

‘Writing’ or Nonlinguistic Symbols?

The Myth of the Literate Indus Valley



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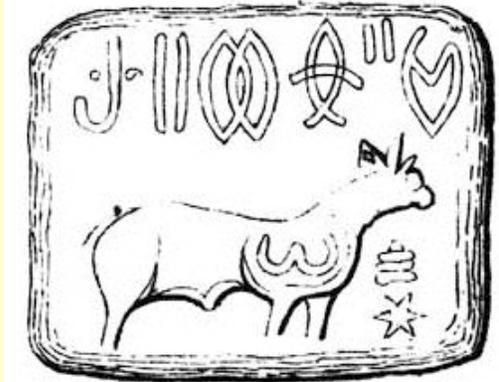
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Introduction

- For the last 130 years, the assumption has been nearly universal that Indus inscriptions encoded speech
 - Over a dozen candidates of the ‘language’ of the inscriptions, and over 100 supposed ‘decipherments’
 - Claims since the 1920s that the Indus Valley was literate in the same way as Mesopotamia or Egypt
 - Fantasies of ‘lost manuscripts’ on perishable materials — even sometimes linked to Vedic traditions



Cunningham’s first Harappan seal, 1872-3



‘Duck in Pond,’ one of many odd inscriptions discovered in the 1920s that have since disappeared

Background of the Nonlinguistic Model

- In the last three years, my collaborators and I have tried to test those assumptions rigorously
- The first doubts arose from cross-cultural models of the growth of manuscript traditions — which clash with the ‘lost text’ thesis (Farmer, Henderson, Witzel 2002)
- Linguistic tests followed, which suggested that mature Indus inscriptions were not even ‘early’ writing, but were similar to many ancient non-linguistic sign systems
- The first discussions in 2000 uncovered much private skepticism about a ‘literate Harappa’ among Indologists
- Paradoxically, evidence that Indus inscriptions were nonlinguistic increases their importance — and quickly solves many old puzzles about Indus civilization



The Extreme Brevity of the Inscriptions

We have many thousands of inscriptions on seals, seal impressions, pottery, potsherds, copper plates, weapons, tools, ivory rods, mass-produced molded pieces, and other durable materials. All share one property: they are short.

1. The longest on one surface (shown later) has 17 signs;
2. Two inscriptions have 14 signs;
3. About 1/100 reach ten signs;
4. The average length of 2905 inscriptions listed by Mahadevan 1977 is 4.6 signs — and this figure is too high, since the figure omits all so-called graffiti (very short) and many short duplicates
5. Many ‘Indus inscriptions’ have just one or two signs



This problem by itself may be enough to show that the inscriptions aren't ‘writing’ (Victor Mair, U. of Penn.). But archaeologists in the 1920s who compared the Indus Valley to Mesopotamia and Egypt found a way around this argument — inventing the ‘perishable text’ thesis.

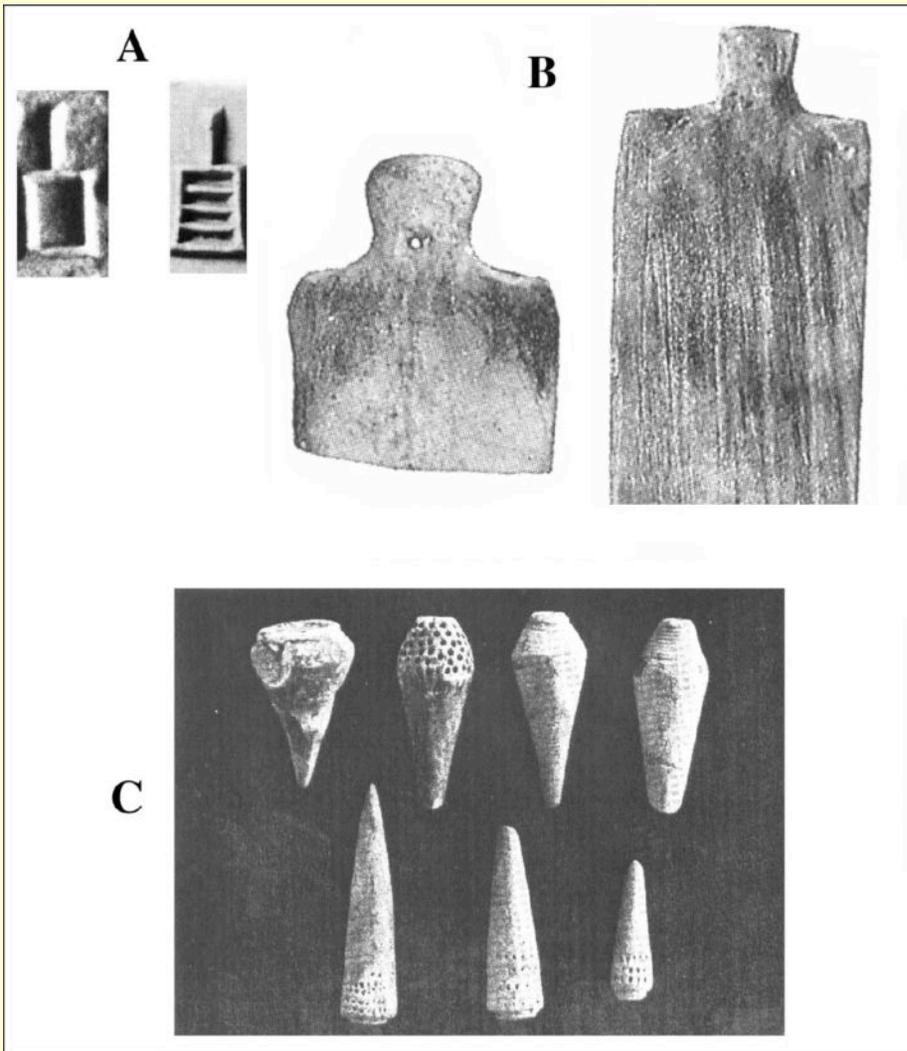
Missing 'Markers' of Manuscript Production

Premodern societies that wrote on perishable materials left many '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) — often found in later NW India;
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 very weak claims of such finds in the Indus Valley (Mackay 1938, 1943; Dales 1967; Konishi 1988; Lal 2002), which have been repeated by few;
5. Rapid evolutionary changes in early scripts, reflecting 'scribal pressures' to make the copying of texts more efficient (reflected indirectly even in monumental scripts);
6. Clear social and institutional markers of manuscript societies (Fairservis 1992; D.P. Agrawal, personal communication, 2001).
7. Stereotypical intellectual byproducts of the repeated integration of manuscript traditions (Farmer, Henderson, and Witzel 2002).



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.

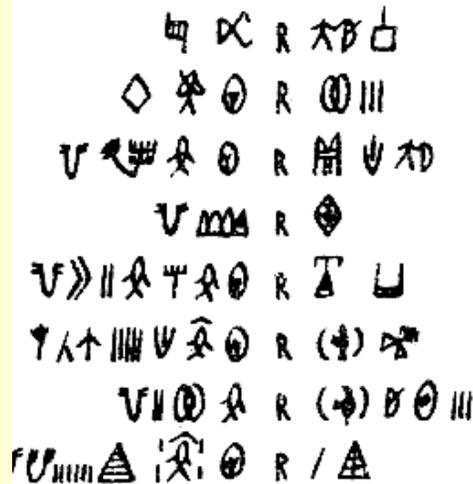
B) Two small pottery objects of unknown function (Mackay 1938: III, Plate CV) that Mackay identified with the same symbols, claiming as well that they were similar to "large wooden writing tablets" from modern India (repeated by Lal 2002). The small object on the left, including the supposed handle, 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.)

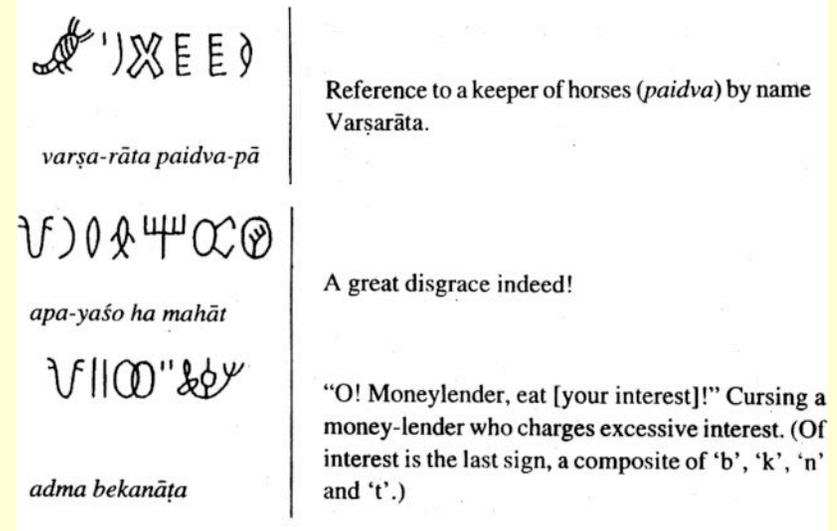
Suspicious Cases of 'Dubious Writing' (after M. Pope 1967)

When you look at the studies, Indus signs are standardized and (in recent decades) computerized — and the inscriptions look neat and linear and a lot like 'writing'

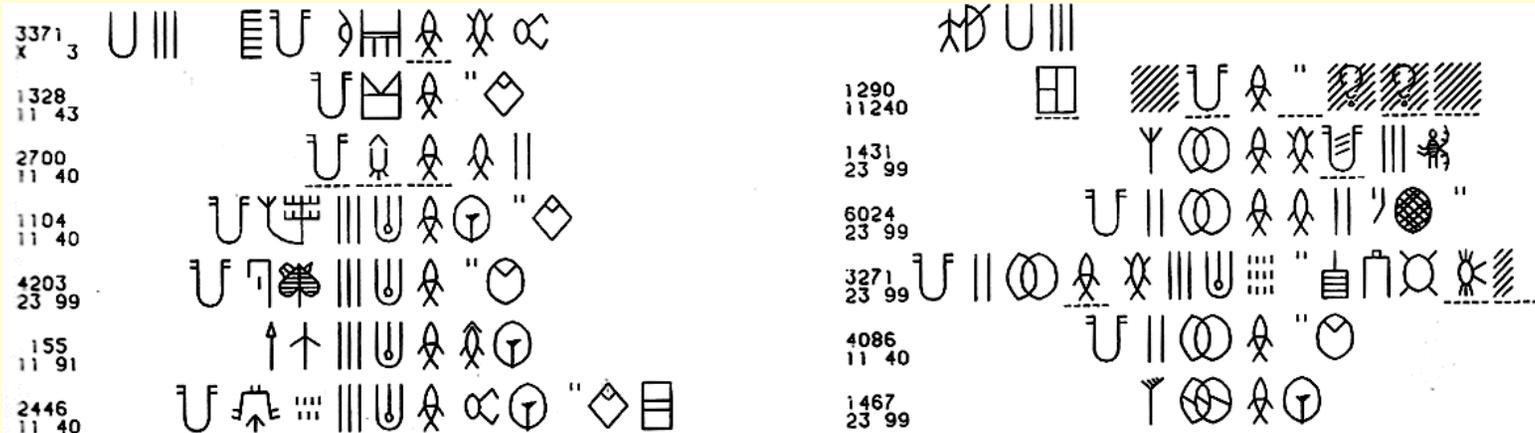
**Hunter
1929**



**Jha &
Rajaram
2000**



Parpola 1982



Doubts Set in When You Take a Closer Look: Some Look a Bit Like 'Writing' — But Even More Don't



Ironically, the evidence that this isn't 'writing' is particularly strong in late inscriptions like this one, as I argue later



Look carefully to see how each sign here is standardized and radically repositioned in Mahadevan 1977.



A gharial attacks the fourth most common Indus sign



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.)

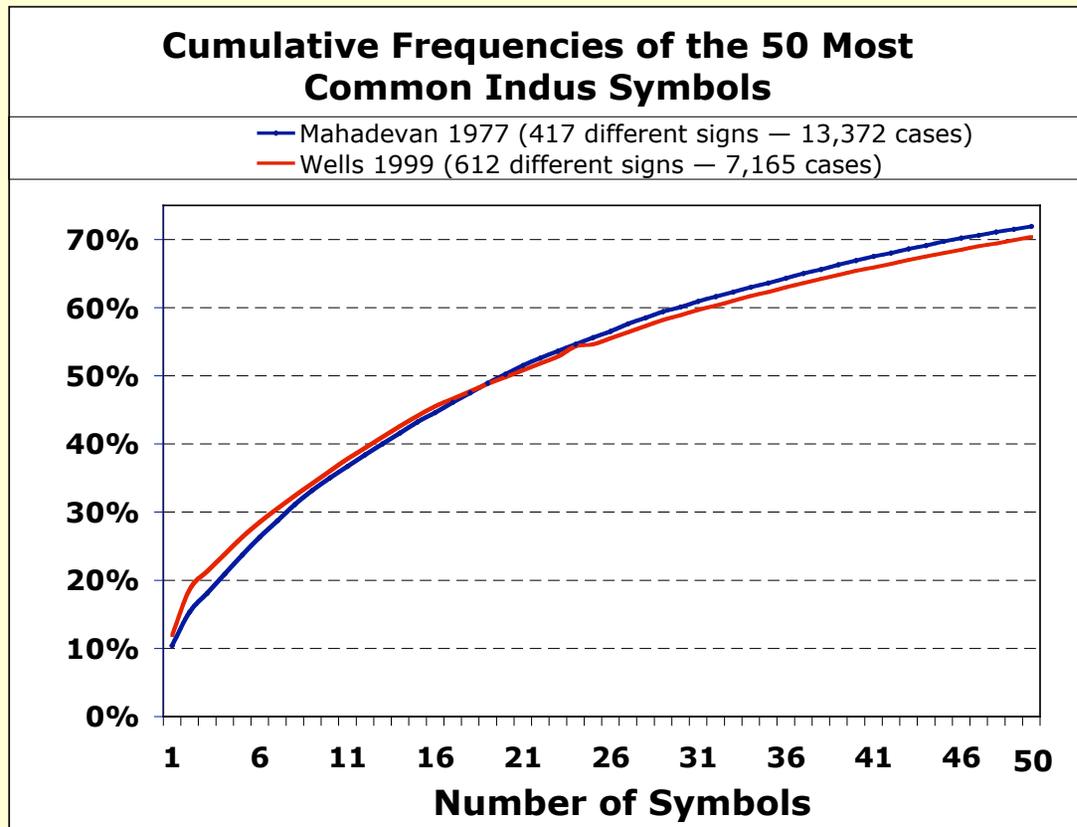


M 72 A
(flipped
horizontally)



SW N. American
petroglyph for 'rain'

A Handful of Very High-Frequency Signs Dominate in the Inscriptions

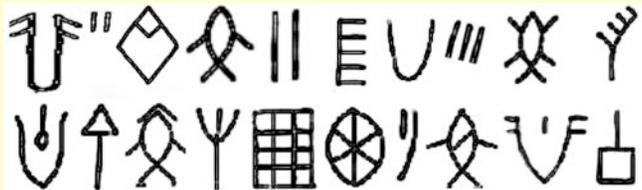


No matter whose definition of symbols we follow— leaving aside a few eccentric claims like Rao's (see supplemental slides) — we get similar results in the high-frequency range.

NB: Frequencies like these show up in all types of Indus inscriptions on all media. You can't claim (like Kak 1988 or Baines in Possehl 1996) that they are a property of one type of aberrant 'text.'

Summarizing here just results from Mahadevan 1977

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



Left to right, top to bottom: the order of the 20 highest frequency signs, calculated from raw data in Mahadevan 1977

Maybe the fact that just a few signs are commonly used is a sign that some early Indus ‘genius’ (e.g., Fairservis 1992) invented a full syllabary or even an alphabet in a single swoop

This claim can be quickly falsified:

- Indus inscriptions flunk all statistical tests of ‘pure’ syllabaries and alphabets (statistics worked out by Alan Mackay 1965)— as we’d expect simply by looking at the odd distribution of the most common signs.
- Alphabets and syllabaries have high symbol repetition rates in single inscriptions — and the reverse is true of Indus symbols (next slides)

A recurrent Indus symbol cluster, seal M-132 A (flipped horizontally to mimic a seal impression). Two field signs (?) — one of a half dozen Indus symbols that are regularly doubled — and a man with a stick (sowing/planting instrument?)



Sign-Repetition Rates Far Too Low for Phonetic ‘Writing’

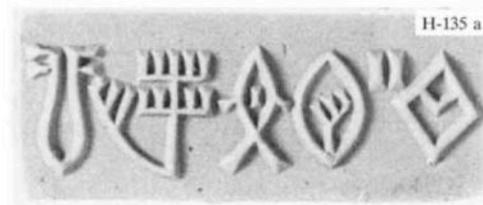
11 of the 17 symbols in the Indus Valley’s longest inscription are among the 18 highest-frequency signs (marked in red below). Despite this, paradoxically, not one is used twice.



M-314 a. Actual size of the longest Indus inscription on one surface = less than one inch square!

Ironically, Evidence of Non-Phoneticism is *Strongest* in Long Seals from Late in the Mature Harappan Period

One of many examples: In the first two volumes of the *Corpus of Indus Seals and Inscriptions*, there are 78 consecutive bar inscriptions without pictures. A very small sample, starting with the first of these, is shown here.



The seals are made up predominantly of high-frequency signs, as usual. But only one out of the 78 contains even a single sign repetition (H-150) — and that case doesn't look a bit like writing!



Conclusion: The evidence from the most sophisticated inscriptions suggest that Indus symbols weren't even part of a 'young' or 'evolving' writing system

Attempts to 'save' the script thesis here too fail:

- *Chinese type writing?* Not near enough signs — and doesn't work with the highly inflected languages of S. Asia.
- *Indus 'scribes' avoided sign repetition for aesthetic reasons, like the Maya?* Not enough high-frequency signs to make that plausible. Also conflicts with the highly consistent pictographic themes in the inscriptions.
- *Counterexamples of inscriptions with repeating signs, like the Dholavira sign board?* (No less than four 'wheel/power' signs in a ten-sign inscription.) The exceptions prove the rule, since these inscriptions look even less script-like (see supplemental slides at the end).



Shang Dynasty Oracle Bone

The idea of a 'young' system is implausible on other grounds: The Harappans were in contact with Akkadian cuneiform for hundreds of years; if they had a 'script,' it should have been fully developed.

The implication is that Indus elites *consciously* rejected writing for different types of symbols. Reasons for this rejection will be suggested at the end.

One Final Simple Statistical Argument

K15a is one of a number of inscriptions that contain more than one 'singleton'



A Huge Percentage of Signs Show Up Only Once — And the Problem Gets Worse As New Inscriptions Show Up

1. **27% of signs are 'singletons' in Mahadevan 1977 (followed by Parpola 1994 and Possehl 1996). The figures are over 50% in Wells 1999, who 'clumps' fewer sign variants.**
2. **The figures soar even higher if we factor out duplicate inscriptions made in molds or consider the immense number of signs only used a few times.**
3. **If this were 'writing,' we would expect the percentage of singletons and other very low-frequency signs to *drop* as we found new instances of those signs. Instead, the exact *reverse* has occurred since the 1920s ('Sproat's smoking gun' or the n_1/N problem).**
4. **The implication is that Indus elites invented signs 'on the fly' that were only used briefly before being dropped. This is inconsistent with an unambiguous 'script' used over an enormous territory: who could possibly read all Indus signs except the gods?**

Early this year, the computational linguist Richard Sproat (AT&T Shannon Labs, U. of Illinois) and I made a testable prediction: this problem will continue to get worse over time, causing the 'Indus script' thesis to collapse on its own whenever the long-delayed Vol. 3 of the *Corpus of Indus Seals and Inscriptions* is finally released.

Early Support for Our Prediction

1. Many new ‘singletons’ show up in inscriptions now in private collections, which are expected to be published in Vol. 3 of the *Corpus*.
2. Study in September 2003 of unpublished inscriptions from Harappa (in the Harappa Project data base) shows still more ‘singletons’ and virtually no recurrences of known low-frequency signs.

Two of many new inscriptions with ‘singletons’ that will be published in Vol. 3 of the *Corpus of Indus Seals and Inscriptions*.

MS 5059,
flipped
horizontally,
Schøyen
Collection,
Oslo, Norway.



MS 2645, Schøyen Collection: Claimed as the only known case in which Old Akkadian and Indus symbols are mixed: an interesting suggestion itself of the nonlinguistic nature of Indus signs

If Indus signs weren't linguistic, what were they?

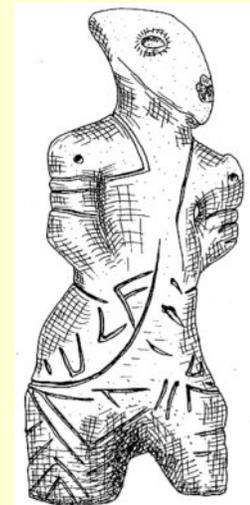
Evidence shows up in many nonlinguistic sign systems — whose formal properties closely match those found in Harappa.



Nonlinguistic seal inscription from Palestine on the left (Keel and Schroer 1985-94) compared with an Indus seal (on the right)

A Short List of Nonlinguistic Sign Systems (Many Types Existed — With Varied Uses)

- Rock symbols (petroglyphs) on every continent**
- Narrative ‘picture writing’ (e.g., Mixtec system)**
- Pre-Shang dynasty glyphs in China (see, e.g., Li et al. 2003)**
- Early Balkan sign systems (Winn 1973, 1981)**
- Schmandt-Besserat’s economic tokens in the Near East**
- Constellation and horoscopal signs**
- Systems of alchemical and astrological signs**
- Cretan hieroglyphic seals (Pope 1968, Olivier 1996, Poursat 2000, etc.)**
- N. American prelinguistic sign systems**
- Poverty Point ‘cooking balls’?**
- 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**
- Symbols and attributes of saints and bodhisattvas, etc.**
- Magical runes**
- Many others**



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.

Vin a Symbols from S.E. Europe

Another nonlinguistic system thousand of years *older* than the Indus symbol system was developed in the so-called Vin a complex of S.E. Europe. Vin a inscriptions showed up in large numbers in the 1870s — just as Cunningham was publishing the first Indus seal.

The evidence that Vin a signs represent ‘writing’ is no less plausible than Cunningham’s — but claims like this are accepted by few researchers (the best studies = Winn 1973, 1981; but cf. Haarmann 1996, etc.).



Parallels Between Vin a and Indus Inscriptions

The Indus symbol system was more complex than the older Vin a system. Nevertheless, there are many striking parallels that confirm the nonlinguistic status of Indus symbols.

- **Signs in clusters with stable inscriptional positions** — often claimed as evidence that Indus signs are ‘writing.’ (But compare horoscope inscriptions, or even the Father, Son, and Holy Ghost!)
- **A small core of stable signs** used over a vast geographical area.
- **Other signs used only once or twice.**
- **Frequent sign compounding** — often mistaken as evidence of Indus ‘ligatures’ or even ‘diacritics.’ (Cf. fusion of Vedic gods in the RV!)
- **No signs of rapid evolution** typical of true early scripts.
- **Frequent ritual uses of symbols.**
- **Both systems disappeared quickly** in periods of social upheavals — which is not typical except in rare cases of true writing.



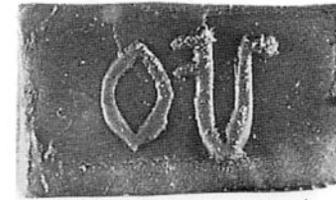
A familiar Indus symbol cluster (detail from M-314a): floppy tree/perky tree



Incised steatite seal, Harappa Project H99-3819

The Only ‘Evidence’ Ever Offered That Indus Signs Are ‘Writing’ Revolves Around the Relative Positional Stability of High-Frequency Signs — Supposed Indications of ‘Suffixes,’ ‘Diacritics,’ and ‘Grammatical Markers,’ etc.

In the late 1960s, grand claims were made by the Finns and Soviets that the Harappan ‘code was cracked’ by computer analysis. The fact that many signs show up fairly often at the end of inscriptions (well known since Hunter 1929) was claimed as novel evidence that ‘the language’ of the ‘script’ was a suffixing language like early Dravidian. Parpola and the Finns claimed the most common sign in the corpus — shown here at the far left of these inscriptions — as a genitive suffix (Parpola et al. 1969, Parpola 1994, etc.)



H-668 a



M-18
(flipped to
mimic the
way it
would look
as a seal
impression)

Obvious exceptions to placement of the sign, like those shown above, were ignored or rationalized as examples of special logographic uses of the symbol or uses of it as a ‘word divider,’ etc.

But Statistical Regularity in Sign Position is Characteristic of Nearly All Symbol Systems— Not Just Writing Systems



‘Proof’ that the ‘mysterious undeciphered American script’ (read right to left) belongs to a suffixing language like ancient Dravidian?



The holiest American sign? Foreigners are routinely sacrificed to this sign — just as humans were apparently sacrificed in Harappa in front of holy trees.

Low-frequency sign of the ‘undeciphered American script’

We don't know enough about the symbols to help us 'read' Indus signs. But we can learn a lot from nonlinguistic symbols in Mesopotamia, which existed alongside true 'writing' for millennia

On right: Stele with a nonlinguistic inscription at the entrance to the temple of Ninurta at Nimrud.

Ashurnasirpal II, 883-59 BCE

Note the five-symbol nonlinguistic inscription on the stele (a bit longer than the average Indus inscription). Symbols are also found around the king's neck, on his wrist, and possibly even in his beard curls!

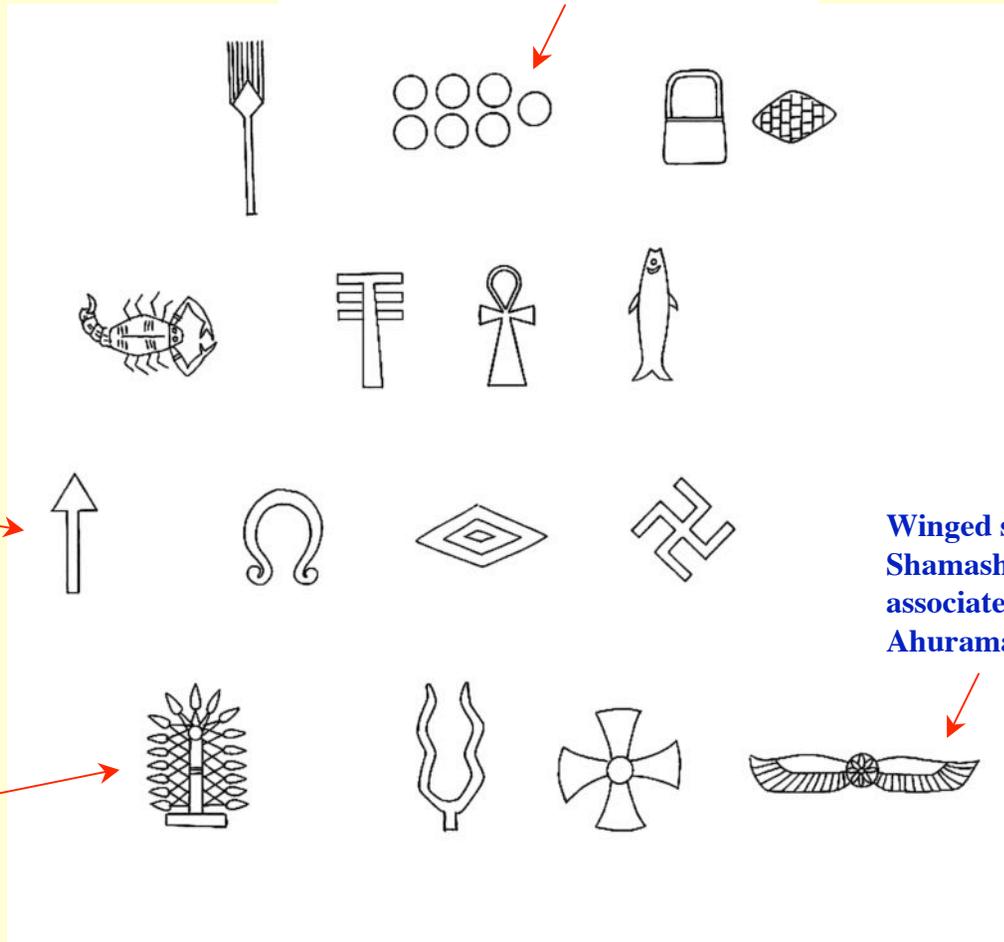
Much longer symbol chains of this type also exist — some much longer than the longest Indus inscriptions.



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.

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



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

Stylized Mesopotamian tree

Winged sun disk of Shamash (later, associated with Ahuramazda)

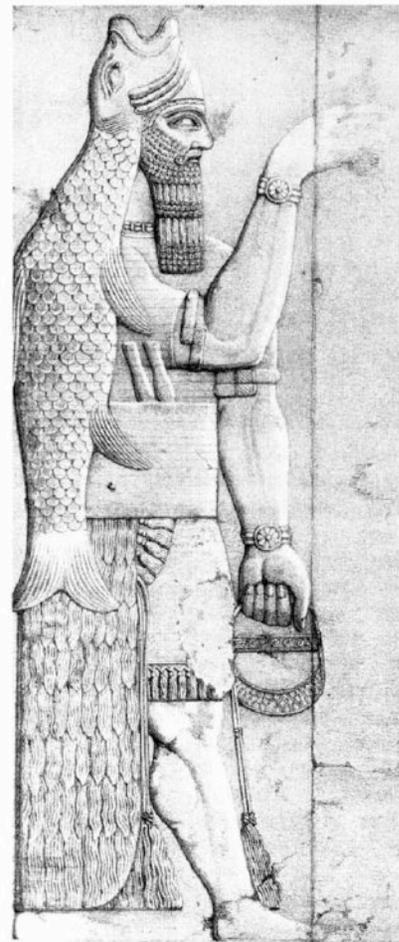
After Black and Green 1992

The 'Multivocality' of Nonlinguistic Symbols

Another thing we can learn from Mesopotamian emblem symbols is that Indus signs probably had far more 'plastic' and multileveled senses than we expect from linguistic signs: Victor Turner referred to this (in Africa) in the 60s as the 'multivocality' of symbolic 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 as fish!)
- 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



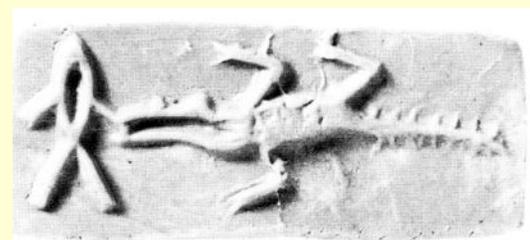
Ea (Enki) with fish
(Akkadian)

(after Black & Green 1992)

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.

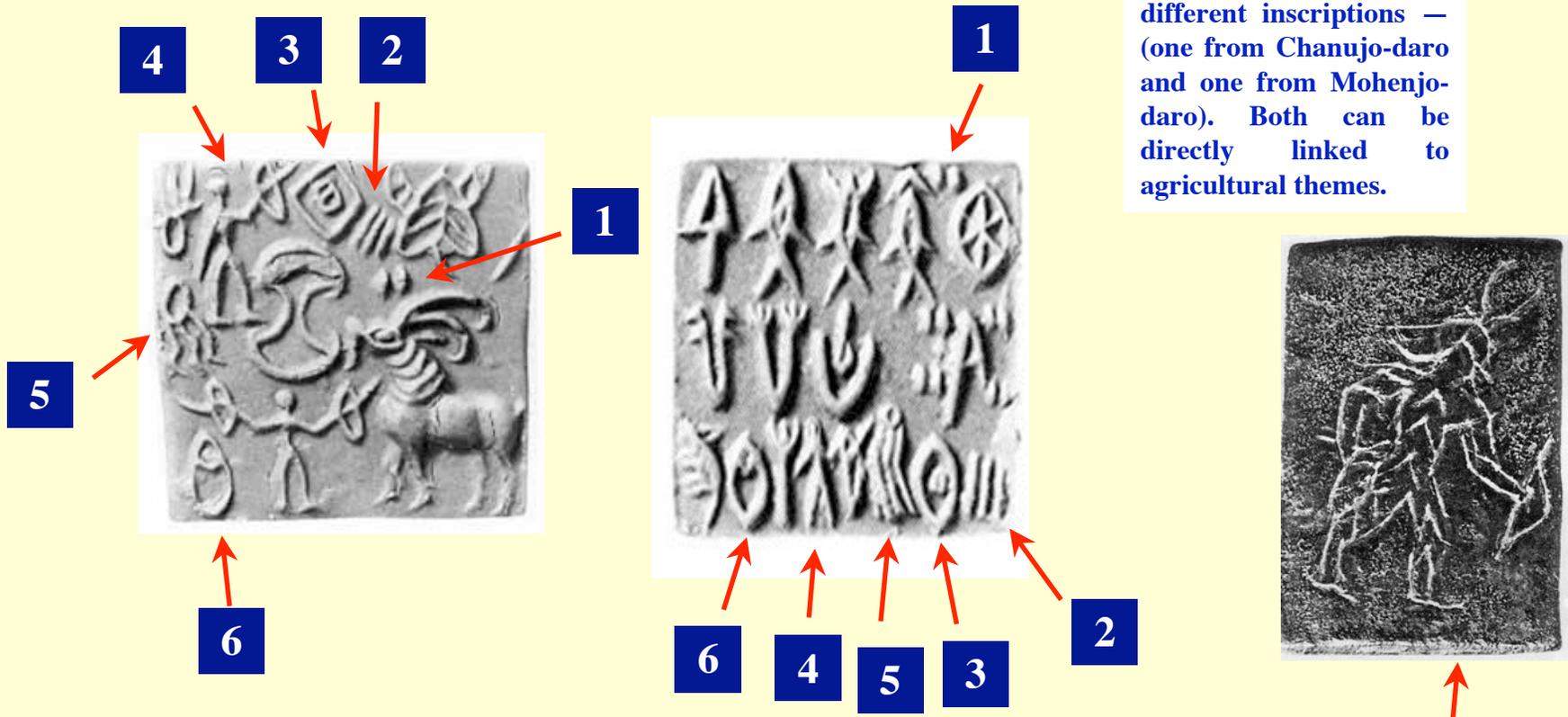


Indus Signs are Related to Distant *and* Close Neighbors

So long as Indus signs were viewed as part of a largely phonetic 'script,' it was natural for the concordances to focus on studying contiguous signs in the hope of guessing sound combinations.

Once we recognize these signs were nonlinguistic, it makes sense to study much broader family relationships between signs — not just contiguous pairs.

Six non-contiguous signs connect these two very different inscriptions — (one from Chanujo-daro and one from Mohenjo-daro). Both can be directly linked to agricultural themes.



#4 = The Jolly Green Giant?
See Marshall 1931, 1: 222

4

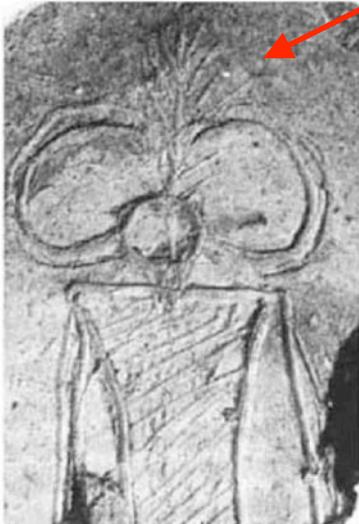
Shamanism and Indus Symbols

Why were Indus symbols abandoned near the start of the 2nd millennium BCE — despite the fact that Indus cities survived? The answer may be obvious, tied to the fact that the symbols weren't part of a neutral literate technology, but were intimately tied to a specific religious-political ideology.

Shamanic 'tree antennae' to the Indus symbol world?



Arizona rock drawing of shamans connected by 'power lines' (Patterson 1992)



Arizona rock drawing of a shaman (Patterson 1992)



‘Mr. Symbol Head’!

One side of a magnificent two-sided molded terra cotta seal found in 1995 in Harappa (object H95-2485 reverse). To be published in Vol. 3 of the *Corpus of Indus Seals and Inscriptions*.

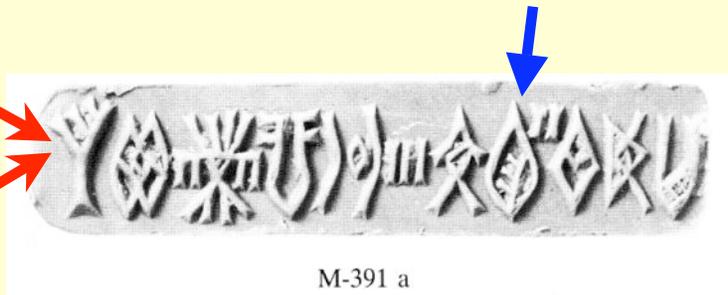
Photo courtesy of Richard Meadow, Harappa Project.



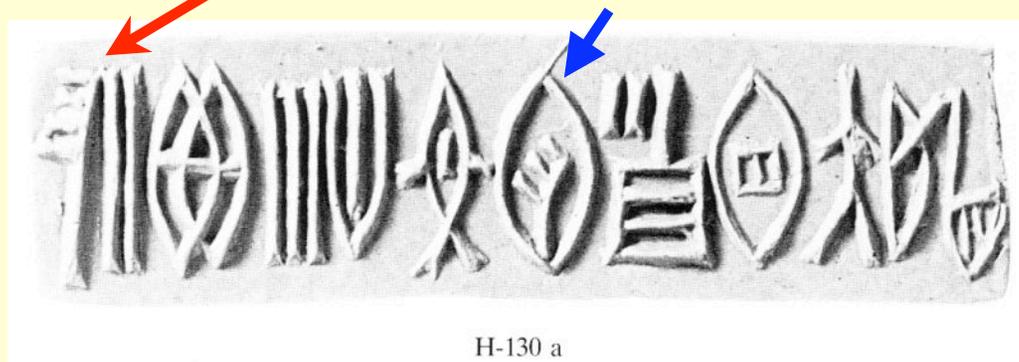
**Mr. Symbol Head? Or
Mr. Grammaticalmarker Head?**

The plant/tree symbol on the head of this god (or priestly god imitator) is found often in late inscriptions like the bar inscriptions shown below. In over half of the cases, the sign shows up on the far left-hand side of the symbol chain (red arrows).

It was this kind of repeating pattern that led earlier scholars, starting with Hunter 1929, to declare symbols like this ‘grammatical suffixes,’ or something similar. Linguistic interpretations like this are rendered improbable by the frequent isolated uses of these symbols.



M-391 a



H-130 a

Blue arrows — sprout-like ‘anticipations’ of the plant/tree sign, which shows up further left. This kind of seed/sprout → plant progression is a common theme in scores of similarly structured inscriptions.

It is interesting to note, moving right to left, that sequences like this always go from ‘sprout’ to ‘plant’ — never the reverse. There is a symbolic progression here, but the syntax certainly isn’t linguistic.

Those Sprout-Plant Sequences in Late Inscriptions Aren't Isolated Cases

The longest inscription known from the city of Harappa — 13 symbols long. Object H99-3819, from the 1999 season.

Photo courtesy of Richard Meadow, Harappa Project.



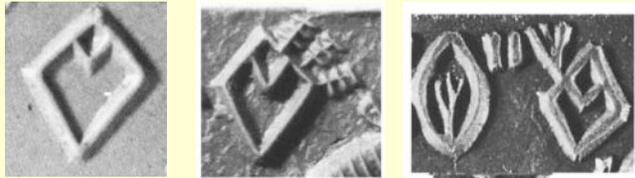
Photo of seal flipped horizontally to mimic the direction of a seal impression

If I Had Two Hours: Wish Lecture #1

Symbols in Bloom: The Origins of Indus Signs



The earliest known precursor of Indus signs, dated by Meadow & Kenoyer to c. 3300 BCE. Typical of much so-called 'graffiti,' little of which looks evens faintly linguistic. Source: harappa.com



The most common initial sign and a few of its blooming variants



Tree sign in bloom

Tail/Tree symbol in bloom!



Mother Earth giving birth to a tree, apparently.



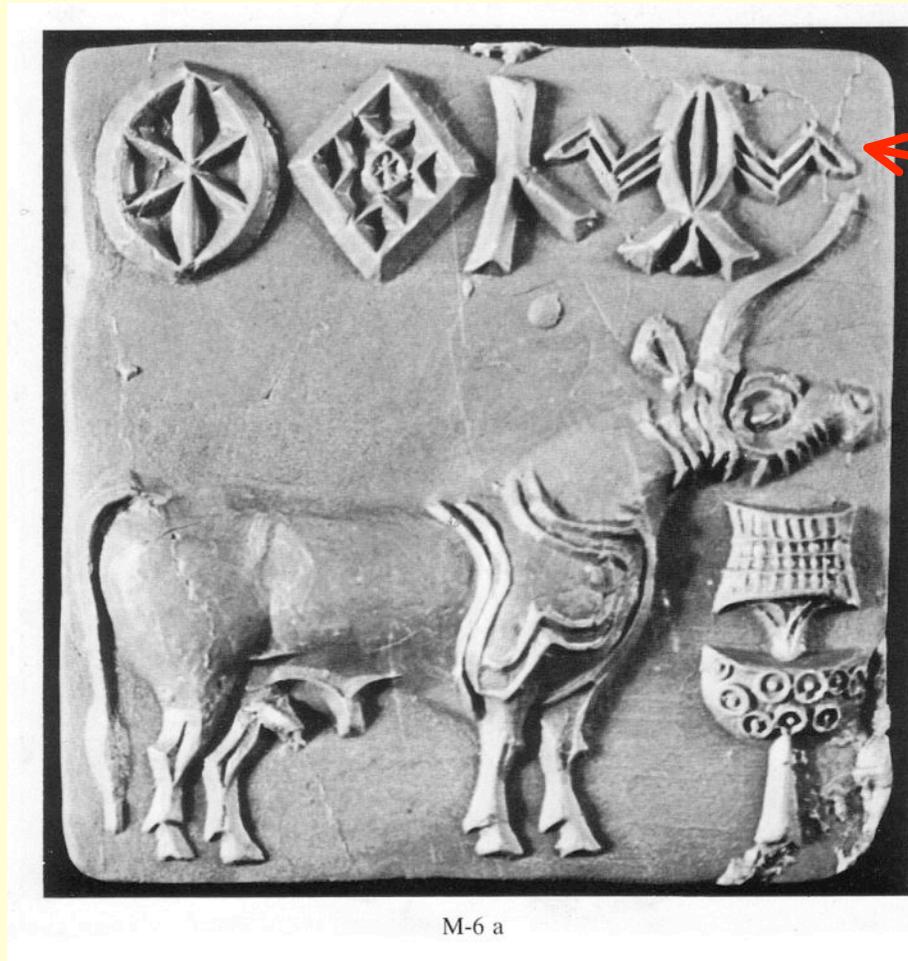
The recurrent limp tree/perky tree motif: an early Indus yin/yang-type dichotomy?



'The Three' in bloom

If I Had Two Hours: Wish Lecture #2

Urban and Imperial Transformations of Indus Signs and Inscriptions



Only four cases are known of this majestic bird-like symbol. Three show up on oversized high-quality seals — found both at Harappa and Mohenjo-daro in the late-mature Harappan period (Harappa 3C).

Not ‘writing,’ surely, but presumably political heraldry. A number of other low-frequency symbols can be identified of this type — many on large high-quality seals.

If I Had Two Hours: Wish Lecture #3

Human Sacrifice Under the Tree?



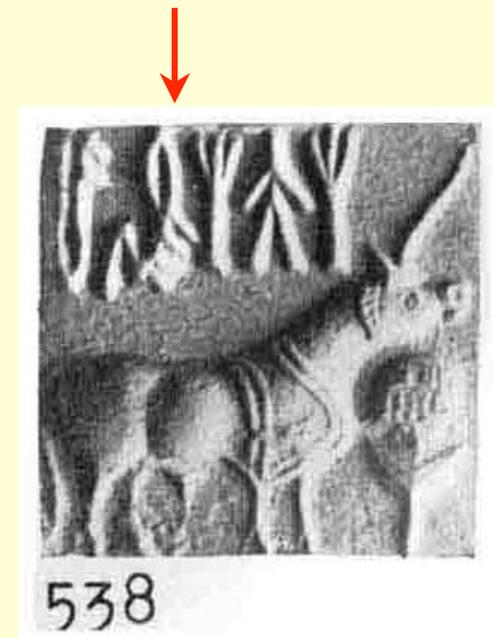
H2002 - 5395, flipped horizontally.
Courtesy of Richard Meadow.



Egyptian
determinative
for enemy,
foreigner



Mahadevan 1998 invokes multiple Dravidian puns to turn this sign into the ancient Tamil god Murukan. For obvious reasons I disagree, but we at least agree it is probably an anthropomorph (Parpola turns it into a cobra). But what is it? The archaeologists are encouraged to dig, dig, dig until a less stylized version of this key figure makes its meaning clearer.



Conclusions and Challenges

- ***Importance of Indus inscriptions.*** The fun *starts* when the so-called Indus script *ends*. We know lots about literate societies, but much less of premodern societies that rejected writing for other types of symbolism. Indus inscriptions allow us to study what was apparently the most complex society of this type in depth.
- ***Shifting symbol frequencies.*** Far from being simple artifacts of sound encoding, shifts in Indus symbol frequencies over time and space provide powerful clues to the evolution of Indus society — since these variations were apparently correlated with religious and political developments.
- ***Evidence of the multilinguistic nature of the Indus Valley.*** The fact that Indus symbols were not linguistic can be used to support recent claims (Witzel 1999) that the vast territories inhabited by the Harappans were probably intensely multilinguistic, just as they are today. It is possible that this gave nonlinguistic symbols an evolutionary advantage over language-based symbols as a means of assuring political-religious cohesion (cf. the Vin a, Inca, Mixtec, etc.).
- ***Harappan writing blockade?*** The nonlinguistic model suggests that the lack of cuneiform inscriptions in the Indus Valley (e.g., Possehl 2002) — as sharply opposed to many finds of Indus inscriptions in Mesopotamia — may have reflected conscious policy on the part of Indus elites. Compare here the resistance of Brahmins to writing in NW India in the Persian period, and similar rejections of literacy by religious elites elsewhere (e.g., the Celts in Western Europe).
- ***'Path dependencies' and the 'Indus Script' hypothesis.*** The fact that the 'Indus script' thesis has gone unchallenged since the 1870s provides a good example of 'path dependencies' and 'historical lock-in' in historical studies (cf. Farmer, Henderson, and Witzel 2002). The odd marriage of political and scholarly interests that has kept the thesis alive so long is itself a worthy object for study (article forthcoming).
- ***Challenge to 'Indus script' claimants.*** At a minimum, no one should be allowed to argue unchallenged from this point that the Harappans were literate. If evidence for that exists, it is time after 130 years to demand proof — including point-by-point answers to the counterevidence raised against that claim.

A Summary of a Few Arguments for an Illiterate Harappa

- 1. Inscriptions way too short for ‘writing’;**
- 2. All expected markers of the use of perishable writing are missing;**
- 3. Lots of cases of ‘dubious’ writing: too many sign symmetries, too many transparent cases of pictorial or mythological narratives, etc.;**
- 4. The combination of an anomalous predominance of high-frequency signs with extremely low levels of symbol repetition is not compatible with any known writing system (not even Chinese-style scripts);**
- 5. Sproat’s ‘smoking gun’: the percentage of ‘singletons’ and very low-frequency signs is going up, not down, over time — something that is inconsistent with any known writing system;**
- 6. Obvious parallels with a wide range of nonlinguistic symbol systems;**
- 7. Many old Indus puzzles solved effortlessly by the model — e.g., the existence of many Indus inscriptions in Mesopotamia but no Mesopotamian inscriptions in the Indus Valley; the rapid disappearance of the system even while cities flourished; etc.**

For these slides and associated papers, go to <http://www.safarmer.com/downloads>

A Few Supplementary Slides Follow

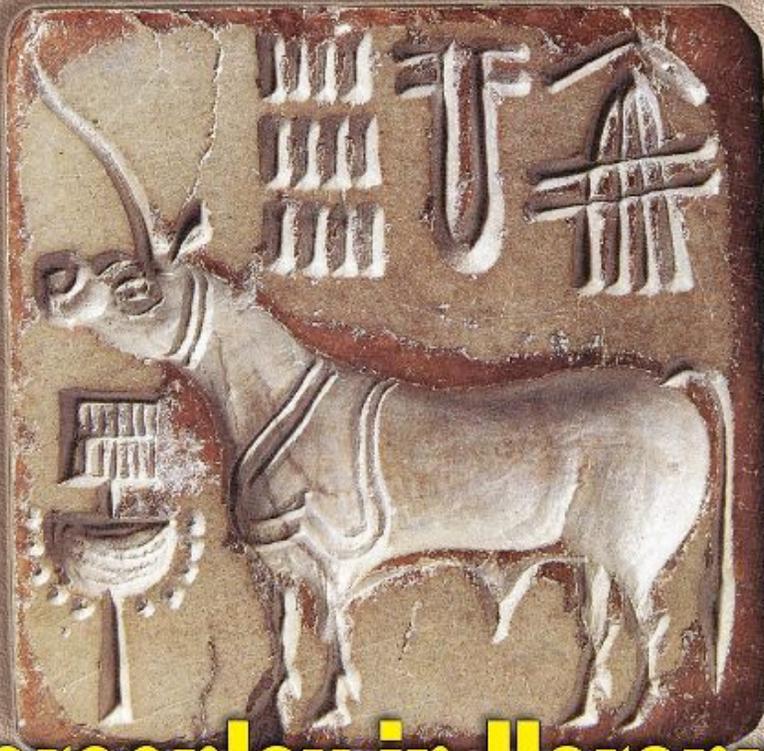
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SPECIAL FEATURE
E-COMMERCE



Horseplay in Harappa

In the 'Pitdown horse' hoax, Hindutva propagandists
make a little Sanskrit go a long way

Cover of 'Horseplay in Harappa' by
Witzel and Farmer (2000). For the
original article and associated texts, go
to <http://www.safarmer.com/downloads>



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 = pagh/phag

O + ' + ^ + A = 

Also  = phaga/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 *supra*) 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.