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Two Decades of Conservation in Ladakh: Accessing the Achi Association (AA) and Achi Association India (AAI) Archives

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Abstract

Ladakh's climatic conditions have preserved some of the most impressive monuments in the Himalaya. These temples trace the spread of Buddhism in the Western Himalaya and the development of artistic and architectural styles. However, they are increasingly under threat due to the introduction of modern construction materials and methods, as well as the intensification of climate change induced events. In 1999, Achi Association was formed to conserve temples belonging to the Drikung Kagyu sect of Tibetan Buddhism, one of the oldest orders in Ladakh, and one under which many of the earliest temples in the region were built. In 2010, the establishment of Achi Association India (AAI) expanded this to any Buddhist heritage in precarity throughout Ladakh, regardless of sect. With a quarter of a century of experience in the region, the two organizations collectively produced an impressive fountain of documents that chart and record all aspects of conservation work done across nine sites that date from the late 13th century to the 19th century. In this paper I scaffold an interdisciplinary approach to access these archives, which range from architectural surveys to community engagement reports, accentuating that conservation is a dialectic between stakeholders, where decisions made by conservators — shaped by their training and available technology — are interpreted by other stakeholders, namely locals and the clergy, through their own epistemic frameworks. Mapping the entirety of conservation and restoration, this paper covers multiple aspects of the process, including documentation, community engagement, technical procedures, and the ritual ramifications of decisions.

Keywords

archives, conservation, Western Himalayas, Ladakh, restoration

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Introduction

In a pink folder in Palay House — AAI's office in Phey, Ladakh — are printed email correspondences between European conservators dating back to 2004. It is part of a collection of early printed documents that heed back to a time before digital archives. Over the years, Achi's archive grew, and now most of the corpus is digitized. The collective archive is a montage of documents, often either produced on site — like bills from purchases and work logs — or reports — condition assessments, surveys, and proposals. The archives on conservation oscillate between these two types of documents, providing a holistic snapshot of history, conservation technologies, and community engagement.

Despite the significance of conservation in Ladakh and the Himalaya, little has been written or discussed about how it is conducted and its significance. This is largely due to the particularities of disciplines like art history and architecture that use a frame of reference that prioritizes documentation of the past. The resulting canon is rich with academic material on Ladakh's Buddhist heritage and art, emphasizing the rarity of well-preserved sites that offer a chance to study traditions and artistic styles extinguished in other places where Buddhism once existed. Simultaneously, recent scholarship produced by anthropologists and geographers has engaged with the effects of modernization on the region, drawing attention to the erosion of cultural practices and the traditional way of life. Before proceeding, it will be helpful to understand how "traditional" is usually understood by Achi architects and conservators. "Traditional" refers to historical practices that have persisted into the present, offering a sense of continuity with the construction techniques used in Ladakh before the introduction of modern building methods. Furthermore, there are no organizations that have worked as extensively on Buddhist religious sites, and since the AAI archives have only recently been organized and accessed, there is limited scholarship on temple conservation in Ladakh.[1] Moreover, AAI's archives allow for a holistic approach because of the wide array of documents that different stakeholders involved in conservation work over the last two decades have produced. The availability of these different voices allows us to see how perceptions of conservation both converged and, at times, diverged. How these contending perceptions were negotiated is a central theme in this paper. A concerted effort was made by a coalition of participants who worked on conservation projects in the village of Wanla. The book *Against Forgetting (2021)* is a compendium of essays that contour the perspectives of project members from their respective disciplinary training. The holistic nature of this book has helped me formulate my own approach to writing this paper.

Documentation concerning community engagement and technical work serve as the foundations of this paper. The former is a process of navigating the cultural and religious matrix these sites are under, as conservation is not possible without the clergy and community support, while technical documentation covers a collection of approaches that are highly specific to the needs of traditional Ladakhi construction methods. Technical documentation has also involved a scientific approach to studying materials. For example, Achi conservators conducted tests using fragments of detached wall paintings to examine how the renders and plasters supporting the paintings at the Avalokiteshvara Temple at Wanla were created (Bläuer 2021, 72). This understanding of the composition unveiled the method through which a select set of materials had to coalesce to create a canvas and informed how conservators approached areas of abrasion and dereliction. The final type of material in the archive, and one I will not address in this essay, is a form of bureaucratic documentation. These documents, ranging from grant applications to budget allocations, highlight the institutional scaffolding required to build an international pool of partners, who, working with their Indian counterparts, have successfully delivered projects. The continuity of Achi, and the collaborations

it has fostered, can be understood through these sets of administrative documents.

The purpose of this paper is threefold. One, it is a survey of almost two decades worth of material, covering a breadth of projects, and experiences accumulated by various members who were a part of these projects, offering some of the most comprehensive documentation of conservation and restoration not just in Ladakh but the entirety of the Trans-Himalaya. Two, the essay situates conservation within a much broader process of ideological shifts, encounters with clergy and community members, and its place in modern-day Ladakh. In doing this, I hope it expands the ways through which heritage is understood and how conservation is often an epistemic dialogue that architects, conservators, communities, and the clergy are constantly negotiating and converging on. Lastly, I hope this essay can function as a schematic tool for conservators and architects, introducing those interested to the multidimensional nature of conservation in the Trans-Himalaya.

Formation of Achi Association (AA) & Achi Association India (AAI)

Conservation-related research visits started as early as 1998, preceding the establishment of the Achi Association (AA) in 1999 (Roy 2021, 41). The AA was initially founded in Switzerland by a group of European conservators and scholars, with H.H. Kyabgön Chetsang Rinpoche as honorary president. The organization aimed to safeguard the outstanding but endangered heritage of the Western Himalaya by bringing together scholars specializing in the early art and architecture of the region (41). Achi Association India (AAI) was formed in 2010 to further and strengthen AA's work in India. Both organizations take their name from the Dakini Achi who is considered to be the protectress of the Drikung Kagyu order; she can be seen practically outside every Drikung monastery or temple, often over the entrance porch (Achi Association 2011). While Achi Association was mandated to work solely on Drikung heritage, Achi Association India was not, and was able to factor in other considerations regarding conservation priorities. Given that both organizations have closely worked together, have shared histories, overlapping personnel, and a collective archive, I will refer to both organizations as Achi in this paper.

Ladakh's long-standing connection with the Drikung Kagyu order, and the unique climatic conditions in the area, have made the temples there a principal cultural and visual repository for the history of Buddhism in the Himalaya. The Drikung Kagyu school was founded at Drikung in Central Tibet by Jigten Gönpo (1143-1217), with a focus on meditative practice. In the first few decades after the Drikung order was established, Jigten Gönpo sent disciples to Mount Kailash in Western Tibet for meditative practice. At the beginning of the 13th century, he began establishing hermitages throughout the Kailash–Manasarowar region, successfully gaining the support of local rulers, among them the Lhachen Ngroub, the Ladakhi king at the time (Petech 1977, 19-20). We know he embraced the Drikung sect because he sponsored the construction of a monastery near the sacred Mount Kailash in 1215, alongside the king of Guge and the Purans (Rizvi 1996, 61). The Drikung Kagyu monuments are vestiges of Ladakhi and Tibetan history that have mostly been destroyed elsewhere, offering a rare look into the circulation of Buddhism between the Western Himalaya, Indo-Gangetic plains, and the Tibetan Plateau.

Achi's projects span multiple centuries and political dynasties, which can be broadly divided into three distinct time periods. The temples at Wanla, Kanji, and Nyoma are from the late 13th to early 14th century, when political chieftains controlled large swathes of land in Ladakh and ruled their own fiefdoms. Sometime in the 14th century, this model collapsed, and Kashmiri art, which had been a major source of inspiration, also began to wane — although Buddhism in Kashmir had largely been supplanted by orthodox Brahmanical Hinduism by the middle of the 12th century (Sarao 2012, 38). The temples at Henisku and Mulbek date

from the 14th to 15th century, with Photoksar also belonging to the same period, but built after the Namgyal dynasty came into power. The assembly hall ('du khang) at Ensa and the Skurbuchan Fortress (khar) are from the 19th century after the Dogra Empire took control of Ladakh. All three of these time periods contain significant artistic and architectural features that Achi's teams have tried to preserve and document. The range of dates involved provides an archive that traces how temples and artistic processes evolved in Ladakh, allowing for a unique opportunity to tell stories across time.

Contextualizing Conservation in the 21st Century

Before delving into conservation, it is imperative to understand the material elements that produce the Ladakhi architectural vernacular. Almost all the temples that Achi has worked on were built using locally sourced materials that are inherently tied to the geography. A question that looms large over all conservation and restoration projects is how new and old materials will interact and to what extent. Since Achi was one of the first organizations to carry out restoration work, there were no parameters to draw from; architects and conservators had to make decisions that were culturally, religiously, and technically sound, predicated on a scrupulous understanding of earthen construction processes in the region.

The foundations of most Ladakhi temples, like those of houses, are made up of stone, often collected from riverbanks. Ladakhi bricks, or *pagbu*, are made by putting local mud into a wooden mold and sunbaking them; sometimes, when larger bricks are made, straw is mixed in for strength (Ferrari 2021, 48). To make mortar, local soil is mixed with water, resulting in a strong and durable mixture due to the high clay content of the soil. Typically, poplar beams with wooden branches are placed in a herringbone pattern across sun-baked bricks to form the flat roof; although for temples, designs tend to deviate considerably sometimes (Norberg-Hodge 2016, 32). Temples are then plastered with a fine clay called *markalak*, or "butter mud." Many sites where *markalak* is available contain paleolake deposits — a lake that existed in the past when hydrological conditions were different. In temples, *markalak* is used to produce the smooth surface for wall paintings, while *karsti*, a white primer, is applied as the surface to be painted on (Bläuer 2021, 72). It is only during the late 20th century that materials like cement became available, radically changing how buildings were made and looked. Conservation work done by Achi had to contend with not just sourcing traditional Ladakhi construction materials but also finding individuals who were suitably trained to apply them properly. As monasteries in the region have transitioned to modern construction materials and practices, in line with the rest of the Union Territory, the conservation process presents an opportunity to study and record traditional construction methods in detail. In addition to capturing the procedures, scholars used technology to gain new insights on construction materials used as far back as 800 years ago, such as testing the *karsti* (primer) in Wanla, and apply this information to make contemporary decisions. Furthermore, the shift to modern construction materials and practices has naturally led to a decline in Ladakhi masons or artisans who are able to work with traditional materials. The decline of this knowledge, which is cited in different project reports, served as an impetus for documentation.

A point of Achi's work thus became explaining and interrogating what conservation is. John Harrison, a British architect who has extensively documented and restored buildings across the Himalaya and has been restoring with Achi since 1999, emphasizes that "we are dealing with different perceptions on heritage and its importance, and preservation…in their culture, change is an intrinsic attribute of life, and building modification[s] have been made whenever necessary or desired" (Harrison 2021, 212). Harrison's comment

reveals the matrix within which time, material, and religion operate. Building and consecrating temples has long been a vital way to accrue merit (karma) for oneself or one's kin; the Avalokiteshvara Temple at Wanla offers a compelling example. Conservation in an academic and technical sense stresses a type of stillness that values preservation as a method to access the past. It is not that Ladakh and the greater Himalaya do not value history; rather, there is an epistemological shift in how it is recorded and what can count as truth. Objectivity in academia is often reached through "tangible" evidence, material that can be seen or recorded, so preservation sustains a historical portal that allows for such scholarly work. With Ladakh modernizing, an influx of new materials and cultures have penetrated the region. Alongside an embedded religious value, temples and monasteries have become sites of a secular knowledge production that derive value through being significant for scholarship. Ladakhi peoples have acquired a dual and seamless engagement of heritage — performing religious rites and simultaneously viewing heritage as access points to understand culture. The interest shown by Achi and the work done by architects and conservators further amplifies this.

Temples as Visual Repositories

Beyond acting as repositories for Ladakhi art, sites that Achi has worked on are reminders of the rich visual ecosystem that operated in the Trans-Himalayan region. The temple of Wanla, for example, is done in the Central Tibetan art style, a shift from the Kashmiri style seen at Alchi. The temple is an imposing and comprehensive piece of work in the Western Himalaya that signals a shift in the artistic milieu of Ladakh. Built by a local chieftain, Bhak Darskyabs, it houses an eleven-headed Avalokiteshvara and was commissioned by the benefactor to assure a good rebirth for his parents and himself, a common rationale for Buddhist patronage. The murals of the temple are predominantly painted in the northeastern Indian style of Sharri, while the Nepali style of Beri can be seen as a secondary style. The alternation between the two styles gives variation to the thrones of the main deities and conveys a sense of gradation from secondary Nepali deities to principally northeast Indian ones. The assembly of the deities and the teaching they represent is another site of amalgamation — the Eight Forms of Padmasambhava and the Eight Pronouncements relate to the teachings of the Ancient Nyingma tradition, while others, like the mandala of the deity of Chakrasamvara, are from the teachings of the new traditions (Sarma), obtained from India and Nepal over the 11th and 12th centuries (Martin 2023).

The Avalokiteshvara Temple at Wanla is related to two other monuments that Achi conserved and restored. Between 2016 and 2017, Achi worked on the Kankani Chorten — a gateway chorten that belongs to a group of chortens situated below the ancient settlement of Nyoma village. Nyoma was an important checkpoint on the trade road to Ladakh. It is most likely that Bhak Darskyabs — the chieftain who commissioned the Avalokiteshvara Temple at Wanla — died on the way to a military campaign or en route to Mount Kailash for pilgrimage. The presence of a mandala with the *dharani* (a sacred Sanskrit phrase used as a verbal protective talisman) of Akshobhya, a mantra believed to purify many eons of negative karma and liberate oneself and others, suggests that this was likely a funerary monument. Both the mandala and *dharani* of Akshobhya are common practices in the Drikung order of Tibetan Buddhism for funerary rituals (Vets et al. 2015, 4). Moreover, stylistic analysis by art historian Nils Martin revealed that the painter(s) of the right wall in the Avalokiteshvara Temple in Wanla also worked on the Kankani Chorten (4). They feature common iconographic subtleties in depicting protective deities or masters of the Drikung lineage and show similar quality, technique, and manner of wall paintings — execution of facial features, falls of the garment, multicolor scrollwork all over the nimbus of the Buddhas, and the same light red contour lines are some of the similarities. The local oral tradition

corroborates this, recording that pigments left over after the painting of the chorten at Nyoma were brought to Wanla to paint the Avalokiteshvara Temple (5).

The 700-year-old Kanji Temple (gTsug lag khang) in Ladakh's Leh district, which was Achi's first conservation project, is also part of the same visual ecosystem. Martin suggests that the left wall of the Avalokiteshvara Temple in Wanla and the temple in Kanji were done by the same painter (Martin 2022, 292). This pioneering research further nuances the visual ecosystem from regionalities, Buddhist art styles traveling from Bengal to the Kathmandu Valley, and then via Central Tibet to Ladakh, to a further localized and intimate setting, where individual artists are exercising a hybridity of repertories by tapping into a wider circulation of Himalayan visual culture.

Community Engagement & Partnerships

Over the last two decades, Achi has worked with several communities around Ladakh who have explicitly sought collaboration and contributed to restoration and conservation projects. No Achi effort would be successful without input from local communities, who have provided services as masons, laborers, and fundraisers. In 2012, Achi began to work on the deteriorating and crumbling Skurbuchan Fortress in the village of Skurbuchan. The fortress was initially constructed to be a defensive tower and at some point in its history was converted into an Avalokiteshvara Temple. The villagers had been collecting funds for the project since 1998 and contributed en masse. A report from 2012 details these contributions:

> "Practically every single family supported the work in one way or another according to their possibilities… there were at least 40 instances where building materials such as timber elements (talu and dungma) were donated, aside from large contributions of sun-dried mud bricks (pagbu). Furthermore, there was a steady flow of contributions coming in throughout the conservation campaign. Over 50 families provided food supplies such as rice, flour, butter, milk, sugar, oil, eggs, lentils, and vegetables. Many more families made sure that the work team and volunteers had constant on-site provisions of tea, snacks, fruit, and various drinks during working hours. The complete work crew also received several breakfast, lunch, and dinner invitations to different family homes. Moreover, the conservation team could count on the daily presence of volunteers. There were over 30 volunteers, including 13 monks from the local monastery and one nun, several of them taking part in the work for several days." (Harrison 2012)

Alongside the community, Achi received funding from the tourism department of the Jammu & Kashmir state, marking the first time the organization engaged with a government entity. This project also involved working with the National Institute of Design (NID). The collaboration with NID was carried out as a part of the Education Outreach Program (EOP), an initiative aimed to "expand experience as heritage preservation and interpretation to a larger Ladakhi community for long term impact and overall sustainability of heritage preservation initiatives in the region (EOP 2019, 3)." NID students and faculty collaborated with Achi on two museum projects as a part of the EOP: a kitchen and agriculture museum.

Restoration is a process that is very dynamic, where materials and thoughts from different time periods interact, and decisions made centuries ago need to be considered. The rigid pursuit of aesthetic or historical accuracy in preservation can at times conflict with structural needs, requiring a range of carefully considered inputs to arrive at the most pragmatic solution. Like Skurbuchan, the villagers of Photoksar also requested support from Achi to preserve their old temple. Photoksar is on the way from Wanla to Zanskar, located just

before the high pass of the Shinge-la. A bit above the village are two religious buildings: a Drukpa and a Drikung Monastery. The Drikung monastery was built some twenty-five years ago to replace the old one, which is situated higher up against the rock face of the mountain and protects the area from the north. The community's historical and contextual knowledge was meaningfully augmented by the technical expertise of Achi architects, enabling the preservation of an older site that held greater cultural and emotional value for local residents. Following extensive consultation with the villagers, the second floor of the temple was entirely dismantled. This upper room, constructed 120-140 years ago atop the original temple structure to accommodate a visiting Rinpoche or official, had introduced significant structural vulnerabilities (Ferrari & Sukman 2018). Achi's conservation and restoration work is shaped by an ongoing dialogue between the community and architects, grounded in regular community meetings and the cultivation of relationships with local masons and laborers.

Structural Intervention

Before embarking on technical work, conservators and architects conduct thorough condition assessments that document any prior local interventions and the nature of the damage. Local upkeep has taken place in Ladakh through a variety of means, like the annual whitewashing of monasteries and chortens. These maintenance procedures are mainly done in a religious and cultural setting, and, when done correctly, can contribute to prolonging an edifice's stability. Occasionally, clergy members will undertake conservation; at the Ensa monastery, local monks carried out amateur fillings with local earth on areas with cavities within the building (Jahan). The first part in almost every assessment involves identifying the cause of deterioration and then looking at each individual architectural element that is at risk.

At Ensa, Achi architects collected information from the locals to conceptualize how damage occurred. Older villagers spoke of a spring located under the northern part of the assembly hall, and how in winters, the ground froze, turning into layers of ice. Sporadically, the water flow from the spring also flooded the assembly hall entrance. Due to the spring being underneath the entrance wall, it resulted in a shifting of the foundations. As the entire entrance hall started to shift, columns moved thirty-three centimeters at the height of the capitals, the upper part of the entrance wall of the assembly hall tilted, beams that supported the upper layer of bricks got disconnected from each other, and big cracks became visible in the wall near the entrance. Achi architects first stabilized the entrance room, breaking down the roof from above, so the northern columns could be moved, and the windows of the assembly hall reinstalled. The roof was in bad condition, so architects checked and repaired it with new earthen layers and shaped it to make slopes for drainage pipes (Vets 2016). Since the decay of the roof accelerated damage in other parts of the building as well, architects designed a parapet with waterspouts for effective waterproofing, which would require less maintenance (Ferrari & Sukman 2018). This not only prevented water incursions temporarily but was a farsighted move that will mean less maintenance over time for the community.

The eight-chorten building at Wanla was the site of another structural intervention. The building is situated on the traditional circumambulation path of the village, built on a ridge at Zomal, the oldest inhabited part of the village, facing the castle ruins found in Wanla. It gets its name from the eight different chortens that are inside the building. The building consists of a rectangular inner room, which is then surrounded by a 'veranda' where people circumambulate the shrine, and paintings approximately 110-120 years old cover the walls of the inner shrine (Vets et al. 2014). The building had been owned by the Kharpa family but was handed to the community of Zomal to gain more support for its conservation and upkeep. Due to the complexity of the problem, the owner and community asked Achi for assistance. The first series of efforts focused on stabilizing the structural

elements of the building. A structural assessment of the eight-chorten revealed several causes of instability: the rear wall of the inner structure and the large wooden screen leaned outward due to the thin supporting walls, made of single adobe, which were only twenty centimeters wide; the wooden supports of the balconies were inadequate; there was no supporting beam above the large opening of the wooden screen; the roof joints were interrupted at the rear wall; and the heavy load on the roof, with twenty to thirty centimeters of earth above it, contributed further to the structural weaknesses (Vets 2012, 82).

Prior to beginning restoration work, the chortens inside were first covered with protective layers made of soft foam and plastic sheets. All painted wall surfaces received two layers of Japanese paper in order to minimize mechanical damage during the propping procedure. Three rows of seven oblique props were positioned against the inclining wall and wooden screen. Plywood boards covered with insulation foam were attached to the props to protect the paintings. The parapets, the dirt, and the willow sticks were then removed from the roof. The roof joists were cautiously lifted out and the balcony constructions removed. As soon as the interior was exposed after the roof was removed, the painted walls and screen were covered with plastic sheets. The badly eroded walls of the outer structure were taken down while recuperating as many bricks as possible (Vets 2012, 85). This stage of the restoration process underscores the structural and historical decisions undertaken by Achi's architects, particularly in cases where interventions extend beyond cleaning and stabilization to include the sequential preservation, deconstruction, and conservation of elements. Even quotidian implications of tasks like brick removal posed a hazard to the century-old wall paintings. Thus, conservation, as much as being a linear execution of detailed planning, is also a dynamic environment where the movement of material is often an inherent risk to other elements of a building.

All the architectural restoration and conservation measures undertaken at the eight-chorten were done using traditional techniques and materials employed by local masons and craftsmen. The final report by the team explicitly identifies that the "project aimed to maintain its [the building's] authenticity of functions (Vets et al. 2014)." The epistemological gap surrounding restoration practices became evident in the misunderstandings Achi team members encountered on site. As one team member noted, "often they [locals] didn't understand why a certain part had to be preserved and others not, why we didn't use cement/concrete to reinforce the walls, why such an effort was necessary to safeguard the painted walls... they tended anyway to 'contemporary' techniques, a lot of times of 'inferior quality' (Vets 2012)." Structural stability and the religious value of the building were well understood and motivated the locals to join, but the significance traditional technique was viewed anachronistically. Architects remarked that Achi "must continue strenuously to transmit conservation strategies to the local communities and to support pride in traditional technical know-how by promoting the use of traditional building materials (Vets et al. 2014)." One way architects stressed this is, while parts of the building were being dismantled, all materials were stored for reuse, including red-painted willow twigs, and earthen bricks of the parapets, willow branches of the ceiling roof beam, flat boards in between the beams, adobe, and the wooden door (Vets 2012, 86). Building materials that might have otherwise been discarded or replaced, such as willow twigs, were preserved after conservators highlighted their historical value.

In rare instances where intervention by someone from outside of Ladakh has taken place, these measures have to be accounted for before implementing any new conservation procedures. At the Avalokiteshvara Temple in Wanla, photographer Benoy K. Behl, with some assistance from Indian army contractors, undertook repairs; he had also made similar interventions at the Phyang monastery. Although there was no

documentation, the extent of the work could be gauged by comparing photos of the site before and after, revealing the reconstruction and re-leveling of roof parapets, the re-laying of the roof to create new drainage positions, and the black plastic pipes that had been fitted as rainwater spouts to replace the traditional wood channels. Although the pipes installed were intended to stop water from gathering on the roof, they were too small and blocked by loose sediment washing down from the surface of the roof, whilst the pipes installed on the lantern discharged on the main roof. Furthermore, parapet walls above the side walls and original capping stones to all the parapet walls were removed and replaced with a tin sheet and capped with dirt. Both the tin sheets and the earthen capping were already cracking with pieces breaking off, which Achi architects deemed "visually and technically unsatisfactory (Oeter and Skedzuhn-Safir 2012, 133)."

Investigation of the roof by Achi architects found that the interior height of the apse — a large semicircular or polygonal recess that is arched or has a domed roof — was one meter lower than the height of the outside roof. Another issue was the massive weight on the roof, due to the layers of dirt that locals had kept on adding in attempts to seal the roof against water infiltration, which was now causing damage to the interior of the temple. This was pressing on an already broken painted beam and the ornamented coffered ceiling. Although architects installed auxiliary support structures underneath the broken beam and the coffered ceiling to prevent the roof from collapsing entirely, this support was deemed unfit to serve as a permanent solution, since it obstructed the view of the statues and paintings inside the building. The solution Achi architects Roland Pabel and Wolfgang Heusgen presented was to clear the top layers of the roof and install two independent, triangular, three-tiered metal carriers in the cleared space. This would redirect the weight away from the broken beam on the upper floor and support the secondary beams of the wooden ceiling, as well as the carriers. The first carrier, placed in close proximity to the stone wall, distributed the pressure downwards via the supporting walls, and the second carrier, placed next to the first one, supported the restored roof structure (Pabel 2012, 143). Achi architects chose a lightweight carrier made from corrosion-resistant aluminum alloys, developed by a company that specialized in heavy-duty carriers for concert stages in the Netherlands. The aluminum carrier was lightweight, supported 560 kilograms of weight, could be easily transported, and could be assembled on site. The architects stressed that the carriers would be "completely integrated into the structure of the multi-layered roof and remain invisible…only six bolt heads with the corresponding buffer elements for the suspension of the secondary beams in the ceiling would be noticeable from the inside (144)."

For a structure like the temple, removing any elements, such as the painted beams, is a loss of heritage. Here, restoration becomes a form of continuity, preserving architectural elements, even if they do not fulfill the structural purposes they were created for. Architects recognized that the temple still needed to fulfill religious and cultural purposes that required an unaltered view of its contents. The temple derives a part of its legitimacy from the sanctity generated through visual elements that guide a devotee or a visitor through the space, a creation of habitus within its premises. The "invisibility" of such interventions constitutes not merely an effort to preserve the visual integrity of the sacred landscape, but also a strategic means of maintaining the temple's functional role in facilitating religious practices that orient and mediate inward, experiential dimensions of devotion.

In some cases, in lieu of invisibility, Achi architects choose to "overlap (Ferrari 2023)." In the most recent conservation effort, at the Nyima Temple (nyi ma lha khang) in Mulbek, the roof and its load bearing beams needed to be restored. The new wooden elements, made from pre-cut buldu wood imported from Kashmir, were

used to replace deteriorated components. A customized wooden capital was crafted to integrate both the main and secondary new beam profiles with the original structure. This capital overlapped with the original beam, capital (kazhu), and pillar, creating a tailored connection (Ferrari 2023). The replication and blending into the vernacular created an effect of continuity, preserving the visual effect of the space on the devotee. The sourcing of materials from Kashmir represents a shift in conservation that is broadly representative of Ladakhi construction in general. Ladakh historically imported timber from Jammu and Kashmir, as Ladakh's environmental conditions do not lend to mass production of wood. However, the timber was fashioned in Ladakh, acquiring its vernacular form through the labor performed by a Ladakhi craftsman. As many Ladakhis move away from labor intensive work and with the injection of capital from the tourism industry, a consumerist culture of import has developed. Even today, Ladakhi architecture continues to retain elements of wood in their intricately carved windows, beams, and doors; but what was once localized, like many other things, can now be produced elsewhere. With better transportation, Ladakh is connected to a network of production that it can tap into and export ideas to. The result of this is a preservation of traditional architecture, albeit diminishing knowledge of local labor practices.

Wall Painting Conservation

Wall paintings, as mentioned earlier, are visual repositories and, alongside architectural elements, define the experience of a temple. While the passage of time is one reason wall paintings deteriorate, water incursions and soot from the burning of butter lamps indoors also accelerate the damage. Many temples and monasteries have constructed separate outdoor spaces for the burning of butter lamps; at Wanla, monks installed a vitrine outside the temple (Pfund 2012, 183). At the Nyima Temple at Mulbek, the temple interior was affected by the use of oil lamps, and by its use as a kitchen by an invading Dogra army in the 19th century, which covered large areas of the murals with soot and dust. Furthermore, in areas where water was penetrating the roof, clay slaked and formed clay runners running down the wall (Ferrari 2023). At the temples in Wanla, Ensa, Photoksar, and Mulbek, conservators encountered areas of flaking and detachment of paint layers along with cavities that had developed along the wall. It is important to consider that wall paintings may not be contemporaneous, as they were often created or retouched at different periods. At Ensa, conservators found different colors in the paintings and speculated that overpainting may have been done (Mitschke 2016).

Although the extent of damage to wall paintings varied from temple to temple, requiring site-specific interventions, the conservation reports reveal a notable consistency in approach. Here, I have selected the processes of wall painting conservation that are used in most projects. Prior to the commencement of wall painting conservation, structural stability must first be ensured. As such, the initial phase typically involves the secure consolidation of the wall paintings to prevent any damage during subsequent structural interventions. This is achieved through the temporary application of Japanese tissue paper, affixed using adhesives such as Tylose or Klucel (Ferrari 2023). Japanese tissue paper or *washi* is made from "traditional methods using materials that contain few impurities, is natural or alkaline, slow to deteriorate… and can be removed cleanly simply by adding moisture, returning the document [wall paintings] to its pre-repair state if necessary (IFLA Website)." In some cases, like at Mulbek, due to the instability caused during construction, architects may make the decision to install temporary boarding that shields the entire painting area from fall debris (Bühler 2022). Similarly, loose wall fragments are temporarily secured with cyclododecane, "a binding medium and adhesive that is fully reversible" (Rowe & Rozeik 2008). Its ability to "sublimate without residues" allowed conservators at Photoksar to speed up this process using a blow dryer and applying warm Shellsol T

— a popular, near-odorless mineral solvent — with a brush (Ferrari & Sukman 2018). Similar to the invisible structural interventions, the chemicals used in wall paintings are transitory and reversible, fully blending in and supporting the painting once applied.

Once paintings are secured, work can begin on other parts of the wall. First is the removal of portions of historic earthen fills that might cover original paint, which are mechanically removed after locally softening the areas with deionized water using a combination of blunt tools and dry cotton swabs. Because the paint is highly sensitive to water, overfilled areas are only slightly dampened and the layers of mud are then thinned or removed mechanically to the best possible extent. Better results are achieved when addressing mud deposits caused by water infiltration from roof leakages, as these layers are typically thinner and less firmly adhered to the paint surface. Cavities and voids that arise from the separation of coarse plaster are given injection grouting through the openings and cracks leading inwards. The cracks and losses are sealed with cotton, leaving a small hole for the catheter to enter before the grouting process to avoid any leakage or overflow and damage to the painted surfaces. In addition to the voids and cavities, certain areas that exhibit tenting of the paint layer are not flattened on account of inflicting further damage or loss. Such areas are consolidated by injecting grout of finer composition into the gap between the paint layer and plaster with the help of small surgical needles. Conservators also encounter fallen fragments of paintings of different sizes and set them aside for inspection. After close examination of walls, conservators can identify the area of origin of the fallen fragments and re-attach them to the walls using the coarse mortar at the base and filleting the edges with the fine mortar (Vets 2017).

In most reports, the cleaning process receives minimal documentation or discussion. However, Heike Pfund — an architect who has worked on numerous restoration projects with Achi — and Susanne Bosch devote a chapter to the process of wall painting conservation in the book *Against Forgetting* (2012). Although they write about this process in the context of the Avalokiteshvara Temple at Wanla, it can largely be extrapolated to the general procedures followed at other conservation sites. Cleaning is done in several steps:

> To begin, loose dirt was gently removed with soft paint brushes. Eraser sponges and mechanically reduced the dirt. Deposits of earthen material were also thinned mechanically, but had to be cleaned with water as a last step. This was due to the fact that earth can only be cleaned properly with water. The paintings' high-water sensitivity presented a significant challenge. These deposits had damaged the wall paintings and displayed losses varying from slight to total, affecting primer and plaster alike (181).

To deal with the soot that accumulated over almost eight centuries, conservators took the following steps:

> Thorough research and testing of cleaning agents had to be undertaken to find the appropriate agent and method to remove the black sooty layer without causing any harm to the highly water sensitive paintings. A major component of this black layer was fatty soot, which had accumulated over centuries on the ground floor walls. Fatty oil substances can be removed with organic solvents. The best results were achieved by using methyl ethyl ketone (MEK), which did not affect the paintings at all. Small cotton swabs were moistened with the solvent and softly rolled over the painting surface. This helped the dissolved soot move into the cotton, which we replaced with clean swabs repeatedly throughout the cleaning process (181).

The use of these scientifically trialed materials and methods speaks to how conservators understand the extent of their treatments. Like the "invisibility" of introduced architectural elements, applying cyclododecane and MEK, enhances to some

extent the originality of the paintings but does not alter them in any way. The objective of wall painting conservation work is the safeguarding and prolongation of the extant original.

Conservation in a Ritual Context

Most of the monuments with which Achi has engaged are living heritage sites that remain ritually functional and are affiliated with the various Tibetan Buddhist sects present in Ladakh. Architects and conservators must have an added dimension to their work that accounts for how conservation decisions interface with religious understanding. Temples are often communal by design, but the "ownership" is more akin to ritual responsibility than private property rights and held by a bigger monastery that is often the headquarters of a particular sect in Ladakh. For example, the temple of Ensa falls under the care of the Diskit monastery. All temples are integral to how the community imagines itself, fulfilling a religious need that is mediated by the clergy. If the temple is not treated carefully during conservation and restoration, the community could potentially experience harmful effects. Before a project can begin, high-ranking monks who are in-charge of the sites are consulted and asked for permission. For the projects at Skurbuchan and Photoksar, H.H. Kyabgön Chetsang Rinpoche — head of the Drikung lineage to which both sites belong — stood firmly behind the project and encouraged the community to give support (Vets 2017). The clergy's support provided legitimacy, enabling Achi to proceed with the conservation work while assuring the community that appropriate care would be taken throughout the process.

Temples in Ladakh are activated, living spaces where deities possess a divine agency, and monks perform daily rites to appease them. Prior to the start of restoration work, monks temporarily pause this agency by desacralizing the site. At the eight-chorten building in Wanla, restoration entailed a considerable risk of severe damage to the painted walls and chortens inside, so two Drikung monks, Lama Tsewang Chumpa and Könchok Richen Chupipa, performed the *Agra* ceremony to request the spirits of the paintings and chorten to leave the space and reside temporarily in a ritual mirror (me long). The ritual mirror, covered with cloth, was then stored in the house shrine (mchod khang) of the Kharpa family, the previous owners of the building. Furthermore, after this ceremony, all portable religious items were evacuated — hundreds of small sculptural votive offerings (tsha tsha), butter lamps, and other relics (Vets et al. 2014). The physical consolidation of wall paintings is cognate with the ritual intermission of the space; thus, conservation depends on the controlled creation of a vacated, secular environment. It is perhaps important to note that this does not equate to a deactivation of space; rather, it is the ceremonial transfer of the deities' agency, briefly, into another space.

However, even after acquiring permission from the religious clergy, differences in perception about conservation work can appear. During the cleaning of the Avalokitesvara temple in Wanla, a Rinpoche approached Achi conservators and explained that "removing soot also meant removing traces of prayers that have been left by monks for generations, as each person who had donated a butter lamp left traces of worship in the form of soot on the wall paintings… and it is very important to preserve the wall paintings, because with their age they had increased their powers (Pfund 2012, 185)." The insights provided by the monk added a chance to further expand how conservation should be handled in the Himalayan context. Conservators decided to consult high-ranking teachers within the order to develop an approach that integrated the technical process of cleaning wall paintings with their religious significance. The opportunity for discussions materialized during preparations for the Dalai Lama's Kalachakra teachings that were going to take place in Leh, the district capital. Concurrently, a one-week ceremony was held in Wanla with monks and ceremonial masters from Lamayuru,

giving conservators an opportunity to interview high-ranking teachers of the order and seek advice. Drupön Dawa Norbu, a meditation master and a high-ranking teacher from Lamayuru, engaged with the team, explaining "that the soot is powerfully charged in two ways: it represents numerous prayers of generations of believers, and is spiritually enhanced through direct contact with painted mandalas and deities…and the small cotton swabs used for cleaning should then be regarded as sacred and should not mix with ordinary waste. Here, conservators, even if they are not part of the religion, are directly in contact with how belief is constructed in the spaces they are working in. When asked how to proceed with the spiritually charged cotton swabs, Drupön Dawa Norbu identified two possibilities: "one appropriate action would be to bring the soot-saturated swabs to a secret place in the mountains, where the winds could take them in all directions…[or] hand over the swabs to the river, as the sacred cotton swabs had the power to pacify water deities." He also clarified that "wall paintings would not be less sacred or powerful after cleaning and consented that this activity should continue (186)." This allowed conservators to proceed while fulfilling religious obligations. Furthermore, following the completion of work and the handover of the site to the clergy, a ritual act may be conducted to mark the transition. In Nyoma, for instance, once the restoration of the vase or *bumpa* of the Kankani chorten was completed, Gen Könchok Motup whitewashed restored parts of the façade (Vets 2017).

Conclusion

The Achi archives contain an abundance of material that situates conservation in a complex and multifaceted range of perspectives. At its center, conservation is a negotiation of how a building is understood, retaining its ritual function rooted in long-standing tradition, while simultaneously imbuing a historicity through its material and architecture. Documents reveal that architects and conservators, working with lay devotees and the clergy, engaged in the epistemic co-creation of a space that allowed for both functions to be realized.

From the beginning of a project, community engagement is sought, starting from consultations on expectations to contributions in the forms of material and labor. In the conservation process, architects and conservators stress the use of traditional materials and methodologies, creating a value for techniques that have fallen out of favor in modern construction. In the materials that architects and conservators did import or add, care was given to structurally alter the building and apply chemicals that were easily reversible or indiscernible, so monks and devotees would return to using the space in the same ritual way as before. Architects and conservators had to be attuned to the multifaceted nature of their decisions, which, in addition to being technical, encompassed spiritual considerations and their broader implications. Recognizing the repercussions of the spiritual dimension often required consultations with local monks, devotees, and occasionally, higher-ranking monastic figures.

The multiple stakeholders and their respective perspectives are an entangled yet interconnected web of ideas that have to be contended with. Operating within this, Achi team members have engaged in conscientious research, producing voluminous amounts of data to inform their decision making. However, given the interdisciplinary nature of these archives and the siloed nature of research, their fullness and multidimensionality have not yet been explored. As climate change increasingly threatens heritage sites across the Himalaya and local expertise in traditional construction techniques diminishes, it is crucial to encourage interdisciplinary research. By examining successful conservation efforts, scholars and conservators can glean valuable insights that can guide future practices and foster resilience in preserving cultural heritage in the region.

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Endnote

1. Conservation efforts in Ladakh go beyond religious sites and include a wide range of historic buildings. A notable example is the Achi Association India's restoration of Choskor House, once owned by a prominent trading family that played a key role in the Leh-to-Lhasa caravan trade. Today, this building serves as the region's first conservation laboratory. Similarly, the Palay House, a traditional Ladakhi residence, has been transformed into a vibrant space for exhibitions, research, and education. Additionally, organizations like the Tibetan Heritage Fund (THF) have contributed significantly to restoration efforts, particularly in Leh's old quarter. In partnership with the Leh Old Town Initiative (LOTI), THF has restored several important buildings, including the Balay House, West Stupa Gate, Sankar Labrang, and the Rigsum Gonpo shrine.

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