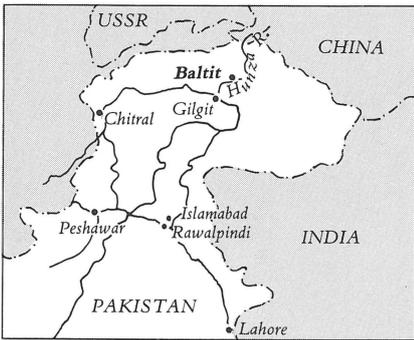


AT THE ROOF OF THE WORLD

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THE
BALTIT
FORT

TEXT AND PHOTOGRAPHS BY
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MIMAR
GALLERY



For six centuries Baltit Fort has hung on the crest of an old glacial moraine. It is still transmitting a precious testimony of the history of this exceptionally located area — the Hunza Valley. In the heart of Karakoram mountains at the foot of the Rakaposhi ascending up to 7793 metres (Rakaposhi peak), the fort is the guardian of the village below.

The siting of Baltit Fort is an act of architectural genius at a strategic location. The east elevation is on the edge of a precipice and behind it a dark canyon blocks a contorted glacier that descends from the Bohajaghur Duanasir peak (7390 metres). The water source is the elixir of life in Hunza because two irrigation channels rise there and feed all the valleyside for thirty kilometres. The consequence of the proximity of these peaks is that the fort is frequently attacked by the blast of avalanches that cascade down the chasm over the glacier.

The fortress is mainly seen from its west elevation, which was used for observation and defence against enemies. Its natural integration, its topography, location and its materials represent in some way a small scale replica of the mighty dominating mountains.

Baltit village, (its new name is Karimabad) nestling directly at the foot of the fortress is undergoing major changes due to the proximity of the Karakoram highway, one of the engineering feats of the 20th century crossing the whole Himalayan mountain belt between Pakistan

and China. This approximately follows one of the ancient trading roads and links it to Gilgit, the main town of the district, by a spectacular four hour drive. Due to the recent opening of the frontier between China and Pakistan, this region will become an important commercial and touristic area.

The village has changed in two ways: the first has been the abandonment of their houses by the village farmers, to live on small plots of farm land. The second is due to the new resources from tourism which has led to an uncontrolled construction of guest houses and shops roughly built with concrete blocks. These activities are now the two main economic resources of the valley.

History

The history of the Baltit Fort is complex and not precisely known. It is strongly illustrated by the many additions and modifications of which the actual structure is the end product and also relies on the legends transmitted by different generations. (The oldest descriptive accounts that are now available were written by the British at the end of the 19th century). If we rely on local folklore then the fort was built some 600 years ago when a princess of Baltistan married the reigning Prince of Hunza. For centuries the two countries had been communicating with each other and only recently have routes

been blocked by glaciers. Hunza at that time consisted of three villages. Altit and Ganesh on the river cliffs and Baltit high above. The Princess's father is reputed to have sent with the bride an army of Balti masons, carpenters and craftsmen who built the two forts of Altit and Baltit as part of the royal dowry.

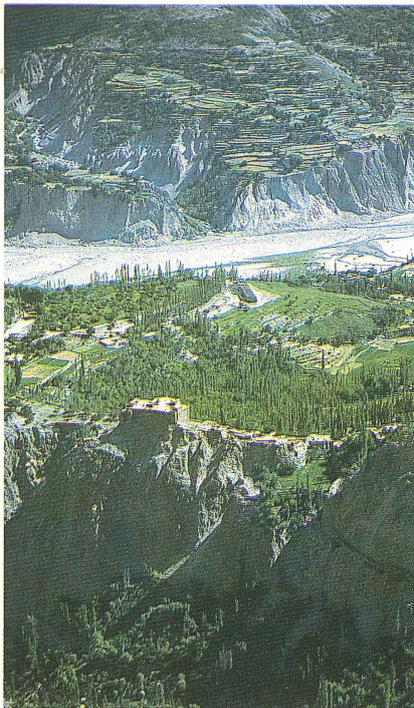
It is said that the kingdom of Hunza was extremely wealthy; a result of its role in raiding the great trade routes passing through Kashgar to the North. Some documents left behind related to trade agreements and deputations from adjacent states but nothing to now help in deciphering the fort's history. But we know that the control of the valley was shared by the rival kingdom of Nagar located on the other side of the Hunza river and fights between the two were frequent until the time when there was the princely marriage which solved the problem.

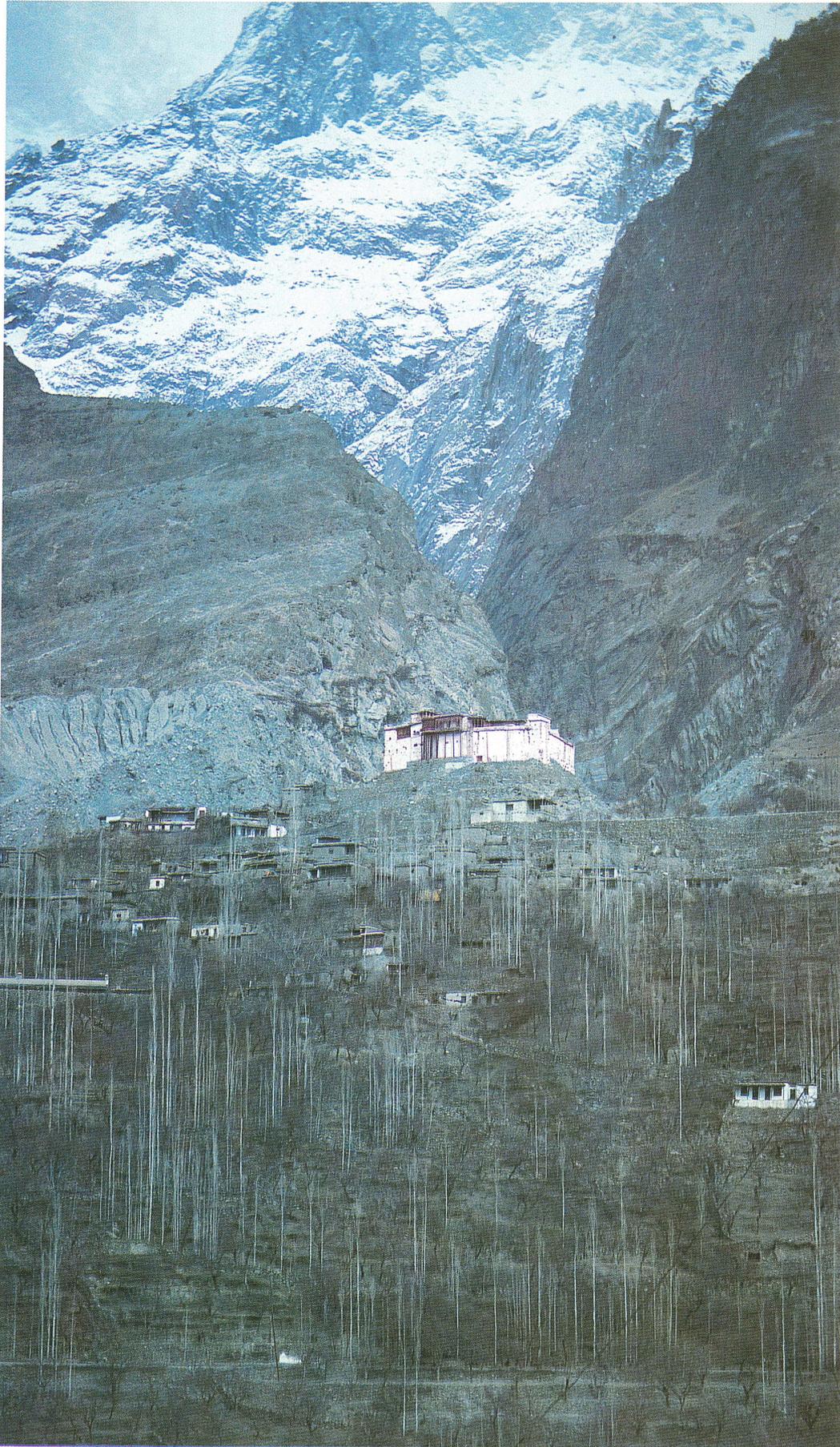
The building was supposed to resist a long siege and protect all the village people and their animals. This explains why the fortress has so many small rooms and secret corn storage containers dug underground. Although abandoned, this magnificent monument still demands great respect. It is intimately part of every family, the village elder that watches over, and silently records everything that happens below, generation after generation, day by day.

As a result of the military British campaign of 1891 against the Hunza-Nagar kingdoms, Mir Safdar Ali Khan fled to China with most of his possessions. Then after a short resistance of the village various British officers took up residency for a very short period. Immediately after this the British installed Mohamed Nazim Khan, the youngest of the six brothers of the ancient Mir ruling family, with whom they established very good relations. Given the new peaceful conditions, the new Mir modified the top floor of the fort and the whole structure became much more of a "palace". The fort was last occupied some forty years ago by the present Mir's father. The present Mir, Ghazanfar Ali, lives in a more modern residence nearby.

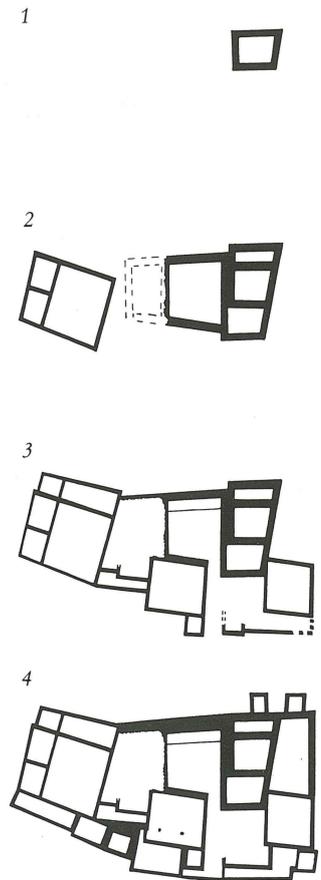
It is clear from our detailed survey of the Fort, both inside and outside, that it is slowly developed from a nucleus of one, two or three *Shingri* towers. Such free standing towers and surrounding single storey living rooms are still to be seen close by in the village of Ganesh. Until recently such forms of defensive towers

The Baltit Fort seen from the east.

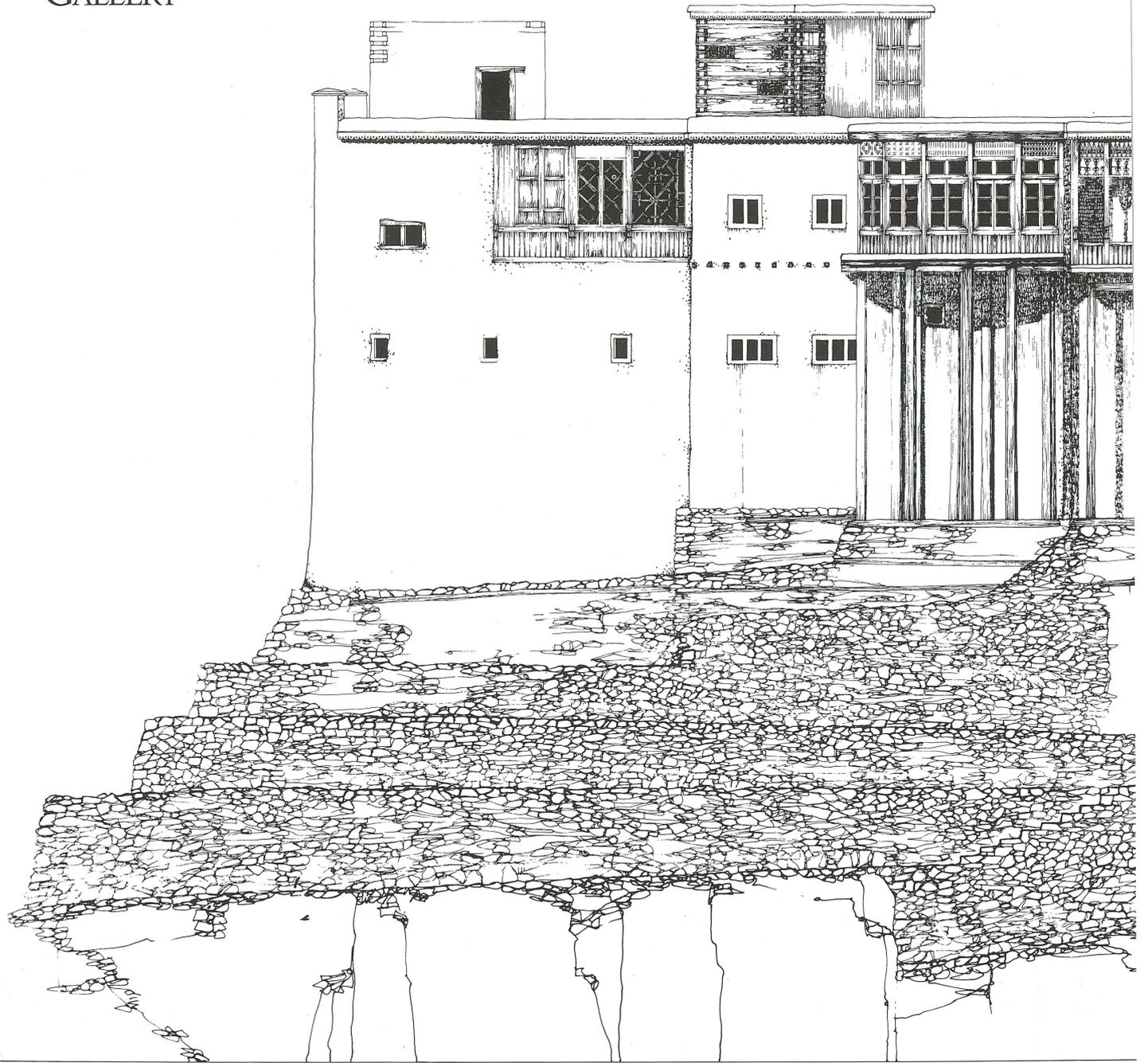




Left: The fortress, seen from the west, is a guardian to the village below.

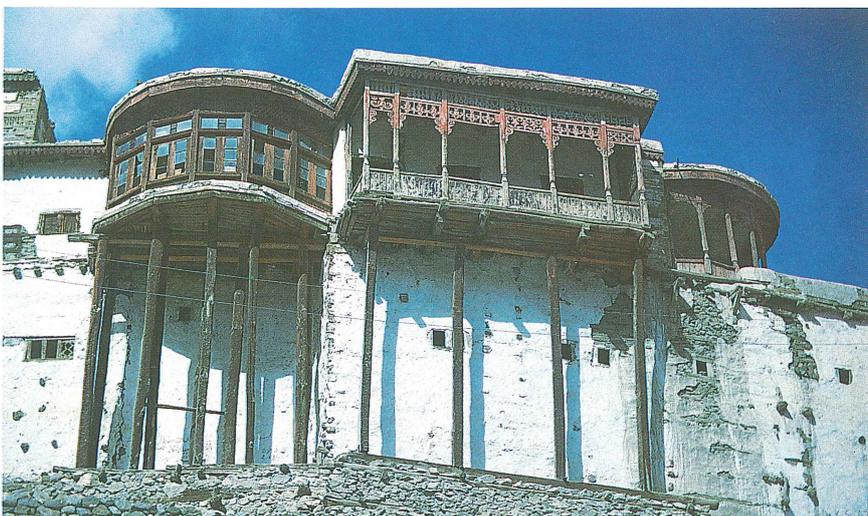


Above: The Fort developed from a nucleus of one, two or three Shingri towers which were gradually connected by a series of rooms to form the building as it stands today.

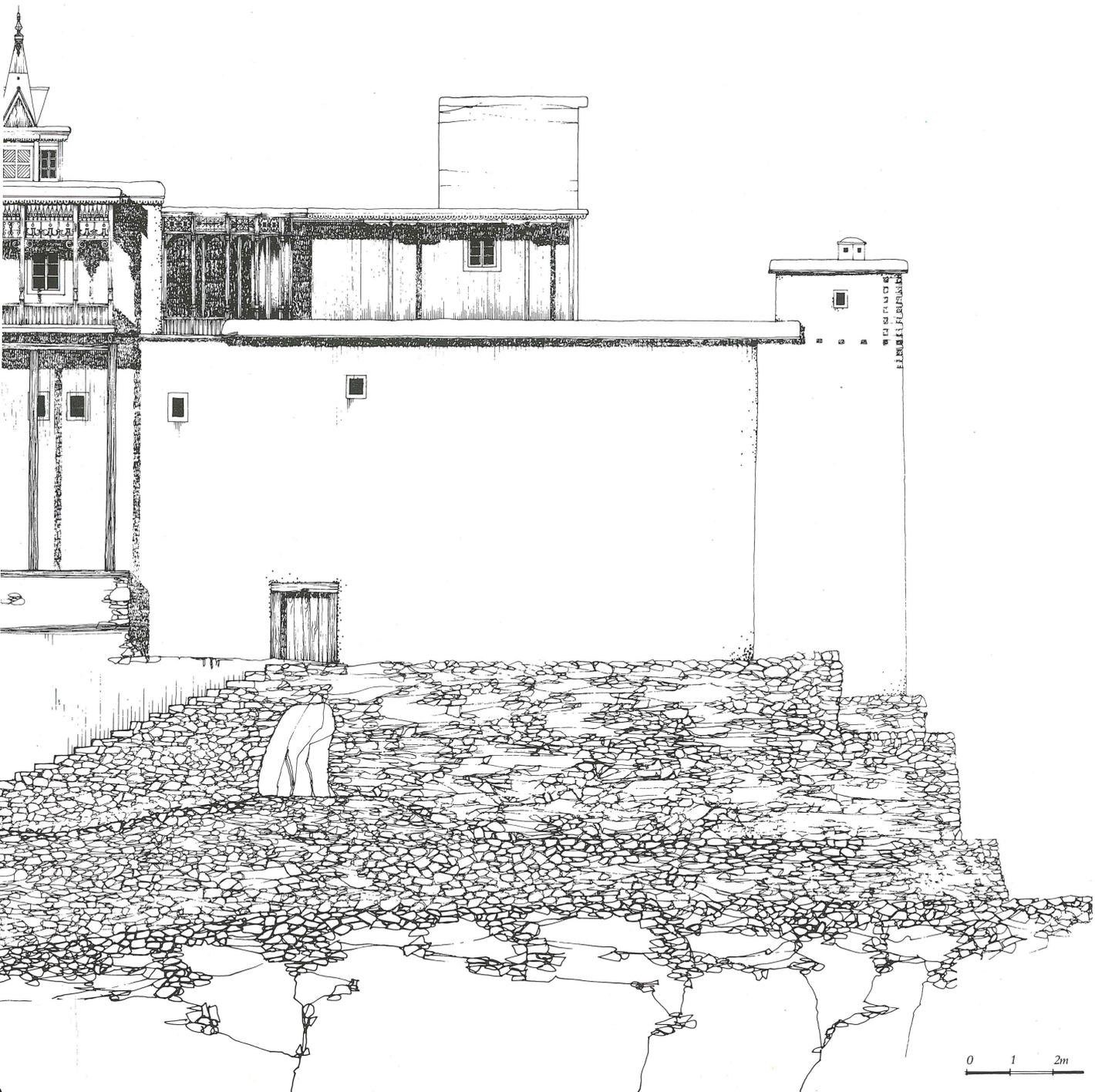


Above: West elevation.

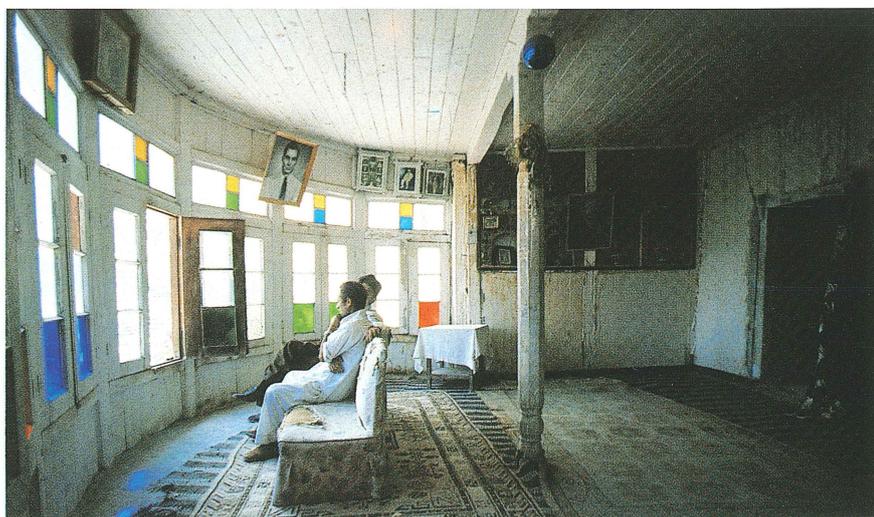
Left: The wooden semi-circular dais and verandah were added in the beginning of the 20th century to form the second storey.



were common throughout the Northern Areas of Pakistan. They are now only used and still being built in the more remote valleys south of Gilgit. The towers were gradually joined together by a series of rooms. This agglomeration was then wrapped around by a series of defensive walls and guard rooms. During this period a series of rooms were also added to form a second storey and elements of a third storey. Many such phases of construction have now been defined.



To try and date the original *shingri* tower, samples of wood have been taken for C14 dating with the new radiocarbon accelerator at Oxford University. This proposed development model is largely confirmed by several late 19th century photographs that have survived, (particularly at the Royal Geographical Society, London). Several towers were removed and the main tower reduced in height. The whole top storey was remodelled, evidenced by the removal of several small structures on the roof and by inserted glass windows, few rooms with wall paper and one lantern tower. Very no-



A remodelled room with coloured glass windows. Photograph: R. Holnes, Royal Geographical Society.

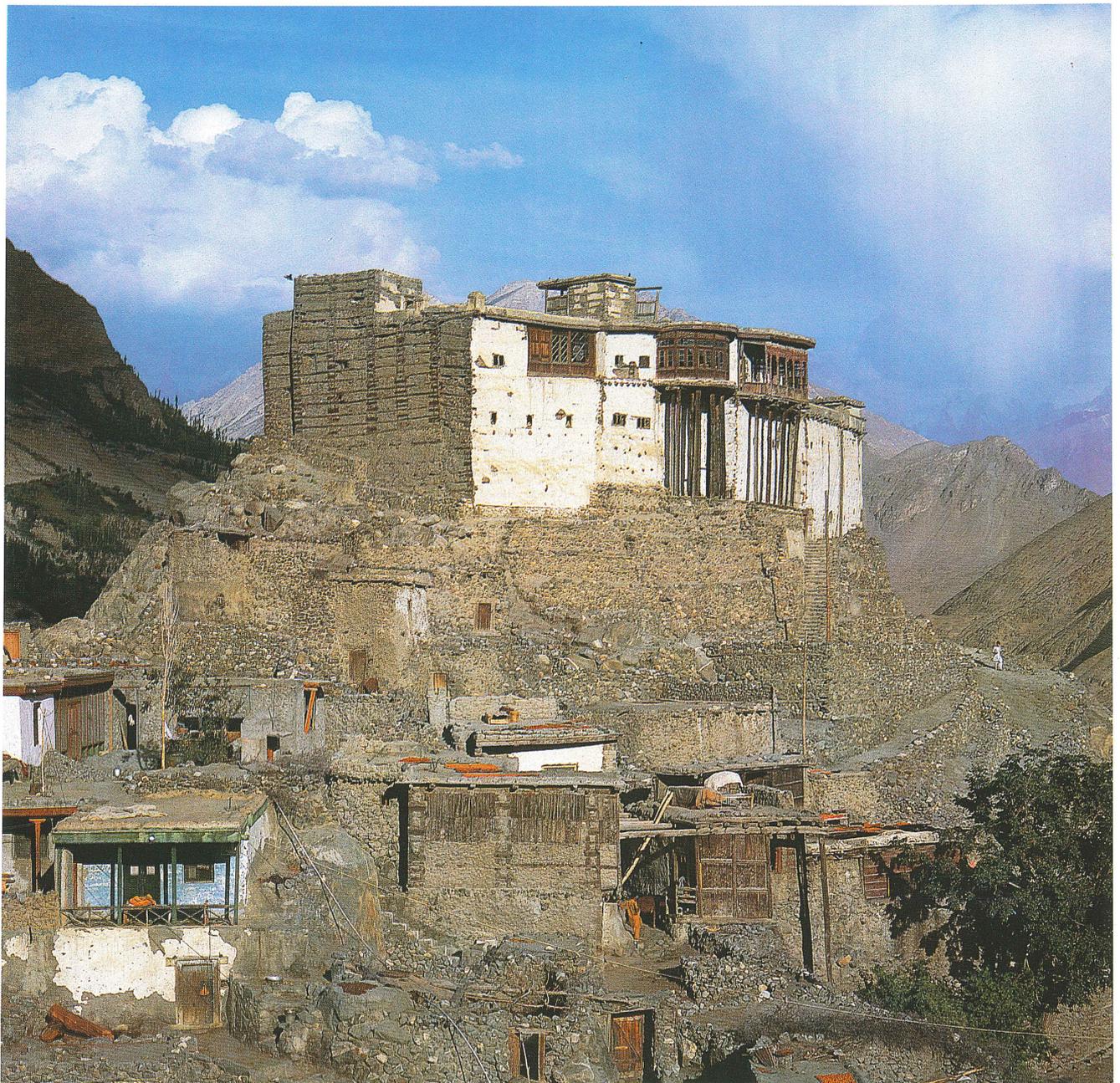


ticeably the main facade was rendered and whitewashed in the beginning of the 20th century. At this time the semi-circular royal dais and verandah were added in imitation of certain administrative bungalows.

Structure

Abandoned for nearly 40 years the Fort is now in an advanced state of decay, indeed some places are too dangerous for

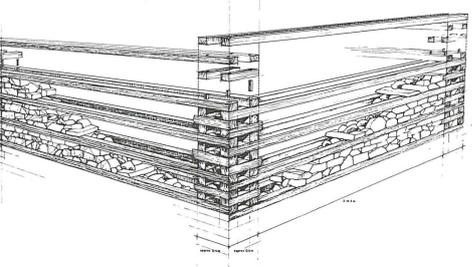
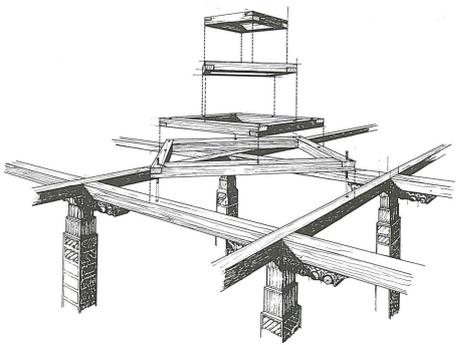
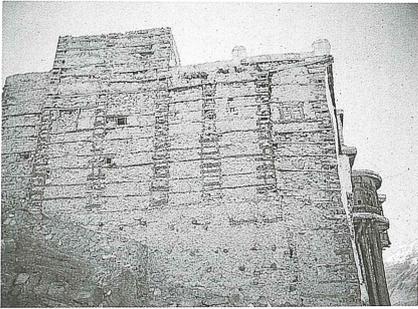
The changes in the fort are illustrated by the photographs taken from the same angle — one hundred years apart. The first (left) was taken in 1891 by Knight and the second (below) in 1985 by Ian Charles Stewart.



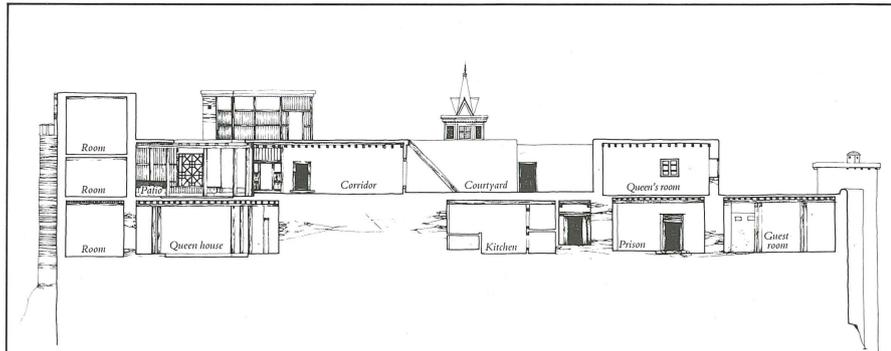
public access. Major site works are immediately required to stabilise this distress and then to provide a new use.

The main structural element consists of a pegged timber frame. Along the wall face on both the outside and inside are longitudinal squared timber tie beams. These are approximately 120 millimetres square, up to 8 metres long and are at 0.4 to 0.9 metres vertical intervals. Where such a timber does not span the required length it is scarf jointed, designed to resist tensile strains.

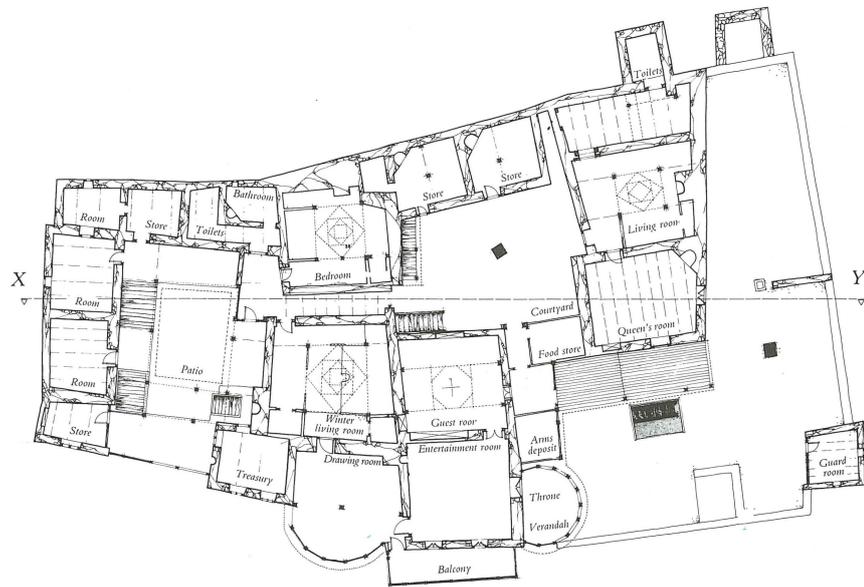
At corner points and where internal cross walls form a "T" junction with the external wall, timber "cribbage" work is found. Here, square timbers up to 0.75



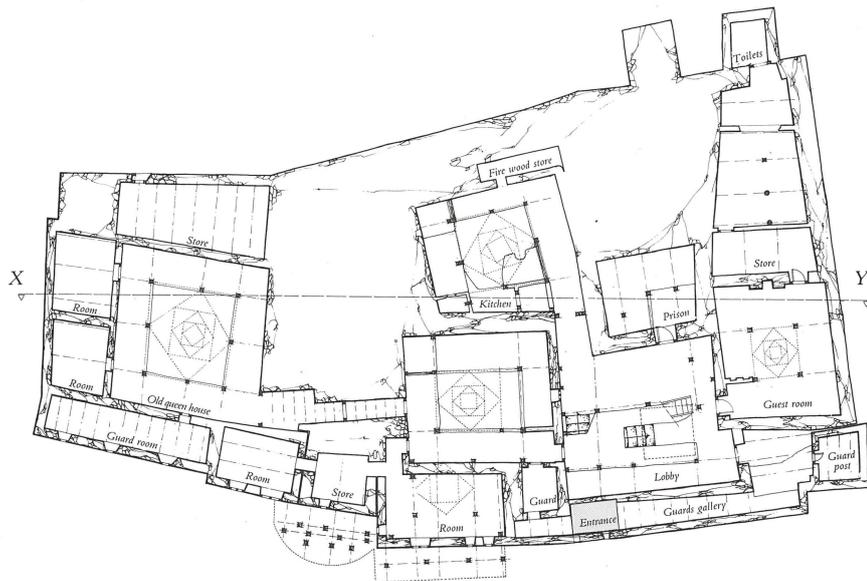
Top: Longitudinal squared timber tie beams are seen both on the outside and inside of the wall.
Centre, and above: Details of the main structural element showing the seismic-proof construction.



Section XY



First floor plan

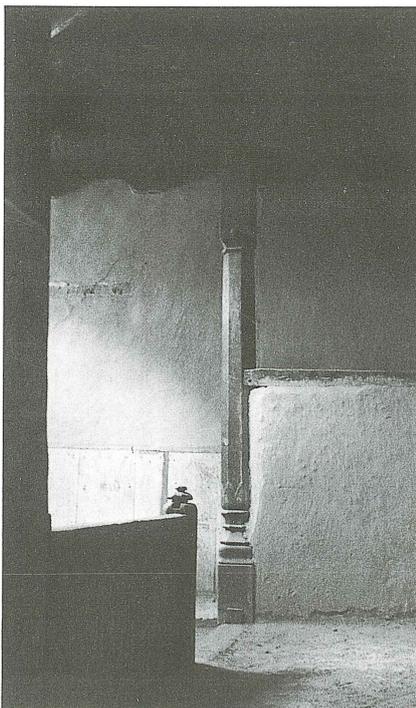


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metres long and 120 millimetres square are built up as columns up the full height of the wall and are pegged together.

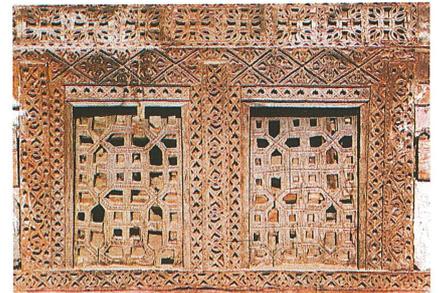
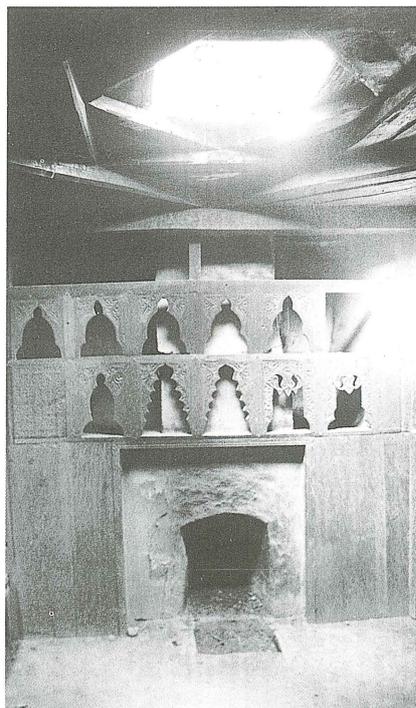
In such tall structural elements the frame may have been raised in several "lifts". The inside of the timber frame is infilled with soil and small stone, loosely placed or poured in as a stiff slurry from a place higher up in the wall. In between the longitudinal timbers both externally and inside the wall faces are constructed in coursed random stone work or soil brickwork, these materials using a soil mortar. The timber building technique is intimately related to seismic zones stretching from Greece to India. It is proposed that through oral transfer or by a series of independent architectural Darwinistic processes timber became incorporated into stone or adobe walls specifically to strengthen the walls against earthquake induced ground movements. Its main advantage is in giving a wall the ability to withstand tensional forces along the plane of the wall and also across it. It is also an excellent system for allowing considerable differential vertical movements to occur in materials normally only able to resist compressional stresses. This is why perhaps, all the openings, doors, windows and skylights are small yet made with massive timbers.

Below: A special area in front of the fire for guests. Below, right: The smoke vent, made of a wooden frame structure, is directly above the fireplace; it gives the room a central dome inside.



The problem with the building system is that it was not designed for a long life nor for simple repair when a structural defect developed. There is therefore a complex mixture of structural performance. Each additional wall is not keyed into the pre-existing ones so that they do not share structural support and can independently move. This can be an advantage where there is a variable foundation medium, but some walls excessively rely on their adjacent one for structural support. They would fall down without this support. Most of the rooms were designed as single storey structures. Second and third storey additions have excessively surcharged the lower walls and foundations. Some walls may be found in loose/soft tipped soil derived from cuttings. The outer defensive walls are in places very tall and thin, and were built on the steeper slopes where slope stability can be more of a problem. Also, they cannot be tied back adequately to the earlier walls or *in situ* soils behind.

The survey of the cracks are being monitored to determine their rate and direction of displacement. The second problem is that of major roof decay. The Fort has three levels of roof and while some are extensive in area they are in fact a patchwork related to the rooms beneath. Many variations in construction and form mean there is no coherent structural and drainage system. Throughout the soil fabric and on the surface dusting and wind abrasion have



Top: The window frames, doors and columns are elaborately carved; timber is used for all the openings.

Above: Detail of wood carving.

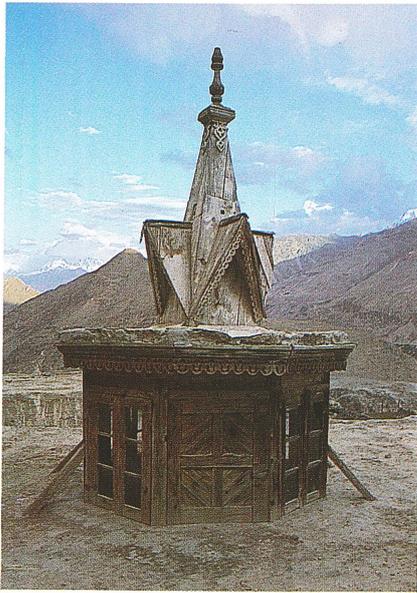
removed the finer cementing soil particles and seepage is now a problem. Parapet ridges between the roofs are badly decayed allowing water to enter the core of the walls beneath.

And thirdly, soil brick infill has been used for some of the later phases and is a replacement in the north and rear elevations (those constructed or replaced by Mohamed Nazim Khan). The bricks are predominantly located at exposed places and hence are extremely badly decayed. In many places the material has fallen out of the panels. Generally all soil mortars are in a decayed state and often missing.

Surprisingly the timber of the main structural frame has been found to be in a sound condition in both exposed and covered positions.

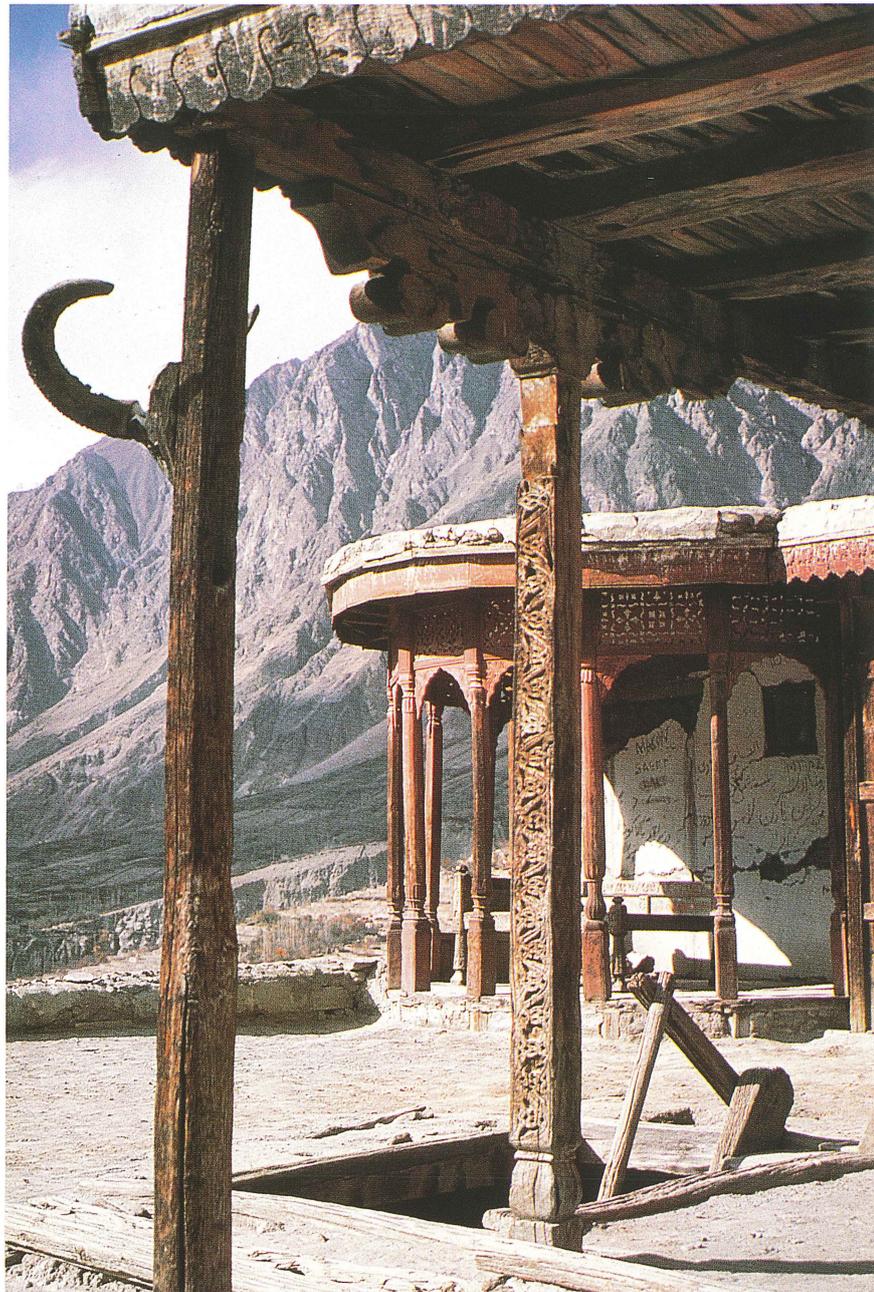
Comments on interior organisation

The better quality traditional architecture is often based on an anti-seismic wooden framed structure with a modular type of internal organisation. Each house has a main room 7 metres by 7 metres square in which the whole family life takes place. One side is for men and the opposite for women. The back is reserved for cooking and there is a special area in front of the fire for guests. There is also set aside an area for animals and storage of grain. Generally the fireplace, for cooking and heating is in the centre of the room directly below a vent for smoke exhaust and for providing a little natural lighting.



Above: A smoke vent, this wooden frame roof structure also provides natural lighting.

Right: The lantern tower with its carved wooden columns. Photograph: Elizabeth G. Darling.



This hole in the roof structure is a clever device made of a complex wooden frame so arranged to give the room a central dome inside and a drainage slope above. For both climatic (protection against the cold and strong winds) and anti-seismic reasons the number of openings and their size is limited. At most a typical house would have one entrance and skylight and an occasional small window. Baltit Fort is simply just a complex arrangement of many such structures — a type of “nucleated village”. Only its size and decorative details make it functionally different from other housing.

Life inside the fort was organised according to the well-ordered room arrangement and new rooms were added for new functions. On the ground floor the oldest rooms such as the queen’s apartments, the storage rooms, prison and kitchen show a very traditional way of life. The additional rooms on the first and second floors, of a larger size with better lighting and more facilities, provided a more comfortable living for the royal family. These rooms were mostly used in summer and in winter the inhabitants “retired below” to the darker but warmer rooms. In the 19th century the west facade was modified by the addition of an “outer skin”. This improved the external military appearance of the fort and provided within the wall structure special guard rooms for security around the only access door. At the beginning of

the 20th century the building was modernised and its defensive role modified with the addition of wooden verandahs, reception areas and guest rooms, all constructed to take advantage of the spectacular scenery.

Architectural decoration

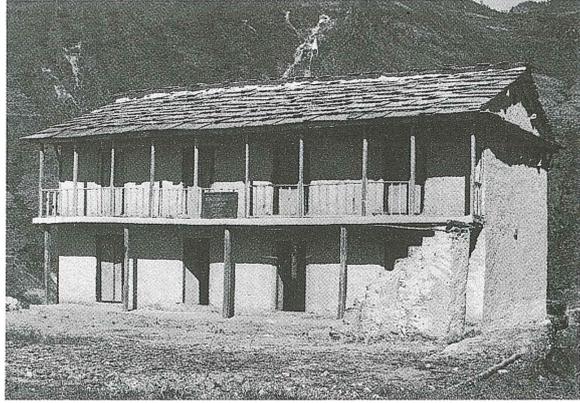
Only the houses of wealthy people and the old mosques have architectural elements with refined decoration. These are mainly concentrated on wooden structural elements which is the expensive part of the construction (columns, doors, and window frames). The infill of stone rubble or adobe was always roughly done and frequently replaced whereas the

ornate wood is reused over many centuries. In Baltit Fort only the older rooms have this elaborate wood carving and it seems that this remarkable work was done by carpenters from Baltistan and Shrinagar, hence the influence of styles of patterns. Nowadays this kind of craftsmanship exists only in the Kalash Valley near Chitral. The lantern tower, added as late as the 1930’s has a Chinese or Tibetan influence.

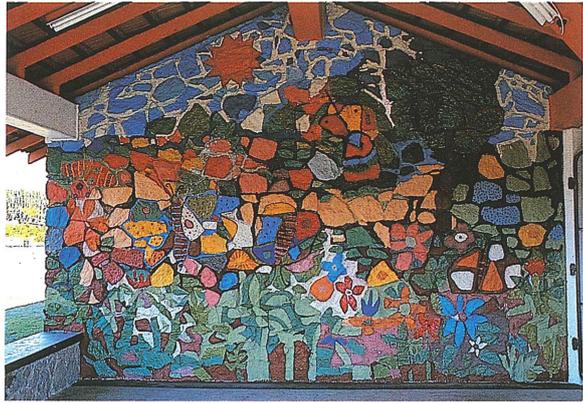
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