

# The Artistic Integration of Dunhuang Tufo and Tuota Caca and Its Living Heritage Protection Pathways

Xiaoran Guo\*

Lanzhou University, Gansu, 730000, China

\*Corresponding author: Xiaoran Guo, [guoxr2023@lzu.edu.cn](mailto:guoxr2023@lzu.edu.cn)

**Copyright:** 2026 Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY-NC 4.0), permitting distribution and reproduction in any medium, provided the original author and source are credited, and explicitly prohibiting its use for commercial purposes.

**Abstract:** As unique carriers of ancient Chinese Buddhist art, Dunhuang Tufo (molded Buddha images) and Tuota Caca (molded pagoda images) embody rich religious significance and artistic value. This paper examines the multidimensional integration characteristics of Caca artifacts in terms of formal language, craftsmanship techniques, and cultural symbolism from the perspective of artistic fusion, analyzing the distinctive artistic system formed through historical evolution. On this basis, the paper further explores the theoretical framework and practical pathways for living heritage protection, proposing feasible strategies for the inheritance and innovation of traditional craftsmanship in contemporary contexts, with the aim of providing references for the sustainable development of Dunhuang cultural heritage.

**Keywords:** Dunhuang; Tufo Caca; Tuota Caca; Artistic Integration; Living Heritage Protection

**Published:** Apr 2, 2026

**DOI:** <https://doi.org/10.62177/chst.v3i1.1263>

## 1. Introduction

Dunhuang stands as a cultural stronghold along the Silk Road, where millennia of accumulated time have nurtured unique artistic traditions. Among various art forms, Tufo and Tuota Caca possess distinctive manufacturing techniques and carry profound religious connotations, serving as core research objects that cannot be bypassed in the study of Dunhuang Buddhist art. “Caca” refers to small clay sculptures of Buddhas or pagodas made by pressing or molding, with a small number bearing Tibetan or Sanskrit inscriptions <sup>[1]</sup>. According to the Italian Tibetologist Giuseppe Tucci, the term “Caca” derives from Sanskrit, meaning “perfect image” or “replica” <sup>[2]</sup>. The archaeological survey and excavation report of The Northern Grottoes of Mogao Caves, Dunhuang records that numerous Caca artifacts were unearthed from the northern section of the Mogao Caves, with the archaeological report classifying them into two major categories: Tuota (pagoda) and Tufo (Buddha) <sup>[3]</sup>. These portable and easily circulated Tufo and Tuota Caca played significant roles in the propagation of ancient Buddhism and religious practice.

Tufo Caca primarily refers to small clay sculptures of Buddha images made through mold-impression, while Tuota Caca represents clay works molded in pagoda configurations <sup>[4]</sup>. Both share identical manufacturing origins, relying on molds to press clay into shape, which after drying or firing become small religious objects suitable for worship or personal wear. This production method enabled the mass replication and outward dissemination of Buddhist imagery, accommodating the religious needs of broad congregations while facilitating the exchange and integration of Buddhist art across different regions and cultural backgrounds.

As time progresses, the artistic value and cultural connotations embedded in Tufo and Tuota Caca urgently await scholarly excavation and organization. This paper approaches from the perspective of artistic integration, sorting through the artistic characteristics of Tufo and Tuota Caca, analyzing their cultural values, and further clarifying the theoretical framework for living heritage protection and identifying practical implementation directions.

## **2. Artistic Characteristics of Dunhuang Tufo and Tuota Caca**

### **2.1 Diversity of Formal Language**

Dunhuang Tufo and Tuota Caca demonstrate diverse fusion characteristics in their formal language. Regarding Buddha imagery, some works inherit the Gandharan artistic style of India, presenting plump physiques; some incorporate Central Plains aesthetic sensibilities, depicting dignified facial features; while others display decorative elements reflecting Western Regions ethnic characteristics. The coexistence and blending of different styles correspond to Dunhuang's unique position as a hub of East-West cultural exchange. Within individual Buddha works, details such as sitting postures, mudras, and attire reveal traces of different artistic traditions, ultimately forming the distinctive "Dunhuang style."

The forms of Tuota Caca showcase the artistic imagery of Tibetan-style pagodas<sup>[5]</sup>. While the pagoda structure generally follows the basic form of the Indian original stupa, detailed decorations incorporate Central Plains architectural elements such as dougong (bracket sets) and flying eaves, while the base sections frequently feature traditional patterns like lotus flowers and scrolling foliage. This cross-cultural formal fusion renders Tuota Caca important specimens for observing ancient architectural art exchange. The combination of finial, body, and base maintains the integrity of religious symbolism while demonstrating flexibility in artistic expression.

### **2.2 Uniqueness of Craftsmanship Techniques**

The manufacturing techniques of Tufo and Tuota Caca embody the superb wisdom of ancient craftsmen<sup>[6]</sup> while accommodating innovations in technical exploration. Mold creation supports the entire production process, requiring carvers to possess profound modeling skills and extensive religious knowledge. Mold materials are primarily wood, with some ceramic examples, and the precision of carved details directly determines the artistic quality of finished products. High-quality molds can be repeatedly used, stabilizing work styles while expanding dissemination scope.

Clay preparation is crucial to final product effects. The soil characteristics of the Dunhuang region provide natural conditions for Caca production, where local craftsmen through long-term practice have developed suitable mixing ratios that reduce molding difficulty while achieving required strength. Some premium Caca incorporate mineral pigments for pattern painting or gold leaf application on surfaces to enhance the solemn atmosphere required for religious occasions and elevate artistic expression. Temperature control during firing and timing selection during drying stages demonstrate the sophistication of traditional craftsmanship in these detailed aspects.

### **2.3 Richness of Religious Connotations**

Tufo and Tuota Caca carry profound Buddhist religious significance. The concrete manifestation of Buddha as Buddha images serves as important objects for congregation worship and meditation, capable of accumulating merit and fulfilling religious needs for prayer and disaster elimination. Pagodas symbolize Buddha's parinirvana and the transmission of Dharma, with their forms constituting an independent religious symbol system: the finial represents the Buddha realm, the body corresponds to the Bodhisattva realm, and the base corresponds to the sentient beings realm, embodying the hierarchical structure of Buddhist cosmology.

The small size of Caca grants them special religious practicality. Believers can carry them personally for worship anytime, anywhere; they can also be mass-produced for various religious activities including pagoda consecration, temple offerings, and Dharma assembly almsgiving. Portability combined with replicability makes Caca important media for Buddhist propagation, occupying irreplaceable positions in ordinary believers' religious lives.

## **3. Multidimensional Manifestations of Artistic Integration**

### **3.1 Convergence and Fusion of Regional Cultures**

Dunhuang is located at the western end of the Hexi Corridor, serving as the gateway from Central Plains dynasties to the

Western Regions and a crossroads where multiple civilizations converged. This special geographical location endowed Dunhuang art with core attributes of natural diversity and integration. Western Xia Caca constitute a category of Western Xia Buddhist cultural relics, artistically belonging to the clay sculpture genre of Buddhist statuary<sup>[7]</sup>. Tuofu and Tuota Caca form components of Western Xia Caca, clearly presenting the convergence and fusion of multiple cultural factors including Indian Buddhist art, Central Plains Han culture, and Western Regions nomadic culture. In terms of form, the realistic tradition of Gandharan art achieves organic combination with the freehand spirit of Central Plains art; in decoration, one can observe lotus patterns transmitted from India, Persian-style scrolling foliage patterns, and Central Plains traditional cloud and qi motifs.

The fusion of regional cultures is not simple collage or superposition but gradually grows into an organic whole through long historical development. During the process of absorbing foreign artistic elements, craftsmen continuously completed localized transformations and innovations, ultimately generating an artistic style bearing Dunhuang identity. Tuofu and Tuota Caca serve as tangible artistic witnesses to this cultural fusion, with each work carrying rich cultural information and historical memory.

### **3.2 Secularization Turn of Religious Art**

The artistic integration of Tuofu and Tuota Caca is also manifested in the interactive relationship between religious art and secular aesthetics. Buddhist art essentially serves religious propagation and faith practice, and its development cannot be separated from secular society's support and participation. The miniaturization and mass-production characteristics of Caca enable them to move from temple halls into folk life, becoming religious objects accessible and ownable by ordinary believers. This popularization trend drives religious art toward secular transformation while allowing folk aesthetic tastes to enter the realm of religious art creation.

In the forms of Tuofu and Tuota Caca, one can observe dynamic balance between religious normativity and artistic expressiveness<sup>[8]</sup>. The basic configurations of Buddha images and pagodas must follow Buddhist rituals to maintain the solemnity of religious symbolism; craftsmen possess certain creative space in detail processing, capable of incorporating personal styles and contemporary aesthetics. The tension between norm and freedom constitutes important driving force for religious art development and the core reason for the unique artistic charm of Tuofu and Tuota Caca.

### **3.3 Cross-Stratum Symbiosis of Aesthetic Expression**

In the aesthetic patterns of Dunhuang Tuofu and Tuota Caca, sacredness and secularity coexist, elite aesthetics merge with folk tastes, and aesthetic traditions of different ethnic groups collide and fuse, ultimately forming aesthetic qualities appreciated by both refined and popular tastes. As core carriers of religious sacrifice and faith practice, these Caca maintain the dignity and sacredness proper to Buddhist imagery, complying with core requirements of religious aesthetics regarding statuary temperament; as crafted forms widely participated in by folk masses, they fully absorb folk aesthetic tastes, weakening the alienation and complexity of elite religious art, shaping visual temperaments that are solemn yet gentle, dignified yet intimate, allowing sacredness and secularity to form organic balance.

These statuary forms adopt miniature configurations while internally carrying complete religious cosmologies, achieving aesthetic transformation of "seeing the large through the small, manifesting the sacred through the minute." Portable formal characteristics break the restriction that religious statuary could only be placed in sacred spaces such as temples and grottoes, enabling entry into ordinary people's daily life scenarios, integrating religious rituals and aesthetic experiences into daily behavior, forming daily sacred aesthetic experiences. Their aesthetic expression fully accommodates aesthetic preferences of different ethnic groups, with formal language reconciling multi-ethnic aesthetic traditions, becoming materialized carriers of cross-ethnic aesthetic consensus.

## **4. Practical Dilemmas in the Living Inheritance of Dunhuang Tuofu and Tuota Caca**

Despite their rich artistic value and multiple cultural connotations, the survival and inheritance of Dunhuang Tuofu and Tuota Caca in contemporary society still face multiple core dilemmas. Some derive from the material and craft characteristics of Caca themselves, while others stem from changes in contemporary socio-cultural environments, having become core challenges that living heritage protection must address.

#### **4.1 Preservation Difficulties Arising from Material Vulnerability**

With clay as their core material, Tufo and Tuota Caca naturally possess physical and chemical vulnerability, requiring stringent preservation environmental conditions. Environmental factors such as temperature and humidity fluctuations, wind and sand erosion, and microbial growth all affect clay materials, potentially causing diseases including efflorescence, pulverization, cracking, and damage. Their adoption of thin-bodied mold-release structures amplifies problems of insufficient physical stability, increasing preservation difficulty. The inherent material vulnerability poses challenges for long-term preservation, restricting public exhibition and dissemination space. Such heritage cannot approach broader publics, forming a cycle of “more closed preservation, less public awareness, weaker protection efforts.”

#### **4.2 Limitations in Value Recognition and Insufficient Protection Resources**

In the overall research and protection model of Dunhuang art, Tufo and Tuota Caca have long occupied relatively marginal positions, with their artistic, cultural, and historical values yet to be fully recognized and interpreted. Both the public and academic circles tend to classify them as subsidiary remains to grotto murals and large-scale statuary, underestimating their core value as cross-cultural fusion carriers and failing to interpret from a model perspective the deep logic and cultural connotations of their artistic integration. Limitations in value recognition result in relatively limited resource investment during protection and inheritance processes, with each aspect—including technological research and development for physical protection, model establishment for craft inheritance, and channel expansion for value dissemination—facing practical constraints of resource shortage.

#### **4.3 Lack of Endogenous Dynamics for Living Survival**

The core of living inheritance lies in heritage forming organic interaction with contemporary society and possessing self-generating survival dynamics over the long term. At present, protection of Tufo and Tuota Caca mostly remains at the level of static physical preservation, without fully excavating their contemporary value or constructing channels connecting with contemporary social life, cultural needs, and aesthetic tastes. Their originally possessed religious and social functions have undergone profound transformation in contemporary society, while new contemporary values and application scenarios await full development. Such heritage is gradually disconnecting from contemporary public life and cognition, with living inheritance lacking endogenous social dynamics and mass foundation.

### **5. Exploration of Living Heritage Protection Pathways**

#### **5.1 Preventive Protection of Physical Security**

Physical security supports the normal advancement of living heritage protection. The three core principles of minimum intervention, reversibility, and recognizability in cultural relics protection must be upheld, constructing physical protection models covering all operational links. First, establish systematic preventive protection mechanisms. Given the inherently fragile nature of clay materials, comprehensive environmental monitoring and risk assessment systems covering the entire lifecycle can be constructed, delineating environmental control indicators for preservation, transportation, and exhibition links, relying on preventive interventions to reduce disease occurrence probability and extend heritage preservation duration from the source. Second, develop protection and restoration technologies and materials adapted to clay statuary. Combining disease characteristics of clay statuary, develop reinforcement, filling, and cleaning materials and technologies compatible with original materials without altering the external appearance of heritage bodies, completing disease treatment within the scope of minimum intervention requirements. Third, establish graded and classified protection management standards. Based on heritage value grades, preservation status, and craft characteristics, formulate different protection, preservation, and management plans, ensuring protection work aligns with practical needs and scientific requirements.

#### **5.2 Platform Construction for Exhibition and Dissemination**

Exhibition and dissemination constitute important links in living heritage protection, capable of enhancing public awareness, expanding social influence, and broadening market space. Constructing diversified exhibition and dissemination platforms can cover multiple forms including museum exhibitions, cultural festivals, media dissemination, and educational promotion. Dunhuang possesses abundant cultural tourism resources; exhibitions of Tufo and Tuota Caca can be organically integrated with Dunhuang cultural tourism, establishing dedicated exhibition spaces in scenic areas, museums, and cultural creative

parks, allowing tourists to experience the charm of this traditional art at close range. New media dissemination represents an important pathway that cannot be ignored. Short videos, live streaming, social media, and other emerging platforms can be utilized to introduce Caca manufacturing techniques in vivid and interesting ways, attracting young people's attention and participation. Online exhibitions, virtual experiences, and other digital products can also be developed to break temporal and spatial limitations and expand dissemination scope. Diversified exhibition and dissemination strategies can promote Tufo and Tuota Caca out of niche circles and into public vision.

### **5.3 Exploration and Practice of Innovative Transformation**

Living heritage protection is not about rigid conservatism; possibilities for innovative transformation must be explored under the premise of respecting tradition. Innovation in Tufo and Tuota Caca can unfold across multiple dimensions: functionally, developing product forms adapted to modern practical needs; thematically, incorporating contemporary aesthetic content aligned with current era themes; materially, attempting to integrate environmentally friendly new materials into traditional manufacturing processes; application-wise, extending to multiple fields including cultural creative products, spatial decoration, and art collection. Innovative transformation requires coordinating the relationship between tradition and modernity, upholding core techniques and cultural connotations without losing essential characteristics to cater to markets. With open minds embracing change and responding to demands raised by the era, industry-university-research cooperation mechanisms can be established, inviting artists, designers, and scholars to participate together in innovative exploration. Finding balance points in the dialogue between tradition and modernity can promote the creative transformation and innovative development of Tufo and Tuota Caca art.

## **6. Conclusion**

Dunhuang Tufo and Tuota Caca are precious remains of ancient Chinese Buddhist art preserved to the present day, possessing unique artistic value and carrying profound cultural connotations. Artistic integration can be interpreted from multiple dimensions: the convergence and fusion of different regional cultures gave birth to diverse formal languages; interaction between religious activities and secular life drove art toward broader popularization; clear continuation of intergenerational transmission maintained the vitality of manufacturing techniques. Relying on these characteristics, Tufo and Tuota Caca can serve as windows for observing ancient cultural exchange and artistic innovation.

In the current social environment, Tufo and Tuota Caca face both inheritance dilemmas and development opportunities. The introduction of living heritage protection concepts into related work delineates theoretical directions for their long-term development and identifies feasible practical pathways. Protection work must follow holistic principles, paying attention to organic connections between cultural heritage and surrounding environments, and follow long-term development thinking to achieve positive interaction between protection and development.

Future living heritage protection of Dunhuang Tufo and Tuota Caca requires participation from multiple forces: government departments strengthening policy guidance and increasing resource investment; academic institutions deeply excavating related research content and improving archive construction; all sectors of society deepening cognition of this art form and actively participating in protection actions. With multiple parties forming protection synergy, this ancient art form can present new appearances in the new era, injecting strength into the inheritance and development of excellent traditional Chinese culture.

## **Funding**

No

## **Conflict of Interests**

The authors declare that there is no conflict of interest regarding the publication of this paper.

## **Reference**

- [1] Guo, M., & Zhang, J. (2015). Research on Caca unearthed from the northern section of Mogao Caves, Dunhuang. *Wenbo*, (5), 34–41.

- [2] Tucci, G. (2009). *The gods of northern Buddhism* (M. [Trans.]). Shanghai Ancient Books Publishing House. (Original work published [Year not specified])
- [3] Peng, J., & Wang, J. (2004). *The northern grottoes of Mogao Caves, Dunhuang* (Vol. 3). Cultural Relics Publishing House.
- [4] Li, L. (2013). Further research on Caca and Shanye Ni: Studies on image types of Caca in Han regions. *Palace Museum Journal*, (2), 210–225.
- [5] Zhang, Z. (2019). The art of Western Xia pagoda-style Caca statuary. *Western Xia Studies*, (1), 138–146.
- [6] Tan, C. (1989). Impressing sand, Tufo, and Tuota. *Dunhuang Research*, (1), 19–29.
- [7] Zhang, Z. (2020). *Research on Western Xia Caca* [Doctoral dissertation, Ningxia University]. Yinchuan.
- [8] Tang, S. (2011). Dunhuang in palm, treasure of snowland: Aesthetic image analysis of Tibetan cultural relics Caca and Zhaga in the collection of Chongqing China Three Gorges Museum. *Yangtze River Civilization*, (1), 101–108, 2.