



REPLICATION OF ROCK PAINTINGS AT CHATURBHUJNATH NALA
ON BHANPURA PLATEAU IN CHAMBAL VALLEY, INDIA - PART 5

Replication of the processes of rock art production and our observations

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SUMMARY

While replicating the preproduction and production process of making rock painting compositions of Chaturbhujnath Nala, such as collection of pigment nodules, material for making brush, selection of the site and spot, making colour from the pigment nodules by grinding on the flat rock surface and executing them on the rockshelter surface we realised that creation of rock art composition is a laborious, lengthy and time-consuming process. It requires conceptualisation of the perceived reality, an idea to produce it in the form of a particular composition, selection of the site and spot for its execution, planning and team effort to execute it. To make the process enjoyable and meaningful it might have been associated with conducive climate, working hours as per the movement of the natural light, singing and other cultural activities. After finishing the task, it must have been celebrated in a humanly way as per the cultural norms of the group. It is also evident from the study of the tradition of making folk art. Thus, rock art is a reflection of the cognitive, technological and cultural development of its authors and the community it belonged to.

RIASSUNO (REPLICARE I PROCESSI DI PRODUZIONE DELL'ARTE RUPESTRE: LE NOSTRE OSSERVAZIONI)

Mentre cercavano di riprodurre le pitture di Chaturbhujnath Nala, raccogliendo i noduli di pigmento, cercando il materiale per la realizzazione di pennelli, selezionando il sito e il luogo esatto per realizzare la nostra opera, molando i noduli di pigmento su una superficie rocciosa piatta ed eseguendo infine la pittura, ci siamo resi conto della laboriosità dell'intero processo e del tempo richiesto per concludere l'opera. Completare una pittura rupestre richiede la concettualizzazione della realtà percepita, un'idea per produrla sotto forma di composizione, la scelta del sito e del luogo per la sua esecuzione, la pianificazione e lo sforzo di squadra per eseguirla. Per rendere il processo piacevole e significativo potrebbe essere stato associato a un clima favorevole, orari di lavoro che sfruttassero la luce naturale, canti e altre attività culturali. La fine dell'opera, doveva essere celebrata secondo le norme culturali del gruppo, come suggeriscono le tradizioni di arte popolare. L'arte rupestre è dunque un riflesso dello sviluppo cognitivo, tecnologico e culturale dei suoi autori e della loro comunità di appartenenza.

1. INTRODUCTION

The main objective of the project on Replication of the Rock Art of Chaturbhujnath Nala was to understand the cognitive, technological and cultural development of its authors and the community it belonged to. It required proper planning and strategy such as conceiving an idea of the project, forming a team to execute it, finding a source of funding, kind of study on the Chaturbhujnath Nala rock art site such as location of the compositions to be replicated, quality of lines and strokes, overall effect of the composition, analytical study of the pigments already made in India to understand the nature of the pigments, study of the processes of making folk art in the region, collection of the material for making brush and pigments from around the rock art site under study in that light, practice to make the compositions at the respective home towns of the team members, etc., have already been presented and discussed in the previous papers from Part 1 to 4

(KUMAR *et al.* 2021, RAM KRISHNA *et al.* 2021, GEETANJALI *et al.* 2021, HRIDAYSHRI *et al.* 2021a, 2021b). Here we are presenting the actual replication process of the execution of the selected rock art compositions and our experience and observations made during this process (Fig. 1-10).

2. SELECTION OF THE REPLICATION SITE

As already discussed in the Part 1 (KUMAR *et al.* 2021): The Project Introduction, the selection of the rock art replication site is an important decision. The replicated rock art should not have any confusion with the original rock art. Therefore, we selected a rockshelter completely devoid of rock art. It is located on the right side in the quartzite cliff of Bada-Mahadev, about 3 km north of Bhanpura town and nearly 32 km away from Chaturbhujnath Nala rock art site. The 'L' shaped quartzite rockshelter provided more or less the same nature and temperament of the rock surface and envi-

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ronment of rock art site. We named it as, 'Replication Laboratory of CBN Rock Art'.

3. REPLICATION OF THE SELECTED ROCK ART COMPOSITIONS

Replication Processes and observations

We replicated 6 rock art compositions from Stone Age Period I: Mesolithic and 5 chariot compositions from

Early Cattle Domestication, Period II. In order to experiment with different kind of pigments and brushes we replicated some of the compositions two or more times. The details of our replication work have been presented in Table 1, with comments on our experience and observations. Two replicated compositions (Fig. 11 and 12) have also been presented in this paper.

Table 1.

S. No.	Composition	Pigment No.	Attempt No.	Brush Used	Remarks/observations
1	Composition No. 1, Running Archers, RS D6-10	Pigment 7	Attempt 1	Dried palm leaf midrib strip, chewed and flattened	Pigment was dark brown ochre; its residual had fine grainy texture and turned into a paste. Brush bristles were semi soft. It was able to hold a good amount of colour at a time. Getting continued strokes was comfortable.
		Pigment 9	Attempt 2	Thin brush made of tail hair of Languor	Pigment was a shade of yellow ochre; its rough residuals with grainy texture and had coarse particles. It was separating from water. Though the pigment was coarse in texture yet the brush was able to hold enough colour. Bristles were slightly coarse but soft. Getting a continuous and agile stroke from it was easy. It was the most comfortable brush to achieve thin and thick lines with desired control and effect maintain some amount of pigment consistency.
2	Composition No. 2, Woman in rhythm (Dancing lady), RS F1	Pigment 8 + Binder (white milky fluid oozes out from Banyan leaf)	Attempt 1 Attempt 2 Attempt 3 Attempt 4	Thin bamboo internode sharpened with blade, chewed and flattened	Pigment was rich dark red ochre; its residual had fine grainy texture, turned into paste. But after mixing with the binder the mixture became sticky and lumpy. It started sticking at the bottom of the container. The brush was not able to hold the right amount of consistency of the pigment. The rock surface was also not holding the pigment, and after drying it was dusting off.
3	Composition No. 3, Load bearers, RS B4	Pigment 10	Attempt 1	Dried palm leaf midrib strip, chewed and flattened	Pigment was a shade of yellow ochre; its rough residuals was grainy in texture with coarse particles. It was separating from water. Though the pigment was coarse in texture, the brush was able to hold colour. It was comparatively comfortable to work with the pigment. However, the yellow ochre was not dark enough, hence the composition made out of it was not appearing sharp in contrast to the rock surface.
4	Composition No. 4, Rhinoceros, RS B4	Pigment 8	Attempt 1 Attempt 2	Dudhi seed fibre brush	Pigment was rich intense red ochre; its residual was a paste of fine grainy texture. The brush-bristles were too soft, hence were difficult to produce controlled strokes. It might have been better for fine, delicate and small strokes.
5	Composition No. 5, A buffalo with large broad horns, RS F1	Pigment 4	Attempt 1	Thick brush of bamboo,	Pigment residual was a paste of fine grainy texture. Bristles were soft. Getting continued strokes with agile movement was possible but with difficulty.
		Pigment 4	Attempt 2	Dhak leaf petiole.	Pigment residual was a paste of fine grainy texture. Bristles were semi-soft, and were able to hold a good amount of colour. Getting continued strokes was comfortable.
6	Composition No. 6, Free hand colour strokes, RS B7,	Pigment 8	Attempt 1 Attempt 2	Dhak leaf petiole brush,	Pigment residual was a paste of fine grainy texture. Bristles were semi-soft, and were able to hold a good amount of colour. Getting continued strokes with force was not possible.
			Attempt 3	Dudhi seed fibre brush	Pigment residual was a paste of fine grainy texture. The brush bristles were too soft and held enough colour. Yet, it was difficult to control the strokes with force to get a pointy tip with a thick bottom.

			Attempt 4	Thick brush of fresh bamboo,	Pigment residual had fine grainy texture and turned into paste. Bristles were soft. Getting continued strokes with agile movement was possible but with difficulty. This brush was much better and created the closest desired effect as compared to other brushes for this particular composition.
7	Composition No. 7, Chariot No. 1, RS B17, A chariot with two charioteers	Pigment 10	Attempt 1	Dried palm leaf midrib chewed and flattened	Pigment didn't mix with water well. But while using, the brush didn't need to be washed with water frequently and long strokes could be made easily.
8	Composition No. 8, Chariot No. 2, RS B17, Two chariots, one with four charioteers, another suggestive one	Pigment 8	Attempt 1	Dried palm leaf midrib strip, soaked in water, chewed to make brush	Before using the brush, it needs to be soaked in water. Its capacity of holding the colour was also less.
		Pigment 8 + binder	Attempt 2	Dried palm leaf midrib, fresh palm leaf midrib chewed and flattened	Binder makes the pigment thick and lumpy. It dried up quickly. The fresh palm midrib brush was curling as it was drying.
9	Composition No. 9, Chariot No. 3, RS B17, A chariot with two charioteers	Pigment 4	Attempt 1	Dried palm leaf midrib chewed and flattened	Due to the heavy wind the colour on the brush dried very fast, hence needed to be washed frequently.
10	Composition No. 10, Chariot No. 4, RS B17, A chariot with four horses	Pigment .8	Attempt 1	Dried palm leaf midrib chewed. Dudhi seed fibre brush	Continuous use of brush for long time decreases its efficiency. Thin line strokes are easy to make with bristles of Dudhi seed fibres but not suitable for making solid figures. Due to the heavy wind the colour on the brush dried very fast, hence needed to be washed frequently.
11	Composition No. 7, Chariot No. 5, RS B17, A wheelless chariot	Pigment 2	Attempt 1	Dried palm leaf midrib chewed and flattened	Due to the heavy wind the colour on the brush dried very fast, hence needed to be washed frequently.
		Pigment 9	Attempt 2	Thin brush made of hair of langur's tail	Pigment has a muddy texture but is still suitable for painting. Brush is fine and smooth, and long strokes can easily be made. It is one of the most convenient brushes to be used.

Table 1. Replication of the CBN Rock Art Compositions and number of attempts made by using different kind of pigments and brushes with comments.

3.2 Observations and understanding after the replication work

3.2.1 Execution

We were not copying the compositions, rather attempting to replicate them.

While replicating we were appreciating different aspects of each rock art composition such as uniqueness, different narratives, communication elements and choice of different information highlighted by different artists.

3.2.2 Locations and execution positions

Different challenging positions to execute the compositions at certain locations was an adventurous and thrilling experience. The thrill and excitement continued even in explaining to someone about the efforts made. It seems to be a part of the activity.

Some spots or angles of the composition demand extreme physical efforts but when one really sit/lie down in the viewing position the experience is rewarding. The understanding of the nature of rock and its behav-

our with pigment confirms that the artist was having proper understanding of the nature of rock surface and its behaviour with colour.

3.2.3 Season of rock painting execution

We were replicating the rock painting compositions in the third week of April 2021. The temperature was nearly 40° C and the wind was blowing fast. Hence, the colour dries soon. It means the rock painting compositions were not made in dry summer (April-June). Rather it must have been a venture mostly during winters and sometimes in rainy seasons when the sky was open and climate was pleasant.

3.2.4 Dealing with the mistakes

In the execution of rock paintings on the rough surface of a rockshelter every stroke is a final stroke. The artist could not afford to commit mistake. However, if such a mistake happened, the artist has hidden it very intelligently by overlapping, thus making the lines thick at that particular point.

4. COMMENTS AND INSIGHTS

The skill of the artist, to observe and analyse the three-dimensional environment and his ability to present it on two-dimensional surface in minimal lines and strokes, made the composition very effective, full of dynamism, and it communicates a lot of details. In some cases, he also tried to create visual illusion in the rock art compositions e.g., Composition No. 2.

The artist needs to keep in mind the climate, sun movement, availability of the resources and platform to demonstrate physical capabilities and skills.

The movement and quality of strokes depend on multiple factors like the nature of pigment, its consistency, thickness and quality of the brush, position of the artist to execute the composition, body and arm angles chosen to paint, surface selection and climatic condition. All factors are interdependent on each other to produce a quality outcome.

The form and position of each figure in a composition down to the sequence of the strokes, when to stop or start a stroke, when to dip the brush in the colour again, clarity of visual library one has in mind to execute the composition and the visual hierarchy (highlights) of the composition need micro level planning and strategy.

The process of replication made us to realise that the execution of rock art needs a proper microlevel planning, combined efforts of a team with proper work distribution and hard work. Thus, we learned that the execution of rock art is not a single person's activity, rather it is a team work. One has to rely at many levels on the team members which could be physical, emotional and social.

It is difficult to make compositions on the rough surface of a quartzite rockshelter and is more difficult to execute figures on its roof. So far, the replication of rock art is a great learning experience; we realised the significance of the scientific vision to study and understand rock art.

The artist must have good understanding of the flora, fauna, seasons and climate, nature and behaviour of the animals and their anatomy, so that he could be able to produce the kind of the rock art compositions of Chaturbhujnath Nala. It is evident from our experience while replication of the selected compositions.

One must be physically fit to grind hard dark-brown pigment nodule (haematite nodule) which needs extra hard effort and time to obtain colour from it. It was a difficult task for even very fit young male member of our team.

The ready colour dries very fast. One must collect it immediately while grinding and needs to be used immediately. It is best if one person grinds the pigment and another is assisting to the artist making the composition. It was more fun to find and select the pigments, making leaf containers, grinding pigment nodules, carry loads of water or get water from the nearby water stream with the group and sharing work and responsibilities. Though we used to start the day with all the energy and enthusiasm every day, but it used to be very tiresome and strenuous in the afternoon (in the third week of April 2021) when the sun was hard and wind started to blow fast, making most of our energy drained out. In those difficult moments support of each other, light conversations and sharing stories were really uplifting and helpful to keep going on and enjoy the process.

During the lunch time on the site in the afternoon the group discussion and exchange of our observations and ideas really helped to resolve the issues we had with our own work, problem solving and better understanding of the process by learning from each other. Some solutions and ideas worked at individual level and brought us deeper insights on personal preference, comfort and uniqueness of individuality.

Once the shelter had our replicated compositions after working for a week by putting a lot of hard work to it, it developed a sense of belongingness and comfort with the site and the compositions in us. It also looked beautiful and we felt personal belongingness with it, specially sitting on the spots and in the corners where each of us made our respective compositions (like our own room or territory).

The entire process of rock art replication was adventurous and educative, right from collecting and finding pigments, study of the selected compositions on the site, finding the proper site for replication of rock art compositions far away from the original site, every morning climbing the mountain cliff of Bada-Mahadev to the replication site with all our heavy bags and articles, exploring and identifying resources around the shelter during entire replication process in a group, and above all enjoying our work and the discussions. Having no phone connection helped us more to connect with work, with the nature and each other.

Rock art execution must have been a gathering of a group of persons for specific purpose and duration, when resources were in abundance, enough wild fruits and water nearby and sun and wind support in the day. When we worked in a group, sharing workload and task was so helpful and enjoyable. Such kind of

inducive environment and combined efforts are necessary for dealing with a difficult but enjoyable task of the execution of rock art.

This first phase of the project gave us huge insight into the process of making rock art and pre-historic men's cognitive and analytical abilities, his observations and working skills, physical and emotional strengths to execute the artistic projects. This project opened a window to peep in to the creative world of the authors of rock art, their cognitive abilities and cultural development.

5. CONCLUDING REMARKS

Obtaining suitable pigment nodules, colour preparation, finding proper material for making the desired brushes to make rock art composition(s) and then its execution by an artist is a tiresome job. Therefore, creation of a rock art composition must have some specific purpose. To make all the processes enjoyable it must have been a group activity in which different persons were assigned different tasks and all such activities must have been accompanied with some sort of rituals and singing.

While replicating the compositions we realised that

the figures were made by the mature artists with high level of cognitive development, skills and efficiency to execute and express the experienced reality. The lines and curves of the original rock paintings are very powerful and are capable of communicating information and generating a lot of feelings. We could replicate them up to an extent only even after a lot of practice. We missed the crucial curves in the lines and proportion of the figures. It was mostly because of not having the full control on the brush.

The chemical analysis of the rock painting compositions and that of the pigment nodules we have been using for replication, is a must to really appreciate the knowledge and experience of the artist to use the local resources and his cognitive abilities. It will be materialised in the next phase.

We can learn a lot from further scientific and deep study of rock art and the replication of the processes of its production by using multiple methods and material.

6. ACKNOWLEDGEMENT

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Fig. 1 - Rock art composition replication practice at Agra, India.



Fig. 2 - Rock art composition replication practice at Delhi, India.



Fig. 3 - Pigment nodules collection in front of Chaturbhujnath Temple, at Chaturbhujnath Nala rock art site.



Fig. 4 - Discussion about the pigments on the site.



Fig. 5 - Discussion about the location of the rock art compositions and possible strategies to execute them by their authors at Chaturbhujnath Nala rock art site (CBN).



Fig. 6 - CBN Rock art replication site and its location in the quartzite cliff just about the hut of Bada-Mahadev near Bhanpura (just above the hut).



Fig. 7 - CBN Rock art replication rockshelter, front view.



Fig. 8 - The replication rockshelter, named as CBN Rock Art Replication Lab, Bada-Mahadev.



Fig. 9 - Colour processing from the pigment nodule at the replication site.



Fig. 10 - Replication of the CBN Composition No. 3, the load bearers.



Fig. 11 - Replicated composition no. 1 of Part 2a (no. 1 in Table 1 of the present paper, attempt 1), a group of three archers. Mesolithic, CBN.



Fig. 12 - Replicated composition no. 4 of Part 2b (no.10 in Table 1 of the present paper, attempt 1), a chariot with four horses yoked to it, Period IIb, CBN.