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The Indus 'non-script' is a non-issue

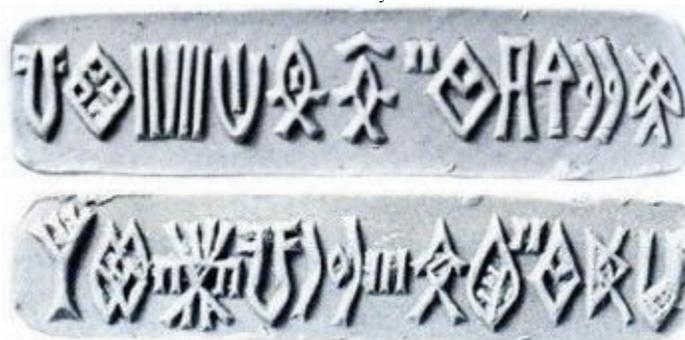
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There is solid archaeological and linguistic evidence to show that the Indus script is a writing system encoding the language of the region (most probably Dravidian). To deny the very existence of the script is not the way towards further progress.

The Indus script appears to consist mostly of word-signs. Such a script will necessarily have a lesser number of characters and repetitions than a syllabic script.



Photo Courtesy: ASI



A Riddle still: Indus seals with long inscriptions.

Is the Indus Script ‘writing’?

“There is zero chance that the Indus valley is literate. Zero,” says Steve Farmer, an independent scholar in Palo Alto, California. “As they say, garbage in, garbage out,” says Michael Witzel of the Harvard University. These quotations from an online news item (*New Scientist*, April 23, 2009) are representative of what passes for academic debate in sections of the Western media over a serious research paper by Indian scientists published recently in the USA (*Science*, April 24, 2009).

The Indian teams are from the Tata Institute of Fundamental Research, Mumbai, the Institute of Mathematical Sciences, and the Indus Research Centre of the Roja Muthiah Research Library (both at Chennai), and backed by a team from the University of Washington at Seattle. They have proposed in their paper, resulting from more than two years of sustained research, that there is credible scientific evidence to show that the Indus script is a system of writing which encodes a language (as briefly reported in *The Hindu*, April 27, 2009).

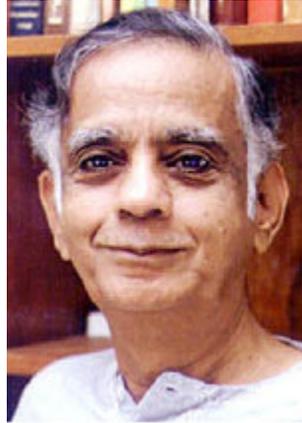
This is a sober and understated conclusion presented in a refereed article published by an important scientific journal. The provocative comments by Farmer and Witzel will surprise only those not familiar with the consistently aggressive style adopted by them on this question, especially by Farmer. Their first paper, written jointly with Richard Sproat of Oregon Health and Sciences University, Portland, has the sensational title, “The collapse of the Indus script thesis: the myth of a literate Harappan civilization” (*Electronic Journal of Vedic Studies* 11: 2, 2004).

The “collapse of the Indus script thesis” has already drawn many responses, including the well-argued and measured rebuttal by the eminent Indus script expert, Asko Parpola, “Is the Indus script indeed not a writing system?” (*Airavati* 2008), and a hilarious and intentionally sarcastic rejoinder (mimicking the style of the “collapse” paper) by Massimo Vidale (“The collapse melts down”, *East and West* 2007). Here is a sampling from the latter: “Should we be surprised by this announced ‘collapse’? From the first noun in the title of their paper, Farmer, Sproat and Witzel are eager to communicate to us that previous and current views on the Indus script are naïve and completely wrong, and that after 130 years of illusion, through their paper, we may finally see the truth behind the dark curtains of a dangerous scientific myth.”

I am one of the co-authors of the *Science* paper. But my contribution is limited to making available to my colleagues the electronic database file compiled by me in collaboration with the computer scientists at the Tata Institute of Fundamental Research, and partly published in my book *The Indus Script: Texts, Concordance and Tables* (1977). I have no background in computational linguistics. However, I have closely studied the Indus script for over four decades and I am quite familiar with its structure. The following comments are based on my personal research and may not necessarily reflect the views of the other co-authors of the *Science* paper.

In a nutshell, my view is that there is solid archaeological and linguistic evidence to show that the Indus script is a writing system encoding the language of the region (most probably Dravidian).

Archaeological evidence



Path-breaking work: Iravatham Mahadevan.

The strongest argument against the new-fangled theory that the Indus script is not writing is provided by the sheer size and sophistication of the Indus civilisation. Consider these facts:

- The Indus was by far the largest civilisation of the ancient world during the Bronze Age (roughly 3000 – 1500 BCE). It extended all the way from Shortugai in North Afghanistan to Daimabad in South India, and from Sutkagen Dor on the Pak-Iran border to Hulas in Uttar Pradesh — altogether more than a million sq km in area, very much larger than the contemporary West Asian and Egyptian civilisations put together.
- The Indus civilisation was mainly urban, with many large and well-built cities sustained by the surplus agricultural production of the surrounding countryside. The Indus cities were not only well-built but also very well administered with enviable arrangements for water supply and sanitation (lacking even now in many Indian towns).
- There was extensive and well-regulated trade employing precisely shaped and remarkably accurate weights. The beautifully carved seals were in use (as in all other literate societies) for personal identification, administrative purposes, and trading. Scores of burnt clay sealings with seal-impressions were found in the port city of Lothal in Gujarat attesting to the use of seals to mark the goods exported from there. Indus seals and clay-tag sealings have been found in North and West Asian sites, where they must have reached in the course of trading.

This archaeological evidence makes it inconceivable that such a large, well-administered, and sophisticated trading society could have functioned without effective long-distance communication, which could have been provided only by writing. And there is absolutely no reason to presume otherwise, considering that thousands of objects, including seals, sealings, copper tablets, and pottery bear inscriptions in the same script throughout the Indus region. The

script may not have been deciphered; but that is no valid reason to deny its very existence, ignoring the archaeological evidence.

Another important pointer to the literacy of the Indus civilisation is that it was in close trading and cultural contacts with other contemporary literate societies like the Proto-Elamite to the North and the Sumerian-Akkadian city states (and probably the Egyptian kingdom) to the West. It is again inconceivable that a civilisation as urban and well-organised as the Indus could not have been alive to the importance of writing practised in the neighbouring literate cultures and was content with “non-linguistic” symbols of very limited utility like those employed by pre-historic hunter-gathering or tribal societies.

Linguistic evidence

While denying the status of a writing system to the Indus script, Farmer, Sproat and Witzel point to the extreme brevity of the texts (averaging less than five signs) and the presence of numerous “singletons” (signs with only one occurrence). Seal-texts tend to be short universally. Further, the Indus script appears to consist mostly of word-signs. Such a script will necessarily have a lesser number of characters and repetitions than a syllabic script. Thus the proper comparison should be with the number of words in later Indian seals or cave inscriptions. The average number of words in these cases matches the average number of signs in an Indus text. There are, however, many seal-texts that are much longer than the average. (See illustrations of longer Indus texts). As for singletons, they appear to be mostly composite or modified signs derived from basic signs, apparently meant only for restricted or special usage. An apt parallel would be the difference in frequencies between basic and conjunct consonants in the Brahmi script.

The concordances

Photo Courtesy: UNESCO



A file photo of The Great Bath at Mohenjo-daro.

Three major concordances of the Indus texts have been published: a manually compiled edition by Hunter (1934), and two computer-made editions, one by the Finnish team led by Asko Parpola (1973, 1982) and the other by the Indian scholar, Iravatham Mahadevan (1977). All the three concordances provide definitive editions of the texts, sign lists, and lists of sign variants. The Mahadevan Concordance also provides in addition various statistical tabulations for textual analysis as well as for relating the texts to their archaeological context (sites, types of inscribed

objects, and pictorial motifs accompanying the inscriptions).

The concordance is a basic and indispensable tool for research in the Indus script. It is a complete index of sign occurrences in the texts. It also sets out the full textual context of each sign occurrence. The frequency and positional distribution of each sign and sign combination can be readily ascertained from the concordance. A study of near-identical sequences leads to segmentation of texts into words and phrases. Doubtful signs can be read with a fair amount of confidence by a comparative study of identical sequences. Sign variants can be recognised to a large extent by studying the textual environment.

It is the concordance which conclusively established the direction of the Indus script to be from right to left on seal-impressions and direct writing (naturally reversed on the seals). The concordance also reveals the broad syntactical features of the texts, like the most frequent opening and terminal signs, as well as pairs and triplets of signs in the middle representing important names, titles etc. Numerals have been identified. As they precede the enumerated objects, we know that adjectives precede the nouns they qualify. This is an important result ruling out, for example, Sumerian or Akkadian as candidate languages. According to competent and objective scholars like Kamil Zvelebil and Gregory Possehl, the concordances are the most tangible outcome of the prolonged research on the Indus script.

The concordances have been criticised for employing “normalised” signs that are sometimes different from what are actually found in individual inscriptions. The differences are as between a handwritten manuscript and the printed book. All the three concordances employ normalised signs, as there is no other possible way of presenting hundreds of inscriptions and thousands of sign-occurrences in a compact and logical arrangement for analytical study. The concordances have also been faulted for differences in readings. The criticism overlooks the fact that the Indus script is still undeciphered and such differences are unavoidable, especially in reading badly preserved texts or in deciding which are independent signs and which are mere graphic variants.

The serious student of the Indus script will consult the concordances, but refer to the sources for confirmation. Statistically speaking, differences (or even errors in coding) in the concordances are marginal and have not affected the interpretation of the main features of the texts.

This was confirmed by an interesting study published recently by Mayank Vahia *et al* of the Tata Institute of Fundamental Research (*International Journal of Dravidian Linguistics*, 37:1, 2008). They removed all the doubtfully read signs (marked by asterisks) and multiple lines (with indeterminate order) from the Mahadevan Concordance and analysed the rest, a little less than half of the total sign-occurrences. They found that the statistically established percentages of frequencies and distribution of signs and segmentations of texts remained constant, attesting to the essential correctness of compilation of the full concordance.

The Dravidian hypothesis

There is archaeological and linguistic evidence to support the view that the Indus civilisation is non-Aryan and pre-Aryan:

- The Indus civilisation was urban, while the Vedic was rural and pastoral.
- The Indus seals depict many animals, but not the horse. The chariot with the spoked wheels is also not depicted. The horse and chariot with the spoked wheels are the main features of Aryan-speaking societies. (For the best and most recent account, refer to David W. Anthony, *The Horse, the Wheel and Language*, Princeton, 2007).
- The Indus religion as revealed in the pictorial depictions on the seals included worship of buffalo-horned male gods, mother-goddesses, the *pipal* tree, the serpent, and probably the phallic symbol. Such modes of worship are alien to the religion of the *Rigveda*.

Ruling out Aryan authorship of the Indus civilisation does not automatically make it Dravidian. However, there is substantial linguistic evidence favouring the Dravidian theory:

- The survival of Brahui, a Dravidian language in the Indus region.
- The presence of Dravidian loanwords in the *Rigveda*.
- The substratum influence of Dravidian on the Prakrit dialects.
- Computer analysis of the Indus texts revealing that the language had only suffixes (like Dravidian), and no prefixes (as in Indo-Aryan) or infixes (as in Munda).

It is significant that all the three concordance-makers (Hunter, Parpola, and Mahadevan) point to Dravidian as the most likely language of the Indus texts. The Dravidian hypothesis has also been supported by other scholars like the Russian team headed by Yuri Valentinovich Knorozov and by the American archaeologist, Walter Fairervis, all of whom have utilised the information available from the concordances. However, as the Dravidian models of decipherment have still little in common except the basic features summarised above, it is obvious that much more work remains to be done before a generally acceptable solution emerges.

I am hopeful that with an increasing number of Indus texts, and better and more sophisticated archaeological and linguistic methods, the riddle of the Indus script will be solved one day. What is required is perseverance, recognising the advances already made, and proceeding further. To deny the very existence of the Indus script is not the way towards further progress.

*Iravatham Mahadevan is a well-known authority on the Indus and Brahmi scripts. He is the author of *The Indus Script: Texts, Concordance and Tables* (1977) and *Early Tamil Epigraphy* (2003).*