
Bionic Beauty in Packaging Design: Taking the Packaging Design of Corn Liqueur Container as an Example

Yu Tian

College of Art, Zhejiang University of Finance and Economics, Hangzhou, China

Email address:

109340564@qq.com

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Abstract: There are many ways of thinking and many forms of expression in packaging design. From the perspective of bionics, how to "skillfully borrow" from nature in order to provide packaging design with a reasonable form is a new, creative and innovative way of thinking. In this paper, "skillful borrowing", a method unique to bionic design, is studied and demonstrated through corn sweet wine container packaging design. It is concluded that bionic packaging design can not only absorb a rich modeling vocabulary from natural forms, but also promote the deep integration of the material life and the natural environment. In this way, the design can be freed from various styles to provide a more optimized way of coexistence between "people and things" and get rid of the increasingly rigid evolution model.

Keywords: Reflection, Packaging Design, Bionic, Skillful Borrowing

1. Introduction

Da Vinci said, "Human spirituality will create various inventions, but these inventions can't be more beautiful, simpler and clearer than the products of nature, which are just right." Through design, an important mean of creation, we transform natural products to make them more useful. [1] While contributing to the "excessive prosperity" of mankind, civilization also facilitated to an ecological imbalance and alienation. Due to the shortage of resources, the deterioration of the environment and the increasing pressure of life and work, people are under increasing psychological stress. Therefore, they began to reflect and searched for new ways out, and they have realized how important it is understanding nature in a different light and finding a way for man and nature to co-exist in harmony.

2. Beauty of Nature

Nature is the creator and it is the original designer. Luigi Colani, a famous German designer, once said, "Design should be based on the truth that the life that was born in nature presents." [2] This shows that nature has provided much inspiration for human beings. Nature is a treasure house full of riches with great potential. Drawing inspiration from nature

and integrating it with human wisdom to interpret it is a unique, and also the most effective and scientific way of thinking about designing.

Creatures in nature have undergone billions of years of evolution, so that every natural being in the world has its own ingenious, practical, rational and intact form, as well as a unique structure. [3] They have developed "packages for self-protection" with different characteristics and functions. What is the true meaning of "All that is real is rational; and all that is rational is real"? The existence of each shape in nature is very rational: some can reduce resistance; some are suitable for flying; some are suitable for concealment and self-protection. For example, it is difficult to break an egg when you hold it in your hand because the egg is oval and when you put it in the palm of your hand and squeeze it, you are actually pressing the whole eggshell, so your force is evenly distributed on the eggshell, that is to say, the force you use is scattered around the whole egg shell, and the force on every inch of the egg is actually within the limit the eggshell can bear. As a result, however hard you squeeze it, you cannot break the egg. And that's why many bridges are designed to be arched, because they can bear more weight than bridges in different shapes. In fact, the aesthetic

evaluation of human beings is based on the products of such integration processes, and the biological functions of animals and plants become harmonious and economical during this evolution process. Since ancient times, the harmony and economical features became the standard of beauty. The Golden Section, the scale relation commonly found in natural arrangements during the Renaissance is rooted in this.

3. Memories Aroused by Bionics

Since ancient times, bionic design has been widely used in innovative design of products and packaging, and this conforms to the objective laws formed during human beings' constant imitation of nature and all the living things. In September, 1960, Colonel Steele of the United States brought forth the term of "bionics", and then later the bionic designs by American and German designers attracted wide attention, and bionic design received great interest in various scientific fields around the world. [4] American designer Pross said: "People always think that the design has three dimensions: aesthetics, technology and economy, but it has the fourth dimension: humanity, which is even more important." [5] The concept of nature has been incorporated into bionic packaging design to satisfy people's spiritual needs and reflect the humane side of designing. [6] Mr. Li Yanzu said, "What is a good design? In today's world when the level of technology, market demands, and aesthetic tastes are constantly changing, it is difficult to formulate a set standard for evaluation. But one thing in design will never change, and that is, giving full attention to people and putting people's values first." [7] Bionic design is one of the newest, most dynamic and innovative design methods. It represents the designs returning to nature and pursuing specific and practical methods for humanization and is gradually becoming a new bright spot in design development. [8] Speaking of experienced designers who have mastered bionic design, one has to mention product designer Naoto Fukasawa, who has innovatively designed a series of packaging for juice boxes. This design is easy to understand, so it doesn't need detailed explanation. The banana juice box is very likable at first sight. Fukasawa adopted the familiar Tetra Pak design so that the soft corner of the package makes people feel as if they were holding a real banana in their hands. If there is stalk on the opening, it will very much resemble a real banana. The series also includes kiwi juice-the kiwi is peeled, and a dark green smooth fruit remains,. The fiber is fixed on to a piece of paper with flocking technique, which can create a texture that closely resembles the skin of a kiwi. The straw attached to its side makes it clearer that this is a box of juice.. There are also soymilk wrappers, with the cheesy texture of tofu. Undoubtedly, it feels strange to drink from this kind of packaging, as if drinking soy milk directly from a chunk of tofu. [9] By using the bionics design technique, Naoto Fukasawa gave full creative reign to the unique characteristics of his design theme.

4. The "Bionic" Design Technique Applied to Corn Liqueur Container Packaging

Different bionic forms provide different visual and psychological experiences. For a bionic packaging container, its unique visual characteristics enable consumers to enjoy a different emotional experience, thereby bringing them rich aesthetic experience and spiritual resonance. [10] During the process of bionic packaging designing, it is difficult for designers to transform and optimize the typical features of natural objects so that they are compatible with the shape, function and craftsmanship of the products. [11] Bionic design integrates design with nature on a deeper level. This new approach tends to use natural materials as a methodological guideline instead of "copying" them in a more or less indirect manner. Therefore, the imitation of biological forms in packaging design should integrate the principle of biological systems, guided by the design concept, serving the purpose of the design. It cannot be simply copied. [12]

It is more convincing to demonstrate how "skillful borrowing" is used in packaging design through the author's recent project research on the topic of the packaging design of corn liqueur containers. For many international brands, product packaging and appearance can deeply impress consumers, thereby becoming the most valuable elements of the brand image. [13] In the early stage of the research, after market research and product analysis, it was found that the existing container for this product was a glass bottle, which was rather unrefined. Therefore, there was much room for design improvement. If we can solve the problem of the packaging of this product from the perspectives of fun and returning to nature, it would be a brand-new attempt and challenge. After a long time of observation and thinking, the author came up with a seemingly "lazy" idea, that is, to design the package into the shape of corn.

Of course, the sketch is essential. Through the drawing and adjustment of the sketch, the design prototype gradually surfaced.

The following stage was not a static one. Unexpected problems may occur at any time during the entire dynamic evolution process, and even a designer with multiple years of experience must be mentally prepared. The plan uses ceramics for baking the bottle body of "corn liqueur", and the shape of the bottle is "skillfully borrowed" from the shape of natural corn.

Ceramics are highly resistant to corrosion and penetration, and the glazed bottles look refined, have a soft feel and are easy to rinse. [14]

The author went to all major supermarkets and stores searching for corn. After careful selection, the author found corn, that was large and whole. It was perhaps the best corn for molding my bottle design. However, the author failed in making the glass bottle for three reasons: Firstly, the glass bottle became 17% smaller than the maize after several steps of baking, which meant that the bottle would be too small

and does not meet the practical need of a container. This was the most severe problem and it could not be solved by "imitating" natural objects. Secondly, the aesthetics of the directly "copied" bottle shape are inevitably somewhat lacking. The reason is not the corn itself, but during the process of copying, the object must be combined with its function, only when the design of the bottle mouth and the bottom complement each other in creating the natural shape of corn can the packaging be perfect. Thirdly, and, this is a matter of details, the shape of the mouth of the bottle is very important. If it is protruding, it will not resemble corn after being corked. If the mouth is designed to be hidden and has a small diameter, it will be difficult to pour out the content of the bottle.

Failure is the mother of success. The author puts forward solutions to the above-mentioned three problems. First, the author used the shape of "humanized" corn instead of that of real corn, only "skillfully borrowing" its charm rather than a making simple original shape. In the process of artificial shaping, its size can be enlarged seventeen times, so that the ideal and reality can meet in the final baked size. Secondly, the natural corn shape that is difficult to control due to direct "copying" can be well controlled in the process of "humanizing" corn, as long as the characteristic corn husks are "skillfully borrowed" and integrated into the shape of the bottle. If the two are unified, this problem can be easily solved. Thirdly, it is necessary to coordinate the design of the bottle mouth with the design of the cork and of the whole bottle to make it both eye-catching and practical. Modification and improvement are the final stage of the project. The first step is to identify the natural corn prototypes, collect the ones with beautiful shape, full grains and natural veins, and hand over the sketches marked with specific dimensions to the engraver. In this process, effective communication with the engraver is essential. During the engraving process, the bottle design brought together the advantages of different corn prototypes, including the shape of the bottle, the natural direction of the particles, etc. At the same time, the size of the bottle was enlarged by about 17%, and then turned into a plaster mold; in the second step, when the mold is basically dried, mud is injected. When the dried mud on the outer layer is about four millimeters thick, the remaining mud can be poured out. Because of the small bottle mouth, it was difficult to pour the mud out, and the embryo was cracked after the demolding in the later stages. After multiple analysis, it is found that this problem could be solved only by sticking a wooden stick into the bottle mouth, which lays the foundation for future smooth molding. During the third step, the mold will form a gap, and the embryo body formed by it cannot be directly put on the kiln, and therefore, the gap must be repaired with a trimmer knife. Small defects on the corn kernels can be gently cleaned and rounded out with a wet sponge; the fourth step is to put it into the kiln and bake for eight hours. During this process, the corn embryo has to be dry to ensure it doesn't burst.

Next, the mold is glazed evenly with a spray gun. The fifth step is to put it in the kiln again for 13 hours. Due to the high

melting point of white glaze, if the temperature can't reach 1300°C, it will be difficult for the glaze to melt and the gloss of the final product will be affected. White glaze is used because its color gives a more unique feeling. As Ikko Tanaka said, "In an environment full of excessive packaging and colors, a design will provide a fresh feeling if some redundant decorations and colors are removed." [15]

5. Conclusion

Biological systems have ever-changing natural morphological characteristics, which are a constant source of inspiration and innovative thinking in design and modeling. The bionic design of "from nature to nature" is an important design method. By exploring the laws of nature and referring to the internal function and appearance of natural creatures, the creative imitating design is a method of "skillful borrowing". People can not only absorb the rich language of modeling from nature, but also achieve the deep integration of the material life and the natural environment, so as to get rid of the increasingly rigid evolution model. Freed from bondage, the ingenious introduction of the bionic method in packaging design provides a more optimized way for the coexistence of "people and things".

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