

# *Cultural "Living" Inheritance, Great Beauty "Niuhe Liang"*

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**Abstract:** This study draws inspiration from the “Jade Pig-Dragon of the Hongshan Culture in Chaoyang”, exploring the innovative integration of its design elements with modern “bus handrail” systems. By analyzing the cultural significance, artistic characteristics, and symbolic meanings of the Jade Pig-Dragon, combined with the functional requirements and ergonomic principles of bus handrails, a design solution that balances cultural heritage and practicality is proposed. The research employs methods such as “literature review, user surveys, 3D modeling, and prototype testing” to develop a new handrail structure based on the “C”-shaped silhouette of the Jade Pig-Dragon. Functional enhancements, including “jade-like materials, LED lighting, and a rotatable connector”, are incorporated. Experimental results demonstrate that the design not only preserves traditional aesthetic features but also significantly improves grip comfort and nighttime visibility. Additionally, an “embedded QR code” facilitates cultural education, enhancing public awareness of the Hongshan Culture. This study provides a feasible model for the “application of traditional cultural symbols in modern public infrastructure”, offering both social value and commercial potential. It contributes positively to the promotion of regional cultural heritage and the enhancement of urban public space quality.

## 1. Introduction

The continuous Chinese civilization of more than 5,000 years is one of the most important, time-honored and unique native civilizations in the world. It brings together the fine cultures of the Chinese and other ethnic groups. It has gradually grown stronger and is still full of vitality today. It is the spiritual source of the Chinese nation. Knowing where it comes from and where it goes, and exploring the source of Chinese civilization has become an important task for the inheritance of Chinese culture.

Since the 20th CPC National Congress, the CPC Central Committee has made systematic plans and arrangements for publicity, ideology and culture from an overall and strategic perspective, and promoted

historic achievements in publicity, ideology and culture in the new era, resulting in fundamental changes in the ideological field. Propaganda ideological and cultural work bears on the future and destiny of the Party, the long-term peace and stability of the country, and the cohesiveness and centripetal force of the nation[1]. It is an extremely important task.

In the mid-1980s, new archaeological discoveries at the Niuheliang site provided important materials for the study of the origin of Chinese civilization. As a sacred place and sacrificial center of Hongshan culture, the discovery of altars, temples and burial sites, as well as the unearthed jade artifacts of dragons, phoenixes and human beings, reflect the social division of labor, the emergence of classes and the emergence of kingship in the late period of Hongshan culture, indicating that about 5800 years ago, Hongshan culture represented by Niuheliang Site officially entered the stage of an ancient country in the West Liaohe River basin[2]. It was the first civilization on the land of China. At the same time, Niuheliang's sacrificial ritual system of "respecting heaven, honoring Earth and Fazu" and the jade ritual system of "taking jade as ceremony and only jade as burial" demonstrate that Hongshan culture is the direct root of ancient Chinese culture and an important unit in the diversified integrated pattern of Chinese civilization.

This study discusses the possibility of combining the jade pig dragon element of Chaoyang Hongshan culture with the design of modern bus rings. Through the analysis of the shape characteristics and cultural connotation of Hongshan jade pig dragon, combined with the functional requirements and ergonomic principles of the bus ring, a series of fusion design schemes are put forward. The research adopts the methods of literature analysis, field investigation and design practice to explore the application ways of traditional cultural elements in modern public facilities. The results show that the combination of Yuzhulong element and bus ring can not only enhance the cultural connotation of public facilities, but also enhance the use experience of passengers, and provide a new idea for the innovative application of traditional culture in modern life.

## 2. Innovative concept

In order to inherit and infiltrate Hongshan Yuwen Hua represented by Yuzhu Dragon into our daily life, we have carried out many discussions and ideas. Finally, because its shape and appearance meet the characteristics of subway and bus handles, we want to make it into a ring handle on subway and bus, and show Yuzhu Dragon to public transportation with the help of 3D printing or engraving technology. Let the excellent Chinese traditional historical relics come to life. The "Jade pig dragon Ring handle" developed by us is shaped with a capital "C" and its color is cyan green, which is in line with the color characteristics of jade[3]. It can not only provide services and convenience for the people in the means of transportation, ensure people's physical safety, but also let the excellent Chinese traditional historical relics penetrate into all aspects of life, return to the public's vision, and cultivate people's cultural heritage (Figure 1).

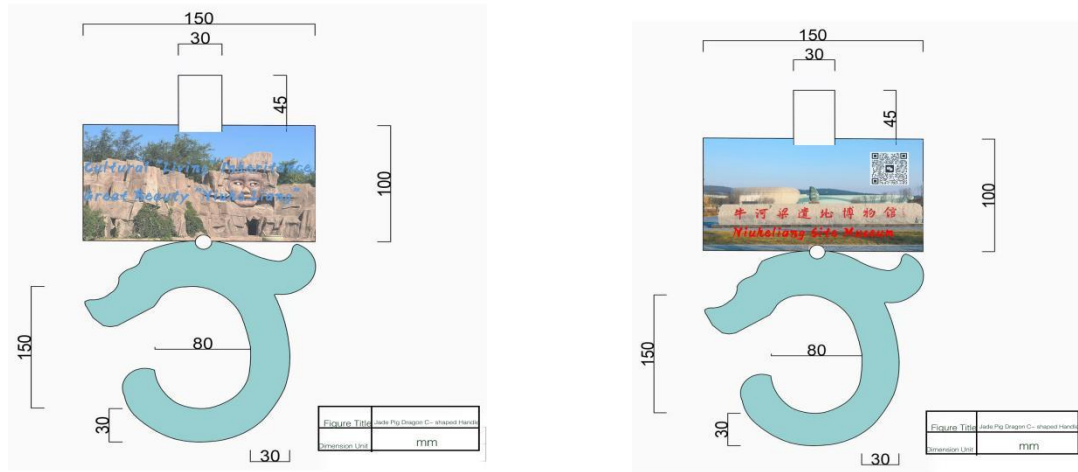


Figure 1: Cultural Products Diagram

"Jade pig Dragon Handle" is also an innovation and publicity way to promote "Hongshan Jade" culture, through the production of the publicity of jade pig dragon Hongshan culture video and attached two-dimensional code, so that people can more convenient to understand Hongshan culture, so that the cultural publicity is truly digital. In addition, our team will create a "cloud Hongshan Jade" online, which can not only let the jade pig dragon return to the public's vision, but also play a role in cultural education and social service in the form of digital[4].

As an important Neolithic culture in northern China, Hongshan culture, its representative cultural relic Jade Pig Dragon, has unique artistic value and cultural connotation. With the acceleration of urbanization and the popularization of public transportation, the design of bus hanging ring, as a public facility closely related to citizens' daily life, often lacks cultural and regional characteristics. The purpose of this study is to explore the possibility of integrating Hongshan culture jade pig dragon elements into the design of bus hanging ring, with a view to spreading traditional culture and enhancing the sense of urban cultural identity while improving the practicability of public facilities<sup>[5]</sup>. Through this innovative design practice, we hope to provide new ideas for the integration of traditional culture and modern life, and at the same time inject more cultural elements into the design of public facilities.

### 3. The fusion design of jade pig dragon element and bus ring

Chaoyang Hongshan culture jade pig dragon overview Hongshan culture is an important Neolithic culture in northern China, dating back to about 6500-5000 years ago, mainly distributed in the southeast of Inner Mongolia, the west of Liaoning and the north of Hebei. The culture is famous for its exquisite jade objects, the most representative of which is the jade pig Dragon. The jade pig dragon, a kind of jade with a pig's head and the body of a dragon, is considered to be a symbol of deities worshiped by the ancestors of Hongshan, reflecting primitive religious ideas and artistic creativity.

The shape features of jade pig dragon are mainly reflected in its rounded lines, abstract expression techniques and unique combination of forms. It is usually in the shape of "C", the head is like a pig, the body is like a dragon, the overall shape is simple and full of tension. This unique shape not only reflects

the aesthetic concept of Hongshan ancestors, but also reflects their understanding of nature and life. The cultural connotation of the jade pig dragon is rich, which may represent the totem worship of primitive society, or it may symbolize power and status, or the sacrificial articles related to the astronomical calendar. Its unique artistic style and cultural significance provide a rich source of inspiration for modern design.

As an important part of the urban public transportation system, the main function of the bus ring is to help the standing passengers maintain balance in the process of the vehicle to ensure the safety of the ride. Modern bus hanging rings are usually designed with lightweight and durable materials, such as plastic or rubber, and are mostly round or oval in shape to meet the needs of passengers of different heights. From an ergonomic point of view, the height, diameter and surface texture of the suspension ring all need to be carefully designed to ensure the comfort and safety of use [5].

At present, there are some problems in the design of bus hanging rings. First of all, most of the designs lack features and are identical, unable to reflect the cultural characteristics of the city. Second, some ring designs fail to fully consider the needs of different passenger groups, such as the convenience of use for children, the elderly or the disabled. In addition, the existing rings also need to be improved in terms of aesthetics and cultural connotations. The existence of these problems provides an opportunity to integrate traditional cultural elements into the design of the hanging ring, and also puts forward new requirements for improving the overall quality of public facilities.

**Integration design of Jade pig dragon element and bus hanging ring** To integrate the jade pig dragon element into the design of the bus ring, we first need to refine and redesign its modeling features. We can retain the unique "C" shape outline of Yuzhulong and abstract it into the basic shape of the hanging ring. At the same time, a simplified version of the jade pig dragon pattern can be carved or printed on the surface of the ring, which can maintain the beauty and does not affect the use of the function. In the choice of material, you can consider the use of translucent jade imitation materials, which not only echoes the original material of jade pig dragon, but also increases the modern sense.

In terms of functional innovation, the head of the jade pig dragon can be designed as an ergonomic grip shape to improve the grip comfort[4]. Taking into account the needs of different passengers, serialized products can be designed, such as regular size, child size and extended size. In addition, LED lights can also be embedded inside the ring to emit soft light when used at night, increasing both aesthetics and safety. In order to enhance the effect of cultural communication, a QR code can be attached to the ring, and passengers can learn about Hongshan culture and Yuzhu dragon after scanning it, so as to realize the organic combination of cultural communication and daily life.

#### 4. Design achievement

Completed the systematic literature research on Hongshan culture Jade pig dragon Sort out its shape characteristics (such as "C" shape outline, pig head dragon body), symbolic meaning (totem worship, power symbol) and material characteristics (jade texture). And extract the core design language of jade pig dragon (such as abstract lines, rounded shape), and transform it into design symbols that can be integrated into modern products.

Field investigation of the use of urban bus hanging rings, analysis of the existing design in the functional (holding comfort, anti-slip), ergonomics (height, size) and cultural (lack of regional characteristics) deficiencies. Collect passengers' demand for improvement of the ring (such as night lighting, cultural signage, etc.) through user interviews or questionnaires.

Preliminary design practice Conceptual design: Complete multiple versions of the ring sketch

integrating Yuzhulong elements, including: Modeling scheme: such as "C" shape main body + pig head abstract pattern, imitation jade material surface treatment.

Functional integration: LED light belt, rotatable connection structure, two-dimensional code cultural label, etc.

Prototype test: 3D printing or manual production of simple prototypes, for holding comfort, load-bearing capacity and other basic tests.

Development of cultural communication functions Design the two-dimensional code content framework of the ring, and link to the page of Hongshan Culture popularization (including the history of Yuzhulong, process characteristics, etc.). Cooperate with local cultural departments to ensure the accuracy of cultural interpretation.

Collaborate across disciplines Hold seminars with industrial designers, cultural scholars, and bus operators to evaluate the feasibility of the design (e.g. cost, mass production process, installation and maintenance). This study explores the application possibility of traditional culture in modern public facilities by combining the elements of Chaoyang Hongshan culture jade pig dragon with the design of bus suspension ring. The research shows that this integrated design can not only enhance the cultural connotation and aesthetic value of public facilities, but also enhance the use experience of passengers and promote the transmission and inheritance of traditional culture. Future studies can further explore the ways in which other traditional cultural elements can be combined with public facilities, and how to better meet the needs of different user groups through design innovation. This kind of cross-border integration design provides a new idea for the innovative application of traditional culture in modern life, and also makes a beneficial attempt to improve the cultural quality of urban public space.

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