

## III.9

### Writing, Language and Religion of the Harappans and Indo-Aryans

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#### The Indus Mixed Writing

The Indus writing is a mixed one in the sense that picture of birds, scorpion, dog, goat, pipal leaf, grassy plant, bee, ant, three-peaked hill, horn of animal and a few schematized pictures like 'man', 'fish', 'hand' and 'fence' appear side by side with cursive signs, some of which bear resemblance to Brāhmī and Roman characters. Besides true pictures and cursive signs, there are some linear signs and 'pseudo-pictures' (fig. 1). The latter look like pictures but are, in reality, compound signs formed by joining two or more cursive signs. Quite often, short lines (diacritics) are attached to pseudo-pictures and sometimes two identical basic cursive signs are joined to form a compound sign. These and other pseudo-pictures are often mistaken by decipherers for pictures of 'archer', 'bow-man', 'soldier holding shield', 'coolie carrying load' or a 'praying man' but they are compound signs. When analysed, the components are found to be basic signs which appear independently in other inscriptions. Two or three basic signs are intelligently joined to form picture-like *samyukta aksharas* (conjunct consonants) and syllables. When phonetic value is given, the words formed by them are meaningful.

Apart from the three categories of signs, namely, true pictures, cursive signs and pseudo-pictures, the Harappan scribes have used linear signs (vertical lines) for numerals 1 to 10, 12 and 24, which are indicated by a corresponding number of short strokes which stand apart from other signs. In rare instances they are joined to cursive signs also.

#### Word-separators

The use of one or two short strokes or one long and one short stroke between groups of signs in Indus writing served the purpose of a word-separator (fig. 2). The Hittite hieroglyphs and cuneiform writing also used word-separators. The Egyptian scribes placed proper names and epithets in circles.

#### Identification of basic signs

For deciding once and for all whether the Indus script is logographic, ideographic or phonetic, it is essential to know the number of basic signs in it. A phonetic script has about a

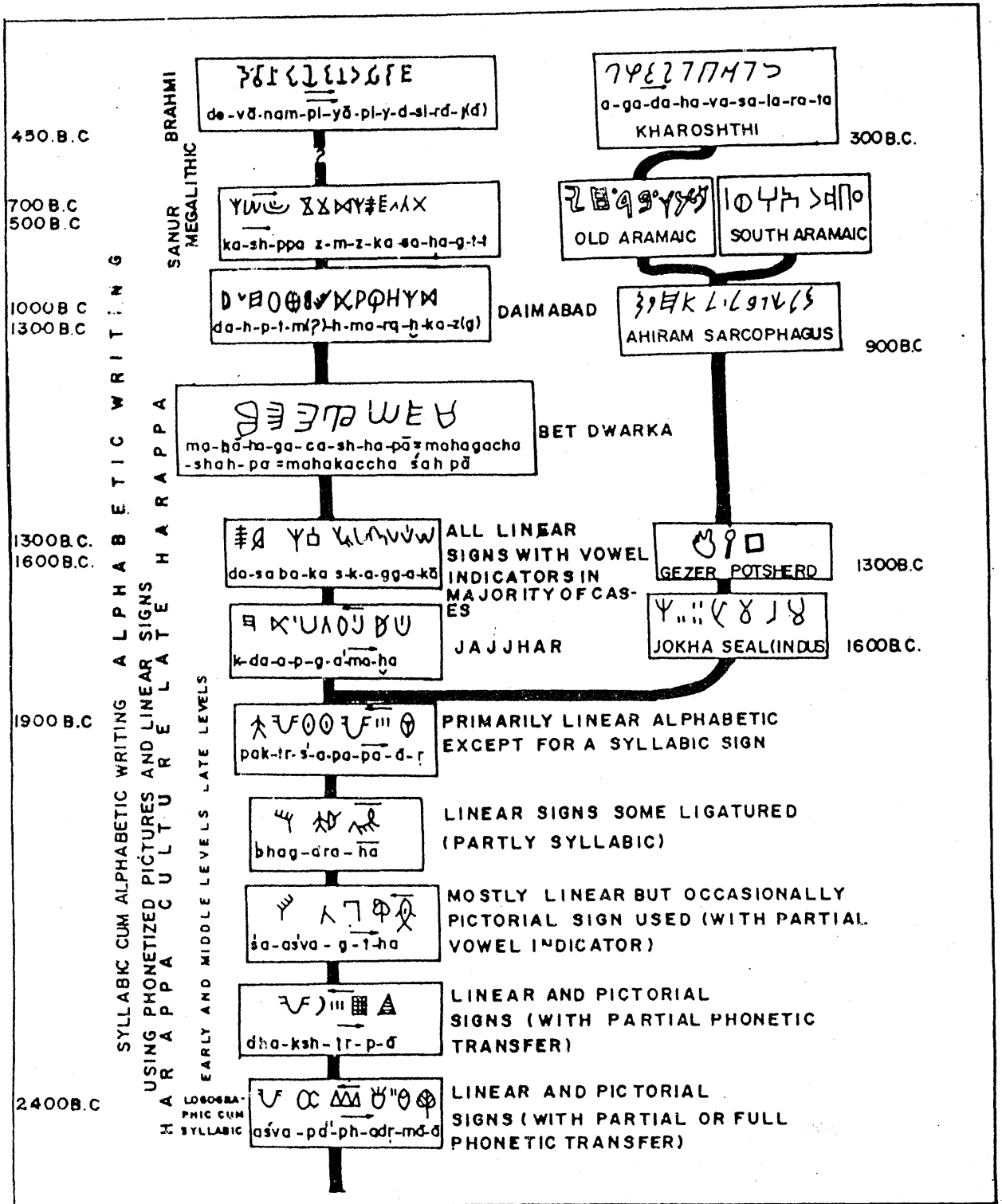


Fig. 1 Evolution of Indus Script from partly Cursive-cum-pictorial into a Cursive alphabetic writing.

Words distinguished by word — separators					
1	' ) 3	pa	19	" 9 "	pag or bag
2	" ①	pa	20	" ④ ④	ba - ka
3	" ②	pa	21	' ) ④	ma (maha)
4	" ③	pa	22	" ④ ④	ma - ḥḥā
5	" ④	Pt ( pat)	23	' ) ④	pag
6	" ⑤	} pat(pata)	24	" ④ ④	pp - pag
	" ⑥				
7	" ⑦ ①	pa - pa	25	" ④ ④	ka - ka = kaka
8	' ⑧ ⑧	pata - pata	26	" ④ ↑	s'a - ka = saka
9	" ⑨ UU	ā - a - pa = āpa	27	' ④	ḥa
10	' ⑩ 3	pa - rā	28	" ④	hā
11	" ⑪ ②	pa - rā } parā	29	" ④	ḥḥā
12	" ⑫ ③	pā - rā } pāra	30	" ④ ④	h - ā = hā
13	" ⑬ ④	pā - ra }	31	' ④ ④	gha - ma
14	" ⑭ ⑤ ⑥	ppa - ppa - ha	32	' ↑ ④	da - śa = daśa
15	" ⑮ ⑦ ⑧	pp - ppa = ppappa	33	' ) ④ ④	ka - da
16	' ⑯ ⑥	ppa - pa	34	" ④ U	a - da
17	' ) ⑰ ④	pph = ppah	35	" ↑ ↑	s' - śa = śaśa
18	" ⑱ ④	paka			

Fig. 2 Words distinguished by word-separators.

hundred signs. In the logographic system of word-signs the number varies from 450, as in Hittite, to 50,000 as in the Chinese script. The average number in Sumerian and Egyptian word-signs is 600–700. On the other hand, the phonetic scripts such as the Sumerian syllabary have 100–150 signs. The Hittite syllabic writing has just 60 signs and the Hittite cuneiform alphabetic has 26 signs only. The evolution of Indus script from a partly pictorial writing in early levels into an alphabetic cursive writing becomes obvious from the inscriptions on seals and pottery of the latest levels of Mohenjodaro, Harappa, Lothal, Rojdi, Jhajjar, Desalpur and Dholavira wherein almost all the pictures are omitted and a limited number of cursive signs are retained (fig. 3). The identification of basic signs is possible as they occur in their unaccented form (fig. 4) analysis of individual compound signs reveals that the early Harappan script had 62 basic signs including pictures (figs. 5–7) while the Harappan cursive script had (24 + 10) 34 (including man and fish) signs only. In the late Harappan period cursive signs were reduced to 22 + 2 (rarely used), after dropping alternate signs for the same sound. *With such a small number of signs the Indus script could not have been pictographic or purely ideographic or logographic. The early Indus writing (2500–1900 BC) was logographic-cum-phonetic, while the Late Indus cursive script (1900–1600 BC) was primarily phonetic. Full accenting of Indus cursive signs by attaching short strokes (fig. 8) is a sure evidence of phonetization. In view of the fact that pictures of hill, pipal leaf, scorpion, crossroad field, etc., are joined to other pictures or cursive signs, they cannot be treated as ideographs or logographs. Auxiliary phonetic indicators are attached to the pipal leaf and scorpion signs also. Most of the pictures were phonetized and used as syllables. But the 'field', 'crossroad' and 'triangle with vertical or horizontal lines' seem to be determinatives. The 'man' and 'fish' signs were not logographs as they are accented and man sign was joined to many other signs.*

For giving the phonetic values to cursive (basic) signs the Semitic script which has a large number of identical signs has been taken into consideration. *It is further observed that 17 cursive signs are analogous in the Indus and Semitic scripts and 16 cursive signs in the Indus and Brāhmī scripts thereby indicating a triangular communication of thought in the field of writing (fig. 9).* Since the Indus script is earlier than the other two scripts it is obvious that the latter borrowed signs from the former (fig. 1). The Semitic writing which has 17 out of 26 signs identical to the Indus writing was contemporary of the Late Harappan and post-Harappan (Bet Dwarka) writings, hence the phonetic value of Semitic signs is given to corresponding cursive basic signs of Late Harappan inscriptions.

In the first stage of decipherment of the Indus script, only those inscriptions which employed cursive signs identical with Semitic signs, were read (figs. 10–11). Inscriptions with non-Semitic signs were avoided to maintain objectivity. It was also borne in mind that the Semitic writing is purely consonantal, whereas the Indus writing had vocalic signs. In Semitic script the vowel value can be assumed. For instance, *KTB* in Semitic can be read *Kitab* or *Kutab*,

INSCRIPTIONS FROM LATE LEVELS OF HARRAPPA CULTURE (2000-1700B.C.)	
LOTHAL B	𑀩𑀲; 𑀮𑀲𑀱𑀲; 𑀮𑀲
ROJDI	𑀮𑀲 𑀲𑀲
JAJJHAR	𑀮𑀲 'U^O')U
PABUMATH	𑀮𑀲 𑀲𑀲 𑀲𑀲 𑀲𑀲
KOTADA (Dhola Vira) (surface)	𑀮𑀲 III; E^O)𑀲; 𑀮𑀲 𑀲𑀲 "𑀲; 𑀮𑀲 (𑀲𑀲)"𑀲
HARAPPA (Dales 1987-88)	𑀮𑀲 𑀲𑀲 𑀲𑀲; 𑀮𑀲 𑀲𑀲-𑀮𑀲 𑀲𑀲 𑀲𑀲; E, 𑀲, 𑀲𑀲 𑀲𑀲
	𑀮𑀲 𑀲𑀲 𑀲𑀲-𑀮𑀲 III; 𑀮𑀲 III 𑀲𑀲-𑀮𑀲; 𑀮𑀲 𑀲𑀲
MOHENJO-DARO	𑀮𑀲 𑀲𑀲 𑀲𑀲; E 𑀮𑀲 III; 𑀮𑀲 𑀲𑀲 𑀲𑀲; E 𑀮𑀲 𑀲𑀲 // 𑀮𑀲 𑀲𑀲
Topmost Levels (Dales - 1965)	𑀮𑀲 𑀲𑀲; 𑀮𑀲 𑀲𑀲; 𑀮𑀲 𑀲𑀲 III; 𑀮𑀲 𑀲𑀲; 𑀮𑀲 𑀲𑀲
	𑀮𑀲 𑀲𑀲 𑀲𑀲 𑀲𑀲 III 𑀲𑀲

Fig. 3 Inscriptions from late levels of Harappa Culture (2000-1700 BC).

IDENTIFICATION OF BASIC CURSIVE SIGNS						
SERIAL NO	SEAL	INSCRIPTION WITH BASIC SIGN	BASIC SIGN	ACCENTED FORM OF BASIC S.	INSCRIPTION WITH ACCENTED SIGN	SEAL NO.
10	V.99	𑀓𑀕𑀗𑀢𑀣	𑀣	𑀣 𑀣 𑀣	𑀓𑀕𑀗𑀢𑀣 See 𑀢𑀣	M. 236 V. 421 V. 455
11	MK.665	𑀓𑀕𑀗𑀢𑀣"𑀢	𑀢	𑀢, 𑀢	𑀓𑀕𑀗𑀢𑀣 𑀢𑀣	V. 662 V. 665
12	L. 19	𑀓𑀕𑀗𑀢𑀣)	𑀣	𑀣 𑀣	𑀓𑀕𑀗𑀢𑀣 𑀢𑀣	L. 141 HP. 4823
13	MK.183	𑀓𑀕𑀗𑀢𑀣𑀕𑀗𑀢𑀣	𑀕	𑀕 𑀕	𑀓𑀕𑀗𑀢𑀣 𑀢𑀣	L. 136 also KBG212 above L. 107
14	MK.522	𑀓𑀕𑀗𑀢𑀣"𑀢	𑀢	𑀢 𑀢 𑀢	𑀓𑀕𑀗𑀢𑀣 𑀢𑀣 𑀢𑀣	M. 394 V.267
15	MK.101	𑀓𑀕𑀗𑀢𑀣	𑀕	𑀕 𑀕	𑀓𑀕𑀗𑀢𑀣 𑀢𑀣	V. 85 L. 54
16	MK.667	𑀓𑀕𑀗𑀢𑀣	𑀕	𑀕 𑀕 𑀕	𑀓𑀕𑀗𑀢𑀣 𑀢𑀣	HR. 4811
17	V. 37	𑀓𑀕𑀗𑀢𑀣"𑀢	𑀢	𑀢 𑀢	𑀓𑀕𑀗𑀢𑀣	RG P graffitl
18		𑀓𑀕𑀗𑀢𑀣	𑀢	𑀢 𑀢 𑀢	𑀓𑀕𑀗𑀢𑀣 𑀢𑀣	V. 465 M. 219

Fig. 4

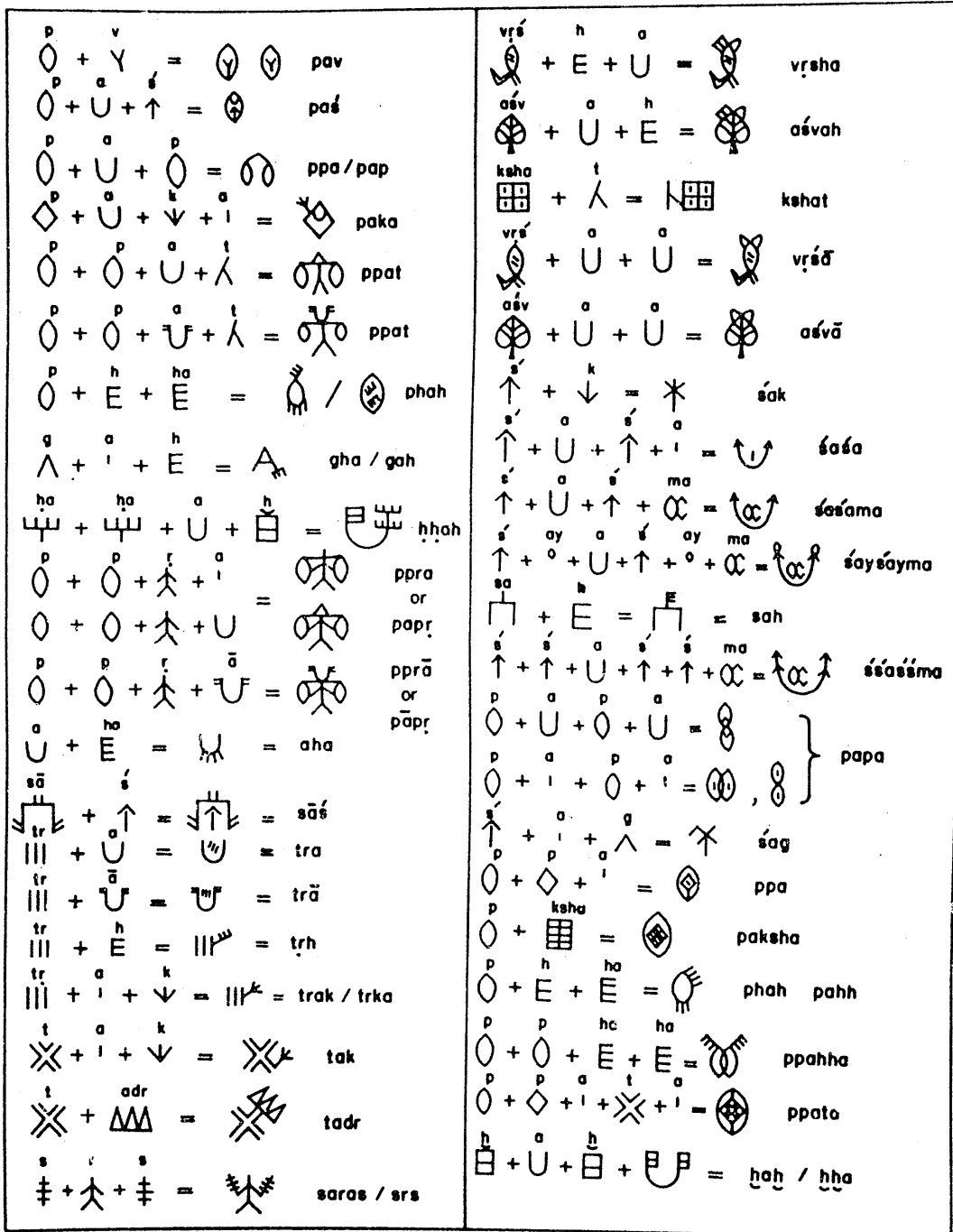


Fig. 5 Analysis of Compound Signs.







































Basic signs in Indus script			
Cursive		Pictorial	
Harappa	Late Harappan	Harappan	Late Harppan
U O	U		
V U	V		
^ ^	^		
^ X	^		
^ X	^		
Δ D	Δ Δ		
Σ Σ	Σ		
O (	O (		
□ 9	□ 9		
X	X		
▷	▷		
Y ↑	Y ↑		
W	W		
≡	≡		
E	E		
⊥ H H	⊥ H H		
↑	↑		
↑	↑		
⊗	⊗		

Fig. 7

	Basic sign & Phonetic Value	By attaching short strokes				By attaching initial vowel signs: U and ॠ	
		+ a	+ ā	+ ae	+ ao		
1	U a	∪	∪̄	∪̄e	∪̄o		
2	∨ k	∨	∨̄	∨̄e		∪	∪̄
3	∟ g	∟				∟	
4	∧ g	∧	∧̄				
5	∧ t	∧				∧	
6	× t	×	×̄	×̄e		×	
7	⊙ th		⊙̄				
8	△ a	△	△̄	△̄e			
9	∇ a	∇	∇̄	∇̄e			
10	∫ n	∫	∫̄			∫	
11	) p	)	)̄			)	
12	⊖ p	⊖	⊖̄	⊖̄e		⊖	⊖̄
13	◇ p	◇	◇̄	◇̄e		◇	◇̄
14	□ b	□	□̄			□	□̄
15	∅ b	∅					
16	⊗ m	⊗	⊗̄	⊗̄e		⊗	⊗̄
17	∩ r	∩	∩̄	∩̄e			
18	∪ v	∪					
19	∩ s	∩	∩̄	∩̄e	∩̄o		∩̄
20	↑ s	↑	↑̄				
21	∩ sh	∩	∩̄				
22	≡ s	≡	≡̄	≡̄e	≡̄o		
23	∩ s	∩	∩̄	∩̄e	∩̄o		
24	∩ h	∩	∩̄	∩̄e	∩̄o		
25	H h	H	H̄	H̄e			
26	H h	H	H̄	H̄e			
27	⊖ h	⊖	⊖̄	⊖̄e			
28	∩ h	∩	∩̄	∩̄e			
29	∩ h	∩	∩̄	∩̄e			
30	↑ r	↑	↑̄		↑̄o		

Fig. 8 Accenting Basic Signs

	1900-1500 B.C. LATE HARAPPAN SIGNS (BASIC)	1500-1000 B.C. NORTH SEMITIC & SOUTH SEMITIC SIGNS	PHONETIC VALUE	1300-B.C. BET DWK	1300-800 B.C. MEGALITHIC SANUR ETC.	3rd CENT BC ASOKAN BRAHMI GIRNAR
1			b			ba
2			g			ga
3			d			dha
4			h			ha
5			w			wa
6			n			
7			th			tha
8			k			ka
9			n			na
10			e			sa
11			(ay)			
12			p			pa
13			r			ra
14			s			sa
15			t			ta
16			e			sa
17			n			ga
18			m			ma
19			a			a
20			r			
21			s			
22						ca
23			z			
24			y			ya

Fig. 9 Phonetic values of comparable Bet Dwarka, Indus and Brähmi Signs.

INDUS WORDS		Meaning in RV/AV
1	𑀓𑀭, 𑀓𑀭	<u>ə</u> r = <u>ə</u> r revere, get (AV) Steed (AV), <u>ar</u> righteousness, <u>ṛta</u> (RV), <u>arta</u> (O.Per)
2	𑀓𑀭𑀭, 𑀓𑀭𑀭	<u>ə</u> tri, <u>a</u> tri n. of a <u>rs</u> author of the fifth mandala of RV
3	𑀓𑀭𑀭𑀭	<u>ə</u> dra - <u>pa</u> or <u>a</u> dri - <u>pa</u> non-hostile protector, <u>druhas</u> hostile (RV)
4	𑀓𑀭𑀭 } 𑀓𑀭𑀭 }	<u>ə</u> - <u>p</u> - <u>ə</u> = <u>a</u> pa <u>ə</u> - <u>ə</u> - <u>pa</u> = <u>a</u> pa water (RV), <u>āp</u> water (AV)
5	𑀓𑀭𑀭 } 𑀓𑀭𑀭 }	<u>ə</u> ma - <u>ə</u> <u>ə</u> m <u>ə</u> = <u>a</u> ma power (RV. AV) power (RV. AV)
	𑀓𑀭𑀭	<u>ə</u> mā = <u>a</u> ma power (RV. AV)
6	𑀓𑀭𑀭𑀭 𑀓𑀭𑀭𑀭 𑀓𑀭𑀭𑀭	<u>a</u> śva <u>a</u> śvā <u>a</u> śvaha = <u>a</u> śvaka n of a teacher (RV), also Agni (Tait Br.) n of a people (VS)
7	𑀓𑀭𑀭	<u>ā</u> tar <u>a</u> tar / fire (AV) <u>a</u> tax̄ fire (AV) <u>ā</u> ta illuminator (RV)
8	𑀓𑀭𑀭 𑀓𑀭𑀭 𑀓𑀭𑀭	<u>ā</u> t <u>a</u> tha <u>a</u> thar fire (RV)
9	𑀓𑀭𑀭𑀭	<u>ā</u> tr / <u>ā</u> tri one who illuminates, <u>ā</u> tan bestow upon to spread (RV)

Fig. 10 Indus words and their meanings (1-9).

Sl. No.	INSCRIPTION	TRANSCRIPTION	MEANING	SEAL No.
34		sās-sās or śasā- śasā	ruler of ruler, or praised (among the) praiseworthy	L. 16
35		pa-rā = para	supreme.	V. 460
36		ma-nā = mana	n. of a person (Manu), thinker, also unit of weight	
37		ma-da-hā = madaha or madha	(seal) of the enjoyer, or sweet, or spirituous drink	M. 479
38		ppak-rā	guardian bestower.	C. 130
39		ppat	master, or governor or ruler.	K. 214, MDG
40		bhag-ā = bhaga	Bhaga, or Lord or God.	M. 279 MK 258
41		bhag-ā-ppā-pp-V = bhaga-ppāt-(āppt) - ppav	Lord, ally (or master) and pure.	MK 145
42		pāt-pāt-ae-ba-ka-ā = pāt-pātae-bakā	to protector of protector from Lord.	M. 435 MK 160
43		ā-sa = tar-āsa	saviour of divine order	L.
44		dh/ba-ka-ā = bakā	from protector/ Lord.	V. 139
45		da-sa da = daśa-da	bestower (of) ten.	V. 811
46		ppāt - hā	(seal) of protector, or governor.	V. 668
47		pa"pa-pp-rā = pa" papp-rā	protect" bestower of protection (or Papr)	V. 80
48		pa" śa-ha=pa-saha	protect" mighty.	M. 451
49		śasā, śasā	n. of a Sāman or its author, or praised.	MK XIII 3 MK 20, MK. 607

Fig. 11 Inscription, transcription and meaning (34-49).

but the Harappan scribes indicated the medial vowel by attaching short strokes to consonantal signs, as in  $p + a = pa$ ,  $p + a + a = p\bar{a}$ , etc. They also used an initial vowel sign U and attached short strokes to it for elongation of  $a$  or for forming  $ae$ ,  $ao$ , etc. (fig. 8). In Semitic script the sign is turned by  $90^\circ$  and a stroke is added to it, the phonetic value being  $a$ , but rarely used. In *Brāhmī* script the basic U sign is used twice thus  $\aleph$  to write  $a$  (open) and a stroke is attached to write  $\bar{a}$ . On these considerations U in late Harappan and Harappan scripts is given the value  $\text{ə}$  and its accented forms  $a$ ,  $\bar{a}$ ,  $ae$  or  $i$  and  $ao$ . Perhaps  $\aleph$  also stood for  $u$  as suggested by P.N. Mathur. In the second stage, inscriptions with U sign were read. The consonants, vowels and diphthongs in Indus cursive writing are identified and separated from pictures used as logosyllables (fig. 12). This has become possible by the structural analysis of compound signs (figs. 4–8). While in the Late Harappan levels the number of pseudo-pictures is fewer, they are frequently used in the Early and Middle phases of Harappa culture. Invariably they are unisyllabic or bisyllabic words. Thus the evolution of the script can be traced in 3 stages (fig. 1).

### Identification of the Indus Language

In the first instance phonemes, some of which were separated in the inscriptions by word-separators were listed and their meaning was ascertained. Taking together all the phonemes of 137 inscriptions of Stages I and II it is found that in phonology, vocabulary, semantics and structure the Indus language showed close affinity to the Indo-European languages, especially the old Indo-Aryan (OIA). For instance words *aeka*, *daśa*, *happt* and *śata* in Indus language stand for cardinals one, ten, seven and hundred respectively as in OIA.

Other meaningful phonemes occurring in the Indus inscriptions involving cursive signs comparable to Semitic signs can be traced in the *R̥gveda* or other texts of Vedic literature. A few words of Avestan affiliation also occur in Indus language.

[Abbreviations: AV=Avesta; RV = R̥gveda; IE = Indo-European]

Indus Words	Meaning in RV/AV/IE
<i>ap</i>	'work' (Karma in RV also <i>antarikṣa</i> ).
<i>āpa</i>	'water' ( <i>āpah</i> 'water'); also name of a river (RV).
<i>ama</i>	'strength' or 'power'.
<i>āta</i>	'illuminated' ( <i>ātan</i> 'illuminate', RV).
<i>aokka</i>	'abode' ( <i>okas</i> 'home, abode with reference to <i>Yajnaśāla</i> ', RV).
<i>taras</i>	'strength' or 'strong' ( <i>taras</i> 'strength, progress, velocity', RV); 'one who is swift' (RV).
<i>tar</i>	'cross, sail'; <i>tari</i> 'water craft'; <i>pratara</i> 'sea voyage' (RV).
<i>dam</i>	'house' (RV), <i>damana</i> : 'house' (AV).
<i>dha</i>	'sustain, protect, bestow, help' (RV).

Indus Words	Meaning in RV/AV/IE
<i>dā/da</i>	'bestow' ( <i>dā</i> 'give, bestow', <i>RV</i> ).
<i>ppa/pa/pā</i>	'protect/protector' ( <i>poi</i> 'protect', <i>IE</i> ).
<i>atha</i>	'fire' or 'fire god' ( <i>at</i> 'fire', <i>IE</i> ; <i>athar</i> 'fire', <i>AV</i> ).
<i>rā</i>	'give'; <i>ra</i> 'wealth'; also 'god of wealth' ( <i>RV</i> ).
<i>oma</i>	'favour', 'protect' ( <i>aomen</i> 'helping', <i>AV</i> ; <i>omāsah</i> 'protectors', <i>RV</i> ).
<i>pa/pa/pah/pahh</i>	'protect, guard, protector' ( <i>pāy</i> 'to protect', <i>AV/OP</i> ; <i>pahs/pah</i> 'keep oath' Hittite).
<i>papr</i>	'protector or protected' (intensive of <i>pr</i> ).
<i>pāda</i>	'foot' or 'one fourth'.
<i>āra</i>	'praiseworthy' ( <i>ār</i> 'to praise', <i>RV</i> ).
<i>madal/madh</i>	'honey, sweet, wine' ( <i>RV</i> ); <i>madu</i> 'wine' ( <i>AV</i> ).
<i>mahalmah/mahā</i>	'great' ( <i>maha</i> 'great, might, strong', <i>RV</i> ); <i>mas</i> 'great' ( <i>AV</i> ).
<i>aeta</i>	'brilliant'.
<i>gara</i>	'a drink' ('drink, beverage' <i>RV</i> ).
<i>rha</i>	( <i>arha</i> ) 'deserving, able' [( <i>arh</i> 'to deserve, merit', <i>RV</i> ).]
<i>āha</i>	'sacrifice' ( <i>āhu</i> 'sacrifice', <i>RV</i> ).
<i>maḥa (makha)</i>	'cheerful' ( <i>makha</i> 'vigorous, cheerful', <i>RV</i> ).
<i>gavva (gavya)</i>	'relating to cattle, pasture' ( <i>RV</i> ); <i>gāv</i> 'cow, bull' ( <i>AV</i> ).

The use of inflexional endings can be traced in a number of nominal stems occurring in Indus inscriptions; some examples are given below:

1. *baka, baka + ā, baka + ae, baka + ha*
2. *paka, paka + ā, paka + ae, ppaka + hā*
3. *pa, pa + ā, pa + ae, pa + hā*

The suffixes *a, ae* and *ha* added to *pa, paka* and *baka* correspond to the instrumental, dative and genitive case-endings in Indo-European languages (Rao, 1982). The meaning of the inflected nominal stems in the Indus inscriptions cited above is given in figs. 14–20.

### Non-Semitic Cursive Signs

To make sure that no unknown factors and subjective elements were taken into account in identifying the Indus language initial phonetic evaluation was confined to signs common to Indus and Semitic writing. The next step was to assign values to two frequently occurring non-Semitic signs 'man' and 'fish' (figs. 15–17). Both are fully accented and their phonetic character is not in doubt. As the Indus language is found to be close to Old Indo-Aryan (OIA) the 'man' sign is given the value *r* on acrophonic principle from the word *nr/nara* used for 'man' in the *Rgveda*.

SN <sub>o</sub>	PHON.VALUE	HP	LHP	SN <sub>o</sub>	PHON.VALUE	HP	LHP
<b>I. VOWELS</b>				<b>VI. LARYNGEALS</b>			
1	a	U		22	h	𑀓 𑀔 𑀕	𑀖
2	o	U	U	23	h	𑀗 𑀘 𑀙 𑀚 𑀛	
3	o	U	U	24	h	𑀜 𑀝	
4	r	𑀞	𑀞*	<b>VII. LOGOGRAPHS: PICTORIAL</b>			
<b>II. DIPHTHONGS</b>				25	aja	𑀟	
5	ae	U	U	26	śuna	𑀠	
6	ao	U		27	vamr	𑀡	
7	ay	o	o	28	baka	𑀢	
<b>III. SEMIVOWELS</b>				<b>VIII. LOGOSYLLABLES</b>			
8	r	𑀣	𑀣	29	aśu(attha)	𑀤	
9	v	𑀥	𑀥	30	vś(cika)	𑀦 𑀧	
<b>IV. CONSONANTS</b>				31	adr[adri]	𑀨 𑀩 𑀪 𑀫	
10	k	𑀬 𑀭	𑀬	32	śck(unta)	𑀮 𑀯 𑀰 𑀱 𑀲	
11	g	𑀴 𑀵	𑀴		[śaka]		
12	t	𑀶 𑀷 𑀸	𑀶	33	ksh(etra)	𑀹 𑀺 𑀻 𑀼 𑀽	
13	th	𑀾	𑀾	34	has(-ta)	𑀿 𑁀 𑁁 𑁂 𑁃 𑁄	
14	d	𑁅 𑁆	𑁅 𑁆	35	trd[trida]	𑁇	
15	n	𑁈 𑁉	𑁈	36	alik(lava)	𑁊	
16	p	( 𑁋 𑁌	) 𑁋 𑁌	37	sa(sya)[sosa]	𑁍 𑁎 𑁏	
17	b	𑁐	𑁐	38	śrn(-ga)	𑁑 𑁒	
18	m	𑁓 𑁔	𑁓	39	hal(a)	𑁕	
<b>V. SIBILANTS</b>				<b>IX. ?</b>			
19	ś	𑁖 𑁗	𑁖 𑁗	40		𑁘	
20	sh	𑁙	𑁙	41		𑁚 𑁛	
21	s	𑁜 𑁝	𑁜	42		𑁞	

𑀞 also acts as a semivowel

HP = Harappan AND LHP = Late Harappan

Fig. 12 Classification of Indus Signs.















Fig. No.	Picture	Word value in OIA	Syllabic value	Total No. of times the picture occurs
	 Field (dominion power)	<u>Ksetra / Ksatra</u>	<u>Ksa</u>	217
	 Cross road	<u>Tara</u>	<u>tar</u>	157
	 Scorpion	<u>Vrscika</u>	<u>Vrs'</u>	106
	 Pipal leaf	<u>Aśvattha</u>	<u>aśv</u>	0
	 Triangle with horizontal lines (abode) or an ideogram for 'town'	<u>Dhāma</u>	<u>dha</u>	78
	 Bird (of Omen)	<u>Śakuna</u>	<u>sak</u>	66
	 Hill	<u>Adri</u>	<u>adr</u>	55
	 Hand	<u>Hasta</u>	<u>has</u>	46
	 Three D <sup>s</sup>	<u>Trida</u>	<u>trd / trida / tridha</u>	46
	 Bee	<u>Maksi</u>	<u>maks</u>	23
	 Animal (dog?)	<u>Śvana/Śuna</u>	<u>śvan/śuna</u>	55
	 Horn	<u>Śṅga</u>	<u>śṅ</u>	26

Fig. 13 Pictorial signs, syllabic values and frequency of their occurrence.

Sl. No.	INSCRIPTION	TRANSCRIPTION	MEANING	SEAL No.
50		na-n-ā = nanā	mother.	MK 200
51		mās	great, large.	V. 633
52		gā	singer, or Brhaspati, or earth.	MK 360
53		pah-papa-t-ha-p-p-ā = pah-papataha-ppa	protector (of) the protecting defender.	PL.MK XCII, 3, MD 3903
54		aś-ā = aśa	order, righteousness.	MK 364
55		ā-pāt "pak-ā = āpat (or āpta) paka	hasten " guardian, or protected " pure.	
STAGE - III				
56		g-rā-ā = garā	from Gara, n. of a Sāman and its author.	V. 655
57		bhag-rk-ā = bhaga- arka	Lord Arka (Fire God).	V. 307
58		pag (or bag)-bhag- rk-ā-hā	(seal) of mighty Lord Ark ( fire God )	V. 320
59		pāt " rk) ā-r = pāt " ) arka) ar	protect " Arka praised.	V. 35
60		hā-rā-ā-r-hā harā-ār-hā (or ār-ha)	protector able, or (seal) of praised.	V. 325
61		pāt " bhag-hā-rā-ā = pāt " bhag-hārā	Let protect " Lord protector or Let Lord, the protector, protect	M 10

Fig. 14 Inscription, transcription and meaning (50-61).



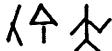
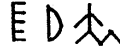
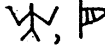
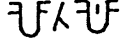

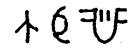
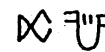

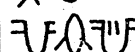
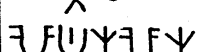




	INDUS WORDS		Meaning in RV/ AV
21		<u>rks</u>	<u>rksa</u> star (RV)
22		<u>raks</u>	<u>raks</u> 'protect' (RV)
23		<u>radat</u> = <u>rudat</u>	<u>rudh</u> beautiful (RV) <u>rad</u> to bestow on give, dispense (RV)
24		<u>radhā</u>	<u>rād</u> satisfy (AV) <u>rādḥ</u> satisfy (RV) <u>rud</u> to grow (AV)
25		<u>rā</u>	bestow, give (RV)
26		<u>aetā</u>	<u>eta</u> brilliant (RV)
27		<u>aokkā</u>	<u>oka</u> abode, house, sacrificial hall (RV)
28		<u>aopasa</u>	<u>opasa</u> pillar, support (RV)
29		<u>aoma</u>	friend, helper (RV)
30		<u>aomās'</u>	friend, helper (RV)
31		<u>aosā</u>	<u>osa</u> shining, burning (RV)
32		<u>k-ā</u> <u>kā</u> <u>ka-ā</u>	enjoy love, seek happiness,
33		<u>kaśapp</u>	Prajāpati (Alt. Br., TS) <u>kaśyapa</u> n of or sin of a class of people associated with prajāpati (RV)
34		<u>kr</u> (kar)	<u>kr</u> praise (RV) <u>Kar</u> maker (RV)
35		<u>kat</u>	<u>kata</u> house, abode (RV)
36		<u>kh</u>	<u>kha</u> prajāpati (Alt. Br.)

Fig. 15 Indus words and their meanings (21-36).



SI No	INSCRIPTION	TRANSCRIPTION	MEANING	SEAL No,
72		<u>ae</u> ka- <u>s̄</u> - <u>nn</u> - <u>ā</u> " a ka- <u>s̄</u> anna	singular emment or calm.	M.263 (U)
73		<u>ā</u> eka- <u>bha</u> g- <u>ā</u>	singular lord	M. 187
74		<u>dya</u> ( or <u>dyau</u> ) <u>s̄</u> - <u>ā</u> - <u>r</u> = <u>dyau</u> - <u>s̄</u> - <u>ār</u> or <u>dyau</u> - <u>sar</u>	heavenly (and) praised or shining (and) of variegated colours	V.143
75		<u>pāt</u> " <u>dyau</u> - <u>s̄</u> - <u>hā</u> - <u>r ā</u> - <u>a</u> = <u>pat</u> " <u>dyaus</u> - <u>harā</u>	protect" heavenly protector	
76		<u>ae</u> - <u>ka</u> - <u>ae</u> - <u>ae</u> ka- <u>ka</u> - <u>papr</u> ( <u>ae</u> kae <u>ae</u> ka- <u>papr</u> ) <u>pa</u> - <u>k</u> " <u>ha</u> - <u>rā</u> - <u>ā</u>	only one fold (sacrifice) protected ( by ) Baka (Lord) "protector	C. 231 M. 310
77		<u>ae</u> ka - <u>ka</u> - <u>ā</u> = <u>ae</u> ka	onefold sacrifice	M. 385
78		<u>tr</u> - <u>ppta</u> ( or <u>trippat</u> ) <u>r</u> <u>k</u> - <u>ā</u> - <u>hā</u> = <u>trpta</u> - <u>arkaha</u>	(seal) of pleased Arka or seal of the protecting triad Arka	M.116
79		<u>pa</u> - <u>rā</u> - <u>tri</u> - <u>ka</u> = <u>parā</u> - <u>trika</u>	supreme threefold ( sacrifice ) or supreme triad.	V. 85
80		<u>s̄</u> a- <u>rā</u> , <u>ā</u> - <u>tri</u> = <u>s̄</u> ara- <u>atri</u>	'sāra, a descendant of 'sara (son of ratka) and Atri, arsi	
81		<u>pā</u> " <u>pan</u> t- <u>p</u> - <u>ā</u>	protect" protector (of) the five or five- fold sacrifice or pancajanāh	V.134

Fig. 17 Inscription, transcription and meaning (72-81).

Sl	INSCRIPTION	TRANSCRIPTION	MEANING	SEAL No.
82		<u>hapta</u> - <u>ha</u>	sevenfold (sacrifice)	M.25
83		<u>tri</u> - <u>ka</u>	consisting of three (threefold sacrifice)	M.220 MK 215
84		<u>ā</u> - <u>tri</u> - <u>hā</u> - <u>rā</u> - <u>ā</u> <u>atri</u> <u>hāra</u>	Atri protector	
85		<u>pa</u> (or <u>pap</u> ) - <u>s</u> / <u>hapta</u> - <u>sā</u> - <u>ā</u> <u>pap</u> - <u>tas</u> / <u>haptasa</u>	protecting creator of the seven or seven day sacrifice	
86		<u>śa</u> - <u>hapta</u> - <u>sās</u> (or with seven ruler bestower <u>sasā</u> ) - <u>ra</u> - <u>da</u> - <u>dyau</u> <u>ha</u> = <u>sahapta</u> <u>sasa</u> <u>rada</u> <u>dyauha</u>	brilliant (or shining) bestowers in the heaven	HP. 4337
87		<u>sas</u> - <u>ka</u>	consisting of six or a sixfold sacrifice	M 243
88		<u>pant</u> - <u>pāpr</u>	five protected or protectors (pancajanah?)	MK. 113
89		<u>pah</u> - <u>sā</u> - <u>s</u> - <u>k</u> - <u>tr</u> <u>sas</u> (or <u>sasā</u> ) - <u>ha</u> = <u>pah</u> - <u>sasaka</u> <u>tri</u> - <u>sāsaha</u>	(seal of protector commander triply shining or protecting commander of three rulers)	M. 802
90		<u>kaśappa</u> " <u>pp</u> - <u>dyu</u> - <u>ā</u> <u>kaśyapa</u> " protector = <u>kaśyapa</u> " <u>pap</u> - <u>dyua</u>	heavenly	MK 246

Fig. 18 Inscription, transcription and meaning (82-90).

SI No.	INSCRIPTION	TRANSCRIPTION	MEANING	SEAL No.
91		<u>dvādaśa-ppa-hā-</u> <u>mā-hā = dvādaśa</u> <u>papaha-maha</u> or <u>dvādaśa-ppah-maha</u>	twelve protectors great	MK 339
92		<u>Ṡvā-ā</u> <u>sa-tr</u> } <u>aśva-sātra</u>	horse sacrifice or somyaga (aśva=agni)	MK 577
93		<u>va-pa bhag-ā ś</u> <u>aśva-hā = vava</u> <u>bhaga-aśa-asvana</u>	grow (or creator)" Lord L the order Agni (Aśvaka) creator " Lord of the order Aśvaka	107
94		<u>para-ae-aśv-ā =</u> <u>parae-aśva</u>	to supreme Aśva	M 183
95		<u>hapta śasā-aśvā-ā</u>	from the seven shining Aśva or from Aśvā or ruler of seven	MK 8
96		<u>śak-ā-hā = śakāha</u>	of the powerful	K 117
97		<u>śakrā-trid-ā</u> <u>śakra-tridha</u>	powerful triply	MK 55
98		<u>maks (makh)-ā dyau-n-n</u> <u>ā = makha dyau nana</u>	cheerful divine mother	
99		<u>t-ksa-pak-g-ā</u> <u>taksa-pak-gā</u>	creator, guardian (of the) earth	

Fig. 19 Inscription, transcription and meaning (91-99).

S.I	INSCRIPTION	TRANSCRIPTION	MEANING	SEAL No.
100		<u>asv-pa</u> "ph- <u>adr-ma-a</u> <u>asvapa</u> " <u>bhadrama</u>	Aśvapa "most auspicious or Aśva (Agni) the protector " most auspicious	MK 407
101		<u>vr̥sa</u> -pa dyau- <u>s̄-ma-rk-ā</u> =vr̥sapa "dyau- <u>s̄ama-arka</u>	virile "protector " divine calm.	
102		<u>ph-has</u> "dh-ā = <u>pahas</u> "dhā	protect "bestower	
103		<u>vr̥sa-sahas-s'</u> = <u>vr̥sa-sahas</u>	virile (and) powerful.	MK. 4
104		<u>hā</u> = <u>tr̥tr̥ha</u>	(seal) of the saviour	
105		<u>a-tri vr̥s̄-n-pā</u> pr	many protector Atri V	577
106		<u>r̄a-mā-tr̄idā-oo-s̄'</u> <u>ā</u> = <u>ramā-tr̄idhā</u> - <u>osā</u>	Atri protector pleasant (and) triply burning	MK 420
107		<u>pha-dra</u> "-ka-s̄a <u>kkā-ā</u> = <u>bhadra</u> <u>s̄aka</u>	auspicious "powerful	M. 60

Fig. 20 Inscription, transcription and meaning (100-107).



<i>Kṛ</i>	'work (RV); <i>Kāra</i> 'work' (AV), <i>kar</i> 'to make', 'command' (AV).
<i>r</i>	'to go' (RV).
<i>ppr/pr</i>	'protect' (RV), <i>puru</i> 'many', <i>r</i> 'powerful'.
<i>dr</i>	'pierce' (RV).
<i>tr</i>	'cross'; <i>trai</i> 'save, protect' (RV).
<i>tra/tra</i>	'save' (RV).
<i>trd/trida</i>	'split, triply' (RV).
<i>trh</i>	'crush' (RV).
<i>drh</i>	'strong, hostile'; <i>drnh</i> 'strengthen' (RV).
<i>badra/bhadra</i>	'auspicious, wealth' (RV).
<i>Dṛha</i>	'name of a people' ( <i>Druhu</i> in RV).
<i>Barhai = Barhi</i>	'a variety of grass'; also 'name of Agni' (compare <i>barhishe</i> in RV).
<i>tatr</i>	intensive of the verb <i>tr</i> ; 'cross'.
<i>trataltrāta</i>	'saviour'; <i>Trita</i> 'name of Agni' (RV).
<i>sr</i>	'flow' (RV).
<i>brh</i>	'make big, increase, great' (RV).
<i>hr</i>	'destroy' (RV).
<i>rk</i>	'worship, praise' ( <i>arc</i> 'worship'); <i>arka</i> 'mantra and yajna' (RV).
<i>gr</i>	'sing, praise' (RV).
<i>mr</i>	'die' (RV).
<i>rātra</i>	' <i>dhana</i> '; 'god of wealth' (RV).
<i>rad/rd</i>	'shine' (RV).
<i>trida = tridhā</i>	'triply' (RV).
<i>rdha</i>	'prosperous' (RV).
<i>ra</i>	'bestow' (RV).
<i>rae/rai</i>	'wealth'; ( <i>ray</i> 'dhana', RV).
<i>papr</i>	intensive of the verb <i>pr</i> 'protect, (RV).
<i>prapa</i>	'watering place' (RV).

Some words written by using the fish sign are noted here.

'Fish' sign (value *ś* and occasionally *s*)

<i>sās</i>	'punish' (RV).
<i>sās = śās/śāsa</i>	'rule', 'master, ruler' (RV), <i>sāstar</i> 'lord, ruler' (AV).
<i>śak</i>	'be powerful' (RV), <i>sak</i> 'to be able' (AV).
<i>śāp</i>	'course' (RV).
<i>śama</i>	'calm' (RV).
<i>śanna</i>	'praised, triumphant' (from <i>śams</i> and <i>śād</i> , RV).

<i>śāka</i>	'friend'.
<i>śaka</i>	'powerful'; also <i>śakra</i> (RV).
<i>śada</i>	'triumphant, eminent' (RV).
<i>śah/sah</i>	'be victorious (RV), <i>sāh</i> 'king, regent' (pahlav).
<i>śaśaka</i>	'captain of a ship' (RV).
<i>maśal/maśaka</i>	'a unit of weight'; <i>maś</i> 'great' (AV).
<i>śata</i>	'hundred' (RV).
<i>śatrpa</i>	'protector from enemy'.
<i>śāpa-pār</i>	'protector from curse' (RV).
<i>dās</i>	'worship' (RV).
<i>paśa</i>	'countenance' (beautiful appearance = <i>supēśa</i> , RV).

(For meaning of Indus words in ancient Greek/Latin, see article by W.W. de Grummond)

Some of the cardinals e.g. *aeka*, *dva* and *tr* in Indus inscriptions were used in the rebus system or as logosyllables (fig. 18). The sign for one = *aeka* conveys the sense 'one', 'singular' and 'unique' as in *aeka-pa* 'unique protector'. The sign for two = *dva* (*dvau*) was used as a homophone for *dyau* to convey the sense of 'heaven' or 'shining' (*div*). Thus *pata-dyau* or *div* would mean 'divine governor or brilliant governor'. *Dyu* stood for a *havis* also in RV. The sign for three was very often used for its phonetic value *tr* or *tri* some examples of which may be noted here: *Parātrka* (*Parātrika*) 'supreme triad'; *Trda* (*tridha*) 'triply'; *Trta* (*Trita*) 'Agni'; *Tr-ā-tr* = *Trātr* 'saviour or Agni', etc. Signs for cardinals 4 to 10 were used to denote number. The Soviet and Finnish scholars as well as Fairservis hold the view that the 'dome' sign stood for 'ten' and wherever two or more 'notches' are shown below the 'dome' it should be read as 10 + 2. Others have suggested that U sign stood for ten. If the Indus scribes had a sign for 'ten' they would not have indicated 10 and 12 by corresponding number of slashes.

## Pictures

Apart from 34 basic cursive signs and some numerals there are 28 pictures (fig. 7) in the Harappan script. However, only eight pictures appear quite often and the rest only occasionally. The phonetization of most of these pictures becomes evident from the use of auxiliary phonetic indicators and the joining of pictures with linear or cursive signs or with other pictures. For example, the cursive signs having the phonetic values *a* and *h* are attached to the 'scorpion' and 'pipal leaf' (fig. 19). Secondly, the picture of 'hill' or 'mountain' is joined to the 'crossroad' sign and the 'pipal leaf' motif (fig. 21). The bird sign is joined to the cursive sign having the phonetic value *ra*. It is obvious from these examples that the pictures had ceased to be used as pictographs or as ideographs. They had a phonetic value, which however, was not alphabetic but mostly syllabic except in a couple of instances where they served as word-signs. Out of 28 pictorial

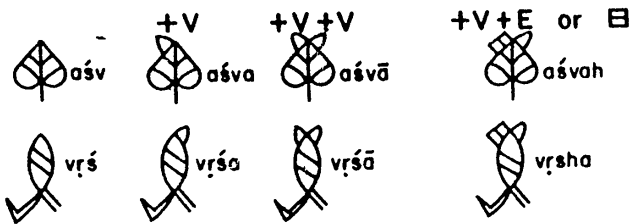
The Alphabet Museum  
Tel Aviv  
23-6-1972

Dear Sri Rao,

Very many thanks for your kind letters of June 5<sup>th</sup> and 15<sup>th</sup> and for your long HSS. article with the 24 photos of the Indus Script and the Late Harappan Script. Very sincerely I want to congratulate you on the decipherment of the Indus Script and on the proficiencies which you have put into it.

With kind regards,  
yours very sincerely,  
A. S. D. Jones

Phonetic indicator in pictures



Compound signs formed by joining two pictures and linear signs

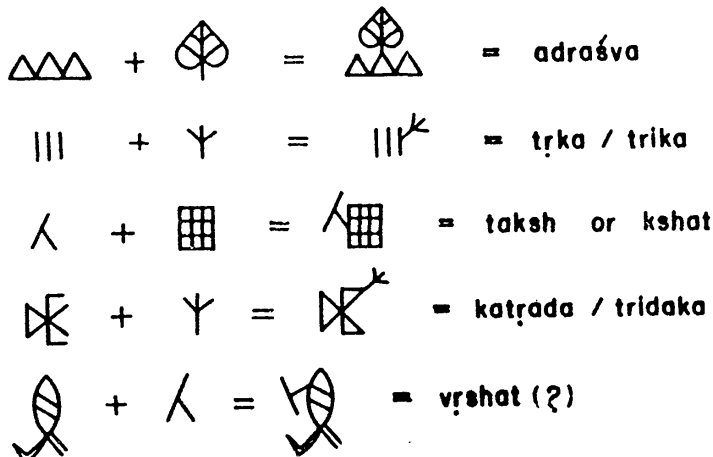


Fig. 21 Phonetic indicator in pictures and compound signs formed by joining two pictures and linear signs.

signs the value of eight which occur frequently has been determined and the resultant readings are found to be satisfactory. Since we know that the Indus language was akin to Old Indo-Aryan, the words for 'mountain', 'bird', 'scorpion', 'hand', 'bee', 'pipal leaf', etc., in Old Indo-Aryan have been taken as the basis for arriving at the syllabic value of these pictures in the Indus language. This is not a conjecture because it is verifiable from the meaningful words and sentences formed by the syllabic values given to pictures. For example, the syllabic value *śak* given to the pictures of 'bird' is derived from the word 'śakuna' or 'śakunta' a 'bird of omen' in the *Rgveda*. Syllabic values derived from alternate words for birds such as *pakṣi*, *vihaga* etc., or from names of birds such as *Tittiri* were found to be unsuitable and made no sense when the value *pakṣ* or *tat/tit* is given to 'bird' signs and read with other signs occurring in the inscriptions. Similar considerations weighed in assigning phonetic value to other pictures listed below (fig. 20).

Picture	Word value in OIA	Syllabic value	Total no. of times the picture occurs
1	2	3	4
Field (dominion, power)	<i>Kṣetra/Kṣatra</i>	<i>kṣa</i>	217
Crossroad	<i>Tara</i>	<i>tar</i>	157
Scorpion	<i>Vṛscika</i>	<i>vrś</i>	106
Pipal leaf	<i>Aśvattha</i>	<i>aśv</i>	90
Triangle with horizontal lines (abode) or an ideogram for 'town'	<i>Dhāma</i>	<i>dha</i>	78
Bird (of Omen)	<i>śakuna</i>	<i>śak</i>	66
Hill	<i>Adri</i>	<i>adr</i>	55
Hand	<i>Hasta</i>	<i>has</i>	46
Three Ds	<i>Trida</i>	<i>trd/trida/tridha</i>	42
Bee	<i>Makṣi</i>	<i>makṣ</i>	23
Animal (dog?)	<i>Śvana/Śuna</i>	<i>śvan/śuna</i>	55
Horn	<i>Śṅga</i>	<i>śṅ</i>	26

Meaning: *ksatra* 'kingdom, power, government' (RV), *xsa-ra* 'empire, realm' (AV), *Daimal/Dhama* 'house', abode' (RV).

There are twelve other pictorial signs which are not yet given any phonetic word, value, but in the entire gamut of 3200 inscriptions, five of them occur 22 to 30 times only and the rest are rarer still. Hence they do not affect in any way the identification of the Indus language. Out of 3200 inscribed objects more than 600 are heavily damaged and are of no use for decipherment purpose. Among the remaining 2600 inscribed objects about 1500 have been read fairly satisfactorily and the contents of inscriptions are ascertained. The meaning of some important inscrip-

tions involving the use of the more frequently occurring pictures may be noted here. One thousand two hundred inscriptions read so far out of 2200 non-fragmentary ones furnish a good deal of information on the administrative set up, religious beliefs, trade and industry.

### **Evolution of Indus Writing and Language (fig. 1)**

*In the early stage the Indus writing was logographic-cum-syllabic involving the use of pictorial signs, pseudo-pictures and cursive and linear signs. It belongs to Type III of Gelb's classification of writing, namely, the one in which both language and writing were unknown. With the help of a known script (Semitic) it was possible to identify the Late Harappan script, which belongs to Gelb's Type II, in which the writing is known and the language is unknown. After assigning phonetic value to Late Harappan cursive signs, which occur in the Harappan script also, the language of both could be known with the aid of comparative linguistics. Meaning of words apart, the roots, nominal stems and inflexionally-bound forms occurring in the Indus language could also be traced from Rgveda (Rao, 1982, 1991) the earliest literary composition of India (16th–14th century BC) which is still preserved in pristine form through oral tradition. Thus the Indus writing could be brought under Gelb's Type I in which both language and writing became known.*

The Indus language as made known from seal-inscriptions represents the stage when Iranians and Indo-Aryans had not yet separated. But this does not mean that non-Indo-Aryan speakers were not present in Indus cities. On the contrary the ethnic composition of the skeletal remains does indicate a cosmopolitan population. This is further corroborated by Aryan religious practices such as fire-worship and animal sacrifice side by side animal worship and tree-worship. One of the prominent religious rites was however fire-worship. The so-called brazier itself is a fire-altar of the Iranian type and the inscription below it reads *bag-bhag-arkaha* 'seal of bountiful arka (fire)'. In another seal with a similar inscription the God is shown in an arch of flame. The so-called Paśupati on MD Seal 420 is Agni in three forms (*tridhā*) and he is also called Paśupati in the *Śatapatha Brāhmaṇa*.

All the criticisms by Zvelebeuil and others, much of it non-academic, against my decipherment have been convincingly met by Prof. S.H. Ritti the renowned Epigraphist (*Manjusha* 1985, 1–18). I would like to bring to the notice of scholars the statement of W.H. Maurer the Reviewer of the *Decipherment of the Indus script* (Maurer W.H. 1985, 378) that the reader should have the same objectivity which Rao has imposed on himself in deciphering the script.

### **Fire-worship of the Indus people**

The worship of fire is attested to by the actual remains of fire-altars at Lothal and Kalibangan. The so-called brazier motif on more than a thousand seals in which the unicorn emblem also appears represents the fire altar or fire post. Tongues of flame are shown rising in

three tiers from a bowl like container in which fire was placed. The perforations in the bowl were meant to allow entry of air. The total absence of this device (fire post or altar) in seals in which the elephant, buffalo, tiger, short-horned bull, the long-horned Brāhmani bull and the rhinoceros are the principal motifs, is very significant. There is only one seal, and that too from Banawali, in which the tiger (hornless) and the fire altar motifs occur together. The device of fire altar is, almost without exception, found on the unicorn seals. There are, however, a few seals in which the fire altar alone is the device. Particular mention should be made of seal nos. 36 and 38 from Mohenjodaro (Mar) in which seven tongues of flame in each of the three tiers of the upper part of the fire altar are clearly visible. A similar motif occurs on seal no. 320 from Harappa (Vats) on which the inscription in cursive writing reads *pag-bhag ṛk-ā-hā* conveying the sense 'of mighty Lord (or God) *Arka*'. *Arka* (-as) derived from *arc* is used in the *Rgveda* in the sense of 'Sun, Fire, a flash of lightning, a ray' etc. (*RV*.IX.50.4). It also refers to the plant *Calotropis Gigantea* (*Ś.Br*). The term *arka* is also applied to a religious ceremony (*arkāśva-medha*) in the *Ś.Br*. According to Yaska *arka* means *anna* (food), *mantra* (hymn) and a particular tree (*Nir*.5.4). Since the attributes *pag* (*pājas* 'might, power') and *bhaga* refer to a 'mighty and bountiful Lord or God', and the motif is of fire altar, the term *Arka* must refer to fire or Fire God. In seal no. 307 from Harappa a deity with a horned headgear is shown standing in an arch of flame, and the inscription reads *bhag-ṛk-ā* (Pl. I) which means 'Lord (or bountiful God) *Arka*'. It is the Fire God again which is named *Arka* here. There is a clear reference to Agni adorned by flame in *RV*. 1.9.44.

अद्या दूतं वृणीमहे वसुमग्निं पुरुप्रियं ।

धूमकेतुं भा ऋजीकं व्युष्टिषु यज्ञानामध्वरश्रियं ॥ २ ॥

Agni is said to be having a banner of smoke and is adorned by flame. A round seal from Harappa (Vats, 1945) depicts a deity in an arch of flame. The inscription, partly illegible reads *i-pt-ba-ka-ā-hā* 'of Lord (or God) blazing (or shining)'. *Tapta* in *RV*. conveys the sense of 'heated, inflamed, hot, made red hot, refined' (*Tap* 'to shine, to give out heat' *RV*, V. 79.9). *Baka* is a homophone of *Bagalbhaga* 'God, Gracious Lord'. *Bk* and *Bg* are written in Pahlavi for *Baga* meaning 'Lord' (*AV* and Pahl). Hence the Indus inscription mentions the attributes of the Fire God depicted on the seal (317).

There is an interesting sealing on which two fire-altars, each with fire in three tiers, are shown (Pl. II). It comes from Harappa. Below the first altar or post a human figure carrying something on the head is shown. The second altar is shown springing from a tree. In this connection it may be noted that *RV*. refers to Agni as *dāruṭiṣṭhāgne Yūpātmake*, that is, one who lives in wood or tree and sacrificial post. The fire altar or post symbolises these two aspects of Agni and also his triple character. He is said to be in three worlds and having three bodies or heads. A sealing (Vats, 325) from Harappa with a tree in the railing motif has an inscription

reading *hā-rk-ā-r-hā=hā-arka-ār-ha* conveying the sense 'of shining *Arka* praiseworthy.'  $\sqrt{Hā}$  means 'shine'. हह हस्करात् । हस हसने अत्रतु प्रकाशमात्रे वर्तते । (RV I, 5.20 (12). *Ār* is used in the sense of 'to praise.' (RV, VIII, 16.6, X, 48.3). As the motif is 'tree' in the sealing, *Arka* may refer to tree as well as fire associated with the tree, as is clearly shown in the sealing no. 325 from Harappa referred to above. Obviously, it is *yūpātmaka dāruṣiṣṭhāgni* who is shown on these seals. In this connection mention should be made of two features noticed in the fire-altars of Lothal and Kalibangan. In the centre of the apsidal or semicircular and rectangular brick-built or clay altars at Kalibangan a stele is noticed. It is more pronounced in the Kalibangan altars (Pl. IV) than in the Lothal altar which is in a large hall. This suggests the fire itself was worshipped. Secondly, there is a posthole in the corner of a public fire altar at Lothal in the lower town (Pl. V) providing for a wooden post. In private houses the fire-altars (actually rectangular pits cut into the floor and sometimes lined by mud-bricks) are small compared to the two large public fire-altars built of kiln-fired bricks and raised on platforms. The average size of the fire-altars built for congregational worship of fire is 2.5 to 2.65 sq. m. The contents in all the altars — private as well as public, were ash, terracotta cakes and potsherds. A large jar placed near the public altars must have contained ritualistic water. In one case a terracotta ladle was also found with smoke marks. It must have been used for pouring any liquid into fire. Lal observes in the case of fire altars of Kalibangan "atop one of the platforms was located a series of what have been termed as fire-altars in the absence of a more suitable name. Although they are partly damaged it would appear that their number was seven—a number which surprisingly remained sacred in India all through the ages and is so even today. The altars were in fact clay-lined pits each measuring about 75 × 55 cm. Within each pit were noted charcoal, ash, and the remains of a clay stele as well as what are known as terracotta cakes.... "The clay stele as seen from the relatively more intact examples in the lower town stood vertically up; was either cylindrical or slightly faceted, and measured about 30–40 cm in height and 10–15 cm in diameter" (Lal, 1984).

Apart from the term *Arka* used for fire another term appears on Indus seals, and that is, *Gha/Gah*. For instance, the inscription on sealing no. 341 from Harappa, on which the only motif is a fire-altar or post, reads *Gha-pah-ppāt-hā* conveying the sense 'of *Gha* (the) protector Lord'. *Pah/pa* in Hittite, another Indo-European language the users of which also worshipped fire, is used in the sense of 'to protect'. *Gha* in the *Rgveda* is said to stand for Indra as well as Agni (RV, 1.2.5). The commentators say "*sa ghā no*" in the *Sūkta* means "the same Agni":

स घा नो योग आ भुवत्स राये स पुरं ध्यां ।

The term *Gha* is also used in *prasiddhārtha*. In the case of sealing no. 341 the reference is to Agni or its symbol fire altar. A number of other seals carry the same inscription.

Another epithet of fire god or fire-altar seems to be *śanna* which suggests that Agni is eminent (*śad* from which *śanna* is derived). If, however, the inscription is read *Aśna* it means

'consuming' (*Aśna* derived from *aś* 'voracious'). In *Taittirīya Āraṇyaka* Agni is known as *Asnyuṣṇi* as "he burns him who eats". In *RV* III.1.3.(5) Agni has been named *Aśani* (vide *Ś.Br.*, VI. 1, 3, 8 to 18). A tiny seal from Harappa (Vats, 440) has a fire-altar motif and an inscription which reads *śannāhā* or *aśnnāhā*; the reference is to the Fire God. On seal no. 222 from Harappa (Pl. III) is a deity seated in yogic posture (?) on a low stool. He is wearing a horned headgear, the central feature of which is a twig. It may be recalled that Agni is said to be supporting herbs (*oṣadhiḥ*). The inscription above the motif of Agni reads *Ta/tar-śanna* which conveys the sense of 'saviour eminent (or burning or auspicious)'. The first sign in the inscription seems to be a determinative for 'God' as saviour for which the OIA word is *trā/tar*, 'Save, take across'.

When a few more inscriptions on seals, in which the word *Arka* appears, are examined, other attributes of fire or Fire God (*Arka*) become known. The seal with Unicorn and fire-altar motifs from Mohenjodaro (Mar 116) has an inscription which reads *ṛ (tri) ppat (ppta) ṛk-ā-hā=ṛppta Arkaha* or *tri-ppat-Arkaha*. The sense conveyed is 'of pleased *Arka*' or 'of threefold Lord *Arka*'. Another seal which comes from Harappa (Vats, 43) bearing the Unicorn and fire-altar motifs has an inscription reading "*pat (Rk) ār Lord*" *Arka* praised'. By placing the sign for *Rk* the scribe has indicated that it is the name of a deity. The attribute *ār* suggests that he is praised or praiseworthy. In seal no. 10 from Mohenjodaro (Mar) in which the unicorn and fire-altar are seen the inscription reads *pat bhag-hā-ṛk-ā* which conveys the sense 'Lord or "God shining *Arka* (or Lord, Bountiful Luminous *Arka*)'. The word *hā* is used here in the sense of 'illuminating' (*RV*. I.5.20). *Haha* means *prakāśa* (light or brilliance).

स्तविष्यामि त्वाग्रहं विश्वस्यात्मृत भोजन ।

अग्ने त्रातारमृतं मियेद्य यजिष्ठं हव्यवाहन ॥ ५ ॥

(*RV* I. 9.44)

Another concept associated with Fire God in the Indus seals is one of protecting the devotee or people and more probably the protection of the sacrifice itself. The epithets used are *pa*, *pah* and *paka*. While *pu* and *pah* mean 'protection', *paka* conveys the sense of 'guardian'. He is also called *trāṛ* 'saviour'. Seal no. 350 from Mohenjodaro has a hieratic inscription which reads *trā-ṛ-kṣatra-kṣatra* meaning 'saviour (or protector) king of kings (or powerful among the powerful).'

The most important and frequently appearing epithet of the Fire God in Indus seals is *trida/tridhā* highlighting his triple character. The numeral sign for three is written for *tri*, but there are inscriptions in which the word *tr/ṛ* is written in the pure alphabetic system. It is in his triple character that the Indus Fire God shows close relation to the Vedic Fire God Agni.

*RV* III, 20.2, for instance, speaks of Agni's three powers, three tongues and his three bodies:

*agne trī te vājīnā trī śadhasthā tisras te jihvā ṛtajāta pūrvih  
tisra u te tanvo devavātās tābhir naḥ pāhi giro aprayucchan*



It is usually believed that the three forms of Agni are Sūrya in the heaven, Agni on the earth and lightning in waters. Terrestrial and solar fire, as being permanent and appearing every day were naturally regarded as the first and the second forms, while its fleeting and rarer manifestation was looked upon as the third.

The triple character of the Fire God in Indus seals is too pronounced to be ignored. The three-fold division of the Fire God is not only symbolically shown in the tongues of flame rising in three tiers from the fire-altar or post (Pl. II) and in the three-forked trident-like headgear of the deity standing in an arch of flame, but also in the frequent use of the numeral sign for three to write the words *tridha* and *trika*, which the present writer had earlier read as *trada* and *trkal traka*. The inscription on Mohenjodaro seal no. 116 (Mar, Pl. CVII) with unicorn and fire-altar motifs reads *tri-ppat-rk-ā-hā* 'of threefold (or triple) Lord Arka'. The inscriptions on three other seals (Mar 339, Vats 33 and 128) read *tri-ppat-rk-ā* conveying the sense 'Triple Lord Arka'.

### Tricephalic Fire God

The deity with three heads seated on a low stool and flanked by tiger, buffalo, elephant and rhinoceros and deer below the stool is an anthropomorphic representation of the three aspects of the Fire God. The horns show that he is a deity while the seven lines in the central feature of his headgear correspond to the seven rays or tongues of flame seen in the fire-altar motif on unicorn seals and also referred to in the *Rgveda* (X. 124.1). इमं नो अग्न उपयज्ञमेहि पञ्चयामं त्रिवृतं सप्ततन्तुं । असो हव्यावालुतनः पुरोगा ज्योगेव दीर्घं तम आशयिष्टः O, Agni participate in the sacrifice which consists of five kinds of *havis* and is *trivrdāt-maka* and *saptatantu* (seven tongued). Agni is called *saptaraśmi*. The presence of beasts in the seal should be understood with reference to his name 'Paśupati' mentioned in the *Rgveda* and further explained in the *Śatapatha Brāhmaṇa* (VI. 1.3.12).

तमब्रवीत्पशुपतिरीति । तद्यदस्य तन्नामकरोदोषधस्तदूपमभवन्नोषधयो वै पशुपतिस्तस्माद्यदा  
पशव ओषधीर्लभन्तेऽथ पतियन्ति सोऽब्रवीज्जायन्वा अतोऽस्मि धेह्यव मे नामेति ।

The difference between the Vedic ritual and the Indus ritual so far as fire cult is concerned is that the fire was an agent of gods carrying *haviṣ* to them in the Vedic religion, whereas he was himself the principal deity to whom the Indus people offered oblations. The revival of the Indus practice of fire-worship is alluded to in the *Rgveda* also.

The relationship between Agni and water is closely connected with the relationship between water and plants. *Rgvedic* passages such as I. 70.3; 145.5; X. 4-5, 51.3, etc. are highly suggestive in this context. *RV VIII. 43.9 apsv agne sadhiṣ ṭava sau ṣadhir anu rudhyase* 'in the water O Agni, is your station: you grow up in the form of plants'. The deity on the terracotta cake from Kalibangan (Rao, 1982) and the deity on seal no. 222 from Mohenjodaro, both wearing a horned headgear, have a sapling (*oṣadhīh*) tucked in it. The inscription in the seal under reference reading *X/śanna* conveys the sense of 'God auspicious'. The 'crossroad' sign

with the syllabic value *tar* seems to refer to the 'saviour'. If, however, the word *sanna* is derived from *sad* 'be eminent', the reference may be to the eminence of Agni rather than auspiciousness though he was both auspicious and eminent as indicated by the inscriptions using the epithets *siva*, *suna*, *bhadra*, *sada*, *saka*, etc. In this connection attention may be drawn to a tiny but important seal with a fire-altar motif in which the inscription reads *sannaha* 'of the auspicious (or the eminent)'. The only motif on this seal (Harappa, Vats 440) being the fire-altar (the symbol of the Fire God of the Indus people) the epithet *sanna* refers to him only. In *RV* I.11.67 (1-2).

वनेषु जायुर्मर्तेषु मित्रो वृणीते श्रुष्टिं राजेवाजुयं ।

क्षेमो न साधुः क्रतुर्न भद्रो भुवत्साधीर्होता हव्यवाद् ॥ १-२ ॥

Agni is said to have been born in the woods. "He is the friend of man. He protects his worshipper, as a king favours a man shorn of decrepitude, able as a defender, adorable (auspicious) as a performer of excellent works, may he the invoker of gods, the bearer of oblations be the performer of excellent works". The Mohenjodaro seal no. 522 (MK. Pl. XCVI) depicts a person sitting on the branch of a tree and pointing towards a tiger (which has no horns) looking back. The inscription on the seal reads *pt (pat) t-ara-s-aeka=taras-eka* conveying the sense 'Lord' energetic singular or 'Lord' singular (among) the *stoma* of gods. In the *RV* the term *taras* is used in the sense of 'rapid progress, velocity, strength, energy, efficacy' (*RV* V.77.18). It is also the name of a *stoma* of gods (Tandya VIII.XI.XV). In the present context the inscription may mean 'singularly energetic' or 'singular among *stoma* of gods'. Perhaps fire represents energy, according to the Indus people. According to the *RV*.I.12.72 (2) Agni is said to have hidden himself in the woods (pipal tree, bamboo bushes, etc.). It may not be far from the concept of the Indus people if we assume that the three tiers of the fire-altar on seals and the three-faced God in the Mohenjodaro (MK 420) seal represent three forms of energy pervading the universe and all life — human, plant and animal. The inscription on the said seal reading *ra-ma-trida-ao-s-ā* conveys the sense 'pleasant (*rama*) and triply (*tridhā*), shining or burning (oṣa)'. In *RV*.X.119.10 also the word is used in the same sense. It is, therefore, the Fire God in three forms (with three faces) and not Paśupati or Rudra who is depicted in the Indus seal (MK 420). On seal no. 420 (Mar), also from Mohenjodaro, the inscription reads *phadra (bhadra) omasa trida (tridhā)* meaning 'auspicious, friendly (or protecting) in three ways'. The term *oma* is used in the *Rgveda* in the sense of 'a friend, helper, protector' (*RV*.I.3.7). This epithet of Agni in *RV* and of the Fire God in Indus seals occurs in one of the seals of Kalibangan which is known for its fire-altars.

Inscriptions reading (Mar 25), *pa-hapt-ā* (Rao, 1982, fig. 31; Lothal 7203, 5, 6 etc), *patā-hapt-sāsa* or *sāsa* (Rao, 1982, fig. 31, Mar 344 etc.) *phag (bhaga)-aṣṭa-ka* (Rao 1982, fig. 32, MK 267) convey the sense 'consisting of three', 'consisting of four', 'consisting of five', etc. *Trika* refers to a threefold sacrifice and *haptāha* to a seven-day long oblation. The inscription *tri-hapta* may refer to a threefold oblation each of seven kinds, to which a reference can be

traced in *RV.I.5.20* as *trirā sāptāni* and interpreted as 'three types of (*trivarga*) sevenfold (*sāptāni*) oblations'. The three types are *haviryajñas*, *pākayajñas* and *somayajñas*. But it is not at all certain that the Harappans performed these very *yajñas*. Though the Indus sacrifices were not similar in ritualistic details to the Vedic sacrifices, some parallel can be drawn on the basis of the archaeological evidence in the form of sacrificial remains and altars found at Lothal and Kalibangan. For instance, the brick-built altar at Lothal is rectangular in plan and its contents are ash, burnt earth, potsherds, charred mandible of a bovid, a carnelian bead and a gold pendant (Pl. VI). This pendant resembles the pendants shown on the forehead and arm of the statue of the priest from Mohenjodaro. In Vedic sacrifices *niṣka* and *rukma* serve as ritual ornaments. The Brāhmaṇa literature mentions potsherds of various sizes for the preparation of sacrificial cakes (*puroḍāsa*). Gold beads and *niṣka* were given as gifts to the priests. A votive pot with the inscription *pat pa barhay* found at Rojadi suggests that it was offered on the occasion of fire worship. A parallel can be drawn from the *RV* which says *Agne devā ihāvaha jajnāne vṛkta barhiṣe*. The commentators say that *barhis* 'sacred grass' is a transferred epithet here for Agni. In *RV.I.13.74* (5) Agni is called *sahase mahah*, that is, 'the son of might' (*sahas*) and *sabarhiṣam* 'one who has an auspicious oblation'.

The epithet *sahas* is seen occurring in one of the seal-inscriptions. Another epithet is *dakṣa* 'intellectual ability' occurring in seals. A distinction seems to have been made between *sahas* and *mahas*, the former standing for physical power (gross element) and the latter for spiritual power. The seal in which the bull-man is seen fighting with a horned tiger carries an inscription reading '*sahas mah*'. Dange may after all be right in suggesting that the bull-man stands for *ojas* and the tiger for *tejas*. But the fact remains that the tiger, horned as it is, was deified. The bull-man perhaps representing the fire-worshipping community had succeeded in making animal-worshippers recognise the spiritual superiority of fire or energy in three forms. Animals stood for particular powers of Nature.

It is also known that the Indus people performed sacrifices of long duration as indicated by the mention of *sattras* such as the *aśvāsatra* on seal no. 577 from Mohenjodaro. It refers to a horse sacrifice or a sacrifice by *Aśva*. The repeated performance of *Soma yāga* is called a *sattra* (*Yaj. Ved. Taitt. Sam.6. 1. 6*). It is of two types, one lasting for 12 days and another for an entire year.

For identifying the type of sacrifice performed by the Indus people at Lothal and Kalibangan we have to depend on the animal bones and other finds in sacrificial altars. The bones found in both the places are of bovinds. The present writer had suggested earlier that a *gavāmayana* sacrifice might have been performed by the Harappans. Dange, while admitting that a bull was offered not only at the *gavāmayana* but also at other Vedic sacrifices, observes that "*gavāmayana* does not refer to the bull sacrifice" and that "the word *gāvam* stands for the solar gait in the year, the *gāvah* (cows of which *gāvam* is the genitive pl.) at many places stands for

the sunrays." In Harappan times, too, the *gavāmayana* might have been symbolic of sun's gait, though a bull was also offered. Later on, this offering may have ceased to be made. By the time the *Aitareya Brāhmaṇa* was composed the sacrifice might not have involved the actual sacrificing of the bull. Goat was however, offered to the dead at Harappa and Kalibangan. In the case of the animal sacrifice at Kalibangan the sacrificial pit was enclosed by kiln-baked bricks and the contents were uncharred bones of cattle and antlers. Animal sacrifice is also suggested by the engravings on a terracotta cake from Kalibangan in which an animal being led by a man perhaps for being sacrificed is shown. There is also the figure of a deity to whom the offering was made. The scene of offering a goat in sacrifice to Agni standing in an arch of flame and seven chiefs standing below (Pl. VII) has been discussed at length by the present writer in *The Decipherment of the Indus Script* (p. 277). The inscription reading *tridaśa śāra* conveys the sense 'God (*tridaśa*) of variegated colours (*śāra*).'

"This being so it is rather strange that a linguistic counterpart of such a common Vedic word as Agni should not occur prominently in the Avestan language.... The Avestan cult which corresponds to the Vedic Agni cult centres round *athar*. And it is interesting to note that a form closely related to the Avestan *āthar* occurs in the *Rgveda*, in a solitary instance, namely Vedic *Atharyu*, which is an epithet of Agni. Accordingly *athar* is to be regarded as the hypothetical base from which derivatives *atharyu* and *atharvan* are formed. There can be little doubt that this hypothetical Vedic *athar* is the same as the Avestan *āthar*." Both Vedic *athar* and Avestan *āthar* seem to be derivatives from the Indus *āt/atha*" (Dandekar 1979).

Another important linguistic term common to the Indus and Avestan is *aśa* for such an important concept as cosmic or moral order. For king, ruler and kingdom also two common words of the Indus and Avestan are *śah* and *xšatra* (*kṣatra*).

Prof. W.W. de Grummond has finally accepted the Indo-European affinities of the Harappan language and gives a list of verbal bases in Greek and Latin having affinities with the Harappan language (Grummond 1992, in this vol.). He adds that the case system so important in Indo-European inflection of nouns can be traced in the Indus inscriptions. Prof. P.N. Mathur has derived names of Ikshvaku kings from the personal names in the Indus inscriptions, for example, what the present writer reads as common noun *śasāda* meaning 'captain', has been identified as a proper noun.

An objection raised by Mahadevan is that the monosyllabic value given to solo signs of fish, man, etc. has led the present writer to a curious monosyllabic Old Indo-Aryan language. This objection is effectively met by the explanation for the origin of words with *ś*, *śa*, *sā*, etc. given by Burrow. Infact the fish sign with the phonetic value *ś* has medial vocalic indicators to read *śa* = *śak*, *śah*, etc. The solo signs occurring in a few Indus inscriptions are therefore meaningful phonemes.

An attempt has been made recently by B.V. Subbarayappa to consider every sign, cursive

as well as pictorial and their compound forms as indicating numbers. Thus a bird, pipal leaf, scorpion and fish too would, according to him stand for something like 124, or 342. This would amount to saying that the Harappans had only a language of numbers and no vocabulary. As the seals were used for sealing cargo the name of the commodity should have been indicated besides mentioning the quantity, which Subbarayappa does not concede. Hence, his methodology lacks objectivity like that of others who proceed on the a priori assumption that the Indus language was Dravidian.

Extracts from Dr. David Diruiger's letters addressed to S.R. Rao should convince serious scholars that the decipherment by Rao stands to reason and has opened up a new chapter in the history of writing and identification of the architects of the Indus Civilization (fig. 21).

### Notes

The latest attempt by N.K. Verma (Times of India, Bombay, July, 7, 1992) to compare the diagrams drawn by Santhal Tribals of Indus signs and read words based on Santhal's sound values has too many assumptions which cannot be verified archaeologically, for instance migration of Harappans to Bihar and the Santhals retaining the script unchanged for nearly 4000 years though there is no trace of the Indus script in original form after 1200 BC except for some signs in Brāhmī anywhere in India. He has derived many words, the meaning of which he cannot define. This way, any word in any language can be derived depending on some value given to pictures and cursive Indus signs. Harappans could not have spoken 5 or 6 languages.

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### Abbreviations

AV=Avesta; RV=Rgveda; S.Br=Śatapatha Brāhmaṇa; IE=Indo-European; IIr.=Indo-Iranian; OIA=Old Indo-Aryan; OIr= Old Iranian; Hitt=Hittite; Op=Old Persian; Nir=Nirukta.