

The Indus valley: Brief overview of Harappan civilization

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- Geographic and ecological setting
 - A huge area compared to Mesopotamia or Egypt
- generally hot and little rainfall
 - agriculture requires being close enough to a river to benefit from natural flooding, or irrigation, which was only done on a small scale
- mostly alluvial soils without mineral resources, like Mesopotamia
 - although some places have outcrops of stone useful for tools, jewelry, etc.
- highly unstable Indus river and its tributaries, shift course frequently
 - many sites are located along abandoned, dry river beds
 - rivers are mostly navigable -- encouraging communication and exchange
- Pakistan floodplain
 - combines the best features of Sumerian alluvium and the Nile
 - topographically similar to Sumer
 - rivers flood and form natural levees
 - making irrigation easy with little need for large-scale canal systems
 - but the floods come at a convenient time, like the Nile
 - Floods June to September
 - brings both water and rich silt
 - allows two different crops per year, without large investment in canals or other works
 - While flood water is high, plant cotton or sesame
 - keep water in with low banks
 - harvest as waters recede
 - after the flood, plant wheat or barley
 - enough water remains in soil to support the plants without major additional irrigation
 - harvest in March to April, a few months before the next flood
 - this is how people traditionally farmed in the region in recent times, apparently similar to practices that started in the Neolithic
- wide zones of resources roughly parallel to the rivers
 - forest along river banks
 - cultivation further away
 - grassland still further away, for pasturage and hunting
 - beyond that, large expanses of desert
 - crossed by nomadic herders and traders probably since Neolithic times
 - this is a periphery similar to that surrounding Sumer and Egypt
- alluviation has raised the level of the plain up to 10 m (33 feet) in some areas since Harappan times
 - small sites must be deeply buried
 - big (tell) sites are partly buried, with lower parts below the water table
 - evidence of irrigation, roads, rural sites in many places must be meters below the surface

- so forget finding them except by lucky coincidence
 - as in digging for canals, drainage systems, roads; natural river cuts, etc.
- fortunately, the former Ghaggar river, just inside India, was cut off and left dry by a natural river shift in prehistory
 - leaving the area free of later silt accumulation
 - so in this one area, smaller sites and the regional pattern are being found
- Relationship with surrounding areas, and with Mesopotamia
 - mountains to the west (Baluchistan) contain minerals, metals, are good for pasturing herds; occupied by nomadic herders and settled farmers
 - desert to east limits contact with rest of Asia
 - Himalayas to north also enclose the region
 - these barriers enclose a huge area; regions within it are not necessarily geographically circumscribed in Carniero's sense
 - trade contact to the west by land through mountains of Baluchistan
 - sea routes to head of Persian gulf - a 4 to 5 week trip by traditional sailing vessel
 - did significant contact with Mesopotamia actually occur? when?
 - if yes, did it affect society in the Indus very much?
- Subsistence: a regional variant of the familiar Southwest Asian pattern
 - wheat, wheat, barley, peas, lentils
 - plus rice, especially in the east, but apparently not very important
 - plus cotton
 - sheep and goats
 - plus species domesticated locally: humped cattle, buffalo, pig
- General chronology
 - Periods are long, chronological detail is poor except within certain sites
 - but improving rapidly with ongoing research
 - a different scheme is used by Kenoyer (and in his Harappa.com website)
 - Neolithic 7000 - 3500 BC
 - Mehrgarh I-II 7000 - 4500 BC
 - Mehrgarh III 4500 - 3800 BC
 - Early Indus Period 3500 - 2600 BC
 - at Mehrgarh, called Mehrgarh IV-VII
 - the last part of the Early Indus period is called the Kot Diji phase 2800 - 2600 BC
 - Mature Harappan Period 2600 - 2050 BC
 - Late Harappan Period 2050 - 1700 BC
- Neolithic Period: 7000 - 3500 BC
 - Agriculture seems to have started on the western margins, in Baluchistan and the edge of the mountains, by at least 7000 BC
 - similar to the “hilly flanks” of Mesopotamia (the "fertile crescent")
 - cultures were highly variable from region to region, and changed a lot over time

- A well-studied example site: Mehrgarh, on the western edge of the Indus river system
 - located at transition from the Indus plain to the mountains of Baluchistan in eastern Iran
- Early Neolithic: Mehrgarh I-II (of I-VII) 7000 - 4500 BC
 - rectangular mudbrick houses from the earliest farming settlement there
 - evidence of agriculture similar to Mesopotamia, plus water buffalo and cotton
 - pottery by 6000 BC
 - in Period II (5500-4500 BC)
 - "box-buildings": possibly grain storage?
 - 6 x 6.5 m (20 x 21 feet) typical
 - if storage, this would be very early evidence of storing surplus
 - although hard to say if it was centralized or not
 - box buildings are often not aligned with adjacent ones
 - as if they weren't part of a single plan or operation
 - that is, not a single, centralized, controlled storage place?
 - might also be foundations for buildings with wooden plank floors
 - clearly not for burials
 - in any case, they are different from anything in Sumer or Egypt
 - these buildings must have served a fair number of people each
 - but they are not associated with anything obviously special, like a temple
 - so they were not for ritual?
 - or they were for small-scale, non-centralized ritual?
 - already practicing long-distance trade
 - indicated by turquoise beads in burials
 - conch shells from the Arabian sea
 - lapis seals
 - lapis comes only from Afghanistan, far to the north, so it implies long-distance exchange
 - the seals may indicate that people were keeping track of goods
 - the trade and box buildings, whatever they are, suggest some economic complexity
 - and it apparently started in a different context from Sumer and Upper Egypt
 - neither in a centralized temple redistribution system, nor for high-status burials of a militaristic elite
 - a few burials
 - some had personal ornaments, like beaded headbands, earrings, etc.
 - including ornaments buried with infants
 - so there may already have been some family-related, maybe inherited status...
 - although it is not much
- Late Neolithic: Mehrgarh III, 4500 - 3800 BC
 - similar, but with greater variety of crops and increasing more trade
- Further out onto the Indus plain...
 - people probably first settled out on the plain in the Late Neolithic, around the time of Mehrgarh III (say 4500 BC), but this still poorly known

- Early Indus Period 3500 - 2600 BC
 - a long period (900 years) that presumably lumps together a wide range of societies
 - roughly the same as “Early Harappan” in Wenke and Olszewski
 - contemporary with
 - Middle Uruk period through the first half of the Sumerian Early Dynastic period
 - Naqada II through Egyptian Early Dynastic
 - overall, in the same rough time frame, but complex society probably arose a little later than in Sumer and Egypt
 - the Indus plain began to be more densely settled by farmers
 - although some sites had already been occupied in the neolithic
 - there was presumably a long-term rise in population, but the evidence is scanty
 - increasing similarity of cultures on the Indus plain suggests trade or other interactions
 - late in the Early Indus period, a pottery style first identified at Kot Diji (“Kot Dijian” ceramics) was used at many sites over much of the Indus region
 - this increasing similarity across a large area suggests increasing interaction of some kind, maybe trade
 - Kot Diji was not necessarily the origin of this style
 - Kot Dijian pottery conveniently marks the last 200 years of the Early Indus period, called the Kot Diji phase, from 2800 - 2600 BC
 - Early Indus period agricultural towns
 - located near rivers, often right on the riverbank, near land that would have been well watered by annual floods
 - mostly small villages
 - a few large towns or cities
 - example: Rahman Dheri, in second half of Early Indus (say 3000 BC), got to 22 hectares
 - over 4 times the size of the SSU main quad
 - same ballpark of size as large Early Uruk centers, but 500 to 1000 years later
 - rectangular mudbrick houses in somewhat orderly rectangular street plans
 - not strictly planned, but far more so than the chaotic jumble of Mesopotamian towns
 - some had a main street running north-south, with secondary streets perpendicular and parallel to it
 - some towns had a raised "citadel"
 - large rectangular raised area or tell, often with high-status residences and non-residential buildings on top, and the sides held up by retaining walls
 - the name is misleading; these were not necessarily mainly for defense, although access was limited by the surrounding wall
 - once thought to be artificial platforms
 - now thought to be just the oldest section of town, where more debris had accumulated
 - apparently where the high-status people lived
 - apparently where central functions were carried out
 - maybe because it was safest from flooding
 - located to one side of the residential part of town
 - some early Indus towns were walled

- like Rahman Dheri, Kot Diji, Kalibangan, Harappa, etc.
- these towns are thought to have been relatively independent, self-sufficient, not united
 - each subregion within the Indus system had a different style of pottery
- but at least one site, Lewan Dar Dariz, was economically specialized
 - that is, it produced goods for exchange with people from other towns
 - meaning that some towns were already partially interdependent
 - large, but not among the largest: 10 hectares
 - people at Lewan Dar Dariz specialized in making groundstone tools
 - axes, donut stones (clubs? clod breakers? or...?)
 - grinding stones for grain processing
 - surrounded by a massive mudbrick city wall
- Kot Diji
 - now 33 km (20 miles) from the Indus river, but when occupied, the river flowed right by it
 - the river has shifted course since then
 - massive town wall, lower part built of stone from the outcrop the site is on, upper part of mud brick; preserved to 4-5 m high (13-16 feet)
 - defense, animal protection, or flood control?
 - Kot Dijian ceramic style appeared by around 2900 BC
- Mehrgarh IV, V, VI, VII
 - continued to be occupied through the Early Indus period
 - over time, pottery became more similar to that of Kot Diji (or vice versa!)
 - supports the impression of a new, widespread style throughout much of the Indus
 - specialized craft production in particular mudbrick buildings
 - seals continued to be used at Mehrgarh
 - hundreds of terracotta figurines found
 - male and female, but female far more common
 - hints of some social stratification emerged
 - one cemetery with a somewhat richer burial that contained
 - several copper or bronze artifacts
 - several carved stones claimed to be divining pieces
 - a cache of ceramic vessels in a Mehrgarh VII (2700 BC) structure
 - hints at a wealthier individual or family
 - maybe storage for trade, or specialized manufacturing?
 - or something else?
- Harappa
 - became one of the largest cities in the following Mature Harappan Period
 - Harappa was already a walled city by the Kot Diji phase
 - actually, two separate walled mounds, one the "citadel" and the other the "lower town"
 - Many seals and sealings from the Kot Diji phase and the centuries before suggest trade?
 - by the end of the Early Indus period, Harappa
 - occupied at least 25 hectares, counting both mounds
 - produced quantities of beads from jasper, agate, carnelian, and other stones
 - imported steatite and carved seals from it, some with writing

- had shifted ceramic production mostly to the fast wheel
- Kalibangan
 - roughly rectangular mudbrick walled city or large town
 - about 30 meters from the river at the time; now by the dry channel of the Ghaggar River
 - standardized brick shape, but different from later Harappan standard (3:2:1, vs. Harappan 4:2:1)
 - some pottery was similar to “Kot Dijian”, but much was different
 - excavated agricultural field surface had perpendicular (crossing) furrows, the same unusual pattern as used in modern times!
 - this is more than a curiosity
 - it means that we may be justified in projecting some of the other recent agricultural practices this far back, too
 - that is, floodwater irrigation, double cropping, minimal use of canals, etc.
- Meanwhile, to the west of the Indus system, in Baluchistan: the site of Mundigak
 - two mounds with large buildings on top, one with a colonnaded hall
 - presumed to be in trading contact with Mehrgarh and other Indus sites
 - late in the Early Indus period, added massive walls with square bastions
 - just one example of the complex societies that arose between Mesopotamia and the Indus
 - a big issue that we aren't going to touch here...
- economic changes in the Early Indus period
 - spread of “Kot Dijian” ceramic style suggests increasing interaction, maybe trade
 - pottery was made on “foot wheel” (like the "fast wheel" we have seen elsewhere)
 - allows greater production, presumably for exchange, possibly capital investment
 - copperwork became more common (although still rare)
 - continued evidence of trade
 - internal: specialized producers of groundstone artifacts, possibly others
 - external: in jewelry stones from Baluchistan and Afghanistan
 - but evidence for trade to places as far away as Mesopotamia is still pretty hypothetical
 - ox carts were in use by the time Kot Dijian ceramics were widespread, possibly indicating larger-scale hauling of goods
- trends and generalizations about the Early Indus Period (3500 - 2600 BC)
 - this is when the Indus plain was settled and large towns developed
 - very minor social stratification in burials, housing, etc.
 - rise of a few large towns or cities
 - with grid plans (although not terribly regular)
 - massive town walls, maybe defensive or flood control
 - some had “citadels” made by walling the older, higher part of town
 - early on, cultures were local, different from place to place
 - then they grew more uniform in the Kot Diji phase (last 200 years of Early Indus period)
 - sharing a pottery style and a copperworking tradition
 - a result of increased communication and/or trade?
 - although regional differences remained between western, central, and eastern Indus
 - did Early Indus settlements qualify as "civilized"?

- Mature Harappan Period (also called Mature Indus, or just Harappan) 2600 - 2050 BC
 - roughly contemporary with the full flowering of Sumer and Egypt
 - started about the same time as the Sumerian Early Dynastic III (Royal burials at Ur)
 - and lasted through the collapse of the Ur III state
 - started about the same time as the Egyptian Old Kingdom (building of the pyramids)
 - and continued through the Old Kingdom and the subsequent First Intermediate Period
 - the Mature Harappan period may have begun with a dramatic change at the end of the Early Indus period
 - Mature Harappan culture may have developed out of Early Indus culture during a span of maybe 200 years (according to Possehl)
 - possibly by conquest, conversion, or ???
 - At the end of the Early Indus period, several cities suffered extensive fires, then were rebuilt
 - Orderly town plans were imposed on top of the earlier, less organized town plans
 - some see this as a more planned Harappan style
 - after the fires, the pottery styles were mixed, with old styles continuing, but mostly the new Harappan style
 - suggesting conquest and occupation by the makers of Harappan pottery
 - For example, Kot Diji suffered two massive fires around 2500 BC
 - evidence of widespread fire at Amri and Kalibangan, also
 - possible that Kot Diji and the other sites were sacked and then rebuilt by Harappans
 - but some archaeologists (like Kenoyer) do not believe that there really was widespread burning, just a coincidence of small fires
 - he sees the changes in ceramics and site planning as more gradual
 - in peripheral areas, Harappan pottery coexisted with local styles
 - suggests that Harappan people (or goods) moved into regions that already had their own pottery styles
 - the term for this is that in those areas, Harappan culture is "intrusive"
 - may indicate
 - conquest
 - newly started or increased trade
 - Harappan outposts or colonies
 - or...?
 - subsistence: not much different from Early Indus period
 - some irrigated wheat and barley
 - impressions of rice in ceramics from two sites, but apparently rare
 - most of the population probably lived outside the city and farmed wheat and barley without formal irrigation
 - seals show domesticated Indian elephants
- Rise of really big cities and complex settlement pattern
 - Used to say there were just two major cities or capitals: Harappa and Mohenjo-Daro
 - but two more have been discovered that are almost as big as Mohenjo-daro
 - Ganweriwala

- Rakhigarhi
- so there were probably at least four major centers
 - that is, the Indus region in the Mature Harappan period probably contained several competing states, rather than one huge one
- Secondary sites seem to be smaller versions of the same model
 - Kalibangan
 - Kot Diji
 - Sandhanawala, Judeirjo-daro, etc.
 - numerous others
- There are also some possibly special-purpose sites
 - example: the small site of Lothal was apparently a port and trade/manufacturing center
 - reservoir or docking area (debate about which it was)
 - stone bead workshop
 - bronze and ivory workshops
 - a trading center?
- Plus many hundreds of smaller village sites
 - so most Indus people were probably rural
- Cities were walled, although maybe for flood control as much as defense
- Very uniform artifacts, planning, architecture
 - So much so that it is hard to distinguish artifacts or building plans of one site from another
 - standardized styles of pottery, jewelry, seals, etc. over a vast area
 - standardized brick proportions and sizes (1:2:4; 7 x 14 x 28 cm)
 - supposedly a standardized pattern of laying bricks: “English bond”
 - alternating rows of all headers and then all stretchers
 - although site photos suggest that the bricklaying pattern was not really that consistent
 - standardized length units; several graduated rulers have been found
 - two basic units
 - a “cubit” of around 52 cm (51.8 to 53.6 cm)
 - a “long foot” of 33.5 cm (or 37.6 cm)
 - one ruler is divided into subunits of 1.7 mm, with each 10th mark emphasized, much like a modern metric ruler
 - standardized weight system
 - cubical weights of various stones
 - basic unit is 13.6 grams (about 1/2 ounce)
 - come in sets that include weights of 1 unit, 2, 4, 8, 16, 32, 64 units; then 160; then multiples of 16 (320, 640, 1600, 3200, 8000, 128,000) etc.
 - balances on which the weights were used have also been found
 - weights and balances suggest concern with exact measurement of amounts of materials
 - maybe associated with trade
 - standardized city plans, as discussed below
 - even small towns seem to emulate an ideal city plan
- various interpretations of all this standardization and uniformity:

- centralized production of standardized goods that were then widely distributed?
- strong control of production in many different places (through training, oversight, or ???) in order to ensure standardization?
- extreme cultural conservatism that led people to make things in the same way even without formal controls?
- an ideology that promoted conformity?
- Typical Harappan city features
 - size and population
 - Mohenjo-daro 2.5 square km (250 ha)
 - over 2.5 times the size of the entire SSU campus
 - estimates from 35,000 - 41,000 people
 - Harappa population estimates range from 23,500 to about the same as Mohenjo-daro
 - Most towns had a “citadel”, as some had in the Early Indus period
 - on west side of site
 - raised, rectangular platform running north-south
 - they are consistent in shape, being about twice as long as wide
 - but they vary in size from 65 X 130 m at Kalibangan (a bit bigger than Stevenson hall), to 215 X 460 m at Harappa (about 4 times as long and wide as Stevenson!)
 - smaller citadels at smaller sites like Lothal
 - as high as 12 m
 - bland looking, but very large
 - citadels were typically enclosed by a wall with big corner buttresses/bastions, and buttresses along length of wall
 - used to be thought that these were artificial platforms
 - now seems that they are just the oldest sectors of towns that had walled, enclosed neighborhoods
 - so the oldest neighborhood formed the greatest accumulation of debris, like a tell
 - they supported the edges with retaining walls, producing a platform-like appearance
 - these oldest neighborhoods were apparently also the most prestigious and wealthiest
 - big, presumably administrative buildings on top of the "citadel"
 - at Mohenjo-daro, one big 27 m square courtyard was filled with rows of pillar bases, probably to hold up a roof
 - also at Mohenjo-daro, a sunken rectangular bath with wide steps leading into it...
 - 12 X 7 m, 3 m deep (36 x 21 feet, 9 feet deep)
 - Two skins of sawn fired brick in gypsum mortar, with a layer of bitumen (naturally occurring asphalt or tar) between them
 - has a drain
 - presumably filled with water carried from a large well in an adjacent room
 - surrounded by porticos and rooms
 - staggered entrances for privacy?
 - some with toilets
 - generally thought that this pool was for ritual bathing, as was important in later times in India and still is today

- only known from Mohenjo-daro; if other sites had similar baths, they have not been found yet...
- many towns also had a “granary”
 - located on citadel or next to it
 - an elevated solid brick base with crossing channels on top, hints of a wooden superstructure, and a ramp-like entrance or “loading dock”
 - originally thought to be foundations for a wooden grain storage warehouse
 - built to allow air flow underneath to prevent rot and spontaneous combustion
 - because some known Roman granaries were built this way
 - may or may not actually be granaries, still uncertain
 - A few burned grains were found between the bricks of the "granary" of Lothal; but is this enough?
 - they could also be foundations for some other kind of wooden building
 - one "granary" has evidence of repeated small fires on the brick platforms; maybe they are some kind of offering structures?
 - at Harappa, the "granary" is near circular platforms once thought to be for grinding or threshing grain
 - but recent excavations found no traces of grain, but rather accumulations of silt, as if they had been vats
 - Kenoyer thinks the platforms and wooden sheds on the "granary" foundations were a textile shop, where indigo was produced and textiles were dyed...
- lower town
 - east of the citadel
 - on the natural ground level
 - dense domestic area
 - streets are orderly, appear to be planned
 - widest streets run north-south, straight through town
 - secondary streets run east-west, staggered in places (not straight through)
 - graduation in street widths
 - secondary streets are about half the width of the main streets; tertiary streets are 1/3 to 1/4 the width of main streets
 - some streets have sewers or drains
 - manholes for cleaning
 - some drains flow to closed seeps, others apparently lead outside the city
- house layout and construction
 - blank walls face the streets
 - most room complexes face onto central courtyards
 - others open directly to side streets
 - flat, timber roofs
 - many have stairways indicating use of the roof or a second story
 - most excavated houses in cities like Mohenjo-Daro had a room for bathing
 - usually with a floor of fired brick, often surrounded by a curb like a shower stall

- a drain often slopes from the floor through the thick mudbrick wall, emptying onto the sewer or drain channel along the street outside
- “...the roadward side of a block presented a plain blank facade broken only where drainage chutes discharged.”
- some have pottery drainpipes
- some drain into local soak-pits, others into the street drains
- some have vertical drains [vs. sloping]
 - these are apparently privies (toilets)
 - privies often drained into large ceramic pots set into the floor
- this concern with bathing within households may reflect the same ideas as the huge bath on the citadel
 - which could have been semi-public
 - or used by groups of high-status people
- relatively speaking, houses are pretty uniform
 - just a few fairly standardized layouts
 - not a large variation in size
- compared to Mesopotamia or Egypt, this is probably valid; but there *are* differences
 - not all houses had two stories
 - larger houses had their own wells
 - there are areas at both Harappa and Mohenjo-daro with rows of single-roomed “tenements”, presumably for poorer people (workers? soldiers? slaves? lower-caste people?)
- massive mud brick city wall around at least the citadel; in at least some cases around the lower town, too
 - in some cases, a single wall
 - in others, each is separately walled
 - may be for flood control
 - the lower city of Mohenjo-daro was destroyed by flooding several times
- Vast use of fired (and unfired) mud brick
 - Fired brick resists water much better
 - Would have required huge consumption of fuel
- Often said that there are no obvious temples, monumental sculpture, ziggurats
 - but in the lower town at Mohenjo-daro, an unusually massive building had a “monumental entrance and double stairway, leading to a raised platform on which was found one of the rare stone sculptures - of a seated figure...”
 - Allchin and Allchin agree with Wheeler (the excavator) that this was a temple.
 - although this is not on the same scale as a Mesopotamian temple
 - certainly no ziggurat or monumental room with a cella...
 - Harappan sculptures are rare and small
 - the famous priest from this temple is only 17.5 cm high (under 7 inches)
 - depending on how much is broken off it might originally have been as much as twice that... i.e. only slightly over a foot tall
- possibly a similar "temple" on the citadel

- the citadel itself might be considered monumental, but it really represents a tell, more than an intentionally constructed platform
 - the pillared hall might be considered monumental...
 - the "granary" structures may be foundations for a large wooden building of some other type -- like a monumental hall of some kind
 - craft specialization
 - many crafts are documented by known workshop areas
 - stone sculptors can be inferred from the few sculptures
 - ceramic kilns imply specialized potters
 - copper, bronze, goldworkers
 - copper and goldsmiths' shops
 - tin bronze and arsenic bronze were made by alloying copper, presumably by specialists
 - axes, chisels, knives, saws, spear points, arrow points
 - copper vessels made from hammered sheet metal pieces
 - cast figurines, carts, etc.
 - gold
 - beads (some very small, which actually take more technical sophistication to make)
 - pendants, amulets, brooches, needles
 - silver
 - vessels hammered from sheet silver
 - beads
 - lead
 - cakes, plumb-bobs, vases
 - skilled in combining different metals, inlays, etc.
 - chert blades (a kind of stone)
 - regular, long blades from prepared cores
 - shell beads and inlays
 - stone bead makers
 - carnelian: agate roasted to produce red-brown color
 - also extremely small stone beads
 - several large bead workshops or shop districts have been found, where beads were produced in great quantity, representing great amounts of labor
 - textile dyers and weavers noted above
- terracotta (lightly fired clay) figurines
 - some 2000 known
 - bull with moving head
 - wheeled carts
 - elephants, birds, etc.
 - some have holes in the base to stand on sticks
 - what were these for?
 - toys?
 - puppets?
 - some apparently held small amounts of burning oil

- lamps? But probably not large enough to be functional for lighting
- more like votive candles?
- ritual uses
 - offerings?
 - charms?
- these might have been made by specialists, but not necessarily; many are pretty simple
- Dice
 - gambling?
 - divination?
- writing
 - unfortunately, it cannot be read
 - no multilingual inscriptions yet found
 - mostly, but not exclusively, known from seals
 - used as in Mesopotamia and Egypt, to seal clay
 - sealings often have impressions of cloth or cords on the back, suggesting that the sealings marked bundles of some kind
 - unlike Mesopotamia and Egypt, few tablets with writing on them, and very few painted symbols, either
 - or maybe a lot of writing was done on cloth, bark, etc. that has not been preserved
 - inscriptions are almost always brief
 - most are probably labels identifying names or offices, places, contents
 - still debated even what language it represents
 - presumably indicates specialized literate people, as well as specialized seal makers
 - may have developed from simple marks scratched onto ceramics that began to be made by 2800 BC, maybe as early as 3300 BC
 - some are probably maker's marks (usually on the bottoms of pots)
 - others on pot rims or high on the sides might indicate ownership, an intended destination, etc.
 - probably associated with tracking goods in the vessels for transportation or exchange, but there could be other explanations
- religion
 - some parallels with later Indian beliefs suggest that Indus religion may have been the origin (or part of the origin) of Hinduism
 - ritual cleanliness
 - the "priest" figures with their garment off one shoulder
 - in historic times, this was an indication of piety
 - seals show a "Lord of the Beasts" figure that many see as an early version of the god Shiva
 - stone phallic symbols and donut stones: early "lingam" and "yoni" symbols of Shiva and his consort Devi?
- trade
 - internal (within the Indus)
 - sealings were sometimes made from clay not local to where they were found

- that is, the sealings were probably put on in one town and the sealed goods shipped to another town, where the sealings were broken off and later found by archaeologists
- flint from a single region (about 50 km from Mohenjo-Daro) was processed near the source into blades, which were traded throughout the Indus system
- shell goods were also made at two sites and traded widely
- carnelian beads from two sites, etc.
- site-level specialization of production with wide distribution
- external (with "foreigners")
 - goods imported into the Indus drainage
 - metals: gold, silver, copper, lead
 - stones for jewelry and carving: lapis, turquoise, alabaster, etc.
 - A Harappan lapis trading center in Afghanistan (Shortughai)
 - a plainly Harappan site
 - located about 500 km (300 miles) north of the Harappan culture area, separated from it by very difficult terrain
- Mesopotamian trade
 - according to Sumerian records from the Agade Period (Sargon, 2373-2247 BC), Sumerian merchants traded with people from (at least) three named foreign places
 - Dilmun (now identified as the island of Bahrain in the Persian Gulf)
 - Magan (probably a port somewhere on the coastline between the head of the Persian Gulf and the mouth of the Indus river)
 - Meluhha (location unknown)
 - Maybe the Indus?
 - source of
 - ivory, oils, furniture
 - gold, silver, carnelian (a red gemstone)
 - these are all products that the Indus could have exported
 - records of Meluhhan ships docking at Sumerian ports
 - and Meluhhans living in various Sumerian cities
 - also a Meluhhan town or district at one city
 - the Sumerian records indicate a large volume of trade
 - according to a Sumerian tablet, one shipment from Meluhha contained 5,900 kg of copper (13,000 lbs, or 6 1/2 tons)!
 - most of this trade was done through Dilmun, not directly with Meluhha
 - this largely indirect contact might have reduced Sumer's impact on Meluhha
 - Physical evidence of this trade is extremely scanty
 - A small handful of Mesopotamian imports in the Indus area
 - 3 local imitations of Mesopotamian seals
 - a few copper items that might be from Sumer
 - a “Persian gulf type” seal at Lothal (i.e. from Dilmun/Bahrain)
 - some Mesopotamian influence, like several seals showing a Gilgamesh/Enkidu-like figure holding two tigers
 - A very modest amount of Indus stuff in Mesopotamia

- about two dozen Indus-style seals found at Susa and other sites
- some carnelian beads, inlay work, etc.
 - including the long carnelian beads and other jewelry from Puabi's tomb at Ur!
 - Maybe Puabi was from the Indus - a marriage alliance by a Sumerian king...?
- maybe the trade was mostly in perishable goods, like cotton cloth
- This trade seems too late to have contributed to the rise of Indus civilization
 - The first written evidence dates to Agade period (2373-2247 BC) (Sargon's empire)
 - mentions only became frequent in Ur III (2168-2062 BC) and the subsequent Larsa dynasty (2062-1770 BC)
 - then the mentions declined drastically around 1800 BC
 - this drop-off corresponds pretty well to the end of the Late Harappan period
 - which tends to confirm that Meluhha was the Harappan civilization
 - point: Sumerian documents mentioning trade that might be with the Indus first appeared several hundred years *after* the Mature Harappan began in 2600 BC
 - and maybe 700 years after the “Kot Dijian” spread of uniform pottery and copperwork style, walled towns, etc.
 - so this trade seems too late to have caused the rise of complexity in the Indus
 - or maybe we just don't have the evidence of the first stages of it?
- social stratification
 - Harappan society looks relatively egalitarian compared to Mesopotamia and Egypt
 - but there is some variation in housing
 - citadel dwellings vs. lower town dwellings
 - houses with or without courtyards, wells, privies
 - barracks or tenements
 - rural village dwellers
 - overall, though, there is not much evidence of ostentatiously rich people, while there is a lot of evidence of many people, not just a few, living pretty well in the cities
 - granaries (warehouses?) suggest accumulation of vast stores of wealth
 - if they were granaries, then some people must have owned or controlled them
 - if not, they were still large, probably public buildings that would have taken concentrated wealth to build and use
 - the huge amount of craft specialization and trade suggests that some people had better jobs and more wealth than others
 - burial evidence for wealth differences is minor, compared to Mesopotamia or Egypt
 - but at Harappa:
 - a coffin burial with a reed shroud
 - up to 24 pots in some burials
 - necklaces, beads, etc.
 - at Lothal and Kalibangan
 - some have “quantities” of ceramics and ornaments, others don't
 - a few are in brick chambers
 - one brick burial chamber is unusually large (4 x 2 m; 13 x 6 feet)
 - comparable in size to the painted tomb at Hierakonpolis (Naqada II)

- but Harappan cities at this point were comparable to Uruk or the biggest Egyptian cities of the Old Kingdom
- that is, the largest Harappan burial seems small for such an urban civilization
- other burials are communal graves with no goods
- still, no "royal" tombs
 - suggests much less difference in material wealth between classes
- but note that certain kinds of goods rarely, if ever, turn up in Harappan burials
 - metals and jewelry are rare in burials
 - instead, these are found in non-mortuary caches
 - they were used, just not buried with the dead
 - so the lack of rich burials might not reflect the lack of wealth in life, but rather an idea that wealth items were not appropriate grave goods
 - perhaps an ideology of equality or humility in death
 - which may or may not imply equality or humility in life
- caches of goods below floors of houses
 - a copper pot full of copper weapons and tools
 - caches of jewelry
 - suggests that wealth items were not buried with the dead, but were kept for the living
 - and that whoever made these caches was better off than those that didn't
 - so that there might have been greater variation in wealth than the burials suggest
- seals, sealings, tablets, etc. are found concentrated in certain houses
 - one house near Mohenjo-daro's "main street" had 11 seals, tablets, etc. with writing
 - suggests that there were houses of scribes and/or merchants who kept accounts
 - while other people did not
 - maybe the people who used writing in their houses were wealthier, higher status, etc.?
- political organization
 - generally assumed to represent one or more state(s)
 - Settlement hierarchy: pretty clearly at least four levels of site sizes, so it surpasses the "three-level" requirement for a state
 - Mohenjo-daro, Harappa, Ganweriwala, Rakhigarhi would be "capitals" or major centers
 - Kalibangan, Kot Diji, etc. would be secondary centers
 - Lothal and others would be smaller, specialized towns
 - and most people would live in tiny hamlets or scattered farms around the countryside
 - Total Harappan population in the Indus drainage at least 200,000 by around 2000 BC (probably much more)
- Decline (Late Harappan, 2050 - 1700 BC)
 - Civilization did not suddenly disappear
 - sophisticated craft production continued: Quetta treasure 1900 BC near Mehrgarh
 - Several sites in Baluchistan burned around the end of the Mature Harappan period
 - Sprawled skeletons in a street of Mohenjo-daro might indicate warfare
 - but the decline of Harappan civilization is no longer blamed on invasion by foreigners
 - extremely little evidence of anyone else suddenly appearing there

- but conflict (maybe internal) could have been involved
- or plague?
- Harappa had a final stylistic phase that seems to reflect some foreign influence from Iran
 - but not a radical replacement or change that might indicate an invasion
- Nevertheless, by the end of the Late Harappan, the cities were permanently abandoned
 - and Sumerian records ceased to mention trade with Meluhha
 - the Harappan tradition largely disappeared
 - people ceased to use the writing system, the system of weights and measures, and some of the imagery that was found on seals and pottery
 - burial traditions changed from extended burials in coffins to secondary burials with bones collected in large ceramic pots
 - presumably indicates a change in religion
 - leaving only echoes in myths and general cultural traits
 - unlike the Sumerian, Egyptian, and Chinese early civilizations, all of which were known from historical sources, the Harappan civilization was truly lost and forgotten until archaeologists rediscovered it
- cities might have been abandoned due to...
 - Flooding?
 - Desiccation due to changing rainfall that affected farming, pastoralism, and travel routes?
 - Desiccation due to shift in river courses due to tectonic activity?
 - Introduction of millet, leading to people to move out of cities to better-suited areas?
 - Epidemic disease?
 - Military incursions? (by “Indo-Europeans”?)
- Conclusions
 - when did civilization arise?
 - Neolithic?
 - Early Indus?
 - Kot Diji phase (the last 200 years of the Early Indus period)?
 - Mature Harappan?
 - does uniformity mean strong control and therefore power hierarchy?
 - if so, where are signs of rulers?
 - could traditionalism and/or something like the caste system account for the uniformity?
 - Was this a special case of a relatively egalitarian civilization?
 - Roles of irrigation and flood control projects
 - Role of warfare
 - Role of trade
 - internal vs. external
 - timing; quantity; nature of goods
 - Was this a pristine civilization, mostly pristine (?), or not at all?