The original of the article, published in October 2014 by Kapil Bisht, has been expanded for this SPECIAL REPRINT AFTER THE EARTHQUAKE by adding more pages, photos and technical information on why the Mandap has survived this time without any damage. For the monumental task of rebuilding at least some of Nepal's historical treasures, such examples of earthquake-safe design and construction should be very useful in the near future.

The Eight Cornered Gift: Why was the Mandap not destroyed this time?

by Götz Hagmüller and Suresh Shrestha

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Bhaktapur Durbar Square with the Chyasilin

The three Durbar Squares of the Kathmandu Valley captivate with the richness of their architectural heritage. But those who know what they were like before the 1934 earthquake also feel the loss when they look at them. In the late 1980s, two architects decided to rebuild one of Bhaktapur Durbar Square's most iconic buildings, the Chyasilin Mandap, in an effort to give back to the square its most gorgeous building.

Thirty years before his conquest of the Kathmandu Valley, Prithvi Narayan Shah was a guest at the court of Ranajit Malla, the last ruler of Bhaktapur (1722-1769). He stayed there for three years, which undoubtedly formed the basis for his desire to take the Valley. The young prince of Gorkha was enraptured by Bhaktapur's (and quite possibly that of Kathmandu's and Patan's) wealth and prosperity. The Valley's three Malla kingdoms were as fond, if not more, of making art as war. Their kings were not only patrons of art and literature but were themselves accomplished poets, dancers, and musicians. But he disliked this "softness [and the] empty pomp and pleasure" of the Malla court life.


The Chysilin Mandap and the Siddhi Laxmi temple

Of all the buildings on Bhaktapur Durbar Square, none reflected the Malla penchant for the arts more than the octagonal pavilion, the Chyasilin Mandap in front of the palace. It was where the Malla kings met with emissaries and other dignitaries. And from its ornate windows court ladies witnessed the festivals that took place on the square below. But its most celebrated function is known from a silapatra (stele) still on display there, which records a poetry competition between Bhupatindra Malla (Ranajit's father and king of Bhaktapur from 1696 to 1722) and his entourage. To the expansionist eyes of Prithvi Narayan Shah, there may have been something wrong with a king who exchanged verses with his ministers (and recorded them for posterity) instead of discussing military strategies.

But the Mandap wasn't built for poetry competitions. 'Chyasilin' means 'eight corners,' a reference to its eight-cornered roof. The Pavilion of the Eight Corners, had been built by Bhupatindra Malla to protect Bhaktapur's palace. Like most Malla kings, he was highly accomplished in the esoteric practice of Tantrism. According to local tradition, he built the Mandap to form a barrier between his palace and the opposite Shiva Temple in order to escape the "malicious" radiations believed to be coming from the yoni in the temple, which pointed north at his residence, the Fifty-Five Window Palace. Thus, the eight-cornered Mandap roof was thought to be the appropriate shape to deflect the yoni's radiations. When the Kathmandu Valley finally fell to Prithvi Narayan Shah in 1769, Kathmandu became the capital of his new Nepal, and Bhaktapur went into slow decline. During the late Rana era, the Chyasilin Mandap was turned into a tax office, an ignominious function for a building of its rich heritage and captivating architecture. Then, the earthquake of 1934 struck, reducing it to a pile of rubble.

The Jewel in the Crown

The mega earthquake had badly destroyed several of the buildings on Bhaktapur Durbar Square. Some remain to this day. Others disappeared altogether. The Mandap was one of them. There were several factors why it was not rebuilt. First, when it collapsed, the Fifty-Five Window Palace had long ceased to be a royal residence.


The Mandap's corner in 1885

Hence, there was no need to protect it against the harmful radiations from the Shiva Temple. Second, no royal patronage meant there were no funds for its reconstruction. Third, it was not a temple but a profane building. Its absence did not particularly reduce the sacredness of the square.


The Mandap's corner in 1990

"However, for us the Mandap was the jewel in the crown of the whole Durbar Square complex," says Götz Hagmüller, the architect who along with his colleague, Niels Gutschow, had proposed the reconstruction of the Chyasilin Mandap in 1987. To them, the jewel's absence from the square was not only conspicuous but poignant. They wanted to see the square in its Malla period glory. "We missed the 18th century overabundance of buildings on the square and wanted to re-establish the eight-cornered pavilion that once acted as a kind of hinge between the western and eastern parts of the square," they co-wrote in a recent unpublished essay. They also wished to resurrect the Mandap to make it accessible to everyone. "Alongside the urban conservation perspective, the openness and accessibility of the Mandap's first floor was another good reason to rebuild the lost structure."

Gutschow had been involved in Bhaktapur in 1971 with the renovation of the Pujari Math, the oldest of Bhaktapur's numerous pilgrims' hostels. Its successful renovation eventually led to the German government's involvement in the comprehensive Bhaktapur Development Project (BDP), which Hagmüller directed for several years. Later he became the initiator and architect of the Patan Museum and also restored the Garden of Dreams in Kathmandu, both with Austrian funding.

The renovation of the Pujari Math has an interesting history. When the announcement of then Prince Birendra's marriage was made in 1970, the German government was considering a suitable wedding gift. Heinrich Seemann, the First Secretary at the German Embassy in Kathmandu at the time, came up with a novel idea. Instead of the usual porcelain tea set or a new X-ray machine for a hospital, he suggested restoring a historical building. The idea was unanimously accepted. Seemann picked the building to be restored—the Pujari Math, which later also became the head office of BDP.

A Contentious Choice


The pavilion without any damage after the 2015 earthquake

Then in 1987 the German Chancellor Helmut Kohl came on an official visit to Nepal. That called for another gift to the people of Nepal. Again Heinrich Seemann, who now was the deputy chief of protocol in the German Ministry of Foreign Affairs in Bonn, suggested renovating another historical building, and asked Hagmüller and Gutschow to nominate one.

In proposing to reconstruct the Chyasilin Mandap, Hagmüller and Gutschow had suggested something that was widely seen among renovators and conservationists (certainly in the West) as a "distortion of history." But the Mandap was located in a country where Nature frequently ravaged most things historical. The duo understood that they were diverging off the customary path, but they "had no problem in justifying the reconstruction of a lost building in the context of an architectural reality that faces the prospect of earthquakes at any time."

Hurdles

The first door on which Hagmüller had to knock in order to get the go ahead was that of the Director General of the Department of Archaeology. Shaphalya Amatya was the incumbent at the time. "Amatya was a good friend of ours, and also a fierce one," recalls Hagmüller. "We really had to fight things out with him. But once he was convinced, he would pick up the phone and call the right people and get things done. When I told him we wanted to reconstruct the Mandap, we had an argument as expected. In line with international conservation guidelines, Amatya was a staunch opponent of rebuilding historical monuments that no longer existed. He also argued that the German money could be better used by renovating other historical buildings in Bhaktapur. However his major concern was that – to his knowledge – only drawings existed of the Mandap. What if the building was an artist's creation on paper? So I told him that the drawings were made after photographs and promised to show them next time."

The drawings (or rather, wood engravings) had been made after photographs taken by the French sociologist and traveler Gustave Le Bon in 1885. They were the proof the architects needed. Gutschow, who was in Germany at the time, got copies of the original photographs and sent them to Hagmüller. With the photographs finally on his desk, Amatya agreed to the proposal.

Old Photos, Original Parts

The photographs by Le Bon, and others by Perceval Brown (1908) and Giuseppe Tucci (circa 1930), provided an overall view.

There were also paintings by Henry Ambrose Oldfield, done in the 1850s, as well as those by an unidentified local painter. The architects even made conjectures based on the Bhaktapur Tower in Hanuman Dhoka Palace. (Prithvi Narayan Shah had built the tower, commissioning craftsmen from Bhaktapur to imitate the Mandap's design.)

But beside the historical pictures and photographs, the Mandap luckily existed also in the memories of elderly people. It was this that gave the project the perfect start. With the help of locals who had survived the 1934 earthquake, the team was able to find original fragments of the building. They located eight of the twelve original pillars and some of the capitals and lintels, which had been used in a shelter in Sallaghari, a forested hill west of Durbar Square. These parts were replaced by new ones, and the originals brought back to the project's workshop.

It was a great find. Apart from adding historical evidence and value to the building, these original timber components also became sources of reference in the making of new parts. But with that advantage came a tough task—replicating the many old parts which were lost. This was no small feat given the intricacy of their designs. And to make the carpenters' job even harder, there were pillars with some portions completely worn out. But the Bhaktapuri carpenters proved equal to the task, producing yet another masterpiece in a city renowned for its woodcraft. Besides the tremendously gifted artisans, the project benefited immensely from the expertise and dedication of the late Surendra Joshi, the architects' main local partner. In Joshi they had the project's overseer as well as a wonderful designer: his contributions were crucial to the success of the project.

Prefabricated Perfection

With all these resources at hand, Hagmüller and Gutschow were confident to pull off the tough task. "A high degree of approximation to the original design and shape of the building has been achieved in this reconstruction, mainly due to the fact that excellent photographs did exist and that authentic timber components could be re-used for at least 60% of the ground floor structure," they wrote. But they are quick to point out that the building's originality and accuracy are both mixed. "Nevertheless, a number of design decisions had to be made with little or no historical evidence to follow. Although we used the architectural vocabulary of the late Malla period, they remain speculative inventions oscillating between fact, fake and fiction."


Over 23,000 bricks were used in rebuilding the Mandap

Replicating the old design was not the only challenge. It was like putting together a jigsaw puzzle, with the added onus of recreating many parts of the puzzle. In some places, the original capitals had to be fitted onto new pillars. In others, it was the other way round. When the prefabricated pieces were finally assembled, they fitted perfectly: no glue, nail, or screw was used in joining the timber components. It was a coming together of the old and the new, and it was done with such skill that it is still hard to distinguish the two.

One particularly vexing task (and an excellent testament to the stellar artistry of the Bhaktapur carpenters) was the medallions on the capitals. They all showed a man and a woman on two horsebacks. However, there wasn't a single one of them that remained intact. No one knew what the couple did in the original. Did they gaze at each other? Hagmüller and Gutschow thought they embraced, but were not quite sure, and finally decided to let the carpenters use their imagination. As a result, each of the twelve couples is slightly different in their posture. The medallions were the finest achievement of the carpenters. The upper and lower halves of the riders were carved on two wooden beams above each other, and then fitted together to complete the medallion. Neither the beams nor the couples look like they have ever been separated.

Another problem was the accuracy of proportions, since no one knew how tall the building had been, or how wide. Once again Le Bon's photographs proved useful. "We had the height of the original pillars. We applied this measurement to the photographs and were able to determine the Mandap's original size. We got it right to the centimeter," says Hagmüller.

A Coming Together of Ancient Crafts


An exact 1:10 model of the Mandap

The restoration of this medieval building also required other ancient crafts. However, not all of them were flourishing like carpentry. Terracotta brick-making, for example, was teetering on the verge of disappearance even in the late 1980s: the family of brick-makers commissioned to make and carve the bricks was the last one remaining in Bhaktapur.

I learned that from a documentary film about the Mandap's reconstruction, which the architects had produced at the same time. It shows the brick-makers at work in a paddy field, from which they dug out the soil for the bricks.


The loving embrace to the couple meeting on horsebacks

Their technique is beautiful, an art. After watching mud-covered hands caress the lumps of earth lovingly into various shapes, it is easy to forget that these are after all bricks, something functional: they appear too beautiful to serve anything other than the observer's sense for aesthetics.


Bhaktapur Darbar Square, The Mandap and statue of the King Bhupatindra Malla on his pillar

"For three years, our workshop in the backyard of the palace became a tourist attraction," recalls Hagmüller. Talent was also tapped from beyond Bhaktapur. The bronze lions guarding the entrance to the pavilion were made by a father-and-son duo from Patan using the "lost wax" technique, and it was there that a Tamrakar, or coppersmith, fashioned the gilded gajur, or finial, crowning the Mandap.

The architects finally donated an exact brass copy of this gajur to the Patan Museum, as a token of the worldwide renown Patan enjoys for its excellence in traditional metal crafts.

The Stamp of "Our Time"


The four pillars on the ground floor

Although the Chyasilin Mandap may have helped to protect Bhaktapur's rulers from perceived harm, it was its over-ambitious design that became the cause of its destruction. Top-heavy, with a bulbous first floor resting on slender wooden pillars, it had had no chance against the devastating earthquake of 1934. Not wanting that to happen again, the architects got support of Dr. Walther Mann, who at the time was Europe's most eminent export in earthquake-resistant buildings. He designed the seismic-proof structure, which features an internal framework of pillars and trusses bolted at the joints and planted in a deep concrete foundation. The four inner steel columns rising from this foundation were encased in concrete, however replication the neo-classical-style brick sheathing done during the Rana period. Thus, the modern steel structure is not visible at all on the ground floor, whereas higher up and on the first floor the steel segments have been deliberately exposed.

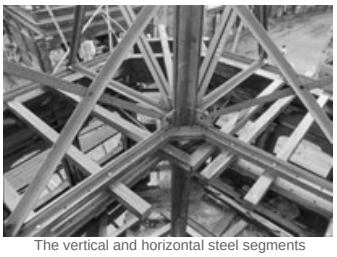

the earthquake - proof steel structure

Obviously, the architects had to deal with two conflicting tenets of international conservation standards. *"On the one hand, in terms of western conservation ideology, we committed a major sacrilege by producing copies of the extant architectural fragments, including figural details. But not showing a visible distinction that marks the transition from old to new would be a 'falsification of history.'"*

"On the other hand, we agreed to the tenet that if you do have to rebuild a part that has been lost, you need to put in a 'stamp of your time'. There shouldn't be room for mistaking something new as original." To avoid this, the year of the reconstruction (1990) was stamped on four gold-plated bolt heads near the staircase, and the steel structure was exposed at least partially. But even a time-telling feature is not enough, as Hagmüller later learned. *"There was some criticism, mostly from local architects, against my use of visible steel in the Patan Museum. But there were no negative reactions to the steel segments in the Mandap."*


Steel structure completed in 1987

The decision to reconstruct a building, that has decayed or was destroyed by natural forces, is not always contentious. Perhaps to make a case for such endeavors, Hagmüller put forth the example of Japan's famous Ise Shrine, which has been rebuilt every generation for centuries. "Nothing in that building is original, except the design. It raises the question: What is authentic? It's not about the material; it's about its history and design." Gutschow believes the richness of the Newar building tradition, which has been handed down from one generation to the next so remarkably well, justifies reconstructions. "We knew that the crafts were not dead but alive. To attach authenticity to form and material is propagated by western societies. We think that the skills of Newar carpenters and brick-makers are authentic. Their hands replicate what their great-grandfathers once built."


The vertical and horizontal steel segments

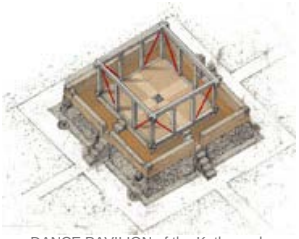
I recalled the documentary film on the project and the sun-darkened brick-makers shown in it, the deft movements of their mud-slathered hands. The background sound for much of the film was the knocks and clangs of hammers and chisels. And I realized how bringing back the Mandap from the past had encouraged so many crafts and skills. The Chyasilin Mandap stands as a larger than life symbol of heritage, of skills passed down from father to son, a spirit that lives inside men and women, one that no earthquake can obliterate.

But a couple of years ago the authorities closed the Mandap to the public, citing reasons ranging

from drug dealing in the Mandap at night to its takeover by lovers. Whatever the reasons (and they are all weak), this decision has prevented Nepalis and Bhaktapur's many tourists from enjoying a gift that was given to them by the German government. Needless to say, Hagmüller and Gutschow deplore this: They, and the scores of people who gave three years of their lives to the restoration, did not imagine seeing the Mandap locked up. Opening it again to the public will allow everyone to appreciate the rich heritage of Bhaktapur's craftsmanship. Or, if the fancy takes them, to revive the Malla penchant for poetry, to sit in the Mandap reciting a few verses, or just looking out at the square.

DANCING WITH QUAKES

One special example for simple seismic-resistance design is the DANCE PAVILION of the Kathmandu University Music School at Bhaktapur's Chupin Ghat, which has survived the earhquake without any damage (just as the Patan Museum).



DANCE PAVILION of the Kathmandu University
Music School

Built in 2001, the design follows the traditional style of Newari temples and shrines but has none of the usual supportive brick walls or internal pillars as the double-tiered roof simply rest on its 12 external columns. However, these are braced against each other with diagonal but hardly visible iron rods (highlighted in red colour) to cope with the horizontal shocks of a quake.

In addition the horizontal roof beams are similarly tied together inside, with iron rods of 1 cm diameter: the simplest and cheapest device to make even such a timber building structurally resistant and, at the same time, to keep it open on all four sides for an audience sitting around under the eaves of its roof.

After the quake, which damaged the main buildings of the Music School, most of their important contents were immediately stored in the Dance Pavilion to safeguard records, in particular the precious musical instruments.