

# Rational Elegance: Aesthetic Analysis of the Shape of the Traditional Plum Vase

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**Abstract**—Plum vase's elegant style is a representative of Chinese traditional fine culture, embodying the masterpiece of the ancient Chinese porcelain craftsman's wisdom. From the perspective of aesthetics, mathematics, man-machine engineering, applied statistics, data analysis and chart compares methods; this paper analyzed traditional plum vase aesthetics, and tried to explain its unique aesthetic value from the angle of scientific rationality.

**Keywords**—plum vase; modeling; rationality

## I. INTRODUCTION

*Tao Ya* said: "There is a small mouth, a wide shoulder, a long body and a short neck in a flat plum vase." The plum vase has a smaller mouth, a shorter neck, the widest shoulders, a long body with legs slightly off. Therefore, the shape contour of plum vase presents with a beautiful S shape, short and long curve, and the change of curvature full of rhythm. The shape of plum vase is elegant, graceful and tall, like the girl of the pavilion jade. After thousands of years and enduring popularity, it has always been popular with the public since its own burning, which is related to its elegant and beautiful aesthetic characteristics.

Plum vase modeling is so beautiful that it has its unique aesthetic level. It is not only the result of the sensory stimulation on the beautiful feeling, in the process of the development of human civilization's understanding of "truth, kindness and beauty", coming from the grasp of the law of nature, understanding of social relations between people and the natural ecological beauty of yearning. "Truth, kindness and beauty" are not isolated, while they are interrelated and interacted with each other. To a certain extent, "beauty" contains "truth", and "beauty" is pretty because of its natural properties.

## II. BEAUTY OF REASON

The characteristics of rational beauty are different from natural, social and artistic beauty. It is an advanced form of beauty, whose connotation lies in "inner nature", "intellectuality" and "logic" [1]. Therefore, rational beauty is not a real beauty, but an abstract beauty that reveals the nature

and laws of nature, and has the properties of science, rationality, rigor and abstraction.

The design of ceramic household products is not the natural and arbitrary, but is restricted by the function, process, materials and the time and technology. Designers should have rational rigorous thinking, on the premise of meeting the function for the expression of ideology, artistic conceptions of emotional expression, and produce the products both satisfying the functional attributes and artistic value. The traditional plum vase is the crystallization of the wisdom of the ancient working people, and its formative design is the model of functional and artistic beauty. The shape of the plum vase, especially the early time as a household wine storage, is obviously restricted by functions. In the case of low productivity in ancient society, the shape of the plum vase was also subject to technological conditions and raw materials. Ancient porcelain craftsman creating tall and beautiful and elegant plum vases which are seemed to have higher aesthetic value in the present, under the restrictions of limited space is commendable.

The beauty of the shape of the plum vase conforms to regularity and the scientific reason quality. First of all, the function of the vase requires its practicality, which is bound to be scientific. Secondly, the multi-layered nature of human needs determines that the bottle must conform to the social aesthetic demand. Therefore, the process of the plum vase shape in the pursuit of scientific and artistic beauty is consistent. Thirdly, the characteristics of small mouth and short neck can meet the requirements of reducing the volatilization of alcohol as much as possible and its wide shoulder and long body shape features convenient for handling, and the features of flat increasing the stability, which leads to the elegant, slender and simple aesthetic quality of the plum bottle. The function determines the form while the form determines its aesthetic characteristics. Under the premise of the practical function, the aesthetic consciousness is opposite to the form, so that the shape of the plum vase is both scientific and artistic. As a result, as a wine bottle, it satisfies both the material function requirements and the spiritual functions, which is the perfect unity of rationality and artistry. It is said that it's the result of the porcelain makers' craftsmanship and the practical experience and wisdom of the working people, which shows the splendid ceramic culture of the Chinese nation.

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The plum vase not only conforms to the practical function but also make the elegant shape success, which is related to the rigorous attitude, rational thinking and careful logic of the ancient craftsman. It is the discovery of the ancient working people and the understanding of the laws of nature, the abandonment of individual non-essential attributes from various and complicated phenomena, taking the attribute of the common nature as intrinsic (hidden) regularity, thus forming a rational conceptual system [2] and the binding nature of the creation. And it is the process of the ancient working people recognizing the law of cognition in the course of labor and apply it to practice. For the understanding of natural regularity and social purpose when people get rid of the bondage of the compulsory nature, and the functions purpose for freedom of expression, they obtain the product of aesthetic creation ability. The aesthetic value of the product embodies the unity of the natural and human scale of the product, which is not divorced from the material nature of the product itself, but also embodies the subjectivity of the person. The author found that the size, proportion and shape of the plum vase were changed slightly in each dynasty, which was a rational adjustment of the new demand for the function of the bottle. The abstract beauty of this rational thought is simply the beauty of reason, which in this paper reflects the ancient ceramic craftsman in the aesthetic psychology and consciousness accessing to the higher development stage, produced by blend and the penetration of the logical thinking and the aesthetic, showing a deeper beauty.

### III. THE BEAUTY OF ORDER

Natural beauty is a hint and symbol of the beauty of human society, or a special form of expression. And order beauty is one of the formal beauty laws, such as music, art, design and so on, whose laws are discovered and refined in life, for example, the growth of flowers and the orderly changes of natural phenomena such as leaves of plants [3]. Therefore, the characteristics of order beauty is repetition, gradual change and regularity, including harmony, proportion, simplicity and symmetry. The order beauty of traditional ceramic plum vase molding is shown as:

#### A. Symmetrical Beauty

First, the traditional plum vase shape is the symmetrical body of center antitrope. Second, the traditional plum vase shape is the rotary body, with its round cross-section. Round, about center symmetry, the diameter of any one passing center is asymmetrical. That is, the Pythagorean school holds that the circle is the most beautiful of all graphic shapes.

#### B. Gradual Pace Beauty

The shape of the vase shaped contour line from the neck to the shoulders; the shoulder curve is plump and round. The slope of the tangent line of the curve is getting bigger and bigger, and the slope is changing faster. The tangent line to the widest part of the abdomen is almost parallel to the central axis, and the slope of the tangent line over the widest part of the abdomen is changed from negative to positive. And the slope of the tangent line is smaller, and the slope of the tangent line is slower. "Fig. 1" is the tangent curve and the tangent slope of

the contour curve. The curvature change is gradual, regular, rhythmic and beautiful, full of form aesthetic, giving people a wonderful perspective.

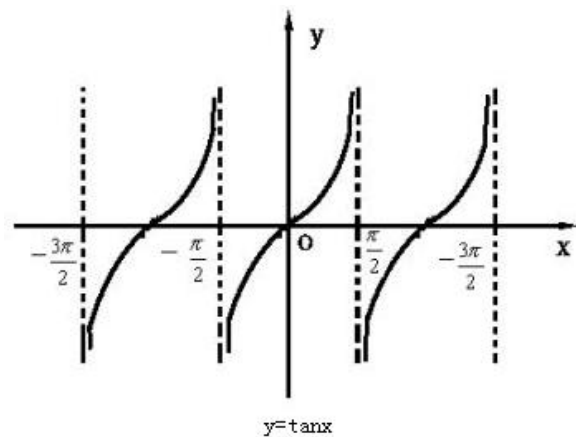


Fig. 1. Tangent curve [4].

#### C. Harmonious Beauty

First of all, the contour line of the plum bottle shape adopts the free curve of continuous change, its volume increase and decrease and the change of surface curvature are the form of gradual change, contrast without confrontation. The way of blending makes it possible to reconcile the transition, change without being abrupt, achieve the contrast in the range of equilibrium, and successive gradual changes appearing harmonious and natural; secondly, the shape of the plum vase is in line with the ergonomic principle, the size of the shape and the proportion change according to the physiological structure of the human body, which is suitable for the holding and dumping of the hand, with efficient and harmonious economy; once again, the size and proportion of ceramic plum vases in each dynasty have a slight change, which is an effort to make a more reasonable and harmonious way for the shape of the bottle.

### IV. THE BEAUTY OF UNITY OF FORM AND FUNCTION

The form is the external manifestation of the material and structure of the product, which can be directly perceived by the form, structure, material, texture, etc., for the material properties of the product. Function is the use utility that attaches to product form, including mental and practical function, for product abstract attribute. Confucius said, "The culture prior than quality creates a history, while quality prior than the culture is uncultivated. And combining the culture with quality makes a gentleman." The meaning is that the culture is more superior than the quality and tends to be flashy, and the quality rather than the culture tends to be coarse and harsh, only the harmony of the prose and the quality can be a gentleman. In the field of design, the relationship between culture and quality is related to the relationship between internal function and external form. First of all, function decides form, form expresses function, whether material or spirit function must pass certain form ability to realize, without any form function. Second, formal decides function and form is the basis. Some forms are showed as different functions,

different forms are different functions, and there is no functional form. Only function and form complete with each other to harmony and unity, the design of product is successful.

The traditional ceramic vase shape embodies the principle of combining function and form. First of all, the mouth of plum vase is small, the neck is short and thin, it is helpful for the sealing preservation and barrier, avoiding the sprinkling of alcohol and also preventing splashing in the moving process. Short and thin neck, good for holding on the dumping, greater than the neck and thick mouth along just to shake hands stuck, avoid sliding out from neck and bottle with one hand and the unbroken foot adduction just folded form position [5];Secondly, the height of the body increases the capacity in the unit area. The bottle height is roughly between 30 and 50 centimeters, so that the bottle is not too big, in the adult reasonable labor quantity; in addition, plum vase has "round shoulder, drum abdomen and narrow shins", the center of gravity has the feeling of instability, but the porcelain craftsman in the abdomen below the abdomen has a more solid balance of the center of gravity. Moreover, the author summarized the average, mean value and height and bottom diameter of each dynasty's plum bottles in chronological order shown as "Table I" and "Fig. 2".

TABLE I THE AVERAGE OF THE HEIGHT AND THE BOTTOM DIAMETER IN EACH DYNASTY

<b>The Average Table of Height and Bottom Diameter of Each Dynasty</b>			
<i>Dynasty</i>	<i>Height mean(CM)</i>	<i>Diameter mean(CM)</i>	<i>The average of height and diameter ratio</i>
Song	31.9	8.6	3.709302326
Liao	38.9	11.1	3.504504505
Jin	34.4	9.7	3.546391753
West Xia	36.2	10	3.62
Yuan	35.2	11	3.1875
Ming	34.8	11.6	3
Qing	27.09	9.97	2.717151454

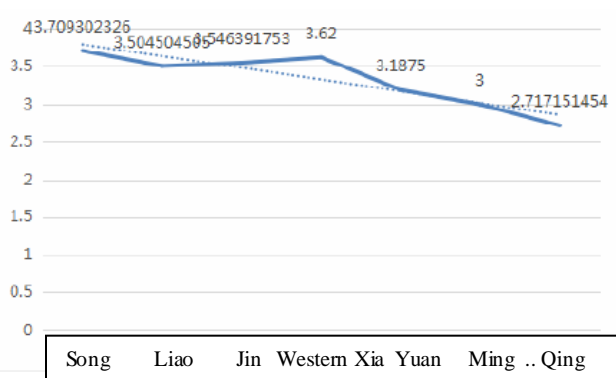


Fig. 2. The average of the height and the bottom diameter in each dynasty.

And it's circular in the cross section of the revolving body, which is not just because the circle has the transcendental beauty that Pythagoras commended. It is because the circle can form the largest volume with the smallest circumference, thus saving the material most. The circle is the result of the rotation of the length of a certain radius, and the circular container is the easiest to rotate on the wheel. Therefore, the identification

of the vase shape is the first factor of utilitarian value, which is the premise of the practical function. If the height is increased, the diameter must be reduced accordingly for the same capacity of plum vase. More than a certain amount of modeling can be unstable, causing a lot of inconvenience in the use of the process, such as tilting the angle of the wine, more laborious and uneconomical.

V. CONCLUSION

This paper analyzes the characteristics of traditional ceramic bottle molding, and analyzes the reasons for the shape of plum vase from the perspective of material function and spirit function, and summing up the beauty of the aesthetic features of the vase molding, namely, the beauty of reason, order, gradual change and the unity of form and function. The determination of the plum vase shape is the result of the thousands of practices of the working people and the crystallization of the wisdom of the Chinese nation, the outstanding representative of traditional creation culture, which is the perfect unity of functional, scientific, technological, rational and artistic. It has achieved the unity of rationality and artistry, material and aesthetic function, function and form, which can be considered as the model of modern design, implications for modern modeling design.

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