

Reports from the Field

Timeless Insights from an Ancient City: Research at Sisupalgarh, India

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INTRODUCTION

Like the Great Wall of China, the ancient city of Sisupalgarh represents so much labor investment that it can be seen from space. First occupied more than 2,500 years ago in the ancient land known as Kalinga on the eastern coast of India, the settlement is framed by a perfectly square fortification wall and eight equally-spaced gateways that surround a complex of monolithic pillars at the center of the site (Fig. 1). Its architecture and remarkable degree of preservation make it one of the most distinctive ancient cities in India and the focus of a long-running joint project between UCLA and India's Deccan College.

Our team's principal research questions went well beyond "how old is it?" to engage with some of the most vital new themes of archaeological research. What can archaeological investigations tell us about the way people live in urban areas? How did people interact in the crowded but exciting spaces of the first cities? What was the relationship between civic authorities and urban dwellers? Sisupalgarh's long occupational history provides abundant evidence that life in ancient cities was not so different from what we experience today.

In order for cities to come into existence, people had to put aside their wariness of strangers and

engage with others for even the most basic daily activities such as getting provisions. It was a big leap of faith for people to start to live far from their agricultural fields and depend on a supply network to provide them with food, but the fact that cities appear over and over in the archaeological record indicates that our species may well be "hard-wired" to live in large groups whenever possible. This factor opens our eyes to the possibility of seeing cities not as a problem, but as a solution to many contemporary areas of concern, such as human-environmental dynamics and the mitigation of social tensions.

The site of Sisupalgarh was first investigated by Professor B. B. Lal in 1948. The availability of



Figure 1. Topographic map of Sisupalgarh showing fortification walls and central architecture. Map: G. Greene.

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prior data placed our own project on a firm footing and provided an essential bridge for the use of more modern techniques available today, such as radiocarbon dating and remote sensing. Our project has used the “complete package” of archaeological research, including mapping, surface collections, horizontal excavations of ancient architecture, and deep digs to natural soil in order to capture details about the site’s initial occupation. Thanks to a successful collaboration with the University of Akron and California Polytechnic State University–Pomona, our project has also pioneered the use of nonexcavation geophysical surveys and GPS satellite mapping in India.

SURFACE SURVEY

As many archaeological projects do, this long-term research program had a modest beginning. An initial reconnaissance was to have taken place in 1999, but the eastern coast of India was struck by a terrible cyclone that devastated the region. In early 2000 the destruction was still much in evidence. However, archaeologists can always find a silver lining when Mother Nature strikes: uprooted trees revealed underlying archaeological deposits in many places where they might otherwise have been obscured, a factor that helped to confirm the presence of significant research potential.

For the next three years, a small team returned each season to conduct systematic collections of the artifacts on the site’s surface. Nonarchaeologists often are surprised to learn that ancient remains can still be found on the surface of the ground, but surface survey is one of the first steps of an archaeological project. Excavations are time consuming and focus on only a very small portion of a site, while a comprehensive survey can effectively collect data on an entire ancient settlement. Through survey researchers also get to know the surroundings and climate that ancient people had to negotiate. Working in the extreme conditions of the pre-monsoon summer where fieldwork after ten o’clock in the morning was curtailed because of concerns for sunstroke, we appreciated how ancient people would have had to schedule both their farm work and their construction work for the more hospitable winter months.

Additionally, survey is a good way to interact with the people who live on and around ancient sites and

to benefit from their insights and discoveries. Local villagers were certainly curious about why we would come such a long way to pick up broken pottery and stones from agricultural fields, but were generous about letting us cross their land and take samples from a variety of contexts. Farmers in their daily conversations expressed an age-old concern for having enough water for their crops, and over the course of the project we often worked side-by-side with people preparing fields for planting. Herders also traversed the landscape with goats or sheep, reminding us of complementary economies of domesticated plants and animals. Even in a relatively populated area there was still a lot of traditional foraging, and tribal hunters would occasionally go by with a lizard in a gunny sack or fish in a glistening net.

The most important result of the project’s survey component was the confirmation of ancient habitation throughout the site. The impressive fortification walls around the city were not just an “empty” container for a few high-ranking residents but encircled a fully functional city packed with people, markets, and reservoirs. The similarity of artifacts throughout the site also led to the perception of an “urban style” that was shared by a large proportion of the inhabitants. The results from the survey enabled us to envision the potential of further and more detailed research.

MAPPING THE SEEN AND THE UNSEEN

Our mapping strategies throughout the survey stage of the project included the entire range of high-tech and low-tech approaches to the archaeological record. With the philosophy that “low-tech always works,” we initiated the mapping of surface architectural remains using pencil and paper, which enabled the entire team to participate in drawing what they saw on the ground (Fig. 2). This approach also is more applicable to the kinds of work that local students are likely to do for their own thesis research, and the low-tech approach is one that we continued to support in the subsequent years of research.

Because we were mapping on a large scale, we also took advantage of more advanced methods of field recording, including equipment provided by the Cotsen Institute such as theodolites and a Trimble GPS backpack unit that permitted topographic mapping at sub-meter accuracy. The maps enabled us to calculate the volume of the monumental

architecture, such as the encircling rampart, and to appreciate the phenomenon of water management at the site. Water is abundant in this part of India, particularly after the summer monsoon season, and the site is located in the delta of the Mahanadi River, which would have allowed local inhabitants access to natural watercourses. However, the development of ramparts would have curtailed the daily access to river water—a problem solved by creating reservoirs and wells within the city. Particularly in the hot, dry summer season, these wells would have been an important supplemental source of water, and they would have been essential in times of siege or drought.

Another important component of mapping consisted of mapping the unseen. For the past twenty years, archaeologists worldwide have used a variety of techniques to examine the subsurface through instrumentation initially developed by geologists (particularly petroleum geologists, who are *very* interested in knowing what is underground before they invest money in extraction!). These methods had not been applied to sites in the Indian subcontinent, but the conditions at Sisupalgarh were ideal for a trial.

Implementation of the remote sensing project was led by Professor Timothy Matney of Akron University and his team of geophysical researchers. The team used two types of instrumentation: electrical resistivity and magnetic gradiometry. Each of the techniques had particular configurations to consider for future research. Electrical resistivity is easily undertaken and requires only a short period of training for the operator. Data-collection is a slow process, however, because the probes must be physically inserted in the ground. Gradiometry allows for faster data collection because the instrument is held above the ground, but the process results in a longer training period to ensure the steady hands and regular pacing required by the instrument.

At Sisupalgarh, resistivity and gradiometry provided an “x-ray”-like depiction of subsurface remains that allowed us to see neighborhood-level patterns of structures and passageways. The most distinctive pattern was the presence of long “streets” coming in from the eight gateways that formed a grid pattern within the site. This pattern represents architecture that lies more than a meter (about 3 feet) underground, but is completely undetectable on the surface of the site. The detection of the pattern enabled us to substantiate Professor Lal’s long-held



Figure 2. Mapping the top of the rampart, Sisupalgarh.

hypothesis that the site was gridded into neighborhoods, similar to what is described in the historical text known as the *Arthashastra*. The information from remote sensing and surface survey also enabled us to identify areas for the next activity: excavation.

DIGGING WIDE AND DIGGING DEEP

Archaeologists have two types of excavation strategies: horizontal and vertical. Horizontal excavation, or “digging wide,” enables archaeologists to see an area as it was lived in by ancient people, with a synchronous view of structures and space. Vertical excavations, by contrast, enable archaeologists to “dig deep” to look at the layer-by-layer transformation of a site over a long time span. A combination of vertical and horizontal excavations enable archaeologists—through the collected artifacts and architectural data—to show what changed and what stayed the same over the lifespan of a site’s occupation.

Our decision to dig deep or dig wide involved not only scholarly factors but also the realities of time and resources. Excavation is by far the most time-consuming and expensive aspect of archaeological research; although it is assumed that most archaeologists “dig” for a living, it is actually only a small part of what we do. The season for excavation is determined by a variety of factors, not the least of which is the availability of students and faculty during university breaks. In our dig house, a field calen-



Figure 3. Excavations of ancient domestic architecture.

dar noted each day's achievements interspersed with the arrivals and departures of our personnel and served as a reminder of everyone's busy schedule of academic, professional, and family obligations.

In our collaboration, we considered the trade-off between digging wide and digging deep nearly every day. At the beginning of each excavation season, we would mark out the places that we intended to be the focal point of the season's work. This let us hold open the potential to either expand horizontally in whatever direction would enable us to fully expose structures, or devote our resources to continue downward in a place that was revealed to have the best potential for deep diggings. As new finds and architecture were unearthed, we reevaluated our horizontal and vertical exposures to maximize our time and data collection.

Digging horizontally enabled us to see the site's houses and open areas uncovered as though we, too, were walking through the ancient streets of Sisupalgarh (Fig. 3). We conducted horizontal excavations to investigate domestic architecture and habitation areas at several places within the ramparts, as well as on top of the rampart itself. Some of the most dramatic excavations took place in the center of the site at the location of the standing pillars, where the geophysical research also indicated the presence of

a perimeter wall that would have isolated the pillar group area from the day-to-day traffic and bustle of the city.

Digging deep provided us with data to analyze how the city changed over time (Fig. 4). But digging deep was a special challenge at Sisupalgarh because the modern water table (due to dams and other regional activities) is now much higher than in antiquity. As a result, the bottom archaeological layers were under water and required some creativity to excavate. We took our cue from the local well-diggers who were part of our field crew and used a pump system to remove the water while digging downward. The data from the deep digs showed the types of artifacts that were used by the city's earliest residents, consisting of pottery that was much finer and more beautiful than the types of goods used by the city's later residents. The upper layers instead showed a very utilitarian approach to pottery that appears to have been almost disposable, as a plastic cup is today. But the upper layers also showed a change in architectural styles (including the introduction of bricks and tiles) and an amazing variety of moldmade terracotta ornaments that included rings, bangles, earspools, and pendants (Fig. 5).

Tantalizingly, those major changes occurred just below the water line, meaning that we will never be able to expose the horizontal layers associated with what must have been a rapid change of economic and social activity. A "disposable" culture such as the one we have documented at Sisupalgarh shows not only that there was an enormous amount of trash generated at the site, but also that a tremendous amount of production took place in the surrounding countryside where there would have been sources of fuel and raw materials. Even a small restructuring of the economy would have changed urban-rural relationships, but what we see at Sisupalgarh is nothing short of dramatic. The rapid shift of production and consumption that took place in just one or two generations around the third century B.C.E. would undoubtedly have had ancient grandparents telling the youngsters how different it was in the "old days."

THE HUMAN ASPECT

The students who worked on the team were truly the heart of the project. Although the majority of the fifty-five graduate students who worked on the excavation came from India's Deccan College, there



Figure 4. The article's authors, deep in the trench of the monumental gateway.

were substantial numbers of participants from other Indian universities as well. Each day was a long one during the excavation season, with an early start followed by excavation straight through until early afternoon, when we would break for the midday meal. In the afternoons, students sorted ceramics and did data entry and computer work; this was followed by tea and a seminar-like “trench meeting” in which each student excavator articulated what she or he found that day and laid out the strategy for the following day’s excavation. These meetings enabled students to discuss problems and opportunities amongst themselves, and gave all of us a forum to consider modifications to our interpretations.

UCLA students also played a prominent role in the excavations, as did students and staff from other American institutions. Many of our U. S.-based students had considerable excavation and survey experience in other regions of the world, and we greatly benefitted from their observations about the variability among large sites worldwide. We also hosted professional colleagues from Bangladesh, Cambodia, and the United States—including the Cotsen Institute’s own Professor Lothar von Falkenhausen,



Figure 5. Terracotta elephant pendant.

who visited us for a delightful few days when we were excavating at the pillar mound.

We had a wonderful local support staff who worked with the team to enable the archaeologists to maximize their field time. Our driver, Satya, was always ready for both the predictable and the unpredictable: meeting people at the train station or airport, ferrying bags of potatoes and rice from the market, and searching out just the right type of plastic pipe or plate glass for some archaeological gadget we were devising. Our cook Ali and his assistant Kalya were likewise foundational members of the team. Like an army, an archaeological project marches on its stomach, and Ali and Kalya regularly cooked with good cheer for several dozen people.

The project included many local people who worked at the dig as field laborers. Many of our city-based Indian students, though knowledgeable about archaeological theory, had less familiarity with “dirt” archaeology. Through a medley of languages, the students and local villagers experienced back-and-forth teaching and learning in their excavation teams. Local people kept us up to date about other developments in the area. Farmers often dug up pottery or architectural fragments when they worked the fields and would share their news with us. This often resulted in successful collaborations, such as the time we finished digging a local villager’s well in order that we might collect samples from the deepest layers. There were practical benefits, too, as villagers often passed by the trench on their way to market and sold us their morning-fresh vegetables for our midday meal.

We appreciated the visits of many notable archaeologists who shared their thoughts with us about the interpretation of the site and its importance as a major excavation project. In 2008 we hosted a delegation from the Indian Archaeological Society’s annual conference, and the project also was a frequent stop on the annual all-India tour of government-service trainees from the Archaeological Survey of India. Each season we also gave trenchside lectures to students from local schools and colleges (Fig. 6). Some exciting media moments ensued where we worked at the photogenic pillar area, when we were treated to the unusual experience of waves of television, radio, and print reporters descending on the site in a quest for the latest news (curious readers can still find footage in the eternal archive of the Internet).

SOME LESSONS ABOUT URBAN LIFE

The project at Sisupalgarh was exciting and satisfying in every possible way. Our research results enabled us to delve into a number of aspects of ancient urban life that not only help us to understand the Indian past but also have resonance for understanding fundamental aspects of human behavior. Urbanism is an amazingly recent development in human history, as the first cities developed only a few thousand years ago. Before that, our ancestors lived in small villages where everyone knew everyone else. At Sisupalgarh, the first occupation of the site took place in the middle of the first millennium B.C.E., a time when people were creating cities in other parts of the subcontinent as well. Our coordinated research effort illustrates that when creating cities, people marked new social, economic, and political realities in tangible ways.

Domestic and Monumental Structures

Ancient cities, like modern ones, had a range of housing types, from the well-built homes of the elite to the temporary encampments of vendors and pilgrims. At Sisupalgarh, excavations in 1948 along the principal streets had already revealed the presence of substantial houses built with stone foundations. Our excavations in other portions of the site showed a range of other dwelling types, including smaller structures that seemed to have been built by the hands of the occupants themselves. The construction materials included reused and mismatched stones as well as broken bricks and tiles. These domestic structures, once plastered, would nonetheless have looked very similar to their better-built counterparts.

Monumental architecture within cities can take a variety of forms. Sisupalgarh’s dramatic standing architecture includes the surrounding perimeter wall, the site’s eight formal gateways, and the standing pillars at the center of the city. Our excavations in these zones illustrated that considerable labor was invested in the city’s civic constructions, and that both skilled workers and a vast number of manual laborers would have been involved.



Figure 6. Site visitors receiving a trench-side lecture about new discoveries.

Trash

One of the most vexing—and morally troubling—problems of contemporary urban life is the generation of large amounts of waste materials. We rarely see these deposits accumulate in the developed world, except during rare garbage strikes or at periods of super-abundance of trash such as the holidays when heaps of discards in front of houses and buildings signal the acquisition of new goods. But it is a different story in the developing world, where the infrastructure of trash disposal is often haphazard, leading to the slow accumulation of discards in public places and around dwellings.

Ancient cities appear to have trash disposal patterns very similar to those of modern developing nations. Every ancient city that has been investigated archaeologically has vast quantities of refuse strewn about, and Sisupalgarh is no exception. In between houses, the amount of discarded objects was staggering, and we were excavating several hundred kilos of ancient pottery *per day*. So, trash isn't really a modern phenomenon—it's an urban phenomenon, and a superabundance of discards appears to be part and parcel of the urban experience.

Empty Spaces

One of the most interesting and overlooked components of urban life are a city's empty spaces. Most archaeologists write grants and go into the field looking for features that are physically distinct, such as structures, burials, and craft workshops. It does seem a bit odd to deliberately excavate “empty” areas between structures, but these spaces are precisely where some of the most important ancient activities took place. As anyone who has remodeled a home knows, buildings can only be reconfigured with difficulty and usually at significant expense. By contrast, the spaces between buildings can be repurposed over and over again.

It takes only a little effort to change the function of open spaces. With the provision of chairs or blankets, they become places to sit; cleared of furnishings, they can be playgrounds, marketplaces, or thoroughfares for celebrations (or riots). Larger public spaces can be the venues of significant military or protest actions, as well as the site of political ceremony and public drama. At Sisupalgarh, we discovered empty spaces between houses that had

at some point been the focus of ritual activities and then, not long afterwards, reverted to places where discards accumulated. The central spaces of the site would have provided large venues for public gatherings of all kinds, framed by the monumental architecture of the ramparts and pillars.

Ritual Activities in the Urban Center

The most photogenic of the monumental structures were the pillars that are featured at the center of the site (Fig. 7). The pillar grouping had always been regarded as an enigma because of the uneven spacing of the standing pillars, which did not correspond to any known architectural configuration. Our excavations enabled the mystery of this structure to be decoded by uncovering many other previously buried pillars that revealed a U-shaped structure bearing a considerable resemblance to apsidal *chaitya* halls associated with Buddhist activities in the

subcontinent. The presence of pillars on two other mounds in the same vicinity indicates that the pillar-construction activities were undertaken on numerous occasions and made use of the most exacting and precise engineering skills in order to raise the pillars that still stand over 3 meters (about 10 feet) tall today.

The recovery of what appears to be a significant ritual structure at the center of the site is reminiscent of the architectural strategies of many other global cities. Many urban centers have a religious structure as their geographical focus, such as cathedrals in Europe; mosques in West Africa and throughout the Middle East; and Buddhist, Shinto, and Confucian temples in East Asia. These structures were the product of highly skilled engineers and laborers working together to create a focal point of urban activity. These official structures clearly have an impact on behavior as well; at the pillar mounds of Sisupalgarh, we found very little trash



Figure 7. Monolithic pillars in the center of Sisupalgarh.

and virtually no ornaments of the kind that were abundantly discarded around domestic structures.

But ritual activities at Sisupalgarh were not limited to official, professionally engineered efforts. Like domestic architecture, much in the ritual sphere appears to be of the do-it-yourself variety, such as the votive deposit of cups and a deer antler that we found between two houses. We excavated some mysterious circular structures on the outside of the rampart walls that were reminiscent of Buddhist shrines, but their irregular layout suggested that they were not built by professionals. Nonetheless these circular structures commanded deep respect: one of them had a bronze dagger reverently leaned up against the outer casing of the circle, apparently lying undisturbed long enough to be covered over by the slow accumulation of dust.

THE “PROBLEM OF THE KALINGA WAR”

The presence of encircling ramparts such as at Sisupalgarh and other cities of this era has invited much speculation about their purpose. Throughout the world, the presence of walls around cities has been linked to warfare, protection against floods and wild animals, economic control, and to boundary-making for symbolic purposes. Each of these explanations is a viable one and can be substantiated through historical sources. Today, however, cities are not walled for their security, an observation that should give us pause about assigning a single, simple reason for the creation of ancient walls.

City walls were massive undertakings, and a simple breach at any point would have been sufficient to let invaders into the urban confines. Instead, we might suggest that walls probably served multiple purposes simultaneously. First of all, they constituted a demonstration of a leader’s authority and capacity to organize large numbers of people, and may even have been for those workers a kind of unifying project, much like a “barn-raising” integrates a community on a large scale. Once complete, the wall would have seen daily use as a symbolic perimeter and as an economic perimeter. At Sisupalgarh, the formal gateways with their restricted entryways would have been a perfect mechanism for evaluating and taxing goods coming into the city.

There is another reason, however, why we might want to further investigate the potential of warfare as a component of ancient city life at Sisupalgarh. In

the third century B.C.E., the ruler Ashoka controlled the region of northern India along the Ganges River and wrote stone inscriptions that described his experience as the victor of the Kalinga War. The culminating battle of that war has often been linked to the region around Sisupalgarh and may even have taken place at the ancient site itself. The victory was noteworthy, not only for its military effect, but also for the remorse expressed by Ashoka for the loss of life that ensued. His inscriptions credit this life-changing event for his subsequent turn to Buddhism, a factor of political support that had a galvanizing effect on the then-new religious tradition.

The “problem of the Kalinga War” may never be definitively addressed in the absence of any specific inscriptions about battlefield locations. Regardless of whether the war actually took place at or near Sisupalgarh, the conflict would have had an effect on the economy and society of the region. Contrary to what might be expected, our archaeological research shows that economic indicators of prosperity continued during the chronological time associated with the war. In fact, the archaeological record shows that Sisupalgarh was even more robust as a city after the period in which the Kalinga region was defeated and then relinquished by Ashoka.

A CITY’S DEMISE: DRAMATIC OR GRADUAL?

Although modern and ancient cities have many things in common, there is one big distinction: Many ancient cities came to a definitive end, leaving their deserted remains for archaeologists to find. By contrast, many modern cities keep going despite great challenges such as catastrophic warfare, earthquakes, tsunamis, and other disasters. The ability to surmount these challenges may be due not merely to factors of technology, but also to factors of organization. In the case of Sisupalgarh, warfare does not seem to have been disruptive; nor do we have archaeological evidence of any other single factor such as climate change or natural disaster. Sisupalgarh, along with other fortified settlements in the region, appears gradually to have lost population as it fell into decline. The end of the site seems to have been the result of the inhabitants’ slow migration from the fortified settlement to the new, nearby religious center of Bhubaneswar, where temples to Shiva and other deities signaled the shift from a Buddhist tradition to a Hindu one.

This interpretation of long-term change and gradual population shifts as a response to new opportunities resonates with research elsewhere that questions the stark “collapse” paradigm that was fashionable a decade ago. Archaeological investigations in different parts of the world now enable us to have better control of chronology and phases of site occupation. By investigating the household and community level of interaction through artifacts and architecture, we can see the economic and social changes that attest to ancient peoples’ creativity and adaptation over time. This long-term perspective on urbanism also can be read in light of our current preoccupations with sustainability: Cities appear to be ideal incubators for innovation and resilience, places where problems can be identified and efficiently addressed.

THE FUTURE OF RESEARCH: NEXT STEPS

Our research at Sisupalgarh has provided a number of insights about the way in which urban centers provide economic, social, and political integrations for their inhabitants. But as with all archaeological projects, each answer brings (at least!) two new questions. How did Sisupalgarh interact with its surrounding regions? Were people enticed or compelled to come and work on the city’s monumental construction projects? Did people in the surrounding towns see the city as an unpleasant imposition on their subsistence practices, or did they view the city as an exciting alternative to life in smaller towns?

With a regional perspective in mind we have recently begun to examine the surrounding hinterlands for other settlements similar in date to Sisupalgarh that will let us address questions of regional interactions. At least two town-sized sites with a walled configuration similar to Sisupalgarh’s have been identified in the region, and a preliminary reconnaissance confirms that they have similar artifacts and architecture indicative of regional contact. In the next field season, we will be bringing our team together again for an exciting new research project and are looking forward to finding new answers—and new questions—about the past.

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