

## AGRICULTURAL TERMS IN THE INDUS SCRIPT

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### **Introduction**

1. The Indus or Harappan Civilization was based on agricultural surplus like all other contemporary river-valley civilizations of the Bronze Age. The annual flooding in the Indus and the rivers of the Punjab brought down rich silt making irrigated lands very fertile. There must have existed administrative machinery to collect the grain as taxes due to the State or offerings to the temples. The grain would have been stored in large granaries for distribution as wages, especially to the army of workers employed in the construction of massive public works like the brick platform at Mohenjodaro, fortifications at Harappa, city drainage systems, irrigation canals etc.
2. It would have been convenient to control the apportionment of grain right at the threshing floor. Sheaves of grain stalks would have been bundled into lots and marked with clay tags which were then impressed with seals to identify ownership before the grain was transported to granaries or taken away by landlords as their share, leaving the rest as the share of tenant-farmers or wages to the cultivators.
3. It is thus quite likely that Harappan seals and sealings would contain information on agricultural production and distribution. This probable scenario has led me to search for and identify a remarkable set of closely knit signs which appears to refer to crops and sharing of grain. (Text Numbers, Sign Numbers and statistics are cited from my book, *The Indus Script: Texts, Concordance and Tables* 1977. Four-digit numbers refer to texts and three-digit numbers to signs. The Sign List and List of Sign Variants in the book are the sources for illustrations.)

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## **Methodology**

4. The proposed interpretations are based on the pictorial character of the signs and their probable functions as determined by positional and statistical analysis of the texts. As the 'rebus' principle is not invoked in this study, there is no need to make any assumption about the language of the texts. I have, however, chosen to cite, wherever apt, bi-lingual (Dravidian and Indo-Aryan) parallels relating to agriculture, as I believe that they represent age-old traditions at the ground level and that they lend support to the proposed ideographic identification of the signs.

## **Agricultural Terms in the Indus Script (Chart)**

5. The appended Chart illustrates a set of closely related signs interpreted as 'agricultural terms'. The signs are arranged in a grid of columns and rows to bring out their similarities and inter-relationship. It is remarkable that the entire set of agricultural terms is made up of just three 'basic' signs combining with five 'modifiers'. The basic signs are placed at the head of the three central columns (I to III). The modifiers are listed one below the other in the first column at the left. They consist of three modifying 'elements' (labelled A to C) and two modifying signs. The modified compound signs are placed at the junction of the respective columns and rows. The meanings of the basic signs and the modifiers are given in the Chart. The meanings of the compound signs are derived by the combination of the respective modifier and basic sign.

## **Interpretation of Basic Signs**

6. The basic signs, especially their graphic variants, provide the pictorial clues to their identification as explained below.

**Sign 137 'to divide, share (as grain)'**      

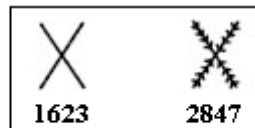
7. The point of departure for this study is the X-like sign 137, one of the simplest in the Indus script. It invites comparison with the near-identical ideogram in the Egyptian hieroglyphic script which means 'to divide'.

The comparison enables us to assign the same general meaning to the corresponding Indus sign, 'to divide, share' (Fig.1).



**Fig.1** Signs 'to divide, share'

8. The next clue as to what is divided as shares comes from two identical texts on a pair of three-sided prism-like sealings (1623 & 2847) from Mohenjodaro. These are incidentally the longest known Indus texts, each consisting of 26 signs. While all but one of the signs are identical in the two inscriptions, one sign alone (137) shows an interesting variation providing a precious clue to its meaning. The graphic variant in 2847 shows a pair of stalks laden with grain arranged in X-like form to mean 'share (as grain)' (Fig.2). Sign 137 and the modified compound signs derived from it (in col. I of the Chart) also have other minor graphic variants, where the straight X-like lines are replaced by curved lines suggestive of slender and supple grain stalks (e.g. 1179 & 6131).

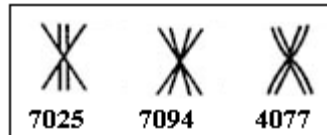


**Fig.2 :** Variants of sign 137  
'share (as grain)'

**Sign 141 'share of crop'** 

9. This more elaborate sign can be interpreted as a combination of the X-like element 'to share' with a pair of tall vertical lines representing 'grain stalks', the whole sign having the meaning 'share of crop'. The proposed identification is supported by the graphic variants of the sign, which suggest 'bundles of grain stalks tied in the middle' (Fig.3). The modified

compound signs derived from sign 141 (in col. II of the Chart) also have similar variants (e.g. 2098, 3107 & 4077).



**Fig. 3** Variants of sign 141  
'share of crop'

10. Many Dravidian languages have specific expressions for 'share of the crop', which are derived from the verb 'to gather, make into bundles, carry away'; (e.g.)

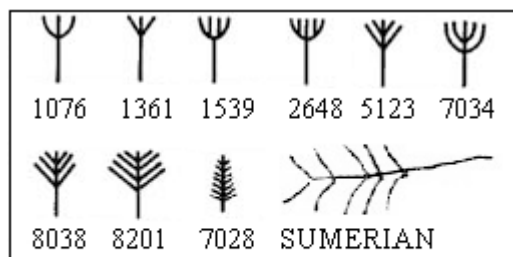
Verbs: Ta. *vāru* 'to take by handfuls'; Ma. *vāruka* 'to take in a heap'; Ka. *vāme* 'heap of straw'; Te. *vāru* 'to make into a bundle (of hay)'; Malt. *bāre* 'to take out as grain' (DEDR. 5362).

Nouns: Ta. *vāram* 'share, lease of land for a share of the produce, share of the crop of a field'; Ma. *vāram* 'share, landlord's share'; Ka. *vāra* 'share, landlord's half-share of the produce of a field in lieu of rent' (DEDR 5359). Cf. Ta. *vāri* 'produce, grain' (*Tamil Lexicon*).

Also see the discussion below on Ta. *mēl-vāram* 'landlord's share of the produce' and *kuṭi-vāram* 'tenant's share of the produce'. The pictorial depictions in the corresponding Indus signs are in close accord with the imagery invoked by the Dravidian expressions cited above.

### Sign 162 'crop'

11. Sign 162 is a self-evident ideogram for 'crop' as may be seen from its graphic variants (including signs 167 and 168 now recognized to be mere variants of 162). The sign may also be compared with the identical Sumerian 'grain' sign (Fig. 4).



**Fig. 4 :** Variants of 'crop' signs 162, 167,  
168 and Sumerian 'grain' sign

The realistic depiction of the ‘crop’ sign in the more recently discovered seals from Banawali is conclusive evidence for the proposed identification. (See especially B-12 in *Corpus of Indus Seals and Inscriptions*, vol. I). The similar manner in which modifiers are added to this sign like the other two basic signs lends additional support to its identification.

The most common expression for ‘crop’ in Dravidian languages is *viḷai* (v.) ‘to be produced’; (n.) ‘produce, crop, yield’ (DEDR 5437).

### Modifiers and Compound Signs

#### Modifying Element A: ‘sky’

12. The modifying element A is near-identical with the corresponding Egyptian ideogram for ‘sky’ and is accordingly interpreted to mean ‘sky, heavens, pertaining to god’ etc. (Fig.5). When the element ‘sky’ is placed above the basic signs, the compound signs (in the same row in the Chart) acquire the meaning ‘god’s share of grain or crop’.

The concept of first fruits, “the first agricultural produce of a season, especially when given as an offering to God” (*Oxford English Dictionary*), is familiar to all agricultural societies. Many Dravidian languages have specific expressions for ‘god’s first share of the produce’ e.g., Ma. *mīttal* ‘first fruits, offering to demons’; Koḷ. *mīdi* ‘offering to a god’; Te. *mīdu* ‘what is devoted or set aside for a deity’ (DEDR

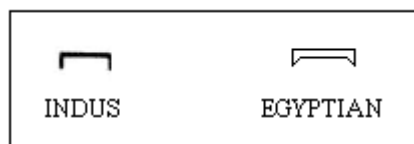
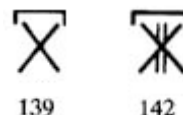


Fig. 5: Signs for 'sky'

4841). Cf. Ta. *mītu-poli* ‘grain first taken from the grain heap at the threshing floor for charitable purposes’ (*Tamil Lexicon*).

#### Compound Signs for ‘god’s share of grain / crop’



13. The compound sign 139 occurs only on seals, mostly from Mohenjodaro. It is the only sign on a large ‘unicorn’ seal from Chanhudaro (6131). It would appear that seals with this sign were used by temple functionaries

to mark the clay tags affixed to bundles of grain stalks which were set apart as ‘god’s first share of the produce’ at the threshing floor.

14. The compound sign 142 occurs only on the miniature tablets and sealings from Harappa. The function of 142 seems to be somewhat different from that of 139. Sign 142 may depict the voluntary offerings of small farmers or tenants of first fruits to god before further apportionment of the grain. Apparently, the miniature tablets or sealings marked with this sign would be placed on bundles of grain stalks or heaps of grain offered to the deity.

**Modifying Element B: ‘one-eighth’**



15. The modifying element B consists of eight vertical short strokes arranged in four pairs around the basic signs. The context indicates the meaning ‘one-eighth’.

**Compound Signs for  
‘one-eighth share of grain / crop  
(due to the State)’**



140



143



164

16. The compound signs 140, 143 and 164 which mean literally ‘one-eighth share of grain or crop’ is interpreted as the ‘State’s share of the produce’ from the following evidence.

The Pillar Inscription of Asoka at Lumbini, the place of birth of the Buddha, states :

*luṃmini-gāmē ubalikē kaṭē aṭha-bhāgiyē ca.*

“The village of Lumbini was made free of taxes and to pay (only) an eighth share (of the produce)”. (*Inscriptions of Asoka*, ed. E. Hultzsch, Rummindei Pillar Inscription.) Hultzsch cites Fleet (*JRAS* 1908: 479) that “*aṭha-bhāga* (from Skt. *aṣṭa-bhāga*) is an ‘eighth share’ which the king is permitted by Manu (VII: 130) to levy on grains”. Apparently, the Harappan rate of land revenue at one-eighth share of the produce continued down the ages and was later codified by Manu and was prevalent until at least the Mauryan Age. In later times, the rate of land revenue varied from place to place . Tamil literary and inscripational

sources mention *āril-onru* ('one-sixth') as the prescribed rate. The general term for 'tax on land' in Tamil was *irai* (DEDR 521).


**Modifying Element C: 'Upper' **

17. The modifying element C, resembling V turned upside down, is interpreted to mean 'upper, higher, above' etc. (cf. Ta. *mēl*). When it is added to the basic signs for 'share of grain/crop', the compound signs are interpreted to mean 'upper share of the produce'.

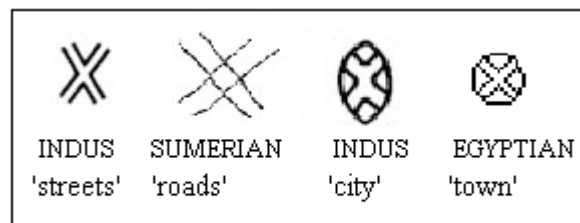
**Compound Signs for 'upper (landlord's) share of grain/crop'**



18. The compound signs 138 & 163, combining 'upper' with 'share (of grain) or crop' respectively, seem to have the same meaning, namely, the 'upper share of the produce (due to the landlord)'. The interpretation is suggested by the Tamil literary and inscriptional usage which equates 'upper share' with 'landlord's share' of the produce; e.g. Ta. *mēl-vāram* 'the proportion of the crop or produce claimed by the landholder' (*Tamil lexicon*). The term generally occurs in contrast with *kuṭi-vāram* 'tenant's share' (discussed below).

**Modifying sign 149: 'streets' **

19. Sign 149 depicts pictorially 'crossroads'. It may be compared with the near-identical Sumerian sign for 'roads'. The Indus sign can be interpreted as 'streets' or 'part of a city' when compared with another Indus sign (284) for 'city' which has an exact counterpart in an Egyptian ideogram (Fig.6).



**Fig.6 :** Signs for 'streets' and 'city'.

**Compound sign 144: ‘streets’ share’**



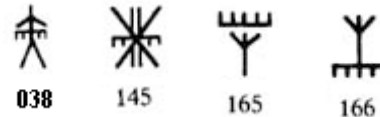
20. The compound sign 144 can be analysed as follows:  
‘Streets’(149) + ‘share of crop’(141) = ‘streets’ share of the crop’(144).  
We learn from Tamil inscriptional evidence that a levy known as *pāṭi-kāval* lit., ‘(levy for) guarding the streets’ was collected from the citizens for payment to those guarding the city or village (*Glossary of Tamil Inscriptions*). It is quite likely that a similar system of municipal taxation was in vogue in the highly organized urban societies of the Indus Civilization.

**Modifying Sign 176: ‘harrow’**



21. Sign 176, apparently a toothed implement, is interpreted as a ‘harrow’. The harrow symbolises ‘cultivating tenant’ or his share in the compound signs to which it is added. Note particularly the compound sign:  
176 (‘harrow’) + 001 (‘man’)= 038 (‘ploughman, farmer’).  
Cf. Ta. *kuṭi*, *kuṭiy-āḷ* ‘tenant’ ; Ma. *kuṭiyān* ‘tenant’ (DEDR 1655).  
Ta., Ma., Ka., *āḷ* ‘man, servant, labourer’ (DEDR 399).

**Compound signs for ‘tenant’  
& ‘tenant’s share of crop.’**







22. Sign 145 is interpreted as a compound of ‘share’ (X-like element), ‘grain stalks’ (pair of tall vertical lines) and the ‘harrow’. The compound sign means ‘share of the crop due to the tenant-farmer’. (See *Corpus of Indus Seals and Inscriptions*, vol.I, M-391 for a realistic variant of this sign.) Similarly, signs 165 & 166 are compounds of ‘harrow’ (176) and ‘crop’ (162) with the same meaning ‘share in the produce of the tenant’. Compare Ta. *kuṭi-vāram* ‘share of the produce to which a ryot is entitled’ (*Tamil Lexicon*).

**Later Survivals of Agricultural Signs**

23. It is very significant that some of the agricultural signs of the Indus script survived as isolated symbols in the pottery graffiti of the succeeding



Chalcolithic and Megalithic Periods (B.B. Lal 1960, *Ancient India* 16: 4-24). The relevant comparisons from Lal's photographic catalogue are listed below.

<b>Indus Sign</b>	<b>Pottery Graffiti Symbol No.*</b>	<b>Plates*</b>	<b>Pages*</b>	
	137	10-11	IXA:1-2 IXB: 1-4	10 10
	139	59	XXXIII:11	20
	162	3 41-42	III A:1-6 XXVIII:1-7 XXIX A:1-2	8 17 17
	176	19	XV:1-9	12-13

\* References to Lal 1960.

While Lal has compared the pottery graffiti with similar-looking Indus signs, he has refrained from offering any interpretations. In the light of the present identification of the Indus signs listed above as 'agricultural terms', it is perhaps not too far-fetched to suggest that the corresponding

symbols occurring as graffiti on pottery during Chalcolithic and Megalithic Periods had the same significance. The survivals lend support to the linguistic parallels suggested in the paper linking Harappan agricultural practices with later traditions.

### **Discussion**

24. It remains to add some comments on a few points arising out of the proposed identification of agricultural terms in the Indus script.

1. **Modifiers:** It will be seen that the modifying elements and signs in the Chart modify the sense and not the sound of the basic signs. In other words, the additions are semantic and not phonetic. The modifiers act as attributes qualifying the sense of the basic signs. The Chart indicates that in the Harappan language the attribute precedes the noun it qualifies. Further, it is not necessary that a compound sign should have two phonetic elements; it may be a single word.
2. **Signs stand for personal nouns also:** The signs listed in the Chart can also be interpreted, when warranted by the context, as the corresponding personal nouns.  
(e.g.) share > share-holder, share-cropper  
crop > one who grows the crop, agriculturist  
harrow > tenant-farmer  
streets > citizens, municipal authority.

Such interpretations are more likely when the signs occur initially or followed by nominal suffixes in the texts.

3. **Other Signs:** Signs 001 ('man') and 149 ('streets') are not 'agricultural signs', but included in the Chart as they combine with agricultural signs to produce compound signs interpreted as agricultural terms.
4. **Frequent Signs in other contexts:** The two signs mentioned above (001 and 149) and also the signs 162 ('crop'), and 176 ('harrow') occur very frequently in the Indus texts in other contexts. In such cases, these signs may have much wider, though still related, significance, not considered in this paper.

5. **Redundancy of Signs** : It will be noticed that signs in the same rows have virtually the same meanings. The redundancy could have arisen at different places and during different periods. Perhaps some of them are not redundant, but have nuances and shades of meanings which elude us at this preliminary stage of analysis. Even after allowing for such possibilities, one is left with the impression that the Indus script, even in its mature stage, appears to be a limited type of writing, comprising almost wholly of words-signs which represent matters of interest to the ruling classes. Such redundancy, as seen even in this limited set of signs, is not expected to be present if the script had reached a more advanced stage as Sumerian or Egyptian.
6. **Parallels from other Pictographic Scripts:** The parallels cited from Sumerian and Egyptian scripts do not mean that they are related to the Indus script or there had been direct borrowings from them. When picture-signs are drawn from material objects, there are bound to be some similarities even between unrelated scripts. However, ideographic signs from different scripts can be compared only semantically and would have no phonetic connections.
7. **Bi-lingual Parallels:** The bi-lingual parallels (from Dravidian and Indo-Aryan) cited in the paper are intended to highlight the cultural unity and continuity of traditions, which get reflected as parallel expressions in languages belonging to different families. As mentioned at the outset, the interpretations proposed here are ideographic and not based on linguistic arguments.
8. **The Grid:** The grid of related signs presented in the Chart has turned out to be a powerful tool for analysis. Even the very rare signs which occur only once (144, 145, 164, 165 & 166) and hence normally un-analysable, have been identified with some confidence because of the pattern brought out by the grid. What is more, one can even predict that the blank squares in cols.I-III in the Chart would be filled up in due course by new discoveries of compound signs which would be combinations of the respective modifiers and basic signs.

## Summary






















25. The Indus script possessed a set of terms referring to crop and share of the agricultural produce. Five hierarchical levels of levies on the produce have been identified, namely those due to God, State, City, land-owner and the tenant-farmer. The most significant information is the discovery that the Harappan rate of land revenue was one-eighth share of the produce which prevailed until at least the early historical period.

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CHART

AGRICULTURAL TERMS IN THE INDUS SCRIPT

MODIFIERS	AGRICULTURAL SIGNS			OTHER SIGNS
	I	II	III	
	 137 share (of grain)	 141 share of crop	 162 crop	 001 man
 A. SKY > god's	 139	 142		
 B. EIGHTH > State's	 140	 143	 164	
 C. UPPER > landlord's	 138		 163	
 149. STREETS > city's		 144		
 176. HARROW > tenant - farmer's		 145	  165 166	 038