The Thalakaadu phenomenon: A miracle or an ecological disaster?

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The Thalakaadu curse has established itself in the folklore as a miracle since the early part of 16th century because of two strange events visible even to date: (i) Thalakaadu, an historically vibrant city, is now being submerged under sand dunes several meters deep, and (ii) the Mysore royal family have faced problem in having a rightful heir to the throne since 1600s. Both these events linked to an apparent curse by a pious lady have defied logic. Based on the data from diverse sources and field studies, I have reconstructed the possible chronology of events of this acclaimed miracle. I argue that the Thalakaadu phenomenon represents an ecological disaster unintentionally wrought on to a vibrant civilization at this place and in this sense the curse per se is an intelligently inserted story as an overlay. Using this example I discuss the possible process through which the miracles or myths of this kind survive in a society.

Keywords: Ecological disaster, miracle, Thalakaadu phenomenon.

No testimony is sufficient to establish a miracle, unless the testimony be of such kind, that a falsehood would be more miraculous than the fact which it endeavors to establish. — David Hume

SCIENTISTS, in general, shy away from taking a serious note of, and consider it unworthy to address myths[1] (and/or miracles), at least of those that seem unreasonable on a casual examination. Yet it is exactly this simple feature of unreasonableness of myths that keeps them in circulation, defying logic. Surprisingly, any myth that has a reasonable explanation would face a natural death as it would fail to attract the attention of the common man. Only unexplained myths survive among the common public and in this sense, survival and persistence of any myth is perhaps a negative function of its unreasonableness, among other things.

I am particularly curious about the factors that help in the spread and perpetuation of such unreasonable beliefs, for two reasons: First, among the several myths created, only a few survive and persist for long, just as only a few among thousands of species survive through evolution. Second, evolutionarily, the ability to reason is a progressively selected feature of humans and hence it is difficult to understand how this instinct could have been taken over by the appeal of myths rendering their survival. For these and other reasons, it would be interesting to explore the pattern of spread of myths, particularly those that have survived for long. Often, as will be seen here, there could be other unforeseen fallouts from such probes for science as well. In this article, I present the outcome of my attempt to explore one such myth, the 'Thalakaadu curse' that I was obsessed with, as are several millions in South India.

The miracle of the Thalakaadu curse

The Thalakaadu curse is a well known myth existing for almost four centuries in Karnataka. The curse has three components, of which two are strongly visible, rendering credence to the story behind it. For instance, temples at Thalakaadu are frequently covered with sand – an alleged consequence of the curse. Hence the sand is removed to uncover them for a specific worship and an important pilgrimage held there every five to twelve years; the recent pilgrimage was held during December 2006. Another visible consequence is regarding the heirship of the Mysore kings. The Mysore kings who claim to be victims of this curse for twenty generations, have publicly acknowledged their strong faith in it. Because of these visible impacts of the curse, even the rationals express awe at the effects though they accept the details grudgingly. Precisely because of these vivid impacts, the curse deserves a thorough explanation beyond hand-waving.

The story of the curse: Sifting the sand for truth

Thalakaadu is a historical site along the banks of the Cauvery river near Mysore (Figure 1). This small town, with a strong history and a prolonged period of human settle-

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ments for almost 10,000 years BP[2], was a flourishing city during the Hoysala period (12th–13th century), and was also an important trade centre during the reign of Gangas (from 6th century AD for about 400 years) and Cholas (close of 10th century) and the Hoysalas from AD 1116. Towards the early 15th century it came under the Vijayanagara rule, and remained with them till the end of the 16th century. There are about a dozen temples spread over a small area of 4 sq. km, perhaps reflecting the rich art, culture, trade and human activities that once existed there. This once buzzing centre of trade and culture now looks like an abandoned town, except during the time of pilgrimage held once every few years. The abandoned look of the town is also attributed to the curse in question.

The curse is said to have been uttered by a pious woman in about AD 1610, when the Mysore Wodeyars took over Srirangapattana from the Vijayanagara rulers. At this time, Srirangapattana was being ruled by Rangaraya, the Governer from the Vijayanagara regime. After the take-over, the Mysore king received a complaint that Alamelamma (also referred to as Rangamma by some[3]), wife of the dethroned Rangaraya, was hoarding the jewels that belonged to a famous temple (actually renovated by Rangaraya). The king accordingly sent his soldiers to recover from Alamelamma, the jewels which belonged to the state. Reluctant to part with the jewels, she is claimed to have escaped to Thalakaadu, about 40 km from Srirangapattana. Perhaps pursued by the soldiers, she is claimed to have uttered three curses, and then jumped into a whirlpool in the Cauvery river near Maalangi, a small village across the river. There seems to be an impressive consensus on the exact words she was supposed to have uttered while spelling out the curse, which when translated reads thus[4]:

Let Thalakaadu become a land of sand,
Let the river at Maalangi turn into a whirlpool,
Let there be no sires to the Mysore kings.

The myth of this curse has survived all these four hundred years because of three reasons:

(i) In fact, there is a whirlpool at Maalangi and Alamelamma is supposed to have jumped into it!

(ii) More significantly, the town of Thalakaadu, especially where the old town existed is unusually covered with about 10–20 m of sand (Figure 2). Some of the temples built during the Hoysala period (ca. 1200) are almost 20 m below the present sand level, clearly demonstrating that the sand has swept the city in these 400 years. Some of the temples are even now buried under the moving sand and they need to be frequently uncovered for public worship (Figure 3). Realizing the movement of sand from the river, sand breaks were created throughout and one such sand break of eucalyptus trees was supposed to have been erected by M. Vishweshwaraya. Recently, the movement of sand further north has been halted and hence the frequency of desandification[3] required to uncover the temples has been reducing. Nevertheless, it is true that Thalakaadu, once a flourishing city of the Cholas, has been abandoned completely barring the grand temples built during the peak period of its activity.

(iii) The royal family of Mysore has indeed been repeatedly facing problems of having a rightful heir to the throne ever since the 1600s and the family has been acknowledging this difficulty even publicly. A simple look at the genealogy or family tree does, at least on a first account, suggest this problem clearly (Figure 4).

Among these, however, the first may be simply sifted away because, had this story of the curse really taken place, it is unlikely that Alamelamma could have committed suicide if the whirlpool was not already there. It is likely that a strong whirlpool already existed there, which may have prompted her to jump into it. But how about the other two curses?

Figure 1. Map showing Thalakaadu near Mysore. Photograph downloaded from www.googleearth.com.

Figure 2. Deposition of sand at Thalakaadu and the wind brakes.

Figure 3. ***a***, Unexcavated temples covered under sand. These are not excavated as they are not used for worship. ***b***, Temples whose deities are regularly worshipped, such as the Kirthinarayana temple shown here, are either uncovered frequently or are protected continuously from accumulation of sand. Deserted temple structures shown in (***a***) are seen on the left bottom of (***b***). Also, notice that in the background sand has accumulated all around the temple.

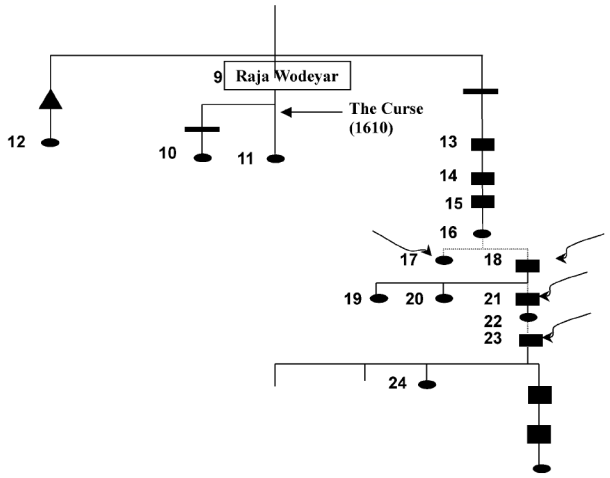

Figure 4. Family tree of Mysore kings. Numbers represent the series of kings in the royal family. Adopted kings (curved arrow), and those with (filled square) and without blood lineage (filled oval) are also shown.

I took the view that even if the story of the curse per se was false, the second and third facts, claimed to have resulted due to the curse, demand serious attention and explanation – as objectively as possible. For this, I compiled the archeological data, geological features of the area, examined the earlier attempts to explain the observed phenomenon of sandification of the area, and also assessed sand size profile from the river to the township. I then extracted details from the family tree of Mysore rulers maintained at the Heritage division, Palace complex, Mysore. Based on these results, I propose that the three syndromes of the curse were already visible during that period and, that the curse has been intelligently moulded by someone with a vested interest. In fact, I propose that symptoms of an ecological disaster of the area were emerging visibly at Thalakaadu, which on being noticed early, have been used as a fuel for peddling the said myth for reasons not immediately known. I have written on one possible scenario that may have prompted such a motive[5], but there could be other reasons as well and I do not intend to deal these motives here. Below I summarize my findings and discuss the process with which the myths could spread like alleles in a population.

Sandification of Thalakaadu

There could be three major, synergistically acting reasons for the sandification of Thalakaadu.

Geological phenomenon: Geologists have demonstrated that there is an active but minor fault zone running along the path of the Cauvery river, especially in the area between Mysore and Hoggenekkal falls, spanning Shivana Samudra, BR Hills and Male Madheswara Hills[6,7]. Accordingly, owing to a major geological uplift, and northeastern movement of the BR Hills zone, the river has been rapidly shifting its course. At a higher scale, the very path of the Cauvery river is suggested to have changed over several tens of kilometres. At a local scale, the river is claimed to have taken sharp turns at several places[6–8]. One such severe turn had occurred exactly along Thalakaadu town. In fact, Thalakaadu in particular is covered by the river in a semicircle (Figure 5). It may therefore not be surprising that during heavy monsoons, the river swells and carries abundant sand to Thalakaadu town. However, on the other side of the river, towards Maalangi, it is bound by a relatively hard, lateritic-walled bank, which is per-

haps preventing such deposition of sand. Nevertheless, as this bank is facing the rapidly flowing face of the river, it is being gradually cut into. Consequently, Maalangi village is being gradually eaten into. The temple that was once on the east side of Maalangi, is now completely dilapidated by the force of the river, and its remnants salvaged by people, can be seen strewn all over the village roads (Figure 6).

However, one important question is that of time: these geological upheavals have been happening for millennia, while the sandification process is relatively a recent process – just over a few hundred years old. It is likely that the sandification process along Thalakaadu was triggered more by the local and recent reasons (see below) though these geological events have only augmented and or catalysed the process.

Figure 5. River (blue-coloured) around Thalakaadu. Notice the semicircular river and the sand patches spread towards Thalakaadu. Maalangi village with laterite hard bank is on the southwest corner by the side of the bend of the river there (downloaded from www.googleearth.com)

Figure 6. Relics of temple at Maalangi strewn all over the village.

Construction of an anecut: During 1336, Madhava Manthri, a minister from the Vijayanagara regime, is said to have built an 'anecut' or dam across river Cauvery just above the Thalakaadu area near Hemmige[8,9]. Such a construction is likely to have dried up the river path, exposing the sand banks accumulated there for millions of years. Thalakaadu receives strong winds from northwest and southwest[8], which while blowing on the river base, could move the sand particles towards Thalakaadu. Devaraj *et al.*[10,11] have observed that these particles could move at a rate of about 7–10 ft/yr.

There are two datasets that seem to support this hypothesis: The sand along the river Cauvery is much in demand for construction purposes, while that accumulated at Thalakaadu, about 1 km from the river edge, is not lifted by the construction workers. My own analysis of the sand particles suggested a gradual decrease in their size from river edge towards Thalakaadu (Figure 7).

Thus the sand we see at Thalakaadu is a consequence of the movement of particles from the river path. It is likely that this event, augmented by the severe turn of the river that throws more sand onto the path every year, may have synergistically contributed to the accumulation of sand at Thalakaadu.

Archaeological surveys have in fact shown that sand began to be accumulated towards the end of 16th century (Figure 8). Thus it is not unlikely that the movement of sand or the process at sandification of Thalakaadu was visible to the very observant, even before the 16th century. It is not unlikely that the sharpest of the minds may have capitalized on this observation to throw as sure to win prediction in the form of a curse. Gradually as the town had to be abandoned owing to the increasing sand covering it, the prediction in the form of the curse may have become a deep-rooted myth among the commons.

Local sinking of the town: A careful observation of the old constructions also suggests that the town in question

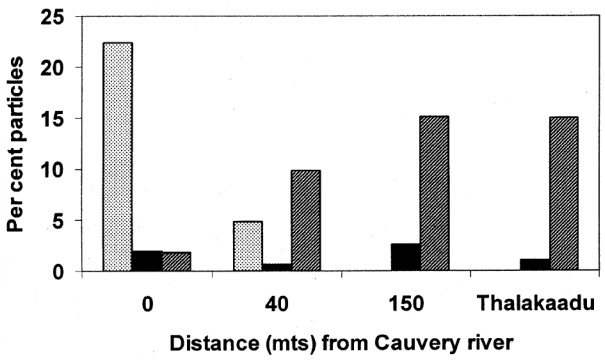

Figure 7. Composition of sand at different distances from River Cauvery to Thalakaadu. The gravel content (dotted bars) is highest at and decreases sharply away from the river edge, while the fine particles (silt and clay content, hatched bars) increase away from the river edge. Coarse sand (filled bars) do not show any change.

has been gradually sinking. While the accumulation of sand in the city pushed the built temples to apparently lower levels, there are evidences from the archeological excavations that past settlements have sunk far below the levels of the present-day river – an unlikely feature when they were actually built. For instance, drainage pipes drawn from human settlements that existed under the Kirthinarayana temple, appear to be far below that of the present level of the river (Figures 9 and 10). Drainage pipes are effective only when built above the level of the river. Thus it is likely that the pipes that were actually built above the river level have sunk in the past millennia or so. The geological events claimed to have taken place along this fault zone could have caused such sinking as well. This would obviously lead to the flow of the river and its sand onto these low-lying areas. The vast expanse of the riverbed along Thalakaadu may in fact support this possibility.

Figure 8. Sand accumulation below temples.

Figure 9. Drainage pipes below temples built during 1330s.

The problem of the royal family

A look at the family tree of the Mysore royal family does suggest that indeed there are problems with the continuation of heritage of the family (Figure 4). I found that most kings during the early days of this genealogy had more than a dozen queens or wives. Despite this, there have been several generations where owing to the lack of rightful heirs born to the ruling king, the family has adopted a prince from outside. However, a close examination suggests that only 10 out of the 19 generations have had problems of lineage and even among these there are a number of reasons to believe that the curse has hardly had any effect.

1. Just a few years following the acclaimed curse, there was a rightful heir born to the king but died later, suggesting that the curse did not have any effect on the fertility of and birth in the royal family.
2. At least three of the cases where the family lineage has been truncated were because the rightful heir(s) died even before the marriage.
3. Adoptions were almost invariably from within the genetically close links, amounting to consanguineous marriages which perhaps have resulted in typical inbreeding depression and hence probably the problem of lineage.
4. Clearly, the adopted princes have had offspring and occasionally, the second generation had the problem, perhaps owing to enhanced inbreeding depression.

Thus the problem of the lack of 'issues' to the royal kings seems explainable based on the factors distinct from the effect of the curse.

An ecological disaster

The Thalakaadu curse seems to serve as an unique example of an ecological disaster consequent to developmental

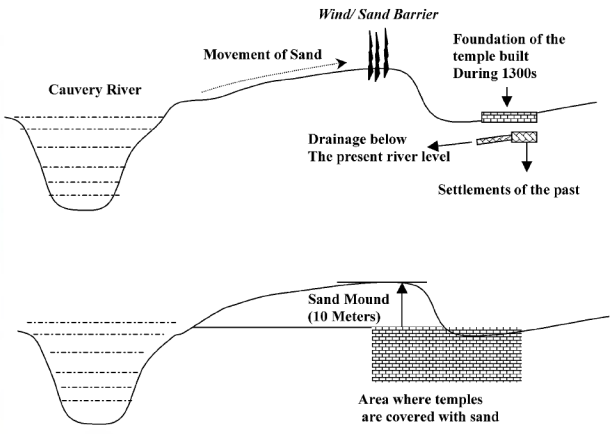

Figure 10. Line drawing showing the cross profile of the Thalakaadu–Cauvery space.

activity. A dam built across the river, upstream of once a flourishing city, has led to the complete desertification (herein referred to as sandification) of the area, which in turn has gradually eroded the culture and trade of the place. Eventually a great civilization that grew there over centuries has collapsed. The consequences of the developmental activity were obviously not foreseeable and hence the civilization that stood there had to pay the penalty[8]. Today, a small village survives east of this deserted area, as a relic of what was once an active and vibrant city.

Conclusion

The Thalakaadu curse survived as a unique example of an irrational myth (most myths are irrational) probably because the predicted consequences of the myth are still visible. In fact, because of these visible effects, the myth per se was a challenge to the rational and scientific mind. I have argued that these visible effects could be explained logically (and scientifically) and hence the curse is meaningless.

The extent to which a myth survives and persists may reflect the level of objectivity (and hence, perhaps of education and scientific thinking) of the society. However, myths emerge and spread even in the most advanced and educated societies as well[12]. It could also be true that the fate of myths may also be a function of the extent to which religions cast darker veils on the collective psychology of humans. On the contrary, myths are also emerging and surviving in the least religious societies as well. Thus no specific factors could be recognized that facilitate and drive the creation of myths. They could simply reflect the obsession of the human mind just as religion and God are seen as a byproduct of the evolution of the human mind[12]. I cannot resist quoting Dawkins: 'miracles provide the strongest reason for … faith (in God) ... miracles, by definition violate the principles of science[12].

1. I use the term myth here in a generic way to refer to any miracle or an apparently and or really unreasonable belief among the common public over several decades and sometimes even centuries. For the same reason, I use it interchangeably with the term miracle.
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