When the Indus River swelled two years ago in central Pakistan, the floodwaters came within just three feet of overtopping an earthen embankment protecting the ancient city known as Mohenjo-Daro. At the time, archaeologists breathed a sigh of relief. But in September 2012 monsoon rains again threatened the site, lashing at the exposed walls and sparking new fears that this 4,000-year-old metropolis may be destroyed before it yields its secrets.

Those secrets remain legion. Archaeologists still don’t know the city’s true size, who ruled there, or even its ancient name—Mohenjo-Daro (“Mound of the Dead”) is the site’s name in modern Sindhi. A decades-long excavation ban, frequent political upheaval, and futile past conservation efforts have made it challenging for archaeologists to understand the site. To many, Mohenjo-Daro remains a dull, monochrome city, lacking the monuments, temples, sculptures, paintings, and palaces typical of contemporary Egypt and Mesopotamia in the third millennium B.C.

Now, however, archaeologists are using old excavation reports, remote sensing data, and computer modeling techniques to reexamine the reputation of what was the largest city of the Indus River civilization and perhaps the entire Bronze Age. Once dismissed as a settlement dominated by similar-sized, cookie-cutter dwellings, Mohenjo-Daro is being recast as a vibrant metropolis filled with impressive public and private buildings, artisans working with precious stones
Mohenjo-Daro’s New Story

What may be the Bronze Age’s largest city lies on the plains of Pakistan

by Andrew Lawler

Built more than 5,000 years ago, the ancient city of Mohenjo-Daro was likely the Indus River civilization’s largest and most populous city.
and metals gathered from all points of the compass, and a sophisticated water system unmatched until the imperial Roman period two millennia later. Instead of the strongly egalitarian society imagined by some scholars, most now believe that Mohenjo-Daro had elite families who vied for prestige, building massive compounds with large paved courtyards and grand columned entrances on wide streets. Looming over all was an acropolis dotted with majestic structures, possibly including an enormous stepped temple.

In the coming year, scientists may have the first chance in decades to locate Mohenjo-Daro’s true boundaries. Michael Jansen, an architect recently retired from the University of Aachen who has devoted decades to understanding the site, says that much remains deeply buried in fine silt. Having spotted signs of urban life that don’t appear on old excavation maps, including the remains of numerous buildings and masses of pottery, more than a mile beyond the main site, Jansen predicts that eventually Mohenjo-Daro will prove to be the Bronze Age’s most extensive and most populous city.

Faced with future flood threats, the government of Pakistan is eager to determine the city’s extent so they can decide how to protect the site. The first step will be to drill small cores to determine where the urban center ends and the ancient countryside begins. Archaeologists hope this will eventually lead to new excavations.

\[\text{T}H\text{E \ INDUS CIVILIZATION, which flourished from around 2600 to 1900 B.C., once covered a large portion of Pakistan and northwestern India. But until the 1920s, when archaeologists began excavating Indus sites and realized they had stumbled on a civilization rivaling ancient Egypt and Mesopotamia, it was largely forgotten. The first work at the Indus site of Harappa began in 1921 and eventually revealed a large, 4,000-year-old city. Unfortunately, however, British engineers had destroyed large portions of the site in the 1850s, when they used the fired bricks from which it was built—which had withstood the ravages of nearly four millennia—to construct a railroad to Lahore.}

Within months of the start of excavation at Harappa, work began at Mohenjo-Daro, which towered 60 feet above the flat plain of Pakistan’s Sindh province, 375 miles south of Harappa. Fortunately, much of the city was intact, in large part because its foundations were made primarily from that same hardy fired brick. Situated on a small ridge formed during the Pleistocene era, Mohenjo-Daro was located near the Indus River, covered at least 600 acres, and harbored a population of at least 40,000 in its heyday, although current work suggests that both these numbers underestimate its true size. With a possible population of 100,000, Mohenjo-Daro would have been bigger than Egypt’s Memphis, Mesopotamia’s Ur, or Elam’s Susa in today’s Iran, some of the ancient Near East’s largest metropolises. The city boasted wide streets, more than 60 deep wells, strong foundations, and impressive walls, 25 miles of which have been excavated thus far.

\[\text{Overlooking the settlement, on the northwest end, was a high-walled platform that archaeologists dubbed a “citadel.”}

Work at the site continued sporadically during the 1940s and 1950s, but the last major digs were in the mid-1960s, after which the government of Pakistan and UNESCO bade new excavations since the opened areas were quickly deteriorating. Salt had leached from the ancient bricks, causing them to begin to crumble away. Although millions of dollars were spent over the next two decades on expensive pumps in an attempt to lower the groundwater level, that effort proved futile. It was discovered that the real culprit was the damp winter air. The fragile ancient bricks have since been treated with mud slurry, but the results have been mixed and the site’s condition remains a major concern.

Despite its arresting standing remains, however, Mohenjo-Daro has largely baffled archaeologists. No rich tombs and only a handful of small statues and an occasional seal with symbols that remain undeciphered have been found. There were some large structures on the citadel, including one dubbed the “Granary” (sometimes identified as a meeting hall or public bath) and another called the “Great Bath.” But there are no obvious palaces or temples, in stark contrast to Bronze Age Egypt and Mesopotamia, where remains of such monumental buildings are common. At Mohenjo-Daro and other Indus sites, early archaeologists did find standardized bricks, common weights, intricate beads, and evidence of urban planning, all of which point to a well-organized society with no clear signs of major
warfare or destruction during its 700-year run. The challenge then was to create a picture of the civilization using relatively few artifacts and no decipherable texts to reveal a political hierarchy, explain religious beliefs, and expose the workings of an economic system. In the mid-twentieth century, Giuseppe Tucci, an archaeologist at La Sapienza at Rome, quipped, “Every day, we know less and less about the Indus.” Echoing Tucci’s sentiment several decades later, University of Pennsylvania archaeologist Gregory Possehl lamented that scholars still didn’t know what the Indus people called themselves or their cities, and that there were no king lists, chronologies, commercial accounts, or records of social organization of the type that aided scholars of other ancient civilizations.

Over the past few decades, archaeologists working to answer some of these questions have identified several other major urban centers and hundreds of smaller towns and villages that have started to provide a fuller picture of the Indus civilization. It’s now clear that the Indus was not a monolithic state, but a power made up of distinct regions, and that it involved a much larger geographical area than imagined by the 1920s excavators. Covering some 625,000 square miles, the Indus surpassed Egypt and Mesopotamia in size, and may have included as many as a million people, a staggering figure for an agricultural society that depended on the unreliable waters of the Indus River and its tributaries. Indus sites have been identified from the shores of Iran to the mountains of Afghanistan to the outskirts of today’s Delhi. Recent work by University of Wisconsin researcher Randall Law demonstrated that stones and metals from across this vast region circulated throughout (“Letter From Pakistan,” September/October 2008). Indus merchants, mastering the monsoon winds, traded goods with Arabians and likely conducted business as far west as today’s Iraq. One Mesopotamian text records a court case involving a “Meluhhan,” thought to be the Sumerian word for someone from the Indus, while another mentions a Meluhhan interpreter at a Mesopotamian court.

In the past, Mohenjo-Daro was seen as possibly the world’s first planned city, created as a major capital at the start of the Indus urban phase in the middle of the third millennium B.C. Jansen still supports this idea, but others are growing increasingly skeptical. “The problem is the high water table,” explains Massimo Vidale, an Italian archaeologist based in Rome who is familiar with the site. “When you reach [about 20 feet] below the surface, the groundwater starts to creep into the trenches.” As a result, previous researchers focused only on the later levels. “This is what gave the superficial impression of a planned city built on virgin soil,” says Vidale. But more recent analysis of potsherds uncovered during earlier digs includes a type predating the urban phase. And coring at points in the city reveals some three feet of cultural material below the water table that might date back to 2800 B.C.—and possibly much earlier. Vidale argues that Mohenjo-Daro is like other Indus settlements, including Harappa and Farmana, growing over time from modest, indigenous pre-urban roots, with large-scale mounds eventually forming what some call citadels. University of Wisconsin archaeologist Jonathan Mark Kenoyer, who has worked both here and at Harappa, agrees with Vidale.
Dominating the city is a massive structure long thought to be a Buddhist stupa. Some archaeologists now suspect it may, in fact, have been constructed during the Indus era, but excavations are needed to confirm this theory.

“Mohenjo-Daro,” he says, “was not the result of master urban planners who decided to lay out a majestic city.”

The final result, however, was impressive. The citadel that forms the height of Mohenjo-Daro was clearly a planned effort, with enormous walls enclosing a raised platform that is 200 yards long and 400 wide. At its highest point sits a prominent structure that 1920s researchers identified as a Buddhist stupa. These scholars thought the stupa, which was built with bricks and ringed by what they called monks’ cells, had been constructed in the early centuries A.D., when Buddhism was at its peak in the region. This assumption derived mainly from the discovery of coins dating to that era. But in 2007, Giovanni Verardi, a retired archaeologist from the University of Naples, examined the site and noted that the stupa is not aligned in typical Buddhist fashion, along the cardinal points. The plinth is high and rectangular, not square as would be expected, and there is little pottery associated with the later period. He also concluded that the materials recovered from the “monks’” rooms were made in the Indus period. Verardi now thinks there is “little doubt” that, apart from the mudbrick dome, the “stupa” is actually an Indus building. He believes that it was likely a stepped pyramid with two access ramps, and that terracotta seals found nearby depicting what appears to be a goddess standing on a tree while a man sacrifices an animal suggest that the building was used for religious activities.

Jansen and other archaeologists agree that Verardi’s interpretation may be correct, though they add that excavations are necessary to prove that his theory about an Indus-era temple is accurate. If it is, says Jansen, “this will turn our interpretations upside down.” No temples have been discovered at any Indus site, an absence unique among major ancient civilizations. But the presence of a stepped platform in the heart of its largest city would link the Indus with a tradition of religious buildings that by 2000 B.C. had spread across the Middle East and Central Asia.

Now Vidale, Kenoyer, and other scholars hope that by closely examining the remaining architecture, they can lay to rest the charge of homogeneity that has dogged modern views of the city.

By comparing the plans of Mohenjo-Daro drawn up in the early twentieth century to those from Harappa and Dholavira, a large, recently excavated, and remarkably well-preserved city to the south in India’s state of Gujarat, Vidale has pinpointed several palace-like compounds at the site. Each of these resembles a miniature citadel, and as they grew, he says, their elite owners competed for status and recognition by enlarging and beautifying their homes. One palace contains 136 rooms and is 300 feet long, with a carefully paved brick courtyard nearly 50 feet by 60 feet at its center. At several compounds, particularly where they front major streets, archaeologists in the 1920s found round stones and columns that were long interpreted as cultic objects. However, recent excavations at Dholavira, which is built largely of stone, have uncovered many objects identical to these clearly used as pillars. Vidale believes these well-crafted and costly artifacts testify to the wealth and status of some of Mohenjo-Daro’s citizens.

He also suggests these compounds can tell us much about the way Mohenjo-Daro was organized and governed, long a key question. “Instead of being dominated by a single lord,” says Vidale, “the city was made up of powerful clans who shared the same ideology.” Kenoyer has come to a similar conclusion about Harappa, which has evidence of similar walled compounds. He thinks these structures point to cities controlled by competing elites, possibly merchants, religious leaders, or landowners, who lived in their own well-defined neighborhoods.

Despite its large population and prestige-seeking clans, there does not appear to be significantly more concentrated wealth or presence of exotic goods at Mohenjo-Daro than at other Indus sites.

This small statue found at Mohenjo-Daro, dubbed the Priest-King, is one of very few Indus-period sculptures depicting a human ever found.
At many Indus sites, archaeologists have found mortars and pestles that Law determined were made of sandstone from southern Baluchistan to the west and steatite from northern Pakistan or Rajasthan to the east. Agate, a favorite stone for bead-making, was transported from Gujarat to the south. Lead, meanwhile, was brought from Baluchistan and silver from Rajasthan, both of which initially appear to have been prized primarily as currency. In addition, Mohenjo-Daro was ideally placed to take advantage of the chert—a hard stone that can be used to make sharp blades—that litters the Rohri Hills and the Thar Desert just to the east and was traded all over the Indus region. Pakistani archaeologist Qasid Mallah has recently found hundreds of encampments and settlements that demonstrate that this was a thriving area at the height of the Indus civilization. And, according to New York University archaeologist Rita Wright, chert may have sparked the growth of Mohenjo-Daro as a center of that important network.

As the city grew, so did one of its most defining features: good plumbing. At a time when wells, drains, and sewage systems were almost unknown in Egypt and Mesopotamia, Indus engineers were constructing massive brick-faced wells—one is an astonishing 55 feet deep—to provide clean water and a system of carefully laid drains with just enough slope to keep water moving to take away the waste. According to Jansen, almost every house had a bathroom consisting of a basin or platform that fed into the drains located just below street level. He believes that the investment in building and maintaining this system, which appears to have functioned well for centuries, shows more than a desire to stay clean. Instead, Jansen says, bathing, whether at home or at the Great Bath, was part of a ritual system dominating Indus life.

By 1900 B.C., however, Mohenjo-Daro's prosperity and stability were nearing an end. Wheeler suggested in the 1940s that several skeletons discovered in an alley were evidence of a massacre, what he claimed to be an invasion of Aryan peoples from the north and west, an event mentioned in later Indian texts. Other scholars believed that a massive Indus flood forced the city's abandonment. Both of these theories are now out of favor. Archaeologists now think that the city's decline was more gradual; though whether economic dislocation or political turmoil was the main cause remains uncertain. Climate change may also have been a culprit, but scientists are at odds over whether the region suffered from a drought that might have led Indus urban dwellers to flee to the countryside.

At Mohenjo-Daro questions still outweigh answers. Dating based on old excavations remains imprecise. There are no plant or animal remains that would help answer questions about diet, the economy, and the city's relationship to its hinterland. There also is no excavated cemetery to tell us about the health of its citizens and their social standing, or whether people immigrated to the city from far-flung locations. But Jansen has assembled a vast archive of photographs and dig reports, and says that there is an “enormous amount” of data waiting to be interpreted. Only 10 percent of the known site has been dug, and no major excavations are in the offing. But Fazal Dad Kakkar, director general of Pakistan's museums and ancient sites, says he hopes to begin coring around the perimeter soon. These cores could provide welcome new materials for radiocarbon dating as well as botanical and zoological evidence, and knowing the city's true extent is critical for conservation and preservation. Despite the hurdles, Jansen is optimistic about Mohenjo-Daro's future. “The city may be twice as big as we thought,” he says. “Our task now is to find its limits.”

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