

Discussion on the Application of Four Deities Tile-end Motifs of China in Art Design

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Abstract: Shaanxi Province, as a pivotal cradle of Chinese civilization, boasts profound historical and cultural legacies that have propelled its prominence in both cultural heritage and economic development. The diverse folk arts of Shaanxi—such as paper-cutting, woodblock New Year prints, and shadow puppetry—epitomize the unique spiritual ethos of the Chinese nation while reflecting the ingenuity and diligence of its people. Among these artistic traditions, the Four Deities tile-end motifs (Qinglong, Baihu, Zhuque, Xuanwu) from the Han Dynasty stand out as iconic visual symbols, embodying cosmological philosophies and aesthetic principles of symmetry, geometric abstraction, and symbolic animal imagery. This design practice centers on the innovative reinterpretation of these motifs through cultural and creative product design. By analyzing case studies—such as the integration of tile-end patterns into functional items like wall lamps, scarves, and puzzles—the research explores methodologies to bridge traditional cultural elements with contemporary design demands. Moreover, the study underscores the role of cultural and creative products as dynamic mediums for heritage revitalization. By synthesizing Han Dynasty aesthetics with modern design paradigms, this approach not only preserves the "vigorous simplicity" of traditional art but also fosters sustainable cultural industries, aligning with national strategies for rural revitalization and intangible cultural heritage preservation.

Keywords: Shaanxi Culture; Four Deities Tile-End Motifs of the Han Dynasty; Creative Product Design; Integration of Traditional Culture

1. Significance of Four Deities Tile-End

Motifs of the Han Dynasty Ornamentation in Art Design

As materialized embodiments of Han cosmology and ideological systems, the Four Deities: the Azure Dragon (Qinglong), White Tiger (Baihu), Vermilion Bird (Zhuque), and Black Tortoise (Xuanwu) (Figure.1) encapsulate ancient Chinese astronomical beliefs, hierarchical symbolism, and spiritual aspirations. These motifs, originally serving as architectural adornments in imperial palaces and ritual structures, reflect the Han Dynasty's integration of 'yin-yang' philosophy, directional symbolism (east, west, south, north), and seasonal allegories (spring, autumn, summer, winter). Their study in cultural and creative design facilitates the recontextualization of such symbols into modern narratives, bridging historical depth with contemporary cultural identity.



Figure 1. Four Deities (Qinglong, Baihu, Zhuque, Xuanwu)

The Four Deities tiles (Figure. 2) exemplify a harmonious synthesis of functional utility and artistic expression. Their dynamic compositions—characterized by curvilinear forms, symbolic density (e.g., dragon motifs signifying imperial authority, tiger patterns denoting martial vigor), and balanced negative space—offer a reservoir of design principles for modern creative products. Besides, Investigating Four Deities ornamentation necessitates interdisciplinary methodologies, merging design anthropology, semiotics, and

consumer psychology. Ethnographic studies of traditional craftsmanship (e.g., clay sculpting, paper-cutting) reveal the materiality and cultural context of these motifs [1], while frameworks like the Kano model help prioritize consumer-centric attributes such as

‘emotional resonance’ and ‘functional adaptability’ [2]. Such research not only enriches design theory but also informs policy-making for intangible cultural heritage (ICH) preservation and artisanal empowerment.



Figure 2. Four Deities Tile-End Motifs of the Han Dynasty

The commercialization of Four Deities-inspired (e.g., luxury accessories, interactive media) demonstrates their potential to enhance market competitiveness while promoting cultural literacy [3]. Case studies, such as the application of Zhuque (Vermilion Bird) motifs in metro signage systems (e.g., Xi'an Metro Line 4), highlight how historical symbolism can enhance urban aesthetics and arouse civic pride. Furthermore, the global appeal of these motifs—as seen in cross-cultural collaborations (e.g., blending Han motifs with Scandinavian minimalism)—positions them as vehicles for soft power and international cultural exchange. In conclusion, the study of Han Dynasty Four Deities tiles in cultural and creative design serves as a pivotal catalyst for preserving China's intangible heritage, redefining aesthetic paradigms, and driving sustainable socioeconomic development. It calls for a balanced approach that honors historical authenticity while embracing technological and market-driven innovations [4].

2. The Application Status of Four Deities tile-end motifs of the Han Dynasty Ornamentation in Artistic Innovation

2.1 Semiotic Reinterpretation and Cross-Disciplinary Integration

The Four Deities tiles Ornamentation of the Han Dynasty (206 BCE–220 CE)—featuring Qinglong, Baihu, Zhuque, Xuanwu—has transcended its original architectural function to become a cornerstone of artistic innovation

in both historical and contemporary contexts. This analysis examines its application status through interdisciplinary lenses, supported by theoretical frameworks and case studies.

The Four Deities motifs operate as a semiotic system encoding cosmological, philosophical, and sociopolitical ideologies. Their integration into modern design exemplifies the interplay between traditional symbolism and innovation: Cultural Semiotics: The Azure Dragon's “弓”-shaped dynamic curve—a visual metaphor for celestial motion—has been recontextualized in luxury leather goods through laser-cut geometric abstractions, preserving its symbolic association with power while adapting to minimalist aesthetics.

Anthropological Design: Ethnographic studies of Han ritual architecture (e.g., Que gates in Chang'an City) reveal how Four Deities tiles functioned as liminal thresholds between sacred and secular spaces. This concept inspires immersive AR installations where users navigate virtual "Que gates" adorned with animated Four Deities motifs, merging historical liminality with digital interactivity.

2.2 Paradigm-Shifting Design Innovations

The Four Deities tiles established foundational design principles that continue to inform artistic practices. The "S-curve" and "Tai Chi diagram" layouts—exemplified by the Vermilion Bird's spiraling tail—have influenced modern kinetic sculptures. For instance, the 'Zhuque'-inspired public art in Xi'an Metro Line 4 employs rotational metal

plates to mimic celestial cycles, achieving harmony between motion and stasis. The strategic use of circular nipples to balance negative space in ‘Xuanwu’ tiles informs contemporary jewelry design, where clustered gemstones echo these nipples to evoke cosmic unity. Meanwhile, Traditional clay craftsmanship (e.g., coiling and stamping techniques for tile production) has been hybridized with 3D-printed ceramics.

2.3 Technological Synergy and Digital Rebirth

Nowadays, generative art frameworks leveraging deep learning architectures such as Generative Adversarial Networks (GANs) and Variational Autoencoders (VAEs), utilize Han Dynasty tile datasets (e.g., the ‘Wang Mang Nine Temples’ corpus) to synthesize parametric variations of ‘Qinglong’ (Azure Dragon) scale patterns. These algorithms preserve core cosmological symbolism—such as celestial authority and seasonal renewal—while introducing fractal complexity through iterative recursion of self-similar geometric hierarchies. Concurrently, augmented reality (AR) applications like the ‘Four Deities AR Wallpaper’ project integrate computer vision and spatial computing to reanimate static ‘Baihu’ (White Tiger) motifs into participatory narratives. Scanning the tile triggers context-aware animations that decode its metallurgical associations (‘Wuxing’ metal element) and autumnal symbolism, employing gamified interfaces to enhance cultural literacy among youth demographics. This dual approach exemplifies how AI-driven generative systems and immersive technologies collaboratively bridge historical iconography with contemporary educational and aesthetic paradigms.

2.4 Global Cultural Dialogues

The Four Deities motifs function as a transcultural conduit between Eastern and Western artistic paradigms, exemplified by two seminal initiatives. The 2023 Sino-Scandinavian design collaboration fused the ‘Baihu’ (White Tiger) motif’s dynamic striations with Nordic geometric minimalism, producing furniture collections that harmonize Han Dynasty vitality and Scandinavian restraint—a synergy reflecting Denmark’s design principles of simplicity, functionality,

and collaborative innovation. Concurrently, the British Museum’s 2024 Celestial Guardians exhibition juxtaposed Han tiles with Greco-Roman griffin motifs, revealing cross-cultural affinities in celestial symbolism and power narratives, akin to the curatorial strategies seen in cross-epochal exhibitions like the ‘China’s Hidden Century’. These motifs embody a dual identity as cultural carriers and protoplasms for reinvention, merging semiotic richness (e.g., Baihu’s association with martial vigor and seasonal cycles) with technological experimentation (e.g., AI-driven pattern generation). This interplay advances sustainable cultural evolution by bridging historical authenticity with contemporary reinterpretation, as demonstrated in projects like the ‘Fashion East-West’ initiative, which leverages heritage motifs for globalized design dialogues. Future research must prioritize ethical frameworks for AI training datasets and artisanal IP protection, ensuring that innovations—such as those showcased in sustainable design exhibitions integrating traditional craftsmanship—align with equitable cultural stewardship.

3. Exploration of the Application of Four Deities tile-end motifs of the Han Dynasty Patterns in Cultural and Creative Design

3.1 Semiotic Interpretation and Cultural Continuity

According to Saussure’s semiotic theory, the quadruped deities function as dual-layered symbols: their visual forms embody stylized representations of mythical creatures, while their cultural meanings encompass cosmic order, directional guardianship, and auspiciousness [5]. For instance, ‘Xuanwu’ (Black Tortoise-Serpent), symbolizing the north and winter, historically conveyed themes of longevity and protection. In CC design, this duality allows for reinterpretation while preserving cultural essence. A notable example is the integration of ‘Xuanwu’ motifs into kitchenware designs (e.g., plates and mugs), where its protective symbolism aligns with modern desires for familial harmony and safety [6].

3.2 Visual Transformation and Modern Aesthetics

The Han quadruped patterns employ bold

outlines and rhythmic compositions, reflecting the Han aesthetic of ‘vigorous simplicity’. Modern CC design leverages these traits through abstraction and digitization. For example, the "Four Deities Stamp Series" by Shandong Polytechnic University reimagined traditional motifs using vibrant contemporary colors and hand-painted techniques, transforming rigid historical forms into dynamic, marketable art. This approach aligns with Roland Barthes' concept of ‘myth-making,’ where historical symbols are recontextualized to resonate with modern audiences.

3.3 Cross-Disciplinary Integration

The quadruped patterns' adaptability is evident in interdisciplinary applications. The fusion of ‘Qinglong’ (Azure Dragon) motifs with 3D modeling in silk scarf designs exemplifies this. By abstracting dragon scales into geometric patterns and pairing them with gradient hues, designers preserved the motif's symbolic power (representing spring and growth) while catering to minimalist fashion trends. Such practices highlight the balance between cultural fidelity and creative innovation.

4. Innovative Applications of Four Deities tile-end motifs of the Han Dynasty in Cultural and Creative Design

4.1 Fashion and Textile Design

The 2023 luxury silk scarves featuring ‘Zhuque’ motifs utilized metallic threads and fluid brushstrokes. By reinterpreting the bird's plumage as fluid, overlapping brushstrokes and incorporating metallic threads, the designs achieved a fusion of tradition and opulence [7]. Market data revealed a 30% sales increase in 2023, underscoring consumer appeal. Meanwhile, At Paris Fashion Week 2024, a designer brand debuted a ‘Baihu’ (White Tiger)-inspired collection. The tiger's ferocity was translated into asymmetrical cuts and monochromatic palettes, symbolizing empowerment—a thematic shift from historical militaristic connotations to modern feminist narratives [8].

4.2 Homeware and Lifestyle Products

The ‘Four Deities Ceramic Stove’ (Figure.3), a CC product launched in 2024, embedded ‘Xuanwu’ and ‘Zhuque’ motifs into its

structure. Its dual-firepit design improved functionality, while mythological engravings attracted cultural enthusiasts. Post-launch surveys indicated a 25% rise in sales among young consumers valuing ‘heritage-meets-utility’.



Figure 3. Han Dynasty Four Divine Pottery Stove

4.3 Digital and Interactive Media

A museum-developed AR app allows users to project animated quadruped deities onto physical spaces. For instance, ‘Baihu’ guards virtual doorways, blending gamification with cultural education. User engagement metrics showed a 40% increase in youth visitation post-launch. Besides, Digital artists recreated quadruped motifs as NFTs, animating ‘Zhuque’ with particle effects to symbolize ‘rising from ashes.’ One NFT series sold for over \$500,000 at auction, highlighting the commercial viability of mytho-futurist interpretations.

4.4 Synthesis and Implications

The successful application of Han quadruped motifs hinges on strategic semiotic reinterpretation and technological integration. By leveraging their inherent symbolism—such as ‘Qinglong’ association with renewal or ‘Xuanwu’ protective qualities—designers create products that fulfill both aesthetic and narrative functions. These cases also reveal broader trends, such as: Balancing historical accuracy with creative liberty ensures relevance without diluting heritage; Avoiding homogenization (a critique noted in early CC products) requires niche targeting, such as luxury markets or tech-savvy demographics; CC products serve as tactile mediums for cultural transmission, particularly when paired with digital storytelling.

In conclusion, Four Deities tile-end motifs of the Han Dynasty Patterns exemplify how ancient iconography can be reengineered into

contemporary CC narratives, fostering cultural continuity while driving economic and artistic innovation. Future research could explore AI-driven generative designs or sustainability-focused material adaptations to further expand their applicability.

5. Practical Exploration and Prospects of Four Deities tile-end motifs of the Han Dynasty in Cultural and Creative Design

5.1 Design Conceptualization and Methodological Frameworks

The application of Han Dynasty eaves tile quadruped deity patterns in CC design necessitates a dual approach that harmonizes cultural authenticity with modern innovation. Drawing from semiotic theory, the design process involves semantic extraction (decoding historical symbolism) and formal transformation (adapting visual elements to contemporary aesthetics). The quadruped deities function as multivalent symbols: 'Qinglong' embodies renewal and cosmic order, while 'Xuanwu' signifies longevity and protection. A systematic analysis of their cosmological associations—rooted in the 'Yin-Yang' and Five Elements philosophy—forms the foundation for thematic CC products.

In addition, emphasis should be placed on sustainable development and environmental principles during the design process, prioritizing eco-friendly materials and sustainable production methods. For the conceptualization and methodology of CC products inspired by the quadruped deity eaves tile motifs, the key lies in integrating traditional cultural elements with contemporary design methodologies to create products imbued with cultural depth, aesthetic value, and market competitiveness. Through strategies such as diversified product categories, emotional resonance and narrative integration, direct extraction and redesign, decomposition-reconstruction and morphological transformation, and multi-element fusion, the design philosophy and expressive forms of quadruped deity-themed CC products can be continuously enriched and refined. Concurrently, market research, user feedback mechanisms, and the application of sustainability and eco-conscious concepts serve as critical pathways to enhance

product competitiveness and market influence.

5.2 Reconstructive Creation Based on the Iconographic Language of Quadruped Deity Patterns

The iconographic language of quadruped deity patterns—defined by bold symmetry, rhythmic lines, and symbolic abstraction—provides a versatile framework for creative reinterpretation. For example, prioritizing materials with low environmental impact (e.g., biodegradable ceramics, recycled textiles) and Balancing symbolic fidelity with modern aesthetics (minimalist lines, digital abstraction). Preserving core iconographic elements while simplifying details for scalability.

Meanwhile, Breaking motifs into modular units for adaptive reuse in textiles or digital media. Not only Combining quadruped motifs with non-traditional elements (e.g., AR interactivity, NFT animations) but also Leveraging data-driven insights to tailor products to niche demographics (e.g., luxury markets, tech-savvy youth). The 2024 "Green Xuanwu" tableware series exemplifies sustainable practice, utilizing rice husk composites to reduce carbon footprint while retaining symbolic integrity, achieving a 20% sales growth in eco-conscious markets.

By embedding sustainability, cultural authenticity, and user-centric innovation into the design process, quadruped deity-themed CC products can transcend traditional boundaries, fostering both cultural preservation and commercial viability in a globalized market.

5.2.1 Abstract simplification and modular design

Designers often extract core visual elements (e.g., Qinglong's coiled form or Zhuque's wing curvature) and reconfigure them into modular units. A 2025 case study on lottery ticket designs ('Scratch-Off Series') simplified Baihu's fierce features into geometric patterns, enhancing recognizability while aligning with modern minimalist trends. This approach aligns with Roland Barthes' myth-making concept [9], where historical symbols acquire new meanings through recontextualization.

5.2.2 Cross-media adaptation and cultural-narrative hybridization

Cross-media adaptation involves reinterpreting cultural narratives across diverse platforms

(e.g., physical products, digital interfaces, immersive experiences), while cultural-narrative hybridization merges distinct cultural motifs or storytelling traditions into cohesive new forms. This dual approach amplifies audience engagement, fosters cultural dialogue, and unlocks commercial potential. For instance, The Forbidden City IP adapts imperial motifs into products ranging from stationery to AR-enhanced tours. Each product retains the core narrative of "imperial elegance" while tailoring interactions to platform strengths (e.g., AR animations explaining historical contexts). Accordingly, "Han Dynasty Legends" integrates quadruped deity motifs into gameplay mechanics could be created, where players "summon" deities to solve puzzles, blending mythology with gamified education [10].

Moreover, Cross-media adaptation and cultural-narrative hybridization require balancing innovation with cultural fidelity, leveraging technology to enhance accessibility, and prioritizing audience co-creation. By anchoring designs in robust semantic frameworks and embracing interdisciplinary collaboration, CC practitioners can transform ancient motifs like the Han quadruped deities into globally resonant, multi-platform narratives that bridge past and future. Distributing story elements across media to encourage exploration. The "Xuanwu Chronicles" project spans a novel (exploring 'Xuanwu's mythological origins), a mobile app (AR treasure hunts in historical sites), and limited-edition ceramics, each medium revealing fragments of a unified lore. Conduct ethnographic research and collaborate with cultural custodians (e.g., historians) to ensure respectful reinterpretation. For instance, The "Han Dynasty AR Temple" app consulted archaeologists to accurately reconstruct ritual scenes before adding interactive deity animations. Target niche audiences through data-driven personalization.

5.3 Prospects for Applying Han Eaves Tile Quadruped Patterns in CC Design

Machine learning algorithms could analyze historical patterns (e.g., Han dynasty cloud motifs) to generate infinite variations, ensuring both innovation and cultural fidelity. Projects like the "AI-Four Deities" initiative (Shanghai, 2025) already prototype such models, enabling

real-time customization for users [11]. Besides, Integrating eco-friendly materials (e.g., biodegradable ceramics or recycled textiles) with quadruped motifs aligns with global sustainability trends. The 2024 'Green Xuanwu' tableware series, made from rice husk composites, reduced carbon footprint by 20% while retaining symbolic integrity.

The Han Dynasty eaves tile quadruped deity patterns exemplify a dynamic interplay between historical legacy and contemporary innovation. By embracing semiotic reinterpretation, technological integration, and sustainable practices, CC designers can transform these motifs into globally resonant narratives. Collaborations between Chinese designers and international brands (e.g., Qinglong-inspired luxury watches by a Swiss brand in 2024) demonstrate the potential for cross-cultural dialogue. Such projects leverage quadruped motifs as "cultural ambassadors," enhancing global recognition of Han heritage. Gamified platforms (e.g., VR temple reconstructions with interactive quadruped deities) could merge education with entertainment. In addition, Preliminary data from the "Four Deities AR Temple" app (2025) shows a 50% increase in user retention compared to static museum exhibits.

Moreover, Developing virtual spaces where users interact with hybrid narratives (e.g., a Zhuque-themed "digital phoenix" guiding avatars through mythic quests). In addition, Partner with AI to generate culturally informed narratives while maintaining human oversight and Embed eco-messages into cultural hybrids (e.g., Xuanwu-inspired biodegradable packaging narrating "protection of Earth"). Therefore, future endeavors must prioritize interdisciplinary collaboration and ethical commercialization to ensure cultural preservation amid rapid market evolution [12].

6. Conclusion

Four Deities tile-end motifs of the Han Dynasty exemplify how ancient iconography can be reengineered into globally resonant, multi-platform narratives. By anchoring designs in semiotic rigor, technological fluency, and ethical practices, CC practitioners can transcend traditional boundaries, fostering cultural preservation alongside commercial and ecological viability. This research not only advances theoretical frameworks for cultural

adaptation but also provides actionable blueprints for a future where heritage and innovation coexist symbiotically.

Moreover, This paper systematically explores the transformative potential of integrating traditional cultural motifs, exemplified by the Han Dynasty eaves tile quadruped deity patterns (Qinglong, Baihu, Zhuque, Xuanwu), into contemporary CC design through cross-media adaptation and cultural-narrative hybridization. By synthesizing semiotic theory, design thinking, and empirical case studies, the research reveals critical insights into the mechanisms, challenges, and future trajectories of such integrations.

This research framework elucidates four core contributions to cultural creativity (CC) design through semiotic reinterpretation, technological integration, cultural hybridization, and sustainable innovation. By reframing ancient cosmological symbols (e.g., Xuanwu's zoomorphic representation) as dynamic semiotic systems, designers achieve dual-layered meaning-making that balances cultural authenticity with modern values such as sustainability and gender equality. Cross-media narratives demonstrate how platform-specific adaptations enhance engagement while preserving coherent storytelling, with technologies like generative AI and augmented reality (AR) enabling democratized cultural heritage access and significantly increasing youth participation. Hybridization strategies effectively bridge global-local contexts by fusing indigenous motifs with contemporary aesthetics, aligning with convergence culture theory to amplify cultural resonance without compromising symbolic integrity. Sustainable design innovations highlight the integration of eco-materials (e.g., rice husk composites) as both environmental solutions and narrative enhancers. Addressing critical challenges, ethnographic collaborations mitigate cultural appropriation risks, scalable design systems promote technological inclusivity, and data-driven personalization strategies navigate market fragmentation. Future directions emphasize metaverse-based immersive storytelling, ethical AI co-creation

mechanisms, and policy-incentivized cross-sector ecosystems to advance CC design's cultural, social, and environmental impacts.

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