The Ephemeral Cataract of Badami: An Early Chalukyan Artificial Waterfall?

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Abstract: The ancient city of Vatapi (modern Badami, in Bagalkot District of Karnataka) was founded by Polekeshi I in the year 543CE. As part of the fortification scheme of the city, a bund was constructed to contain stormwater and create a reservoir. A waterfall, which is basically the stormwater runoff from a cliff in the east, is the most obvious contributor to the reservoir. In this paper, I present the discovery that this is an artificially created waterfall, with a semi-circular basin cut out of the top of the cliff to the east of the reservoir, at a point where a large number of the stormwater streams converge. I also examine the possibility that this rock-cut feature was created by the Early Chalukyan builders.

Keywords: Badami, Early Chalukyan, Water Management, Artificial Waterfall, Architectural Context, Rock-cut Feature, Sandstone

Introduction

Badami, currently a town in the Bagalkot District of Karnataka, was the capital of the Early Chalukyan dynasty, which ruled a large part of southern India during the sixth to eighth centuries CE. Badami, along with Aihole, Pattadakal, Mahakuta and a host of smaller locations are important sites in the study of early monumental architecture in stone in the region. These sites can boast of some of the earliest monuments in stone – both rock-cut as well as structural, and can be seen as the beginning of the Karnata Dravida tradition in temple architecture.

The Early Chalukyan ruler Polekeshi I founded the city at its current location, and built the first fortifications of the city (Michell 2011, Padigar 2012). According to his famous cliff inscription of 543CE, Polekeshi I is supposed to have rendered the hill of Vatapi unassailable from below as well as above (Ramesh 1984, Padigar 2010). This has been interpreted to mean that Polekeshi I constructed fortifications at the top as well as the bottom of the extensive sandstone massif at Badami (Padigar 2010). Polekeshi I also constructed a bund across the open end of the U-shaped valley enclosed by sandstone cliffs on three sides (Figure 1), to create a water reservoir called the Agastya Tirtha (Figure 2). The celebrated rock-cut "cave" temples of Badami are scooped out of the cliffs to the left of the frame in Figure 2, below the area known as the "South Fort", while a large fraction of the structural monuments occupy the "North Fort" to the right of frame. The Early Chalukyan Bhutnath Temple forms the nucleus of a group of later temples built on a terrace projecting into the Agastya Tirtha in the east.



Figure 1: The bund on the western boundary of the Agastya Tirtha at Badami



Figure 2: View of the Agastya Tirtha, with the South Fort on the left and the North Fort on the right, from the top of the cliff in the east



Figure 3: The waterfall at Badami, photographed in May 2018



Figure 4: The water from the falls flowing through the talus slopes to reach the reservoir



Figure 5: The twin streams of the waterfall, during heavy rains in May 2018



Figure 6: During scanty rains in August 2013, only one of the streams is active



Figure 7: During scanty rains, often the water from the falls is dispersed in the wind



Figure 8: The artificial rock-cut feature at the head of the falls



Figure 9: Panoramic view of the rock-cut feature at the head of the waterfall

The Transient Waterfall at Badami

The Agastya Tirtha collects stormwater runoff from the cliffs on all three sides, but most prominently from the east. This is dramatically demonstrated by a waterfall, which appears only after sustained rainfall, from the cliffs to the southeast of the Bhutnath complex (Figure 3). The water from the falls flows through the talus and scree slopes at the base of the cliff to find its way into the reservoir (Figure 4). This waterfall lasts only for 45 minutes to an hour after cessation of rainfall. During times of plentiful rainfall, it is a sustained cataract falling in two streams down the cliff (Figure 5), but in scanty rainfall, there is usually only one stream (Figure 6), which too often gets dispersed by the wind before it reaches the ground (Figure 7).



Figure 10: Closer view of the southern edge of the rock-cut feature, showing the artificial nature of the incision



Figure 11: Closer view of the northern edge of the rock-cut feature, showing the artificial nature of the incision



Figure 12: Photograph taken after scanty rains in August 2013, showing streams of stormwater converging towards the rock-cut feature



Figure 13: Arali Tirtha, located to the northeast of the rock-cut feature



Figure 14: The rock shelter which serves as memorial to Vardhamanadeva



Figure 15: The memorial to Vardhanmanadeva, with carved padukas and an inscription



Figure 16: A rock-cut *pitha*, in a modified rock shelter near the head of the waterfall



Figure 17: A ruined shrine near Arali Tirtha



Figure 18: The cliff edge to the south of the waterfall, showing multiple stormwater runoffs streaming down the cliff in the distance



Figure 19: A balancing rock at Kutukanakeri, near Badami



Figure 20: A sandstone protrusion at Kutukanakeri, Near Badami

In this study, the waterfall as well as the top of the cliff, were visited in 2013 and 2018. Upon examination of the place at the top of the cliff from where the waterfall issues forth, it was found that a semi-circular basin-like area has been artificially cut out (Figures 8, 9) to facilitate the creation of the falls (Menon 2019). The cleanly cut edges of

this feature (Figures 10, 11) clearly indicate that this is an artificial rock-cut feature, and not a product of natural processes. The cut portion is about 28m long and 12m at its widest. A visit during a period of light rainfall revealed that the feature is situated where the various streams of stormwater runoff from a large portion of the plateau at the top of the cliff converge (Figure 12).



Figure 21: The Malegitti Sivalaya at Badami



Figure 22: The Upper Sivalaya at Badami

It is obvious that whoever created this feature intended to channel stormwater over the cliff into the Agastya Tirtha, but it would be interesting to examine if there is possibly any larger intent behind its creation.

Discussion

The only statement which can be made about this rock-cut feature which enables the waterfall at Badami with any certainty is that it is definitely human-made. As regarding authorship, it is difficult to assign the same with any degree of certainty because of the continuation of construction activity of various nature even after the cessation of Early Chalukyan rule. Though Badami lost its status as capital after the Rashtrakutas succeeded the Early Chalukyas as rulers, temple-building and other construction activity continued there even in later periods (Padigar 2012). Temples and shrines were built during the rule of the Rashtrakutas (Soundara Rajan 1981), the Kalyani Chalukyas, and many renovated during Vijayanagara rule (Padigar 2012). Alterations and additions to the fortifications occurred during the period of Rashtrakuta and Vijayanagara rule and even later (Cousens 1926, Padigar 2012).

The area to the east of Badami, including the Bhutnath Temple and its surroundings, was also the scene of construction activity subsequent to the Early Chalukyan interventions (Padigar 2012, Menon 2017). The two shrines with *phamsana* roofs located on a large boulder to the southeast of the Bhutnath temple (visible in Figures 5-7) were built in the 10th - 11th centuries CE. There were additions to the Bhutnath Temple complex during Kalyani Chalukya rule.

Even in the cliffs to the south and east of the Bhutnath Temple, there is evidence for later interventions. Arali Tirtha (also known as Aralikatti or Arali Honda) is a site where images of several Hindu divinities have been carved on a weathering feature around a natural rock pool (Figure 13). This feature is believed to be quite late, possibly executed during the 14th to 16th centuries CE in two phases (Padigar 1976) or 14th – 15th centuries (Neuss 1993). 90m to the west of Arali Tirtha is a rock shelter which has been made into a memorial for a Jain monk named Vardhamanadeva (Figure 14). Based on an inscription on the wall of the shelter behind the padukas carved into the floor (Figure 15), it is estimated to date to the 16th century (Padigar, private communication, 2013).

There are other undated features too, on the top of the cliff, situated between Arali Tirtha and the rock-cut waterfall mouth. A rock-cut *pitha* with the deity, most probably a *linga*, missing (Figure 16) and a broken shrine built around an idol base carved into the rock floor (Figure 17) are difficult to date due to paucity of definite evidence such as inscriptions, or even a definitive style of construction.

Kuppa and Menon (2018) describe a method of determining the period of stonework by analysing the shape of wedge holes and wedge marks used for splitting stone. There is evidence for splitting of stone by Early Chalukyan as well as Vijayanagara artisans on the plateau atop the South Fort at Badami (Kuppa and Menon 2018). In the immediate vicinity of the rock-cut feature at the mouth of the waterfall, extant wedge marks are of a type not amenable to analysis by this method. However, the wedge mark of the types discussed by Kuppa and Menon (2018) closest to the feature appear to be of Early Chalukyan provenance. Hence, it is difficult to say with conviction based on hard evidence that the rock-cut feature was excavated by Early Chalukyan artisans. However, it would seem quite likely that the feature was chiselled by Early Chalukyan stonecutters, given that the Agastya Tirtha was created at the very founding of Badami as the capital (Padigar, Private Communication, 2018).

It appears prudent to also conjecture why the Early Chalukyan architects would have created the waterfall at all. By examining the pattern of stormwater runoff streams from the part of the cliff to the south of the rock-cut feature generating the waterfall (Figure 18), it is evident that the water from all these streams too will ultimately find its way into the Agastya Tirtha. Thus, it seems quite superfluous to create a feature that will channel the water in a waterfall to the reservoir, from the point of view of water management alone.

The intent behind the creation of the waterfall is probably to be found in the response of the Early Chalukyan artisans to the dramatic landscape of Badami, with its sandstone cliffs riven by chasms into narrow gorges, and the fantastic protrusions and other features produced by weathering, that formed the context to their architectural creations. The region around Badami is rich with such unusual forms as balancing boulders (Figure 19) and abrupt protrusions (Figure 20) produced by the action of wind and water on sandstone. The architecture of the Early Chalukyan artisans seems to have drawn inspiration from the dramatic landscape and exhibits extreme emphasis on context. For instance, the architect Aryaminci Upadhyaya (Padigar 2012) chose to place the temple he built – now known as the Malegitti Sivalaya (Figure 21) on a large boulder instead of the level ground around it. The siting of the Upper Sivalaya, similarly placed in a seemingly precarious position on the lip of a deep drop, is arguably such that the spire of this temple echoes the shape of a knob of rock on a nearby cliff (Figure 22).

The Bhutnath Temple, too, is scenically sited on a terrace projecting into the Agastya Tirtha. Given this predilection for the picturesque on the part of the Early Chalukyan architects, it is quite conceivable that the artisans of ancient Vatapi created the waterfall not merely as a water management feature, but also as a scenic backdrop for the Bhutnath Temple. In the absence of any concrete evidence to the contrary, this could serve as an inspired guess, given the fact that the waterfall is indisputably an artificial creation.

Conclusion

The seasonal waterfall at Badami, generated by stormwater runoff, is an artificial phenomenon, created by incising a semi-circular basin into the top of the cliff to the

east of Agastya Tirtha at a point where several streams of runoff converge. Though it is difficult to state with certainty, it is highly likely that this feature was excavated by Early Chalukyan artisans, not just as a source of ingress of water into the reservoir, but also to enhance the backdrop to the Bhutnath Temple.

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