

## THE OBJECTIVE CRITERIA IN DECIPHERING THE INDUS SCRIPT

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Almost all clues suggested to decipher the Indus script by different scholars are alleged to be subjective by the rival claimants. But, if the numerals, transparently doubtless through their natural order, reflect in some old syllabic order and match properly, covering each numeral when spread over them, it cannot be just due to chance. At least, it deserves a thorough screening. If it proves to be logical and the numerals are seen to represent the specific syllables, they may be exploited to identify the other types of script, namely the animal figures and the geometrical figures in duplicate texts of similar or identical form. If the Indus texts, read through these provisionally identified phonetic symbols, reflect phonetically in some wornout and reduced Vedic vocables, they should be interpreted in light of the Vedic meanings. If the meanings of the Indus texts and the Vedic vocables agree even distantly, they may be considered to be at the two ends of the same stream of a language. What else can be more objective ?

**Key words :** Agglutinative stage, Animal figures, Ancient syllabic order, Geometrical figures, Indus script, Inflexional stage, Isolating stage, *Māheshvara-sūtras*, Numerals, Phonetic change, Semantic relationship, Signs, Sound value, Urban culture.

### INTRODUCTION

In the decipherment of the unknown Indus script representing an unknown language, one is prone to be subjective. But usually this is the way. We start with a few hypotheses.

We take a script pattern to be numeral if it goes beyond one in the

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same shape. That is to say, the following list represents the numerals of the Indus script :

	10	9	8	7	6	5	4	3	2	1
1.			.	⊥	-	-	-	⊖	⊖	⊖
2.										
3.						))))	.	.	)	)
4.										
5.	.		.							
6.										

However, Mahadevan has not included the first and third lines above in his list of the numeral signs. He calls them 'curves'<sup>1</sup>.

Ignoring the first line (for which see explanation below), let us put the remaining list on the following syllabic order of the so-called *Māheśvara-sūtras*<sup>2</sup>:

					ha	ya	va	ra	la
					ña	ma	na	ṇa	na
jha	bha	gha	ḍha	dha	ja	ba	ga	ḍa	da
kha	pha	cha	ṭha	tha	ca	ṭa	ta	ka	pa
śa	ṣa	sa						ha	

We see that each numeral is covered by the syllables of the *Māheśvarasūtras*. This should not be just due to chance. Thus we rightly suppose that the numerals presented above may represent the syllables of the *Māheśvarasūtras*, and the match is perfect.

However, some comments are required. In the fifth line of the numerals, the 10th and 8th places are vacant, for which the

*Māheśvarasūtras* has *kha* and *cha* respectively. But, in a natural way, the numeral 10 should represent *cha* and the numeral 8 should represent *kha*, because just above them in the fourth line there is *jha* at the 10th place and *gha* at the 8th. Thus *kha* at 10 and *cha* at 8 in the *Māheśvarasūtras* is the result of some editing by the Sanskrit school in the typologically changed status of the stream of language<sup>3</sup>. Because *kha pha* and *ka pa* do not have the corresponding sibilants, they have been put at the two ends of the voiceless stops, *cha tha tha—ca ta ta*, which do have the corresponding sibilants, namely *śa śa sa* respectively. This also necessitated the reshuffling of the Indus sibilants which were originally in the following order : *śa sa śa* from right to left (in the 6th line). That is to say, the 5th and 6th lines of the numerals may represent the following syllables :

<i>cha</i>	<i>pha</i>	<i>kha</i>	<i>tha</i>	<i>tha</i>	<i>ca</i>	<i>ta</i>	<i>ta</i>	<i>ka</i>	<i>pa</i>
<i>śa</i>	<i>sa</i>	<i>śa</i>						<i>ha</i>	

As regards the vowels, the Indus numeral system was disturbed enormously by the Sanskrit school, because there were drastic changes in the vowel system. Briefly: the original monophthongs *o e* were almost gone by the end of the Ṛgvedic age and *ṛ!* had appeared from *ra la* ; the original diphthongs *au ai* had appeared as new monophthongs *o e* ; and *āu ai* were reduced as *au ai*. Thus the order of the *Māheśvarasūtras* regarding vowels had to be the following : 1. *i u*, 2. *ṛ!*, 3. *e o*, 4. *ai au*. Let us see how it could have happened.

Though not fully represented the 4th, 5th, 6th and 8th places vacant, the first line of the Indus numerals may have represented the following vowels (from right to left) : *āi āu ai au e o i u*. Because *a* is inherent in every consonant, it was not represented numerally in Indus. These eight vowels were at first grouped into four (4. *āi āu*, 3. *ai au*, 2. *e o*, 1. *i u*), and the order was reversed in each case (4. *āu āi*, 3. *au ai*, 2. *o e*, 1. *u i*). Then beginning the first group with *a*, replacing *e o* by the newly appearing *ṛ!* and *ai au āi āu* by the contracted and reduced *e o ai au*, the vowel system was redrafted as follows : 1. *a i u*, 2. *ṛ!*, 3. *e o*, 4. *ai au*. Pāṇini had to apologise for disturbing the original order by highlighting *u* in the specification of the length of vowels as short, long and protracted.<sup>4</sup>

That is to say, the basic Indus vowels were a group of 8, because *a*, inherent in every consonant, would have remained uncounted. Moreover, this series started with *u*, which was changed by Pāṇini with apology. The vowels *ṛ ḷ*, late and secondary, had developed from *ra la* in Vedic due to accent on the neighbouring syllable. Thus the Vedic *ṛtú* (season) corresponds to AV. *ratu* (time), *ṛtá* (regular order of the universe) to Indus *la ṭha* (see below)<sup>5</sup>. The original nature of *e o ai au* as representing *ai au āi āu* is seen in their dissolution as *ay av āy āv* in Sanskrit Sandhi.

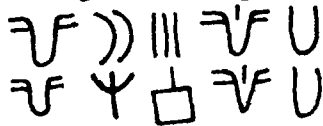
Perhaps we can now write the Indus vowels numerically, because we have known the clue through the natural order of the numerals.

Though, in the third line of the Indus numerals, even the third and fourth from the right are missing, we can imagine how they could have been written due to their natural formal order. The missing numeral signs just suggest that they could be the least used syllables of the language. But, though it could be possible in case of *ṇa*, the nasal *ma* must be numerally present in the Indus syllabary. Perhaps the following doubtful numeral sign and its variants represent the various syllables from *m-*. As a matter of fact, the Indus nasals were full syllables (unlike *ṇ, ṅ* and *ṇ* in Sanskrit). The various *m*-syllables in numerals forms are the following :




The numerals having been identified through the syllabic order of the *Māheśvarasūtras*, almost one-third of the basic Indus signs have been deciphered.

In the following duplicate texts, at least two geometrical figures, the third and fourth from the right, are recognisable as *va* and *ṇa*:

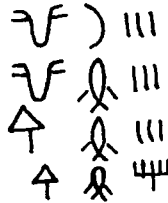


Just this abrupt find inspired one to take help of the numerals in identifying the other varieties of the script, namely the animal figures and geometrical figures, though here anybody is likely to falter. What one considers to be a 'nipple' (sign no. 342 in Mahadevan's list), is said to be a jar-sign, rimmed vessel by others.




 nipple, jar, rimmed vessel

To the present decipherer, the 'nipple' represents *ṣa*, because in the traditional Sanskrit lexicons of the monosyllabic words *ṣa* means 'nipple' among other things.<sup>6</sup>

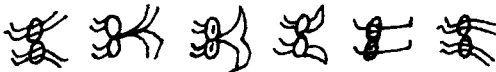
From the objective criteria we have to descend to the subjective criteria, though the help rendered by the numerals in identifying the animal and geometrical figures should not be subjective. The text *ta na ṣa* has appeared in four graphic forms :





Because the Indus language is supposed to have evolved with the monosyllabic words and each syllable stood for certain birds, animals, insects, physical objects, etc., the easiest of them were pictographed with the same sound value. For example :

	mountain	<i>da</i>
	bee	<i>bha</i>
	spider	<i>ba</i> , and so on.

In different vowels with the same consonant was to be shown, the same animal figure was slightly changed in each case. Just the ant-sign for *ca* has six variants out of its seven occurrences.



Gradually the society changed in culture. Various types of usual equipments began to be manufactured. With this development, even the form of the script began to change. The people came from the animal figures to the geometrical figures. Some of the equipments are the following with the possible sound values :

	over-head tank	<i>ṣa</i>
	trident	<i>ṇa</i>



spoked wheel

ca, ci


Because it is difficult to be objective in the decipherment of the animal and geometrical figures, the provisional sound values should be carried forward. If the Indus clauses phonetically reflect in the wornout and decayed vocables of the Vedic language and also shows some semantic relationship, the provisional sound values of the Indus signs may be confirmed, at least for further examination. The language of the Indus inscriptions represent the isolating stage, while Sanskrit is at the inflexional stage, at the third station from the beginning, being the grand-daughter.

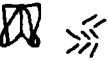
We have seen the drastic change in the vowel system, while the Indus language has transited into the Vedic language. Some changes in consonants too are noticeable : *l* became *r* (also vice versa), *ṇ* > *n*, *dh* > *d(h)*, *th* > *t d*, *ṣ* > *s* (also known to Pāṇini<sup>7</sup>), *h* (represented by the 14th *Māheśvarasūtras*) > *s*, also lost, *la ra* > *r*.


The whole list of the Indus syllabary, represented by the animal and geometrical figures, as far as possibly reliable and reliably possible, is presented below, following the syllabic order of the *Māheśvarasūtras* :


## DECIPHERMENT

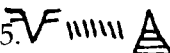
After the basically important signs have been identified, we may like to read some texts :

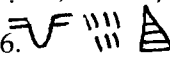
1.  *na ga* (light movement) = The light has gone away. It is a clause consisting of subject (s) and verb (v). It should have become the phrase *ṇaga* (the vanished light) with the same body of syllables at the agglutinative stage. At the inflexional stage, it was reduced to *nág* (night) and is attested through a single occurrence in the *Ṛgveda* (RV 7.71.1).


2.  *ṣa ṭha* (embryo circle) = The egg rolled. This clause of the isolating stage was paraphrased in the *Ṛgveda* (RV 10.121.1) : *hiranya-garbha samavartatāgre* (the golden egg rolled forth). Phonetically, this clause was reduced to the vocable *sát* (the rolling egg) and occurs several times in the *Ṛgveda*. But later, the original meaning clashed with the newly developed present participle *sát* (being, existing). Ultimately, the rolling egg was forgotten in favour of the participle meaning, and neither Śāyaṇa nor Roth nor Macdonell nor Geldner could detect it.

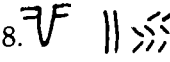
3.  *śa ma yo ṣa* (evil end comfort embryo) = Let evil end ; let comfort be there. This line of two clauses (s + v) has contracted as the underivable *śám yós* (wellbeing and welfare) at the Vedic stage.

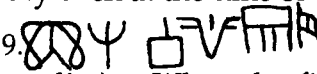
4.  *va ṇa ṣa* (water life embryo) = From the water the life comes. This clause was reduced to *vānas* in *vanas-pati* (plant). This *vānas* was further reduced to the verb *varṣ* (to rain).

5.  *ha ṭha ṣa* (empty-space disc embryo) = From the empty space a ball emerged. This clause has fossilised as the obscure *satás* in *satō-br̥hat*, *-mahat*, *-vīra*.

6.  *ha ḍha ṣa* (empty-space sound embryo) = in the empty space there was a big bang. This clause appears as *sadhá* in the *Ṛgveda*, and with its dual form *sadhé* means 'heaven and earth'.

7.  *la ṭha* (time circle) = The time turns round. At the Vedic stage, this clause was reduced to *ṛtá* meaning 'the regular order of the universe'. Pāṇini had conceived the whole system of 'tenses and moods' with this *la* of the Indus language.<sup>8</sup>

8.  *sa ra sa* (nipple speed end) = From the nipple (mountain) flows (and) ends (in the middle/at the sea). It was reduced to *sáras* (lake, pond, sea). This is the basic element of what later was known through the river Sarasvati (consisting of lakes, ponds in the bed). It was a time when an object was known through its action. Though the river Sarasvati may have been flowing mightily even at that time, it had got no name. By this we can imagine the date of the Indus inscriptions. This river was flowing mightily even at the time of the *R̥gveda*.

9.  *ra bl̥ su va ña ðha* (fire water heat, dwelling vapour disc) = When the fire heats the water, in the room the vapour circulates. It is a sentence of the urban Indus culture. At the Vedic stage, when the urban culture had collapsed, the first part of the text was phonetically reduced to *ṛb̥l̥sa* (a cavity in the earth from which vapours arise), and the second part had changed into *vanād* 'fire', which Grassmann<sup>9</sup> analyses as *van-ad* (wood-consumer), although we see that this word should have no reference to a Vedic root.

This little sentence narrates the long story of a devastated urban culture. The 'cavity' was the 'centrally heated room' of the Indus culture, in which the Atris of the fire-brigade (the fire-priests of the Vedic age) were suffocating and were rescued by the Ásvins of the rapid action force (later becoming the divine physicians).

These few texts should suffice for the present. As one goes on reading the texts, one finds references to the maternity hospitals, veterinary hospitals, farming systems, some equipments of which are even now used in the countryside. Some of the words used in the village kitchens of the countryside belong to the Indus language.

Let us engage into discussion over what has been stated in this paper, chiefly from the linguistic point of view, though the other aspects of the problem too cannot be ignored.

#### NOTES AND REFERENCES

1. I. Mahadevan, *The Indus Script*, ASI (1977) p. 16 & 11.5 VII.



2. Vide, the beginning of a grammatical treatise based on Pāṇini, e.g., *Kāśikā* by Vāmana-Jayāditya, *Siddhānta-Kaumudī* by Bhaṭṭoji-Dīkṣita.
3. There are three stages in the development of a language. The first stage is *isolating*, where there is no grammar, e.g., possibly the language of the Indus inscriptions itself. The second stage is *agglutinative*, where the grammatical elements begin to appear, loosely appended to the base of a word. The Indus language itself has some instances of such loose grammatical affixes. The third stage is *inflectional*, for which Sanskrit is the best example. Here the grammatical elements are so tightly attached with the base that they cannot be separated without scratch on either side.
4. p. 1, 2.27 : *ūkālo'j jhrasva-dīrgha-plutaḥ*
5. Text no. 7 under 'Decipherment'.
6. It is also indirectly confirmed by Pāṇini (6.1.64), who says that 'all initial ṣ of the traditional list of the Sanskrit roots should be read s.
7. Note 6 above.
8. p. 3, 4.77 : *la-sya : daśa lakārā . . . . artha-viśeṣe kāla-viśeṣe*. Comm.
9. Geldner, *Der Ṛgveda* (2.4.5) prefers Grassmann's analysis to Roth's and Sāyaṇa's.