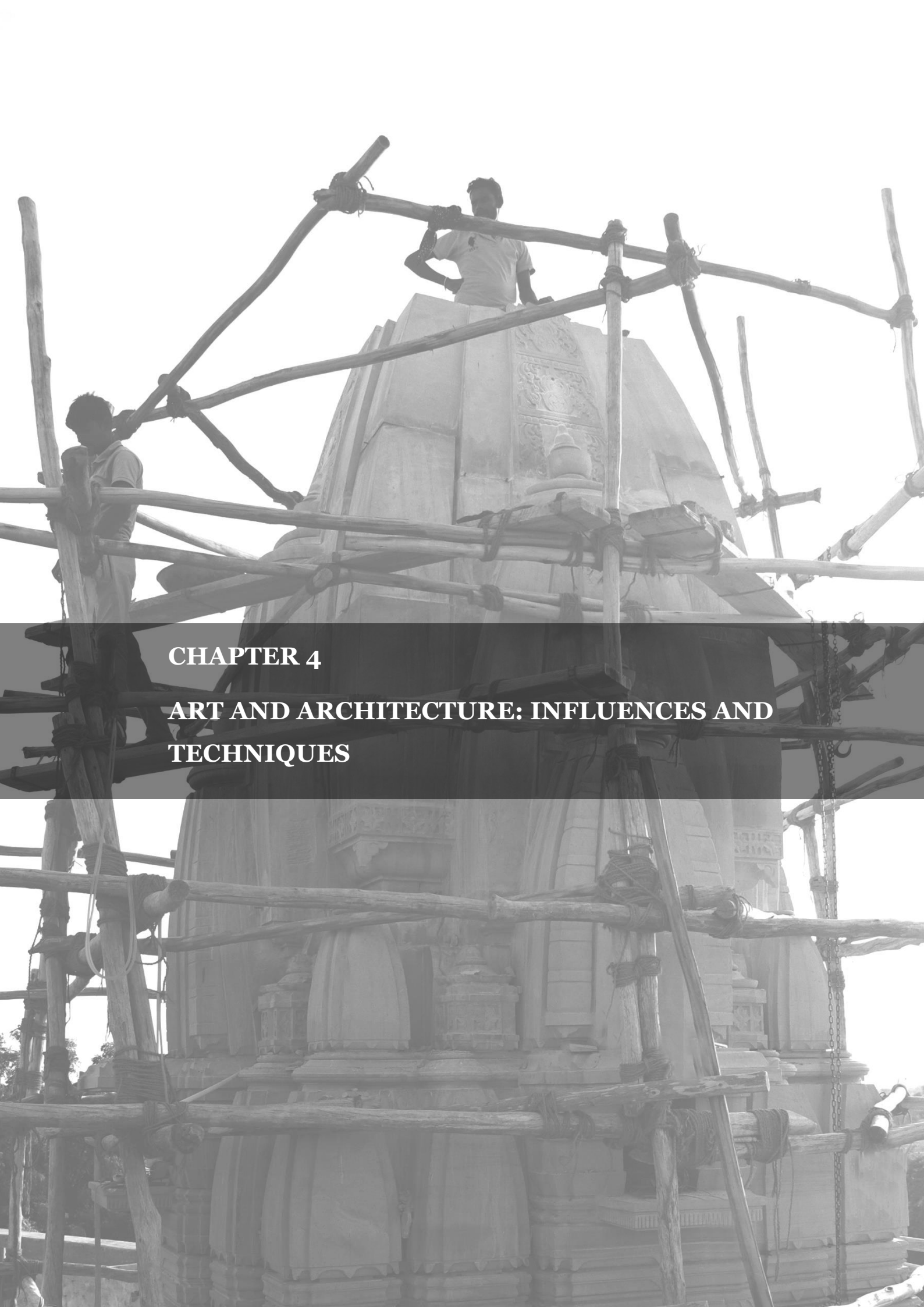

CHAPTER 4

ART AND ARCHITECTURE: INFLUENCES AND TECHNIQUES

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The art and architecture of every region is in a way a mirror of attentiveness, relish, likes-dislikes, and exigency of the evolved society. These outlooks divulge salient arrangements in the form of socio-cultural, and political perceptions as well as various aspects of the vicissitudes of the evolutions. A thriving architecture and its artistic quality indicate the rich descriptive order of the society and *Mārwār* should be seen as a perfect example in support of these concerns. The periodic powers shifting, frequent invader attacks, and treaties with foreign competence were the important frames of reference that innately influenced the traditional order of the region.

The intensity of such influences markedly depends on how the region had been exposed to external influences, whether they were culturally mutual ties, and if so, what type of they were. This region has seen perpetual transposition from the *Gupta* reign to the British ties and it is visible in the art and architectural forms. Even such transposition brought a significant impact on socio-cultural behaviours and developed the version of crucial polymorphism.

An analytical study of the *Kamṭhā* records provided an understanding of construction activities and the structural investigation led to significant conclusions. Regional building materials have a substantial influence on their architecture and artistic crafting, such materials have their distinctive features, and their impact ranges from technical limitations to aesthetic discernment, hence the visual impact and criterion of construction activities are affected by the same.

In concern to *Jodhpur*, an attempt has been made to identify the construction materials, sources, methods, and techniques from the archival records and the ruins. The regional style and the terms of exposure from extrinsic influences had been concluded through the preserved structures and ruins, which open to an idea of the artistic sense and the course of fusion among the architectural forms.

4.1 Construction Materials Used and Their Sources

The *Mārwār* region is rich in building materials due to its geological patterns and vast deposits of rocks, metals, and minerals, among them stone and lime being the most prominent building materials preferred since the ancient period. The *Makrānā* belt in *Mārwār* is famous for its excellent grades of marble, similarly, *Khāṭū* is known for yellow sandstone, while *Jodhpur, Pacapadrā, Sojat, Pālī, Khāṭū, Mēḍatā,* and *Nāgaur* (plate 4.1) belts are rich sources of pink and dark, maroon-coloured sandstones.

These building stones have been exported to the outer regions, among them marble is very prominent, the *Makrānā* marble was used in the construction of famous buildings such as the *Tāj Mahal* and the Albert Museum. Even the world-class monuments have been built here with multicoloured stones i.e., *Mēhrāngaḍha, Ummēd Bhawan, Jaswaṁt Thaḍā*, etc. are such prominent structures, and provide an impression of aesthetic excellence due to the impact of building materials.

Currently, due to the developed science and technology, it is easier to locate minerals, metals, stones, etc., but in the past, searching for good quality stones required talent with experience. For the construction activities, stones must have to be precisely granular and layered, and the *Kamṭhā* records provide evinces of such important rock belts where mining activities had been carried out. However, due to the expansion of human settlements in most areas, now many quarries shifted to nearby places. These archival sources also revealed from whom the building construction materials were purchased and who the craftsmen engaged in crafting tools used in creating artistic forms.

There were varieties of materials used from basic construction activities to artistic murals. The construction planning was based on a pre-construction appraisal and a certain amount released from the royal treasury. The construction account was maintained by *Mutasddī*, and for that, the department purchased loose papers given to him. Through a prescribed procedure by the concerned authorities, the required materials were procured by the appointed officer-in-charge either under the supervision of *Gajadhar*,

but mostly it was procured under the supervision of *Gajadhar*, and stored at some nearby places of the construction site.

According to known historical sources, the stone mining activities of the region are traced back to the ancient period, which is related to the ruined temple of the fourth century inside the *Maṁdor* fort and the eighth-century *Marū*-style temples at *Osiyā*. There are several stone quarries between *Sētarāwā* and *Jodhpur* among them, *Bilāḍā* and *Nāgaur* are prominent.

Especially in *Jodhpur,* these monuments were built out of three varieties of stones mainly *Ghātu*, *Chittar*, and Marble, among them, *Ghātu* was prominently used in memorial monuments. It was procured from the local quarries of *Jodhpur* such as *Ghoḍāghātī*, the city area near *Ghaṁtāghar*, etc. and white marble was procured from the quarries of *Makrānā*. All three types are well resistant to thermal variance.

Chittar stone came to be a preference when it was first used in the construction of *Ummēd Bhawan*, otherwise, in earlier constructions, *Ghātu* was used prominently due to its structural pattern. It has regular bedding of finer and uniform grains which is suitable for the smooth chiselling and intrinsic carving and has better elasticity in comparison to *Chittar*, so comparatively *Ghātu* is considered a better rational choice for *Śilpakārya*.

Comparatively *Ghātu, Chittar*'s grains are slightly bigger and due to its less elastic nature always creates fear of breaking like glass, probably because of this instead *of Chittar's, Ghātu* was more prevalent in the past. However, *Chittar* also has pros, it has high silica content, and good resistance to acid, salinity, and alkali, nowadays due to the availability of high technology and advanced machinery it is easier to work on such kinds of stone, hence now it is widely favoured in the region.

As per the requirement, stones used in the construction had procured from the nearby quarries, often in the records, names of quarry owners were also mentioned, for example, stone used while the construction of *Chatarī* of *Rānī Bhaṭiyāṇījī* was purchased from the quarry of *Mālī Pokhar* and the amount paid through *Gajdhar Gaṇēśa*, as mentioned below:

129) Tāl Kamṭhā Tāl Bhāṭo Kharīd Mālī Pokhar Rī Khān Ro Huwai Tīṇ Pēṭē Alal Hīsāb Dīyā Hastē Gajadhar Mālī Gaṇēśa /[337]

The *Khaṇḍawāliyā* were employed for breaking large stones into *Khaṇḍā* (stone masonry blocks). The *Somapurā* artisans, *Silāwaṭa*, and *Ghaṅāīdār* were engaged in shaping forms, intrinsic carvings, etc. The *Kalaśa* or *Ghumaṭī* used to fit on the *Śhikhar* or dome were mostly crafted from marble or metal and usually on bespeak order purchased from the market as given in the *Kamṭhā* records:

/-) / Chatrī Uparalo Īdo Sair Su Uṭh Māthē Ghāl Nē Lāyā Tīṇ Rē Bhādā Rā Mālī Līchamaṇ Nē Dīyā /[338]

above phrase also evidence that bullock carts, camel carts, or simply camels had used for transporting construction materials such as stone, brick, lime, sand, etc.

8) Sālā Uparlī Chātā Tayār Karaī Tīṇ Mē Nākhaṇ Sārū Kānkarārā Uṭh Nag 20 Mālī Bhalārā /[339]

This means while the construction the monument' s roof there were twenty camels (perhaps in shift) used for the concrete transportation, it is worth noting that here the camels were counted without a cart. The loading limit of a camel was fixed which was equal for all camels and that capacity was referred to as '*Nag*' or one camel.

Although bricks were not used much except for the selected huge domes. Here bricks were preferred due to being lighter in comparison to stone which reduces the dome's self-weight. Usually, bricks-making was the occupation of the *Kuṁhār* community.

After stone, lime was the major ingredient in the construction, it was used in multipurpose activities like foundation filling, masonry work, mortar, plastering, pointing, whitewash, and the base of the frescos, etc. Usually, lime

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337 *Kamṭhā Bahī, Bhatiyāṇījī Chatarī.*
338 Ibid.
339 Ibid.

was prepared by two methods, one from the limestone and the other from the *Muraḍa,* and it is available in the form of small pebbles, which is usually dug out from the ground, refined, and collected. Although there are three types of *Muraḍa*, but only white *Muraḍa* is used to prepare lime. After purchasing the raw *Muraḍ* it is baked in kilns, as an archival reference is given below:

13=) Tāl Kīrāyo Bhādo Bhaṭīyāsu Cunārī Bhatī 1 ... Mai Kharīd Hūī Tīnrai Bhādēro... Laikhe... Mālī Līchamaṇ Tulachā Bagērē Nē Dīyā /[340]

40) Cunāra Bhādā Pētai Alal Hīsāb Kabāḍīyā Nai Rūpīyā 40) Chuno Mhailā Tālakē Cunā Rī Bhatīyā Bakhat Sāgar Ūrē Hubai Jaṭhāsu Poṭhīyā Mai Ghāl Chatrī Lāvai Tyanai /[341]

This means that baked lime was purchased from the site (kilns) and the amount was paid to the responsible person for purchasing. If the construction was on a large scale, then usually the authority (*Rāj*) would buy the kilns, but if it was on small scale then lime baking would be hired. Earlier, dung cakes and wet timber were preferred for heating in the kiln, and dung cakes were procured from nearby villages but nowadays coal and wet wood replaced it.

The main ingredients for the preparation of lime plaster were lime and river sand and subsidiary ingredients were *Tārsīṇī, Tāpaḍo, Gugul, Dāṇā Mēthī,* and *Patāśē*. The materials were procured from the *Sāhūkār* and confectioners and provided on the site. *Cūnagar* used *Muṁja Rī Kūṁciyā* (brush) for sprinkling lime water while plastering and *Kalī* work. When the roof was made of lime, the source of their essential mixing ingredients are mentioned in the *Kamṭhā* records, as given below:

49 /-) Sālā Uparalī Chātā Nag 4 Tayār Karāī Tīṇ Tāl Hasatē Gajdhar Gaṇēśa

7 /I) Chātā Mai Nākhan Sāru Masālo Kharīd

3) Dāṇā Mēthī

2) Gugal

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[340] Ibid.

[341] *Kamṭhā Bahī, Kachawāījī Chatarī.*

1 /।) Tāpadīyo[342]

Khaḍḍī was an important component in traditional stone building construction. In the *Mārwār*, especially *Jodhpur, Nāgaur, Pālī,* and *Bārmēr* are rich sources of *Khaḍḍī*, among them, *Nagaur* has the largest storage in *Rājasthān*. As per the archival sources of *Jodhpur*, mainly *Khaḍḍī* had been procured from the *Nāgaur* belt (*Nāgoraṇ Khaḍḍī*), especially from the villages of *Bhadwāsī* and *Goṭha Māṁglod*.

In the traditional architecture of the region, it has been observed that baked *Khaḍḍī* was used to stabilize architectural element with the main structure or another architectural element. Technically it acts as a fast dry binder like adhesive. Here it is worth noting that raw *Khaḍḍī* is useless, so it is prepared by heating in the kiln before being used during construction activities. Mostly it was procured raw, so kilns were built near the construction sites to bake it, and for that dung cakes were usually purchased from the nearby countryside, as described in archival records:

2) Khaḍī Pacāvaṇ Sārū Chāṇā Kharīd Nāth Sīvanātharā Huvai Tīṇānē Chāṇā Paitai Alal Hīsāb Dīyā ।[343]

To finish construction work on the prescribed *Muharat,* construction work used to continue during the night, in that case, oil was purchased from the market and provided on the site, which is referred to as *Rūśanāī*. During the night duty when a guard stayed at the construction site for the security of the construction material, usually oil provided to him for lighting the lamps, as mentioned in the archival record:

=) Tāl Tail Rūsanāī Sārū Koṭha Mai Rāch Dharījai Tathā Ādamī Rvai Tīṇā Rē Dīyā Sārū Tail Bhādawā Rai Mās Mai Kharīd Sahukār Mularī ।[344]

Kalī is a by-product of lime that is used for various purposes such as whitewash, frescoes, etc., so while preparing *Kalī* from lime, usually, fabrics

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[342] *Kamṭhā Bahī, Bhatiyāṇījī Chatarī.*
[343] Ibid.
[344] Ibid.

were purchased like *Mūlmūl* and *Sēlo*. These fabrics are significant for filtering out the *Kalī* and for cleaning the wall surface after the *Kauḍī* plaster has been completed.

According to the archival sources, the tools used in construction work were of two types, the first type of large tools like *Zhūmarī, Thākanī, Gētī, Kūdāl, Fāvaḍā, Sāṁbhal,* hammer, etc. which were directly purchased from the market and given to *Bēldār*, *Khaṇḍawāliyā*, *Pēsakār*, etc. while the other types were artistic tools for fine and detailed workmanship, especially *Tāṁkalā, Tāṁkiyā,* chisel, *Gullo*, etc., which were prepared on-demand by blacksmiths.

It is also known that till the completion of the construction, a blacksmith was appointed who took care of the tools and regularly sharpened the carving tools as per the requirement (plate 4.2), as mentioned below:

> *7 /I) ///Luhār Abdulā Nai Rupīyā 7) Prabārā Dīyā Tīṇarī Vigat...Taṁkīyā Painī Joḍā..., Taṁkīyā Rai Tāv Dīyā..., Taṁkīyā Narājā Bhāgī So Pāchī Saṁdhāī..., Sābal Painī Tīṇrā..., Kudālā Pēnai Kīyā Tīṇ Rā..., Karot Bhāgo Su Pācau Saṁdhāyau..., Rācharai Khaidi Bāndhī Tīṇrā /*[345]

The timbers of *Kūmaṭ* and *Kair* were purchased for preparing tool handles. While hitting on hard surfaces the handles crafted from these timbers reduces tremors in the hands, and are also the source is indigenous.

For the scaffold, their components were procured from the market, this scaffold was assembled from wooden poles (*Ballīyā*) and planks (*Pāṭiyē*) and tied with *Muṁja* or *Oḍhan* ropes. ladders are always necessary on the construction sites, these ladders were made with the wooden poles of the Jujube tree (*Boraḍī*), to prepare the ladders usually straight poles of Jujube were purchased and given to the *Khātī*. The reason for the preference for this wood is simply because of its hard and strong wooden fibers and naturally grown straight and long poles which can bear heavy weight and don't break easily.

[345] *Kamṭhā Bahī, Kachawāījī Chatarī.*

The work of carrying heavy stones to the top floors or the dome was done by the *Cavāliyās*, for that usually, *Muṁja* was purchased and given to them for preparing needed strong and thick ropes. However, if there were more heavy stones, then heavy iron chains would be bought from the blacksmith. Apart from heavy blocks and slabs, other materials like lime, *Khaṁdā*, concrete, etc. were carried in strong and big bamboo baskets (*Auḍhiyā*) and sheets of thick fabric (*Ralkiyā*). These bamboo baskets were usually purchased regularly as needed, making these baskets was the ancestral occupation of the *Ghāṁchā*.

The tongue-groove (*Hāl Cūl*) technique is usually preferred when assembling large stone blocks, but where it was not possible to apply such techniques, such as domes, etc. in that case mostly wide and round clamps of iron, brass, and copper were used, and these clamps were crafted by Ironsmiths.

Due to technicalities, if the use of clamping and tongue-groove joints were not possible then molten lead was usually filled by drilling parallel holes. In the *Kamṭhā* records reference found for the combined use of tongue-groove and copper bars in the joints of *Padmaśilā* and *Ghūmatī,* as mentioned below:

> *1 ///) Tāṁbā Rī Sīlākān Aṁdā Rā Tālī Kuṁṭhā Khudījīyā Tīṇā Mai Ghālaṇ Nai .... Kharīd Lhoyā Sālagrām Rī Hastē Sarāf Dolo Mailī /*[346]

If *Kalaśa* or *Ghūmaṭī* had to be prepared of metal i.e., brass, copper, etc. instead stone then metal pipes and *Kalaśa* were purchased from the market and given to the *Kaṁsārā* or *Ṭhaṭhārā* for shaping it into the required form. As per the ritual when the *Kalaśa* or *Ghūmaṭī* was placed on the dome, it was filled with Ghee, as mentioned below:

> *///) Carī 1 Pītal Rī Tol ...Bhar Nālakī Tīṇ Ro Rūpīyā ///) Kharīd Lhoyā Anopā Rī So Mojpāk Padamsīlā Ūpar Cuṇījīyo Tarā Grat Suṁ Bhar Padamsīlā Upar Mojpāk Mai Cuṇāī /*[347]

Usually, before filling the roof with lime-based plaster, a continuous layer of three inches thick stone slabs were continuously

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346 Ibid.
347 Ibid.

placed as a base layer, these slabs were procured directly from the quarry. The major components for roofing were slabs and the proportionate mixture of lime, river sand, and concrete. To prepare the top layer plastering of the wall, dome, and frescoes usually lime-based refined *Kalī* was used.

Usually, for processing *Kalī, Chādā* was procured from the *Kuṁhār*, after applying the last layer of *Kalī* including *Ghūtāī* it was washed with chemical-free soap water or *Ariṭhā*, as mentioned below:

11 /) Cunagar Jaṇā 2 Gumaṭa Maṁsu Kalī Suṁ Dhoyo Nai
Raṁga Bharīyo Tīṇā Nai Rukhasadi
5 //=) Sālagrām Jaikisan Ro
5 //=) Rāmlāl Sawāī Ro[348]

The role of *Chitārā* usually begins after *Kalī* plaster, they used to make wall paintings (frescoes) for which raw materials such as oil, *Hiṁgul Rī Puḍiyā*, *Siṁdūr, Lāl Khūraja Rī Puḍiyā, Nīla* was purchased from *Sāhūkār*. If there had been cracks occurred in stone artefacts or architectural elements, then *Lakhārā* was an expert in repairing them with the *Chapaḍī*.

The Carom seeds (*Ajamo*) were purchased from the market and used to clean and polish the marble stones. To ensure regular availability of water usually, people were appointed to bring water in leather-made containers (*Pāṇī Rī Pakhālā*), mostly Ox and Camels were used as water transporting medium and the amount was paid on each unit of the container (plate 4.3).

Artisans and labourers who were intoxication addicts, for them *Zardā* purchased from the market and provided to them regularly. On *Rojīndārī* payments, *Mahērīs* were appointed to arrange drinking water on-site, and the earthen pots were purchased from the *Kuṁhār*. Even a *Pēsakār* was appointed to arrange *Bhāhto* for artisans, he brought it from their homes to the construction sites. Until the completion of construction, it was a religious practice to feed *Kiḍīnagro* to Ants near the construction site.

[348] Ibid.

The information received from the archival sources revealed the methodology regarding the purchase of construction materials and even the payments to artisans and labourers in the *Rozīndārī* and *Mahīndārī* systems. Special attention was paid to small incidents concerning artisans and labourers so that they did not face any kind of trouble, even those who were strenuous and faithful towards their work were often honoured.

It came to be known from the *Kamṭhā* records that if someone got injured while construction activities, the kingdom had provisioned for extra payment during his health recovery, even *Pauśāk* and Ghee were provided to them. Such records evince the presence of sensitivity and a caring attitude of the king towards their people.

From the above discussion, it is known that the region has an abundant source of construction materials and had a rich and scientific system for trading. The whole system was running under a prescribed procedure, even the various professional units were coordinating with systematic and cohesive arrangements.

4.2 Architectural Elements and Construction Techniques

The coordination of elements, planning, and construction techniques are three basic important factors that affect structure the most. Around the world, there are numerous styles of architecture prevailed, these styles are highly artistic and grand in their full-blown version, but simple and austere in the initial stage of emergence. With time new elements fused into the native style and expanded its usual version, certainly, it is an inevitable source of the form evolution. The creation of an architectural form is a by-product of needs, purpose, and philosophical interpretations. When a style develops in a region, it acquires the native character and thus the style becomes their cultural identity.

Since the ancient period various building construction techniques have been adopted around the world. If one region used arches for load-bearing, while another worked on the lintel and corbelled techniques, all these factors depend on the early building construction and development phase of the region.

The impact of the initial phase has always been visible in future building activities and techniques.

If people of one region migrated to another, they carry along their identity, techniques, philosophies, religious beliefs, styles, etc., which certainly over time have a major impact on their new location. These impacts are so substantial that they downgrade or eliminate the first one, otherwise, a new version emerged from the fusion of those threads. For example, when Muhammad-II of the Ottoman Empire conquered Constantinople in 1453 AD that time to save life the Greek scholars and intellectuals evacuated this place and entered Italy, where they taught history, philosophy, mathematics, medicines, etc. in the cities like Milan, Naples, Sicily, Rome, Venetia, etc. their presence and impact on Italy were so which later result in the rise of the Renaissance.

Around the different subcontinents, there are numerous factors responsible for causing diversities in art and architecture. Suppose in the twelfth century if France and England had not introduced pointed arch and flying buttresses as the structural elements, then it would not have been possible to build churches in such a high and grand Gothic style, even the religious philosophy had no less importance in motivating such structures. Therefore, various inspirations have been of utmost importance in developing various styles and types of architecture.

Regarding art and architecture, India drew inspiration from its ancient civilizations such as the Vedic and Indus Valley, and even tribal art and architecture are one of the main sources. Their stylistic blending is legibly visible in ancient and medieval artistic and structural forms. The early architectural phase of the Indian subcontinent was a by-product of wood, clay, and grass, when monolithic architecture came into play, the influence of wooden architecture was distinctly visible, which proclaimed the potential of native artisans and craftsmen.

The artistic techniques and aesthetic sense have developed through centuries of tireless efforts and experiences. The talent and determination were so profound that such onerous carving had processed into one of the hardest

granite, and other types of rock. The central, western, and southern parts of India are full of marvellously carved caves. Various important *Vāstū* and *Śilpa* treaties were composed by scholars and intellectuals keeping regional understanding in essence, which proved to be a great inspiration and guide for the *Sūtradhārs* and *Śilpīs*.

The different matured styles of Brahmanical temples initially evolved from the temples of the *Gupta* period, but their regional development had markedly been influenced by their politics, culture, preferences, philosophy, and other beliefs. Although the core of their inspiration was the same, so the basic technical aspects have not affected much, instead, the availability of regional building materials impacted a lot. With the passage of time, politically swayed foreign races entered India, and their philosophies and belief systems greatly influenced regional styles, especially the Sultanate, Mughal, and British colonial styles.

As discussed above *Mārwār* used to be an important and powerful kingdom of *Rājpūtānā,* which hold a tradition of rich art and architectural heritage. As much as the vast types and architectural stylistic difference are visible in the memorial monuments of *Mārwār,* it is not visible in other *Rājpūt* kingdoms. This architecture belongs to a highly artistic genre, and mainly stone and lime have been extensively used for building materials. The region has a rich tradition of consecrating souvenirs (*Satī Hasta*, *Pagaliyā, Dēvlī, Govardhan Staṁbha,* and *Shivaliṁga)* and constructing memorial monuments (*Chabūtarā, Chatarī, Dēval,* and *Thaḍā*), their sequential details are given below:

***Satī Hasta*:** When the practice of *Satī* was prevalent then it was the tradition of hand engraving that is no longer in tradition. Usually, this tradition had not been performed at cremation sites or memorial monuments, instead, before finally leaving the fort the hand printing ritual was performed on the fort's wall usually near the gate (*Pol*). The part of the wall where the queen marks her handprint was usually engraved by the *Ghaṅāīdār*. There was a tradition of smearing vermilion and worshipping that hand marks (plate 4.4). These engraved *Satī Hasta* were considered a blessing to the dynasty's rule and the public of their kingdom.

Pagaliyā: A relief of footprint on a stone slab, engraved in the centre of a lotus relief or sometimes without any floral decorative motifs directly engraved on a flat surface of a stone slab (plate 4.5a). There is usually a tradition of engraving divine symbolic forms along with the footprint such as Sun, Moon, Conch, Daggers, etc. mostly *Pagaliyā* engraved on marble but sometimes sandstone was also used.

Usually, this holy symbol had consecrated between *Brahmapada* of the *Chabūtarā*, but exaggeratedly in the *Mārwār* royal family, most of the *Pagaliyā* consecrated on top of *Bhadra* or *Padma Pīṭhikā*, and for the protection from weathering usually built a domical top *Koṣṭha* on the *Pīṭhikā*. Usually, the inscriptions are engraved at the top or bottom of the footprint, although this is not mandatory. The tradition of engraving *Pagaliyā* varied across provinces, especially in *Mārwār* to a large extent this divine symbol was only engraved for females, however, in some rare cases it is also found in male's monuments.

***Dēvalī*:** The consecration of *Dēvalī* is the most popular tradition in the *Mārwār*. This form is primarily a stone tablet with a height of half a feet below the ground and one to two feet above the ground, usually less than one and a half feet in length and less than six inches in width. Usually, the façade is carved in a semi-relief, but both the sides and back are flat and uncarved.

Usually, images are carved of the *Kshatriya* who died in battles, clashes etc. Most of the images were carved on the horseback while holding arms and if the queen, *Pāswān*, *Gāyaṇīyā*, etc, became got *Satī* with him then their figure reliefs carved in the front of the warrior's horse, either on the middle or lower part of the tablet (plate 4.5b). In *Mārwār* most of *Dēvalī*'s are made of sandstone, the most artistic and beautiful *Dēvalī*s among kingdoms of *Rājputānā* are of *Rāṭhor* rulers of *Bikānēr,* the tradition of *Dēvalī* consecration is widely observed from a king to the average person.

There are mainly two known traditional methods for the installation of Dēvalī*,* in that installation directly on the land is very common and secondly on the *Brahmasthān* of the memorial monuments. In the special circumstances, it had

been installed on *Bhadra* and *Padma Pīthikā*, and for the protection of *Dēvalī* usually built a domical-shaped *Koṣṭha*.

The *Dēvalīs* installed in the monuments is also referred to as *Putalī*. *Dēvalī* is believed to be the soul of its monument, the inscriptions on the tablets revealed to whom the monument is dedicated. The consecration of *Dēvalī* has been done in the same way as the idol in the temple, and according to the belief, if the dead person attains divinity, then their worship begins, hence the consecration of *Dēvalī* is an important part of the cultural tradition of *Mārwār*.

Govardhan Staṁbha: It is an ornate quadrangular long monolithic shaft and according to the structural arrangements, it can be divided into four segments from top to bottom. The topmost segment has a *Padma* motif or temple-like *Ghumaṭī*, the second segment is most artistically significant and has two different types, one in which the semi-relief of engraved *Gaṇēśa* on the façade and the rest of the surface remains flat (plate 4.5c). Whereas in the second type all four sides are carved with different themes, the carving is very similar to *Dēvalī* where horse-mounted ruler holding arms and in the front queens are standing with folded hands either the ruler and his queens are worshipping *Śivaliṁga*, etc. such themes are beautifully carved. The first type is more prevalent in the regions like *Mārwār, Jaisalmēr, Koṭā*, etc., while the second type is in *Mēwār, Koṭā, Būṁdī*, etc.

The third segment which is usually *Samcaturaśra* and *Samaṣṭaraśra* type has inscriptions on the façade about the glory and notability of the rulers, however, this segment does not pervasive in *Mēwār*. The fourth segment is keeping inside the land to erect the pillar, thus the *Govardhan Staṁbha* is more of a kind of *Kīrti Staṁbha* of the ruler. In *Mēwār*, these pillars are installed in the *Brahmasthān* of the memorials, whereas in *Mārwār, Koṭā,* etc., there is a tradition of installing them nearby the memorials or water bodies.

***Śivaliṁga*:** The consecration of *Śivaliṁga* is not very prevalent among the memorials of *Mārwār* but the border region especially the adjoining part of *Mēwār* and *Sirohī* has the tradition of such practices. whereas the region of *Mēwār, Koṭā*, and *Būṁdī* has rich traditions of *Śivaliṁga* installations.

The *Chaturmukhī Śivaliṁga* type is very prevalent in *Mēwār* (plate 4.6), although *Būṁdī* and *Koṭā* do not have a prevalent tradition of *Mukhaliṁga*, instead, there is a tradition of carved semi reliefs of the king, queens, and his horse on the surface of *Śivaliṁga* while *Pīthikā* have engraved divine symbols i.e., sun, moon, sword, dagger, shield, conch, etc. which divulge a rich tradition of this region.

Mārwār is rich in the terms of cultural inheritance, comparatively, they have a great heterogeneity in the architectural forms of their memorial monuments, probably not seen in other parts of *Rājasthān*. In detail the architectural types, form, artistic elements, and techniques are discussed below:

***Cabūtarā*:** It is similar to the *Adhiṣṭhāna,* usually of *Samcaturaśra, Samṣaṭaraśra,* and *Samaṣṭaraśra* types, and raised from one layer to four layers, and mostly stairs are kept in the east. Among the memorial types, it is the most basic type of structure, and its design could range from too simple to highly decorated. There are beautiful cornices on the upper and lower corners, decorative *Pāgās* on the side corners, and a few walls have semi-relief carvings of floral patterns, yet comparatively the *Cabūtarās* in *Mārwār* are mostly of a simple kind.

Mostly marble and sandstone have been used in the construction of *Cabūtarā*. *Bhumipūjan* is always performed before starting construction, once the foundation digging is completed, the base is filled and levelled with dry uneven stones masonry. Thereafter, a wall of lime mortar-based stone masonry with roughly a width up to twenty-four inches is raised to the ground level, from this level another wall is erected of lime mortar-based dressed stone masonry, however, its height varies as per the requirement (plate.4.7). If the wall's surface is not flat finished then it is carved with figures from the *Hiṁdū Paurāṇik* themes, animals, and birds like elephants, horses, cows, deers, peacocks, swans, parrots, etc., arabesque, geometric patterns, and usually top and lower corner are carved with beautiful cornices.

When a polygonal frame of the *Cabūtarā* is completed, then pebbles mixed soil-filled in-between empty spaces, and for a few days, it is kept filled

with water so that remained cavities and gaps should be removed. Once, when the soil gets settled it is used to be levelled with fine river sand and covered with stone flooring. Once the construction finished then with the auspicious *Muhūrta,* the consecration mostly performed for *Pagaliyā, Dēvalī, Śivaliṁga,* etc.

Chatarī: It is the most popular form among the types of memorial monuments, even this well-accepted form is also preferred as a decorative element in other types of structures like temples, palaces, forts, etc. The best example of symmetrical architecture usually ranges from small to massive. The superstructure of the *Chatarī* is raised on the *Cabūtarā,* the same *Cabūtarā* discussed above, but its size depends on the grandeurs of the superstructure. At least a minimum of four pillars requires to stand the superstructure, while these numbers can be increased if needed to expand its size.

Earlier only *Pāṭ* (lintels\beams) frames were built over the pillars, but later this structure came under the influence of the Mughal style, which introduced new versions of elements, such as the Cusped arch, *Ardhachaṁdrākār Chajjā*, Domes, decorations, etc. This arch is an underside lined with cusps, and these cusps are the shape of the pointed projection by two intersecting arches, it is also known as Polyfoil or Polylobed (plate 4.8).[349]

The purpose of adding the Cusped arch was more aesthetics rather than load-bearing, so even after adding this element, the lintel frame is a key component for the load transferring of the roof\dome. The *Chajjā* is an important element of *Hiṁdū* architecture, earlier it was flat but later *Ardhachaṁdrākār Chajjā* had been introduced, and its aesthetic outlook is comparatively better. The *Kaṁgūrā* form or relief engraving of the same had been used well as the Parapet wall.

Usually, the dome lies in the geometric calculations, it is raised on the square *Pāts* frame progressively to octagonal, sixteen- and thirty-two-sided polygon frames, which are combinedly referred to as a neck of the dome. The

[349] Ching, Francis D.K., A Visual Dictionary of Architecture (Hoboken: John Wiley and Sons, 2011 2nd ed.), 275.

inner face of the dome is usually a built-in corbelled technique, this layer rests on the neck which is often the most decorative part of the dome.

The *Padmaśilā* is a keystone, whereas temporary locking of the corbelled stone *Khaḍḍī* and clamping was the important material and technique. Once the building of the inner layer is completed, the outer surface is prepared in the domical form usually with the lime-based stone masonry. When the domical form is accomplished then its outer surface is treated with *Kauḍī* plaster or stone cladding. The top of the dome is erect with inverse lotus with progressively *Grīvā*, *Amlikā, Kalaśa*, or *Ghumaṭī* (plate 4.9). Usually, the types of domes built were Hemispherical dome, Ribbed dome, Onion dome, *Cālā* dome, etc. (plate 4.10), apart from this, there was also the trend of the *Phaṁsānkār* roof and flat roof.

When there is a plan to execute a bigger *Chatarī* form than usually first step has been to increase the number of pillars which are followed by four small domes around the main central dome in a *Paṁcāyatan* pattern or *Hārā* pattern of Onion and *Cālā* domes. Largely stairs are facing east having *Hathinīs* on both sides, and in front of that have *Koṣṭas* which have semi-reliefs of deities. After completion of the structure the auspicious *Muhūrta,* the consecration of *Pagaliyā, Dēvalī, Śivaliṁga*, etc. used to be performed.

Dēval: There is not much difference in the architecture of *Dēval* and *Dēvālaya*, their architectural composition is the same. The only key difference is the *Praṇapraṭiṣṭhā* in the *Garbhagṛha,* usually *Dēvalī, Śivaliṁga* are consecrated in memory of the departed soul. However, at present, no such types exist in the *Garbhagṛha* of the *Maṁdor* 's *Dēval*, possibly displaced by someone in the past. In *Mārwār*, such structures can be seen at *Maṁdor* garden which is an excellent example of the *Mahāmarū* style, the smallest of them being the monument of *Rāv Māladēv*, and the largest being that of *Mahārājā Ajītsiṁha*.

Here, the most developed structure is of four stories, all *Dēval* have an east-facing entrance which opened into *Maṁdapa*, this entrance has stairs with the *Hathinīs* on both sides, which have *Koṣṭha* in front having reliefs of deities. *Maṁdapa* is standing on *Hiṁdū*-style columns having *Bhēṁtī* and *Kāṁtā Sirā*. The domes of *Maṁdapas* are rested on the octagonal *Pāt* frame progressively

to sixteen- and thirty-two-sided polygon frames. The inner part is a built-in corbelled technique having a beautifully elongated and highly decorated *Padmaśilā* which is the most decorative member of the dome (plate 4.11). The remaining part of the dome construction is similar to the techniques discussed above for the dome of *Dēvalī*. The roof has a flat *Chajjā* and the parapet wall is built in the typical design of *Kaṁgūrā*, whereas each corner of the roof has sculptures of Elephants and Tigers.

From the *Maṁdapa* one can enter the *Garbhagṛha* through the *Aṁtrāla*. On the *Aṁtrāla's* sidewalls, there are beautiful *Koṣṭha* (without idols) are carved. The doors frame of *Garbhagṛha* is highly decorated having reliefs of *Gaṁgā-Yamunā* and *Saptamātrūkā* whereas *Pāt* is carved with idols of *Gaṇēśa, Ūma Śaṁkar, Laxmīnārāyaṇ*, etc. Among the *Dēvals* of *Maṁdor*, only *Ajītsiṁha's Dēval* has a circumambulation (*Pradakshina*) path.The base platform is known as *Adhiṣṭhāna*, few of them have *Koṣṭha* on the walls and cornices (*Paṭṭī)* on the lower and upper corners otherwise most of them are undecorated. These *Dēvals* have developed *Piṭha* having *Bhittas, Jāḍyakumbha, Karṇaka, Antarpatra, Chādyakī,* and *Grāspaṭṭī* as subsidiary divisions but the *Piṭha* of *Gāṁgā*'s *Dēval* at *Paṁcakuṁdā* has additional *Gajapaṭṭī* and *Narapaṭṭī.*

All the *Dēval*s have developed wall plans (plate 4.12**)** and the *Maṁdovar* is highly developed which have *Khuraka, Khumbhaka, Kalaśa, Antarapatra, Kapotālī, Mancīkā, Jaṁghā, Udgama, Bharnī, Kapotālī, Antarpatra, Khuracchādya* as subsidiary divisions. At the level of *Khuraka*, there is a beautiful *Pranālā* that drains out *Jalābhiṣēk* holy water from the *Garbhagṛha*, these *Pranālās* are usually of U-shaped, *Kuṁbhamukhī,* and *Makarmukhī* types (plate 4.13).

The superstructure resting on the *Maṁdovar* wall is of the *Śikhara* type, it is composed of elements like *Śṛṁga* in the center and surrounded by the *Hāra* pattern of *Uruśṛṁga* and *Karṇaśṛṁga* elements. Apart from this, there are other highly decorative elements such as *Tilak, Rathikā, Ugham, Nasikā,* etc. At the top, there is a small neck below the *Amlīkā* having four faces representing

four directions, and above the *Amlīkā* other elements layered from bottom to top are *Amalsārikā, Padmachaṁdrikā,* and *Kalaśa* (Plate 4.14).

The *Jaṁghā* part of the structure is a highly artistic and well-decorated section that has beautiful celestial sculptures. The theme of sculptures are deities, Sages, *Gandharvas, Apsaras, Kinnar, Viralikā,* etc., while sculpting such masterpieces special attention had been given to *Tālamān* (iconometry). The rules for iconometry had broadly been discussed in various *Śilpa* treaties, and by that, the *Sūtradhāra* idolized a whole physical form with only face measurements.

Tālmān means "*Tālasya Dvadaśāṁgulam*" which means twelve parts should be understood as *Tāl*, the face (forehead to beard) of the stature is an idealized measurement (*Tālmān*) and must follow for the whole body. As clearly mentioned in *Vivēk Vilās*:

"Nāvatāl Bhavēdruyaṁ Tālasya Dvādaśāṁgulam /
Āṁgulānīn Kaṁbāyā Kiṁtu Rūpasya Tasyahi //"

(Vivēk Vilās, 135- Sarga 1)

The height of the statue should be *Nāvattāl*, and the measurement of twelve *Āṁgula* is a *Tāl*. According to *Kaṁbāsūtra,* instead of taking the division (*Āṁgula*) of *Gaja,* it should be taken from the idol itself because here the meaning of *Āṁgula* should not be inches but the segment should be understood.

Therefore, *Śilpa* treaties discussed not only humans likewise figures but also animals, birds, *Grāsmukha*, horses, elephants, swans, etc., although opinion differences also exist among the texts. The *Nāvattāl* segmenting of human-like sculptures are: Face 1 *Tāl*, Neck 4 *Aṁgula*, Neck to Heart 1 *Tāl*, Heart to Navel 1 *Tāl*, Navel to Hips 1 *Tāl*, Hips to Thigh 2 *Tāl*, Knee 4 *Aṁgula*, Knee to Ankle 2 *Tāl*, Anklet to Foot 4 *Aṁgula* and adding all is total *Nāvattāl* (108 *Aṁgula*) *Tālmān*. According to the *Śilpa* texts, it is the best segmenting of the human-like body (*Aṁgabhaṁgī*).

However, the different body positioning as standing, sitting, and dancing idols are also referred to as *Aṁgabhaṁgī*, such as *Sampāda-Sthānaka,*

Ābhaṁga, Tribhaṁga, Atibhaṁga, Āalidhaya, Pratyālidhaya, Utkatik, Paryaṁka, Lalāt Tilak, etc. are the most depicted *Aṁgabhaṁgī* by the *Śilpīs*.

The deities have symbolic attributes such as nature, interest, and vehicles. The vehicles are of two types i.e., *Cala* which can walk, like Bull, Swan, Rat, Crocodile, etc., and *Acala* cannot walk, like *Padmapiṭha, Bhadrapiṭha*, etc., likewise, as per their character and energy, they possess *Āyudha*. According to the *Paurāṇik* literature, these *Āyudha, Piṭha,* vehicles, and appearance are somehow associated with the deity, so keeping this in mind, the *Śilpakāras* sculpted such divine forms.

Here most of the sculptures belong to Shaivite and Vaishnavite themes. The *Dikpālas* have depicted on the *Jaṁghā* part, even in the Vedic literature, *Dikpālas* had been given crucial positions. There are ten *Dikpālas*, among them, *Iṁdra, Yama, Varūṇ,* and *Soma* associated with four main directions, the *Dikpālas* of *Vidiśā- Vikoṇ* are *Agni, Naiṛutya, Vāyu,* and *Īśa*, whereas the *Dikpālas* of *Adho- Pātāl* and *Urdhava Ākāśa* are *Anaṁta* and *Brahmā*.

There are different kinds of *Virālikā* are sculpted on *Dēvals* which are also known as *Vyāla* or *Yālī*. Among the *Śilpa* texts, there is variation in the number and types of *Virālikā*, the *Samarāṁgaṇa Sūtradhār* describing sixteen forms, while other texts vary with this number. The figure of *Virālikā* is like a lion standing on two legs, while their faces are carved like that of various types of animals, birds, humans, etc. Usually, *Virālikā* 's front feet are high and near the lower feets, there are dramatically sculpted warriors and beautiful *Dēvāṁganās*. Usually, on both sides of the idols of the deity, there have figures of *Virālikā*. The names of such forms are determined by their faces, for example, if there is a depiction of an elephant's face then it will be a *Gajavirālikā*, and if it is *Varāha's* then *Varāhavirālikā*, similarly other forms can be identified (plate 4.15).

Apart from the above-discussed figures, usually, *Asuras, Nāgavāsukī, Kiṁnar, Vidhādhara-Mālādhar, Gaṁdharva* couples, *Kṣētrapāl,* etc., have also been carved on the walls of *Maṁdovar*. The principal direction of load movement of *Śikhara* is very much like pyramidical, which is progressively transferred to the ground through the walls, *Piṭha, Adhiṣṭhāna,* and

foundation. While the dome rests on *Pāṭas,* it transfers its load through the pillars. These *Dēvals* are one of the best examples of the *Mahā Mārū* style.

Thadā: This type of monument is mostly seen in the *Mārwār*, if the dome on top is ignored then the structural plan is almost identical to the Vedic residential units such as *Daṁdaka, Vardhamān, Sarvatobhadra, Chaturmukha, Nindyavarta*, etc. The entrance of the structure opens at an *Aliṁdā* (verandah) which has interconnected *Shālās* on three sides like a row house. The east-facing *Shālā* in the front of *Aliṁdā* is functionally like the *Garbhagṛha* of *Dēval.* This chamber has a beautiful cenotaph-type *Koṣṭa,* usually on the *Bhadra* or *Padma Pīṭha*. Inside the *Koṣṭa*, the *Pagaliyā* or an image of the departed souls are installed, for whom this memorial was built.

From the *Mahārājā Takhatsiṁha's Thaḍā* onwards, "railings" and "*Zālī* pattern parapet" were added as new architectural elements in the memorials, which were proved as a revolutionary swap in designs (plate 4.16). The *Phaṁsānā* roof pattern was added as a key roof element for *Jaswaṁta Thaḍā*, it was the first time in any *Thaḍā* type structure. The structures at *Dēvakuṁda* indicated a new drift to the architectural fusion, marble had never been used as a key building material before Jaswant *Thaḍā*. Even the *Chatarī* without a dome and having a typically Mughal style tent-like form is the first in its kind structure in *Mārwār*.

Lime and its by-products

According to the archival records and the surveys of the memorial sites, it can be said with absolute certainty that lime was widely used from the foundation to the dome construction. Processed lime used in these monuments was prepared from *Muraḍa* rather than limestone, locally known as *Muraḍiyā Cūnā. Muraḍa* is mainly of three types, out of which the whitest *Muraḍa* was used for preparing lime.

In the *Jodhpur* and surrounding areas mostly the small pebbles of the *Muraḍa* are collected near the water bodies like the ponds and lakesides by digging and refining the soil. In *Kamṭhā Bahīs,* records are given in concerned

the similar activities near *Takhat Sāgar* at *Jodhpur*. Usually, *Muraḍa* collected from the sites is processed in kilns[350], these kilns are usually of a cone shape having a narrow bottom and a wide circular top.

While heating *Muraḍa*, the bottom was heated by setting a fire under it. Earlier wet wood and dung cakes were used to ignite the fire so that significant and stable heat can be transferred to the *Muraḍ*, locally called *"Tāv",* which lasted for twenty-four hours (plate 4.17). Nowadays coal replaced wet wood and dung cakes. Once the raw material was processed in kilns, it was dispatched to the construction site.

Before consuming this processed calcine *Muraḍ* in construction, it is hydrated by soaking in water for twenty-four hours and then crushed in the *Ghaṭa* (crusher) with the help of buffalo or Ox (plate 4.18). When it is properly hydrated and crushed, then transferred to the water tank for the required time. If it remains soaked in water, it does not lose its potency for a long period which is not possible for a material prepared from limestone. Mostly *Muraḍiyā Cūnā* " was used in all the old structures of *Jodhpur*.

According to archival sources, usually, varieties of ingredients were mixed while the construction of lime-based concrete roofs. Such ingredients are Jaggery, *Gugal,* Fenugreek powder, *Tāpaḍo*, concrete, and river sand. While construction, firstly sandstone slabs (*Chiṇa*) were laid horizontally and parallelly, and in-between gaps were filled with lime mortar called pointing. Once the base is finalized then a thick layer of the concrete mixture (lime, river sand, and concrete) had been spread on it and left overnight so that extra water in the mixture dripped out through the stone slabs. Dripping of extra lime water from slabs enhances good holding between concrete mixture and slab.

On the next day, the lime-concrete mixture is thoroughly spread and levelled (*Pāyo*), and then the rest of the ingredients are mixed into this. Before mixing *Gugul*, it is first boiled in water in the ratio of one kilogram of *Gugul* in four litres of water, once it became dissolved in water then it is mixed by

[350] In the case of limestone, before heating it in the kilns, it first treated in a primary (even secondary and tertiary if needed) crusher to break the rock into pebbles, depending on the size of the limestone, but *Muraḍ* is naturally available in pebbles so it is treated differently.

sprinkling on the concrete surface. To mix the fenugreek, it is grinded coarsely and spread on the concrete surface, the ratio of mixing is two-kilogram fenugreek on two hundred square feet area.

The use of Jaggery depends on the seasons, its quantity of mixing in summers is less as compared to winters. Jute fibres (*Tāpaḍo*) are usually added as a binder for the concrete, but before being added to concrete, it is boiled in water so that their brownish colour extracts out and does not affect the whiteness of lime. Once the roof surface is levelled, then at least seven days *Gobāī* and *Thapāī* process has been carried out.

Usually, for seven days, moisture in the concrete is maintained by spraying water. Along with spreading the concrete mixture on the base layer, *Gobāī* performed with the V-shape sharp stone, by this, the gaps and air present in the concrete are released, and gaps remained due to *Gobāī* are filled with fresh water-washed sand. After *Gobāī,* wooden paddles are used to thump (*Thapāī)* on the uneven surface which acts as a vibrator on the concreate, this activity usually lets for four to five days.

Due to patting, the concrete settles downward and a layer of about one and a half inches of creamy *Rāfo* is deposited on the surface. Due to rubbing (*Ghuṭāī*) of the surface with *Mālo*, the smoothness and strength increased and this fine coating acts as a weathering-protected shield for the roof. Once the roof is levelled by *Ghuṭāī*, then it is watered (moist curing) for up to ten days. This is how a traditional lime-based roof was prepared. Due to the climatic conditions of *Mārwār*, lime-based construction activities are mostly proffered in winter. The high temperature of summer affects the strength and damages the lime-based work.

The Summer wind of *Mārwār* is too hot and dry which developed hair cracks on the roof, although, if it is prepared with *Muraḍiyā Cūnā*, then during the monsoon when it comes into the contact with rainwater it cured itself and retained its original strength for a long period, that is why the old buildings had a better life period. lime was a crucial and highly preferred building material due to its high binding strength and a tendency to balance the extremes of cold and hot temperatures.

Due to technical factors when cracks or damage occurred in the old roofs, this can be treated with the *Saṁdalā* technique of up to 2 *Sūta* (1 *Sūta* = 3.17mm), which preserved the roof from cracks and gaps developed in the roof. This technique is only applicable to the old roofs, *Saṁdalā* is a lime slurry which props up the damage recovery and maintenance.

For lime plastering, the crushed lime is mixed with water and kept for a few days, then unprocessed river sand is mixed with crushed lime in the proportionate ratio of 1:6 (lime: sand). This plaster is spread over the wall and kept moist for five days by sprinkling water at intervals, after this, if any unstick sand grains remain on the surface are removed with a broom.

The next layer of mortar is prepared differently, the processed lime is mixed with fine river sand, and applied on the earlier done coarser and uneven surface. This mortar is a fine plaster and with the help of *Mālo,* fine touch is given to the wall surface. Usually, *Kalī* is used for the final coating (a fine and creamy paste of lime) to get a smooth and shiny surface, this paste is applied on the levelled wall surface, and to ensure such craftmanship a very balanced handiwork is needed.

If there was planning for *Kauḍī* plaster instead ordinary plasterwork, it was prepared from the *Muraḍiyā Cūnā*. To prepare this, usually, *Muraḍiyā Cūnā* was refined through four layers of muslin fabric and only large *Mūṇā* was preferred for the container. While refining the care had to be taken to avoid any kind of foreign particles. When the *Mūṇā* was half-filled with *Kalī* then eight to ten inches of fresh water needed to add and the open top must cover with the fabric so that filtered lime remains in the contact with air, this process was carried out to get rid of salinity.

On the next day, a creamy layer of lime and water was removed without deranging the *Kalī* deposited below, and again added fresh water by stirring the *Kalī* at the bottom and covered with a clean cloth, this process had to be repeated frequently for up to five to six months. On the third day of the process, curd had to be added, and the ratio had been followed to be approx. thirty to forty litres of curd in a quintal of *Kalī* (including water), this proportion of curd was depending on the lubricity of the curd.

While preparing this creamy plaster, buffalo milk processed curd needed to mixed in this due to its high-fat content. Although curd processed from cow's milk can also be used, but especially needed to avoid from the month of July to September due to its excess content of *Swarṇatatwa* (yellowness in milk). During the entire procedure of five to six months, at least four to five *Mūṇā* needed to be changed as they usually deteriorate due to salinity (*Khār*). The *Kalī* is only ready to use for *Kauḍī* plaster when the salinity gets neutralized.

To prepare the base layer for the *Kauḍī* plaster, usually fine, dust-free, and salinity-free river sand is necessary. During the process, river sand needed to be sieved and washed with clean water so that no unwanted particulate (*Fulā*) remains, otherwise it can cause severe problems during plastering. While plastering, thickness is usually kept up to two *sūta* and then the surface is slowly beaten with a cane stick so that there will be no porousness, and air left and a firm and solid base can be prepared, later for the next four to five days, this surface cured regularly with water.

Once the base layer is done then with cautions experts execute the implementation of *Kauḍī* plaster. While this care should be taken that this plastering should not exceed the thickness of the nail, otherwise there is a risk of developing hair cracks or flacking. Once this plastering is done, it is rubbed with the tools called *Gulguciyē*, usually, such tools are prepared from the round stones collected from the rivers and which are cut evenly from the center, these cutting surfaces are smoothened by rubbing them together.

When the *Gulguciyē* have a flat and soft surface, then a string is attached to the top for holding. These tools are rubbed over the *Kauḍī* plaster, and care must be taken that the plaster should not get too dry or wet. At this stage, rubbing the surface with the tool leads the plaster to start drying completely, and while this, the luster started emerges on the surface, which is alike the *Kauḍī* surface hence it is referred to as *Kauḍī* plaster (Plate 4.19).

After a day, for the next two to three days the surface is cured with water and wiped carefully with a muslin cloth to remove the lime powder that emerged on the surface due to rubbing. To enhance the shine, the surface is washed with the water prepared from *Arīṭhā*, although archival inscriptions

describe buying soap in this regard, but ready-made soaps contain the caustic ingredient that is harmful to the coating of the *Kauḍī* plaster, hence it is likely the term soap has alluded to *Arīṭhā*.

The frescoes are done on the lower and upper surface of the dome, for the part on which the painting needed to paint is prepared separately and that particular surface is not treated with the *Ghuṭāī* process. If the surface becomes smooth due to *Ghuṭāī*, then it is difficult to apply colours to that part of the wall, so while frescoes execution-only unpainted part is treated with *Ghuṭāī* to achieve lustre and strength and the frescoes surface remained untreated.

The artists from the *Chitārā* community were used to paint frescoes.[351] The raw materials for the painting work were procured from the market and prepared on-site with expertise techniques. According to *Kamṭhā* records, usually, *Siṁdūr* (vermilion) was used for the red colour, *Nīla* (Indigo) for the blue colour, and black was prepared from the carbon black (*Kājal*) collected by lighting an oil lamp. In the memorials of *Mārwār*, most of the frescos were painted inside and above the dome.

To develop a complex stone structure, it is must to stabilize the stone members very precisely. The well-known common techniques identified are clamping and joineries. Usually, clamps made of iron, brass and copper were used, and metal selection depends on the needs and beliefs. These clamps are usually Cramps and Plugs (*Damarū*)) types, which are used to stabilize two big stone members these clamps fit inside the architectural members by drilling or carving holes. The plug shapes are inserted by creating a similar groove by drilling or carving holes in the stone blocks or architectural members (plate 4.20).

For the huge stone members usually joinery techniques have been preferred. The most noted joinery is tongue and groove, especially between the subsidiary members of pillars and the whole pillar fitted in the *Adhiṣṭhāna*, this joint is mostly used in the vertical members. For lintels and beams (*Pāts*)

[351] For detail description about *Chitārā*, see chapter three.

frames mostly, the butt and mitre joints are preferred, apart from this mortise tenon, and lap joints are also well used to stabilize the structures (plate 4.21).

With time and changing circumstances, the technicalities of art and architecture have often polymorphed, even greatly impelled the use of materials, decorative motifs, beliefs, and aesthetic appearance. The analytical study of various *Śilpa* treaties, archival records, and forms has made it possible to understand it very tellingly and systematically.

4.3 A Critical Analysis of the Impact of Extrinsic Styles

Since ancient times with the mutual or inflexible approaches, the evolutions of art and architecture influences civilizations. When one style came in the contact with another it partially or extensively influences others or gets influenced. There are numerous influential notions responsible, whatever may be the factor, the basis for the sprouting of such seeds is mostly philosophical, whether it is political, cultural, religious, or something else.

The rich tradition of building memorials in one form or another can be seen all over India. In the southern part of India, the *Dagdha* structure (*Dēval*) known as *Pallipaḍaī,* which are built in the rich *Draviḍa* style. The main ones are in *Tamilnādu* and *Aṁdhra Pradēśa* and a few of them are famous and dated back from tenth to twelfth century of the *Chola* period, these are the groups of *Śiva* temples established as funeral monuments. Among them, many structures bear inscriptions of their being *Pallipaḍaī*, which means "a memorial temple".

The *Śiva* temple built by *Parmār Rājā Bhoj* at *Bhojpur, Madhya Pradēśa* around 1000 AD has been accepted by historians as a funerary structure. In *Rājasthān* there was a rich tradition of building *Dēval* in the memory of some important rulers of various *Rājpūt* dynasties. The *Laxminārāyaṇ* temple at *Ambēr* was built in the sixteenth century by the *Kachwāhā* ruler *Pṛthvīrāj* in memory of his queen. Similarly, the *Jagat Śiromaṇī* temple was built in the seventeenth century by *Rājā Mānsiṁha* in the memory of his eldest son. There are innumerable examples of this type built in the rich *Rājpūt* architecture.

A similar sequence has been noticed in the *Mārwār* region, the early phase of architecture being of the *Hiṁdū* belief, and the region is known for the earliest implementation of the *Mārū* style. The ancient temples of *Osiāṁ* and *Kirādū* located in this region are excellent examples of the *Mārū* and *Mārū Gurjar* style. Apart from the *Dēval* tradition, there have been some other traditions, whose trend is partially visible even today, in which the establishment of *Chatarī, Cabūtrā, Śivaliṁga, Dēvlī*, and *Pagliyā* are prominent.

In the past, the *Chatarī* structure was preferred only for a notable person such as a ruler, this practice became common over time, and such structures were also erected for the members of the royal family, *Sāmaṁts*, *Sardārs*, Saints, etc., otherwise building *Cabūtrā* and erecting *Dēvlī* had been more in vogue for them. The *Chatarī* monument appears to be a fusion of the Vedic mound and the tradition of the tribals, with the tradition of erecting the *Dēvlī* inspired by the installation of pillars in memory of the dead among the tribals. The *Pada Vāstū* platform is prominent among the *Chatarī* and *Cabūtrā* construction, in which the *Dēvlī* is installed in the *Brahmapada*, the superstructure of the *Chatarī* has been the descendancy of the *Maṁdapa's* superstructure of the *Hiṁdū* temples.

Although many scholars have the belief that the use of the *Chatarī* element in *Rājpūt* architecture had been inspired by the tombs of Mughal architecture, this does not seem to be true as this form was also used in pre-Mughal monuments, such as monuments from the Sultanate period. Instead, it can be assumed that during the Mughal period there were some changes in the original form of the *Chatarī*, such as the finial, shape of the dome, *Chajjā* pattern, columns, decorative motifs, etc.

The Mughals brought grapes to India and the engraving of grape leaves and roses in the decorative motifs reflects the influence of Mughal art. The tradition of building rooms in *Chatarī* has not prevailed in the past, which was seen in the later phase, and may have been influenced by Mughal tombs. Apart from the corbelled technique, another technique for the dome is a Mughal influence, similarly, in later *Chatarī* design, the *Chālā* dome is influenced by

the Mughal style, but in the Mughal, it was influenced by the *Chālā* type roof inherent in the architecture of *Baṁgāl*.

The reason for this confusion among scholars is also because the *Rājpūt* architectural form of *Chatarī* was infused by the Mughals as a decorative element in their palaces, forts, and tombs, the best example of which can be seen in the Humayun's tomb. During the Mughal period, some of the basic forms of decoration changed over time, which were later also accepted by the *Rājpūt* ruling class, and possibly led to the misconception that this form was from Mughal sources and that *Rājpūts* acquired it when they came with the contact of Mughal.

Mughal architecture is a fusion and inspired by various art and architectural forms. The cusped arch used in the *Chatarī* was influenced by *Hiṁdū* -style *Toraṇa* and the Buddhist Chaitya arches, however, this arch is not as load-bearing as other arch types. Balban's tomb was the first to use a load-bearing key stone arch in India, while lintel and corbelled techniques

were used for load-bearing in the *Hiṁdū* style. The technique used in the *Chatarī* is a combination of corbelled and lintel techniques, while in the Mughal influence the use of arch is decorative rather than load-bearing. Most of the *Hiṁdū* architectural forms have been used in Mughal architecture, as the well-known form *Chatarīs* fused in the Humayun's tomb.

When the *Rāṭhor* rulers of *Mārwār* came in the contact with the Britishers, the influence of colonial architecture was reflected in their architecture. Predominantly from the time of *Mahārājā Mānsiṁha's* memorial monument, *Thaḍā*'s construction reflects the influences of the colonial architecture, although there is a fusion of *Hiṁdū* and Mughal architecture. In the *Thaḍā* type of structure other rooms were also built along with the main hall and its structure is like that of a *Vaidīk* residential building. Usually, the decorations are not of high standards like that of the *Dēval*, there is a common room-like space having *Dēvkoṣṭha*, in which there is a traditional practice of keeping the photograph or *Pagaliyē* of the departed soul.

Thaḍās of *Mahārājā Mānsiṁha*, *Mahārājā Takhatsiṁha* and *Mahārājā Jaswaṁtsiṁha*-II are the most significant, which are highly ornate and spacious than other *Thaḍās* of the region. The *Jaswaṁt Thaḍā* is an excellent example of a fusion of *Hiṁdū*, Mughal, and British colonial styles. The *Ummēd Bhawan* in *Mārwār* is a fine example of colonial influence, after its construction, the colonial style highly influenced the regional style.

The monuments of *Mahārājā Jaswaṁtsiṁha*-II and the later structures are built of marble, these structures are a composite version of different styles. They have flat roofs, no domes like the earlier structures, and even the parapet wall is built in ornamented *Zālī* pattern, the walls of *Cabūtrā* have semi-relief of arabesque designs and beautiful railings having carved balusters all around. The fusion of *Hiṁdū,* Mughal and colonial style can be seen in this single structure.

The simplest way to identify the influences of Islamic and colonial architecture can be the lookout at the evolution of columns (plate 4.22) and brackets (plate 4.23) from the earliest memorial structures to the latest one. Such decorative motifs and forms shifting is periodical and visually descriptive, and provide a clear idea of influences and evolution.

Hence, from the above study, it is concluded that the region has a strong tradition of building memorial monuments. The artistic form has been changing due to the influence of time and circumstances, resulting in a fusion of architectural styles, the influence of Mughal and colonial architecture is visible in the *Hiṁdū* style, these forms were accepted by *Rājpūt* rulers, and the style jointly referred to as the *Rājpūt* style.