

The Illiterate Harappans

Theoretical Implications of Recent Studies
of India's First Civilization

(The So-Called Integration Era, ca. 2600 - 1900 BCE)



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An English adaption (greatly expanded) of an Italian lecture given at the University of Bologna on 15 January 2004.

Washington State University at Vancouver, 19-20 February 2004

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Mystery of the “Undeciphered Indus Script” Solved: It’s Not a Script!

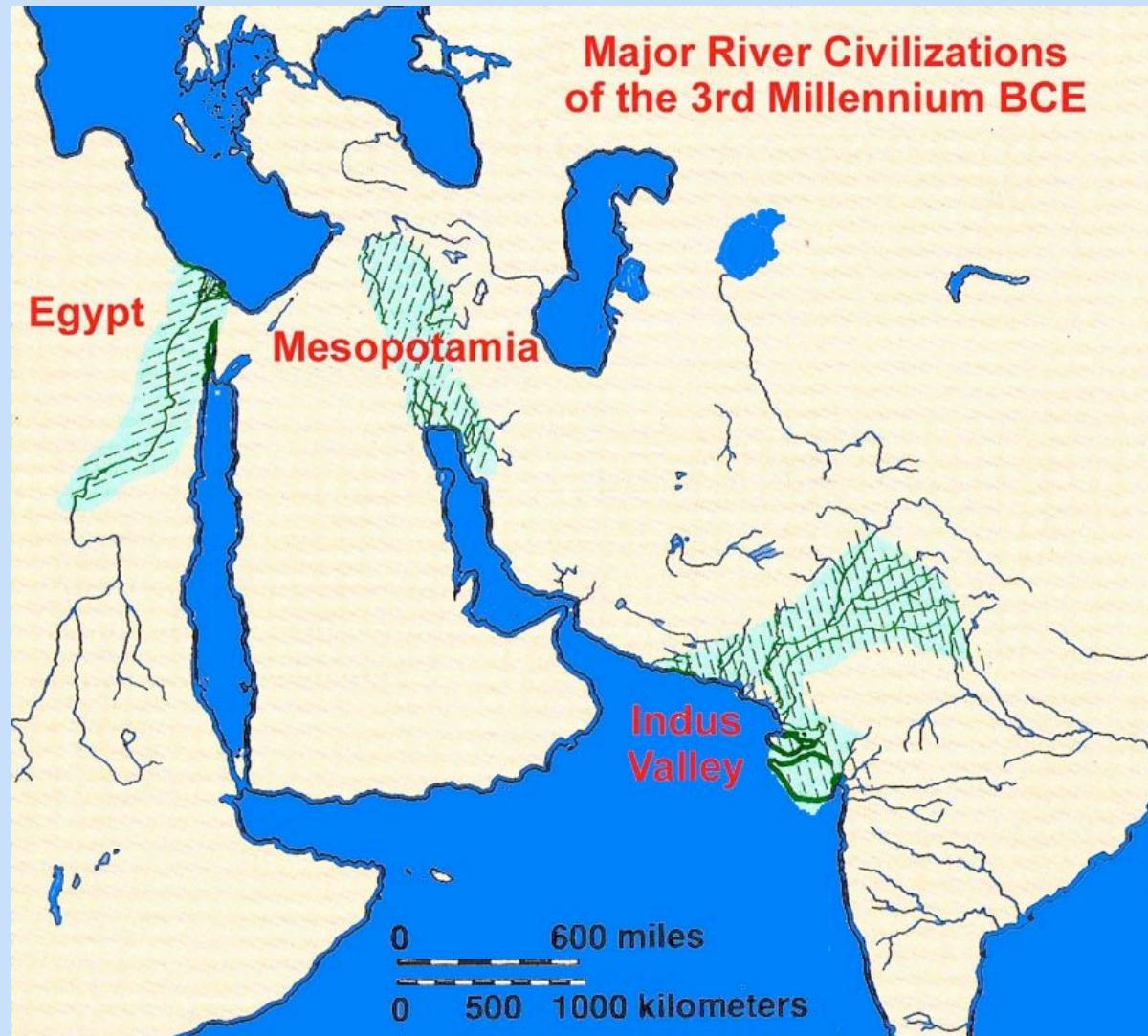
Introduction

- It has been assumed for 130 years that Indus inscriptions were written in a true script — i.e., a system of graphic signs that encode speech.
- More than a dozen languages have been ascribed to Indus inscriptions, and more than 100 “decipherments” have found their way into print. New ones appear every year!
- In the 1920s, Indus archaeologists created a global sensation (and not coincidentally raised money for their excavations) by suggesting that Indus civilization was literate in ways similar to ancient Mesopotamia and Egypt.
- Indian nationalists and their Western New Age supporters (and even some well-known academics) continue to fantasize about “lost” Indus manuscripts written on perishable materials, which were supposedly destroyed by the harsh Indian climate.



“Duck in Pond,” one of a number of important inscriptions that mysteriously disappeared shortly after being discovered in the 1920s. “Duck in Pond,” like many other inscriptions, presents obvious embarrassments to linguistic views of the so-called Indus script. The “Duck” sign, for example, only appears in this one inscription, while half of the signs (arrows) consist of a symbol that by itself makes up 10% of the entire Indus corpus. It is difficult to reconcile use of that sign in this and other inscriptions with the best-known linguistic model of the signs (A. Parpola et al. 1969, Parpola 1994, etc.), which claims it as a “genitive suffix” (see further slides 17-18). Early photos of “Duck in Pond” and other lost inscriptions are not included in the two existing volumes of the *Corpus of Indus Seals and Inscriptions*, edited by Parpola and his colleagues; photos of these lost pieces will reportedly appear in the final third volume, whose imminent publication was announced several years ago. The reproduction on the left is from Marshall, *Illustrated London News*, 20 September 1924. The photo of the seal is flipped horizontally to show how it would appear as a seal impression (the most common way to display seal inscriptions). There is also a tiny photo of an impression of this important lost seal in Marshall 1931, V. 3, Pl. CVI (#93).

If the Indus Valley really had been literate, in terms of geographical size you could claim that it was the *largest* literate civilization in early antiquity.



Map data adapted from Kenoyer 1998, p. 16

The Nonlinguistic Model

- In the last three years evidence from many directions has unexpectedly overturned the old “Indus script” hypothesis.
- The first doubts arose out of predictions of a cross-cultural model of the evolution of manuscript traditions, which clashed sharply with the “lost text” thesis (Farmer, Henderson, and Witzel 2002; Farmer, Henderson, Witzel, and Robinson 2002; reprints at <http://www.safarmer.com/downloads>).
- A number of rigorous tests followed, which quickly show that the inscriptions were not even part of an “evolving” or “proto-writing” system, but remained non-linguistic in all periods.
- Ironically, evidence that the inscriptions were nonlinguistic is strongest in the most advanced stages of Indus society, in which we find the longest and highest-quality inscriptions. The implications of this finding run deep, as we'll see as we go along.
- Researchers whose earlier work depended heavily on the “Indus script” thesis, and extreme Hindu nationalists (currently the ruling political force in India), are understandably upset by these findings. From a purely historical perspective, however, the nonlinguistic model greatly increases the importance of Indus inscriptions, insofar as:
 - Rejection of the old “Indus script” model helps us quickly solve a number of old puzzles about Indus civilization — which in important ways remained unique in the ancient world;
 - The nonlinguistic model throws new light on the role played by communications in the control of world populations in general.



Collaborators

My work (as a comparative historian) focuses on the evolution of world civilizations in relation to neurobiology and changing modes of communication — including but not limited to writing systems. My work would be impossible without the collaboration of specialists in many fields. My principal collaborators in this and other related studies:

- Richard Sproat, University of Illinois (computational linguistics)
- Michael Witzel, Harvard University (Indology and historical linguistics)
- John Henderson, Louisiana State University (Chinese studies)
- Peter Robinson and Rich Levinson, at NASA-Ames Research Center (computer simulations)

Important insights have been contributed by many other researchers, including the Indologists George Thompson, Lars Martin Fosse, Victor Mair, Alex Passi, Enrica Garzilli, and the Indus ethnobotanist Steven Weber.

Hmm, pretty weird
looking “writing”...



Marshall
1931: #338.



Marshall
1931: #385.

The First Doubts about the Linguistic Nature of Indus Inscriptions Began with an Unexpected Theoretical Prediction

- Part of my philological work looks at ways in which the structures of premodern religious, philosophical, and cosmological traditions were transformed by repeated attempts to reconcile (or “syncretize”) manuscript traditions. (Reconciliative processes like this were major features of all premodern commentarial or scholastic traditions.)
- In brief, attempts to harmonize conflicting ideas in those traditions helped give birth over many centuries to multileveled pictures of the cosmos in which every “level” of reality tended to reflect every other. (Classic examples: The neatly mirroring structures in Dante’s *Divine Comedy*, or in later philosophical layers of the *Mahābhārata*, etc.) On the commentarial (or “exegetical”) mechanisms that led to these developments, whose cross-cultural features reflect stereotypical ways in which the brain reconciles conflicting data, see Farmer 1998 [1999: esp. 91-6]; Farmer, Henderson and Witzel 2002; Farmer, Henderson, Witzel and Robinson 2002.
- Distinctive traces of these mirroring structures (“correlative cosmologies,” as premodernists often call them, or “fractal” or “self-similar” systems, to adopt the mathematical term) can be found in all well-developed manuscript traditions and in the material remains of the cultures in which those traditions emerged.
- The fact that we find few traces of these structures in Indus remains, nor in the oldest layers of Vedic texts (where we’d expect to find them if those texts were compiled in the presence of those remains) provided the first clue that “lost” Indus manuscript traditions could not have existed — contradicting claims that the Indus Valley was literate for 700 years or more.
- It is important to note that these theoretical predictions were only the *starting* point of our work: Proof that Indus inscriptions were nonlinguistic rests on empirical data of different sorts. The most gratifying part of our work has less to do with the Indus Valley, which was originally peripheral to that work, but with the fact that a model of the evolution of manuscript traditions developed in studies of other societies has made successful (and unexpected) predictions about the region — which in turn helps confirm the validity of the model.

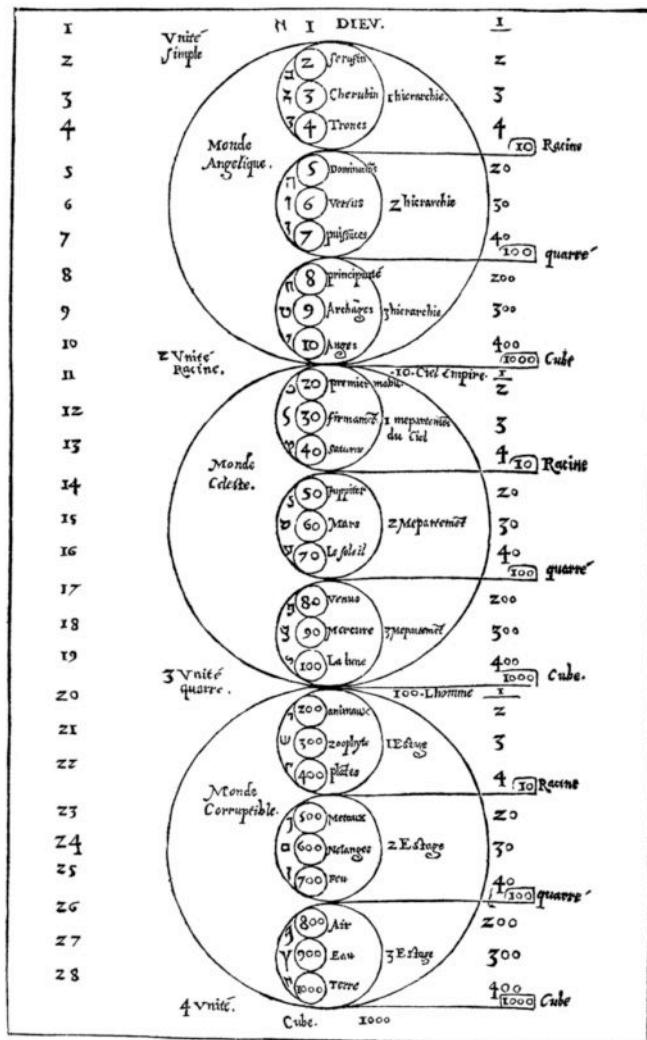


M-784 a



M-66 A (flipped horizontally to show how it would appear as a seal impression)

QVANT A CE QVE CHACVN DES TROIS mondes est pourueu de sa racine, quarrez & Cube, tout ainsi que l'Univers, comme il apparoist par les nombres qui sont hors les rondeaux, par la peux-tu entendre l'Armonie & conuenance de tout, & comme peut estre vray le dire d'Anaxagore, qui mettoit omnia in omnibus & singula in singulis.



Fractal or self-similar structures premodern style:

“All things exist in all things, and all individuals in all individuals.”

A 16th-century CE graphic representation of a “correlative” or “fractal” cosmology of an extreme type, from my book on the evolution of Western correlative traditions. There are many similar systems in other premodern societies, in varied stages of development.

S.A. [Stephen A.] Farmer, *Syncretism in the West: Pico's 900 Theses (1486): The Evolution of Traditional Religious and Philosophical Systems*, 1998 [1999], p. 195.



Mackay 1938, #699

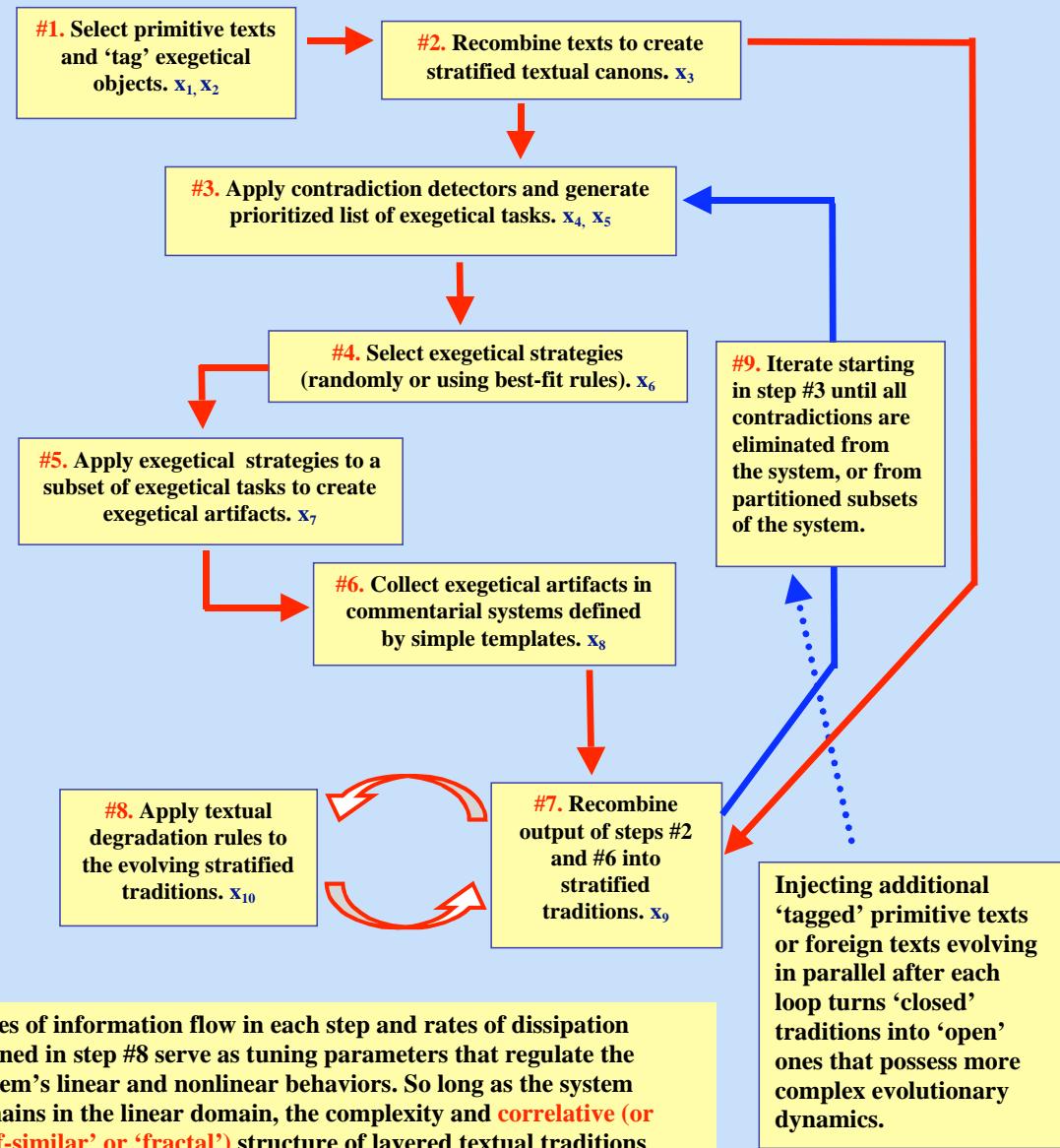
The Development of These Systems Can Be Simulated in Computer Models of the Evolution of Manuscript Traditions

Flow Chart of One Simulation

See Steve Farmer, John Henderson, Michael Witzel, and Peter Robinson, “Computer Models of the Evolution of Premodern Religious, Philosophical, and Cosmological Traditions” (2002), <http://www.safarmer.com/downloads>



M-316 a



Formal Algorithm

(for the preceding simulation)



```
Algorithm exegesis-process (prepared_sources)
    primitive_texts = select_subset_from (prepared_sources)
    tagged_primitive_texts = tag_concepts (primitive_texts)
    stratified_textual_canons = randomly sort and recombine_subsets_ (tagged_primitive_texts)
    loop until no contradictions
        contradictions = detect_contradictions (stratified_textual_canons)
        exegetical_tasks = prioritize_contradictions (contradictions)
        exegetical_strategies = select_exegetical_strategies (exegetical_tasks)
        exegetical_artifacts = apply (exegetical_strategies, exegetical_tasks)
        commentarial_systems = match_templates_to_artifacts (exegetical_artifacts)
        tradition = combine (commentarial_system, textual_canons)
        dtraditions/dt = apply_degradation_rules (tradition)
        tradition = dtraditions/dt + tradition
    end loop
end algorithm
```

© 2002 Steve Farmer, John Henderson, Michael Witzel and Peter Robinson

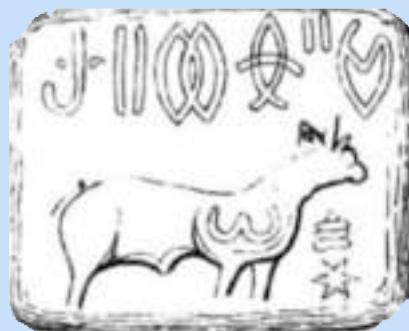
Evidence against the linguistic model

The Claim that Indus Inscriptions Were Linguistic Was an Assumption — Not a Conclusion — of Early Researchers

The only *implied* evidence that Indus inscriptions contained “writing” was that:

- Some inscriptions at first sight look a *bit* like writing, like the first inscription found, which is shown below.
- Some symbols tend to show up most frequently in specific places — most obviously at the beginning or end of inscriptions — supposedly suggesting that they played some grammatical function.

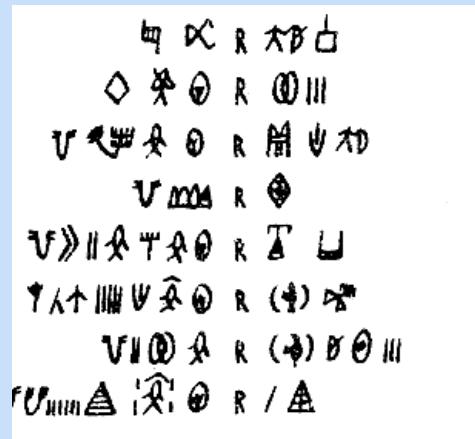
In the following slides, we'll examine these claims one-by-one



The first Indus inscription ever found, discovered in 1872-3 and published by Cunningham in 1875. For discussion, see Steve Farmer, “The First Harappan Forgery: The Indus Valley in the 19th Century,” <http://www.safarmer.com/downloads>

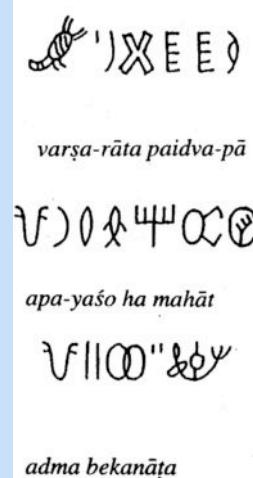
Evidence against the linguistic model

In Studies of the So-called Indus Script, the Signs are Heavily “Normalized” (in the Last Few Decades, Using Computer Fonts), Making Them Look a Lot Like Writing...



Hunter
1929

Jha &
Rajaram
2000

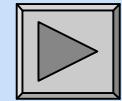


Reference to a keeper of horses (*paidva*) by name Varṣarāṭa.

Indeed!

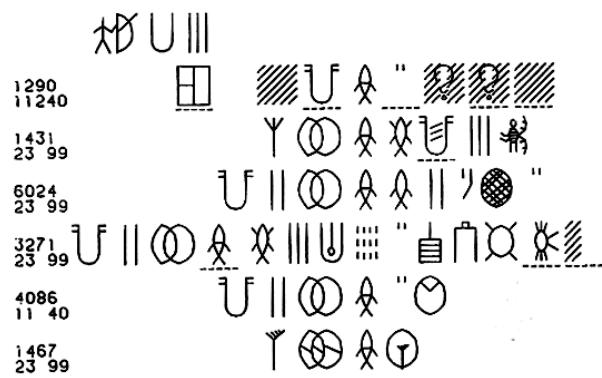
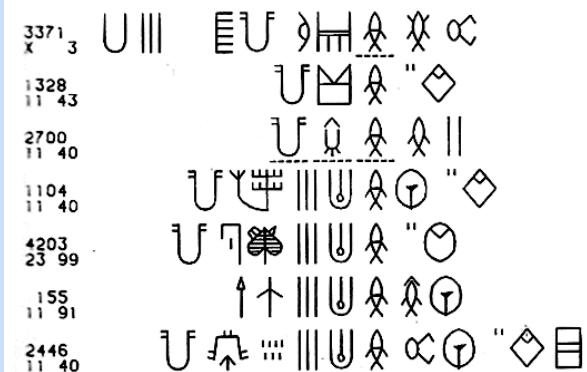
A great disgrace indeed!

“O! Moneylender, eat [your interest]!” Cursing a money-lender who charges excessive interest. (Of interest is the last sign, a composite of ‘b’, ‘k’, ‘n’ and ‘t’.)



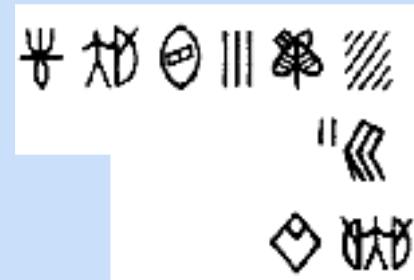
On Rajaram, go to
page 52

Parpola 1982



Evidence against the linguistic model

But this “Normalization” Results in
Profound Distortions of the Data



Here's how this important mythological inscription (which we'll analyze later) is distorted in the standard concordance of Indus signs by Mahadevan (1977). (Note the omissions of symbols and the radical changes in shape and sequence of others — all deriving from attempts to “force fit” the inscriptions into linguistic molds.)

Some Inscriptions Superficially Resemble Writing, But Many Others (Which Are Quietly Ignored) Don't



M-373 a



Ironically, very long inscriptions like this one on the left — which to the untrained eye *most* resembles writing — furnish the best proof that the inscriptions weren't linguistic even in the most advanced stages of Indus society. (We'll discuss that evidence later.)

A number of inscriptions contain strange symmetries in symbol placement that cannot be reconciled in any plausible way with claims that this is "writing"

There are many other oddities in Indus symbols, many amusing...

A gharial (an Indus crocodile) apparently eats the fourth most common Indus sign

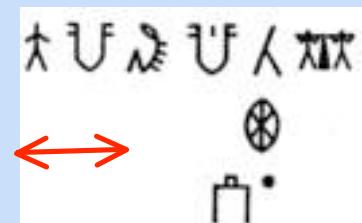


Obvious Mythological Motifs are Obscured



Mahadevan
1977, p. 148

The pictograms in many hundreds of inscriptions clearly suggest mythological motifs. Many of these motifs are so obvious that it is impossible to imagine that the symbols involved in them encode speech — unless we depend on transcriptions in which the mythological character of these inscriptions almost completely disappears.



Mahadevan
1977, p. 183



Mahadevan
1977, p. 146

A Few Other Anomalies, Briefly



Analysis of the frequencies of supposed number signs in the inscriptions, like the one shown on the left, suggest that these signs were abstract symbols of gods or celestial forces—not (as often claimed) the kinds of simple numbers used in accounting. (For detailed discussion, see the supplemental slides at the end of this talk, extracted from my lecture at the Fifth Harvard Indology Roundtable, in May 2003).



“Symbols in Bloom” show up in wonderfully odd places in Indus inscriptions. Study of these and many other agricultural symbols (planting and harvesting instruments, etc.) is critical to understanding the origins and development of Indus inscriptions. (Discussed in later slides.)

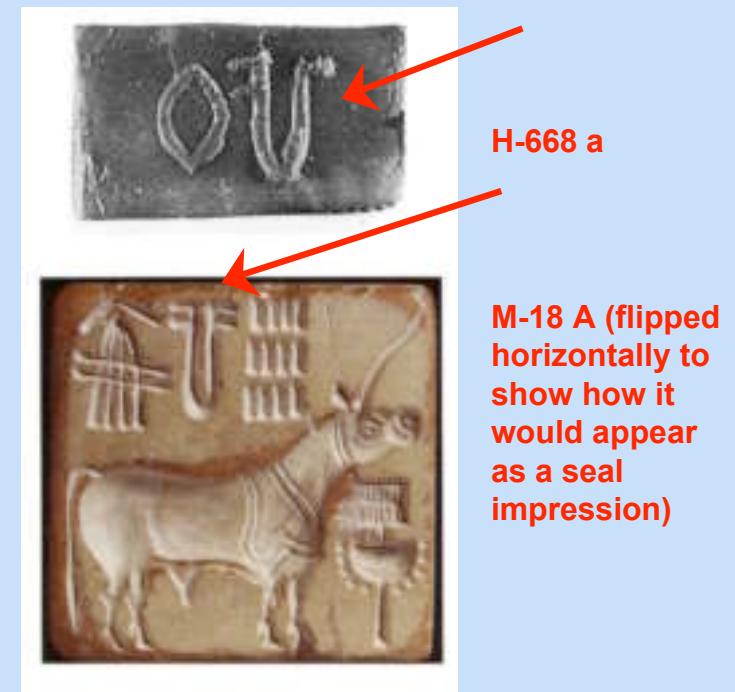


Evidence against the linguistic model

The best implied “proof” that the inscriptions encode writing lies in the fact that some signs show up more often than others in certain positions — supposedly suggesting that they function as “suffixes,” “diacritical signs,” or “grammatical markers,” etc.

In the late 1960s independent Soviet and Finnish research groups made dramatic international announcements that the Indus “code” had been cracked using the infant field of computer science — which in that period was still new and a bit “sexy.” The fact that some signs appeared most often at or near the end of inscriptions (which had actually been known since the 1920s) was claimed as novel “proof” that the supposed “language of the inscriptions” was a so-called suffixing language like ancient Dravidian.

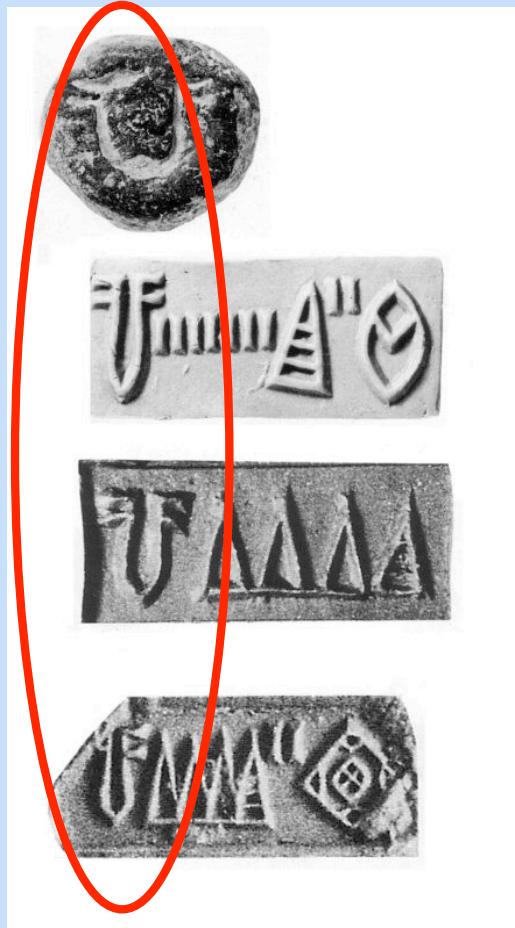
Asko Parpola and his Finnish colleagues claimed that the most common sign in the Indus corpus — frequently (but certainly not always!) found at the far left side of inscriptions — functioned as a probable “genitive suffix.” (The assumption here is that the inscriptions were “read” right to left.)



Obvious exceptions to claims concerning the position of this symbol, like those shown in the two inscriptions above, were ignored or reinterpreted as examples of special uses of the sign — e.g., cases in which it served as a supposed logogram (whole word sign) or putative word divider, etc.

Evidence against the linguistic model

But, against these claims, it is easy to show that statistical regularity in sign position is a regular feature of symbol systems of many sorts — not just of writing systems! Here is my favorite example:



On the right: Evidence that the “mysterious undeciphered American script” (read right to left) belongs to a suffixing language like proto-Dravidian?

Circled symbols on the right = apparently the holiest American sign. Foreigners are regularly sacrificed to this sign, just (as we'll see later) in the Indus Valley humans were apparently ritually sacrificed in front of holy trees = Circled symbols on the left.



Low-frequency sign of the “undeciphered American script”

The Extreme Brevity of the Inscriptions

We have 4-5,000 Indus inscriptions on a wide range of materials — steatite seals, clay impressions of seals, pots, potsherds, copper plates, weapons, tools, ivory rods, and many other durable goods. We even have large numbers of terracotta inscriptions mass produced in molds (shown later).

Despite their differences, all these materials share one obvious property: every one is short:

- The longest inscription found on a single surface contains 17 signs — and it is extremely difficult to picture these as part of a writing system (we'll look at this example later);
- Two inscriptions have 14 signs;
- Only about 1/100 have 10 signs or more;
- The average length of published Indus inscriptions is about 4 1/2 signs long — and this average excludes so-called graffiti, which are even shorter, and many hundreds of short duplicate inscriptions;
- Many so-called Indus inscriptions consist of only one or two signs.



The problem of length by itself suggests that the inscriptions aren't "writing," as Victor Mair (University of Pennsylvania) emphasizes. But the archaeologists of the 20s, who created the myth of the "Indus script," came up with a clever way around this argument — inventing the "lost text" thesis. As we'll see on the next page, it is easy to falsify this thesis, which first appeared almost as an aside in G.R. Hunter's 1929 doctoral thesis on the Indus signs (cf. Hunter 1934: 19).

Evidence against the linguistic model

Missing “Markers” of Manuscript Production

Unfortunately for the “lost text” thesis, premodern societies that wrote on perishable materials left numerous markers behind — even when no manuscripts survive (cf. the case of the Assyrians, Neo-Babylonians, Persians, Shang). Not one of these markers shows up in the Indus Valley.

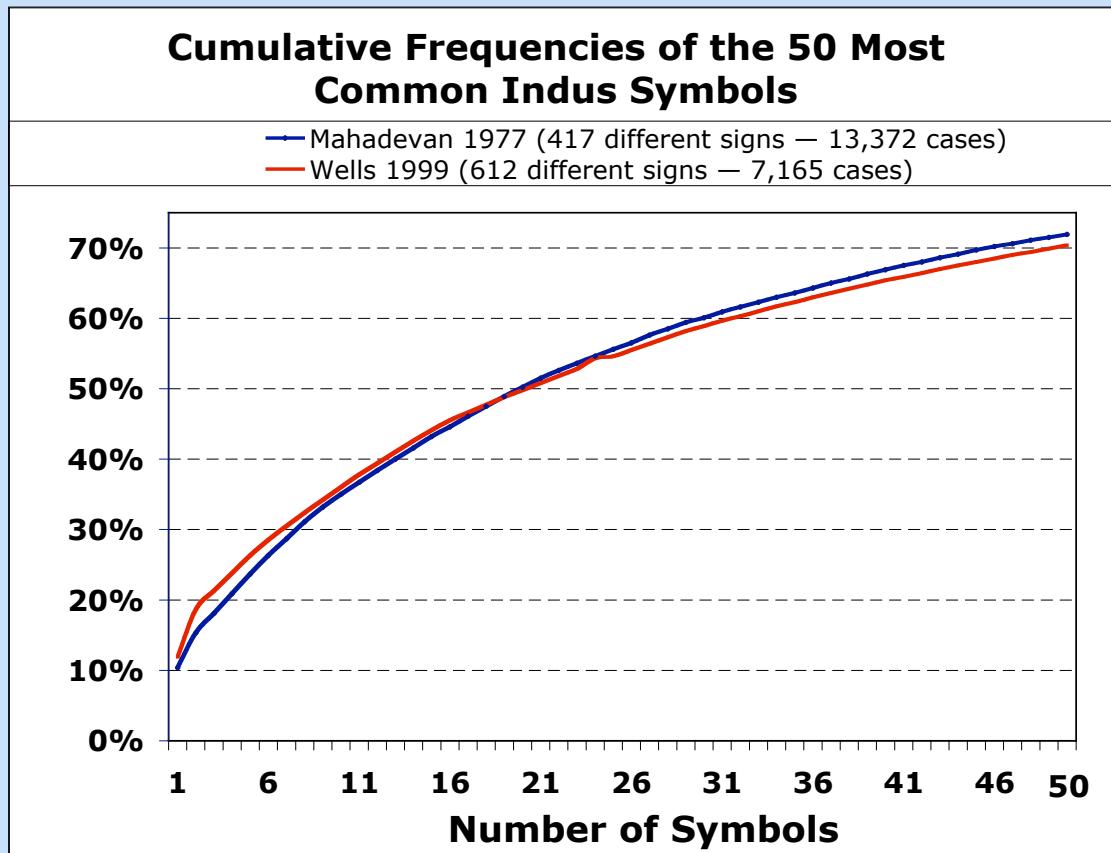
1. Long inscriptions on pottery, ceramics, potsherds (ostraca);
2. Long inscriptions on cliffs, rocks, stelae, architecture, statues, weapons, cave walls, shells, etc.;
3. Suggestions in art or pictographic scripts of scribes, writing, and literate paraphernalia;
4. Remains of writing instruments (pens, styli, ink jars, ink, writing tablets, etc.). Cf. Marshall’s copious finds in Taxila with the weak claims of such finds in the Indus Valley (Mackay 1938, 1943; Dales 1967; Konishi 1988; Lal 2002), which have convinced very few researchers (see further in the supplemental slides);
5. Rapid evolutionary changes in early scripts, reflecting “scribal pressures” to make copying of those texts more efficient (reflected indirectly even in monumental scripts);
6. Numerous social and institutional markers of manuscript societies (Fairservis 1992; D.P. Agrawal, personal communication, 2001), including large armies, monumental art and architecture, etc.
7. Stereotypical intellectual byproducts of the long-term integration of manuscript traditions (Farmer, Henderson, and Witzel 2002).

If the inscriptions on durable materials are so brief, and no manuscripts existed, it is natural to question the old “script” thesis by looking at symbol frequencies. This part of my work has been conducted in collaboration with the computational linguist Richard Sproat, now at the University of Illinois.



M-296 A bis
(flipped horizontally)

A Handful of High-Frequency Signs Dominate in the Corpus



It is important to note that the odd frequencies found here show up in all types of Indus inscriptions on all material media. You can't claim (like Kak 1988 or Possehl 1996) that frequencies like these may only be a property of one type of aberrant "text."

No agreement exists on the number of known Indus symbols — the opinions vary from 20 in Rao's eccentric analysis ([see supplemental slides](#)) up to more than 600 (in Wells' studies)! But all studies agree on one fact: a very small number of high-frequency signs dominate in the inscriptions. That is illustrated here using two very different studies, those of Mahadevan (1977) and Wells (1999).



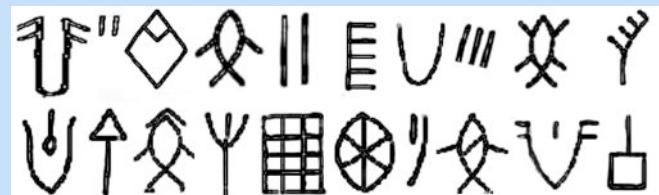
M-916 a

**Summarizing the Data Quickly, Using
Mahadevan's Figures (Parpola's and
Wells' Are Nearly Identical):**

- One symbol = 10% of all signs
- Four symbols = 21% of all signs
- Eight symbols = 31% of all signs
- Twenty symbols = over 50% of all signs



L-211 A 1-3



From left to right, top to bottom: the 20 highest frequency Indus symbols, calculated from raw data in Mahadevan 1977 (which organizes the signs by shape and not frequency)

Evidence against the linguistic model

You could try to explain these results by claiming that some hypothetical Harappan “genius” invented a full syllabary or even an alphabet long before anyone else (cf. Fairservis 1992, Rajaram & Jha 2000, many others) — thus explaining the dominance of very high-frequency signs.

But claims like this can be easily falsified by looking at the longest Indus inscriptions — in which, despite the dominance of these high-frequency signs, we only find symbol repetition of a very limited and stereotypical type.



H95-2485, reverse. Photo courtesy of Richard Meadow, Harvard University and the Harappa Project

Sign Repetition Rates Are Far Too Low for Any Phonetic Script

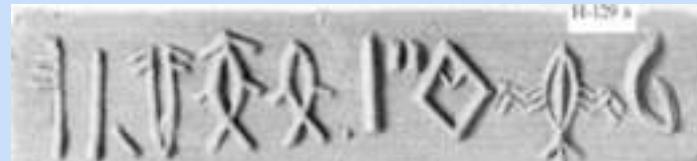
Out of the 17 symbols in the Indus Valley's longest inscription, 11 belong to the most common 18 signs (marked below in red). Paradoxically, despite their high frequency, not one sign is used twice in the inscription — undermining claims that the dominance of high-frequency signs reflects the repetitive use of signs to encode repeating syllables or phonemes.



M-314 a. Actual size of the longest Indus inscription found on a single surface = less than one inch square (under 2.5 cm.)! This is a typical size for Indus inscriptions.

Evidence against the linguistic model

Ironically, the Clearest Evidence of Non-Phoneticism Shows up in the Longest and Highest-Quality Inscriptions of the Late Mature Period



H-129 a



H-131 a



H-130 a



H-132 a



H-133 a



H-134 a



H-135 a



H-136 a

Among many cases: in the first two volumes of the *Corpus of Indus Seals and Inscriptions* we find 78 bar inscriptions from the city of Harappa. Some of these 78 inscriptions are illustrated on the right.



H-150 a



As usual, these inscriptions are composed predominantly of very high-frequency signs. Nonetheless, only one of the 78 inscriptions (shown on the left) contains even a single repeating symbol — and this inscription certainly doesn't look much like "writing"! 25

Evidence against the linguistic model

M-373 a



In the light of this evidence, it's important to note that a half dozen or so symbols show up regularly in doubled form. Other repetitions involve visual symmetry (above), or appear to involve magical duplication or affirmations of power.

This is the case with the famous “signboard” of Dholavira (difficult to photograph, and not shown) — the only physically large Indus inscription ever found. The 10 signs in the 10-foot long inscription contain no less than four cases of the familiar solar or “wheel” sign, which has long been suspected to be a solar/agricultural/political power symbols. (See the same sign in M-634 a below, which contains three instances of the symbol.)

Nota bene: These special cases reinforce and don't contradict the nonlinguistic model.



M-634 a



M-132 A (flipped horizontally). Two signs representing two fields (?) and a man or god with a stick (a planting stick?)

(For further examples of sign repetition, see the supplemental slides)

Evidence against the linguistic model

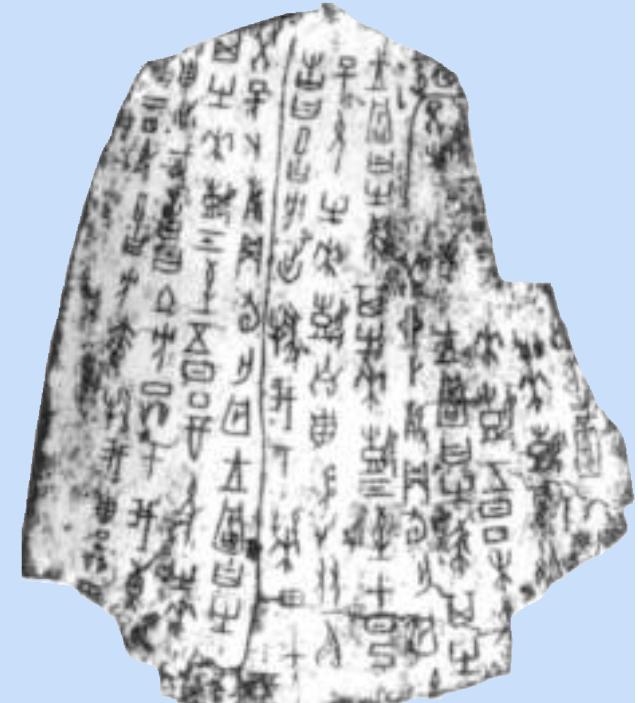
Conclusion: The evidence from the longest and most sophisticated inscriptions suggests that Indus symbols weren't even evolving in phonetic directions.

Attempts to “save” the linguistic thesis here also fail:

- Was this a supposed whole-word (logographic) or whole-idea (ideographic) script? Even we assume that “scripts” like this ever existed — which is dubious — this solution still isn’t plausible, given the small number of symbols that dominate in the inscriptions. (If you’re tempted to introduce “lost texts” to solve this problem, see earlier slides.)
- Was this a mixed “logosyllabic” script, as often claimed? Refer again to Indus sign frequencies and repetition rates, which argue against any significant phoneticism in the inscriptions. If most signs were whole-word signs, we’d have to infer that the Harappans had very little to say!
- Was this a Chinese-style phonetic script? There again aren’t nearly enough signs; it is also difficult to imagine how highly inflected S. Asian languages like Dravidian or Indo-Aryan might be encoded in a script of this type. (Claiming that any other language was spoken in the Indus Valley would also infuriate both Dravidian and Hindutva nationalists!)
- Did Indus “scribes” avoid sign repetition for aesthetic reasons, like the Maya? There aren’t enough high-frequency signs to make this thesis plausible; the thesis also clashes with the highly consistent pictographic themes in the inscriptions. (The pictographic integrity of the inscriptions also renders implausible claims like Rao’s that Indus signs should be broken down into basic strokes; see the supplemental slides.)

Further evidence against the claim this might be “proto-writing”: We know that Indus merchants remained in contact with Mesopotamia throughout the time in which Indus inscriptions are found. If the Indus Valley possessed a “writing system” throughout those 700-odd years, we would expect it to be a fully developed.

This would appear to imply that Harappan elites *intentionally resisted* the introduction of writing into their region, much as the Brahmins apparently did after the Persians appeared with their writing system in NW India in the 6th century BCE. Evidence from Mesopotamian that supports this thesis will be noted at the end of this talk.



Shang Dynasty Oracle Bone

Evidence against the linguistic model

The Problem of “Singletons” (Signs Only Found in One Inscription)

We've seen that Indus inscriptions are dominated by a handful of high frequency signs. The other side of the picture is that a large number of signs show up only once in the 20,000 (?) or so known occurrences of Indus symbols.

- Using data in Mahadevan 1977 (also accepted by Parpola 1994 and Possehl 1996), we find that 27% of all signs only show up once. Using Wells' data (1999), we find more than 50% of the signs are in this class. These numbers grow even larger (and more absurd) if we eliminate the many duplicate inscriptions made in molds or add in the enormous number of signs used only a few times.
- If this were really writing, we'd expect the number of known singletons and other low-frequency signs to decrease over time — as those signs showed up second and third and fourth times, etc. In fact, the reverse is happening: the number of singletons and low-frequency signs rises with each new batch of discoveries!
- From this it seems evident that Indus elites invented some of their signs “on the fly,” using them once or a handful of times before abandoning them. This further weakens the thesis that an unambiguous writing system could have possibly existed in the Indus Valley. When so many signs appear only once or at most a few times, who besides the Indus gods could possibly read all of them?

It is important to note that many new inscriptions will be published soon in the upcoming third volume of the *Corpus of Indus Signs and Inscriptions*. Preliminary study of many of these new inscriptions, in part using unpublished photos in the Harappa Project database at Harvard University, suggests that still more “singletons” and other extremely low frequency signs will show up in the near future.

Even if we ignore all other evidence, these results alone suggest that the end of the 130-year-old myth of a literate Indus Valley is rapidly approaching.



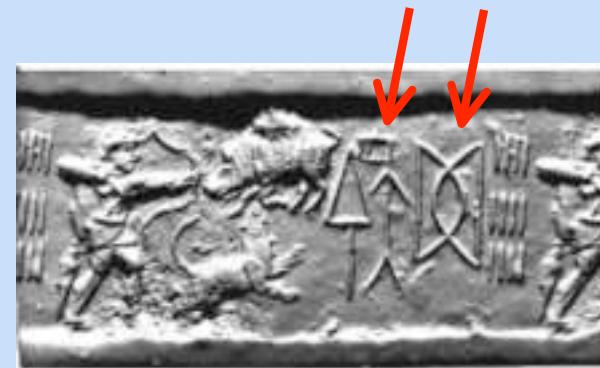
Among other anomalies, M-899 a contains a typical “singleton” (red arrow)

Three More Examples of the Many Inscriptions that Contain Unique Signs (“Singletons”)



MS 5059, flipped horizontally, Schøyen Collection, Oslo, Norway. To be published in Vol. 3 of the *Corpus of Indus Seals and Inscriptions*.

K15a is among a number of inscriptions (another is MS 2645 below) that contain *more than one “singleton”!*



MS 2645, Schøyen Collection: This is the only known example in which Indus Valley and Mesopotamian (Akkadian) nonlinguistic signs and iconography are mixed. To be published in Vol. 3 of the *Corpus of Indus Seals and Inscriptions*.

If the Signs Weren't Linguistic, What Were They?

We've learned a lot studying other systems of nonlinguistic signs — whose formal properties are often strikingly similar to those found in the Indus Valley



Comparison between nonlinguistic symbols found on two seal impressions from ancient Palestine (on the left, Keel and Schroer 1985-94) and the Indus Valley (right).

Here is a short list of a few types of nonlinguistic symbols that can help us understand Indus inscriptions. Poorly studied symbol systems like this served many varied functions — it is an error to place them in a single class

Rock symbols (petroglyphs) on every continent

Narrative “picture writing” (e.g., the Mixtec system)

Pre-Shang dynasty glyphs in China (see, e.g., Li et al. 2003)

Early Balkan (or Vin a) inscriptions (Winn 1973, 1981)

Schmandt-Besserat’s economic tokens in Mesopotamia

Constellation and horoscopic signs

Systems of alchemical and astrological signs

Cretan hieroglyphic seals (Pope 1968, Olivier 1996, Poursat 2000, etc.)

N. American prelinguistic sign systems

Poverty Point (Louisiana) “cooking balls” (poorly studied!)

Wampum color coding systems (mnemonic, counting)

Andes khipu or quipu (mnemonic, counting) (but cf. Urton 2003)

Mystical signs from the middle ages (Kabbalah, etc.)

Medieval heraldic signs

Easter Island *rongorongo* (sorry, this isn’t “writing” either)

Symbols and attributes of saints and bodhisattvas, etc.

Magical runes

Many others



Vin a Inscriptions

Due to limitations of time, here we'll look only at similarities between Indus signs and two of these systems. The first is a nonlinguistic symbol system thousands of years older than the Indus inscriptions: the signs associated with the so-called Vin a cultural complex of southeastern Europe. Vin a inscriptions began turning up, in large quantities, in the 1870s — the same period in which the first Harappan inscription was found (only three Indus inscriptions were known by 1912).

Claims that Vin a symbols represent early “writing” are similar to those for Harappan symbols, but — in striking opposition to the Harappan case — few researchers have ever taken those claims seriously. The best studies = Winn 1973, 1981; less credible = Gimbutas 1979; even less credible = Harald Haarmann 1996, etc.



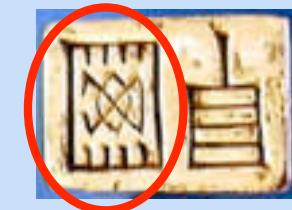
Parallels between Vinā and Indus Inscriptions

The Indus symbol system was much more complex than the sign system associated with the Vinā complex. There were, nevertheless, many striking similarities in the systems

- The symbols in both cases often show up in relatively stable places in the inscriptions — something often claimed as evidence that the signs were part of a “script.” (But think here of the stability of sign positions in zodiacal inscriptions or even strings of religious symbols, e.g., the Christian Father, Son, and Holy Spirit!).
- In both cases a small number of core signs show up repeatedly over a huge geographical region, while many other signs were used only once or a few times before being abandoned.
- Both systems included “complex” or “compound” signs — which are often claimed to be linguistic “ligatures” (or in the case of Indus literature, even as “diacritical marks”). But note here that symbol compounding is frequent not only in writing systems but as well in nonlinguistic symbol systems — exemplified, e.g., in Trinities of divine forces in Christianity, Vedic traditions, or Buddhism, or in syncretic fusions of gods in the Vedas or Mesoamerican texts, etc.
- Both systems lack any suggestions of the kinds of rapid evolutionary changes we find in all early forms of writing.
- Both systems provide evidence that the symbols were used in ritual contexts.
- Both systems disappeared rapidly — which is not typical (except in special cases) of true scripts, but is expected in the case of symbols closely tied to a specific religious/political ideology. (Discussed further in a later slide.)



Two of the most commonly associated symbols in the Indus Valley — apparently two stylized trees or plants in different (or opposed?) states. (A primitive dichotomy like the much later Chinese yin/yang opposition?)



A recently discovered Indus seal that includes one symbol composed of three other known signs. Harappa Project H99-3819 (many other similar examples exist).

Our limited understanding of Vin a symbols doesn't help us much in "reading" Indus signs. But we are able to learn a lot from study of nonlinguistic emblem inscriptions in Mesopotamia, which existed side-by-side with true writing for thousands of years.

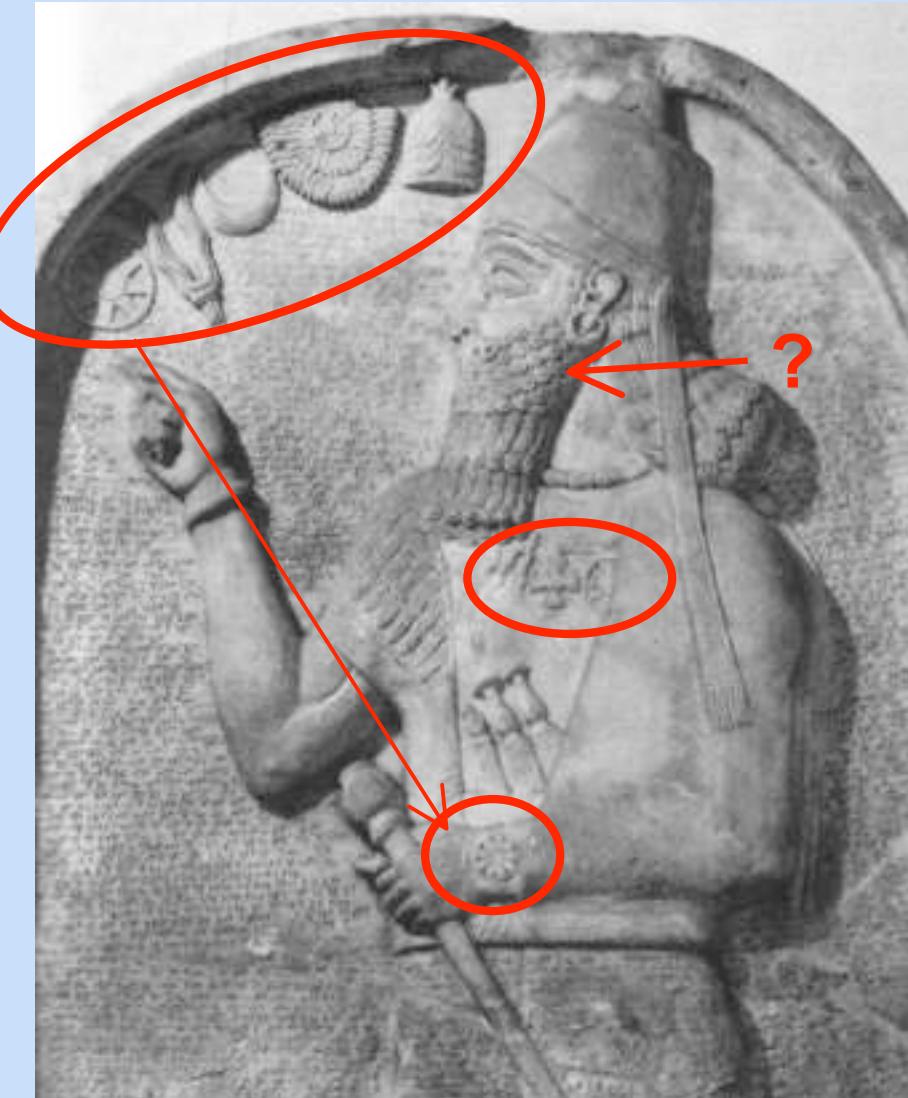
Red circles on the right: nonlinguistic symbols found on a stele at the entrance of the Temple of Ninurta at Nimrud. (Cuneiform writing, difficult to see in this photo, is found as well covering most of the bare spaces in the stele.)

Ashurnasirpal II, 883-59 BCE

Note that the nonlinguistic inscription of 5 signs at the top is a bit *longer* than the average Indus inscription.

Signs are also found in the necklace worn by Ashurnasipal, on his wrist, and possibly even in the curls of his beard!

Much longer nonlinguistic inscriptions existed in Mesopotamia — many far longer than the longest Indus inscription. One of these, the famous boundary stone or *kudurru* di Melishihu, is shown in the supplemental slides. □

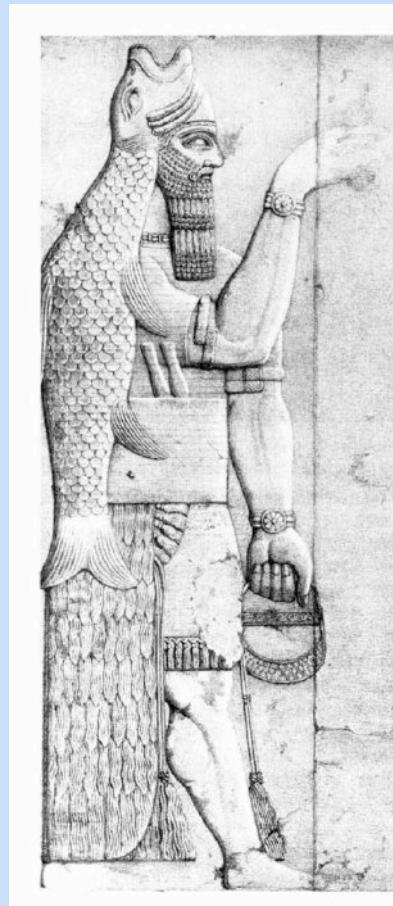


The “Multivocality” of Nonlinguistic Symbols

One thing we can infer from Mesopotamian emblem inscriptions is that Indus signs probably had far more “plastic” and multileveled senses than we expect from linguistic signs: The cultural anthropologist Victor Turner referred to this in the 1960s (in his studies of African cultures) as the “multivocality” of symbol systems.

Take fish signs, whose prominence in river-based civilizations like the Indus Valley is hardly surprising. Based on what we know of fish symbols in Mesopotamia, in Indus society we could expect them to suggest simultaneously:

- Actual fish or fish offered in sacrifices
- The profession or clan of fishermen
- Cosmogonic myths involving fish or fish deities
- Priests of fish deities (possibly dressed like fish — see the illustration on the right!)
- Stars, planets, constellations, or stellar clusters identified with fish gods
- Months or festivals associated with fish, or linked birth dates; and so on



Priest in a Fish Suit,
Assyrian, 9th Cent. BCE

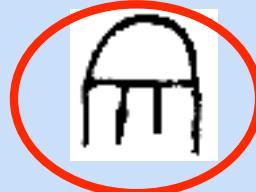


Ea (Enki) with fish
(Akkadian)
(after Black & Green 1992)

How Did the Symbols Function?

The last part of this lecture will cover some broader questions concerning the inscriptions:

1. If the symbols weren't linguistic, what relationships existed between them?
2. What can we say about the origins of the inscriptions?
3. How were they used? How weren't they used?
4. Why didn't the inhabitants of the Indus Valley develop a true writing system? (They certainly knew about writing, given their trade contacts with Mesopotamia!)
5. What are the broader implications of finding that the Indus Valley was illiterate?



Petroglyph symbolizing rain, from the North American South West

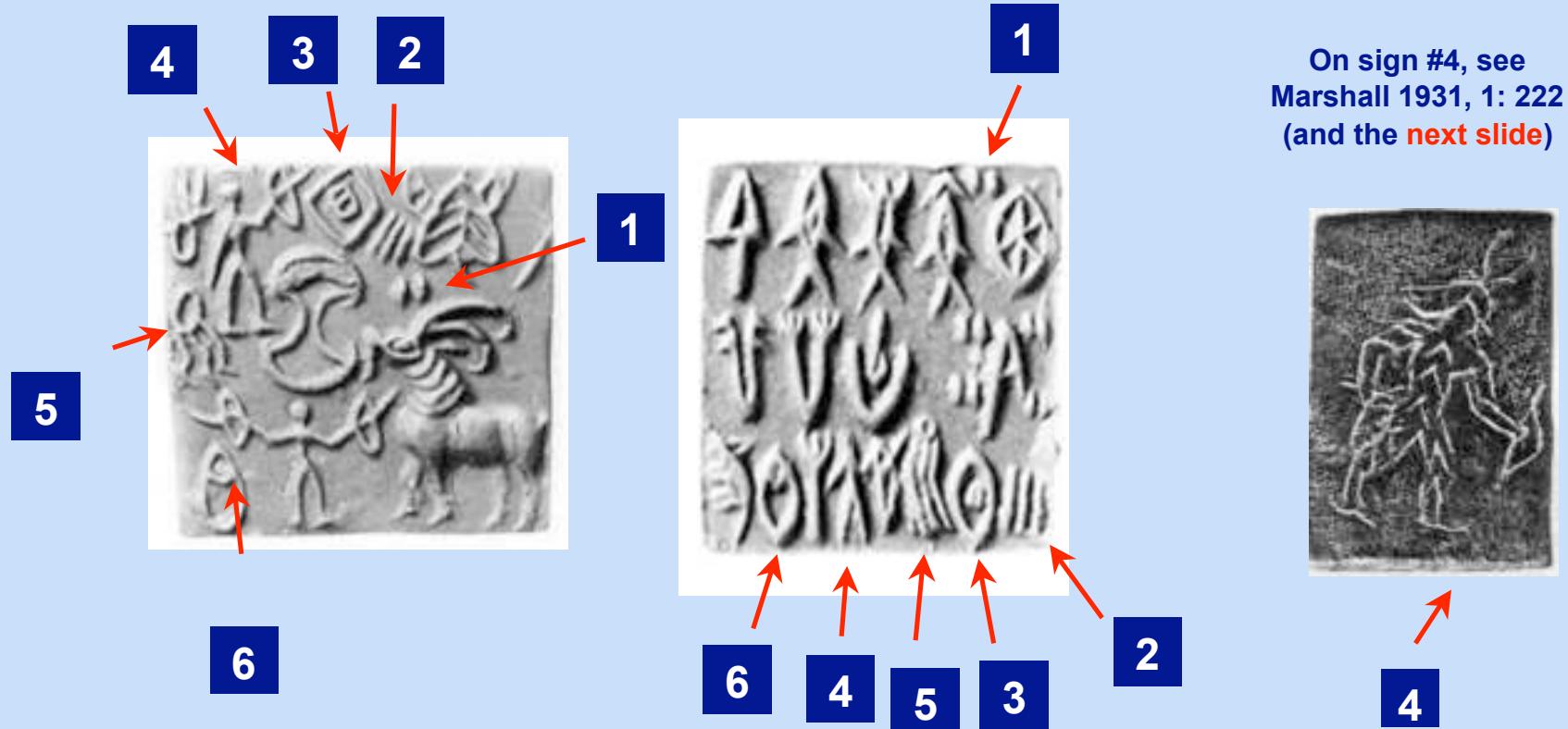


Above and left: some suggestive sign combinations from the Indus Valley

Indus Signs are Related to Their Distant and Close Neighbors

So long as Indus symbols were assumed to be part of an undeciphered script, it was natural for researchers to focus nearly exclusively on signs found side-by-side to guess their supposed sound values. Once we recognize that the signs weren't linguistic, it becomes natural to search for broader connections between the signs. Below is a beautiful example of such connections in two "long" Indus inscriptions.

These inscriptions from urban sites well over a hundred kilometers apart (Chanujo-daro and Mohenjo-daro) share six non-contiguous signs. In light of what we'll see in the next slides, it is significant that all six (and, in fact, most other signs in these inscriptions as well) can be related to agricultural motifs.



Now the Hindu Nationalists Can Claim that Mother India Gave Birth to the Jolly Green Giant. Here's the Proof!

Marshall 1931, V. I: 222 first pointed out the links between this Indus figure and Babylonian agricultural gods, underlining that the figure is “clothed in a costume suggestive of leaves.”



An obvious reference to the mythical “Sarasvati Valley” — as Hindu nationalists refer to the region (imagining a false continuity between Harappan and Vedic cultures) — where “goodness grows and great tasting vegetables are picked at the peak of perfection.”



Green Giant®

Welcome to the Valley, where goodness grows and great tasting vegetables are picked at the peak of perfection. Explore the Valley and stay as long as you'd like!



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Origin of the Symbols in Agricultural Magic? Symbols in Bloom!

Seed Symbols in Bloom: The apparent seed sign — the most common initial sign in Indus inscriptions — is shown here with a few of its variant forms



Tree Symbol in Bloom!



Fig Leaf in Bloom (Flying?)



Tail in Bloom!



The oldest symbolic marks known in the Indus Valley, dated by Meadow and Kenoyer to ca. 3300 BCE. The inscription (if that's what we want to call it) is typical of the many so-called graffiti from the Indus Valley — little of which looks even vaguely linguistic. **Source:** harappa.com



The common Indus motif of two plants or trees: an early form of a primitive dichotomy?



The “Three Symbol”(regularly associated with agricultural signs) in Bloom!

Further Hints of the Agricultural Origins of the Symbols: Meet “Mr. Symbol Head” (Plant God or God Imitator, Standing in an Altar Made of Apparent Fig Leaves)

One of the two sides of a beautiful molded seal found in the original urban site of Harappa in 1995 (object H95-2485, flipped horizontally). To be published in Vol. 3 of the *Corpus of Indus Seals and Inscriptions*.

Photo courtesy of Richard Meadow.

Plants, fertility, everywhere!



Because the sign on the head of the plant god or god imitator is normally found at or near the end of inscriptions (see following slides), if we were to believe the old linguistic theory, we'd be led to think that the god had a grammatical marker on his head!

But, for obvious reasons, I think the sign is a plant symbol or emblem of an agricultural god (with expected “multivocal” associations). Note that the same sign appears on the tail of the goat-like creature on the title page of this lecture.

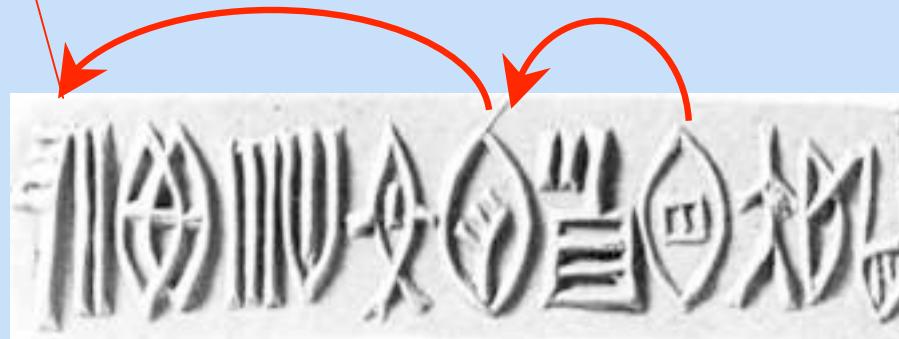


The Same Sign in a Broader Context

The most common position of the apparent plant sign on the head of “Mr. Symbol Head” is at the extreme left of inscriptions (red arrows). This sign is one of several that became increasingly common in the late mature period of Indus civilization — right before the mysterious and rapid disappearance of the symbol system.



M-391 a
(Mohenjo-daro)



H-130 a
(Harappa)

There are many agricultural symbols in inscriptions of this class, including many apparent **Seed → Sprout → Plant** sequences.

Here are two other late inscriptions that carry Sprout → Plant sequences. The two inscriptions, from the distant cities of Harappa and Mohenjo-daro, suggest that far-flung political links existed in the Indus Valley not long before the symbols disappeared.



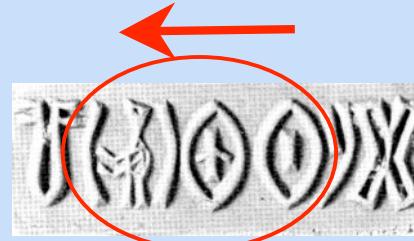
The longest inscription (carrying 13 symbols) ever found in the urban site of **Harappa**. Object H99-3819 from the 1999 excavation season; color photo (flipped horizontally) courtesy of Richard Meadow. The seal is unusually high quality and over twice the size of the average Indus seal — strongly suggesting that it belonged to a member of the Indus elite.



There are a number of similar oversized high-quality seals, like this one (M-10 a) from **Mohenjo-daro**. The striking resemblances between the two seals suggest a high level of political integration in the Indus Valley shortly before the symbols were abandoned. (It is doubtful that the sign system could have disappeared so rapidly if such integration *didn't* exist.) Is this an example of “complex criticality” in the technical sense? On this concept, see **Farmer, Henderson and Witzel, 2002**; **Farmer, Henderson, Witzel and Robinson 2002**.

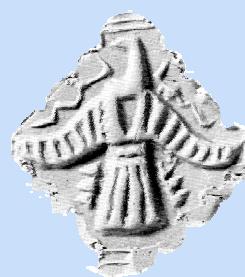
Other Hints of Urban/Political (and Imperial?) Transformations of Indus Signs in the Late Mature Period

M-6 a



We only know of four cases of this imposing bird symbol. Three of the four show up on oversized high-quality seals found again both at Harappa and Mohenjo-daro in the late mature period (Harappa 3C, using the dating system of Kenoyer and Meadow)

A number of other very low-frequency signs on similar oversized seals can also be dated to this period

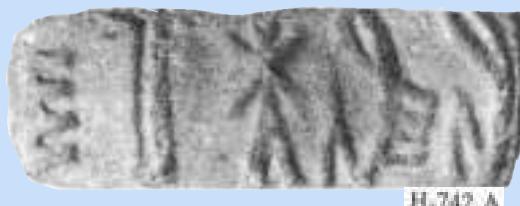


Foreign or late-Harappan seal (H-163; cf. Vats 1940: Vol. 1, p. 319 and plates in Vol. 2). Images are rare on late-Harappan seals; assuming this piece is late and not foreign, this eagle would be an exception. The figure is strikingly similar to eagles seen on artifacts as distant as Tepe Yahya in S.E. Iran in the late 3rd millennium (see Potts 2001: figs. 9.6-7.)

Related signs? The birth of a bird is a common theme in the late mature period

Further Political/Religious Functions of the Inscriptions: Their Mass Production in Molds

One of the most interesting sides of the inscriptions involves their mass production in molds — apparently used in some form of political and/or religious indoctrination. The number of motifs in these inscriptions is severely limited; the most common involve sacred trees, apparent sacrifices in front of trees, and agricultural motifs; many can be plausibly linked to seasonal celestial/agricultural rituals.



Rare and interesting tree-shape seal, discovered in 2000



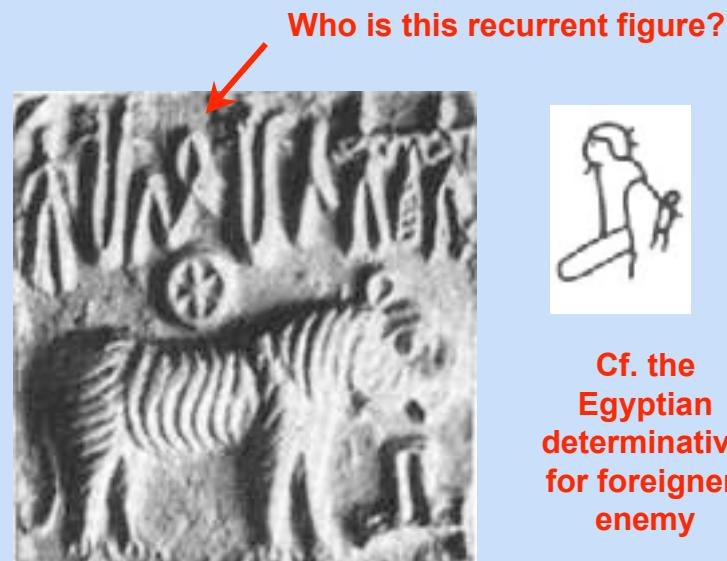
Probable human head; cf. the next slide



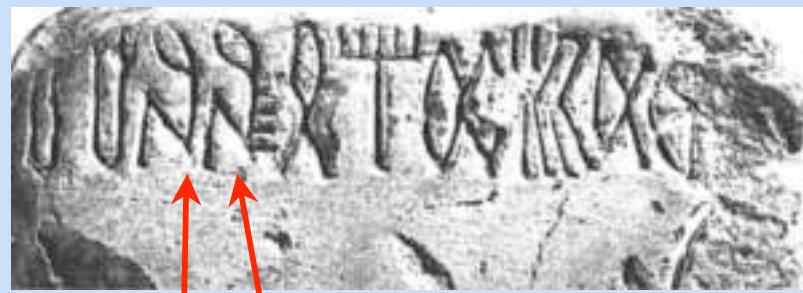
Who is this recurrent figure, who is almost invariably shown slumped in front of (or between) sacred trees? (See further in the next slide.)



Further Suggestions of Sacrifice under Sacred Trees



H2002 - 5395, flipped horizontally.
Photo courtesy of Richard Meadow.



It is not possible at present to identify this symbol (which comes in the two major variants [male/female?] shown here) with certainty, but study of the hundreds of known examples strongly suggest that it is an anthropomorphic figure. (Mahadevan 1996 agrees, anachronistically associating it with a Tamil god of death, but Parpola 1994 claims it is a cobra!) The archeologists are encouraged to dig, dig, dig until they turn up a less stylized version of this figure, which appears to be critical to understanding Indus civilization.

NB: Much other visual evidence (*contra* Possehl 1996: 116) suggests that both animal and human sacrifices were *regularly* performed in Harappa, most typically in the presence of sacred trees.

Uses of the Inscriptions in Later Periods

While the inscriptions apparently had their origins in agricultural magic, in later periods they unquestionably had wider uses as well. Here is a quick summary of how I think they were (and weren't) used:

- Magical use in all periods, in both informal contexts (suggested, for example, in so-called graffiti) and public rituals;
- Personal identifiers (but *not* “names” in the linguistic sense);
- Official/administrative use in seals, as in every other major premodern civilization — both literate and nonliterate;
- Political and religious propaganda (think of the giant ten-symbol “signboard” from Dholavira);
- Use in social indoctrination (suggested especially in the mass-production of molded inscriptions).

As noted earlier, strong evidence suggests that inscriptions containing what look like numbers were *not* used for accounting purposes, as often claimed — unlike (say) proto-Elamite or Old Sumerian inscriptions. (For a discussion of this evidence, see the supplemental slides at the end of this lecture.)



Shamanic Elites and Indus Symbols: Reasons for the Rapid Disappearance of the System?

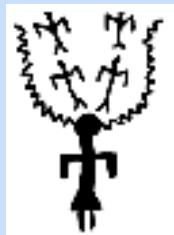
Indus symbols disappeared rapidly in the first few centuries of the second millennium BCE — while (as recent work from the Harappa Project suggests, overturning earlier ideas) Indus cities continued to survive and may have even become overpopulated. The disappearance of the signs under these conditions would be unprecedented if Indus inscriptions were part of a literate technology, but makes perfect sense if they were closely tied to a specific religious-political ideology overthrown by opposing internal or external forces.



Probable human head (cf. also
Parpola 1994: 260)

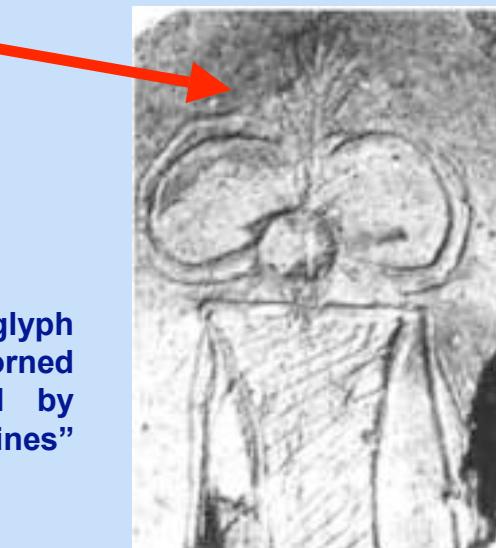


Arizona, petroglyph
representing
a
Shaman (Patterson
1992)



Arizona, petroglyph
showing
horned
Shamans bound by
“power
lines”
(Patterson 1992)

Shamanic “Tree Antenna” reaching into the
Symbol World?!



Evidence for a Multilingual Indus Valley?

The fact that Indus symbols were nonlinguistic fits in nicely with recent studies of loan words in the Rgveda (e.g., Witzel 1999), which suggest that the Indus Valley may have been intensely multilingualistic in antiquity, just as it is today. (Those studies undermine old views that pictured Dravidian as being dominant in the region when Vedic culture first appeared on the scene.) It can be argued that multilingualism in Indus civilization may have given nonlinguistic symbols an evolutionary advantage over writing as a means of ensuring politico-religious cohesion.

Cf. modern superhighway and airport signs, which have proliferated rapidly with the globalization of culture!



The “Script” of the Past
and the Future?

Take Heart, Illiterates
and Semi-Illiterates!

Still another example of the mysterious “undeciphered American script”! Note that the inscription contains eight signs *more* than the longest known Indus Valley inscription. It also shows the same tendency, found in longer Indus inscriptions, to avoid sign repetition.

A Few Broader Implications of the Non-Linguistic Model



Ciao ragazzi!

- **Importance of the inscriptions.** Studies of Indus inscriptions increase in importance precisely because they were non-linguistic. We know a great deal about literate societies, but much less about large civilizations that apparently rejected literacy. The Indus Valley is the largest and most complex civilization of this type every discovered.
- **Studies of shifts in Indus symbol frequencies.** Study of these variations in time and space become vastly more important once we recognize that these variations were not simple byproducts of sound encoding but were bound to specific religious and political developments. These data, combined with the vastly improved dating of Indus inscriptions currently being provided by the Harappa Project, provide instruments of unprecedented power in unraveling historical developments in Indus civilization. Ironically, demonstration that the so-called Indus script was *not* linguistic allows us to “read” out the signs at least in part for the first time.
- **Historical “path dependencies” and old views of the so-called Indus script.** The fact that the literacy of the Indus Valley was not seriously questioned for 130 years, despite obvious evidence to the contrary, provides a bizarre example of the development of “path dependencies” and “historical lock-in” in historiography (cf. Farmer, Henderson and Witzel 2002). The strange marriage of nationalistic, academic, and religious interests that helped maintain the fiction of a literate Indus Valley for over a century is a worthy object of study in its own right.
- **Political-religious motives tied to an apparent Indus Valley “writing blockade.”** Many suggestions exist that Indus politico-religious elites made use of highly restricted symbol sets in their attempts to control Indus populations. These suggestions can be plausibly tied to the fact that a large number of Indus inscriptions have been found in Mesopotamia, but not one Mesopotamian inscription has ever been found in Indus territories. The hypothesis that this imbalance reflects an intentional “writing blockade” is reinforced when we consider the violent resistance of Brahmins to the introduction of writing in Northwest India during the Persian era (after the end of the 6th century BCE), and similar rejections of writing on the part of politico-religious elites elsewhere (e.g., the rejection of writing by the Celts in Western Europe).
- **Broader considerations involving the political control of information.** The tight control of information that apparently existed in the Indus Valley throws new light on the role played by information control in civilizations in general — including those that exist the modern world (article in preparation).

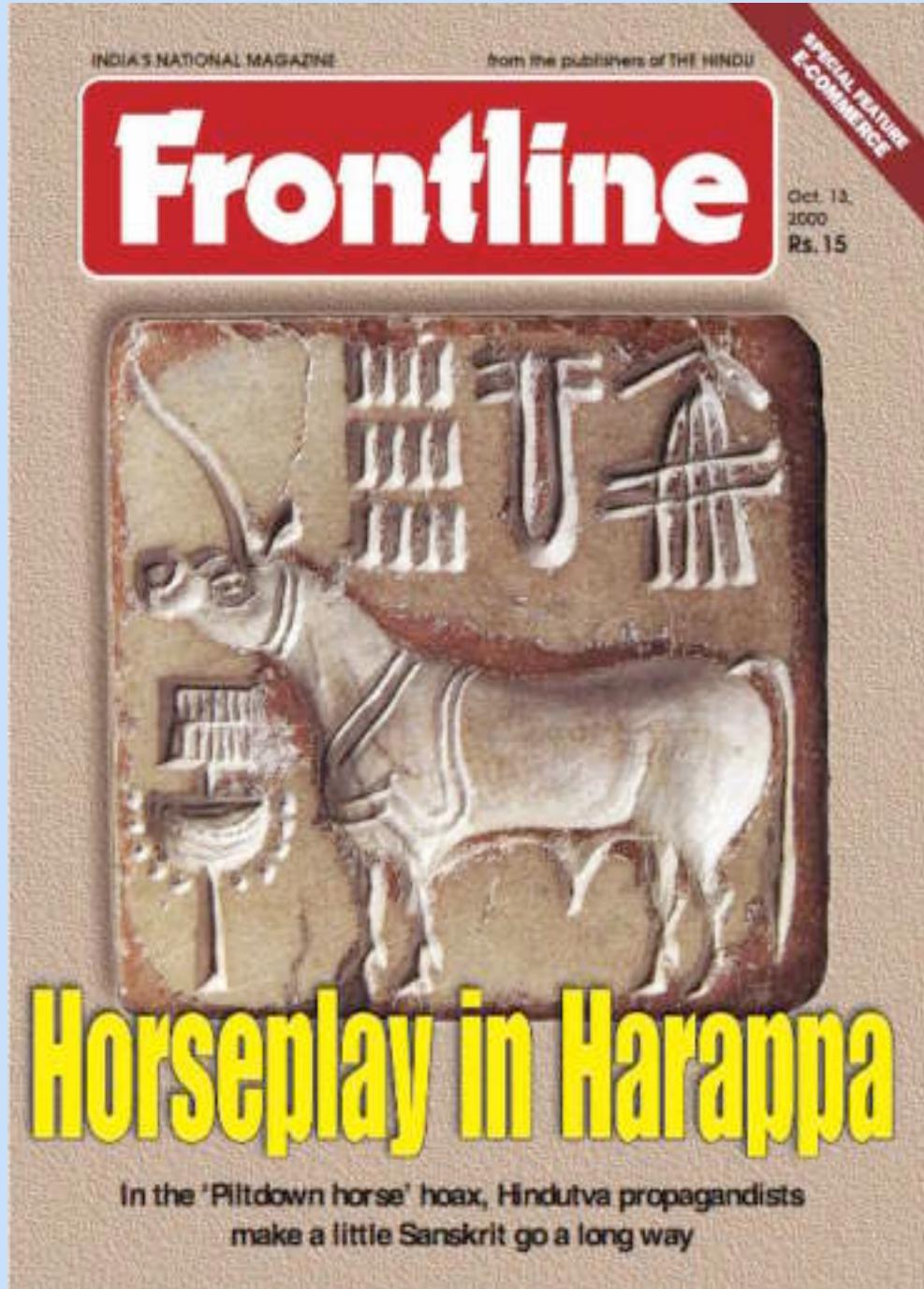
Summary: A Few of the Arguments for an Illiterate Indus Valley

1. Inscriptions far too short for true writing (i.e., any system capable of encoding unambiguous speech, recording narratives, etc.);
2. Not one expected marker exists in the Indus Valley of the use of perishable writing materials, ruling out the only plausible way of getting around argument #1;
3. Many cases of “dubious” writing exist, to adopt a phrase from Pope 1967: too many symmetries in symbol placement, too many obvious pictorial narratives made up of those symbols, etc.;
4. The predominance in the Indus corpus of a small number of high-frequency signs, combined with low rates of symbol repetition in long inscriptions, argues against the existence of significant phoneticism even in the most technologically advanced inscriptions. (The special cases in which symbol repetition is common supports and doesn’t detract from the nonlinguistic model.)
5. The implausibly high percentage of “singletons” and low-frequency signs has continued to increase with each new batch of finds — exactly the reverse of what we’d expect from true “writing”; more of the same can be expected when Vol. 3 of the *Corpus of Indus Signs and Inscriptions* is finally published.
6. The many parallels that exist between Indus inscriptions and other nonlinguistic symbol systems;
7. The ease with which the nonlinguistic model solves many old historical puzzles — including the fact that dozens of Indus inscriptions are found in Mesopotamia, but not one Mesopotamian inscription exists in the Indus Valley; the rapid disappearance of the system despite the survival of Indus urban life; etc.

For this and related texts, go to <http://www.safarmer.com/downloads>



**A number of supplementary slides
follow (adapted from earlier lectures)**



To page 12



Cover of the political article “Horseplay in Harappa,” by Witzel and Farmer (2000). For the original article and related texts, go to

<http://www.safarmer.com/downloads>

Walter Fairservis and Indus Symbols

In the last 20 years of his life, Walter Fairservis joined the ranks of a long line of distinguished researchers who concluded their careers in odd attempts to decipher the ‘Indus script.’ Fairservis’ instincts as an archaeologist were too acute to lead him to mistake the Harappans for a truly literate people: he was nearly alone in rejecting fantasies of Indus ‘scribes’ producing books on perishable materials. By the end of his life he embraced the peculiar compromise that the Harappans possessed a full syllabary but restricted it almost exclusively to making short inscriptions on seals.

Interestingly, in a stray paragraph in an early survey of ancient India, Fairservis came close to being the first to break with linguistic views of the signs. The remarkable passage cited below from one of the great archaeologists of the twentieth century has been forgotten, and it is a pleasure to quote it in full. It was apparently written in the late 1960s, but did not make it to print until several years later:

Seal writing is not necessarily writing derived from the oral language. It has its own meanings and in effect need not have verb, adjective, or adverb. Rather it may be simply a kind of label specifying the individual or his god, house, or belongings, much as a heraldic device uses iconographic elements limited in number in countless ways to name the individual or an institution. Except for the numbers, which suggest bookkeeping and thus more mundane motivations one cannot help but feel that the Harappan script is of this character. It appears to be a script a full step above the potters’ marks of pre-Harappan times but below the complexity of early hieroglyphic Egyptian or Sumerian which was already ideographic. The script has little preamble except possibly in the potters’ marks. Throughout its known history it shows little or no change and disappears with the Harappans and their seals. Though it is writing in one sense, it does not appear to have been much more meaningful to the Indus people than the repeated motifs that appear on their pottery. However, tomorrow’s shoveling may reveal a room full of tablets and change this so limited interpretation (1971: 282).

Leaving aside Fairservis’ remarks on bookkeeping and his odd comments on how the Harappans viewed their symbols, there is much prescient in this passage. Peculiarly, however, the passage is surrounded by others that claim that Indus inscriptions were syllabic in nature, suggesting that the passage was written shortly before Fairservis reverted to older linguistic models. As suggested in a paragraph eventually placed right before this one, what changed his mind were not finds of rooms filled with tablets — none were forthcoming — but the spectacular public announcement of a breakthrough by the Finns, who in 1969 announced they had harnessed the infant field of computer science to prove that the “language” of the inscriptions was proto-Dravidian. The fact that the Soviet team made similar claims nearly simultaneously apparently reinforced Fairservis’ about face — sending him on his twenty-year odd quest to ‘decipher’ what his own archaeological instincts suggested and much evidence today can confirm wasn’t a script in the first place.

The story of Indus inscriptions over the past 130 years provides a cautionary tale of how early failures to test historical assumptions can lead research down dead ends for many decades. The initial Director General of the Archaeological Survey of India, Alexander Cunningham, published the first Indus seal in the mid 1870s; within two years, on the basis of one mutilated inscription, he declared the ‘script’ on the seal to be an early form of Brahmi. Five years later, the first of many forgeries that play a role in the Indus story was foisted on the public by the famed Sinologist Terrien de Lacouperie, who plugged for a Chinese or Indo-Chinese tribal origins for the new-found ‘script’.¹

The result was that by 1882 the long Indus ‘decipherment’ comedy was already in full swing. It is interesting to speculate how the field would have evolved if from the start anyone had asked one obvious question: “Are these *really* linguistic signs? And, if so, how can we tell?” It may be my own quixotic thinking, but I’m convinced that had this question been posed even once, our understanding today of much of ancient history as a whole would be radically different.

The great archaeologist Walter Fairservis came a hair’s breadth in the late 1960s from claiming that the Indus inscriptions were nonlinguistic. Then fate intervened, when the Soviets and Finns (falsely, it turned out) claimed that the magic of the infant field of computer science had “proven” that the Indus inscriptions encoded Dravidian. Fairservis jumped quickly on the bandwagon, insuring that Indus studies moved in the wrong direction for the next three decades. A cautionary tale from my lecture at the Fifth Harvard Indology Roundtable. For the full lecture notes, go to

<http://www.safarmer.com/downloads>

¹ On Cunningham’s seal and this first forgery, see the PDF file (1 Meg) at <http://www.safarmer.com/firstforgery.pdf>.

Anomalous Uses of Apparent Numerical Signs

Numerical signs are typically the easiest and first parts of scripts to be deciphered. This was the case with Sumerian, Linear B, and the Maya script. Much is also known about numbers in Linear A (including how fractions work), proto-Elamite, and other largely undeciphered scripts.

The case is radically different in the case of the Indus Valley. As is well-known, many anomalies exist in the different classes of vertical strokes typically assumed (based on comparisons with Middle Eastern and other early scripts) to be numerical signs. Some of these anomalies were seen by Gadd in the 1920s (Marshall 1931, Vol. I, 412 ff.) and by Ross (1938). Drawing on the large corpus of inscriptions currently available, we are in a much better position today to appreciate these anomalies. Very quickly:

1. The distribution of supposed Indus number signs is strangely uneven. The system contains a large number of apparent 2's and 3's, in several morphological types. After that, the numbers of signs drop fast. There are only about 1/4 as many 5's as 4's, and only about 1/2 as many 6's as 5's. 7's are fairly common, but symbols made up of 8, 9, and 10 strokes are extremely rare. Above that, you find only 12's and occasional 24's. *Pace* Robinson (2002: 285-6), the claim that there is "considerable" evidence for a special symbol for 10 (one rare sign looks something like the Egyptian 10) is unsustainable — since that sign appears in only 6 out of 2,905 inscriptions in Mahadevan 1977, and there is no way of telling if it was intended to be a number. (See the illustration on the bottom of the chart on the next page.)
2. Certain apparent numerical signs are regularly found in conjunction *only* with specific non-numerical signs, and never with others — in a way that again seems peculiar for an abstract number system.
3. Frequently apparent numbers are grouped with other numbers in idiosyncratic ways — with no intervening signs separating them — or are found all by themselves on inscriptions. One interesting example is shown below:



One of many anomalies in supposed number signs is illustrated in K-59a (a modern impression of a seal). In the inscription, three signs usually assumed to stand for the numerical modifiers 5, 3, and 1 all show up in front of the 'Bow' sign — or, worse, *after* it, if we accept the old view that inscriptions were 'read' right to left.

The frequent claim that what superficially appear to be numbers in Indus inscriptions are part of an abstract numbering system, or even evidence of accounting uses of the inscriptions, is easily countered.

For convenience, I include in the next few pages extracts from a discussion of the evidence on this issue in my lecture given at the Fifth Harvard Indology Roundtable on 10 May 2003.

For the full lecture notes, go to <http://www.safarmer.com/downloads>.

Examples of a Few Apparent Numerical Signs Using Data from Mahadevan's Concordance

Apparent number sign	Number of signs (out of 13,372)	Number of signs for each subtype	Most frequent signs found to the left of the apparent number (subscript numbers signify how many cases)
Tall 3 	495	314	 124  44  12
Short 3 		151	 20  18  20  20  16
Two Row 3 		30	 27
Tall 4 	134	64	 58
Short 4 		70	 21  24
Tall 5 	66	22	 5  4  2
Short 5 		38	 5  3  11  10
Two Row 5 		6	 1  1  1

Not illustrated in this chart: apparent numerical signs supposedly standing for 6-10, 12, and 24.

One symbol supposedly standing for 10 according to Robinson 2002 (also Parpola 1994, and Fairervis before him) is shown below:



NB: these signs only show up in a total of six inscriptions out of 2,905 in Mahadevan's concordance — and in context none of these looks all that numerical.

Numbers or Numerology? ('The Three,' 'The Seven,' etc.)

The usual way anomalies like this are handled is to claim that while in some cases (e.g., in counts of sacrifices or sacrificial vessels) simple numerical modifiers are used in the inscriptions — and there is no reason to doubt this — in other cases apparent numbers were used for their rebus (sound) values, as in the simple English example “**I yearn 4 you!**”

How do you handle these anomalies when the evidence suggests that Indus inscriptions *didn't* encode speech? A surprisingly simple answer is suggested by cross-cultural studies of ancient esoteric traditions. Many visual hints exist in Indus inscriptions (see the next page) that numbers often played purely symbolic roles. In these cases, the stroked lines did not function as numerical modifiers of other symbols ('three fish' or 'seven Water Carriers,' etc.) but as numerological symbols — as 'The Three,' 'The Seven,' 'The Twelve,' and so on — referring to divine, celestial, or mythological forces.

In Mesopotamia, numbers were regularly used this way to symbolize the gods. Ea, for example, was often symbolized by 40, and Enlil by 50. 'The Seven' in Mesopotamia — most commonly represented by seven dots (a pictorial example is shown on page 20) — could alternately stand for 'The Seven Gods,' or Pleiades, or 'The Seven Sages,' and so on.

Similar practices were common in Vedic traditions. Thus in the Rgveda we find references to the 'Three Times Eleven' (gods) or the 'Seven Times Seven' (Maruts) — and so on for many other cases. Many parallels to these practices exist in other premodern civilizations.

Hints are shown on the next page of similar tendencies in Indus inscriptions.

Quick notes on other interpretations of proposed or apparent Indus numbers

1. There are good reasons to be skeptical about the idea (Bonta 1996) that Indus fish signs were linked to a numbering or metrological system. One reason this suggestion is implausible lies in the fact that high-frequency fish signs show up in all Indus media in roughly the same percentages we would expect if they were distributed randomly. (Expected and actual frequencies can be calculated using the raw data in Table IV of Mahadevan 1977, "Distribution of Signs by Object Types.") These media include copper plates, which were apparently used in rituals or as talismans, and on which we would not expect to find evidence of elaborate calculations. Cross-cultural studies of Middle Eastern, Aegean, Chinese, and Mesoamerican seals also put this thesis immediately into doubt (next point).

2. There are also good reasons to be skeptical about claims that crop up periodically that Indus seals were used for complex accounting purposes (supposedly à la proto-Elamite or Linear A or B tablets, etc.). One reason for rejecting this idea concerns the mass of evidence that has emerged in recent decades concerning administrative uses of seals in other civilizations (see, e.g., Palaima, ed., 1990; Perna, ed., 2002). Seals had important administrative functions throughout the ancient world, but their use in calculations was not one of them. Indeed, findings of many apparent numbers on seals (as opposed to tablets, etc.) was apparently unique in antiquity to the Indus Valley. Leaving aside simple uses in counts of sacrifices or sacrificial vessels, which appear commonly in Indus inscriptions, the simplest explanation for apparent 'numbers' in Indus inscriptions is that they were numerological symbols, as argued above.

A Few Hints That 'The Seven' and other Apparent Numerals Served (in Some Contexts) as Numerological Symbols



What are the supposed referents here of 'The Seven' and 'The Three'?

27 of 70 times that this form of 'Seven' appears in Ma hadevan's concordance, it does so in conjunction with the symbol in the middle (representing a hearth with a fire?). There are many interesting interpretive possibilities here that are too involved to discuss in this talk.



Additional slides on other key topics, drawn from a variety of earlier lectures, follow. This slide deals further with sign repetition.



Sources, left to right, top to bottom (inscriptions not to scale):

CISI M-382a, M-383a, M-373a, M-357a, H-150a, harappa.com (flipped horizontally to regularize symbol orientation).

Top row: A half dozen or so fairly high frequency signs show up regularly in dual or occasionally triple forms. The pictographic formulae (as in the possible field + god/man compound shown here, the most frequent of these formulae) appear to pertain to quantity, levels of power (found in four repetitions of an apparent power sign in the Dholavira ‘signboard,’), or possible time markers (seen, e.g., in the examples in the bottom row of this illustration). The pictographic contexts in which these repetitions show up make it extremely implausible that they stood for repeating sounds or grammatical plurals.

Middle row: A second form of duplication involved symmetrical symbol placements, which are similar to the symmetries that first led Aegean researchers in the 1960s to doubt the linguistic nature of Cretan hieroglyphic seals (*supra*).

Bottom row: Examples of reduplication of the Indus crescent moon (or shield?) sign that in some contexts may have indicated time passage. In a number of cases involving one type of late inscription, represented by the beautiful Harappan seal on the lower right, these symmetries sometimes vaguely suggest developments in a pictographic narrative (going right to left). Again, the neat symmetries seen in seals of this sort are trivial to reconcile with non-linguistic uses of symbols — but not with the existence of a highly phoneticized ‘script.

$p + a + g + h = \text{pagh}/\text{phag}$
 $O + ' + \wedge + \text{A} = \text{~}$ ←
 Also $\text{~} = \text{phaga}/\text{pagha}$



Rao (1979-85) decomposed hundreds of apparent Indus pictographs into what he claimed were a small number of basic signs, each supposedly carrying phonetic values. Using this method, he managed to reduce the number of Indus signs from the 400 or more identified by most mainstream researchers to 62 signs by ‘mature’ and as few as 20 signs by ‘late’ Harappan times. The result was the anachronistic claim that the Indus symbols were the original of all later ‘alphabets.’ The anthropomorphic pictograph seen in this example from Rao’s work (compare with the illustration; the possible sense of this figure is discussed *infra*) is broken down into four simpler signs that Rao claimed represented the sounds in Vedic Sanskrit. Addition of an extra stroke on the ‘back’ of the anthropomorphic figure (lower arrow) supposedly further altered the phonetic equation. From Rao 1979: Fig. 31B.

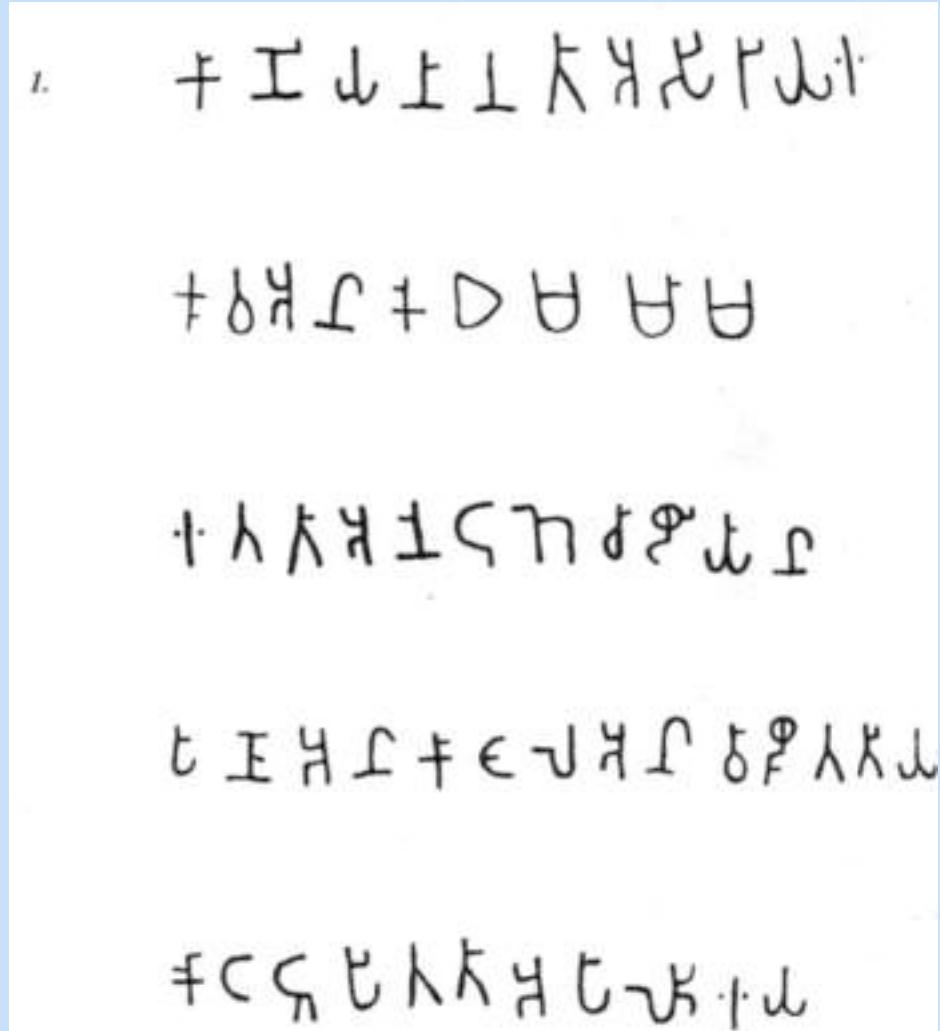


Figure 8.1. 1. MANGULAM 1

Inscription No. I

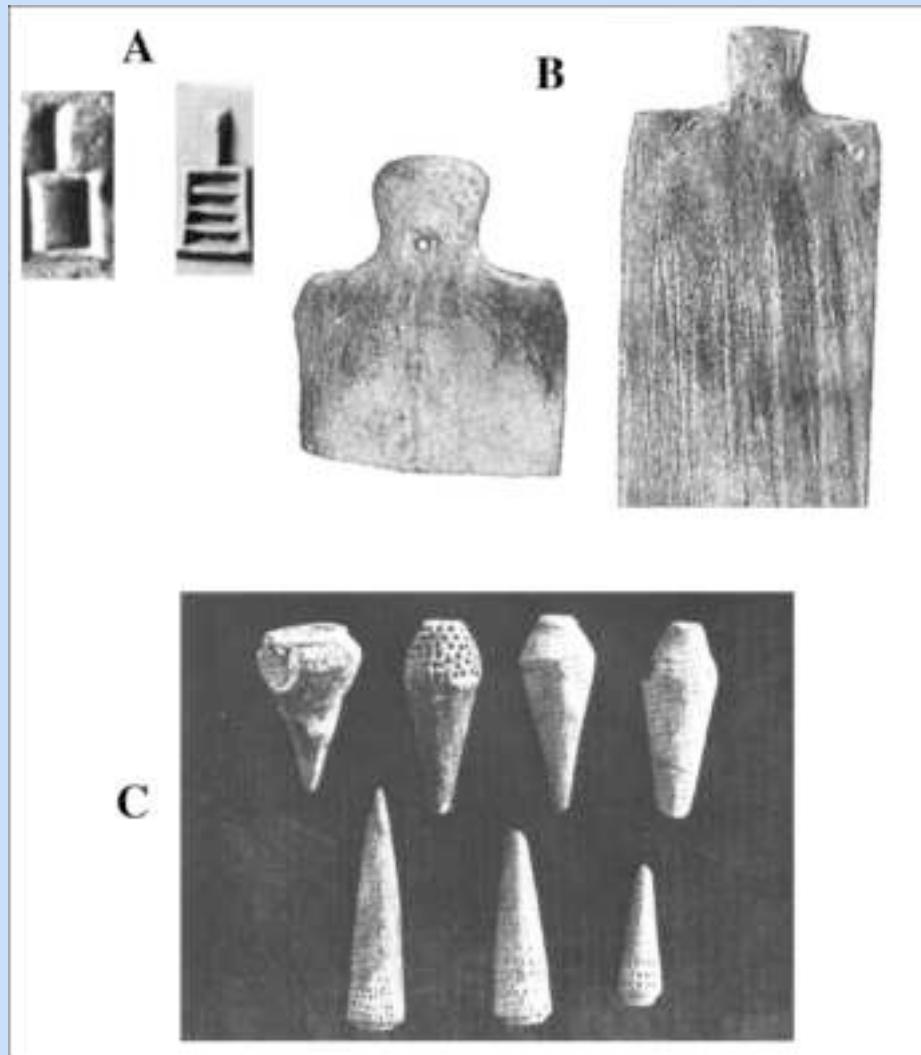
Tracing (in five segments). Scale: one-tenth.

Inscription #1 in Mahadevan's new magnum opus, *Early Tamil Epigraphy from the Earliest Times to the Sixth Century A.D.* (Harvard, 2003).

It is interesting that nearly all the 51 pre-BCE inscriptions in Mahadevan's new book are longer than the longest of the 2905 inscriptions in his 1977 concordance of Indus signs. This oddity is not mentioned in his newest book.

Even this first inscription has 56 signs — over three times longer than the longest Indus inscription!

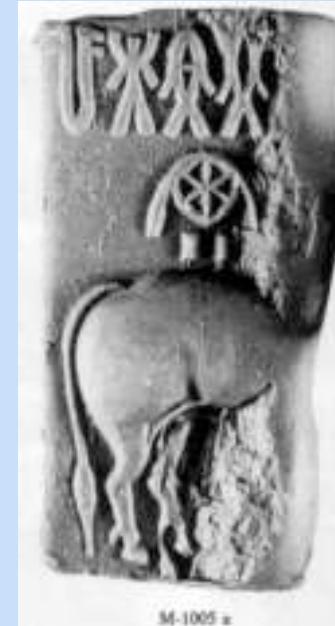
Supposed Indus “Writing Instruments” Claimed in the 1930s-60s



Early Indus researchers, who claimed that the Harappans wrote long texts on perishable materials, went to lengths to find evidence to support their thesis. This figure illustrates their best-known claims. None are widely accepted.

- A) Two versions of an Indus symbol (or two symbols) that Sir Flinders Petrie first and then E.J.H. Mackay claimed might represent ‘writing tablets.’ The horizontal lines on the sign on the right were supposedly guide lines for the scribes. In context, they appear often with signs representing plants or agricultural instruments, rendering the claims highly unlikely.
- B) Two small pottery objects of unknown function (Mackay 1938: III, Plate CV) that Mackay identified with the same symbols, claiming as well that they were similar to “large wooden writing tablets” from modern India (repeated by Lal 2002). The small object on the left, including the supposed handle, is a scant 3.15 by 3.95 inches in size (we’re told the piece is broken, but no proof is offered.) The ‘handle’ of the larger piece is less than one inch across.
- C) Cone-like objects that Dales 1967 proposed as Indus writing instruments, supposedly used on a wide range of perishable materials. No one since has endorsed Dales’ claim. (Mackay thought they might be game pieces.)

A Frequent Indus Sign Cluster: An Apparent Solar Sign (the So-Called Wheel Symbol) and a Commonly Linked Sign



The second most common Indus sign looks a bit like a modern “ditto” mark. Proponents of the linguistic hypothesis often claim it as a “diacritic” or other function sign. The visual evidence suggests something more obvious. (It also often follows apparent “seed” signs.)



M 72 A
(flipped horizontally)



SW N. American
petroglyph for ‘rain’

A Few Mesopotamian Emblem Symbols (Out of Hundreds)

One thing we learn from study of these symbols is that their meanings changed over time, as new gods and political forces usurped the powers and symbols of old ones.

Spade or hoe (*marru*) of Marduk. Transformed into a spear in Assyrian times

Stylized Mesopotamian tree

Not 'seven' but 'The Seven' = (sometimes the Seven Sages, sometimes the Plaeides, sometimes the Seven Gods, etc.)



After Black and Green 1992

One Further Mesopotamian Example

The *kudurru* or land-grant stone of Melishihu, Babylonia in the Kassite period (1202-1188 BCE). Louvre sb 22.

Mesopotamian land-grants were protected by the magical signs or emblems of as many gods possible. Often, as here, they were ordered in a loosely hierarchical fashion. Cf. for possible similar organization in one Indus seal, M-314, on pages 7-8 above.

Top part of top register [1]: common emblems, left to right, of three celestial gods: Sîn (moon), Šamaš (sun, justice, truth), Ištar (Venus, fertility, etc.).

Just below [2] are the triad Anu and Enlil (the two horned caps — also sometimes emblems of other gods, as suggested on the previous page) and Ea (represented by both the ram-headed column and the goat fish). The sense of the inverted Omega sign to the right of the goatfish — which has formal similarities to the most common Indus sign — is a matter of ongoing debate.

Other common emblems on lower levels include [3] the pointed hoe of Marduk and [4] the serpent-dragon who guards the underworld. On the serpent's head [5] we see the scribe's stylus, emblem of Marduk's son Nabû.

A few of a number of other identifiable emblems in the second through fifth registers include [6] the griffin-headed or eagle-headed staff of Zababa, [7] the lamp of Nusku, [8] the plow of Ningirsu, and [9] the scorpion of the storm god Išhara (Adad).

The sense of few of these emblems would be known if Mesopotamian scribes had not occasionally inscribed the names of the gods next to them — a luxury we don't have in the scriptless Indus Valley, where we must infer the meanings of signs from context.



Mesopotamian emblem inscriptions are often many times longer than the longest Indus inscriptions. Here is a nice example (page drawn from my lecture at the Fifth Harvard Indology Roundtable)

<http://www.safarmer.com/downloads>

Fishy Business!



There are striking similarities between the many fish seen on Indus pottery and on Indus inscriptions. Skepticism is in order when we find researchers pointing to supposed ‘ligatures’ and phonetic ‘diacritics’ involving Indus fish signs.



Just Because It *Looks* Like Writing Doesn't Mean It Is: The Case of Cretan Hieroglyphic Seals, 1890s to the Present

Sir Arthur Evans (1890s) —> Alan Mackay 1965 —> M. Pope (1967) — Jean-Pierre Olivier et al. (present)



Six Cretan hieroglyphic seals accompanied by drawings to clarify the signs.
From Olivier et al., 1996.

The first serious doubts about the linguistic status of these seals were not raised until 1967 — after over 75 years of claims that the seals carried the earliest Cretan writing.



(This page contains a little political aside for my Italian audience at the University of Bologna. American patriots are invited to ignore it.)

**Italian culture (on
the left, pre-
Berlusconi)**

**American culture
(on the far right,
pre-Bush and post-
Bush)**



[Back to page 38](#)



Our statues are bigger than your statues: Come to Blue Earth, Montana, and see for yourself! 67

This and the following two pages reprint a short bibliography, with one minor change, attached to the notes from my lecture at the Fifth Harvard Indology Roundtable, May 2003.

The fact that I list a study here doesn't mean that I endorse its conclusions: Many studies of the so-called Indus script and related topics today are only of historiographical value, and no single bibliography comprehensively covers the field.

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