

'An Encyclopaedia of The Indus Script'

Iravatham Mahadevan

DECIPHERING THE INDUS SCRIPT

By Asko Parpola

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Asko Parpola needs no introduction to those interested in the problems of the Indus script. A specialist in Vedic philology, he turned his attention at an early stage in his career to the decipherment of the Indus script and has, along with his Finnish colleagues, made immensely valuable contributions to his chosen field over the last three decades. Although he is associated with the Dravidianist school of decipherment, his contributions to the documentation and theoretical studies of the Indus script transcend linguistic boundaries. Of the earlier books co-authored by Parpola, special mention must be made here of the *Corpus of Texts in the Indus Script* (1979), *A Concordance to the Texts in the Indus Script* (1982), and the magnificently produced photo albums, *Corpus of Indus Seals and Inscriptions*, two volumes of which have so far been published (1987, 1991) with assistance from UNESCO and cooperation of the Archaeological Departments of India and Pakistan. These books have already established themselves as the standard reference works and indispensable tools for further research on the Indus script.

Parpola's latest book covers a much wider area than what its title indicates. The volume commences with a brief survey of the Indus Civilization in its historical context and an illuminating account of the writing systems of the ancient world and the methods devised to decipher them. Then follows a very detailed study of the theoretical aspects of the Indus script including a structural analysis of the texts, a typological analysis of their linguistic features and the methodology of decipherment. While arguing that the Indus Civilization is pre-Aryan and non-Aryan, Parpola presents an altogether new and fascinating theory about the Aryan immigration into the Indian sub-continent. Next he sets out in detail the evidence for believing that the Harappans were Dravidian speakers. In the last part of the work Parpola presents his readings and interpretations of selected Indus signs together with a detailed description of the astral religion of the Harappan culture revealed, according to him, by the inscriptions.

Rise and fall of the Indus Civilization

Recent archaeological evidence especially from Mehrgarh has established that the Indus Civilization was essentially an

indigenous development growing out of local cultures in an unbroken sequence from the Neolithic at the end of the eighth millennium BC, through the Chalcolithic (about 5000-3600 BC) and Early Harappan (about 3600-2600 BC) to the commencement of the Mature Harappan period in about 2550 BC.

The Indus civilization began with some major developments like the introduction of writing and a surprisingly uniform culture over the whole of the greater Indus valley. According to Parpola this development was due to increased maritime trade and closer cultural contacts with Mesopotamia and the Gulf region. There is now general agreement that Meluhha mentioned in the cuneiform inscriptions refers to the land of the Indus. Parpola lays stress on the importance of Harappan contacts with West Asia, which provide relevant parallels and potential sources of information on the Harappan culture.

The Indus Civilization flourished between about 2600 and 1800 BC when it collapsed into regional cultures at the Late Harappan stage. According to Parpola the collapse was due to a combination of several factors like over-exploitation of the environment, drastic changes in the river-courses, series of floods, water-logging and increased salinity of the irrigated lands. Finally the weakened cities would have become easy victims of the raiders from Central Asia, whose arrival heralded a major cultural discontinuity in South Asia.

The coming of the Aryans

Parpola proposes a new theory about when, from where and how the Aryans came into the Indian sub-continent and the identity of the Dasas (Dasyus) who were their traditional enemies. According to this theory, the Rigvedic Aryans were preceded by another wave of Indo-European-speaking invaders who called themselves the Dasas and who penetrated further to the east than did the Rigvedic Aryans.

The new theory is based on textual-linguistic re-interpretation of the Vedic evidence in the light of the recent remarkable discoveries made by Soviet archaeologists of a previously unknown Bronze Age civilization in Bactria (North Afghanistan) and Margiana (in Turkmenistan). The Bactria-Margiana Archaeological Complex (BMAC) had two distinct cul-

tural periods, the first between 1900 and 1700 BC and the second between 1700 and 1500 BC.

According to Parpola a small wave of Aryan-speaking nomads from the northern steppes arrived in this region in BMAC I period and adopted the local non-Aryan culture while retaining their own Aryan language. Parpola identifies their name as Dasa from Old Persian inscriptions and Greek and Latin sources. The presence of the horse and evidence for the practice of chariot warfare by the ruling elite appearing at this time in Bactria confirm the Indo-European origin of the Dasas. The fortified palace at Dashly-3 with three concentric circular walls belonging to this period is identified by Parpola typologically as *Tripura*, 'triple fort' of the Dasas in Vedic mythology.

Parpola suggests that the Dasa-Aryans from BMAC arrived in South Asia via Baluchistan during the time of the Late Harappan cultures, as evidenced by the typically BMAC graves and cenotaphs at Mehrgarh and other sites on the Kachi plain near the Bolan Pass. According to him these early 'Indian Dasas' are likely to have become the ruling elite in the Late Harappan cultures: the Cemetery-H culture of the Punjab, the Jhukar culture of Sind, and the Ochre coloured Pottery culture of the Ganga-Yamuna Doab.

Parpola also proposes that a second wave of Indo-European speakers from the northern steppes swept over the Bactria-Margiana region in about 1700 BC. Evidence for this comes from the distinct break between the cultures of BMAC I and II at this time. Parpola identifies the newcomers as 'Sauma-Aryans' from their ritual of Soma drinking which the 'Dasa-Aryans' did not practice. Evidence for *Ephedra* (identified as the Soma plant) has been discovered in the residues of liquid in ritual vessels found in the temple-forts of Togolok-21 and Gonur-I in Margiana dating from the BMAC II phase.

The Sauma-Aryans too would have largely adopted the local culture, but also transforming the cult of the Asura-worshipping Dasas into the Deva-worshipping cult involving the Soma ritual. After the fusion of the two peoples, one group of the unified Proto-Indo-Aryans migrated eastwards into the Swat valley founding the Proto-Rigvedic culture.

Parpola's new hypothesis will have to be examined in detail by specialists in South Asian history and Indo-European

linguistics. So far as the Indus Civilization is concerned the main implication of the new theory seems to be that the Aryan-Dasa conflict recorded in the earliest portions of the *Rigveda* is the story of hostilities and eventual fusion of two Aryan tribes, which took place before their entry into the Indian sub-continent and has thus no relevance to the demise of the mature phase of the Indus Civilization.

The horse argument

It has often been pointed out that the complete absence of the horse among the animals so prominently featured on the Indus seals is good evidence for the non-Aryan character of the Indus Civilization. Parpola quotes from a fairly up-to-date and authoritative report by Richard Meadow that there is as yet no convincing evidence for horse remains from archaeological sites in south Asia before the end of the second millennium BC. Many claims have been made, but few have been documented for independent verification. The wild relatives of the horse and donkey are not native to South Asia, and the domesticated animals were brought into the region from the west and north.

Parpola points out why the 'horse argument' is so central to the issue. The Proto-Aryan words for the horse and the various technical terms associated with the war chariot can all be solidly reconstructed to Proto-Indo-European. This is good linguistic evidence that the Vedic horse and chariotry are firmly rooted in the Proto-Indo-European heritage. The evidence strongly suggests that the Indus culture was non-Aryan.

The Dravidian hypothesis

The survival of Brahui, a Dravidian language, spoken even today by large numbers of people in Baluchistan and the adjoining areas in Afghanistan and Iran, is an important factor in the identification of the Indus Civilization as Dravidian. Brahui belongs linguistically to the North Dravidian group with several shared innovations with Kurukh and Malto; no dialectal features connect it with the South or Central Dravidian languages. Hence Parpola concludes that Brahui represents the remnants of the Dravidian language spoken in the area by the descendants of the Harappan population.

The pervasive substratum influence of Dravidian on Old Indo-Aryan is also an important clue to the presence of Dravidian in the northwestern region from the earliest times. The presence of a few Dravidian loan-words in the *Rigveda* is now well recognised. The *Rigveda* has also phonological and syntactical features borrowed from Dravidian. Among the features listed by Parpola are the retroflex sounds, gerund, quotative and onomatopoeic constructions. The Prakrit dialects too underwent a radical simplification of the Indo-Aryan syllabic structure through assimilation of consonants and intrusive vowels, features which are best explained, as Parpola points out, as adjustment to

the phonology of a Dravidian substratum.

Survival of place-names is generally a good indicator of the linguistic pre-history of a region. Parpola points out several place-names in the northwestern region like *nagara, palli, pattana and kotta* with good Dravidian etymologies. I am not however convinced by his attempt to derive Meluhha (the name of the land of the Indus in the cuneiform texts) from Dravidian **mā-akam*, 'High country', not actually attested, as Parpola himself points out, in any of the Dravidian languages.

Parpola also points out that syntactical analysis of the Indus inscriptions has revealed Dravidian-like typological characteristics, especially the attribute preceding the headword. The cumulative weight of evidence makes Dravidian the most likely language to have been spoken by the Harappans.

The Indus script

The Indus script has about 400 signs and is mainly pictographic in character. However there are also many signs too stylised or simplified to be identified pictorially. Two main characteristics of the script are modification of signs by the addition of diacritic-like marks and combination of two or more signs into composite signs. According to Parpola's estimate, about half the number of signs are basic and the other half are composite. Many of the signs also show minor graphic variants due to different scribal styles or materials on which the inscriptions are recorded.

Parpola's latest and comprehensive Sign List (with 398 signs and no less than 1839 variants) illustrated in this volume (pp. 70-78) will replace all earlier lists to remain as the standard source of reference. Experts may differ whether a given sign is basic or composite or a variant of another sign. However Parpola has now provided the most complete documentation enabling other scholars to draw their own conclusions.

The Indus inscriptions

The Indus inscriptions are found only on small objects, mostly stone seals and on pottery. According to Parpola about 3700 inscriptions are presently known from about forty Harappan and twenty foreign sites. The inscriptions are all extremely brief, averaging not more than about five signs in a text. Parpola believes that longer Indus inscriptions might have been written on palm leaves or cloth which have perished.

No bi-lingual inscription has so far come to light to aid decipherment. The only external clues available are those provided by the archaeological context, the typology of the objects carrying the inscriptions, and the accompanying pictorial motifs. The pictorial motifs are mostly those of animals, especially the so-called unicorn, but also many others including the bull, buffalo, elephant, tiger, rhinoceros, antelope and a few mythi-

cal or composite beasts. There are also some interesting religious or mythological motifs depicting deities and sacrificial scenes.

Earlier attempts at decipherment

Structural studies of the Indus inscriptions have been carried out by a number of scholars ever since the discovery of the Indus Civilization and its writing. The most outstanding work in the earlier period is that of Hunter who provided reliable photocopies of the inscriptions, a manually arranged sign concordance and a detailed positional analysis.

The computer arrived on the scene in the mid-sixties. A Soviet team led by Knorozov published a series of papers entitled *Proto-Indica*, in which they set out briefly the main results of their computer-aided investigations. The Soviet group has made outstanding contributions to formal analysis in areas like direction of writing, word-division and syntactical patterns. In particular they have demonstrated that the Indus inscriptions have a Dravidian-like word order. However the Soviet model of linguistic decipherment of the Indus script has not won general acceptance mainly because of the implausibility of the proposed readings.

Almost simultaneously Asko Parpola and his Finnish colleagues began their independent computer-aided investigations of the Indus texts. The Finnish team also made use of computational linguistic techniques to deal with structural

problems like word division procedures and syntactical analysis. However the earlier Finnish attempt at linguistic decipherment did not also meet with much success. Parpola himself now describes their earlier reports as "written in the first flush of enthusiasm" and "premature and incautious" (p.xv). With rare intellectual courage he has now abandoned the paradigm central to the earlier Finnish model of decipherment and has made a virtually fresh beginning.

The latest attempt to decipher the Indus script, prior to the publication of the present work, has been made by Walter Fairservis, the distinguished American archaeologist with long experience in Harappan excavations. He has manually arranged the Indus sign sequences in a 'grid' to bring out their functional characteristics and syntactical patterns. The analysis is sound; but his model of decipherment based on the Dravidian hypothesis (published in 1992 shortly before his death) has not been taken seriously because of his lack of familiarity with the Dravidian languages and linguistic techniques.

In his brief review of the earlier attempts at decipherment of the Indus script, Parpola takes no notice of the models based on the Indo-Aryan hypothesis, presumably because there is hardly anything in common between them and his own work. However Parpola leaves no one in doubt about what he thinks of the other approach: "Nationalistic bias

makes it difficult for some North Indians to admit even the possibility of the Indus civilization being pre-Aryan; they deny the very concept of Aryan immigration and insist that the Harappan and Vedic cultures are one and the same. So the language chosen has usually been Sanskrit" (p.58). I agree with Parpola about the existence of 'nationalistic bias', but would like to remind him that S.R. Rao and Krishna Rao, leading proponents of the Indo-Aryan theory, can hardly be called 'North Indian'!

Structural analysis by Parpola

No attempt at linguistic decipherment of an unknown script can hope to succeed unless it is preceded by a thorough structural analysis of the available inscriptions to bring out the typological features of the script as well as the underlying language. A great merit of this book is that Parpola has presented in it a very detailed structural analysis incorporating the previous work of the Finnish group and advancing further. The following is a very brief summary of his main results in a somewhat simplified form.

a) **Direction of writing:** Parpola has summarised the already well-established evidence proving the general direction of the Indus script to be from right to left. External evidence for the direction of writing is provided by the shorter inscriptions starting at the right edge leaving blank space nearer the left edge, and the displacement of the left-most signs of

the longer inscriptions to the second line for want of space. Internal evidence for the direction of writing is obtained by comparing single-line and two-line sequences of identical inscriptions.

Even though the question of direction of writing in the Indus script is now a settled fact, Parpola's re-statement is timely as claims of 'decipherment' based on a left to right direction still continue to be made.

b) **Sign analysis:** Parpola lays down clear guidelines for the recognition of basic signs, graphic variants and composite signs. The numerals are identified as a set of short stroke signs comprising upto nine strokes arranged in one or two tiers. Groups of small inverted semi-circles which occur along with the 'stroke' numerals are very likely to be tens.

The estimate of the number of signs as about 400 (with only about half of them basic signs) leads to an important deduction regarding the typology of the Indus script. It is well known that the total number of signs is specific to each type of writing within a range. The number of signs in the Indus script is too small for a purely logo-graphic script (with word-signs only) and too large for a purely alphabetic or syllabic writing. Thus the Indus script is most likely to be logo-syllabic writing with a mixture of word-signs and syllables.

c) **Word-division:** Segmentation procedures lead to the identification of probable words, phrases and longer syntactic

units. Segmentation has shown that the Indus texts mostly consist of phrases of one to three signs.

d) **Language typology:** The very short Indus texts are unlikely to be complete sentences. They may consist of mostly noun-phrases only. Subject to this limitation some typological features of the language can still be detected. For example, the occurrence of numerals before the enumerated objects makes it likely that in the Harappan language the adjective precedes the noun it qualifies. Parpola has devised a 'grid' in which inscriptions are so arranged as to place identical or similar signs in the same columns. On the basis of this analysis Parpola constructs a general model of Indus 'sentences' with a maximum of three main positions or 'slots' corresponding to linguistic units in the language. However he admits frankly his "present inability to identify morphological markers with any certainty" (p. 97).

Parpola's structural analysis is brilliant and mostly on sound lines. I am particularly struck by the fact that despite differences in detail there is a clear convergence of results flowing from the Soviet, Finnish and Indian computer-aided structural analyses. The major points of agreement are on the logo-syllabic character of the Indus script, the syntactical pattern of the inscriptions and the Dravidian-like features of the Harappan language. A major area of disagreement concerns the identity and functions of morphological markers. I have no doubt

that the areas of disagreement will progressively get eliminated as we learn more about the Indus script through objective analysis of the kind undertaken by Parpola in this book.

Parpola's methodology of decipherment

Parpola's methodology for deciphering the Indus script consists essentially of two parts, namely the rebus principle generally applicable to all ancient logo-syllabic scripts and the linguistic technique applicable to Dravidian word-signs (one sign for each word) developed from pictures. It was then discovered that a word-sign could also be used to represent any other word with the same sound but having a different meaning. Such sets of words are known as homophones (as in English *can* (noun), 'a container' and *can* (verb), 'to be able to'). Thus a sign which is pictorially easier to draw can be used to represent another word with the same sound, but the meaning of which cannot be depicted by pictures, as for example, abstract nouns, grammatical particles and proper names. This technique, employed in all ancient logo-syllabic scripts, is known as rebus writing (from Latin *rebus*, 'by means of things').

Parpola is careful to point out that rebus writing can be deciphered only if four conditions are simultaneously fulfilled:

1. The object depicted by the word-sign can be recognised.

- The word-sign has been used phonetically for a homophone with a different meaning.
- The intended meaning can be deduced from the context.
- Linguistically satisfactory homophones can be found in the presumed language.

The last point leads to the second stage of the operation with Dravidian linguistic techniques. According to Parpola the signs of the Indus script are likely to represent Dravidian mono-syllabic roots. In Proto-Dravidian the bare stem could stand for inflected forms. Parpola believes therefore that it may not have been necessary to mark the case-endings in the Indus script. In principle only words and forms reconstructable for Proto-Dravidian are acceptable for the decipherment, and in such reconstruction one must follow strictly the rules established by comparative linguistics. Variations between short and long vowels and single and double consonants may however be allowed subject to Dravidian morpho-phonemic rules.

As a set of rules, Parpola's formulations are unexceptionable. However he does run into problems in applying them in practice, partly because the rules themselves are difficult to apply with precision, and also because he occasionally transgresses his own rules as we shall see presently.

The 'fish' sign: starting point

As the starting point for his linguistic decipherment Parpola accepts the famous rebus (Fig. I.1) first suggested by Father Heras half a century ago. In almost all Dravidian languages the word for 'fish' is *mīn*. Many Dravidian languages have also the homophone *mīn* meaning 'star' (derived, in this case, from the root *min* 'to shine'). It can be reasonably inferred from the widespread occurrence of the homophones that they must have been present in Proto-Dravidian with similar meanings. This is the linguistic basis for reading the 'fish' sign as *mīn*, but interpreting it as 'star'. This interpretation has gained popularity among the Dravidianist scholars on account of its simplicity even though it has remained unverifiable.

'Number + fish' signs: Asterisms

This hypothesis is seemingly corroborated by the occurrence of 'number + fish' sequences (Fig. I.2-4) interpreted as asterisms first by Heras and further elaborated by the Soviet scholars and Parpola. It is interesting to note that the numerical names for the three asterisms are actually attested in Old Tamil. There is however no proof that these interpretations are the only correct ones. There are, in the Indus texts, several sets of 'number + sign' sequences. The interpretation of 'number + fish' signs as asterisms would make this set unique among such sequences.

'Modified fish' signs: Planets and a star
The Indus texts very often feature the

NO.	SIGN	IDENTIFICATION	READING	MEANING
1		fish	<i>mīn</i>	(1) fish (2) star
2		3 + fish	<i>mu(m) mīn</i>	three stars (Mrigasiras)
3		6 + fish	<i>caṛu mīn</i>	six stars (Pleiades)
4		7 + fish	<i>eḷu mīn</i>	seven stars (Ursa Major)

FIG. I: NUMBER + FISH SIGNS

'fish' sign modified by some diacritic-like markings (Fig. II). These signs are identified by Parpola as planets or stars on the basis of his pictorial interpretations of the markings. The Dravidian word *mīn* may denote either 'star' or 'planet' as attested in Old Tamil.

The Planet Mercury

Parpola interprets the line drawn horizontally or obliquely across the body of the 'fish sign (Fig. II. 1) as expressing the idea 'dividing or halving'. He identifies the Proto-Dravidian root **pacu*, 'to halve, divide'. There is an exact homophone **pacu*, 'greenish-yellow'. Hence by rebus the 'halved fish' sign is read as *pacu mīn*, and interpreted as the planet Mercury which is greenish-yellow in colour. The word *paccāi*, 'green (planet)' is one of the names of Mercury in the Old Tamil star lists.

The Planet Saturn

Parpola regards the inverted V-like element above the fish as depicting a 'roof' (Fig. II. 2). He equates it with Dravidian **vāy/māy*, 'to cover a house with thatched roof'. This suggests to him the "partially homophonous" root **māy*, 'black'. Hence the reading *māy mīn*, 'black star,' interpreted as the planet Saturn which is dark in colour. The term *mai(m) mīn*, 'Saturn' is attested in Old Tamil.

The Dravidian words chosen by Parpola in this case are however problematic. The Proto-Dravidian root for 'roof, to thatch' has been reconstructed as **vāy*, not **māy*. Even assuming **vāy/*māy* alternation in Proto-Dravidian, **māy* is not homophonous with **māy*, 'black'. The morpho-phonemic rules regarding alternation of included vowels in Dravidian apply only to cognate forms and cannot be invoked to justify 'partial' homonymy of unrelated etyma.

The Planet Venus

According to Parpola the sign of two long vertical strokes expresses pictorially the idea of 'enclosed, intervening or intermediate space'. He chooses *veḷ* as the equivalent Dravidian word which leads

him to the homophone *veḷ/veḷi*, 'white', 'bright'. The pair of signs 'two strokes + fish' (Fig. II. 3) is then read as *veḷ(i) mīn* meaning the planet Venus. *Veḷi* is still the name for Venus in Tamil.

However the word *veḷ* does not by itself convey the qualified meanings 'enclosed, intervening or intermediate' imported into it by Parpola. The central meaning of *veḷ* is 'open (space), out, outside, exterior, external'. One would have to use some qualifying expression like *iṭai-veḷ* to mean 'intermediate space'. The interpretation of a sign which suggests 'enclosed space' to denote the word for 'open space' seems inapt.

The star Rohini

Parpola starts with the assumption that the 'dot + fish' sign (Fig. II. 4) occurring in the 'Fig Deity' seal is likely to represent the deity depicted on the seal identified by him as the goddess of fertility and victory in war, the Harappan proto-form of Durga. He asks himself which star is most likely to be associated with this goddess and decides, after a good deal of delving into Hindu mythology, that Rohini (Aldebaran) fits the context best. The association of Rohini (the 'red star') with the carp (*rohita*, 'the red fish') becomes the basis for identification of this

sign as the carp also. Finally the mark inside the 'fish' sign is identified as the auspicious red *tilaka* mark worn by women on the forehead, which is equated with Dravidian *poṭṭu*, 'red), dot, drop'. Hence the reading *poṭṭu mīn* is interpreted as the 'carp' as well as the 'star Rohini'. The occurrence of *poṭ* (*kike*) in Gondi for 'Rohita fish' is pointed out as evidence in support of the reading.

However the expression *poṭṭu mīn* is not attested in Dravidian with the meaning 'star Rohini'. If **poṭṭu mīn* means 'carp' in Central Dravidian languages, it must be on account of the dot-like scales rather than the red colour, as *poṭṭu* does not mean 'red' in Dravidian. Similarly *piṭṭu*, 'dot (on the forehead)' cannot by itself mean 'red' even if it is mostly red in colour. In short, Parpola interprets the words as 'red' by association and not by homonymy.

Quite apart from the linguistic problems pointed out above, Parpola's readings and interpretations of the 'modified fish' signs are, in general, insecure as they rest primarily on rather arbitrary meanings assigned to the conventional diacritic-like markings which cannot, by their very nature, be identified pictorially with any degree of certainty. Alternative interpretations are possible and have been proposed.

'Bangles' Sign: God Murukan

The principal deity of early Tamils was Murukan, the youthful god of war and love, who became identified with the North Indian war-god Skanda. Parpola has identified the sign depicting a pair of intersecting circles (Fig. III.1) as 'ear/nose rings' or 'bangles', *muruku* in Dravidian, which by rebus represents the god *muruku* (Murukan = Skanda) in the Indus texts.

The sign of intersecting circles can well depict a pair of bangles. There is also the solid evidence recently unearthed of quantities of stoneware bangles from Mohenjodaro, many of them inscribed. Parpola points out that the sign of intersecting circles occurs with disproportionately high frequency on the bangle inscriptions. The rebus proposed by him is

NO.	SIGN	IDENTIFICATION	READING	MEANING
1		halving + fish	<i>pacu mīn</i>	green star (Mercury)
2		roof + fish	<i>mey/māy mīn</i>	black star (Saturn)
3		intermediate space + fish	<i>veḷ(i) mīn</i>	white star (Venus)
4		dot/drop + fish	<i>poṭṭu mīn</i>	(1) red fish (carp) (2) red star (Rohini)

FIG. II: MODIFIED FISH SIGNS

also exact.

If inspite of all this, there is a nagging doubt about the correctness of the reading, it is due to the fact that *muruku* is not the appropriate word for stoneware bangles. The word *muruku* is derived from the verbal root **mūr/mur-V* which has the specific meaning, 'to twist, be twisted'; (e.g.) *murige* (Kannada), 'twisting, a twist'; *murige* (Tulu), 'a twist'; *murupuka* (Malayalam), 'to pluck by twisting'. In fact the ear-ring or nose-ring known as *muruku* is made from twisted silver wire as one would expect from the etymology of the word; (e.g.) *murugu* (Kannada), 'a wire ring used as ornament for the nose and the ear'. The name *muruku* can be applied to a bangle or bracelet only if it is made of twisted metal or wire; (e.g.) *murgi* (Tulu), 'twisted bangle or bracelet made of silver'. Even assuming that the word *muruku* came to be used for all types of bangles by extension of meaning, this is unlikely to have happened at the Proto-Dravidian stage. In view of this linguistic discrepancy one hesitates to accept the proposed rebus. Except for its occurrence on bangles where this sign may have a literal meaning, there is no indication in other contexts that it represents a divinity.

The 'Squirrel' Sign: Title of Murukan

Parpola has proposed reading a pair of signs as 'bangles+squirrel' (Fig.III.2)), interpreting it as a divine title. The second sign appears to depict a small animal perched on a tree branch. Parpola has, in my opinion, convincingly shown that this animal is the striped palm squirrel shown in its characteristic posture of hanging upside down. Two faience figurines of the palm squirrel have been found at Mohenjodaro. The Tamil word for squirrel is *anil* (<**cañil*). This loveable creature is often endearingly referred to as *anil pillai* (*pillai* being the general term for 'young one'). Parpola suggests that *pillai* by itself can mean 'squirrel' and the usage may go back to Proto-Dravidian as indicated by the words *warcē, verce* (Gondi) and *piṛca* (Parji) which mean 'squirrel' and are, according to him, cognates of **piṛṣay*. Thus he reads the pair of signs as *muruku pillay* taken as referring to the god Murukan with the title *pillay*. *Pillai* is attested in Tamil as an appellation of Murukan, as the son of Siva.

Parpola departs in this case from his

own rules of rebus, which require the finding of another meaning for the same word (**cañil*), and not for an associated term (**piṛṣay*). Further as far as I know, there seems to be no attested usage in Dravidian for **piṛṣay* by itself to mean 'squirrel'. The suffix *pillai* is added in Tamil to a wide variety of words to indicate the 'young of the species' and not specifically or even mainly to the squirrel. As regards the Gondi and Parji words for 'squirrel' cited by Parpola, the suggested derivation from **piṛṣay* is not supported by regular phonetic correspondences.

'Fig Tree + Crab' Sign: Proto-Rudra

Parpola refers to two sets of copper tablets, both with the same inscription on one side but two different motifs on the other. One of the motifs is the 'fig tree + crab' sign (Fig.IV: Sign 124) occurring as a single sign all by itself. The other is a pictographic representation of an anthropomorphic male deity with horns and a tail, and holding a bow and arrow. This deity ('the horned archer') is identified as the Harappan predecessor of the Vedic god Rudra (euphemistically called *Śiva*) who is described in the *Vedas* as a cruel hunter with bows and arrows. Parpola interprets the evidence of the copper tablets as indicating that the 'fig tree + crab' sign represents the name of the deity it replaces.

The 'crab' is interpreted here as a phonetic determinative and read as *kōḷ/kōḷ*, 'seizing, grasping (as with claws)'. The composite 'fig tree + crab' sign is then read as *kōḷḷ*, 'fig tree which bears fruits without flowering' or 'fig tree with grasping roots'. Parpola interprets *kōḷḷ* by rebus as the name of the deity ('horned archer') derived from *koḷ*, 'to seize' <*kōḷ* 'plunder', which is compared with Rudra's epithet *hara*, (literally) 'seizer, robber'.

This composite sign occurs in three forms which Parpola regards as simple variants of a single sign (Fig. IV: Sign 124 a, d & g). However the outer U-like form has two sharply differentiated additions, either the 'fig-leaf' sign (no. 118) or the 'man' sign (no. 13). Similarly the 'crab' sign has two clearly differentiated forms, either with 'feet' (sign 88a) or without (sign 88e). The two 'crab' forms occur in wholly different contexts in the seal texts. Hence the 'fig tree + crab' forms have to be regarded as independent signs with

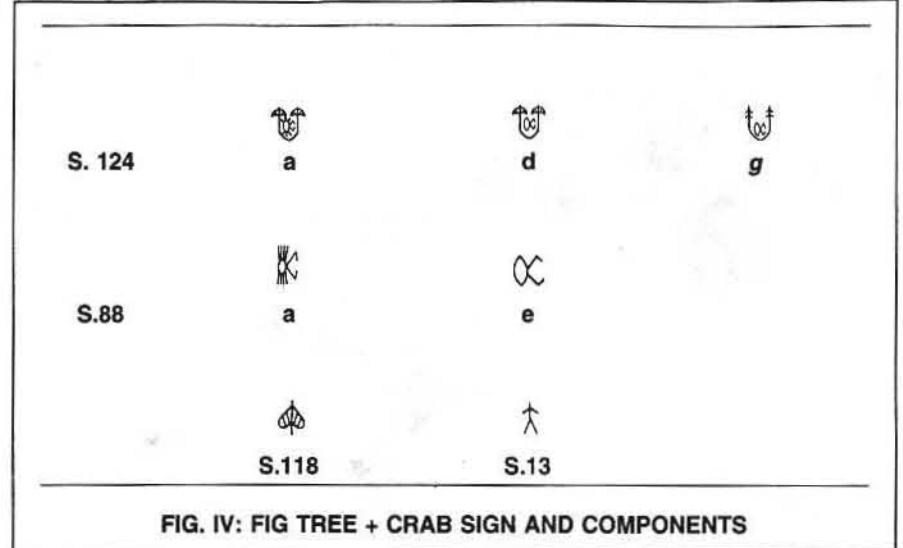


FIG. IV: FIG TREE + CRAB SIGN AND COMPONENTS

distinct though possibly related meanings. (Compare Parpola's treatment of each 'modified fish' sign as having a distinct phonetic value.)

Assessment of Parpola's model of decipherment

One can try to assess Parpola's decipherment at two levels. First, one can analyse his interpretations and readings of individual signs, some of which I have attempted above. To sum up, problems arise at this level due to implausible identification of pictorial signs, arbitrary assignment of values to non-pictorial signs and diacritic-like marks, doubtful classification of basic, composite and variant signs, uncertainty in fixing the context of occurrence to provide clues to likely meanings, and linguistic problems in the handling of Proto-Dravidian reconstructions and choice of homophones. These specific problems are important and may have to be sorted out in the light of constructive criticisms from experts in the related disciplines.

Secondly, and even more importantly, one may look at Parpola's model of decipherment holistically to assess its overall plausibility and the likelihood of its being the generally correct solution. At this level the two major problems as I see them are Parpola's excessive, almost obsessive, preoccupation with the 'Harappan religion', and the inexplicable absence of matters relating to the social life and administration of the Harappan polity, which one may reasonably expect to be recorded in the Indus inscriptions.

Parpola's interpretations rely more on mythology than on textual or linguistic analysis. For example, his interpretations of the 'fish' signs are mainly based on his iconographic identifications of the 'Proto-Siva' and 'Fig Deity' seals which lead him to believe that the signs must represent not merely stars or planets but also gods. To him, the 'fish' sign is "not simply a phonetically used grapheme, but a highly condensed religious symbol" (p.272) (with "unbelievably rich symbolism" (p.274). Parpola ranges far and wide in search of supporting evidence from the vast resources of Hindu religious texts

and traditions. As one goes through the last part of his book dealing with decipherment, the overwhelming impression one forms is of a treatise on Harappan religion rather than decipherment of the Indus script.

Archaeological evidence point to the presence of a centralised administrative structure in the Harappan cities employing a large bureaucracy. Since almost every household has yielded at least one seal, it is only reasonable to expect that the seal inscriptions would mention, besides names, the professions or callings of the seal-holders like those of scribes, city officials, tax collectors, merchants, sailors or armed guards. Judging from the short votive inscriptions of later times, one may expect at least some kinship terms like father, son, wife or daughter to occur in the Indus inscriptions too. Granting that the seal-texts are probably only strings of names and titles, and assuming that the writing is mostly logo-graphic, it would still be necessary to employ minimally parts of speech like pronouns, conjunctions and verbal participles and also grammatical morphs to indicate person, number, gender and case.

The near-total absence of matters relating to the mundane, everyday concerns of the Harappans, and of the minimal linguistic features expected even in short texts is perhaps the strongest argument against accepting Parpola's model of decipherment in its present form.

Parpola is too good a scholar not to be aware of the "grave limitations" like the difficulties in pictorial interpretation of the simplified signs and the scantiness of the available inscriptional material. Thus he concludes his presentation with these words: "For these reasons it looks most unlikely that the Indus script will ever be deciphered fully, unless radically different source material becomes available. That however must not deter us from trying" (p.278). Amen.

Iravatham Mahadevan is a National Fellow of the Indian Council of Historical Research. His publications include The Indus Scripts: Texts, Concordance and Tables (1977).

NO.	SIGN	IDENTIFICATION	READING	MEANING
1		ear/nose rings, bangles	<i>muruku</i>	(god) Murukan
2		bangles + squirrel	<i>muruku pillay</i>	(god) Murukan Pillay

FIG. III: BANGLES AND SQUIRREL SIGNS