Techniques

The tradition of stone sculpture making is very old in our country. But it is astonishing that descriptions of icon of different deities acquire more importance in the discussion of iconography. The roles of the artisans are neglected in the tradition of Indian art. Important information about the ancient artisans are available in iconic epigraphs, written on the pedestals of the images. The names of the artisans and patrons are engraved on pedestals. But the technique of icon making, followed by the ancient artists is not elaborately described in the well known books of Silpa texts. Besides the scanty information in the Silpa texts, the incision marks on backside of stele due to chiselling of stone image are also vital to determine the working technique of the artisans.

If we observe the sculptures and their features, then we will be able to know the technique of image making done by the artisans. They were versed in the knowledge of geometry, science of chiselling, stone identification and aesthetics. There were few separate actions to accomplish the whole process. Firstly the artisan broke out the stone piece from a stone mass. They then shaped the main image with it's halo. After that step by step the demi-gods were created on both sides of the main image. Lastly the pedestal with manifold projections (rathas) was made. Needless to say, that image is almost a three dimensional representation. Engraving the middle portion of the lower part of the
icon, sculptors created three dimensional effect of the plastic art. The empty spaces on both sides of the sculpture were manifested as it's beauty.

In bygone days, the sculptors and the architects had a close relation with each other. The words like sutradhara, taksmakara, chitrakara, sthapaka and gravakara are intimately related to the sculptor and architect. In Pala sculpture, we find a close affinity between these two.

There are two different views about the making processes of stone images. A group of historian arrive their conclusion basing on the incision marks on sculptures. On the other hand, another group fully depends on the source of different Silpa texts. The horizontal incision marks on image hint that the artists cut the stone bit by bit to shape the general outline of the image. Then they proceeded to create the final shape of the images of gods.

It is assumed that there are few steps to make a good image. Collecting the stone piece from different areas, the image of god was made with the help of deep and narrow engraving by the sculptors. Incision marks were gradually reduced from wide to narrow. When the chiselling was completed, the image makers polished and smoothen the icon by soft abrasion. For this reason, there is metal like glaze found on the stone image of Bengal.

Some steps, followed by the artists for sculpture making are closely similar to the disciplines connected with accomplishment of icon, narrated in Vastuutrapaonishad. This text says about six disciplines of sculptural art which are very much important for the configuration of icon. These are as follows—Sailam or acquaintance with the different types of stones, Khilapanjara or compositional diagrams, sailabhedanam or the carving of stone, angaprayoga or the

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48 Basil, Santosh Kumar, Bharat Silpe Dehaja Sram (In Bengali), 1990, p. 79.
arrangement of the limbs or parts, nyasabhavana or the emotional depiction of the composition and sambandha-prabodhana or the understanding of the integration of the composition.49

Vastusutraponishad says about six types of stones used for sculpture making. Those are as follows—Hiranyarekhika, samavarna, tamra, dhatupatita, vajralabdha and saikatalika. Hiranyarekhika bears the lines of golden colour. As the stone is of bad quality, the images, made by hiranyarekhika become deformed shape. The samavarna stone has single colour. It may be black, dark brown or yellow. This type of stone is considered as the essential composition for icon making. Main figure of divinity is generally made with this stone. The copper red stone, known as tamra is generally useful for the image of sculpture hall. Dhatupatita, which has metal like sores of smoky colour is not the useful material for work of sculpture. Despite of it's inferior quality, vajralabdha category of stone is accepted for sculpting. The term saikatalika means sand stone. Some schools of sculptural art yielded sand stone as the useful material of icono-plastic art. Image makers should be well acquainted in the characteristic features of following classes of stones and minerals. As igneous rocks such as, granite, obsidian, black basult, peridotite, sedimentary rocks such as sand stones and lime stones and metamorphic rocks like slate, schist and marble are frequently used for sculpture making, the artists should know their availability, durability and purpose.

Khilapanjara or compositional diagram is the second step of the image making. Before the drawing of compositional diagram, the stone should be fixed and polished by both the sculptors and the adhvaryus (the Vedic priests). In very beginning of the work a central hole should be created on the stone. Then a line is drawn on the surface of the stone.

49 Boner, Alice, Sarnia, S. R. and Baumer, Bettina, Vastusutra Upanishad, 2000, p. 49.
All the limbs of the image should be set along the lines. With the knowledge of figuration (*rupaprajna*), artists make icon as the holy part of supreme authority.

For manifesting the exuberance of the figures of gods, the artists proceed with deep devotion and great care. According to the importance of technical procedure of figuration, engraving is the foremost part. The sculptors cut stone, curve various forms and create limbs on the basis of his efficiency. The narrow incisions are chiselled between the limbs of the body. The limbs of gods and goddesses should be carved out in perfect form. Then various types of ornaments and implements are gradually depicted on the figure. When the process is continuing, the stone should be protected from any kind of destruction. In the language of *Silpasasstra*, engraving is denoted by the term *sailabhedanam*. There were four processes of carving which are as follows—Ekasrayi, yugalasrayi, Khandasrayi and sparita. Holding the chisel in left hand artists employ the mallet with right hand for engraving the stone.

The arrangement of the limbs is called angaprayoga in the text of *Silpasasstra*. For establishment of icon, a grid or network of lines is considered as an essential feature. According to Vastusutrpanishad, the limbs of the image built up from below to upwards. Before the image construction, one should device the form of *purusa* and divide it in eight parts, which are as follows—Parthibanga (the earth Part), Karmanga (the working part), adho-anga (the lower part), prajanan-anga (the procreative part), prananga (the breath part), uttamanga (the part contains neck and face), jyotiranga (the enlightened part) and tunganga (the top).

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64 ibid, p. 73.
We know that there are so many types of image, which have either peaceful or malevolent appearance. For the depiction of different expression, mood and sentiment are rememberable events to the icon makers.

Needless to say that compositional integration in an image is necessary for icon making. According to the distinction of human mind, variations arise in the concept of deities. One, who is the creator of a plastic art, has to know the nine fold division for the fulfillment of images. These are the followings—Compositions, ornamentations, gestures, postures, weapons, vehicles, subordinate divinities, enemies and devotees. Compositional integration is called *sambandha prabodhana* in the terminology of *Vastusutra Upanisad*. Ornamentation of image has the effective role for the beautification and increasing attraction. Sculptors should make the accurate shape of turbans, ear ornaments, pendants and crowns. The decoration of image makes delight on the human mind. Hand gestures and postures show the impulsive attitude of the divine figure. The weapons, mentioned by the term *Bhadra* manifest the power of the figure. With the representations of weapons and ornaments, the figures are attributed by various types of symbols and *asanas*. One efficient sculptor should be aware about the *sambandha prabodhana* when he will finish his work.

Palm leaf manuscripts of *Vastusutra Upanisad* were discovered from the remote villages of Orissa. Alice Boner, a renowned artist and image exponent established her view in this way that the Indian image makers frequently followed the rules of the aforesaid text when they were attached with the work of sculpting. But in our observation, we have no evidence like such type of *Silpa* text in the scenario of Bengal. For the lack of evidence we can not emphatically say that Bengal artists might be the pursuers of the aforesaid *Silpa* text. Though they were skillful in their artetic representation. It may be assumed that they were well versed in the configuration of image and acquainted with the
science of rocks, geometry, measurement of image, engraving, anatomy and the proper arrangements of the limbs. Moreover, for accomplishing beautification, the lore of mood and aesthetics were also learnable to them.

Besides the general proficiency in the technical side of icon-plastic art creation, the artists were so experienced in the concept of measurement and the comparative knowledge between human organ and the matters of natural world.

The process of measuring image is well known as *pramanam* in the description of *Silpa* text. *Angula, tala, yava* as the units of measurements were familiar to the artists. There are six fold divisions of icons according to the measurement, followed by the ancient artists. Those are as follows—*Naramurti, kruramurti, asuramurti, valamurti, kumaramurti* and *uttama navatalamurti*. In *uttama navatala murti*, the parts of the body were equally divided in nine segments. Ideal deities and the great men are iconized on the basis of *navu tala vishana*.

According to the ancient art exponents, *Nara* type of image should be of *dasatula*. The images of *Rama, Narasimha, Indra*, etc. are included in the *Nara* type. *Krura* type is of *dvadasatula*. *Chandi, Bhairava, Hayagriva*, images are generally of *dvadasatula*. *Asura murtis* are measured by sixteen talas. It is generally called *sodasatula*. The images of demons are considered as the evidence of *asura* type. *Valamurti* contains the figure of child god. *Gopala* is the best example of the representation of *valamurti*. Five talas are measured to accomplish this type of figure. *Kumara murtis* are of six talas. The icon of *Uma* is considered as *Kumara* type of image.

Investigating *Sukracharya’s view*, the different organs of *navatala* image are moderated as follows—from apex to the end of the hair should be three *angulas*, the forehead should be four *angulas*. The size of nose, the part containing tip of nose to chin and the neck should...
be of four angulas. The measurement of eye brow is four angulas in length and half in breadth. Eyes are three angulas in length and two angulas in breadth. Ears are four angulas in height and three angulas in length. Palm of the image is of seven angulas in length.¹ Navatala figures are divided in measurement called tala. From top to feet of the image, nine talas are adjusted carefully by the image makers.

The science of measurement manifests the beauty and accuracy of the figure. So, remark may be made that the deep knowledge in measurement was essential for the sculptors to make them skilful in this work. Without the accuracy in measurement, an icon may be deformed and loses it's original character.

Material Used for Sculpture

For making of icon, material composition is very important. So many things of the world, which are used for image making. Some of those are very precious, a few are semi-precious and the rest are generally common. Various Silpa texts, written in Sanskrit have the clear evidence of the material composition of the image. Except the textual testimony, archaeological specimens and museum collections also show us the constituent materials for image making.

At the beginning of discussion, we put our view on the related information of Silpa texts. South Indian Agamic texts recommend wood, stone, precious jewel, metals as the materials for icon. Sometimes the combination of two or three constituents are also used for the creation of images. The sources also inform us that brick, lime-stone and ivory had a necessary part for the establishment of the divine figure. The figures, established permanently in the shrines of temple are generally constructed by the stone. Few shrines, situated at much familiar holy

¹ Thakur, Abanindra Nath, Bharat Silpa Murti (In Bengali), 1404 B.E, pp. 11-12.
places are consecrated by the wooden and lime stone (khadi-sarkara) images. Metals are not frequently seen to make the main figure of divinity in popular shrines. The rich persons and the members of elite society preferred to make image in precious stone or gems. As for instance, it may be referred that the king of Burmah once set up an image of Buddha, made of a large ruby.52

Some of Pauranic texts have vivid information about the components of image. According to the chapter 262 of the Matsya Purana, the material composition of altar and the image must be identical. From this chapter we are informed that the icon and its pedestal were made by the stone, wood, earthy matter and the mixture of various elements. The 258th chapter of this book submits a list of constituents of the image, which are as followings—Gold, silver, copper, gem, stone, valuable wood, iron, brass and brass alloy.53 Agnipurana, the famous encyclopedic text also gives a clear idea in this matter. The stanza, containing the list of material is mentioned below—

\[
\text{Mrinmayi dharujhatita loka\=ja ratna\=ja tatva}
\]
\[
\text{\=Sha\=la\=ja gandhaja caita ka\=sumi sapta\=dha sm\=\=t\=\=t\=a.}
\]

The stanza says that there are seven types of images. These are made of soil, wood, iron, gem, stone, sandal wood and flower.54 Siva lingas are made of the manifold things, available in this world. The famous Agamic book Suprabhedagama tells that lingas are classified as ksanika, mridnirmita, loka\=ja, ratna\=ja, daru\=ja and sailaja.

54 Bhattacharya, Rimui Chaidra, Sanskrita Sahityer Rupa ro\=ka (In Bengali), 1999, p. 64.
Ksanika lingas are of eleven types. Mridnitfriita lingas (soil made) are of two types and wood made eight fold. Ratnaja (jewel made) is of seven kinds. Sailaja lingas are of four types. Sand, rice, boiled rice, soil, cow dung, seeds of rudraksa, dust of sandal, Kurcha grass, blossoms, molasses and flour are considered necessary for construction of Ksanika linga. Lohaja linga means the metal made phallus of Siva. Gold, silver, copper, iron, lead, and zinc are normally accepted as the components for Lohaja linga. Pearl, coral, cat's eye, crystal and lapis lazuli are used for jewel made phallus. Stone is generally differentiated according to its colour. Four types of stone made phallus are popular, viz., white, red, yellow and black. Probably white phallus are made of the marble, red, of red stone, yellow of sand stone and black, of black basalt. Black basalt made linga is most popular.

Except these materials, there are others, which are accepted as the ingredients of the phallus. Saffron, camphor, dust, barley, corn, wheat, salt, clarified butter (ghrita) and some other milk productions are so popular for this purpose. The phallus made by the mercury possesses the high position in sublimity and magnanimity. Lastly various types of small stone, available in the river Narmada are noteworthy. The above mentioned type is denominated as Vanalinga. The special representation is treated as the most pious material in the rituals of Siva's adoration.

Both anthropomorphic and theriomorphic images of Siva are popular to the local inhabitants of Bengal. According to the observation and circumspection, it is determined that the anthropomorphic images of Siva are made by the stone, bronze, terracotta, brick and brass. On the other hand theriomorphic representations like phallus forms are created by the granite, sand stone, black basalt and terracotta. In a few cases, specially for the representation of architectural art stucco is also used as the constituent of the image. Despite of the commonness of
these materials, the stone is frequently accepted for Siva’s icons and the figures of other gods in Bengal.

**Tools Required**

The images are modelled by engraving with wedge. So wedge is considered as the most wanting implement in the work of sculpting. In the *Silpa* text, the tools were mentioned as *khasittra*. The varieties of chisels have been narrated in the *Silpa* text, such as—*Lanji, langali, gridhradanti, suchimukha* and *vajra*.\(^{55}\) *Lanji* type of chisel has normal edge on its lower part. *Langali* should be of plough edged. *Gridhradanti* has the similar sharpness to the teeth of vulture. *Suchimukha* is keen and pointed chisel. *Vajra* is strong and huge in size. Assessing the incision mark on sculpture, it may be assumed that *suchimukha* was used in primary stage of sculpting and time to time strong chisel, called *vajra* was also used whenever necessary.\(^ {56}\) Probably both are known to the sculptors of Bengal.

In spite of vivid description related to the varieties of chisels, different texts are silent about the different use of these tools. Proper representation of iconic art and the actual figuration of sculptural devices was almost dependant on the appropriate implementation of manifold types of chisels. Aforesaid types of chisels are made of iron and each has two types, viz., narrow and broad. In the bygone ages, the work of incision was done by hammering chisel with short and long wooden mallets. Besides wooden mallets, the sculptors could conditionally employ iron hammer as it damages the image for its heavy strike. So, in case of sophisticated and artistic configuration two fold wooden mallets, viz., *musuladharubha* and *musuladanda* were used usually.

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\(^{56}\) Basu, Santosh Kumar, *Bharat Silpe Dehaja Sam (In Bengali)*, 1990, p. 89.
With the use of chisel and mallet, some other equipments have been considered as the desiderata for accomplishing images, such as, a both side pointed instrument (dvimukhi ghurnika) and a compass (ghurnika). The pegs of Palasa tree are almost necessary for fixing the stone. Nail clipper (naruúia) and a special instrument containing a needle connected with a rope are also needed for this purpose.

Polishing was an important part for creation of effulgence on the image. It is easy to understand the artists of Bengal were skilful to display the smoothness on the stone figure. In the version of Vastusutra Upanishad it is known that the polishing of stone was the second step of image making. In time of polishing the stone was washed with the milk of the mahiluka cow, which uniformly yellow or variegated coloured.57

The system was popular in Orissa. In Bengal, most probably corundum (kurubindu), a mineral remained needful for polishing the image. Even at present time, the mixture of corundum and carbon is used for smoothening of sculptural art.

In Bengali language, we are familiar with words, namely chheni and vatali. Chheni (cold chisel) is a small implement to cut stone in local region. On the other hand vatali is of comparatively large size, which is helpful for wood carving. There is no archaeological evidence, which focus light on the instruments, needed particularly for Bengal sculptors. Mainly the incision marks give few hints to assume the ancient technique of icon construction. Plumb-line, which called olon by the local people, was also conducive to make image flawless and well definable.

Vastusutra Upanishad informs us that a mixture was used and rubbed on stone during ten days for softening it. The mixture was composed of shell-solvent, juice of Kushta tree, sea salt and powder of

57 Boner, Alice, Sharma, S. R and Baumer, Bettina, Vastusutra Upanishad, 2000, p. 54.
the bark of ukatsa tree. So, besides various tools, the aforesaid mixture was also useful to cut stone for image modelling.

**Sculptors and their Socio Economic Position**

Fine arts were practiced and the different media of that are painting, modelling, cast making, etc. For this reason, the gentlemen (nagarakas) were the patron of these creations. Pratima a well known drama of Bhasa narrates the hall of image (pratimagriha), where the statues of royal personalities were preserved. Besides the commemoration of royal personalities, the icon was also made for the purpose of the worship of god in permanent shrines. According to the need in the society, the image makers were received respect from the people.

We have sufficient information about the position of painters and image makers of bygone age. History of Indian art informs that though painting was the most popular medium of artistic work, sculpture could yet hold it's respectable position. For this reason, master sculptors acquired both respect and acknowledgement of the society as good painters. Rajasekhara's Kavyamimamsa describes that the painters along with sculptors, jewelers, goldsmiths, wood carvers, metal craftsmen and others had the reputed position in the assembly of poets and learned men of the royal court. Eminent masters in the field of painting and icon making were invited to give their opinion on the aesthetic appraisal of art. They were so called chitravidyopadhyaya in the ancient text and doubtlessly the possessors of the encyclopedic knowledge in different types of lore.

The position of the icon makers in Bengal can be ascertained on the basis of historical observation and the analysis of the modern point of consideration. In Eastern India, Bengal and Bihar under Pala and Sena dynasty constitute an important kingdom of artistic activity with
neighboring province Orissa. Tibetan historian Lama Taranatha collected interesting information of the Eastern Indian art. He wrote about two artists of the reign of Dharmapala and Devapala, named Dhiman and his son Bitpala, who are from Varendra Bhumi. It is noteworthy that Dhiman and Bitpala were adepts in painting, sculpting and the creation of metal cast images. The idea may not be wrong to assume that these two devoted artists were able to make a new dimension in the arena of sculpture making by their own genius. The fame of Dhiman and Bitpala represents the fact that the master artists, who had the royal patronage, were dexterous in different sections of art works. Royal patronage also accepted the guild of the artists. Deepara pillar inscription of Vijayasena spent few words for glorification of it's engraver Sulapani, who was considered as the crest jewel of Varendra Silpigosthif.

It is needless to say that those elite groups of artists are financially strong. Except them there were many sculptors, who were not able to get regal sympathy, involved in the specific art work. Most of the ordinary artists were treated as the common man and they underwent indigence for the lack of the proper care of the royal government.

For the assessment of present position of the sculptors, an artist named Narayan Mahanta was interrogated as a part of survey. In time of his interview, he tells some facts from which we can make an idea in this regard. Giving highest respect to his preceptor (guru) Niranjan, the resident of Bethuadahari, Nadia describes his story. In his appraisal, creation of art is similar to adoration. With deep devotion when he creates the artistic representations, some time whole night is over during his working period. Sometime serpents cross over his feet, but he is not agitated in anxiety. Accomplishing unique art specimens, he can feel rejoice in his inner mind. Despite of his rejoice connected to

Maumder, Nani Gopal, Inscriptions of Bengal, 2003, p. 45.
creation of art, he does not conceal his regret in few matters. These are as follows—(1). New generations are biased by the varieties of recreation and entertainment. They have no acceptance to art work. (2). The sculptors frequently face monitory stringencies in their occupation. (3). Necessary stone is not always available everywhere. As a result, problem arises for collecting the raw material. (4). The young generations of the family of sculptors are interested to salary based services, not to maintain the tradition of family art. (5). Insufficiency of government grant makes difficulties to help stone image makers.

A report, collected from Anandabazar Patrika dated 6th February 2010 produces the view of Nayan Datta, the president prize winner sculptor of Susunia, Bankura. As per opinion of Nayan Datta, the efforts of government must be notable for upliftment of image makers. At the age of fifteen, he took the opportunity to go to Mahabalipuram, a centre of stone art for acquiring knowledge on technique of image making with the help of government and the support of government employees. Nayan Datta acknowledge gratitude to his mentor S. Durairaj, a renowned sculptor of South India and he is inspired by his mentor to create unique art according to his own style.

For the benefit of the icon makers some necessary mode of works should be taken. Proposed plans, mentioned afterward may be taken for implementation—

(1). Extension of handicraft museum all through the province, since the icon maker can be involved in their own work with due remuneration.

(2). Setting up the modelling section in every art and archaeological museum.

(3). Help from Central and State Governments to the poor sculptors for their economic development.

(4). Felicitation and offering of National Award to the art makers for their eminent work.
If possible, the renowned artists may be interested to set up a workshop of stone art, adjacent to their residential house, where many of young artists will be able to learn the art work with deep devotion and reasonable amount of remuneration.

The image is not only an idol, or a fetish, it is right to say an instrument of sadhana. Those who venerate the stone images, do not show the respect to a piece of stone, but the immortal beings thereby represented. For the construction and establishment of god’s image, there many persons from different fields and occupations are involved. As for example mention may be made about the iconographers, priests, image expounders and sculptors. A sculptor is generally an icon maker and in fact he is surrounded by so many lines of control, determined by the rules and norms of iconography, priesthood etc. In spite of some limitations and bindings, event shows that without unique workmanship of a sculptor, an image is not able to transmit deep devotion in the mind of a devotee. Ancient scripture like Agnipurana, Bouddhist text Sadhanamala and the Yogasutra of Patanjali have the more or less the same opinion about the qualities and ideologies of the artists of different fields. So better to realise that sculptors are the beloved progenies of Viswakarma, the Lord of Vastuvodya. If the society become careful for so called the sons of Viswakarma and takes policy for their upliftment, the group of artists will be doubtlessly hopeful in their profession after removing the hindrances, they meet.