Madder

Dried stems and leaves of madder called *tsoe* (*Rubia cordifolia*) are chopped into small pieces. This material is boiled together with the yarn to produce several colours ranging from pink to deep red. It is good for dyeing raw silk, cotton and wool. Madder can be preserved in dry place for years.

The ripe berries of berberis, locally called *kepatsang* (*Berberis aristata*) are used as a source of red colour, while the barks of nut of the walnut tree can be used to obtain orange colour in woollen yarns.

**Pangtse**

Leaves from *pangtse shing* (*Symplocos paniculata*) are gathered from the forest, which can be used fresh or dried, to make yellow colour. Pangtse leaves are boiled in water along with woollen yarns. The yarn is then allowed to drip. Sometimes, *yung ga* (*Curcuma longa*) or turmeric is also used to obtain a bright yellow colour.

Lemon, also called *churoo* (*Emblica officinalis*), variety of other berries, herbs, plants, and roots are used along with alum mordant to boost colours in the yarn. However, since dyed yarns from India are available at cheaper price, only a few Bhutanese weavers practise the tradition of natural dyeing processes these days.

5.2.2. Woodwork

For centuries, many great master carpenters of Bhutan have displayed their skills to produce distinctive architectural designs that had come to be our heritage in wood work or *shingzo*. Woodwork continues to be a dominant part of most construction works. For structures that require wood, master carpenters are called upon to employ their knowledge and skills and to engineer the entire works without any blue print.

The achievements of our master carpenters are evident in the dzongs, temples and monasteries, palaces, houses and bridges. The dzongs are widely appreciated by their architectural marvels. Trulpai Zowo Balep is respected and revered as a legendary artisan, for his contribution in the construction of Punakha Dzong in 1637.

A long thread called *thig* containing dissolved red soil; a pendulum (*chongdo*) and a wooden lopon are essential possessions of a carpenter as are other tools.

Bhutanese master carpenters rely on their knowledge and experience, and are expert in the joining wood without using metal nails. Each structural part like pillars, doors, beams, window frames, and roof girders are fitted separately on the ground. These elements are then joined together using thick wooden pegs. Logs with ledges serve as staircases. Roofs are also made of wooden shingles, weight down in their places by boulders.

**Items for daily use**

Skills in wood work are also employed in making tools and essential items as listed below:

- Wooden printing blocks, altars and plates for making offerings in the household, drums (*nga*) and masks of different types;
- Cups, scabbards, handles for knives and swords and boxes of different types;
- Musical instruments like guitar and drums,
- Various decorative items like the dragons, eight lucky signs and other decorative items.
- Sports items lime darts (*khuru*) and targets (*bha*),
- Wooden phalluses of different sizes.

5.2.3. Stone Work

Like in many other countries, *dozo* (masonry or stonework) is an old craft that is still in practice throughout the country. The skills of Bhutanese masonry can be seen in fortresses, temples, monasteries, stupas and farmhouses.

It required special skills to cut and polish stones into right shapes and sizes and was carried out under the strict supervision of the head carpenter, who also had the role of an architect. Stone masons use an axe like tool called *dota*. Stones of crude shapes and sizes are chiselled into right shapes according to the style of the structure. There are mainly five different types of stone shapes that the masons prepare for construction. They are *jamdo*- used...
as the foundation stones, zurdo (corner stone) used as the corners walls, tshigdo (flat stones) that are used in the middle, dotru (pebbles) used in between the two chiseled stones and dochal (flat stones) layed in the courtyards of the dzong and temples. A skilled mason would first lay the zurdo (corner stone) and position other stones towards its right and left. The masons used a measuring thread called thig to correctly align these stones.

People from Rinchengang village in Wangdue Phodrang Dzongkhag are well known for their great masonry skills. Most villages in the western part of Bhutan use mud, instead of stones for house construction as mud houses are believed to keep the interior warm in winter and cool in summer. It also depended on the type of construction materials available.

5.2.3.1. Dzongs

Bhutan is dotted with these majestically erected fortresses that sit high on top of the hills often overlooking the valleys. The dzongs are located at strategic places. It has massive stone walls with large courtyards and beautiful woodwork on windows and cornices which are the most striking among the diverse architectural expressions of the country. These structures had served the purpose of defending the country against foreign invasions in the past. These magnificent structures are the true representation of our architectural uniqueness and the living testimony of our artistic skills. Dzongs are mostly rectangular and square structures while ta-dzong (watch towers) and Chu-dzong are mostly round cylindrical structures. Today, these dzong are the seat of administration and monastic body.

5.2.3.2. Stupas

Choeten or stupas are literally translated as a vessel of worship or offering the most common feature on the Bhutanese landscape. It is believed that after the cremation of the Lord Buddha, his relics were divided among eight groups of claimants and that each of the claimants later erected a reliquary in which they preserved the relics. Thus, there are eight different types of choeten today (Choeten Degye).

At that time, these structures were erected only to preserve the relics of sublime beings and assumed greater meaning and significance much later. Building a stupa came to be considered an act of great piety, earning merit for the actual builders as well as for those who supported the act. It is also a beautiful illustration of our masonry skills.

A choeten requires a great deal of stonework, as it is built out of stones. We can also see prayer mantras carved on the stones.

5.2.3.3. Long Prayer Walls

Long mani walls locally known as mani dang rim are the monuments from medieval Bhutan found along the main mule tracks displaying the mantra of Avalokiteshvara carved on slabs of slates. These elegant monuments were testimony to the richness of spiritual devotions as well as significant landmarks for travellers. They have survived extreme climatic conditions for many years. It is said that construction of Mani walls
in the country had begun around 15th century during the time of Tertoen Pema Lingpa. However, most of the Mani walls were said to be constructed during the reign of the 4th Druk Desi Tenzin Rabgye (1638-96).

Mani walls were largely constructed with locally available materials such as stones, a small quantity of timber and mud used as the mortar. Side plinth is raised from the ground and a wall is constructed at the height of about 6 feet and generally carved Mani slabs are placed on it either in single or double line from end to end.

A timber superstructure is raised on the top with a wall height of one foot and is often roofed with flat stone slabs or slate. The middle and two ends are raised higher than the other parts with a particular architectural design. The center portion has a pocket for enshrining three deities of Manjushri (left), Avalokiteshvara (centre) and Vajrapani (right). The special place in the centre is made of timber and the deities are placed on the wall with a space in front for making butter lamp offerings or other offerings.

5.2.3.4. Farm Houses

Bhutanese farmhouses are typically built out of mud and stone. A standard practice was to erect two-storied house although an ideal house had three main floors and an attic. The materials for the houses vary across the country depending on the climatic conditions and the topography of the places. For instance, Bago and Dagjar Zhikom (farmhouses made out of stones and wood) which are lightly decorated in traditional style are found in the southern and eastern parts of Bhutan. In central and western Bhutan, double storey houses with main walls made of stones and rammed earth while the inner partitions are made of bamboo mats are found. Houses in the cold places like Lingzhi and Laya, Merak and Sakteng are mostly built out of stonewall.

5.2.3.5. Chautara

Found only in the southern part of Bhutan, along the footpath and road, these structures are built in the loving memory of dead family members. Depending upon how wealthy a family is, a chautara is a resting place built with stone on three sides. It is also a place where exhausted travelers can take some respite. Two types of trees are planted close to the chautara which
grow up to provide shades to the travellers. *Lhotshampa* (people who dwell in the south) believe that by the act of constructing those chautara which also serve as the resting haven for those tired travellers, the departed soul will gain liberation.

### 5.2.3.6. Grinding Stones

As explained in Chapter 4 above, rangtha is a pair of round grinding stones that is maneuvered by the hands. This is usually found in places where stream water is not available in the vicinity.

### 5.2.3.7. Watermill

*Chura* is a bigger version of the rangtha which is powered by water. While the stone pair works on the same principle, the watermills are much bigger in size and often turn faster depending on the pace of the water flow. It is still being used in some rural villages. For example, in Bumthang it is mostly used for grinding wheat and buckwheat.

In the 15th century, Hungrel Drung Drung Gyalzom is known to have established several watermills in Paro valley, and thus the following saying was coined:

*Please don’t raise your knees; Drukpas will establish monasteries.*

*Don’t let your nose run, Hungrel will set up watermills.*

### 5.2.3.8. Large Mortar

*A Lheu* is a large mortar used for pounding husk grains. It is a cylindrical stone or hard wood with a big hole drilled in the middle. This is where rice is dehusked or roasted rice and maize is pounded with the help of a piece of long pounding club (made out of wood) having a narrow hand hold in the middle. Sometimes, a hole is drilled even on a larger boulder which cannot be moved. Today, with the modern equipments in place, the use of devices like Lheu is fast disappearing.

### 5.2.3.9. Mortar and Pestle

*Tsiku-doti* is made of stone as well as hard wood. The pestle or doti is usually a rounded stone.

### 5.2.3.10. Bridges

Stonework also finds its use in the construction of the traditional bridges, which were built out of wood and stones. The stone is used as the foundation (*jamdo*) for constructing all sorts of bridges like *chazam* (iron bridges), *bazam* (cantilever bridges) and *tsbazam* (cane bridges which are no longer used).