ARCHITECTURAL CONSERVATION OF PAHARPUR AND BAGERHAT

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The importance of preserving historical buildings is very great, for these are not only the infallible evidence of unrecorded history but they faithfully reflect the cultural attainments of people in different ages. However, their protection and preservation as heirlooms of the past cannot be totally divorced from the immediate environment in which they were built. It is, therefore, equally important to protect the environment of a monument or group of monuments from unplanned development in the area. The environment may be adversely affected by various factors: encroachment by squatters, vendors, beggars and the like, or by atmospheric pollution, industrial developments, and unplanned building activities. The tranquil landscape of an agrarian belt around a monument may be seriously threatened by urban expansion, sometimes with smart highrise buildings, as against construction in the traditional building style.

Legislative Provisions for Protection

The protection of the environment of a monument is not possible without suitable legislation. Ideally this should be done by a type of legislation with the least punitive provisions, which otherwise might give rise to unfriendly, if not hostile, attitudes towards the monuments by the people, which is undesirable. Besides, the increasing modern trend is to encourage the enlistment of sympathy and cooperation of the local people for the protection of an historical monument. The people around must be made to feel that the protected monument is an integral part of their daily life which is still useful and not as an expensive luxury of no good to the common man. However, unfortunately too often it is felt that rigorous punitive provisions in the Antiquities Law are necessary for the monuments' protection, such as the imposition of fines, the power of compulsory acquisition or the power to demolish incongruous structures within the conservation area.
In Bangladesh responsibilities for the protection and preservation of listed monuments, for excavation, survey, control of traffic in movable antiquities, regulating foreign excavation missions and establishing site museums, are entrusted by law to the Department of Archeology and Museums. It has to protect and conserve 229 protected monuments and old sites for which about one million taka is annually allocated. This imbalance between resources and the number of monuments accounts largely for the inattention paid to many monuments and sites. There are a number of legal provisions to guide the Department's activities, such as the Antiquities Act of 1968, the Archeological Works Code of 1938, the Treasure Trove Act of 1878, and the Manual of Conservation of 1922. The pattern is more or less the same in India, Pakistan and Sri Lanka, all introduced in British India about a hundred years ago.

The Archeological Survey of India, of which the Bangladesh Archeological Department is an heir, was established in 1861 and General Cunningham (1861-1883) is regarded as the Father of Archeological Survey in the sub-continent. With the appointment of Sir John Marshall as the Director General of the Archeological Survey of India, a new era dawned in the field of preservation of historical monuments. The broad principles he laid down in 1922, elaborated later in his Manual for the repair and preservation of monuments, is still more or less followed in India, Pakistan, Bangladesh and Sri Lanka. He defined his policy succinctly in the following statement, "The object ... is not to reproduce what has been defaced or destroyed, but to save what is left from further injury or decay, and to preserve it as a heirloom for posterity". Further he insisted that, ... "(i) hypothetical restorations are unwarranted, unless they are essential to the stability of a building; (ii) every original member of a building should be preserved intact, and demolition and reconstruction should be undertaken only if the structure could not be otherwise maintained, (iii) restoration of carved stones, carved wood or plaster moulding should be undertaken only if the artisans are able to attain the excellence of the old; and (iv) in no case should mythological or other scenes be recreated". He established the practice of making detailed documentation (photographs, drawing, conservation notes) of a monument before and after its repair.

Bangladesh is heir to a rich archeological heritage, extending over two thousand years, representing Hindu, Buddhist, Islamic and the British epochs. These are as varied in character as they are historically important.

Topographically, Bangladesh is one of the largest deltas in the world, occupying a landmass of 55,598 square miles. The entire country is criss-crossed by a network of rivers. Their enormous quantities of fertilizing silt carried from upstream enrich the soil but at the same time the rivers cause
untold suffering by devastating floods and by engulfing settlements and monuments in their ever-shifting beds. However, these factors of climate and topography, more than anything else, conditioned the development of the building arts in this land.

Obstacles to Preservation

Natural agencies causing degradation to old buildings are waterlogging, salinity and rank vegetal growth in our semitropical humid climate. Heavy monsoon rains, flooding the countryside for the best part of a year, often form small pools of water against a building causing dampness and damage to its foundation. Rising damp due to a high water table or seasonal inundation and the resultant heavy sulphate or salt attack, recycling themselves through the fabric of the building, cause serious degradation. The growth of lichen and moss not only disfigure the monuments and their decoration but are also responsible for considerable erosion to the brickwork.

Being predominantly an alluvial country without great resources of stone or timber, brick has been the chief building material in Bangladesh through all ages. Most of the pre-Muslim buildings were built with perishable but indigenous materials such as mud, bamboo, reed and wood. (Only the more pretentious buildings were constructed of kiln-burnt brick, laid in mud mortar). Due to heavy monsoon rains, most of these monuments built with fragile and easily perishable materials have crumbled to the ground.

Deliberate destruction by man has also been extensive. Many monuments, which might otherwise have escaped natural destruction, were deliberately pulled down by a new conqueror, either to satisfy his iconoclastic zeal or to secure ready materials for the erection and embellishment of his own edifices. Age-old vandalism to ancient monuments and jungle-clad mounds for treasure-hunting or the illegal extraction of bricks, is a common phenomenon. With the increased building activities in the country after independence, bricks, especially ancient fired bricks, became treasures overnight for their market value. As a result the ancient mounds, which so long remained untouched because of superstition, became targets of wholesale looting.

Bangladesh has one of the highest population densities in the world. With its alarming growth and constant pressure on the extremely limited land, the government faces great difficulty in meeting food requirements. It had to launch the ‘Grow More Food’ campaign which, although it is an admirable drive, has meant that the fallow infertile mounds which cover
the remains of ancient habitations are reclaimed daily for increased food production.

There is a new growing threat to the monuments of religious character, such as mosques, temples and stupas which are still in use. The leaders of many social and religious groups, often in misguided zeal or motivated by self-advancement, are keen to restore, renovate, enlarge and modernize the 'ugly' old monuments by giving them a smart modern look; they thereby strip them of their original character.

Paharpur

At the Paharpur Buddhist Vihara in north Bengal — the most spectacular pre-Islamic monument of the country (8th century A.D.) and the largest single Buddhist monastery in Asia — waterlogging and salinity are the chief causes of degradation. The vast courtyard of the monastery, enclosed within 16 feet thick walls, is now a rain catchment area, created by the excavation of an enormous quantity of earth accumulated in last one thousand years. In the height of the monsoon the central cruciform temple seems to float in a vast sheet of trapped water which fails to drain outside, for the surrounding level of ground has risen considerably due to centuries of soil formation. This has not only undermined the foundation of the lofty central shrine but has also contributed towards the decay and disfigurement of the terracotta and stone sculptures adorning the base of the monument. As a matter of fact, the present level of the monastery courtyard needs to be lowered a further one and a half metres in order to expose the beautiful stone sculptures now buried under the ground, because these were originally a part of the scheme of decoration of the temple wall. However, if the present ground level is lowered further, the situation is bound to be aggravated during the rainy season from June to September, unless some device is adopted to drain out the trapped rainwater.

After carefully studying the major climatic parameters for the area — relative humidity, evaporation, and rainfall — and monitoring the water level hydrograph, a 5-year drainage scheme was prepared for the site by a UNESCO consultant, funded by the UNDP, and begun in 1987. It consisted of excavating the courtyard to a depth of one and half metres with a gradient toward the south-west where a masonry pool, acting as sump, would receive the rain and ground water discharge. The large volume of runoff water during the monsoon, collected by gravity flow from a network of sub-surface drains, will be pumped out constantly by a submersible pump to the outer perimeter drain which eventually will discharge into a beel, located south-east of the monastery. At present the outer perimeter
Pabarpur Buddhist Vibara. Built in the 8th century AD, it is the largest Buddhist monastery in Asia and Bangladesh's most spectacular pre-Islamic monument. UNESCO has funded a drainage scheme to correct waterlogging and salinity affecting this monument.

Plan of Buddhist Vibara at Pabarpur (Incomplete)
drain has almost been completed. It consists of excavating a strip 46 feet wide along the outer perimeter wall of the monastery on all four sides in different gradients.

Besides these perimeter drainage operations, the huge volumes of excavated debris of 1934 have been removed to a uniform distance of 50 feet away from the monastery wall, to form an earth wall around the site to be developed later as a pedestrian walkway.

During the monsoon season some of the water manages to run off the temple building, but a considerable volume of water percolates through open areas and is absorbed into the main body of the structure. In order to prevent that, a series of 10 inch thick concrete slabs were inserted earlier in the open spaces and the procession paths. These were covered under brick chips and earth with gradients to the corners where earthen pipes, embedded in the masonry, took off the water quickly to the drain around the temple base. All these are now concealed under earth and grass. In the course of time some of these earthen pipes have become clogged and unserviceable. The present proposal therefore is to remove the present capping to the monument and lay a waterproof membrane, encased in concrete, in such a way as to control the collection of rainwater. This waterproof barrier then will be re-capped with random brick and grass cover.

Although it is not advisable to undertake large-scale restoration work of the temple, the original form of whose upper damaged part is unknown, it is certainly necessary to reconstruct, wherever possible, some building features still traceable, such as cornices, string courses, and wall cappings. It is particularly necessary to rebuild certain critical areas of the central temple, such as the entry sections where evidence of a former cornice is still visible, in order to protect them from the copious runoff from the catchment areas above. Similarly on some of the lower parts, capping and cornices can be reconstructed above the rows of terracotta sculptures in order to prevent the collected rainwater from running over them.

One of the main emphases of the restoration and preservation of the Paharpur monastery is to protect its original peaceful rural environment. The Master plan for Paharpur, prepared in 1983, strongly stressed the need to secure a belt of farmland immediately surrounding the monument in order to ensure that the view within the present ‘tree-horizon’ is maintained as rural landscape. It is all the more imperative in view of the fact that sooner or later the coal and limestone deposits found in the area around Jaipurhat are bound to be exploited.
Bagerhat

In the inhospitable mangrove forest of the Sundarbans, a prosperous township was systematically laid out in mid-fifteenth century by an obscure warrior-saint, known from his inscription as Ulugh Khan Jahan, at the present site of Bagerhat. This small township sprawls abandoned along the bank of the Bhairab river on an earlier settlement about five hundred years old, then known as the mint town of Khalifatabad. Khan Jahan adorned his capital city with many magnificent mosques, bridges, roads, and other public buildings in an astonishingly short period, the desolate ruins of which may still be seen for miles around, half-hidden in luxuriant coconut and palm groves.

The architectural style introduced by Khan Jahan is an uncommon blending of indigenous elements with the imperial style of Delhi — at a time when the political and cultural life of independent Muslim Bengal clung obstinately to its provincial individuality.

In Bagerhat there are scattered vestiges of many surviving single-domed and multi-domed mosques besides the great Shait-Gumbad Mosque (the largest in Bangladesh) and the mausoleum of Khan Jahan.

This magnificent group of monuments stands distinctly apart from other contemporary monuments in Bangladesh and may fittingly be de-
Bagerhat, Chunakbola Mosque: shown before conservation, this 15th century Mosque is part of the township described as the eastern version of the Tughlaq architecture of Delhi. The Chunakbola Mosque after restoration, showing the blending of indigenous elements with the imperial style of Delhi. In Bagerhat as at Lalbagh Fort, rising damp has been counteracted by the infusion of silicone solution into the lower walls.

scribed as the eastern version of the Tughlaq architecture of Delhi, bearing a particular affinity to the Kalan and Khirki mosques near Delhi, built a century earlier. However, regional elements evolved in Bagerhat, such as the curvilinear cornice and the terracotta adornment, make this group a significant milestone in the history of this particular style of architecture in Bangladesh.

The principal factor responsible for the rapid decay and disintegration of these monuments is the extreme salinity in the area. This low-lying zone close to the sea-coast is subject to regular salt water flooding with the ebb and flow of the sea. In addition, the floor levels of all these monuments are, curiously, built in level with the surrounding low countryside. As a result, the buildings perpetually remain saturated with salt-laden moisture, the corrosive effect of which is very apparent on the brick walls and stone columns which often buckle or cave in.

In order to counteract the corrosive effect of salinity, the Department has successfully carried out a number of simple but effective experiments to arrest the rising damp in the walls of two badly affected monuments in Bagerhat and at the Lalbagh Fort with excellent results. The first method was the transfusion of damp-proof silicone solution which permeates the wall at low level and forms an impenetrable barrier, for the silicone breaks down the process of capillary attraction that causes the dampness to rise.

The second test, aimed at preventing the extensive erosion on the brick face caused by the transfer of salts into the new brickwork, was the insertion of heavy duty polythene sheets as an impervious vertical barrier
between the old and the new brickwork. It effectively prevents the crystallization cycle of the waterborne salts. The deleterious salts afterwards will need to be leached out of the bricks, and the brickwork consolidated and protected against further sulphate attack.

**Other Projects**

Conservation efforts of the Department of Archeology have been executed in last few years at the Bagha, Kusumbha and Khania Dighi Mosques in Rajshahi, the Gorar Mosque in Jessore and the Goaldi Mosque at Sonargaon, built during the independent Sultanate period (1338-1576). All the collapsed domes of the terracotta-rich Bagha Mosque, Gorar Mosque, Goaldi Mosque and the stone-built mosque at Kusumbha were rebuilt carefully, following
Lalbagh Fort, Audience Hall and Hammam (17th c.) shown before restoration with its modern additions and changes.

Audience Hall and Hammam after careful removal of the encrustations, revealing original windows, arches, and roof details. It has been converted into a Mughal period museum.
the surviving traces of their domes. At the Lalbagh Fort, careful removal of
the encrustations caused by many years of renovations and modern
additions to the Hammam and the Audience Hall revealed a series of multi-
cusped arches carried on four sets of ornamental twin stone columns on its
east and west faces. All its original features, concealed or partly destroyed,
such as eaves and brackets, were restored to their original conditions and
converted into a Mughal period museum. At the same time a typical Mughal
garden with symmetrical lawns, pathways, fountains and flower beds was
relaid after digging up buried vestiges. The preserved monuments within the
fort with its recreated original landscape invest these with a glory that had
long departed. It also provides a desperately needed “breathing space” in
a crowded old city.

Increased awareness of the public to protect and preserve its heritage
will greatly help the handicapped Department of Archeology in planning.
In addition to the efforts of the national government, the launching of
UNESCO's International Campaign in 1986 for the preservation of Paharpur
and Bagerhat monuments, for their inclusion in the World Heritage List and
for the creation of an International Trust Fund to supplement the national
effort was very encouraging. Together with the generous assistance of
UNDP in strengthening the Department of Archeology and Museums in
its efforts to protect and preserve historical relics, these measures offer
a bright prospect of safe-guarding and preserving these priceless legacies
of Bangladesh.