From Earth to Enlightenment
Materiality, Technology and Cultural Transmission of Terracruda Sculpture Across Buddhist Asia
edited by Mònica López-Prat, Emma Cantisani, Susan S. Bean

Polychrome Air-Dried Clay Sculptures (*Nísù*) in Shanxi, China
Community Practice, Conservation, and Cultural Continuity

Gesa Schwantes
Academy of Fine Arts Vienna, Austria

Chunyan Ye
Yuncheng Ancient Color Sculpture and Mural Conservation Research Institute, China

Xianliang Liang
Shanxi Cultural Heritage Survey and Conservation Research Institute Co., Ltd, China

Qun Cheng
Shanxi Cultural Heritage Survey and Conservation Research Institute Co., Ltd, China

Yiyan Niu
Shanxi Cultural Heritage Survey and Conservation Research Institute Co., Ltd, China

Pengxiao Hao
The Cyprus Institute, Cyprus

Mònica López-Prat
Institute of Heritage Science of the National Research Council of Italy

Abstract This paper examines *nísù* (泥塑), the Chinese tradition of polychrome air-dried clay sculpture, through a field study of twenty-one temple sites in Shanxi Province, which preserves one of the world's richest concentrations of monumental examples from the Tang to Qing dynasties. Combining field observation, stratigraphic examination, photography, and interviews with nísù artisans and temple caretakers, the study investigates the relationship between craft practice, ritual life, community stewardship, and conservation. The results show nísù to be a composite, stratified system whose fundamental logic has remained remarkably stable over time, with two interconnected systems of care: community-based maintenance embedded in devotional practice, and professional conservation-restoration. Preservation outcomes depend on material conditions, architectural maintenance, ritual use, and community engagement. Conservation strategies must address both material stability and living cultural continuity.

Keywords Air-dried clay. Nísù 泥塑. Conservation. Traditional knowledge. Shanxi Province.

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Summary 1 Introduction. – 2 Context and Methodology. – 3 Results. – 3.1 Construction and Material Characteristics of Nísù. – 3.2 Community Practice, Devotional Care, and Living Heritage. – 3.3 Conservation Challenges Observed Across the Surveyed Sites. – 4 Discussion. – 4.1 Nísù Within the Transregional Clay Sculpture Tradition. – 4.2 Continuity and Change in Materials and Techniques. – 4.3 Community Practice, Conservation Ethics, and Implications for Strategy. – 5 Conclusion.

1 Introduction

Nísù (泥塑) is the established Chinese term for polychrome clay sculpture using mud as the primary material (Xu 2012). Here, mud refers to a workable mixture of clay-rich earth, water, fine mineral aggregates such as sand, and organic additives including fibres and chaff. The term encompasses both material and process, with no direct equivalent in English: *ní* refers to the malleable, clay-based material used in modelling, which can be understood approximately as 'mud' or 'earthen material', while '*sù*' refers to the act of shaping, distinguishing the practice from carving. These works are also known as *cǎisù* (彩塑), a term that emphasises their painted surface. The two terms are widely used interchangeably (Xu 2012). For consistency, this study, conducted in China, uses nísù throughout.

In English-language publications, finished sculptures are generally not described as 'mud sculptures', since they are no longer wet or workable. Instead, terms such as 'unfired clay sculpture', 'air-dried clay sculpture', 'earthen sculpture', and 'terracruda' (unfired earth, as opposed to terracotta, fired earth) are used to describe the material and technique of the completed object. Unlike these English terms, which refer primarily to the finished state, nísù encompasses both process and product. This reflects a tradition in which the process of modelling is as significant as the finished work (Li, Howard 2003, 10; Ōmura 2020, 1050).

Nísù sculptures **[fig. 1]** are composite, stratified, site-specific works modelled in situ and are inseparable from their architectural and social contexts. This inseparability is particularly important for conservation, since the material conservation of the sculptures cannot be separated from the cultural and devotional environments in which they continue to function. The study therefore examines the continuity between the making and conservation of sculptures through two coexisting systems of maintenance: local devotional care and professional conservation. It considers these works not as static artefacts, but objects subject to ongoing intervention. The central question which we are discussing in this article is how these forms of care affect the material preservation, devotional function, and cultural significance of nísù sculptures. In particular, the study considers the benefits and risks of continuous, locally embedded maintenance alongside the constraints and limited scalability of professional conservation.



Figure 1 Monumental nísù sculpture at Shuanglin Temple (T11), illustrating the scale, polychrome surface, and architectural integration characteristic of Shanxi's sculptural tradition. Photograph: Schwantes 2024

2 Context and Methodology

Shanxi Province was selected for its exceptionally rich, continuous record of nísù production and its unusually high concentration of surviving monumental examples. According to the Information Office of the People's Government of Shanxi Province (2024), the province contains nearly 30,000 historical architectural sites, many of them temples, and approximately 12,000 historical nísù sculptures, the highest concentration in China. This density reflects Shanxi's long-standing role as a religious and cultural centre where Buddhism, Daoism, and local folk traditions coexisted. The

province is also known for strong local patronage and artisan networks as well as relative political stability, which contributed to the preservation of many historical sites (Chai, Chai 2008, 2-3). Although most nísù figures represent Buddhist or Daoist deities, they also provide evidence of everyday life, regional culture, clothing, and evolving artistic practices.

Twenty-one temple sites across the province were examined. The sites were selected to represent a range of historical periods, sculptural scales, forms of institutional management, and levels of community use. They include major urban monastic complexes as well as modest rural shrines maintained primarily through local initiative. Together, these sites reflect the range of conditions in which nísù sculptures exist and are cared for today. The sites span the Tang (618-907 CE), Song (960-1279 CE), Liao (916-1125 CE), Jin (1115-1234 CE), Yuan (1271-1368 CE), Ming (1368-1644 CE), and Qing (1616-1912 CE) dynasties, representing nearly the full chronological range of Chinese nísù. The survey provides a sample of the diverse temple sites in Shanxi rather than a representative count of the province's temples as a whole.

The survey formed part of an international collaboration initiated by Shanghai University and the Yuncheng Ancient Colour Sculpture and Mural Conservation Research Institute. The Taiyuan-based Shanxi Cultural Heritage Survey and Conservation Research Institute Co., Ltd coordinated and organised fieldwork, providing a platform for interaction among scholars, experts, craftspeople, and students. The approximate locations of all twenty-one sites are listed in table 1 and shown in figure 2.

Table 1 Temple sites in Shanxi Province surveyed during the fieldwork, listed from north to south corresponding to the numbering in Figure 2

No.	Temple place, name	Time period/Dynasty
T1	Datong, Huayan Temple: Upper Temple Lower Temple	 Ming (1368-1644 CE) Liao (916-1125 CE)
T2	Datong, Shanhua Temple	Liao (916-1125 CE), Jin (1115-1234 CE)
T3	Shuozhou, Chongfu Temple	Jin (1115-1234 CE), Ming (1368-1644 CE)
T4	Wutai, Shuxiang Temple	Ming (1368-1644 CE)
T5	Wutai, Foguang Temple	Tang (618-907 CE)
T6	Yuanping, Huiji Temple	Song (960-1279 CE), Ming (1368-1644 CE), Qing (1616-1912 CE)
T7	Wutai, Nanchan Temple	Tang (618-907 CE)
T8	Dingxiang, Hongfu Temple	Song (960-1279 CE), Ming (1368-1644 CE)
T9	Taiyuan, Jin Temple	Song (960-1279 CE), Yuan (1271-1368 CE), Ming (1368-1644 CE), Qing (1616-1912 CE)
T10	Pingyao, Zhenguo Temple	Five Dynasties (907-960 CE)
T11	Pingyao, Shuanglin Temple	Song (960-1279 CE), Yuan (1271-1368 CE), Ming (1368-1644 CE)
T12	Pingyao, Qingxu Taoist temple	Yuan (1271-1368 CE)
T13	Jiexiu, Houtu Temple	Ming (1368-1644 CE)

No.	Temple place, name	Time period/Dynasty
T14	Lingshi, Xunjia Geduo Village Sanguan Temple	Ming (1368-1644 CE) or Qing (1616-1912 CE)
T15	Xi County, Xiaoxitian	Ming (1368-1644 CE)
T16	Hongtong, Guangsheng Temple	Yuan (1271-1368 CE) and Ming (1368-1644 CE)
T17	Changzhi, Guanyin Hall	Ming (1368-1644 CE)
T18	Changzhi, Chongqing Temple	Song (960-1279 CE)
T19	Jincheng, Gaoping Iron Buddha Temple	Ming (1368-1644 CE)
T20	Jincheng, Qinglian Temple	Tang and Song (960-1279 CE)
T21	Jincheng, Yuhuang Temple	Song (960-1279 CE) and Yuan (1271-1368 CE)

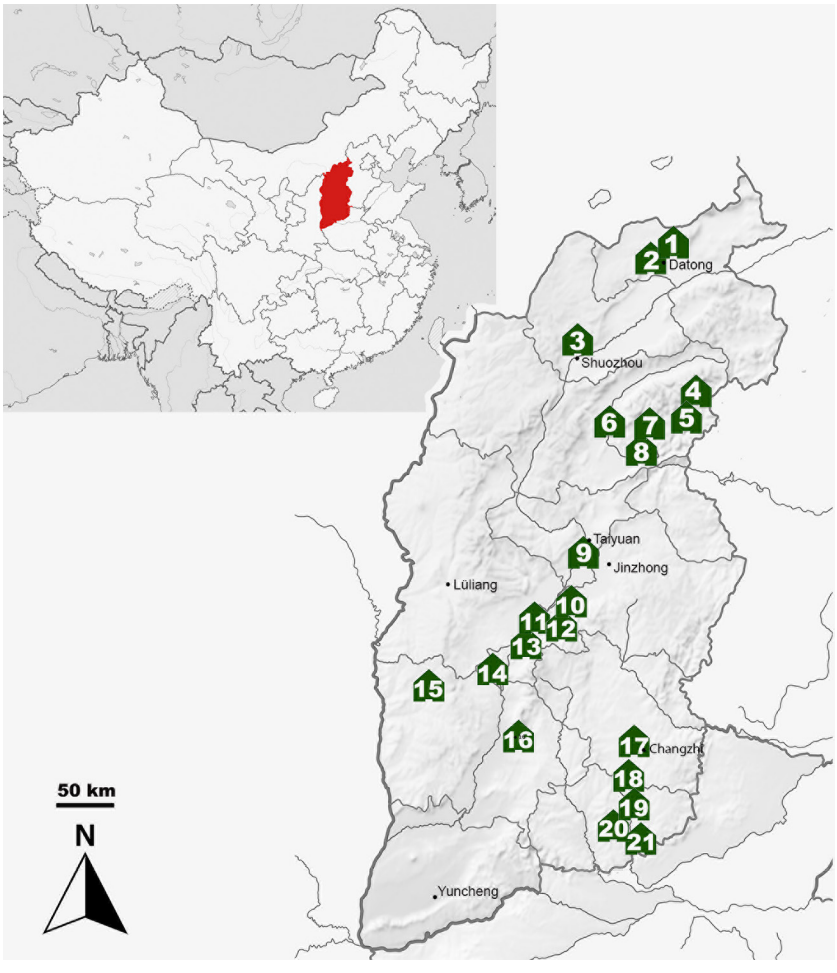


Figure 2 Map of Shanxi Province showing the approximate locations of the 21 surveyed temple sites, numbered from north to south as listed in Table 1. Source: Compiled and adapted by Gesa Schwantes from an open-source base map

The methodology focused on documenting the sculptures' construction, materials, and current conservation conditions while considering the social and devotional contexts in which they function. The research combined direct observation, photography, examination of exposed construction layers, and comparison across the surveyed sites. Sculptures were documented under the available lighting conditions to record their form, surface condition, and visible construction layers. Field notes recorded materials, layering sequences, scale, condition and visible signs of deterioration.

Deterioration was assessed in relation to both physical and functional factors. Physical factors included climatic conditions, the condition of the surrounding architecture, and biological activity, while functional factors included devotional use, visitor access, and site management. These observations were supplemented by informal conversations with practitioners and site custodians during the field survey, including a contemporary nísù artist and temple caretakers. The professional knowledge of team members from the Yuncheng Ancient Colour Sculpture and Mural Conservation Research Institute and the Shanxi Cultural Heritage Survey and Conservation Research Institute Co., Ltd in Taiyuan also provided contextual information on maintenance practices and devotional use that could not be fully understood through direct observation alone.

As active places of worship, many temples required adherence to religious schedules and local protocols, which sometimes limited access to particular sculptures. These conditions were treated not simply as limitations on the survey but as part of the context in which the sculptures continue to function as living heritage. Observing how religious activities intersected with sculptural spaces was therefore also part of the study's empirical scope.

3 Results

3.1 Construction and Material Characteristics of Nísù

Museums and heritage exhibitions widely present the making of nísù as an example of traditional Chinese craft **[fig. 3]**. Although the basic construction sequence is relatively consistent, the materials and techniques used at individual sites and by different makers can vary. The construction process can be broadly understood as a sequence of layers, beginning with the internal structural support and progressing through successive modelling, preparation, and decorative layers. In a typical construction sequence, construction begins with a wooden core, sometimes set on a brick or stone base, which is wrapped in rope and built up with successive layers of mud mixed with organic fibres. A final preparation layer provides a smooth surface for the white ground and paint layers (Chai, Chai 2008; Blänsdorf, Ma 2010; Song et al. 2021; López-Prat et al. 2024b).



Figure 3 Typical nísù manufacturing sequence displayed in an exhibition room (T21): wooden core, successive modelling layers, ground preparation, and final painted or gilded surface. Photograph: López-Prat 2024

3.1.1 Armature and Structural Support

The internal armature systems vary in their structural configuration, including central-post and box-frame forms (Yang 2015, 50; Jia, Li 2021, 13). Seated figures often rest on a solid stone or brick pedestal, while standing figures may be supported by wooden poles extending into the floor through the legs **[fig. 4]**. The wooden core may be supplemented with smaller wood splints, branches, and packed straw to approximate the intended volume **[fig. 5]**. Arms and hands are supported by thinner wooden sticks, secured and joined with nails and ropes **[fig. 6]**. These elements form the structural framework around which the modelling layers are built.



Figure 4 Variations in nísù base construction: The main Buddha sits on a stone and/or brick base; others are freestanding, on raised podiums or anchored directly into the floor using wooden poles inside the legs (one intact, one missing in the left foreground) (T7). Photograph: López-Prat 2024

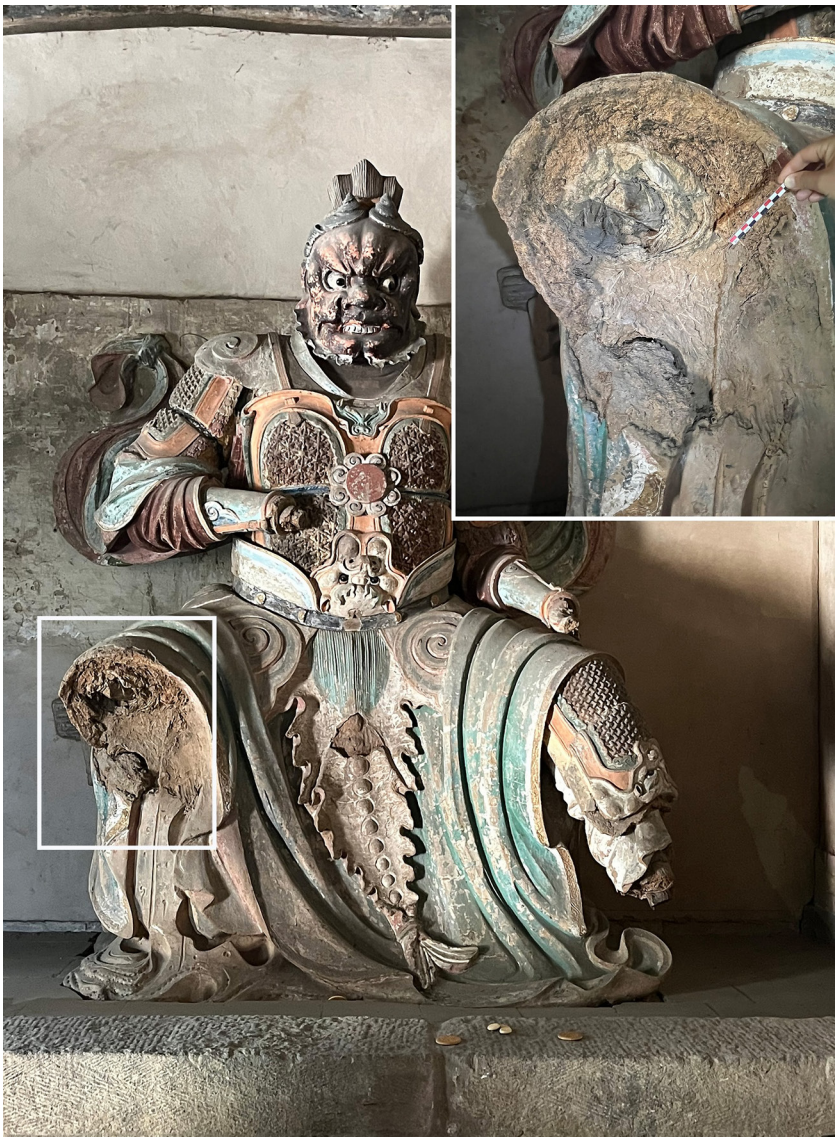


Figure 5 Detail of a broken nísù knee, revealing the wooden core wrapped with rope, inner modelling layers mixed with straw, and outer layers without straw (T18). Photograph: López-Prat 2024



Figure 6 (a) Nísù sculpture with a broken arm, showing ropes used for joining at elbow height (T8); (b) nísù sculpture with a broken arm showing nails used for joining (T7). Photograph: López-Prat 2024

Fingers are modelled in fine clay-based paste over wires or bent bamboo splints. Copper- and iron-wire making developed during the Song dynasty and was used in nísù as early as the Yuan dynasty (Yin, Zhang 2023). According to Master Liu (pers. comm., 2024-06-14), a nísù sculptor from Jiexiu, wire is commonly used to support the hands, which are shaped separately towards the end of the modelling process. He noted that earlier practice used boiled and softened bamboo, while twisted hemp also served a similar structural function. These materials served similar purposes despite changes in workshop practice and material availability. The shift to wire reflects broader changes in both material availability and workshop practice (Xu 2012, 112).

3.1.2 Modelling Layers and Surface Preparation

Over the armature, successive mud layers build up the sculptural form. The coarser inner layers contain a high proportion of straw, followed by two progressively finer modelling layers containing very fine organic fibres (Xu 2012, 113-14; Cao, Yang 1998, 226). The coarser layers establish the volume, while the finer layers progressively refine the surface. The outermost modelling layer provides a smooth surface for the finishing and decorative layers. A white ground, consisting of kaolin clay, gypsum, chalk, or mixtures of these materials in varying proportions is applied before the paint layers (Yang 2015, 50; Hui et al. 2018, 122), with animal glue used as a binder (Cao, Yang 1998, 230).

3.1.3 Paper Layers and Repair

The use of paper represents a more complex aspect of nísù construction because published sources interpret its function differently. Studies of nísù production report the use of paper layers from the Yuan dynasty onwards (Song et al. 2021; Yin, Zhang 2023), while other studies describe paper layers as the result of repair interventions (Zhang, Chen 2012, 16, 43; Chai, Chai 2008, 16). The function of paper therefore cannot be determined from its presence alone and must be assessed in relation to its position within the stratigraphy and the condition of the surrounding layers. Master Liu (pers. comm., 2024-06-14) confirmed paper is still used traditionally to reduce cracking and to smooth the transition between clay and ground layers. Paper-layer repairs were identified at both Huiji Temple (**T6**) and Sanguan Temple (**T14**). These observations indicate that paper may have been used both in traditional construction and in later repair, depending on the context.

3.1.4 Variation in Construction and Execution

The technological system described above reflects a broadly consistent construction logic across the surveyed sites, but not a uniform one. Variations in the scale and elaboration of internal armatures, the thickness and composition of modelling layers, and the quality of surface finishing were observed across the surveyed sculptures. These differences may reflect variation in patronage, available resources, and the experience and technical skill of the makers. They occur across individual sculptures and sites and do not, on their own, indicate fundamentally different construction traditions.

3.2 Community Practice, Devotional Care, and Living Heritage

Nísù sculptures in Shanxi can be understood as living heritage insofar as they remain subject to ongoing engagement, including touching, decoration, repainting, cleaning, and devotional use by local communities (Schnüttgen 2025; UNESCO 2015). Historical evidence also documents repeated maintenance and restoration. According to stele inscriptions, the nísù at Shanhua Temple (T2) underwent at least three major restorations (1128-43 CE, 1576-83 CE, and 1708-16 CE) from the Jin to the Qing dynasties, alongside five large-scale architectural restorations (Zhang, Chen 2012, 20). These interventions have been interpreted as acts of belief and respect rather than as professional conservation interventions (Zhang, Chen 2012, 42). At the same time, maintenance principles recorded during the Ming dynasty indicate an explicit concern with limiting unnecessary renewal while repairing damaged or deteriorated elements, as stated by Zhang and Chen:

> sù xiàng fēi shèn huǐ zhě bù yǐ gèng， zhuāng yán fēi shèn lòu zhě bù yǐ shì 。wéi yú xiǔ zhě yì zhī， tuí zhě lǐ zhī
>
> 塑像非甚毁者不以更，妆严非甚陋者不以饰。惟于朽者易之，颓者理之
>
> Sculptures were not to be renewed unless severely damaged, nor decorative elements repainted unless seriously deteriorated; only decayed

components were replaced and damaged portions repaired. (Zhang, Chen 2012, 32; authors' translation)

Historical accounts describe two broad forms of nísù maintenance: repair of the clay body, including the replacement of missing parts or the addition of mud layers, and renewal of the surface through sanding of existing paint, application of a new ground or paper layer and repainting (Zhang, Chen 2012, 43). Such repainting often reflects the visual styles of the period in which it was undertaken, as also observed in the redecoration of religious sculptures more broadly. The surveyed sculptures provide evidence of both continued surface intervention and ongoing devotional use.

The most visible evidence of ongoing devotional engagement was observed on the sculptures' surfaces. At several sites, more recent paint layers of a different material character from underlying historic finishes indicate repainting that appeared to be associated with devotional renewal rather than professional conservation treatment. At others, fabric offerings and draped clothing placed on or around figures provided visible evidence of continued devotional use. The accumulation of incense smoke and candle soot on accessible surfaces, together with abrasion of painted areas within the reach of worshippers, provided further evidence of sustained human interaction with the sculptures.

The extent and forms of community interaction with the sculptures varied considerably across the surveyed sites. Three recurring patterns of community engagement and care emerged from these observations. These patterns are analytical groupings rather than formal classifications of the surveyed temples, and individual sites may display characteristics of more than one pattern. They distinguish different relationships between devotional use, maintenance, intervention, and the material condition of the sculptures.

3.2.1 Pattern 1: Active Use with Regular Maintenance and Conservation Support

At several surveyed temples, active devotional use was accompanied by regular maintenance and conservation support. Sculptures at these sites were generally maintained in comparatively clean environments, with structural problems addressed and surfaces periodically cleaned. Simple mechanical supports and, in some cases, professional conservation treatments were also observed. Institutional support was evident at several of these sites, some of which also received substantial visitor use. These observations represent a pattern in which ongoing devotional use coexists with regular maintenance and conservation intervention.

3.2.2 Pattern 2: Limited Intervention and Accumulated Deterioration

At other surveyed sites, intervention was limited and signs of deterioration had accumulated. Thick deposits of dust and dirt, signs of biological activity including insect damage and evidence of rodents, and deterioration of the surrounding architectural fabric were observed around the sculptures. The absence of intervention did not necessarily indicate a lack of awareness or care. Conversations with members of the local heritage authority indicated

that caretakers and local communities were often aware of deterioration but were reluctant to intervene without qualified expertise, concerned that inappropriate treatment might cause further damage.

3.2.3 Pattern 3: Active Use with Repeated Aesthetic Renewal

At other surveyed sites, active worship and visitor interest were accompanied by repeated surface renewal. Sculptures had been repainted, in some cases repeatedly, resulting in bright or visually renewed surfaces. These interventions altered or obscured earlier paint layers and, in some cases, original iconographic details; some also involved modern materials such as acrylic paint. The resulting surfaces often differed substantially in material and visual character from the underlying historic finishes. This pattern reflects a form of active engagement in which repainting and surface renewal form part of ongoing care and use.

The three patterns described above concern community use, maintenance, and intervention and are intended to describe recurring relationships observed within the surveyed sites. Because the survey covered only a selection of temple sites, their relative frequency should not be taken to represent their prevalence across Shanxi. Individual sites may also display characteristics of more than one pattern. The conservation challenges discussed below cut across these patterns and include both material deterioration and the effects of previous interventions.

3.3 Conservation Challenges Observed Across the Surveyed Sites

The surveyed nísù sculptures exhibit a wide range of conditions, from relatively intact historic surfaces to severe material loss and structural instability. As site-specific works integrated into active temple environments, their condition reflects not only material deterioration but also the condition of the surrounding architecture and the effects of previous maintenance and conservation interventions. The following observations identify recurring conservation problems and types of intervention documented across the surveyed sites. They do not constitute a systematic condition assessment of all the sculptures surveyed.

Many of the conservation problems observed during the survey were associated with the architectural environment rather than the sculptures alone. Because nísù sculptures are modelled in situ and remain integrated with the buildings that house them, deficiencies in roofing, drainage, and structural maintenance can directly affect the mud, ground, and paint layers. Water infiltration, rising damp, and associated salt migration and crystallisation were among the most destructive deterioration processes encountered. At Zhenguo Temple (T10), rising damp and suspected salt crystallisation had caused severe disintegration of the lower sculptural layers **[fig. 7a]**, demonstrating the direct relationship between building condition and sculpture deterioration. Heavy dust accumulation, biological activity, and architectural deterioration were observed across sites with different geographical settings and levels of historical and artistic significance **[fig. 7b]**.



Figure 7 (a) Rising damp and salt damage causing disintegration of the clay plaster layers (T10); (b) Dust accumulation on the sculptures in a populated temple (T1). Photograph: López-Prat, Ye 2024

The survey documented a range of conservation situations, from sculptures retaining substantial original material and historic surface layers to cases involving stabilisation measures and professional conservation treatments. Shuanglin Temple (T11) provides an example in which historic paint layers and surface details remained substantially preserved despite prolonged use and limited large-scale modern intervention **[fig. 8a]**. Simple wooden supports observed at this site provided structural support while retaining the visible original material **[fig. 8b]**.

Emergency stabilisation measures were observed at approximately one-third of the surveyed sites. Wooden poles and fabric supports had been used to redistribute the load of structurally unstable figures or to support detached elements such as arms. In one case, a large-scale sculpture at **T12** was supported in a manner that gave it the appearance of a limb in a medical splint **[fig. 9a]**. Several supports appeared to have been in place for years, suggesting that initially introduced as temporary stabilisation had become long-term features of the sculptures' condition. Where supports were appropriately positioned, they provided structural stabilisation while leaving the original sculptural material largely visible.

Professional conservation treatments were also observed at some surveyed sites. At T16, unpainted earthen infills had been used to secure losses and exposed edges without reconstructing missing areas **[fig. 9b]**. The treatment retained the existing sculptural material and left the areas of loss visually distinguishable from the surrounding historic surface.

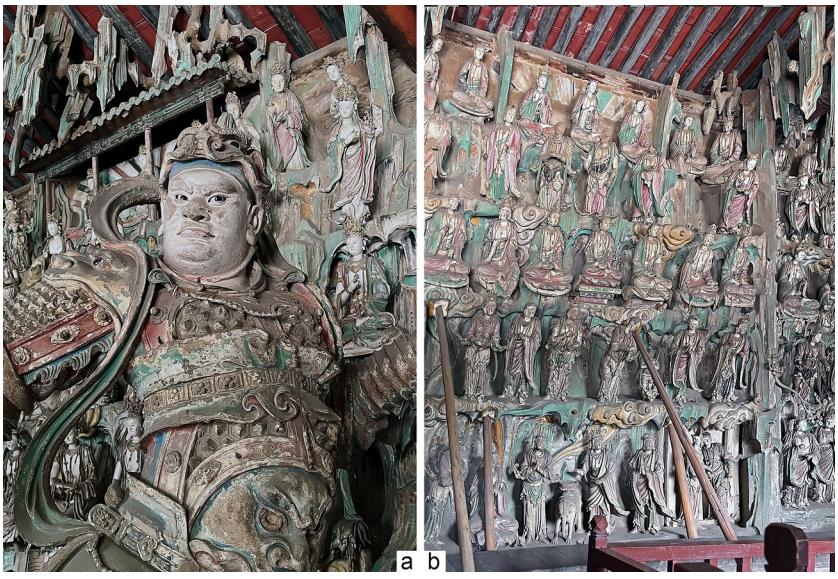


Figure 8 (a) Unrestored for centuries, the sculptures display remarkable artistic skill despite surface abrasion and dust; (b) Simple wooden supports stabilise the wall-mounted figures (T11). Photograph: Schwantes, López-Prat 2024



Figure 9 Conservation interventions: (a) Emergency stabilisation using wooden supports and fabric bandages (T12); (b) Modern preservation approach with repair fills stabilising losses without reconstruction (T16); (c) Peeling of surface layers caused by invasive restoration with acrylic paint (T4). Photograph: López-Prat 2024

In contrast, the survey also documented interventions involving materials that differed substantially from the original material systems. Cement-based mortars were observed in architectural repairs, while acrylic paint had been applied to some sculptures as part of surface renewal (T4) **[fig. 9c]**. The acrylic overpaint obscured earlier paint layers and altered the visual and material character of the historic surfaces. In some cases, the new paint layer was visibly peeling or separating from the underlying surface, resulting in further loss of the historic paint layers.

4 Discussion

The findings presented in the preceding sections provide a basis for considering Shanxi's nísù within the wider history of air-dried clay sculpture, the continuity and adaptation of its material and technical traditions, and the implications of the community practice for conservation. The discussion considers these three dimensions in turn and then draws together their implications for understanding and sustaining nísù as living heritage.

4.1 Nísù Within the Transregional Clay Sculpture Tradition

The survey indicates that nísù should be understood not as a homogeneous "clay" object but as a composite, stratified technological system. The construction principles documented across the surveyed Shanxi sites reveal clear parallels with air-dried clay sculpture traditions elsewhere in Asia. Despite regional and chronological differences in style, iconography, and devotional context, these shared material and structural features situate Shanxi's nísù within a broader Buddhist sculptural tradition characterised by the circulation and local adaptation of technical knowledge (López-Prat et al. 2024b).

Evidence from the surveyed temples is consistent with documented practices at other Chinese sites,[1] as well as in Central Asia and Afghanistan (López-Prat et al. 2021; 2022; 2024a), and in Himalayan and North Indian contexts (Luczanits 2004; López-Prat et al. 2024b). These parallels point to a broad technical tradition in which air-dried clay provided a shared material basis for Buddhist sculpture, while construction methods were adapted to local resources, environments, artistic conventions, and workshop practices.

At the same time, the Shanxi examples demonstrate that technological continuity did not result in uniformity. The examples show how a shared air-dried clay sculpture vocabulary was adapted to different historical contexts, material resources, patronage conditions, and workshop practices. Differences in the scale and complexity of sculptural ensembles likewise reflect variation in the contexts in which they were produced, while examples preserved at sites with comparatively limited resources demonstrate that technically accomplished production was not confined to major urban or monastic centres. Large temple complexes that remained active over extended periods also accumulated sculptures and architectural elements from different phases, reflecting successive episodes of production, renewal, and intervention.

1 Li et al. 2007; Liu 2014; Wang, Zhang, Wei 2014; Hui et al. 2018; Du 2020; Song et al. 2021.

This combination of shared technical principles and local adaptations is important for understanding the place of Shanxi's nísù within the wider history of Buddhist sculpture. It also has practical implications for conservation. Vulnerability to moisture, deterioration of organic fibre reinforcement, and the risks associated with incompatible repair materials are not unique to Shanxi but recur across air-dried clay sculpture traditions. Comparative research can therefore provide useful reference points for understanding material behaviour and conservation challenges beyond the regional context of this study.

4.2 Continuity and Change in Materials and Techniques

The survey evidence, together with testimony from nísù artists, indicates that the tradition has maintained its fundamental construction logic while adapting to changes in materials, tools, and workshop practice. The basic sequence of armature, clay-based modelling layers, surface preparation, and polychrome decoration documented at historical sites remains recognizable in contemporary nísù production in Shanxi **[fig. 10a]**.

Continuity within the tradition therefore does not depend on the continued use of identical materials. Contemporary production shows that new materials may be incorporated when they provide advantages while retaining established structural principles. Wire has replaced bamboo for the internal support of fingers and hands, while plywood box structures have replaced traditional wooden poles and boards in some contemporary armatures **[fig. 10b]**. These substitutions reflect changing material availability, workshop conditions, and craft practice without necessarily disrupting the underlying structural logic.



Figure 10 Contemporary nísù production in Lüliang, Shanxi: (a) modelling a sculpture using traditional layered clay techniques; (b) internal plywood box armature used in contemporary workshop practice. The images illustrate continuity and innovation coexisting within a living craft tradition. Photograph: Schwantes, Hao 2024

The historical record of surface interventions adds another dimension to this continuity. Documentary evidence indicates that sculptures at Nanchan Temple (T7) were repainted during the Ming dynasty, while Tang-period figures at Foguang Temple (T5) were repainted in 1928 and 1929 (Chai, Chai 2008, 16). These episodes of renewal should not be regarded simply as disturbance of, or damage to, the original. Rather, they form part of a longer history of periodic surface intervention associated with the continued devotional use of the sculptures. The paper layers identified at T6 and T14 likewise suggest that surface intervention and repair have formed part of the material histories of these sculptures. Such practices can therefore be understood as forms of material care as well as sources of later alteration (Zuanni 2023, 696-97).

The introduction of modern synthetic materials represents a more consequential form of material change. Unlike substitutions such as wire for bamboo, which can retain a comparable structural function while responding to contemporary workshop conditions, acrylic paints and cement-based mortars have material properties that differ substantially from those of the original clay-based systems. At the surveyed sites, acrylic overpainting obscured earlier surfaces and was associated in several cases with peeling and paint loss, while cement-based mortars were observed in architectural repairs. Such interventions can create additional conservation challenges when their material properties are poorly matched to the existing fabric or when their removal or treatment complicates future intervention. Their assessment should therefore consider not only their immediate stabilising or aesthetic function, but also their compatibility with the existing material system and the potential consequences for subsequent conservation (Caple 2000; Delgado Rodrigues, Grossi 2007; Muñoz Viñas 2022).

The evidence thus suggests that material change is not in itself incompatible with continuity. The more significant issue for conservation is whether new materials and techniques remain compatible with the existing construction system and whether their introduction results in the loss or concealment of significant historic material.

4.3 Community Practice, Conservation Ethics, and Implications for Strategy

The material condition of nísù sculptures cannot be understood independently of the social and devotional contexts in which they continue to exist. Community practice contributes to their continued use, care, and heritage significance and therefore has direct implications for conservation decision-making in living heritage contexts. The three patterns identified in the survey demonstrate that community engagement can have different material consequences: it may support regular maintenance and conservation, coexist with limited intervention and accumulated deterioration, or involve repeated surface renewal that alters or obscures historic material.

A central issue is the tension between conservation approaches that prioritize the retention of historic material and devotional practices that seek to maintain the visual and religious presence of the sculptures. Repainting, surface renewal, and the replacement of deteriorated elements may be understood within the communities concerned as forms of continued care rather than as the alteration or loss of heritage material. From a

conservation perspective, however, repeated repainting can obscure earlier layers, alter historic iconographic details, and introduce materials that complicate the preservation of the underlying fabric. These different understandings of care should therefore be considered when developing conservation strategies for nísù and other forms of living religious heritage.

The tension is particularly evident in active places of worship, where perceptions of completeness, care and authenticity may be shaped by devotional expectations that a sacred image should remain whole, vivid, and visually present. A sculpture in which losses have been stabilised but not reconstructed, and abraded historic surfaces have been left visible, may meet conservation objectives while producing a different perception of completeness for worshippers. This tension is illustrated at Guangsheng Temple (T16), where stabilised but unreconstructed losses remain visible. Conversely, repainting a sculpture in bright colours to give it a renewed appearance may satisfy devotional expectations while obscuring or destroying historic layers that contribute to its art-historical and material significance. These different perspectives do not need to be treated as mutually exclusive; rather, they reflect different values and relationships to the same object.

For this reason, repainting and surface renewal should not be treated as categorically unacceptable, but neither should they be regarded as automatically appropriate. Periodic renewal is not a recent development but a historically embedded practice documented at least since the Ming dynasty. Decisions about renewal should instead take into account the significance, condition and legibility of the existing surface. Sculptures retaining substantial original or early historic polychromy may require different approaches from those that have already undergone repeated alteration. The critical distinction is therefore not between intervention and non-intervention, but between interventions informed by an assessment of significance, condition, and potential loss.

Where renewal is considered appropriate, the choice of materials and techniques should take account of the existing material system and the potential consequences for historic fabric. Conservation priorities should therefore be guided by the nature and potential impact of different forms of loss (Pedersoli et al. 2016), while recognising that decisions concerning living heritage cannot be based on material risk alone. Continued devotional use and community values are themselves part of the significance of these sculptures. Providing communities and local caretakers with accessible guidance on compatible materials and treatment approaches could therefore support continued use while reducing avoidable material loss.

Conservation in Shanxi involves local and provincial conservators, nísù artists, and specialists from national institutions. The survey nevertheless indicates uneven approaches to intervention, particularly where repeated treatments have been undertaken without adequate technical understanding or materials suited to the existing system. At the same time, the absence of large-scale intervention should not automatically be interpreted as neglect. Shuanglin Temple (T11), for example, illustrates how limited intervention, under favourable environmental conditions, can coincide with substantial retention of original material. At many temples, however, conservation priorities extend beyond the sculptures themselves to the architectural environment. Water infiltration, rising damp, and salt-related deterioration associated with defective roofing and drainage can directly affect the sculptures.

The survey also points to a gap between diagnostic knowledge and its implementation at site level. Conversations with local heritage authorities indicated a recurring dilemma: deterioration may be recognised but left untreated because appropriate intervention exceeds locally available expertise or resources. In such cases, limited intervention may reflect uncertainty, limited capability, and concern about causing further damage rather than an absence of care. Addressing this situation requires coordination among researchers, conservation professionals, heritage authorities, and the communities responsible for maintaining the sites.

Community practice should therefore be understood not only in relation to conservation risk but also as a resource for sustaining nísù heritage. Active devotional engagement, local stewardship, and inherited craft knowledge have contributed to the continued use and maintenance of many sculptures, while changes in population, skills, and materials may weaken these forms of care. The decline of clay-sculpting skills in the twentieth century further highlights the importance of sustaining craft knowledge alongside material conservation. Training, documentation, and the involvement of practising nísù artists in conservation projects could help maintain this knowledge while supporting appropriate treatment.

More broadly, conservation planning for nísù would benefit from guidance tailored to its material system, environmental conditions, and living heritage context. Such guidance would need to bring together conservation science, art history, heritage management, and traditional craft knowledge rather than treating these as separate areas of expertise. Collaboration among conservation professionals, heritage authorities, local caretakers, and practising nísù artists could provide a practical basis for longer-term conservation planning while allowing continued devotional use (Schwantes 2011).

5 Conclusion

This field survey of nísù sculptures across twenty-one sites in Shanxi shows that understanding this tradition requires attention to its material, social, and devotional dimensions. Construction principles spanning nearly fourteen centuries confirm the technological consistency discussed above even as materials, techniques, and workshop practice evolved. At the same time, the condition of individual sculptures reflects not only the quality of their original making but also their subsequent life: community stewardship, devotional renewal, and local maintenance have played a central role in sustaining many sculptures over time. Their effects, however, are not uniformly beneficial. Compatible materials and inherited craft knowledge can support preservation, whereas synthetic paints, cement-based repairs, or the loss of community stewardship can accelerate deterioration or obscure historic surfaces.

Situating Shanxi's nísù within the transregional network of air-dried clay sculpture confirms that the construction principles, material vulnerabilities, and conservation challenges documented here belong to a shared tradition extending across Central, South, and East Asia. This framing enriches the art-historical understanding of nísù and highlights the value of cross-regional exchange in conservation research and practice.

These findings call for conservation strategies that combine technological understanding and informed condition assessment with attention to living

practices. Community engagement should be integrated into conservation rather than treated as separate from it. Such an approach protects both the material integrity of these sculptures and the cultural practices that sustain their meaning.

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