

MIT OpenCourseWare  
<http://ocw.mit.edu>

4.696 A Global History of Architecture Writing Seminar  
Spring 2008

For information about citing these materials or our Terms of Use, visit: <http://ocw.mit.edu/terms>.

**Title: "The Temple in the Cave": Monastic Rock-cut Architecture in India, China and along the Silk Road, 3<sup>rd</sup> c. BCE - 9<sup>th</sup> c. CE**

**Intro: Rock-cut architecture as a global phenomenon**

\*Slide: Lascaux

When we think of humankind's early relationship to interior spaces, we tend to think of the cave, a primordial, naturally occurring type of appropriated domestic architecture, like this one, in the Dordogne in France, which dates to 17,000 BCE. These caves are important to anthropologists and historians in no small part because of the phenomenal cave paintings that serve as a visual record of prehistoric cultures that we know little about.

\*Slide: Ellora, Kailasa Temple

Buddhist acired rock-cut architecture dating from approximately 300 BCE to the 9<sup>th</sup> century CE is found in India, as well as along much of the Silk Road. These structures are often called "cave temples." This term is useful in some ways but slightly misleading since it implies that these structures are related to the prehistoric use of naturally occurring caves like those in the Dordogne rather than complex man-made architecture, which is what they actually are, as is evident in this image of Kailash Temple, a Hindu temple at the Ellora complex in Maharashtra, built in the 8<sup>th</sup> century, an example of vertically excavated architecture, built over the course of 125 years and requiring the removal of 200,000 tons of stone.

The trope of the unadorned, natural cave, outside of history and outside of an urban context, is an important concept, however, that fuels the building of rock-cut sacred architecture, especially monastic architecture, which will become evident in the second part of this lecture when we focus on monastic Buddhist architecture in India and China.

\*Slide: 3 examples of rock-cut architecture

This morning we will be looking at global rock-cut architecture, that is, architecture excavated from one large mass of rock. This type of architecture is illuminating as a global phenomenon, in terms of temporality and geopolitical factors. It is a record of ancient and medieval architecture in many parts of the world that, being carved out of rock, survives relatively intact in a way that contemporaneous structures made of wood do not. Its durability also means that in many cases the structures have evolved both stylistically and programmatically over the centuries and are an interesting record of successive political regimes, religious beliefs, and international

connections. Our exploration of this type of architecture will span large swaths of geography, locating the phenomenon of rock-cut architecture as an undertaking that is not limited to one particular environment or geology, although it is uniformly a byproduct of times characterized by general prosperity, healthy trade relations, and religious devotion.

These types of buildings are also evidence of the translation and adaptation of imagery and building types, with architectural forms following the spread of belief systems from one geographic area to another, which we will explore specifically in the of Buddhist monastic architecture in China, based on earlier examples from India.

\*Slide: Part I

\*Slide: "Proto Historic Routes to Iran and Mesopotamia"

\*Slide: "Land and Sea Routes btw India and the West"

In the first part of this lecture we will use these structures also help us to locate the notion of the "global" in a temporally and geographically expansive context. The ancient and medieval worlds in which these structures were built were quite interconnected through overland and sea trade routes. For example as early as 2500 BCE, the Harappan civilization in the Indus Valley had trade relations with Tell Asmar in Sumer, and through them could reach the markets of Mesopotamia and Egypt. Directly or indirectly, goods from the Indus Valley civilizations also reached Anatolia, Crete, and Greece.

Some of the earliest examples of rock-cut architecture are from these regions near the Mediterranean, the Black Sea, and the Caspian Sea:

\*Slide Beni Hasan

Dating to about 2000 BCE, this site, the tombs of Khety and Baket at Beni Hasan, in central Egypt was built during the Middle Kingdom. As in much early rock cut architecture, these were funerary structures. This site is composed of approximately 39 tombs in total. These are carved from limestone, a sedimentary rock composed largely of calcium carbonate, which is fairly easily eroded by acidic groundwater. The relative softness of this rock might account for its selection as a site in this early time period, during the Bronze Age.

\*Slide: Abu Simbel

My next example of rock-cut architecture are the temples of Abu Simbel, also in Egypt, this time in lower Egypt/upper Nubia near the present day Sudanese border. These sandstone structures date to the Iron Age, during reign of the Pharaoh Ramses II (1279-1213 BCE), and is one of five rock-carved temples he had built in Nubia. In this case, the rock-cut

structures were overlaid atop existing carved cave temples consecrated to local Nubian divinities in a display of Egyptian imperial power as the pre-eminent power in Northeastern Africa. The a sheer vertical face was cut into the original sloping mountain in order to install a façade of four colossal statues of a seated Ramses II.

\*Slide: Dalyan Tombs, Xanthus, Turkey (Lycia)

Moving across the Mediterranean, my next examples of rock-cut architecture are the Lycian tombs in Dalyan, southern Anatolia, in present day Turkey. Lycia had been in contact with Egypt during the time of Ramses II as part of the Hittite empire. Subsequently, Lycia was an independent state, then became a part of the Persian empire in the 6<sup>th</sup> c BCE, the Greek empire in the 5<sup>th</sup> c BCE, then Persia again in the 4<sup>th</sup> c BCE until it was conquered by Alexander the Great of Macedon later in the 4<sup>th</sup> c BCE. These tombs, carved into the soft limestone cliffs above the town of Dalyan, around the 4<sup>th</sup> century BCE reflect both Persian (iconographic and decorative program) and Greek architectural influences (columns, pilasters, pediment). Unlike in the Egyptian examples, these rock-cut tombs were very close to the major urban center.

\*Slide: Uplistsikhe, Georgia

Around the same time, the rock-hewn town of Uplistsikhe in Eastern Georgia was being carved with similar influences from Anatolia and Persia. Located in between the Caspian and Black seas, this was another important site of trade along the Silk Road since ancient times. It had been a functioning town from the late Bronze age around the 10<sup>th</sup> c. BCE., but more extensive architectural carving can be dated to the 5<sup>th</sup> centuries, with continuous palimpsestic rebirth during times of more prosperity, with flourishing trade during the 2<sup>nd</sup> c. BCE - 2<sup>nd</sup> c. CE, and after the introduction of Christianity in the 4<sup>th</sup> c. This is an example of rock-cut architecture that grew out of the tradition of using naturally-occurring caves for shelter. Similar to the model in Dalyan that incorporates funerary and sacred architecture with the urban center, Uplistsikhe was an entire town, with residential, commercial, and sacred architecture all located in the limestone caves.

\*Slide: Tomb of Darius, Naqs-I Rostam, Persepolis

From here it is appropriate to move to the rock-cut architecture found in Persia. The tomb of Darius I (550-486 BCE) is located just outside of the ancient capital of Persepolis. The monumental tomb is characterized by typical Persian complex narrative sculptural reliefs that have been applied to the façade rather than remaining on the interior.

\*Slide: Petra, Jordan

Slightly later, the Nabateans, who had transitioned from Nomadic life to settled life in Petra, Jordan around the 3<sup>rd</sup> c. BCE, essentially a caravan city located at the confluence of spice trade routes between Persia and the Mediterranean. Much of the rock-cut architecture, like this treasury building, was built around the 1<sup>st</sup> c. BCE, and relied upon temple and tomb architectural forms for secular and commercial functions.

\*Slide: Cappadocian Monasteries, Byzantine Turkey

Before we move to the rock-cut architecture in India and China that will occupy the rest of this lecture, I wanted to show you some late examples of rock-cut architecture in the Christian world, in Cappadocia, central Anatolia, during the Byzantine Empire. This monastery, Selime Kalesi, was built around the late 10<sup>th</sup> or early 11<sup>th</sup> century, and is one of many examples of monastic and sacred architecture built from the 9<sup>th</sup> to 12<sup>th</sup> centuries in this part of Turkey. These structures were carved out of naturally occurring limestone cones, the shape of which derived from acidic erosion over time.

\*Slide: Map with Markers of Rock Cut Architecture

\*Slide: Map with Silk Road Map

If you look at the map on which I've annotated the locations of the rock-cut architectural sites compared with a map showing the many trade routes associated with the Silk Road, which we'll defined broadly as the network of trade routes used by traders across Eurasia from the Chinese capital of Changan to the eastern Mediterranean shores in the 1<sup>st</sup> millennium BCE to the middle of the 2<sup>nd</sup> millennium CE, you'll see that the location of these sites more or less conforms to the trade routes. In the next section, we'll examine the religious migration of Buddhism and Buddhist sacred architecture along these same trade networks, from its origins in India, eastward to China, and north-west to Central Asia, looking specifically at the model of monastic architecture found in Ajanta in Western India.

## **Part II: Buddhist Monastic Architecture from Ajanta to Dunhuang**

\*Slide: Ajanta (aerial)

The rock-cut Buddhist monestary complex at Ajanta is located in the present-day state of Maharashtra in Western India, about 60 miles north of the city of Aurangabad. This serene, secluded natural setting was an appropriate location for the cultivation of an ascetic lifestyle. In total there are 30 caves cut out along the steep sides of the horseshoe-shaped basalt cliffs surrounding the Wagahora River ravine, with a seasonal waterfall spilling down into the river below. The caves are accessible by a single path that curves around the cliffs for about a half kilometer, about 80 meters above the river bed.

There are thousands of excavated cave temples in India alone, like those in Eastern and Southern India that predate Ajanta, but we will focus our discussion on Ajanta as an important example of rock-cut Buddhist sacred architecture because of the long time span that it covers. Its excavations take place over 6 or 7 centuries from the early 2<sup>nd</sup> century BCE to the 7<sup>th</sup> century CE, mainly in two distinct phases.

The early period of excavations at Ajanta occurred around 200BCE-100CE, which was 3-4 centuries after the life of the historical Buddha, Siddhartha Gautama. This was a period of Hinayana Buddhism, resulting in a relatively stark architectural typology without images of the Buddha. The second phase took place from the middle of the 5<sup>th</sup> century CE, into the 7<sup>th</sup> century, during a period of Mahayana Buddhism, when representations of the Buddha were integral parts of the architectural program in sculpture and relief.

The first phase of excavation began during the decline of the Mauryan Empire (322BCE-185BCE) when the Satavahana dynasty (230BCE-220CE) was on the rise in southern and central India (Maharashtra and Andhra Pradesh). The Satavahana had been a feudatory entity of the Mauryan empire that adopted Buddhism due to the influence of Emperor Ashoka, then declared their independence from the larger empire after Ashoka's death in 232BCE. Their patronage of Buddhism resulted in many monuments, including other rock-cut monastic complexes and forms in positive, like the great stupa at Sanchi.

The second major period of excavations commenced about four centuries later under the patronage of Harisena of the Vakataka dynasty (mid 3<sup>rd</sup>-late 5<sup>th</sup> CE), who ascended to power in 460. Harisena encouraged wealthy officials from the immediate and adjacent regions to initiate a new age of building at Ajanta, changing the mode of donation from the

earlier Hinayana model, where all donations were pooled for the creation of the complex as a whole, to a single sponsor per cave. The most architectural and artistic activity of this period seems to have taken place from the last half of the 5<sup>th</sup> century to the first half of the 6<sup>th</sup> century, with the building of the most sumptuous caves with the most ornate sculpture and painting, including the Caves 17 and 26, which we will look at shortly.

\*Slide: Ajanta plan

Note numbering system

\*Slide: Ajanta view

Just to complete our timeline of Ajanta, we should note that paralleling the decline of Buddhism in India during the later Gupta Period, the monastic complex at Ajanta was gradually diminished and then abandoned over the next centuries, to be rediscovered in a remarkably well-preserved state approximately 1000 years later by British troops in the 19<sup>th</sup> century.<sup>1</sup>

The complex is rich in terms of architectural history as well as offering some of the most well preserved examples of mural painting and sculpture from this time period that are still in existence. Also, like we've seen in other incidences of rock-cut architecture, the architecture that survives at Ajanta can provide a window into the forms of contemporaneous freestanding buildings in timber and other less durable materials.

\*Slide: Caitya, Vihara

The architecture of Ajanta can be divided into two main categories, vihara and chaitya. The chaitya is a sanctuary or prayer/assembly hall, is generally a simple oblong chamber with an apsidal end that contains a stupa with a barrel vaulted ceiling. The vihara, the predominant building type at Ajanta, is a monastery or dwelling, usually with a simple, square, pillared floor plan with small monks' cells along the perimeter.

\*Slide: Cave 10

This chaitya-griha, cave 10, is one of the earliest excavations at Ajanta from around 200 BCE, and reflects well the simplicity of early temple design, with an absence of Buddha imagery. The interior consists of a high vaulted ceiling, with ribs that reflect the imitation of timber construction. The interior space is divided by colonnades

---

<sup>1</sup> Dust in the Wind: Retracing the steps of Dharma Master Xuanzang's Western Pilgrimage, 431. (Arhat Acara, founder?)

into a central nave, apse, and side aisles. The central apse houses the stupa, which is also an excavated structure.

\*slide: exterior Cave 10

The exterior is marked by a large arched window that is a key to the excavation process of the halls and after completion, allows light into the excavated temple (sunlight can be reflected up into the vaulted ceiling of the sanctuary by placing a mirror outside the entrance, angled toward the arched window).

To begin the excavation process, which is basically from top to bottom and front to back, a suitable vertical face of stone is selected for thickness and texture, then this large arched window is marked out and becomes the entryway into the rock. The sanctuary is excavated from the front to back and from top down, eliminating the need for scaffolding. The ceiling is hollowed and the columns marked out simultaneously, which divides the hall into aisles.

\*Slide: Vihara, cave 1

\*Slide: comp Chaitya 10, 26

Stupa →

Burial mound for relics → mounds erected to commemorate events in the life of the Buddha → became object of veneration for laity → circumambulation →

Stupa in a chaitya hall allows for ritual circumambulation, also apsidal end references circular dome of stupa, created basically to house the stupa and allow for the observation of circumambulation rituals.

By 3<sup>rd</sup> century, strong desire on the part of the laity to have concrete representations of the Buddha (Mahayana)

Stupa → Sculpture + stupa (relief sculpture panel), object of veneration and circumambulation

\*Slide: Map w/ trade routes of India

Like most of these monastic settlements, Ajanta is located somewhat out of the way of major urban centers, but reasonably close to trade routes, in this case the main overland trade routes connecting Northern India with the western coast and the Deccan plateau. This kept Ajanta well-visited by pilgrims from throughout Asia, including the 7<sup>th</sup> century Chinese monk Xuanzang, one of many travelers along the Silk Road, who was able to travel thousands of miles by relying on the vast network of Buddhist monasteries and rest houses for hospitality, and shelter.

\*Slide: Xuanzang

Depicted here, as he often is, in the clothes of a traveler, laden with a pack filled with scrolls, Xuanzang traveled from Tang dynasty China to India in order to visit and study the Buddhist holy land, with the goal of bringing more accurate translations of Buddhist sutras and scriptures back with him to China.

\*Slide: Xuanzang's Travels

Before making his pilgrimage to India beginning in 629, Xuanzang had already traveled extensively among the Buddhist monastic complexes in China. Xuanzang's 17 year journey to India and back brought him West, through the Taklamakan desert, then through Central Asia before he could head South to India. He traveled through the Gangetic plain in North India, where he found many bustling monastic centers populated by thousands of monks, although he found others that were fairly deserted, indicating Buddhism was on the wane in India by this time. He spent many years studying in Eastern India, then traveled through the South and West, including a stop at Ajanta, before returning to China, again through Central Asia but this time skirting the southern side of the Taklamakan.

Now, having begun to examine the evolution of Chaitya forms within the Ajanta complex itself, we will follow in Xuanzang's footsteps from India to China, comparing, as he must have, the iconic and architectural transformations visible in Buddhist monastic architecture outside of India that looked to Indian prototypes but evolved and changed in its new cultural context.

\*Slide: Kizil

Now let's look at the rock-cut monastery at Kizil in the Central Asian kingdom of Kucha (now Xinjiang Province, China). Buddhism was introduced to this kingdom in the 2<sup>nd</sup> century BCE and the rock-cut temples were excavated between the 4<sup>th</sup>-6<sup>th</sup> century CE. They resembled prototypes in northwestern India, with the two main architectural types being the chaitya and the vihara. Unlike the Indian model, however, the chaitya was the predominant architectural form in the monastery complex. These chaitya also differed from their Indian counterparts in that the apsidal end of the space does not house a stupa in the traditional sense. Instead of finding a stupa in the caves at Kizil, we find a large central pillar, an architectural element that has come to be called a central-stupa-pillar.

This image (slide 47) is of the Music Cave at Kizil, Cave 38. As you can see on the plan and section, the pillar,

like the stupa in Indian cave temples, is located at the rear of the long space, but it is not exactly analogous. The central-stupa-pillar serves to divide the chaitya into a clear front and back. The devotee would circumambulate around the central pillar, passing from the front part of the chaitya, decorated with painted images of the earthly life of the Buddha and *Jataka* tales (stories of previous earthly incarnations of the Buddha), to the rear part of the chaitya, which is a room unto itself. This back room is decorated with scenes of the Buddha's *parinirvana* (enlightenment). As the devotee would circumambulated he would pass between these two worlds, and then upon leaving the chaitya he would see one last image of the Buddha preaching the dharma, painted over the entrance.

\*Slide: Ajanta 17 painted pillars

The ritual use of the central-stupa-pillar for circumambulation in Kizil might have had as much to do with the way that vihara had evolved to be places of worship as well as places of study in the later period of excavation at Ajanta as it did with the veneration of Buddha sculptures at the front of stupa in later chaitya caves (like in cave 26).

In Ajanta cave 17, built around the 5<sup>th</sup> century and roughly contemporaneous with Kizil, the painted pillars of the vihara that depicted events in the Buddha's earthly life were venerated with circumambulation.

\*Slide: Dunhuang

If we move further east from Kizil to Dunhuang (Gansu province), where excavated rock-cut monasteries date to the 5<sup>th</sup> and 6<sup>th</sup> centuries, we see the continued dominance of the chaitya over the vihara, with the chaitya housing central-stupa-pillars rather than stupa.

In this plan and section drawing of cave 254 we see a slightly modified chaitya, with a large hall, more square in proportion than the Ajanta and Kizil examples, with a square pillar at the far end of the room with Buddha sculptures carved in each of its four faces. In this example we begin to see not only the modification of Indian architectural prototypes for excavated cave temples, but the influence of sinicized Buddhist architecture found further south and east in China. The square room is reminiscent of square courtyards found in Chinese monasteries, and the square pillar is similar to the square pagodas found in the center of these courtyards. The central-stupa-pillar at Dunhuang reflects both the traditional stupa and a native Chinese concept of the axis mundi, or world axis, as found in Confucianism. In cave 254, the walls and ceilings are decorated with an iconographic program that enforces the idea that the central pillar connects the realm of earth

with the realm of heaven, with Jataka tales on the lower register, images of Buddhas preaching the dharma in the middle level, and images of the heavenly realm on the upper walls and ceiling. The central-stupa-pillar is thus the connection between the profane and heavenly realms, and the carved Buddha sculptures depict the Buddha in mediation as the way to connect the two worlds.

Where the Kizil pillar would have devotees pass repeatedly between images of earthly life and enlightenment, the Dunhuang example shows that the devotees are still grounded in the world of the profane, but can become connected to the realm of heavenly enlightenment through meditation.

\*Slide: Yungang

The last example I will show you is from still further east, reflecting even more directly the influence of Confucian architectural forms in Chinese Buddhist rock-cut architecture. This 5<sup>th</sup> century cave-temple at Yungang, in present-day Shanxi province), shows that the central-stupa-pillar is carved to resemble a Chinese pagoda form even more overtly than in the Dunhuang example. This pillar is marked by the distinct horizontal levels along the vertical pillar, again connecting the cave's floor and ceiling, picking up on the concept of the axis mundi.

Slide: Silk Road Map

The last few examples I showed you suggest an evolution, but since they are roughly contemporaneous it is probably more useful to look at them as simultaneous interpretations of the earlier Indian models of chaitya architecture. The aesthetic incursions of Chinese architectural forms reflect the cosmopolitan mix of cultures and philosophies during this early time period, as silk road travelers, merchants and pilgrims made their ways across huge expanses of terrain, carrying with them goods, ideas, and the trappings of religion, including architectural types like the excavated rock-cut temple. The fact that these simultaneous variations on the theme of the excavated temple occurred around the 5<sup>th</sup> century show the endurance of the powerful idea of monastic architecture inscribed in rock, evoking a primal relationship to the earth. This relationship, one of protection from the elements (warm in the winter, cool in the summer), and of contemplative quiet outside of urban society was a powerful idea, replicated all along the silk road, evoking the primal relationship of ancient humans to caves like the ones at Lascaux that I showed at the beginning of the lecture.