An Introduction to the Bramayani Conservation Project, Panauti

—John Sanday

Panauti which is located about 14 miles South – East of Kathmandu in the district of Kavre Palanchowk in Bagmati Zone has its own entity. Although it is not certain when this small city came into existence, it is mentioned in inscriptions which date back about 600 years. As a result of poor communication the central administration at Kathmandu found it difficult to control the day to day activities in Panauti and therefore when, in the 15th century A. D., one of the Malla kings divided the kingdom into four parts; Panauti came under the control of Banepa, one of the four petty kingdoms. Later on when the king of Banepa was without heir the king of Bhaktapur took over Banepa and along with it Panauti. This arrangement lasted until King Prithvi Narayan Shah brought about the unification of Nepal in the year 1770 A. D. (B.S. 1820).

Today Panauti, although a little distant from the main through-fare, is an important commercial and religious centre. This is because of its sitting on the intersection of several commercial routes and its sitting on the confluence of two important rivers, the Punyamati and the Roshi Khola which meet at the Eastern end of the town. The importance of this confluence is emphasised by the religious activities and buildings that form an important architectural group known as the Triveni Ghat. A third canal has been formed linking the two rivers to accentuate this group's religious importance. Every 12 years a large festival, the Makar Mela, takes place at the Triveni Ghat attracting thousands of Pilgrims. During the Sukla Purnima festival, each year there is also an important religious festival. The Bramayani Temple which is located on the Northern bank of the Punyamati River standing outside the religious triangle of the Triveni Ghat is set against the backdrop of a wooded hill overlooking the river.

The date of construction and the building of this temple is not known but it represents a fine example of early Newar architecure. It is likely that it was constructed in the late 1600's as there is an inscription recording its renovation by King Ranjit Malla in 1720 A.D. The temple has a three tiered roof with originally, an open cella containing Bramayani surrounded by the Astha Matrikas The interior is of unusual construction in that it is completely open with a high lantern style ceiling over the main shrine that is plastered and decorated with wall paintings. Later in its history, the enclosing walls to the shrine were added.

The roofs are supported of carved roof struts and covered with the traditional Jhingoti roof tile. The topmost roof is crowned with a gilded copper pinnacle or Gajur. There is a proliferation of fine carving to be found in the windows - the centre of the windows has a beautifully carved head of a divinity and a complicated cornice. The later carvings at ground level are of inferior quality. The temple, together with its religious functions, is under the control of the Guthi Sansthan - a national religious organisation whose duty is to undertake the religious functions and upkeep of the majority of the temples in the Valley. The temple has been donated eight ropanis of land to provide income for such.

According to the principles established in the Hanuman Dhoka Conservation Project which are set out in detail in Building Conservation Handbook,an administrative staff was appointed from the Department of Archaeology consisting of a Project Officer and supervisors. They were supported with technical advice from the Chief Conservation Officer and the Author. A team of skilled foremen craftsmen who have been trained under similar projects were deputed to Panauti with of skilled craftsmen. This team was augmented by local people with a view to training them for further activities in Panauti.

In accordance with the principles established for the programme for the Conservation of the Cultural Heritage of the Kathmandu Valley, H.M. Govt. matched all incoming funds with a 25·/. contribution towards the cost of renovation and repair.

During the initial stages of the work, after the structure had been completely scaffolded and all unstable sections of the building had been carefully removed, a through inspection was made of what remained of the structure. Because of the collapse of at least 75% of the roofs, the sttructural core had been exposed to the elements causing considerable degradation to the timbers and brickwork.

The uppermost structural core of brickwork, which was built off timber cross beams was sound to be in a critical state as one of the main timber beams supporting it had fractured completely. It was therefore decided to dismantle this upper section of brickwork and to insert a new timber beam. The intermediate structure appeared in sound condition but further major structural failure was detected at the base of the building. At the base of the structure, there is an inner and outer line of support; the outer structure consisting of brick walls with a later infil of windows and doors. The walls rise to a height of approximately 3 metres, and only give central support to the lower roof. The foundation to this line of structure were minimal but the load that this brickwork was supporting was not all that great. However, the inner line of structure, consisting of four 25 cms square columns supported all the remaining structure, including the topmost brick core; the total height of which exceeded 20 metres. Measurements were taken from a datum and it was found that the columns supporting this load had settled in one place at least 8 cms below the original datum. This had caused differential settlement and therefore the loading, which was estimated at approximately 17 tons per column has become uneven. Instructions were given to expose the foundations beneath the columns, and it was discovered that they were virtually nonexistent. The timber columns were set on a padstone approximately 30 cms square in plan which was balanced on a few stone boulders. It was discovered that the clay subsoil had little bearing capacity

for such point loads, a condition that was aggravated because there appeared to be an underground spring or stream which passed directly through the temple. There was indeed a chronic situation which is unusual in such buildings as the Newars who were responsible for constructing this temple are generally renowned for their sound foundations. When questioned, the local priest said that the foundations were built off a Puja (a prayer). Prior to the construction of any building particularily of a religious nature, it is normal for a series of religious rights to be performed to establish a sound base for construction. Obviously in this case with the offering of food and flowers, religion was considered sufficient. It was remarkable that the building had survived so long.

A new foundation for the columns was designed and calculated. Afterwards it was discovered that only minimal excavations were permitted, as under no circumstances could any of the divinities, of which there are many, be disturbed within the sanctum. The proposal therefore of inserting a ring foundation had to be abandoned despite negotiations with the local priest and it was finally decided insert a large pad foundation under each individual column.

Prior to the insertion of these foundation pads, the whole of the central core of the structure had to be shored into position, and attempts at this stage were made to try and jack the structure back into its original position. Great care had to be taken during all these operations not to disturb the fresco which lined the upper walls of the sanctum as the divinities depicted on them could not be unsolved. Attempts therefore at rectifying the structure had to be abandoned. After the whole structure had been correctly braced and shored, and area of 1 metre square and 20cms deep was excavated beneath the existing padstone to the timber columns. A cage of reinforcing steel was carefully set under the columns and pad stone, and a concrete mix was floated a few millimeters above the padstone to avoid any settlement once the temporary supports had been removed. Two columns were consolidated at a time allowing a period of two weeks to elapse to ensure the maximum curing of the concrete. After the foundation work was satisfactorily completed the process of renovation started from the topmost part of the building downwards could commence.

Once the major structural problems had been overcome, the rapair of carving, the re-construction of the roofs, and the consolidation of the brickwork, took its course, starting with the topmost roof. During the intervening period, much of the preparatory work for the construction of the roofs had been undertaken. All the rafters, wall plates, fascia boads etc. had already been prepared ready for re-assembly. Similarly, the carvers had been working on the careful repair of the carved windows and other decorative features, including the supporting roof struts, all operations starting from the top and working downwards. Any exposed brickwork was re-constructed using the special slip-glazed bricks, a traditional form of brick facing which had been used in the original building.

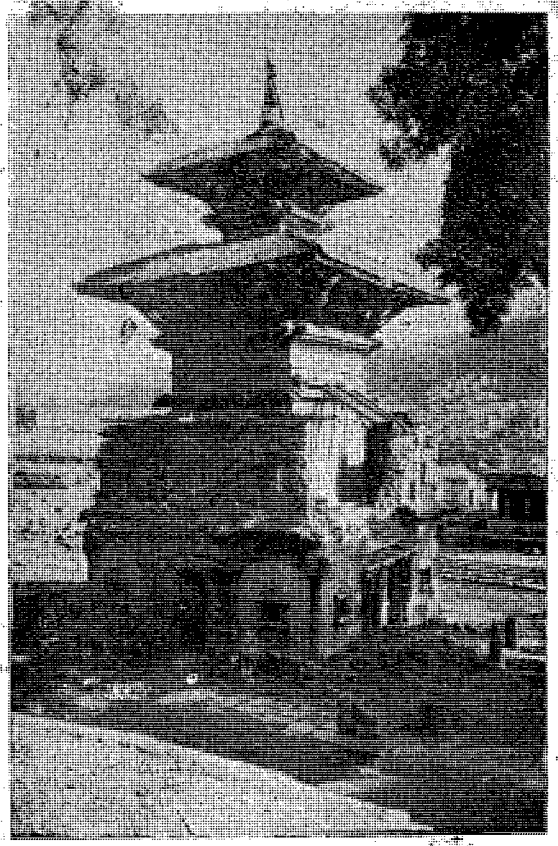
A careful check was made on the structural integrity of the walls which are normally structurally consolidated with interlocking timbers. All timbers were checked and any weaknesses were strengthened by the insertion of iron cramps. Before any work could commence on the second roof, the upper roof had to be completed in its entirety, even to the replacement of the guided copper pinnacle (gajur) which had also

undergone cleaning and restoration. This could only take place after the special roof tiles (jhingathi) had been laid. The special technique of laying these tiles, evolved in the Hanuman Dhoka Project and recorded in the Conservation Hand Book was closely followed. A similar procedure followed to reconstruct the middle roof. Again the timber structure was carefully examined. It was considered unnecessary to consolidate the central brick core at this level with a concrete ring beam as had originally been intended, because both the brickwork and the timber were still in sound condition. Minor strengthening to the structural timbers was carried out using iron clamps. The majority of the carving and the reconstruction work took place below the lower roof. The outer wall was in very severely damaged condition, although the enclosed timber structure was in a reasonably sound condition. All defective timbers were removed and replaced with new, whilst the brickwork was consolidated and new face brickwork (Telia Int) was incorporated. Prior to this work commencing, the delicately carved windows had been removed and had been cleaned, repaired and treated with chemicals. Once consolidation to this section of wall had taken place, the new roof was laid and the finely carved struts, which had been in storagn since the earlier collapse of the roof, had undergone repair, cleaning and conservation. One particular strut which had fractured, and therefore become structurally useless, was supported from behind by a specially designed steel cradle which transferred the load from the roof to the wall. This was an innovation that has proved highly successful, and one technique that will be used no doubt, in similar situations elsewhere.

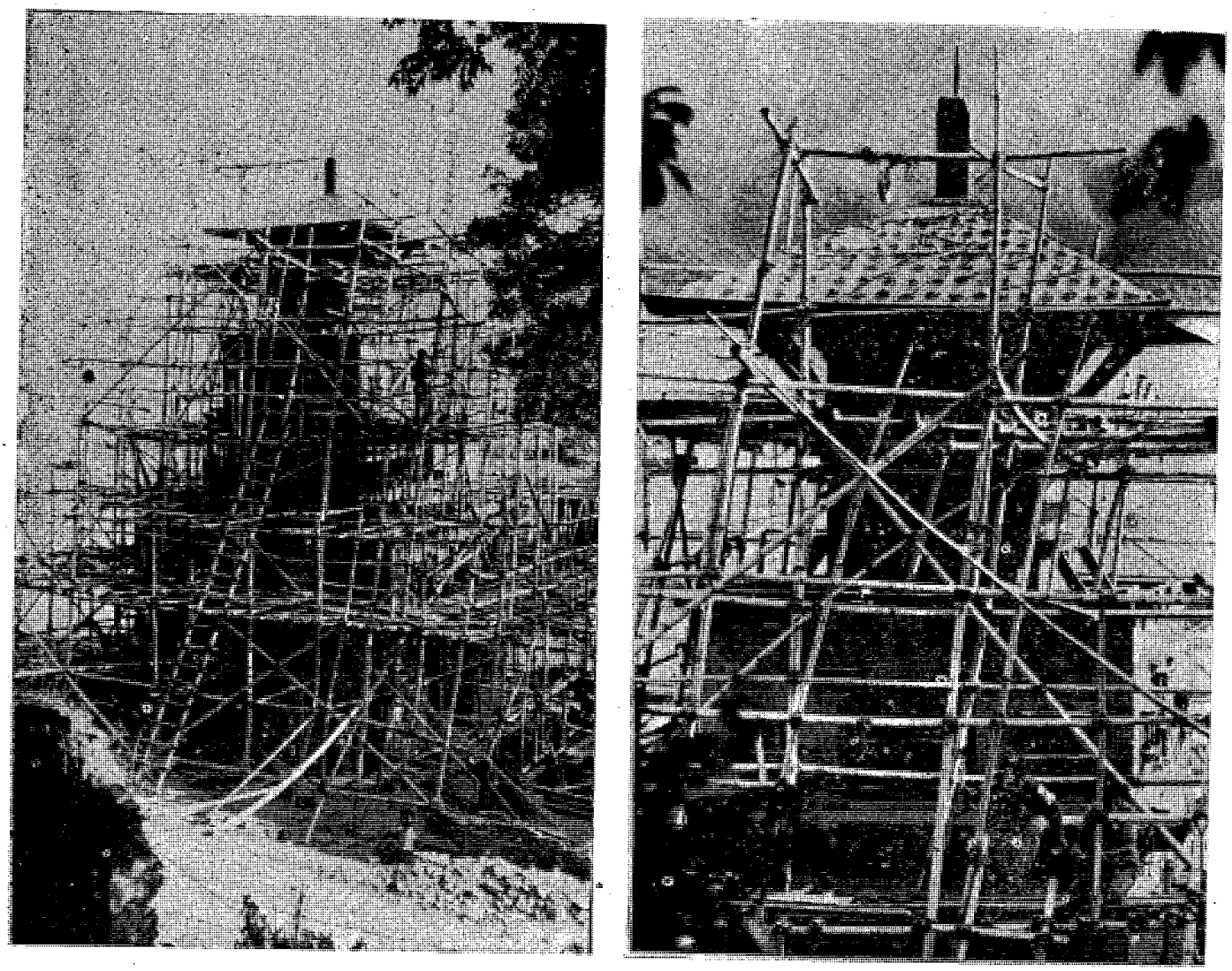
Most of the carvings that had fallen from the building were eventually rescued and put in store. However, many of them had remained under the debris and had become severely degraded by fungal attack and saturation. During the dismantling of the remaining roofs and walls, all identifiable pieces were located and referenced to facilitate their reinstallment in their original positions Each piece of carving was thoroughly checked over and decisions were made by the craftsmen as to whether they could be satisfactorily strengthened and repaired or otherwise needed replacement. The principle was soon established that wherever possible, the original timbers should always be re-used and any new carving that was necessary could only be copied from an original matching piece. The theory is that, as the majority of decoration on these temples is either geometric or of vegetal design, it is on the most part repetative, and where large sections of such decoration are missing, often the symmetry or texture of the facade is dramatically altered if such sections are missing. However in the case of carved figures, especially of divinities, special efforts are always made to strengthen and consolidate them – a good example of this was the cradling of the damaged carved strut.

All the wood carvings were carefully cleaned by a team of specially trained semi-skilled female labourers, and all the carvings were treated either by bathing or spraying them with a chemical fungicide and insecticide. The chemical used was Wykamol Plus which was imported in concentrate form and bulked up using kerosene, 1 part of chemical to 9 parts kerosene.

As already mentioned, much of the carpentry work was planned and executed well in advance, so as not to hold up the progress of the work. All the timbers to the roof followed the orignal construction in both size and proportion, and s'ight modifica-



Before Conservation: Bramayani Temple, Panauti



During Conservation; Bramayani Temple, Panauti

After Conservation, Bramayani Temple, Panauti

tions were carried out on some of the carpentry joints to strengthen the overall structure. Again all timbers including the roof boarding were throughly treated in a bath of chemicals to prevent further fungal and beetle attack.

Under the supervision of a trained chemist from the Dept. of Archaeology, the wall paintings above the sanctum were carefully cleaned and chemically treated. They were badly dust and disfigured with coating of dist as well as splatterings of dried blood.

The most important outcome of this project, besides the repair and conservation of one of the more important religious shrines in Panauti, has been the training and the development of both the administrative and technical staff.

The administrative team were all new to this type of work, and they were faced with one of the most difficult projects so far undertaken. Notwithstanding the problems of distance, acquisition of materials, as well as maintaining a work force, there were some unusual and complicated structural problems to solve. Panauti is an important cultural centre, – a backwater of the main activities centered on the Kathmandu Valley itself. The buildings particularly the religious structures are in a very poor state of repair and are centainly lacking in maintenance. With the establisbment of the Bramayani Consevation Project, a certain awareness has crept into the town, and there are already plans to continue the conservation activities on a small Bhairab temple, as well as proposals for launching a major renovation programme for the Indreswar Mahadev, one of the most important as well as the largest temples associated with the Kathmandu Valley Programme. Like many other projects which are part of the Programme for the Conservation of the Kathmandu Valley. The Bramayani project has helped to disseminate information and ideas that are related to the importance of maintaining the cultural identity of Nepal.