the natural wonder, whose beauty has been praised by countless literature works, is a constant flow of vigor and magnificence. Verses such as “the torrents seem beyond the world to flow, as the distant hills come and go” (Wang, 2012, pp.54), “as the boundless forests shed its leaves shower after shower, the endless river rolls its water hour after hour” (Zhang, 2011, pp.79), or “heroes fade away as the river surges on.” (Ibid, pp.194) are all the vivid reflection of its natural beauty.

The Yangtze river basin, widely known as the land of abundance and prosperity, is endowed with a wide array of precious natural resources. It is home to our civilization, our art, our culture, and even our life. It is, therefore, fair to characterize the river as the mother of Chinese people, whose posterity carries forward such admiration and love for generations to come.

**Yellow River**, the time-honored heritage that flows by dozens of ancient capitals, is what makes China proud. However, it has long suffered from siltation as it flows through the Loess plateau whose mud has made the



*Figure 6.*



Figure 7.



riverbed at the downstream higher than the cities alongside, giving the river the deserved name of “perched river”. People in Kaifeng even use the phrase “the river flows above the head as people walk underwater” to describe this unique phenomenon. As the mother river of the Chinese nation, both Yangtze River and Yellow River are the cradle for Chinese civilization. Throughout the long history of China, countless poets and writers have expressed their commendation for the Yellow River, the most renowned of which, is perhaps the poem written by Li Bai. The master of Chinese poetry cast his appreciation on the river by saying that “Yellow River originates from the sky” (Ibid, p.47), it flows so far that “it almost touches the cloud” (Ibid, pp.19), it stretches so long that “it reaches all the way to the sea” (Ibid, pp.19). Yellow River has already become the symbol of China as the spectacular Hukou waterfalls and the famous *Yellow River Cantata* constantly remind people of the fact that we are all sons and daughters of the River.

**Hulunbuir Grassland**, known as the “jade in northern China”, is a vast swathe of green beauty with rivers intertwined with one another and lakes scattered all over it. “Between the vast sky and the boundless earth, flocks and herds appear as grass bends to wind.” The lyrics of the *Ode to the Chile* best depicts the scene of the grasslands.

Hulunbuir Grassland is the most beautiful grassland out of the six major grasslands of China as its grand and breath-taking beauty blows people’s minds away. In the daytime, cows and sheep can be seen in plain sight under the azure sky; while at night, the starring sky shines in perfect harmony with

*Figure 8.*



the pure cloud and the distant herd. Nowhere else is more like a paradise than here.

**Xilingol Grassland**, as one of the most famous grasslands in the world, is a boundless nature reserve with a spectacular pastoral scenery, whose beauty marks the harmony between men and nature. At the southwest part of the Inner Mongolia autonomous region in the Sonid Left Banner lies the Hunger murals in which more than 600 murals dating back to the Bronze age remained intact. It is a vivid reflection of the life and history of the northern Chinese nomadic people and a valuable asset for the global art.

The picturesque grassland once stood the most famous capital in the world known today as the Site of Xanadu of Yuan Dynasty, whose fame and reputation swept through the western world as Marco Polo vividly described his experience there in his travelogue. Xilingol grassland is also considered to be the epitome of grassland culture as it is the home to the most standard Mongolian language and the tastiest lamb.

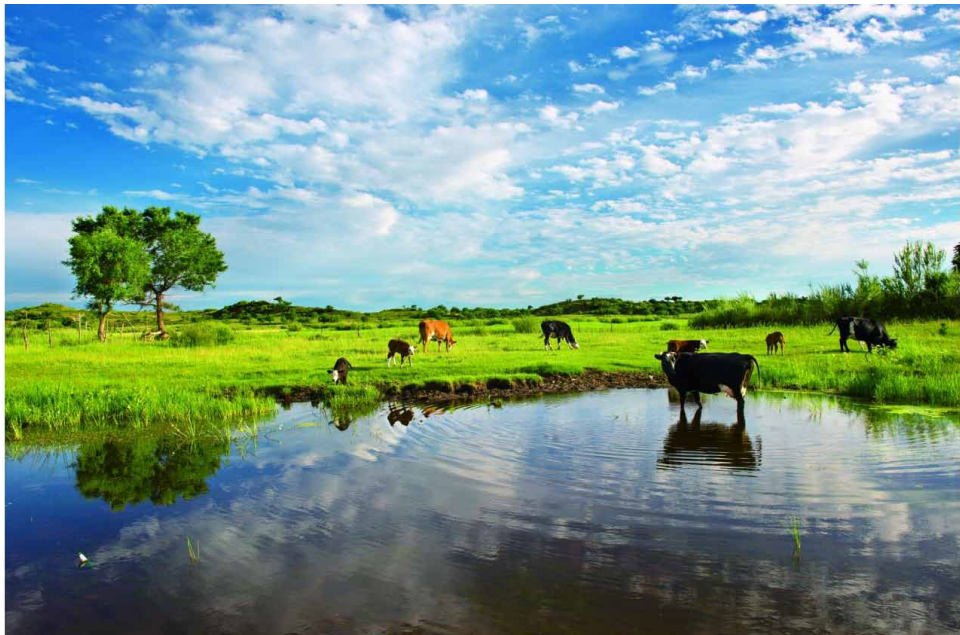
**Qilian Mountain Grassland**, widely referred to as the “golden pasture”, is a picturesque prairie where towering snow mountains, vast grassland, and herds of cows and sheep are seen in plain sight.



*Figure 9.*



*Figure 10.*



*Figure 11.*



Qilian Mountain means “the mountain of heaven” in the ancient Xiongnu language and is where the Xiongnu people lived and bred for many generations.

Snow lotus (*Saussurea involucrate*), silkworm cocoon, and Hsuehshan grass are known as the three precious items on the Qilian Mountain. Every year, the grass on the mountain has only two months to grow because of the low temperature that comes with high altitude. The grass turns green and flowers bloom as soon as the weather gets warmer. Two months later, with heavy frost appearing in the morning, the grass seeds begin to fall to the ground. The grassland turns golden at the end of the prime time of the year.

**Gongger Grassland**, situated in western Heshigten Banner of Chifeng city, is a renowned tourist attraction featuring both natural and cultural beauty. As a picturesque prairie, the Gongger grassland is a living exhibition of rivers, lakes, and wild lives as the Chagantu river and Gongger river flows across the grassland with wild animals rejoicing in tranquility. Multiple rivers and lakes are intertwined with one another like a string of pearls, of which the shiniest is the Dalinuoer lake. Known as the “paradise comprising 100 springs”, the lake is like a beautiful sea on the grassland.

**Narati Grassland**, a famous pasture since ancient times, is a magnificent exhibition of natural beauty featuring valleys, mountains and gorges where

*Figure 12.*



lush forests are coupled with beautiful grass. Integrating the natural wonder and Kazakhstan culture, this place is where Kazakhs' dreams are ever closer to heaven and reality.

**The Greater Khingan Forests** in northern China, as one of the most important forestry hubs in China, is a vast swathe of lush forests stretching from the northern Amur river all the way down to the southern Xara Moron river at a length of thousands of miles. Widely referred to as the “green treasury vault,” The Great Khingan boasts an extremely rich vegetation coverage featuring larch, pinus sylvestris, Korean spruce, birch, Mongolian oak, and aspen.

The Greater Khingan harbors the most beautiful and most vigorous spring season where the larches start to come into buds with Korean spines, birches, oak trees, and aspens all turning green. Azalea, tucked away at the foot of the mountains, are known by the local people as “Dazi fragrance” as the mixture of azalea and turpentine is exciting yet intoxicating at the same time. Near the east side of the Greater Khingan lies the Sungkiang plain. Known as the great “land of black soil”, the plain nurtures both its people and its ecosystem.

**The Tibetan Yarlung Tsangpo Grand Canyon** is the deepest canyon on earth with an average water depth of 2,268 meters and an average depth



***The Beauty of Nature***

*Figure 13.*



*Figure 14.*



*Figure 15.*



of 6,009 meters. The river in the canyon flows at a speed of 16m/s with a drop of 5.4m/km. Surging as it is, the river is China's biggest storage vault of freshwater with an annual rainfall of above 4,500 millimeters. Due to its abundant water features, rich terrains ranging from high mountains to deep valleys, from snowy mountains to tropical forests, the grand canyon becomes a treasure house of creatures, with a wide variety of animals and plants vertically distributed in the area.

**The Meili Grand Canyon of Lancang River** (Mekong river) is a 150-kilometer-long gorge whose height and depth have made for a breathtaking view in which the Lancang River surges ahead at an altitude of 2,006 meters with a drop of 504 meters. Deep as the canyon is, it is also the home to a number of towering mountains such as the Meli snow mountains on the left side of the river, which stands at a height of 6740 meters.

Such combination of high mountains and deep gorges is indeed very rare, with the vertical distributed mountain-forest zones in the canyon demonstrating the beauty of natural creation. Furthermore, the canyon is also the home to the nature reserve of snub-nosed monkeys and other endangered species, and the historical sight of the ancient Tea Horse Road.



*Figure 16.*



**Hukou Waterfall** is the largest waterfall along the Yellow River. The flood of the roaring Yellow River, which is more than 300-meter wide, is suddenly bundled by the two banks as it approaches the Hukou Mountain and plunges over a 50-meter high cliff,

forming a magnificent waterfall like “water pouring from a teapot”. The river surges ahead and roars aloud as if thousands of horses were racing with a head of steam. The sound of the water can be heard from miles away.

In the ancient book *The Book of History*, the writer (2007) described the natural wonder as water pouring down from a huge tea pot (pp.37). Right below that tea pot, there is an amazing scenery where the pounding caused by the rolling down water has generated a mist, which, in the sunshine, is refracted to create a rainbow spanning the water like a colorful bridge.

**Nuorilang Waterfall**, the widest waterfall in China, is a fantastic natural beauty which is formed when the river falls from the cliff, creating a curtain of pearls, or a piece of fine clothing cut off by the protruding rocks like a tailor is trying to trim a silky gown.

The waterfall becomes the best version of itself in the Autumn season when the mountain is filled with yellow and green color with purple mist and



*Figure 17.*



rainbow bridge spanning the valley, a breath-taking beauty that has blown countless people's minds away.

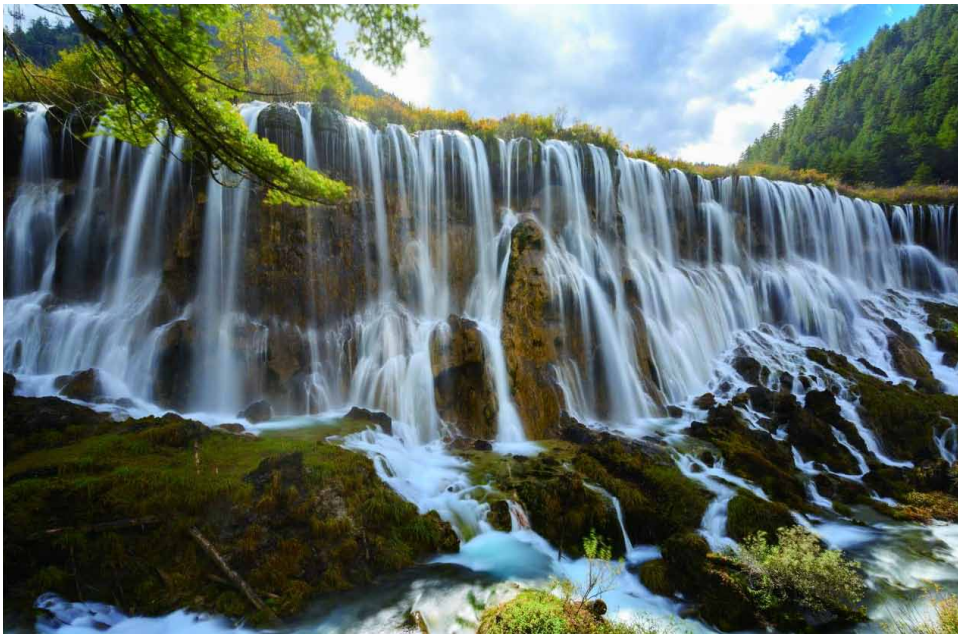
**Changbai Mountain heavenly pool** is a high mountain lake situated at the 2,194-meter-high Baitou peak, the major peak of Changbai Mountain. As the deepest lake in China, the heavenly pool is essentially a crater of a dormant volcano with the deepest part of which reaching 373 meters. Surrounded by 16 mountains, the lake resembles a jade embedded in them.

As beautiful as it is, its magnificence is sometimes, however, not accessible to all tourists as it is often surrounded by cloud and hazy mist. Because of the ever-changing weather, this place boasts a variety of landscapes. When the sun comes out, the pool turns into a colorful world as the lake's reflection mirrors the natural beauty of cloud, tress, and mountains. When it snows, the lake will turn into another wonderland where everything is covered in white, yet the lake is still as blue as the sky. In essence, the heavenly pool is a magical reflection of all natural beauties ranging from the snowy mountains all the way to the pure cloud. What it offers is truly remarkable.

**Badain Jaran Desert**, located at the western part of the Inner Mongolian autonomous region, is one of the four major deserts in China whose surface is chipped into multiple layers that seem like a masterpiece ever created by

*The Beauty of Nature*

*Figure 18.*



*Figure 19.*



*Figure 20.*



the hand of god. This place is a vast natural beauty featuring towering dunes, singing sand, lakes, and wetland.

Despite being a tough place to live in, Baidan Jaran is home to five wonders, namely the sand dunes, singing sand, lakes in desert, the mysterious spring, and the ancient temples.

There are about 140 lakes scattered in between the dunes in the desert. At the oasis named Temple Lake, a Tibetan Buddhism temple stands solemnly between a hill and a lake. Local people often call this temple the Forbidden City in the desert for its majestic beauty.

**Guilin**, a beautiful city renowned for its scenery of Karst topography and idyllic landscape, is often characterized as the most beautiful place on earth. Yangshuo, one of the cities' counties, is considered to harbor the best beauty of Guilin as the famous Li River flows through this place. As a result, people would often use the phrase "east or west, Guilin is the best" to commend Guilin's beauty, while at the same time, give Yangshuo the name "best of the best" to vindicate its splendor. When you cruise along the Li River on a bamboo raft, with the reflection of the splendid mountains on both sides intertwines with the crystal-clear water under the azure sky, you might wonder if you have entered the realm of Heaven or a scenic painting. Only here can



*Figure 21.*



you grasp the essence of poem “the reflections of the mountains float on the water, without water or mountains it is no scenery”.

**Bayanbulak Wetland**, situated at the plain near the foot of the Mount Tianshan, is a magnificent natural beauty surrounded by snow mountains whose melted ice humidifies the land below. The wetland is covered with green grass with rivers and brooks cutting it into many patches of interesting shapes. The river in the wetland is clear and shallow, making it easy for local herdsmen to walk across.

The grass in the wetland is given a well-deserved reputation for being nutritious as it is extremely tender. In and around the grassland scattered multiple lakes of different shapes in which swans are wandering at ease. Statistics suggest that the wetland is home to 60% of the world’s total swans and is therefore the largest swan lake on earth. It was listed as China’s first nature reserve for swans in 1980.

“Bayanbula” means “the spring of abundance” in Mongolian. Following the return of the Torgut tribe in 1771, the Qing Dynasty awarded them this land of abundance, which, afterwards, became the breeding ground for the Torgut tribe.

*Figure 22.*



**Zhalong Wetland** in Qiqihar, covering an area of 210,000 hectares, is an ideal habitat for fishes and shrimps where the water from the Wuyuer River has generated a vast swathe of swamp with lush tussocks and multiple lakes. Featuring a number of intertwined lakes and rivers, this place is home to the famous Red-crowned cranes and other precious species.

The Zhalong Wetland is world-renowned for a wide array of cranes. It is home to 6 of the world's 15 major types of cranes including the red-crowned crane, white-head crane, white-nape crane, demoiselle cranes, white crane, and gray crane. This place nurtures more than 500 red-crowned cranes, an extremely valuable species, accounting for one fourth of the world's total. It is no wonder that this place is called the home of the cranes.

## **The Beauty of Animals and Creatures**

The beauty of animals and creatures lies in their bodies, their postures, their appearances, their colors and their patterns. For example, the zebra, the flowers in the pasture, the pink butterflies, and the relict gull in northern China, all contribute their beauty to this multicolored world. In addition, the adorable panda from China, the flashy Psittacidae from South America, the

*Figure 23.*



arrogant Eagle, the king of the jungle—tiger, the king of the prairie—lion, and net-casting spider, are all vivid reflections of the amazing power of natural evolution.

As beautiful as animals and creatures can be, some of them are quite like the opposite definition of beauty: caterpillars, alligators, toads, pythons, snakes, lizards, chameleons, wolves, red dogs, dingoes, Caracal cats, the Tasmanian Devils, Piranhas, scorpions, mandrills, and the Porcupine fishes... they all represent the intrinsic qualities of things: disharmony, incongruity, dis-proportionality, outlandish appearances. Yet they are also part of the ecosystems and members of the mother nature. This is indicative of the fact that the beauty in nature is different from the beauty in art.

In human society, some people are beautiful, some are ugly. But they are all the products of the DNA and the creation of nature. They represent the mutation and the miracles in the process of natural evolution and the intrinsic qualities of natural evolution.

## **The Beauty of Flowers**

More than one hundred countries have designated their own national flowers or national trees as symbols of their identities. The reason behind such designation lies in the fact that these flowers have epitomized the quality of beauty, strength, and sacredness. By saying that flowers are the reflection of personalities, famous philosopher Goethe suggests that, the choice of national flowers reflects not only the personalities of people, but also the attitudes of countries.



Figure 24.



Examples are as follows: Italy's national flower is daisy;

Poland's national flower is the pansy;

The national flower of France is the iris.

Austria and Switzerland share the same national flower named edelweiss, whose beauty and tenacity is highly commended in the movie *The Sound of Music*.

Japan's national flower is the Sakura, whose beauty, despite its fleeting blossom, is appreciated by many people.

Lotus, as one of the four auspicious flowers in Buddhism, is the national flower of India. Chinese poet Zhou Dunyi from Song dynasty once described this lovely plant as his favorite flower as "it stays clean and pure despite and muddy water surrounding it; it is also a well-formed flower whose beauty can only be appreciated in a distance." (Li, 2015, pp.185) Li Bai (2012), the master of Chinese poetry, also praised how amazing lotus can be by saying that "the beauty of lotus derives from nature, that is why it's so pure and clean" (pp.62).

Blue lotus, also known as the sacred lotus, is a kind of flower that opens itself in the morning while closes itself at dusk. Symbolizing the god of sun, blue lotus was once used to crown the Pharaoh in the ancient times and was

*Figure 25.*



widely referred to as the bride of the Nile for its beauty and magnificence. It is now the national flower of Egypt, Thailand, Bangladesh, and Cambodia.

Rose, the symbol of love and romance, is a cold- and drought-resistant flower that exudes spectacular beauty and great vitality. As the national flower of many countries, rose has left its marks in the history of human beings: Famous Chinese poet Bai Juyi once appreciated the wild beauty of nature by commending the rose's thorns. While on the other side of the world, the War of Roses broke out between the two powers in Great Britain.

*Figure 26.*



*Figure 27.*



As the national flower of Peru and several other countries, sunflower is the epitome of vigor, enthusiasm and loyalty as it always turns itself towards the sun's direction. It is also the reflection of harmony and order as its seeds are lined clockwise or anticlockwise around the flower disk according to the Golden ratio.

Peony, also known as the king of all flowers, is an extremely beautiful and splendid flower that symbolizes prosperity and success. A famous poem from

*Figure 28.*





*Figure 29.*



Tang Dynasty vindicated its beauty as it read, “the fragrance of peony still remains even after the withering of all other flowers; its beauty is appreciated by everyone, while its fragrance is the best there is.”

China pink—the flower you give to your mother on the Mother’s Day.

Thyme—according to the legend, is the tear of Helen from Troy.

Calendula, referred to as the flower of pregnancy by Christianity.

Platycodon flower, the color of which is the mixture of purple and blue.

Poppy, the plant that is considered holy by the Egyptians.

The blossoming Zinnia.

The ever-blooming geranium.

Hyacinth—the flower that people will always miss.

The invigorating red hot poker.

The bleeding heart—Dutch peony.

*Figure 30.*



*Figure 31.*



The orchid queen—Phalaenopsis

Among all those beautiful flowers, the peach blossom holds its own. Poet Cui Hu (2015) from the Tang dynasty once compared the peach blossom to the face of a beautiful woman he ran into by accident, the poem went like this: “A whole year ago to the gate I did pace, with blooming peaches shining upon her face; now the smiling face which I saw and miss has gone nowhere, but the peaches are still coming into blossom in spring breeze here.” (pp.108)

With its fragrance floating across the whole mountain, magnolia is in its full blossom. Considered as the flower of happiness, mandala is also the divine flower in Buddhism.

*Figure 32.*



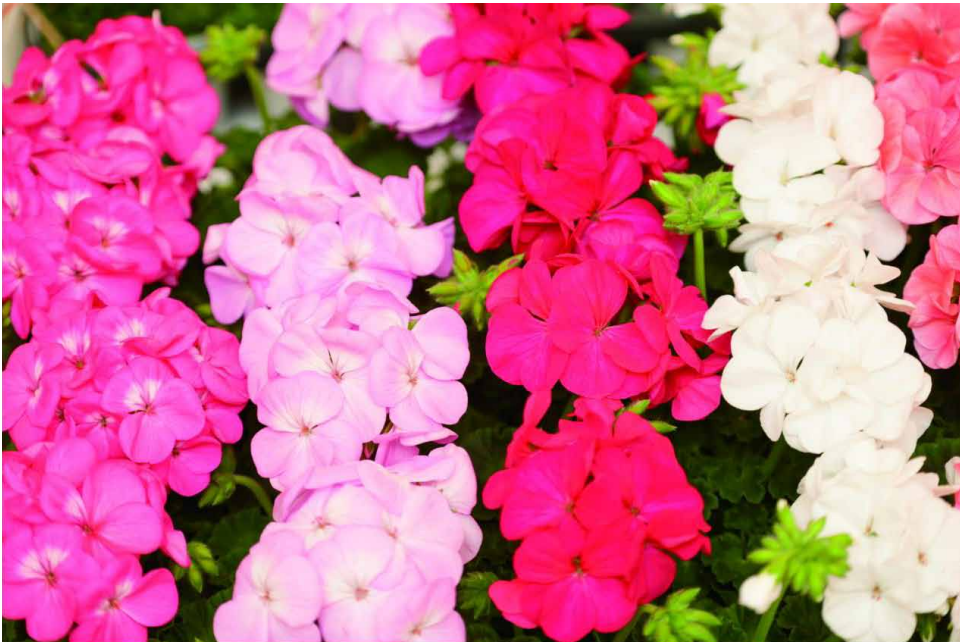


*The Beauty of Nature*

*Figure 33.*



*Figure 34.*





*Figure 35.*



As romantic and intoxicating as it can be, the tulip once triggered the Dutch economic crisis in a way that undermines its status as the most powerful country in the world.

Despite how humbly-looking the *Plumeria rubra* is, Hawaiians wrap them into the garlands and give them to visitors coming from afar.

Azalea is known for its beauty and has therefore earned the reputation as “the Helen in flowers”

As the state flower of Hawaii, the China rose is known for having one of most beautiful colors. When the sun rises, the China rose exudes her beauty coyly in the sunlight; and when the sun sets, she quietly closes herself to embrace the nighttime.

Dogwood, according to Chinese tradition, is an indispensable part of the Double Ninth Festival in which people will attach this flower to their heads to bring fortune. Famous poet Wang Wei (2011) once wrote in his poem that “every time when it is the Double Ninth Festival and I’m far away from home, I will always get homesick for that I know my brother will be climbing up onto the mountains to get the dogwood without me at home.” (pp.37) such line will always present people with the picture where the whole mountain is covered with beautiful dogwoods.

*The Beauty of Nature*

*Figure 36.*



*Figure 37.*



*Paphiopedilum* (also known as the Venus Slipper) is often characterized as the shoes of the Goddess of Love as its beauty is believed to be able to take people to a world of fairy tales.

*Cattleya Hybrida*, the graceful and multicolored flower, is widely referred to as the “king of the foreign orchids” or “the queen of all orchids”. As the national flower of Brazil, Argentina, Columbia and several other countries, the flower is often likened to a well-curved maiden or a beautiful butterfly. It is also named as the one of the four major ornamental orchids along with the *Dendrobium*, the *Phalaenopsis*, and the *Vanda*.

Dandelion, often considered as the freest plant on earth, is a seed-dispersal flower that scatters its seeds to wherever the wind blows. By transmitting its seeds through the wind, it is able to reproduce and therefore carry forward its vitality.

*Canna lily*, as the legend states, is made of the blood on the toes of the Buddha. It is incredibly graceful as its color is just as red as the blood.

*Psychotria Elata*, is a red flowering plant whose flowers resemble the lips of a beautiful woman. It is one of the reflections of natural wonder and genius creation.



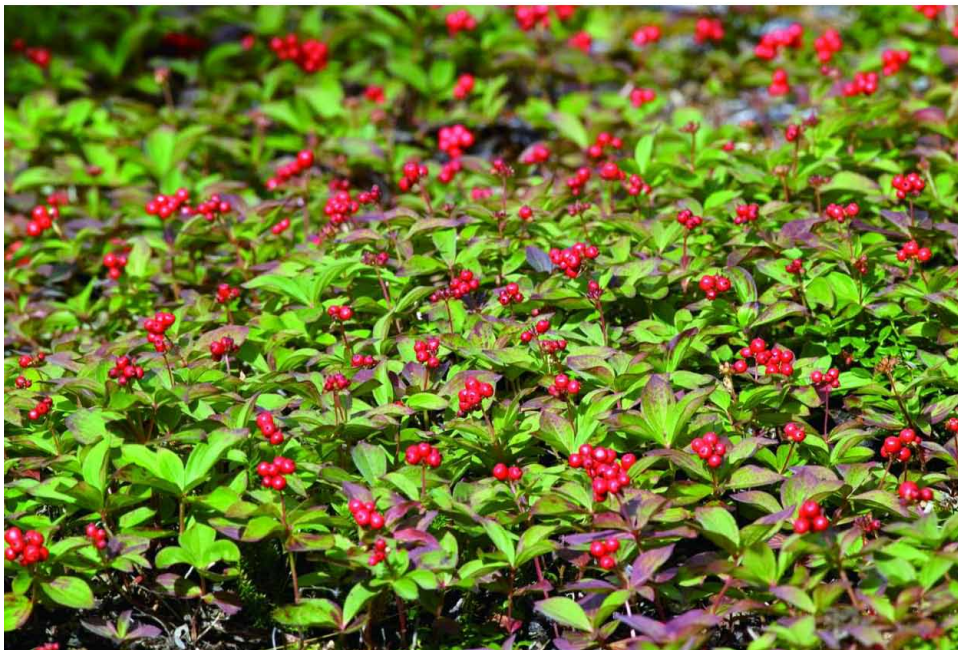
*Figure 38.*



## **The Beauty of Trees**

Along the banks of the Ejina river at the Badain Jaran Desert, lies China's most magnificent poplar forest: the Ejina Poplar Forest. Endowed with a

*Figure 39.*



magnificent natural beauty and unique cultural quality, this place is like an oasis in the desert. When the annual autumn frost hit the region, a wide swathe of poplar forest will turn yellow. The golden leaves dance and rustle under the azure sky, forming an impressive scenery of strongly contrasting colors and bright color tune.

Poplar is the only arbor growing in the desert, it is a precious plant that reflects the vitality of nature. It is extremely tenacious for its resistance against coldness, drought, salination and sandstorm. It can absorb the high-salt water underneath the desert while excreting the excessive salt in it. The excretion left on the surface of the poplar then turns into a white and yellowish crystal called “poplar tear” or “poplar alkali”, which is widely used by local residents as bread yeast, soap, apocynum degumming property, or leather degreasing property.

A mature poplar tree can drain dozens of kilograms of salt annually and has therefore earned the reputation of “hero for soil improvement”. The poplar trees have strange shaped leaves which vary with the tree’s age: long and narrow leaves are often found on young poplar trees while round and big leaves grow on older ones. You can find on the edge of the leaves some

*Figure 40.*



*Figure 41.*





*Figure 42.*



notches that make the leaves resemble the maple leaves. It is a magical and tenacious plant that can live for hundreds of years with its colors being green in spring and summer, yellow in autumn, and red in winter. “Poplar trees can live for a thousand years, remain upright for another thousand years even after death, and stay immortal for another thousand years before falling”. The life cycle of a poplar tree marks 3000 years of human history, it is the most inspiring thing on the northwest continent.

The oak tree, as the national tree of America, is a tall and humble plant that stands for strength and power.

Silver birch, the national tree of Russia, is often referred to as the “maiden in the forest” for its beautiful figure. It is a tenacious tree that can stand the test of the freezing winter.

With its firing red leaves, maple trees show off its magnificence in the late autumn as its leaves redden many mountains and forests. When seeing such scenery, one cannot help but think of the poem written by Du Mu (2011): “Sitting in my sedan chair in the evening, I admire the maple grove; the frost-covered leaves are redder than the flowers of spring.”(pp.150) In Canada, the country of maple trees, such beauty can be seen in plain sight almost

***The Beauty of Nature***

*Figure 43.*



*Figure 44.*





*Figure 45.*



everywhere. With the rustling autumn wind and the falling maple leaves, a spectacular picture of vitality is there for the taking.

*Nyssa sylvatica*, also known as the tree of fairy tales, is a beautiful tree featuring both the quiescent autumn leaves and the colorful summer flowers.

Baobabs grows in Africa, Australia, Mediterranean region and the islands in Atlantic and Indian Ocean. It boasts a gigantic tree trunk, myriad tree branches that resemble tree roots, and football-like fruits. It is regarded as the tree of life in the oasis of the desert.

*Pinus longaeva*, the long-living species of bristlecone pine tree, stops growing automatically upon death but stays intact for a long time after death.

Swaying in the sea wind, Coconut tree features the longest leaves whose appearance resembles the feather of the bird. Its leaves dangle at a perfect angle as if it's swaying its arms to welcome the sunrise and chase the sunset.

*Erythrina Indica*, also known as the red ivory, is a pleasant-looking plant whose flower are red in color and tiny in size. Famous poet Wang Gu (2000) once expressed his appreciation for this plant by writing in his poem *The Flower of Erythrina Indica*: "the flowers of *Erythrina Indica* come into blossom in the drizzling southern China, they grow alongside the muddy

***The Beauty of Nature***

*Figure 46.*



*Figure 47.*



road with their color as red as the sun-setting sky, what a refreshing scenery in summer.” (pp.62)

Bamboo, as the symbol of integrity and unyielding characters, is widely referred to as one of the “four gentlemen” along with orchid, plum blossom, and chrysanthemum; and also regarded as the “three friends of winter” along with pine trees, and plum blossom.

## **The Natural Beauty in Poetry**

Cao Cao’s renowned poem *The Sea* vividly reflects the natural beauty where the sky and the sea are merging into one. (Li, pp.32)

*I come to see the boundless ocean,*

*From Stony Hill on eastern shore.*

*Water rolls in rhythmic motion,*

*Islands stand amid its roar.*

*Tress on trees, from peak to peak,*

*Grass on grass, lush far and night.*

*Autumn winds blow drear and bleak,*

*Monstrous billows surge up high.*

*Sun by day, moon by night,*

*Appear to rise up from the deep.*

*The Milky Way with stars to sleep,*

*How happy I feel at this sight!*

*I sing this poem in sheer delight.*

Of course, this poem also epitomizes the beauty of the author’s character.

***The Beauty of Nature***

In his epic poem *The Perilous Journey to the Land of Shu*, Li Bai expressed his aspiration to the beauty of nature with magnificent, beautiful and unique lines. (Zhang, pp.45)

*Alas! The height, the staggering height!*

*The road to Shu, so steep, steeper than Heaven.*

*Where are those founders of the Shu Kingdom?*

*Long forgotten in that land, unknown for*

*Thousands of years, to the outside world!*

*Mount Tai sitting to the west—a pass*

*Trying the birds' flight to Emei.*

*Many a heroic death,*

*Among collapsing crags and cracking tops,*

*Paved a human path hanging and threading*

*Through peaks and rocks.*

*Overhead, the six-dragon chariot of the Sun*

*Finds no way round;*

*Down the cliffs, a swirling torrent tears,*

*Battering against a ragged land.*

*What a journey—a despair even to*

*Noble flying cranes and agile climbing monkeys!*

*That Grey Earth Ridge, that breath-taking height—*



*Winding, wringing, coiling—  
I could touch the sky on top of it.  
But defeated by the climb,  
You cannot but give up, with a deep sigh.  
When are you to return  
From your westbound journey, may I ask?  
Look at those defiant peaks  
And treacherous trails—can you manage?  
All ahead is but miserable birds wailing  
In the ancient jungles, flying,  
Males in front, females following.  
Listen, the persuasive cuckoo is calling again,  
“Go home, go home!”  
We stay in a desolate valley  
With a bleak moon.  
Alas!  
The road to Shu, so steep, steeper than Heaven!  
A de-colouring, youth-draining, courage-wearing trip!  
Peak upon peak piling to the sky—a mere foot away.  
Pine trees pegged on the precipices*

***The Beauty of Nature***

*By a thousand years' weathering,  
Dashing waterfalls rocking the valleys  
With an everlasting thunderstorm.  
It couldn't be more dangerous,  
But why should you have struggled so far here?  
Don't you see that forbidding Sword Pass—  
One defender there, and  
A whole army's attack would be blocked.  
If he is not your man,  
You are doomed.  
Hide from tigers at dawn,  
And look out for snakes at night—in this land of  
Teeth-grinding, blood-sucking, murderous beasts.  
The capital of Shu may boast a city of joy, but  
Isn't it better back home?  
The westbound road to Shu, so steep,  
Steeper than Heaven!  
I plod my way, step by step, sign after sign.*

This poem, of course, also reflects the beauty of Li Bai's personality.

Li Bai's another poem *To the Moon of Mount Emei* serves the very same purpose: (Yu, 2013, pp. 11)

*Autumn moon over Mount Emei, so like a half wheel!*

*Your reflection in the Pingqiang with its current flows.*

*I set out for the Three Gorges from Qingxi at night.*

*Now, nearing Yuzhou, how much I miss seeing you!*

The poem is a panorama of natural beauty where the half-moon appears particularly beautiful as it shines in the night sky while being reflected in the clear river. The autumn moon, according to Li, is the symbol of those who are far away from home. Its image and connotation are therefore very impressive and emotional.

In his poem *Viewing the Tianmen Mountain*, Li Bai wrote:(Zhang, pp.54)

*The split in the Tianmen Mountains allows the Chu River to flow.*

*The blue waters running east turns to eddies here.*

*Green cliffs on both sides gradually unfold themselves.*

*After a solitary sail is coming from where the sun sheds its light.*

The poem praises the magnificence of Tianmen Mountain by depicting an out-of-the-world scenery where the mountain lies between the two rivers as if it is a gateway to the heaven.

Let's take a look at Li Bai's another masterpiece *In the River*:(Yu, pp.472)

*I was on the boat made of fine wood,*

*Melody is generated by luxurious instruments on both ends of the boat.*

*We were heading forward with intoxicating wines and talented vocal artists.*

*Powerful as the god might be, he cannot fly without the mythical crane.*

*Ordinary as I am, I can still share the journey with the birds.*

*Great poem lives on, beautiful palace fades away.*

## ***The Beauty of Nature***

*The poem I write when drunk can shake the Five Great Mountains.*

*The literary work of mine is even greater than the land of wonder.*

*All fame and fortune are doomed to void, just as Han river will never flow northwestward.*

This poem is decent in form, meticulous in skills, profound in meanings, and free in styles. It depicts the gorgeous scenery seen by the poet while he was boating on the river and lead people into an extraordinary realm. It also shows the author's contempt for worldly fame and his aspiration for freedom.

## **THE HIERARCHY OF NATURAL BEAUTY**

First, from the perspective of mega-scale or cosmology, beauty lies in the vastness of the universe. Such beauty is especially apparent when the distant starry sky shines in the quiescent autumn night. Such beauty is so profound and in-depth that people will find it unforgettable, amazing, respectable and magnificent.

Second, from the perspective of micro-scale and tiny-scale, beauty lies in the elaborateness of DNA and cells. What's most interesting is that the beauty of shapes of natural objects can all be found in their cells. For example, the cells of human's epithelial tissue can showcase its beauty in various shapes including flat, cube and column. Such beauty is exemplified by the similar-shaped cells whose similarity also sublimates the similarity between micro-scale and tiny-scale. This is probably why people commend the idea that "nature is beautiful".

Finally, from the perspective of macro-scale, the beauty of plants, animals and organisms can all be tracked in their cells whose beauty represents the congruity in macro-scale.

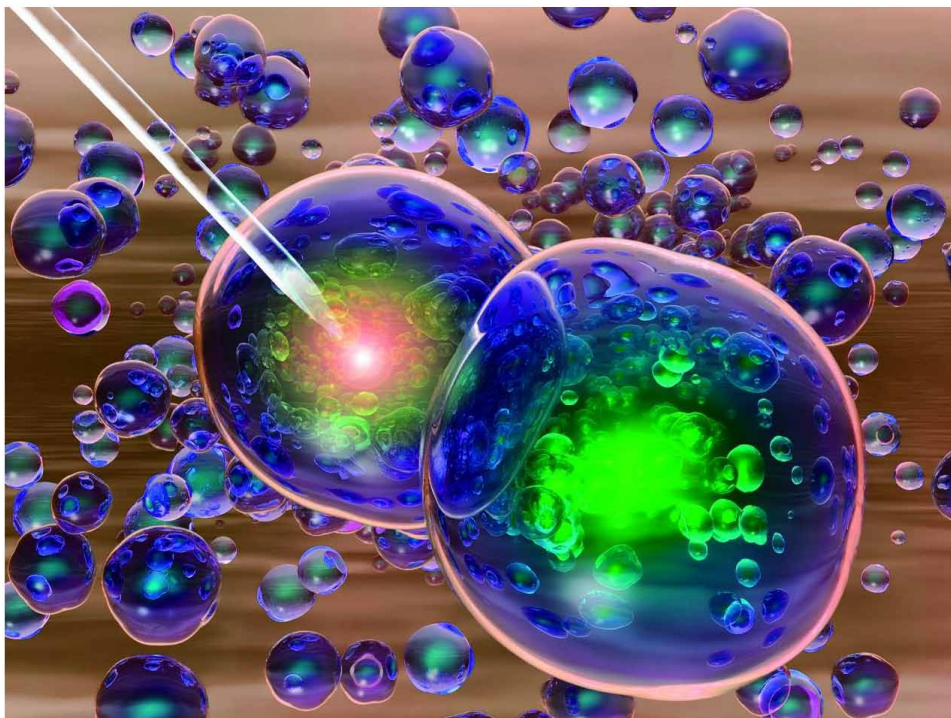
The scale of natural beauty indicates that:

- (1) All objects, be it the universe, the solar system or the earth, are all of the same origin. This fact is the foundation for the hierarchy of materials, the foundation for the similarity among systems, and the foundation for the similarity between material and conscious systems. Material—beauty—consciousness, the three share a similar foundation.

*Figure 48.*



*Figure 49.*



- (2) Things evolve from a singularity are in similar shapes rather than different shapes. Therefore, the beauty of shapes in cells is reelected in all natural things and they all share similar beauty of shapes. Kepler's first law of planetary motion, for example, suggests that: the orbit of every planet is an ellipse with the Sun at one of the two foci. The shape of such ellipse resembles one of those flat-shaped cells in the same way that different galaxies, be it the Milky Way or other galaxies, can all find similar shapes in cells. It is rather amazing that the beauty of shapes is similarly reflected by both the tiny cells and the grand universe. This is how the theory of "harmony between man and nature" put forward by ancient Chinese philosopher coincides with modern scientific theories.

The hierarchical feature of material evolution leads to the similarity among different levels, which is why the beautiful things in nature can arouse the feeling and sense of beauty in people's awareness and emotion. Since ideas, consciousness and aesthetic feelings are the results of material evolution, it



*Figure 50.*



makes perfect sense that they also have similarity, consistency and symbiosis as materials do.

## **THE STRUCTURE OF NATURAL BEAUTY**

### **The Structure of Natural Beauty Consists of Three Factors:**

First, the moving cause. The driving force of beauty is the basic theory of physics—the least action principle. The efficiency of time and energy is the basic requirement of natural evolution. Anything that runs against this basic principle is going to get phased out.

Second, the final cause, which refers to the purpose of development. The ultimate purpose or final cause of all things is optimization and beautification. Things will not stop demonstrating their beauty for the duration of their development. History is the beginning of beauty and will move ahead until the great beauty comes along. A harmonious world and human society will definitely be reached. The idea of communism, put forward by Karl Marx

in 1848 in his work *The Communist Manifesto*, coincides with the “ideal society” in the *Peach Blossom Spring* written by ancient Chinese writer Tao Yuanming (Li, 2015). Both works believe that there is a bright future for human society, a future of great beauty. Communism, for example, is such a great beauty, is the beauty of social development and natural evolution. Yet it is rather important to know that it takes thousands, not hundreds of years to realize such beauty for that hundreds of years are too short, and thousands of years make better sense.

Third, the formal cause, namely the cause of function. It refers to the expression of beauty, and the formation and evolution of similarly. Its core is the mathematical principle of golden ratio exemplified by the beauty in the double helix structure of DNA.

These three factors (namely the structure of beauty) determine the function, the effect, as well as the characteristics of beauty. For example, when a person's structure is sound, balanced and coordinated, he is, without a doubt, an energy-efficient and time-saving organism whose wonder is the result of the nature's evolution. What's more, the beauty of human body is also a miracle that likes no other. For example:

The ratio of diastolic pressure to systolic pressure is the golden ratio Phi: 0.618.

If you multiply 37°C, the normal human body temperature, by 0.618, you will get 22.8°C, the body temperature that human finds most comfortable. Under this temperature, your metabolism and body function are at their best.

When people are captivated by beauty, their brain wave will be identified as the “ $\beta$  wave” whose low frequency to high frequency ratio is 0.618.

The ideal ratio of diastolic pressure to systolic pressure equals the product you get by multiplying the diastolic pressure by 0.618. With such ratio, your heart works at its best.

It is known by all that the whole body is at certain sacred ratios to its parts. According to Leonardo Da Vinci, the parts of human body are at a whole numbered ratio to its height. It is therefore clear that the beauty of human body lies in how harmonious the ratios are, how sound and reasonable the structure is, and how coordinated their functions can be. It is fair to say that the highest principle for beauty in both forms and structures is harmony.

Lions, tigers, cows, horses and sheep are all beautiful animals, when they are on their feet, you can divide their bodies into two parts by cutting through their fore limbs, and the resultant horizontal length of the two parts is then consistent with the golden ratio.

These are all reflections of the driving cause and formal cause.

Some people, despite being the children of nature, often forget about the fact that they are the product of mother nature. Instead, they believe in ideas including “I think: therefore, I am” or “beauty is the expression of my ideas”. These ideas are all the byproducts of idealism or conceptualism and the result of non-real and nonscientific thinking. These people often put themselves first, while place nature second, as if nature should serve them and be centered around them.

As a matter of fact, ideas are also the byproduct of nature. Things that are considered beautiful by nature are rightfully perceived beautiful by people themselves. This is, like we’ve already mentioned before, the similarity in natural evolution and one of the basic characteristics of fractal theory.

The purpose of artists, like the purpose of human beings, is to discover the natural beauty and its laws. Scientists, on the other hand, have to explore the truth and laws of nature, and harness its beauty and laws to bring benefits to the human society, not the other way around. Under no circumstances should we regard ourselves as the core or master of nature, instead, we must bear firmly in mind that nature is the mother of all of us.

## **THE BEAUTY AND UGLINESS IN NATURE**

Can extreme ugliness become beautiful? It all depends on its living environment.

Rafflesia, also known as the corpse flower, is an extremely smelly flower whose blossom will give off a stimulating smell of rotted corpse that will attract flies to transport pollen from male to female flowers. Flies are therefore the major contributor of Rafflesia’s reproduction. Since the notorious flower is part of the nature’s evolution, its smell is hence also natural. It can never become aromatic, otherwise it will become something else. While its smell is stinky, its appearance is actually quite unique and beautiful. If Rafflesia’s smell were to be amended, necessary measures should be taken to change its genes and living environment.

William Hogarth, the British painter and aesthetician, believed that ugliness was also a natural quality (Hogarth, 1997). Adaptation to natural laws generates beauty, while maladaptation results in ugliness. For example, if a person’s scale and ratio is consistent with 0.618, he/she will be absolutely a beautiful, time-saving and energy-efficient human being. Otherwise, it is no doubt that he/she is formed as the result of mutation.

*Figure 51.*



Alexander Gottlieb Baumgarten (2018), the famous German philosopher and aesthetician during the age of Enlightenment, believed that beauty lay in perfect shape while ugliness came from imperfect shape.

Theoretically speaking, beauty lies in the harmony of differences, the unity of variety and the coordination of diversity in the natural world. Variety and miscellanea without harmony can only lead to ugliness instead of beauty. On the flip side, however, beauty and ugliness are relative, as both have multiple levels instead of standing at two extreme poles.

More importantly, beauty and ugliness are concrete and material instead of abstract. Since the beauty and ugliness in art differs significantly from that in the nature, they cannot therefore be in the same conversation.

Beauty, according to Zhuang Zi (2015), lies in simplicity and elegance. He believed that when perceiving beauty, one should transcend the worldly mentality and conform to the nature.

The ugliness in art, however, is fictional, pretentious and inhumane, and that is why people perceive these qualities as vice and evil.

Simply speaking, nature is endowed with the “origin of beauty” and “beauty itself”. The origin of beauty is the beauty of hierarchical emergence. It is in conformity with the golden ration and in accordance with the least action principle.

The process of optimization (beautification) is the process of achieving the extremum in the least action principle, and the process where the beauty of hierarchy reaches its utmost and the great beauty is realized.

Nature is in itself the great beauty. The natural evolution process is the process where beauty emerges.

The ugliness that occurs during natural evolution is a result of mutation. It is not nature’s ultimate product, which is supposed to be optimization and beautification.

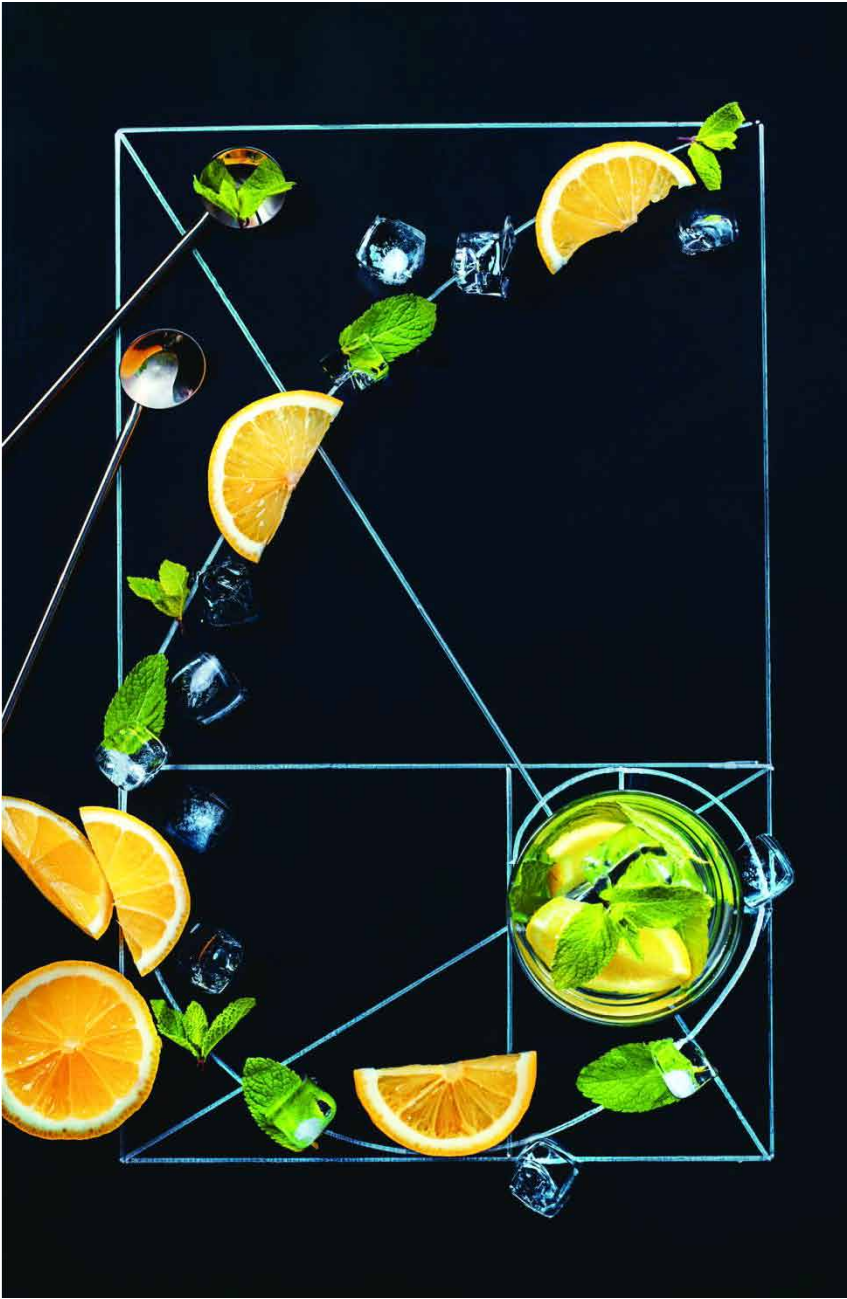
The utmost beauty is the natural beauty which emerges in the coordinated evolution of the universe, the nature and the human society. It is the origin of all artistic and design beauty.

The beauty of human body can be a great case in point: our upper body, lower body, the left part and right part, along with the ears, eyes, hands and legs, are all in perfect symmetry. Our body moves flexibly and elegantly at a harmonious rhythm. Its fantastic structure and spectacular shape are the eternal theme of art beauty and design beauty.

According to Da Vinci, the ratio of people’s parts to their heights is a simple whole number. The harmony and coordination of ratios and functions



Figure 52.



*Figure 53.*



of different parts are what generate beauty, while the incongruity and ill-coordination between them lead to otherwise.

This reflects human beings' beauty of posture, beauty of personality, beauty of spirit, beauty of structure and beauty of health.

The existence of human beings is the demonstration, the evolution and the perfection of beauty.

***The Beauty of Nature***

*Figure 54.*



The beauty of appearance (external beauty), internal harmony, courage and confidence are the essence of human beings. Nature is the only teacher and mother of human beings.

The history of human society is the history of the creation of the beauty of life. Humans are shaped by nature's laws, namely the least action principle.

Where history started, beauty started.

Where natural beauty started, the civilization of the universe started.

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## ENDNOTE

- <sup>1</sup> A deity in Chinese religion, one of the legendary Chinese sovereigns and culture heroes included among the mytho-historical Three Sovereigns and Five Emperors and cosmological Five Forms of the Highest Deity.

## Chapter 8

# The Beauty of Art

### ABSTRACT

*This chapter explains the hierarchy, structure and manifestation of artistic beauty. In this chapter, the author points out that the beauty of art lies in the conceptual integration, harmony, and unity of rationality and natural beauty. It is the reflection of the hierarchical beauty of emergence in people's consciousness. It studies various types of arts, including plastic arts (paintings, sculptures, and architectures), audio arts, linguistic arts (words and literature and poetry), and performing arts (drama, dance, and movie). The chapter also concludes that the beauty and ugliness of art are relative. They are both conditional and have their own self-organization evolution process. From beautiful and comparatively beautiful to more beautiful and most beautiful, from ugly and comparatively ugly to uglier and most ugly, beauty and ugliness both go through a process of emergence, evolution, and development. They are both formed in a linear structure.*

### INTRODUCTION

According to famous German historian Ernst Grosse (Grosse, 1928), artistic activity is one which in its course or in its direct result possesses a pleasurable emotional factor. It is therefore not entered upon as a means toward and end out-side of itself, but as in itself the end.

The beauty of art lies in the conceptual integration, harmony and unity of rationality and natural beauty. It is the reflection of the hierarchical beauty of emergence in people's consciousness.

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Figure 1.



## THE ADVENT OF ARTISTIC BEAUTY

The beauty of art is the unrestrained creativity derived from the artists' "ideas", "inspiration" and "passion". It is, however, very important to know that these "ideas", "inspiration" and "passion" are all consistent with the laws of art and the sentiment of artists.

These "ideas" are spontaneous, as they only occur under certain conditions on a random basis. Such ideas, inspiration and passion cannot be found from all people, in all places, and at all times.

For example, in 1897, French impressionist painter Paul Gauguin felt the pinch as his uni-color, segmented, abstract and super-naturalist Cloisonnism style was denied by people at the time, which, worsened by the psychological suffering caused by his loss of daughter and poor health, led to a failed suicide attempt. Not long after he recovered from the suicide attempt, he finished the 4-meter-long masterpiece *Where Do We Come From? Where Are We? Where are we going?* in only one month.

This painting, as a strong emotional shocker, is a vivid reflection of the painter's confusion about life, about his poverty, suffering and suicidal thoughts, and about the mystery of death. The French painter later said, he had put all his effort in this work that he had been immersing himself in an unspeakable emotional state day in and day out for the duration of the whole month. You can imagine how hard it was for him to go through all those hardships all over again and to refine them into something surreal that brought people into a half-real and half-illusory time and space.

This masterpiece, like a fire of inspiration and passion, has left later generations far-reaching impact along with boundless imagination and

tremendous charisma. Its inspiration has also brought infinite joy to generations to come the same way a goldmine can bring fortune to its exploiter.

## **THE HIERARCHY OF ARTISTIC BEAUTY**

The beauty of art has arguably infinite scales or levels with a lot more to emerge.

### **Plastic Arts**

#### **Paintings**

A complete system is already in place in western painting. Western painting's innovative tradition and individualized feature have significantly boosted its growth.

The fine arts in ancient Egypt have come along for more than 3000 years, while it was only after 1000 A.C. that the Greek developed their own fine arts. At around 5<sup>th</sup> century to 4<sup>th</sup> century B.C., the sculpture in Greece made great achievement.

Europe entered the Middle Ages in the year of 476 A.C. Despite being called the age of darkness and barbarianism, the Middle Age Arts marks the integration of diverse cultures.

The Renaissance was originated in Italy, which, therefore, earned the reputation as the “standard bearer” of the campaign. Giotto, known as the “father of European painting”, is a famous Italian painter, sculptor and architect whose principle of realism has left a huge impact on later generations. The Renaissance reached its heyday in the 15<sup>th</sup> century and the 16<sup>th</sup> century, when Da Vinci's natural-science based “Sfumato”, Michelangelo's passion and sense of power, and Raphael's elegance and sense of rhythm amazed and impressed the world of art at the time.

From the 17<sup>th</sup> century to the 19<sup>th</sup> century, European's schools of art were dominated by the Baroque style, a school of art that advocated irrationality and illusion, with the sense of movement as its soul.

Neo-classicism came along later in the 19<sup>th</sup> century.

After hundreds of years of vicissitude and ideological progress, the European continent experienced profound changes in its social structure and people's opinions, so was the style of painting and art. Such changes were followed

Figure 2.



by the advent of European Modernism and Fauvism, and then the Cubism represented by Picasso and Baroque.

Schools of arts such as Futurism, Dadaism, and Surrealism, etc. all hold intuition and sub-consciousness in very high regard.

The line between ugliness and beauty in art and the difference between art and non-art has become increasingly vague. Famous artist Marcel Duchamp would be a case in point as his 1917 artwork *Fountain* was actually a urinal that was exhibited in the art exhibition in America. Such irony and sarcasm have then pushed the anti-art campaign to its peak.

During this exhibition, *Fountain* beat all other works and became the most influential work in the 21<sup>st</sup> century. In another work *L. H. O. O. Q*, Duchamp used pencil to draw moustache and goatee on the copy of Mona Lisa. Such spoof of an artistic classic reflected his defiance against tradition and his unrestrained personality.

The post-modernism that followed tended to ignore the personalized style and called for greater accessibility to art. Consequentially, a dizzying amount of artistic schools appeared in Europe.

*Figure 3.*



## Plastic Arts and Paintings in China

According to Zhang Yanyuan, the author of the *Famous Paintings in all Ages* in Tang Dynasty, the advent of China's painting as an independent art was a result of the separation of graphs from characters. The study of painting art came along later in the Qin and Han dynasty. It was not until famous painters in Wei and Jin period started to emerge that Chinese paintings became mature.

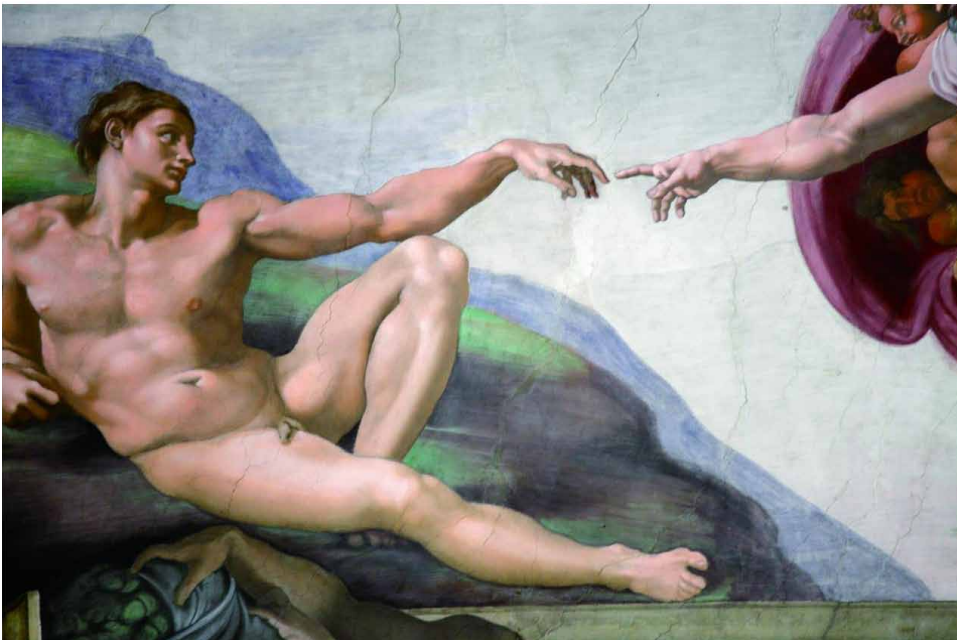
In the period of Wei, Jin, Northern and Southern Dynasties, during the “Uprising of the Five Barbarians”, people from central China and the minority regions became assimilated by each other. Hundreds of years of wars and conflicts between the North and the South, exchanges among emperors and statesmen from different regions, the import of Buddhism, the prevalence of Zhuang Zi's metaphysics, under the joint influences of all these factors, the thought of Buddhism and Taoism penetrated all aspects of the society, including the art of painting. A glance at the statues of Longmen Grottoes will tell people the artistic customs of the time: back then, painting mainly served as a tool for political and religious propaganda.



*Figure 4.*



*Figure 5.*



Before the Six Dynasties, paintings were primarily used for architectural ornament. It was only until the Six Dynasties that the painting arts became independent, except for landscape paintings, which remained an auxiliary art. As Buddhist and Taoist paintings and sculptures were in full swing at that time, it is fair to say that this age was the heyday of religious painting.

Paintings in the Southern and Northern Dynasties were mostly painted on magnificent and clear-cut sculptures that were predominantly located in the place where toh-bah people lived.

In Sui Dynasty (from approximately 581 to 618 or 619), religion's influence on artistic customs was replaced by Confucian Classics. The paintings in this age integrated the features of Six Dynasty style and the Sui Dynasty style.

Following Li Longji's accession to the throne as the emperor of Tang Dynasty, education and literature flourished tremendously and Taoism became more popular. The paintings in the late Tang dynasty were divided into two schools: the north and the south.

The famous painter Han Gan in Tang Dynasty was known for his value that "appearance is better than spirit" and "paint the shape, not the aura". Li Yu, the ruler of the Southern Tang state, set up his own painting house. His painting was far better than other painters when it came to forests and birds. The bamboo he painted is narrow and small from its branches to its roots and has therefore earned itself the name of "iron hook lock."

The painting of birds and flowers came along at the end of the Five Dynasties, while the painting of plum blossom began in the Song dynasty.

Song Dynasty can be regarded as the Renaissance in China as Neo-Confucianism culminated at this time and painting experienced rapid development. As the demand for painting rose exponentially, professional painters at various social levels became very active.

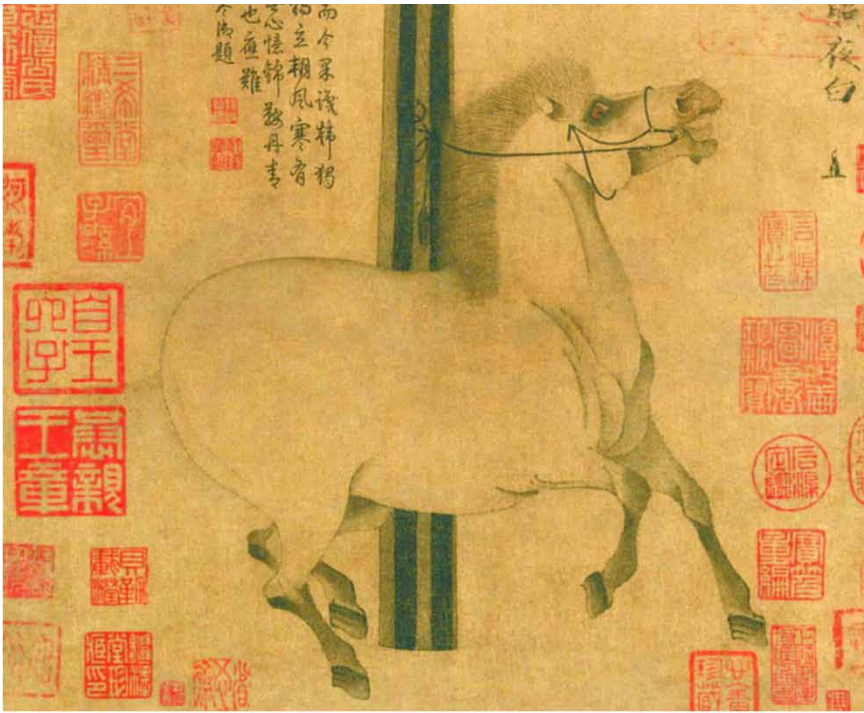
The paintings in Song Dynasty have made a lot of important innovation in painting techniques, with greater focus on the spirit and characteristics of the painted targets. The paintings of birds and flowers and landscapes in this age all displayed great artistic conception and pleasure, with heavy emphasis on realistic and clever artistic expression.

This age marks one of the peaks of China's art development.

Painting houses in this age were even better than that in Tang Dynasty. Song Dynasty Painters not only valued the shape and color of the painted target but also the spirit and aura of it. Under the rule of Song dynasty's 8<sup>th</sup> emperor Zhao Ji, namely the Emperor Huizong of Song, paintings were divided into more specific subjects, such as Buddhist paintings, figure paintings, landscape paintings, and the paintings of animals, plants and houses. Emperor Zhao



Figure 6.



Ji even made people paint the images in poems such as “my horse gallops through the flowers; fragrant are his hooves,” “a tinge of red on green branches is sufficient to show the aura of Spring, and no more is needed”.

In his essay *The Approach of Landscape Painting*, Wang Wei in Tang Dynasty said that: “it takes will more than skill to paint the landscape. Mountains shall be as high as a Zhang<sup>1</sup> on paper, while trees shall be as long as a Chi; horses shall be as tall as a Cun, while people shall be as tall as a Fen. There’s no need to draw the distant people’s eyes just as there’s no need to draw the branches of the distant trees. Omit the distant mountains’ rocks as they were mere eyebrows the same way you shall omit the waves in the distant river as they were like the cloud.” (Chen, 2014, p.178) This paragraph, at the same time, shows the defects of Chinese painting that the layout, the light and shade were sometimes omitted or compromised. Paintings in Tang and Song Dynasties valued the spirit and aura of the painted targets and compromised their specific shapes. such approach is one sided.

In his work *The 12 Things You Shouldn’t Do in Painting*, Rao Ziran, a famous painter in Yuan Dynasty, pointed out the twelve taboos of painting:

*Figure 7.*



crowded painting layout; mixture of the distant and nearby scenes; omission of the aura of the mountains; river without source; plain landscape without change and transformation; path without beginning and ending; rock shown in a single dimension; tree without branches; bent persona; disorderly alignment of buildings; inappropriate combination of dark and light colors; and improper ink and brush work. (Rao, 1963) His observation was very

insightful. But regrettably, it was not understood by the artists of his time, let alone practiced by them.

After Wei and Jin dynasties, paintings have transitioned from expressive ones to realistic ones.

Painting houses in Ming Dynasty valued simplicity and boldness, painters in this age were highly skilled and adept at balancing wet- and dry-brush painting techniques and integrating softness and toughness. Painters were able to demonstrate their talent at any time when called upon by the royal court or the emperors. But sometimes, they ended up being persecuted due to the literary inquisition at that time.

In his work the *Painting of Dong Fangshuo Stealing Peach*, famous painter Wu Wei in Ming dynasty depicted a picture where Dong Fangshuo stole the peach from the queen of heaven and left in a rush. In the painting, Dong was running from the scene with a nervous facial expression, with his hats and gowns waving in the air. Although the painting is very simple, the power and dynamic it displays is rather impressive.

Figure paintings came along before the three dynasties, namely Xia, Shang, Zhou, and has gradually thrived since Han dynasty.

In ancient times, the most common themes of figure paintings were depiction of loyal officials, grateful sons or rebels and dissidents. Their major purpose was to educate people to distinguish between good and evil.

Figure paintings for ethical education dominated the period between the three dynasties and the Western Han dynasty (from 202 BC to 8 AC).

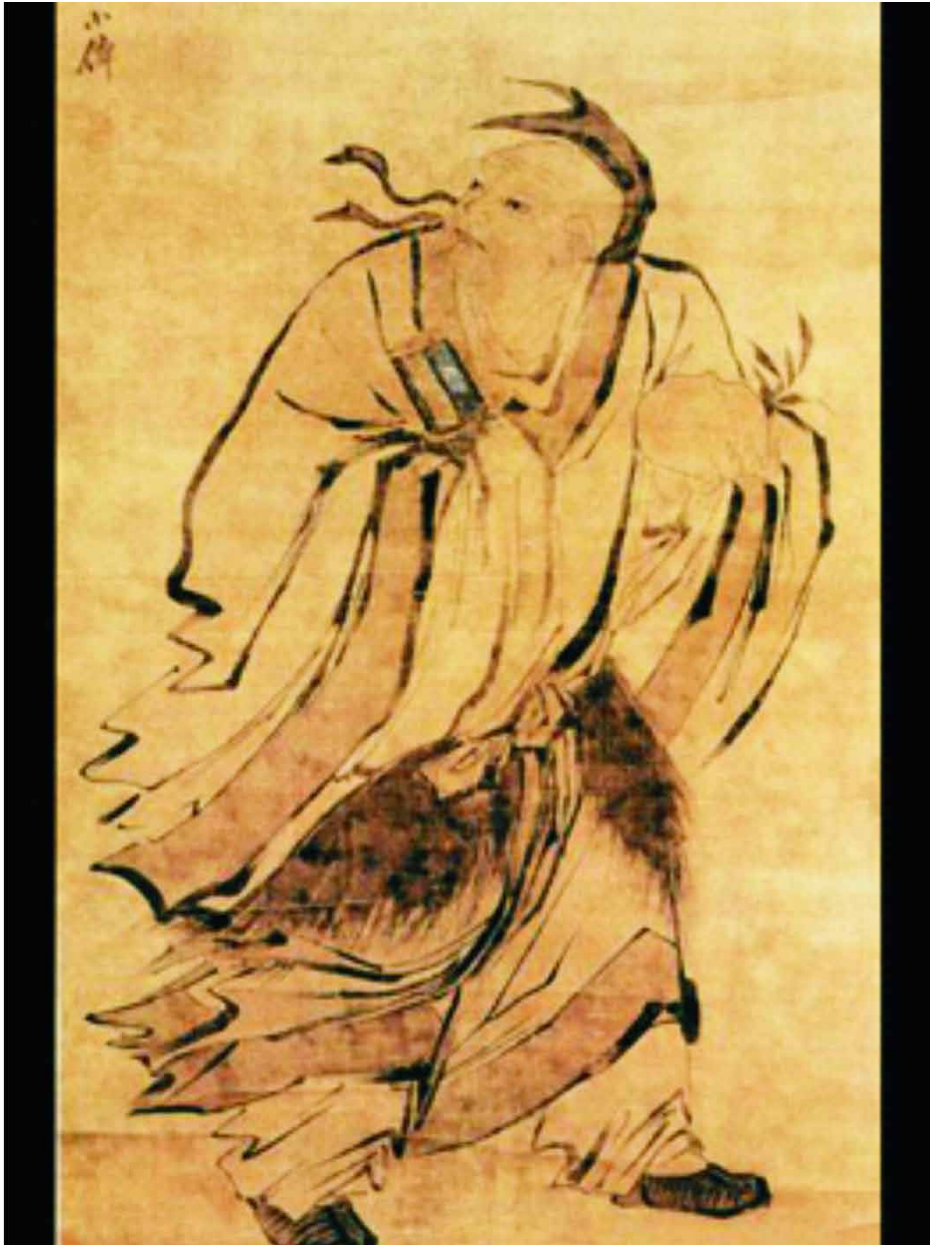
Buddhist paintings featuring religious figures thrived between the Eastern Han dynasty (from 25 to 220 AC) and the Six Dynasties (from 222 to 589 AC).

Before and during the Tang and Song dynasties, the faces of painting figures were chubby, resembling a rectangular. While after the Tang and Song dynasties, the faces of painting figures were lean and bony, resembling a triangular. Such principles were also applied to the bodies of painting figures as they used to be plump but later became lean and flexible.

Since emperors were keen in Buddhism, the paintings of which were then favored by ordinary people. Su Shi once said in one of his poems that “you are no more than just a child if you think the only criteria of a painting is its resemblance to the real objects”. (Chen, 2014, p.5) He advocated that paintings should be vivid both in shape and spirit.

Like sculptures, paintings can reproduce the typical characters, incidents and scenery in real life with lines, colors, and compositions in the two-dimensional space.

*Figure 8.*



## Sculptures

As a type of plastic arts, sculpture is the combination of carving and molding, which, through artistic processing, can then become a visible and tangible artwork in a way that reflect people's lives as well as the sentiment and feeling of the artists.

**Terra-Cotta Warriors.** In 1974, three major pits containing Terra-Cotta Warriors were discovered east of the Mausoleum of the First Qin Emperor. These pits were later uncovered and built into museum. Shaped as the Chinese character 品 (pin), the three pits cover an area of 22,780 square meters with 7,400 life-sized ceramic warriors and horses.

The museum of Terra-Cotta Warriors, as China's largest ancient military museum, shocked the whole world once it opened to the public.

Former French Prime Minister Jacques René Chirac once said in 1978 during his visit to the museum: "while there are already Seven Wonders of the World, the discovery of the Terra-Cotta Warriors can be called the eighth wonder." Terra-Cotta warriors feature grand and magnificent chariots, infantries and cavalries, which, if seen from close, are varied in their facial features, haircuts, body postures and facial expressions: some ceramic horses keep their ears erect, some keep their mouth wide open to neigh, while others keep their mouth shut and stay quiet. All these Terra-Cotta Warriors are impressive in terms of artistic charisma.

Most of these warriors are equipped with bronze weapons including bows, crossbows, arrowheads, spears, Pis (heads of broad spears), dagger axes, Shus (a kind of ancient Chinese blow weapon made of bamboo), swords, machetes and axes. These combat weapons are rust-proof and are still as sharp and shimmering as new after more than 2,000 years buried underground. As a potent military force at the time, the warriors all wear armors with colorful knot dangling from their chests. Among them, soldiers with tall hats on their heads outnumber officers. Terra-Cotta Warriors vary with one another in their facial features, body sizes, facial expressions, eyebrows, eyes and ages.

The Terra-Cotta Warriors reflect the prosperity of Qin dynasty in its prime and indicate the fact that their creation is based upon the real life of that time. They were created with exquisite artistic touch and were perfect demonstration of realism art in Qin dynasty. The grand and magnificent soldiers are vivid and sublime as if they could conquer anything in the world with power and force. It is these soldiers that have facilitated the 2,000 years of feudalism in China.



*Figure 9.*



Terra-Cotta Warriors is an important chapter in the 2,000 years of history of Chinese fine arts, it is of high artistic value and has added glamour and spice to the time-honored Chinese culture and world civilization at large.

**The Mogao Caves.** The Mogao Caves were built in the former Qin Dynasty (351-394AC) during the Sixteen States Period (from approximately 304-439 AC). It is a massive religious heritage whose history spans across the Sixteen States period, the northern Dynasty, the Sui and Tang Dynasties, the Five Dynasties (from 907 to 960 AC), the Western Xia (from 1038 to 1227 AC) and Yuan Dynasties. It has 735 caves, 45,000 square meters of frescoes and 2,415 colorful statues, which make it the largest existing shrine of enriched Buddhism art on earth and a cultural treasure of human civilization. It is widely regarded as one of four major grottoes in China and has been listed as a world cultural heritage site.

Each and every one cave of Mogao Caves is an exemplification of comprehensive art consisting of architecture, colored statues and paintings. Among these caves, the biggest one is as large as 200 square meters, while the smallest one is less than 1 square meter. The caves cover a wide genre of architectural forms, including Zen cave, central-pillared cave, Buddha

*Figure 10.*



niche cave, Buddhaaltar cave, nirvana cave, seven Buddha Cave and colossal statue cave.

The main figures of colored statues include the Buddha, the Bodhisattva, the disciples, the heavenly kings and the deva kings. The carving and molding techniques adopted include round carving, relief carving and shadow carving etc. All the statues are made of wooden frame with the surface molded with clay, except for the two colossal Buddha statues in the 96<sup>th</sup> and 130<sup>th</sup> caves and the reclining Buddhas in the 148<sup>th</sup> and 158<sup>th</sup> caves, which are made of stone frame covered with clay.

Flanked by disciples, Bodhisattva, heavenly kings, and deva kings, the statues of the Buddha are normally situated in the middle of the cave with 3 to 11 statues alongside. The biggest Buddha's statue is the 35.6-meter-long statue of the sitting Maitreya in the 96<sup>th</sup> cave, while the smallest one is less than 10 centimeters.

These deftly crafted sculptures are just as vivid and imaginative as the murals around them. The elaborated colored murals depict a wide array of things including religious myths, landscapes, architectures, flowers, apsaras and the working people and reflect the 1,500 years of history and folkways from the Sixteen States period to the Qing Dynasty.

These magnificent and graceful paintings represent the artistic features of different periods. What impresses people the most among all these paintings is the mural of apsaras, who, are the gods that serve the Buddhas. In the paintings, they are dancing and singing with lotus in their hands and playing the Pipa on the back while meandering in the void, shedding their beauty and grace on the world.

The Mogao Caves in Dunhuang is home to an enriched collection of historical data on architecture. From the Sixteen States period to the West Xia Dynasty, thousands of different types of buildings were painted in the murals, including temples, cities, palaces, watchtowers, thatched huts, yurts, tents, hotels, inns, slaughter houses, beacon towers, bridges, prisons and cemeteries. These buildings appear sometimes in groups and sometimes alone. You can also find a variety of building accessories and ornaments in the murals, such as the brackets, the pillars, the doors and windows, as well as some construction drawings.

These thousands of years old architectural images documented a splendid history of Chinese architecture. It is especially valuable that the Mogao Caves documented the architectures between the Northern Dynasties and the Tang Dynasty and filled in the gap of architectural data of these 400 years. What's more, more than 800 caves of different shapes, 5 wooden cave eaves of Tang and Song Dynasties and the groups of pagodas in the Stone Cave temple left priceless architectural materials to later generations.

Wang Wei once depicted the scenery of western China by saying in his poem that "A plume of smoke rises up into the evening sky of the desert, while the Yellow River dimmed as the setting sun goes down." (Wang, 2010, p.136) The vast desert harbors unlimited wisdom and the ringing camel bells bring people back to thousands of years ago. The Mogao Caves on the desert have left a timeless and haunting impression on all human beings.

## Architecture

The beauty of architecture has its own features. It can generate certain vibes and emotional appeals through the design of its volume, layout, proportion, spatial arrangement, shape, structure, as well as its ornament, color, fresco, and relief.

Suzhou gardens are the epitome of traditional Chinese gardens. It features elaborately painted pillars, quiescent isles, multi-tiered gardens and landscapes, deftly-colored scenery, stationary yet dynamic scenes, and an all-dimensional



*Figure 11.*



appeal. Suzhou gardens are mostly made of wood and bricks. It can always display an intangible beauty of spirit.

Unlike China, western architectures, European architectures in particular, are mostly made of stones, with great emphasis on the magnificence and grandeur of the buildings. Such style became especially evident following the Renaissance period when the gorgeous Gothic architectures dominated the western world for centuries.

For example, ancient Greece's architecture made elaborate effort to decide the proportion of buildings; ancient Rome's architecture attached great

*Figure 12.*



importance to the magnificence and grandeur of buildings; while Gothic styles pursued the obscurity and sense of imagination of buildings. The architectures in the Renaissance period featured a sense of certainty and rhythm. All of these styles valued the beauty of forms and reflected the defining trend of thought of each period.

For thousands of years, the concept of integration of man and nature has always been reflected in the development of all kinds of ancient Chinese architectures, which have facilitated the harmony and congruity between architectures and nature. These architectures all value the selection of building site, with special emphasis on the adaptability to local conditions and the harmony and coherency with the natural surroundings and geography. Gardens are especially the case as they all attach great importance to Fengshui (Chinese geomancy).

Besides, all Chinese architectures reflect clearly the Chinese Li Zhi (the institution of rites), with rigorous regulations on hierarchy, form, color, scale, structure, and parts of architectures. This has contributed to the development of Chinese architectural morphology, but also confined the development of architectures.



*Figure 13.*



The architectures that have stood out the most from all ancient Chinese architectures are royal and religious buildings such as the Forbidden City, Summer Palace, etc. While the former reflects the ideology of imperial power and great unity; the latter displays the regal vibe as it is standard in pattern and rigorous in layout. They are reflections of both the beauty in appearance and the pursuit of power at the time.

Architecture is by nature stationary, yet it can display a certain sense of flow through the change of its looks. It is like a static music with rhythm, melody, prelude, climax, and epilogue. As German writer Goethe said: architecture is a “frozen music” that can resonate with people just the way music does. Beethoven was also quoted as saying that: architecture is the solidified music the same way music is the flowing architecture. (Zhao, 2010)

The most defining architectures in China are:

**Forbidden City**, the imperial palace for Ming and Qing Dynasties, was built in 1406 and accommodated 24 emperors. It is by far the biggest and the most completely preserved wooden palace on earth. With a luxurious, graceful and magnificent look, it is quite an architecture like no other, as it is impeccable and spectacular in both layout and form.

*Figure 14.*



The Forbidden City was built at the center and on the central axis of the city of Beijing. The three major halls in the southern section (the Outer Court), three major palaces in the northern section (the Inner Court), and the Imperial Garden are all on the central axis. These central halls and palaces are flanked by many other halls laid out in a standard and rigorous fashion. The four corners of the Forbidden City feature elaborately built watchtowers. The whole city is surrounded by a 3400-meter-long and 10-meter-long wall with a 50-meter-wide moat built outside the city.

The Forbidden City also features four beautiful and magnificent gates, among which the north gate is faced by Prospect Hill, a scenic hill with pine trees and birches on it. In terms of overall layout, the Prospect Hill serves as a shield for the Forbidden City complex.

The Forbidden City is the symbol of majesty and is the vivid reflection of the lines that goes “the Son of Heaven (the emperor) presides over the world, a magnificent palace is needed to match his world-wide power.” (Sima, 2006) Visitors to the city now can still feel the enlightenment expressed in the poem “Alone I ascend the towering building; the world unfold before my eyes.” (Tang, 2009, pp.1285)

**Summer Palace**, as the imperial garden of Qing Dynasty, is a picturesque place boasting breath-taking landscapes of mountains and lakes. Situated at the suburb of western Beijing, the Summer Palace is a beautiful natural attraction and a “treasured place” according to Chinese geomancy. It is a massive royal garden featuring the design of the gardens in Jiangnan region, and is primarily composed of Longevity Hill and Kunming Lake, with the

latter covering three quarters of the area. At the center of the garden is the Tower of Buddhist Incense, which is surrounded by hundreds of buildings and over 20 courtyards, with pavilions, terraces, attics, towers, corridors and ancient and precious trees scattered among them. Buildings like the Tower of Buddhist Incense, the Long Corridor, the West Dam, the Stone Boat, the Suzhou Street, the 17-Arch Bridge, the Garden of Harmonious Pleasures and the Great Opera Hall have become well-known to every household in China.

The Summer Palace is a monument to classical Chinese garden art. Dominated mainly by the Longevity Hill and Kunming Lake, it borrows scenery from surrounding natural landscapes and radiates not only the grandeur of an imperial garden but also the beauty of nature. It best illustrates the guiding principle of traditional Chinese garden design: “The works of men should match the works of Heaven” (Ji, 2015, pp.257) and has, therefore, earned the name of the “museum of imperial gardens”.

The artistic design of the Summer Palace is clever and harmonious, which makes it a prominent and rare masterpiece in the world’s history of garden art.

**National Stadium—The Bird’s Nest.** The main venue for the 2008 Beijing Olympics is a giant sports stadium designed collaboratively by Pritzker Prize winner Herzog & de Meuron and Chinese architect Li Xinggang. Featuring a simple and concise look, the stadium looks like a life-nurturing “nest” when seen from a distance. It also resembles a cradle that holds the hope for the future of mankind.

The magnificent stadium is a perfect match for the compelling Olympic games. A series of steel truss were interwoven into the shape of a bird’s nest, which boasts the longest span of any stadiums in the world. Featuring a novel structure and a unique and graceful look, the stadium is able to offer a mind-blowing visual experience.

Utilizing the theories of hydro-mechanics, the Bird’s Nest provides a pleasant natural lighting and ventilation for every spectator, fully displaying the beauty of the natural harmony. The stadium also features advanced energy-efficient and environmentally-friendly measures, such as natural lightening and ventilation, rainwater recycling, the adoption of renewable geothermal energy and the application of solar energy, etc. All these measures make it a well-deserved “green building”.

The Chinese dream is like a bird that spreads its wings and soars into the sky from the “Bird’s Nest”.

**Beijing’s Hutong.** “Hutong” is the homophone of “water well” in Mongolian. Since water wells were the major sources of drinkable water for

***The Beauty of Art***

*Figure 15.*



*Figure 16.*



Beijing residents back in the day, it had therefore become a code name for residential zones, and the word “Hutong” was then coined.

Dating all the way back to the construction of Khanbaliq at the Yuan Dynasty in the year of 1267, Hutong is a time-honored relic with a history of 700 years and still remains the “fish bone” structure in the Yuan Dynasty up till today. In Beijing, there’s a saying that “there are 3,600 famous Hutongs in the city, while unknown Hutongs are as many as the fur of a cow”. Hutongs are mostly formed in the east-west direction with a width up to 10 meters. They are mostly flanked by different sizes of Siheyuans (courtyard houses) that line closely to one another. The alley between these Siheyuans is Hutong.

Hutongs are generally close to the downtown areas. But since they don’t have the hustle and bustle people usually expect in the city, they become therefore the quiet zone in the middle of a crowded city. Their gray walls and gray tiles are the reflection of ordinary people’s life. It is fair to say that Hutong is one of Beijing’s major specialties and a museum of its folkways.

As ordinary as these gray walls and tiles seem, they can be as old as thousands of years. They have weathered the storm and documented historical changes. The grass on top of the Siheyuans has survived its fair share of stormy weather, while the etched paint in the corridors can be seen in plain



*The Beauty of Art*

*Figure 17.*



*Figure 18.*



sight. These scenes not only reflect the beauty of serenity hidden in the depth of alley but also display the charm and characters of a capital city.

**Potala Palace.** Built on the side of Marpo Ri Mountain, the palace is a magnificent and spectacular building that towers high into the sky and becomes part of the mountain. With its red and white colored walls and its shimmering golden roof, the palace displays a strong artistic appeal. It is a renowned masterpiece of fortress-like palace complex and ancient Tibetan architectures.

Potala Palace also houses countless treasures. It is safe to say that it is a world-class art museum, the priceless fortune for Tibetan arts, and the one and only cultural heritage on the snowy plateau.

## **Audio Arts**

Music is an audio art and a performance art. It organizes the rhythm, beat, melody, harmony, mode, tonality, polyphony and form according to the composers' thoughts and feelings to create a beautiful musical image, which makes people crazy, silent, joyful, excited or relaxed. Music can be the ringing of bells, the tramp of hoofs, the singing of birds, the whistling sounds of

wind blowing through pines, the babble of running water and various other sounds in either the natural world or human society. It can also be reflected through methods such as metaphor or simile.

Rhythm is a form of movement whose symmetry is derived from that of the natural things. The cyclical nature of movement such as the ebbs and flows, the growth of plants, the back and forth movement of one's feet, and the scales of veins are all forms of rhythm.

The sensitivity to rhythm is the physical and physiological instinct of human beings and one of the characteristics of life. Just like every type of work has its own work songs, every movement has its own rhythm. 23 days mark a cycle for human's stamina; 28 days mark a cycle for our emotions; 33 days mark a cycle for our intelligence; and 23 days mark a cycle for our skin cells. Such cycles prove the fact that rhythm sets the difference between life and death.

As a matter of fact, the rhythm we talk about in art is consistent with the laws we talk about in science. Everything in the world works according to scientific laws, including those with rhythms.

Rhythms and scientific laws are both the beats of nature. Among all these natural beats, what jump out to people the most are those in music, dance, architecture and poetry. Since rhythm covers almost every field of art, it is fair to say that it is one of the most basic features of art.

The most essential feature of music is that it is able to express a wide range of feelings and emotions, be it excitement or gloominess. It is, therefore, the most inclusive and inspiring form of art.

The laws applied to music are also applicable to math. For example, the wave frequency of music's sine wave coincides with that of the electronic wave. They share the similarity in hierarchy and the similarity in hierarchical evolution, and both reflect the inner consistency between science and aesthetics.

Orchestral music is most pleasant when played according to the golden ratio. The best case in point is perhaps the Beethoven's Symphony No. 3. As one of his most famous works, this symphony was composed during Beethoven's struggle against illness. It displays a strong emotion of seriousness and happiness along with a profound and heartfelt sentiment from the start to finish. It creates a strong heroic-romantic atmosphere, which makes it the most artistically appealing and inspiring symphony we have ever had. There's no denying that it is a milestone in the history of art.

## Linguistic Arts

### Words and Literature

Literature is an art of words, which reflects the social ideology and mentality through the creation of typical characters by means of words, acting and literary modelling.

The main feature of literature lies in the fact that it evokes a vivid image through vision and hearing. Such image is captured by the heart and soul of the readers and can unleash their imagination and creativity to fully appreciate the poetic sense entailed by the work. The “Four Great Classical Novels” of Chinese literature, namely the *Journey to the West*, *Dream of the Red Chamber*, *Water Margin*, and *Romance of the Three Kingdoms* are all good cases in point.

### Poetry

Poetry is known as the literature of literature since it is not only the art of words but also the art of hearts. Poetry carries the mission of enriching and beautifying people’s spiritual lives. It reflects the real world, expresses people’s mind and reveals the truth so as to integrate the laws of heaven and earth into the beauty of nature, to convey emotions and aesthetic concepts and to evoke resonance among the readers.

Unlike other types of literary works, poetry is highly subjective, imagery, flexible and musical.

Qu Yuan’s *Li Sao (The Lament)*, for example, has altogether 370 lines and 2500 words. It is magnificent in spirit, rich in sentiment and creative in idea, which makes it one of the best Chinese classical poems and the pride of Chinese literature.

Cao Cao’s *A Short Song Ballad (Vol.1)*

*The wine, the song, life goes on —*

*But for how long?*

*It evaporates, to our dismay,*

*Like the morning dew, day after day.*

***The Beauty of Art***

*Ambition and aspiration sustain me,  
But a secret thread of grief worries me.  
How can I brush it aside?  
But by drowning it in wine?  
Scholars, scholars, where are you?  
Years I have chanted the song of yearning —  
But would you ever come over to me?  
Deer are calling from the field, grazing  
On the tender grass.  
Let my house be graced with a learned visitor,  
I will have music played in his honour.  
But he is as bright as the moon,  
And how could I make a moon stay?  
Here my sorrows surface and swell,  
And refuse to go away.  
Talented friends, whom I love, I treasure,  
For a rendezvous no journey is too long!  
Would you mind coming, to our meeting,  
To our feast, back to old-days' feeling?  
The stars so dim, the moon so bright,*



*Southbound birds are flying, circling  
Round and round over the tree—  
On which bough are you alight?  
The water can never be too deep,  
And the mountain too high.  
When an open-minded king calls for talent,  
It is him the world must stand by. (Xu, 2014, pp.8)*

This poem is widely accredited for its magnificence, profoundness, and creativity.

Featuring smooth lines, graceful words and profound thought, Tao Yuanming's *The Peach Colony* depicts a romantic and ideal "Utopia" for its readers.

Wang Zhihuan's *Ascending to Guanque Tower*:

*The white sun behind the mountain falls,  
The Yellow River into the sea flows.  
In order to take in a boundless view,  
Ascend another floor. (Ibid, pp.19)*

The author ascended to the top of the Guanque tower just to find that the sun was setting down to the mountains in the west while the Yellow River was surging underneath the tower, he therefore came up with a profound idea that one had to climb higher to see further.

Li Bai's *Drinking Alone to the Moon* (excerpt)

*Among the flowers lying a pot of wine,  
I am drinking alone to no one.*

### ***The Beauty of Art***

*Raising a cup of liquor, to the moon I want to invite,  
With my lonely shadow, we make three tonight.  
Alas, the moon lacks the taste of wine,  
And my shadow, without drinking wine, only stayed with me in sigh.  
But I am still enjoying their company for more a while,  
To my best I cherish and enjoy the rest of the spring in time.  
Joyfully I am singing, as the moon lovingly lingers around.  
Wildly I am dancing, as my shadows freely swings by side.  
Sober, we are enjoying each other's company,  
Drunk, we lose each other like no one ever beside.  
Oh, my dear moon! I would like to be your bosom friend,  
One day we can together overlook the Milky Way as far as we like. (Ibid, pp.47)*

This poem displays Li Bai's determination to staying away from secular lust and vanity and his loneliness. He drunk alone and had fun all by himself, which demonstrated his detached attitude and lofty character. Such attitude and character come with a great sense of beauty.

## **Performing Arts**

### **Drama**

Drama is a comprehensive art consisting of literature, music, dance, fine arts, and other artistic elements.

The features of drama are determined by its forms, functions and techniques.

The acting done by actors or actresses are the representation of his/her understanding of the play and the recreation of the characters.

There are mainly two schools of modern drama. One suggests that actors or actresses must keep a leash on themselves while playing their roles, which is known as the school of performance; the other argues that one should immerse himself/herself fully in the role so as to have a closer-to-reality experience, which is known as the school of experience.

In actual plays, a good actor/actress must switch between these two schools to move the audience and to bring the character to its full potential. If he/she sticks to just one school throughout the entire process of exposition, elaboration, climax and denouement, his/her performances are bound to be incredibly monotonous and boring, even illogical or insane. It will be nowhere near beauty. Therefore, a good actor/actress shall always maintain the balance between experience and performance.

## Dance

Dance is a time-honored art, yet still, a modern art. In ancient times, dance was closely related to people's lifestyles, such as hunting and warfare. It was later developed into a way to express people's feelings instead of a simple imitation of real-life activities. It expresses people's emotions and feelings and the ideological trend of the time in an exaggerated fashion.

Ballet, for example, is an artistic way to express feelings. It is a kind of art where music and dance go hand in hand, while visual images and human figures are intimately tied together. It is incredibly heart-shaking.

What's more, dance can be considered as a moving sculpture the same way sculptures can be considered as a motionless dance. Both sculpture and dance are representational art which is highly comprehensive, concise and typical when it comes to the expression of feelings.

## Movie

Movie is a comprehensive art form involving almost all artistic techniques. It profoundly and vividly reflects life in real time for the purpose of public entertainment and education. Movie has even larger room to scale than drama does. It is the most powerful form of art there is.

*Figure 19.*



## **THE HIERARCHY OF ARTISTIC BEAUTY**

Artistic beauty is multi-level and multi-structural. It is impossible to cover them all. Such beauty is constantly emerging and is likely to occur anytime to any artists.

Every level of artistic beauty is composed with different elements and corresponding functions.

Only by carefully studying and discussing the structures and functions of artistic beauty at every level can we achieve some results. But we must be very clear about one thing: nature and natural beauty are and will always be the source of the beauty of art and the beauty of design. Artists' responsibility, purpose, power, and their Apollonian and Dionysian spirit are no other than discovering natural beauties and using them to recreate the "nature" and to benefit human society. This honored obligation will remain unchanged forever.

## **THE BEAUTY AND UGLINESS OF ART**

The beauty and ugliness of art are relative. They are both conditional and have their own self-organization evolution process. From beautiful and

comparatively beautiful to more beautiful and most beautiful; from ugly and comparatively ugly to uglier and most ugly; beauty and ugliness both go through a process of emergence, evolution and development. They are both formed in a linear structure.

Extreme beauty can sometimes turn into ugliness, and so can it be the other way around. As the ancient Chinese philosophy puts it: beauty and ugliness are both opposite and complementary to each other, they should be perceived, judged and appreciated in a relative way.

The beauty and ugliness of art are all conditional as there is no absolute artistic beauty or artistic ugliness. While artistic beauty or ugliness are in the category of epistemology, the natural beauty and ugliness fall in the category of ontology.

In his work *the Twilight of the Idols*, Friedrich Nietzsche said:

*In the beautiful, humanity posits itself as the standard of perfection; in special cases, it worships itself in the beautiful, ... Human beings mirror themselves in things; they consider anything beautiful if it casts their image back to them; ... The ugly is understood as a signal and symptom of degeneration: whatever recalls degeneration, ... Every sign of exhaustion, of heaviness, of age, of fatigue, every sort of unfreedom, such as a cramp or paralysis—above all, the smell, color, and shape of dissolution, of putrefaction... Here, a feeling of hatred leaps forth: whom do human beings hate here? But there is no doubt: they hate the decline of their type. (Nietzsche, 1997, pp.61-62)*

The 17<sup>th</sup> century painting *Portrait of Innocent X* by the Spanish artist Diego Velázquez and the 19<sup>th</sup> century painting *Protodiakon* by the Russian artist Ilya Repin are both paintings that express the theme of “ugliness”. Processed with irony, sarcasm and parody, such paintings are ugly in appearance yet beautiful in sense. Ugliness can turn into beauty when people feel the sense of joy. The key is to make sure that you have the right tools and measures to turn things around.

Films such as *Master Qiao Mounts on Sedan* or *Sesame Official* also feature such irony and humor.

This common trait, namely the connection between beauty and ugliness, is shared by tragedy, cross talk, and comic.



*Figure 20.*



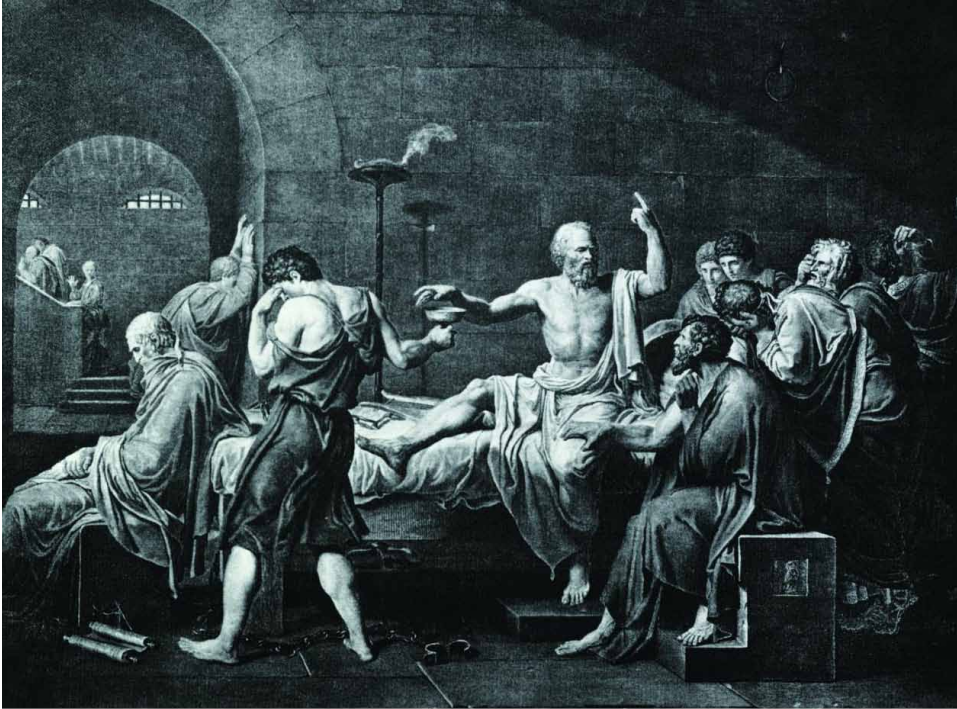
## TRAGEDY

Engels was quoted as saying that tragedy is essentially “the tragic clash between the historically necessary postulate and the impossibility of its execution in practice.” (Engels, 1995)

Lu Xun once said that tragedy is the act of showing the destruction of valuable things in life to people. (Lu, 2012)

In my opinion, it refers to the conflict between the inevitability of history and the contingency of reality. The fiercer the conflict is, the nobler the character

Figure 21.



can be. If such conflict happens to a typical person in a typical setting, then this tragedy can be a long-lasting masterpiece composed of noble beauty.

Tragedy also stands for the conflict between sense and sensibility. Famous French painting *The Death of Socrates*, for example, moved people by evoking grievance and sympathy. Chinese tragedies such as Lu Xun's *The True Story of Ah Q*, Guan Hanqing's *Snow in Summer* and Cao Xueqin's *Dream of Red Chamber* are all cases in point.

## COMEDY

Comedy can be generally divided into satire, comedy of manners, burlesque and farce. It uses absurdity, humor, and the harmless ugliness or eccentricity to reflect the ugly, beautiful or sad part of life. It causes people to laugh about those ugliness and absurdity and to appreciate the positive life and dream.

It is often said that he who laughs the last laughs the best.

Marx (1844) was quoted as saying that history is thorough and goes through many phases when carrying an old form to the grave. The last phrase of a world-historical form is its comedy. (Marx & O'Malley, 2009)

What Marx mean by saying that is that a fair, just and exploitation-free communist society is without a doubt the grand beauty. Generally speaking, the key to turn ugliness into beauty, and ordinary beauty into grand beauty is to find the right condition, which is the common literary method of “truth in distortion”.

Such dramatic effect is humorous and sarcastic. It is the elaborate integration of “truth in hypocrisy” and “hypocrisy in truth”.

Apart from that, such dramatic effect can be further enhanced by exaggeration, and the perfect case in point would be Charlie Chaplin's *Modern Times*.

Hua Junwu's comics during the Chinese People's War of Resistance Against Japanese Aggression and the People's Liberation War are all epitomes of grand beauty as they are very inspirational.

## THE BEAUTIFUL AND SUBLIME

The feeling of beautiful brought about by quiescent and gentle beauties such as the elegant long-sleeve dancing, the hazy moon, the smooth breeze and sunny day with birds and flowers always gives people a sense of joy.

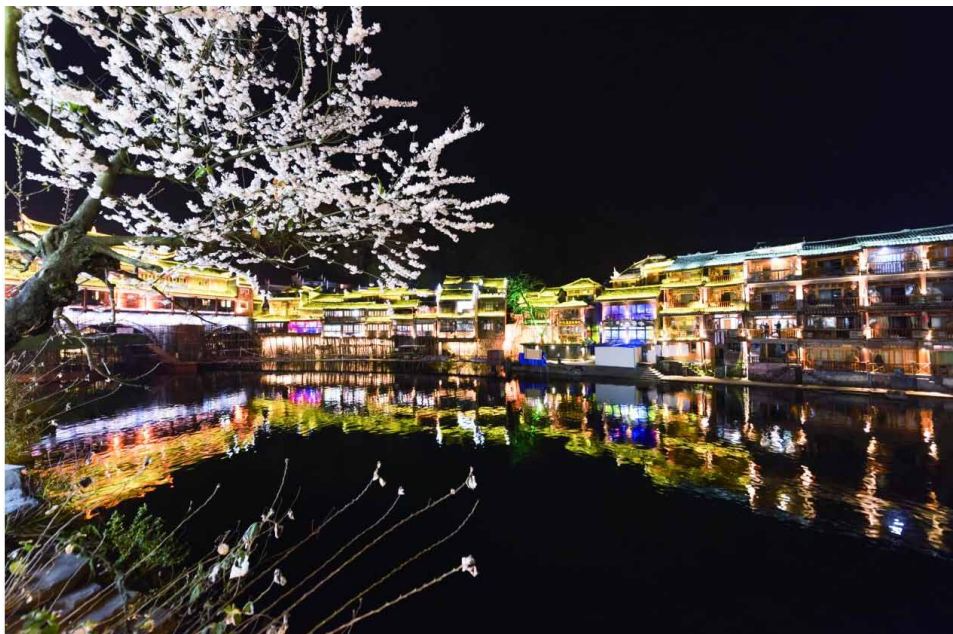
The feeling of sublime, on the other hand, refers to those lofty and magnificent sentiments that can offer people infinite amount of energy and faith.

Sublime is often displayed in the forms of drastic, spectacular, grandeur and breath-taking beauty. It presents magnificence and solemnness, as well as the grand beauty of morals and ethics.

According to Immanuel Kant, “the sublime touches, the beautiful charms.” (Kant, 2011, pp.16) In his opinions, sublime features formlessness and unboundedness. Sublime is, in fact, a great spiritual power and a powerful beauty, which causes our exclamation and admiration.

Kant believed that sublime could be divided into the “mathematical” and the “dynamical”. The mathematical sublime is defined as something “absolutely large”, that is “large beyond all comparison”, or the spatial sublime. While the dynamical sublime arises in response to an experience of the overwhelming power and force of nature, such as the thunder and the lightning.

*Figure 22.*



In real life, sublimity primarily refers to those moral and gallant deeds. Qu Yuan, Si Maqian, Lu Xun, etc. are all classic exemplifications of sublimity.

Yang Jingyu, the General from the Northeast United Resistance Army, chanted “the final victory belongs to the Chinese nation” before his heroic death. He, along with Zhao Yiman, and the Five Warriors on Langya Mountain, are all great cases in point for sublimity.

Hegel believed that sublimity is predominance of “spirit” over “form” and the representation of the absolute substance (Spirit). Such thinking is very profound and in-depth.

To sum up, artistic beauty, by any standard, is an ever-developing system that are emerging and declining on a constant basis. Only great artworks can remain timeless for generations to come.

Figure 23.



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## ENDNOTE

- <sup>1</sup> Zhang, Chi, Cun and Fen are all Chinese unit of length, one zhang ( $3\frac{1}{3}$  meters) equals 10 Chi, 1 Chi equals 12 Cun, 1 Cun equals 8 Cun.

## Chapter 9

# The Beauty of Design

### ABSTRACT

*In this chapter, the principle of design beauty is proposed, and the hierarchy of design beauty is pointed out. The principles of design beauty are high-quality materials (light, thin, soft, or hard), best technologies (consistent with mathematical theories, namely the “structure of force” by Rudolf Arnheim), and best structure (consistent with the least action principle). In the history of aesthetics, artistic design can be divided into three periods in terms of its nature and tendency: the period of “imitation” and “similarity,” the period of “concepts,” and the period when Design beauty prevails everywhere.*

### INTRODUCTION

Design aesthetics is the practice of systemic aesthetics.

It is an industrialized artistic beauty on the coattails of information and internet.

The process of pursuing the beauty of design is first visualizing (concepts, desires, and passions) — then executing— and finally finishing the artwork.

### THE PRINCIPLES OF DESIGN BEAUTY

The greatest charm and significance of design beauty is that it creates a world which co-exists with natural beauty. But its basic concepts and ideas are still the basic principles of aesthetics: the unity in diversity, harmony of

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*Figure 1.*



differences and the overall optimization and beautification of self-organization emergence, etc.

In the case of design, these principles become: high-quality materials (light, thin, soft or hard), best technologies (consistent with mathematical theories, namely the “structure of force” by Rudolf Arnheim) and best structure (consistent with the least action principle).

## **THE HIERARCHY OF DESIGN BEAUTY**

In the history of aesthetics, artistic design can be divided into three periods in terms of its nature and tendency.

### **The Period of “Imitation” and “Similarity”**

Imitation, according to Aristotle, is what separates men from animals as it is part of human nature. (Aristotle, 1996) The ancient Greek sculptures, medieval architectures and Renaissance Humanism paintings all pursued the similarity to nature to achieve the harmony between their minds and nature. They also held religion and nature in great awe and respect to maintain the balance

*Figure 2.*



between their bodies and minds. The more similar their works were to the nature, the more their works were credited. The design and manufacturing of artworks such as sculptures and murals also followed this principle.

## **The Period of “Concepts”**

Artworks including romantic music, dramas, and modern animations are all well beyond the field of realism and are on their way to a world of fantasy and dream. It is an ongoing process where the fine line between artwork and non-artwork is gradually disappearing. At this rate, design beauty will be on display in every industry such as the design beauty of DNA, orgasms, plants, animals and technologies. In addition, the “Belt and Road Initiative”, the design beauty of global internet and China’s Tiangong space lab are all magnificent examples of design beauty.

According to Hegel, the development of art has gone through three stages, namely the symbolic, classical and romantic stages. Symbolic art pursues the similarities of appearances; classical art focuses on the harmony between external and internal things; while romantic art prefers internal values to material forms. (Hegel, 1916)

The period of “concepts” under discussion is the transitional period between classical and romantic art. The transition from imitation to reproduction marks a further advancement from the period of “similarity”.

## **Deign Beauty Prevails Everywhere**

The period where deign beauty prevails is an age where all things are beautiful and beauty lies in all things.

Kant (1949) was once quoted as saying that two things awe me most, the starry sky above me and the moral law within me. (Kant, 2011)

The “moral law” refers to the beauty in reality, society, morals and designs; while the “starry sky” refers to the beauty in nature, environment, celestial bodies and universe.

The works on modern industrial design published by the Bauhaus Art School at Germany in the 1930s are recognized as the classics on modern design. They put forward three basic points of design concept:

*First, designs hall combine technology and art;*

*Second, design shall serve people, not itself;*

*Third, design must follow the nature’s laws. (Li, 2008)*



*Figure 3.*



By following these three points, design can avoid anti-traditionalism which advocates art for art's sake and become more rational and scientific.

In 1928, Ludwig Mies, a design master from Bauhaus Art School, put forward the idea of “less is more” and designed the widely renowned “Barcelona chair”, which features a simple and elegant look and a creative shape. Inspired by its design philosophy, Volkswagen introduced its “Beetle” automobile shortly afterwards. The “Beetle” series became a hit due to its unique design.

Another example is the bottle of Coca-Cola, which was designed by American designer Raymond Loewy. Raymond believed that the most beautiful curve was a rising sales graph. From the bottle all the way to the “Concorde interior”, he has made possible many miracles. His design is a good display

*Figure 4.*



of simplicity, convenience, economy, durability, and the principles of time- and energy- saving.

Henry Dreyfuss, also an American designer, put forward the design principle of “inside to outside”. He published the book called *The Measure of Man* based on his research, which provides designers precise specifications for product designs. (Dreyfuss, 2012)

Modern design has expanded its field of application from manufacturing, logistic industry, service industry and financial industry to daily commodities, eco-environmental design, as well as urban design and eco-design of regional environment. Design beauty has covered all sectors of society, work and environment.

From the perspective of human history, we ensured food supply 10,000 years after our presence on earth. It was a great revolution of food and was

*Figure 5.*



intimately tied up with plant design (nurturing), modification and grafting. This was therefore mankind's first design revolution.

200 years ago, we broke the boundaries of human stamina by carrying out the industrial revolution. That was the second design revolution and progress for human beings. We are currently undergoing digital revolution and internet revolution in a bid to push the limit of human brain. These are all closely related to the design beauty in agriculture, industry and internet, and are all fruitful outcomes of design beauty.

China's current revolution is an exemplification of the "socialization of design beauty," namely the process in which design beauty becomes hierarchical and structural and social beauty becomes systemic. In this sense, the overall design of the beauty of the society becomes indispensable as it can lead to ultimate harmony of society. The key to this overall design is the beauty of innovation and invention. Without innovation and invention, development is out of the question.

*Figure 6.*



The specific methods in design beauty are:

1. Small is beautiful: the practice of the least action principle.
2. Less is more—the Taoist concept of “action through inaction”: the integration of the least action principle and Taoism, and its application in design.
3. Learn comprehensively and put what is learnt to use: the practice of overall optimization in design.
4. Imagination and innovation: the practice of the law of self-organization emergence in design.
5. Elements, systems and their relationship: a clear and effective designing method.

In practice, the aforementioned methods can be used simultaneously in order to achieve the best result.



*The Beauty of Design*

*Figure 7.*



*Figure 8.*





*Figure 9.*



Design beauty is everywhere and anywhere in the modern society. Artistic beauty is a special part of design beauty the same way design beauty is a special part of artistic beauty. The difference, though, lie in the fact that design beauty creates a three-dimensional world with beautiful physical materials; while artistic beauty creates a spiritual world with human wills, emotions, feelings, imaginations and passions. Both artistic beauty and design beauty represent human's pursuit of truth, beauty and goodness. One is not superior to or more elegant than the other.

The ultimate purpose of design beauty is to achieve the social harmony and greater moral awareness.

***The Beauty of Design***

*Figure 10.*



*Figure 11.*



Figure 12.



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## Conclusion

In the previous chapters, we have discussed the general history of aesthetics, made some presets and covered some significant issues and fundamental questions in aesthetics, such as what beauty is, the structure and hierarchy of the concept of beauty, the connotation of beauty, the laws of beauty, the structure and hierarchy of beauty, the comparative study of aesthetics in China and the rest of the world, and why people regard things with natural beauty as beautiful, etc. The whole book can be summarized as follows:

### THE CONTRIBUTION OF THE ANCIENT GREEK

The ancient Greeks have contributed a lot in terms of philosophical ideas and aesthetic concepts. Fueled by the progress in science and technologies, these ideas and concepts later resulted in the exponential growth of society. As the biggest miracle ever since the human presence on earth, the thoughts of Ancient Greek Philosophers still shine through with glory.

Traditional Chinese culture has also contributed greatly to humanity in terms of ethics and morals. It is, however, no longer relevant to the modern social science, aesthetics and technologies, as it is by nature feudalistic and the vestige of the agricultural civilization. As a result, Chinese people lagged the western world. Although the previous backwardness of China is hard to believe, it is due to the different evolutionary paths taken by human social systems. It is the contingency in inevitability and the inevitability in contingency and, at the same time, the hierarchical manifestation of the grand beauty.



## ***Conclusion***

*Figure 1.*



## **TRUTH, GOODNESS AND BEAUTY ARE UNIFIED**

Where there is truth, there is beauty; where there is beauty, there is goodness. Goodness is the reflection of beauty in human society.

All three of these qualities are purposive. Let's, therefore, revisit the least action principle and the variational equation of the beauty of harmony.

*Figure 2.*



$$\delta \int_{p_1}^{p_2} mv ds = 0 \Leftrightarrow H$$

This variational equation is extremely beautiful.

The left side of the equation is the least action principle, which represents energy efficiency and time efficiency. While the right side refers to harmony and beauty, namely the beauty of harmony.

The mathematical symbol linking the two sides suggests that physics, philosophy and aesthetics are unified in a harmonious and organic way. Its beauty lies in the fact that the two sides of the equation are not only symmetric, congruous, orderly and succinct, but also in the fact that it has a very beautiful look. This equation is a clear illustration of the beauty of harmony among philosophy, mathematics, physics and aesthetics, as well as the beauty of their profound intrinsic relationship.

This equation is also the full integration of truth, goodness and beauty in science. It clearly reflects the unity of the grand beauty of the harmonious cosmological system, the grand goodness of social logic and the grand truth of natural logic. It is not only a proof of beauty, but also a proof of goodness, which are both based on “truth”.

Due to its integration future and great harmony, the equation is very useful in practice:

*First, people can use it to design the best and most beautiful things.*

*Second, people can use it to evaluate the beautiful things in the past, build upon them and come up with even better ones in the future.*

*Third, people can use it to quantify beauty. The quantification of beauty can be a major breakthrough both theoretically and practically, with far reaching impact.*

In addition, we have repeatedly discussed in this book the innate unity of science (physics, mathematics and chemistry) and liberal art, as well as the consistency among physics, mathematics and aesthetics in terms of natural evolution. They are both extremely important subjects to study. We must keep working hard in this direction as it is the direction of development for science and art.

## **Conclusion**

In this sense, people will use this equation to design the best and the most beautiful things in a way that benefits the current and future generations.

## **BEAUTY IS A DEVELOPING SYSTEM**

Beauty is constantly emerging in every period, every industry and every corner of the world. The beauty of new designs, new inventions, new arts, new discoveries and new thoughts are all great cases in point. While beauty has countless structural hierarchies and manifestations, its core is still mathematical with natural beauty being its foundation, least action being its driving force, and goodness being its reflection in the rational society.

It is fair to say that ancient Greek aesthetics is cosmology, medieval aesthetics is theology, Renaissance aesthetics is humanism, while contemporary aesthetics is systemic science, systematic thinking and internet thinking. This is the most important feature of today's aesthetics.

## **PEOPLE CAN DISCOVER NATURAL BEAUTY**

Why do people regard things with natural beauty as beautiful? It is because both people's thoughts and people themselves are the result of natural evolution. Nature is hence the mother of human beings.

Natural evolution is not a process of alienation but a process of assimilation. Human beings are the fruitful outcomes of assimilated natural evolution. The physical similarities between man and nature has led to the mental similarities between them. That is the fundamental reason why natural beauty incurs sense of beauty in people's mind. The responsibilities of human are, therefore, discovering the natural beauties the same way scientists discover natural laws. Just as Einstein discovered the Theory of Relativity and Newton discovered Classic Mechanics, artists discover the natural beauty of the universe. It is important to bear in mind that we cannot create natural beauty, yet we can only discover it and capitalize on it.

Figure 3.



## THE NATURE OF BEAUTY

Ever since Alexander Gottlieb Baumgarten defined aesthetics as “the science of the senses” in 1750, the essence of beauty has always been at the core of aesthetic controversy. The reason of this controversy lies in the fact that:

Firstly, the aesthetics theories at all times and in all countries have all overlooked the distinction between the beauty of nature and the beauty of reality (artistic beauty and design beauty). As a matter of fact, if you compare natural beauty to the source of a river, then artistic beauty and design beauty are its tributaries.

Secondly, Hegel’s philosophy is unable to explain the nature, the laws and the structure of beauty due to the limitation of its dualist structure (i.e., phenomena and essence).

## **Conclusion**

*Figure 4.*



Last but not the least, Hegel himself had not done enough research on natural beauty, which leads to the lack of a final conclusion on the nature of beauty.

Natural beauty is about the existence of beauty and it involves a process in which beauty evolves, self-organizes and emerges. Beauty is the objective property of nature, while natural beauty is part of the epistemology of aesthetics, namely part of the systemic philosophy. Like materials, it is the epistemology of natural evolution and an objective existence.

Artistic beauty is a special part of design beauty and the two will gradually merge into a whole. The flexibility and freedom of artistic beauty indicate the advancement of human intelligence. The emergence of design and artistic beauty is the core indicator of the adaptation of aesthetics in the age of information and the Internet.

Both artistic beauty and design beauty are the philosophical and practical epistemology of systemic aesthetics and hetero-organization, that is conceptualization (concepts)—execution—artwork. Their basic design principles are consistent with that of the aesthetics, namely the unity of diversity, the harmony of differences, overall optimization and the emergence of self-organization, along with the “uniqueness” in the Internet age.

Design and artistic beauty will make Internet, big data and super-computing the biggest contributors to restructuring the world.

Aesthetics will no longer be the same thing it used to be, as everything will be part of aesthetics, and everything will be designed to be beautiful.



*Figure 5.*



Beauty will become as indispensable to society like air and water. It will dominate everything in the world and will be the unity of truth, goodness and beauty.

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