

Epigraphs were descriptions of possessions and of weapons made by fire-workers

It would appear that many inscriptions were descriptions of possessions and of weapons made by the fire-workers (principally, metal-workers) of the bronze-age civilization, which matured ca. 3000 BCE

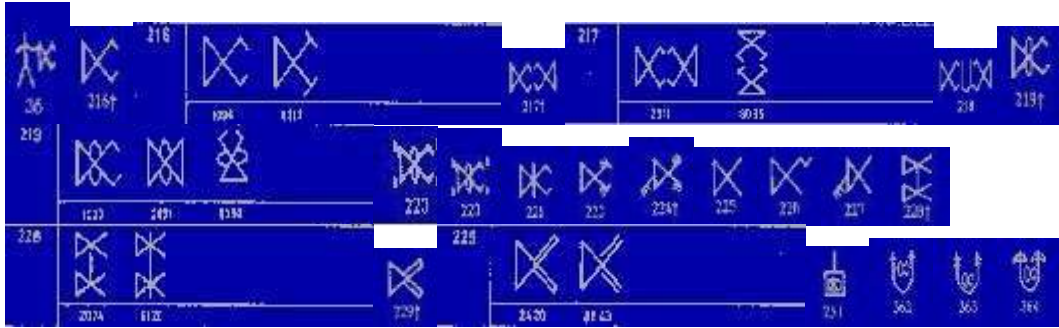
The Sarasvati and Sindhu rivers in NW Bha_rata sustained this civilization and the continuity of the

Bha_rati_ya civilization into historical periods is confirmed by the underlying semantic unity of the Bha_rati_ya languages.

The fire-workers of the civilization produced the inscriptions related principally to the bronze-age artefacts, principally of weapons.

Jaws **kot.ir_u** (Ta.) kot.re (Tu.), kor.i (Or.)
 Top-leaf (2) **kod.ire** (Tu.), kod.i ele = betel leaf (Kod.)

kut.ila 'bronze (8 parts copper 2 parts tin)' (Skt.)



36, 216-229, 251, 362-364 + variants, ligatures **kut.ilikaka**_ smith's tongs (Skt.)(DEDR 2052). Tongs (1) kot.il (Ma.), **kot.iru** (Ta.); kor. Hook of tongs (Ko.)

kot.a_ru, kot.a_ramu, kot.ha_ru = store-house, magazine, depository (Te.)

Bandicoot ko_d.el (Pa.) [**kod.el** = rat (Go.)]

Deer kod.al (Go.) [god.lu, go_dalu = horned cattle (Te.); gud.va = nilgai (Pa.)]



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god.el axe (Go.) kod.ari (Tu.)

Tools-of-trade and property possessions of artisans depicted in epigraphs

Minerals, metals and furnace types

Presented below are a few examples of minerals, metals, furnace types, tools-of-trade and property possessions of artisans; many are lexemes from Santali, which explain some glyphs, using the rebus method (similar sounding words explaining the glyphs as well as the underlying substantive 'message'). The hieroglyphs of the civilization provide a framework for further linguistic studies to delineate the Proto-Indian structure of semantics and phonetic forms of lexemes.

Properties of Graphemes

Many short and long linear strokes on the texts (when read in combination with the external archaeological evidence of the finds of binary chert weights) indicate the underlying practice of some form of 'accounting or measurement' or just 'counting' (?of property items) conveyed through the objects inscribed with messages (messages composed of pictorials and/or clusters of signs constituting texts of inscriptions). In some cases, the counting could be related to ratios, for example, the ratio of tin and copper used, 5: 8 (assumed) or 4:8 (assumed), 8 is assumed since 8 is a landing point in numeration.

'Numeral' signs or countable objects?

It is merely a conjecture that these signs 162, 325, 59 and 387 denote landing-points in numeration, say, eight, twelve, twenty. These signs may, in combination with numerical strokes, connote a counted number of 'objects' and combinations of 'objects'.

Each of the signs (162, 325 and 59) seems to denote an 'object', and is frequently preceded by 'numerical strokes'. In this context, it is likely that each of these signs represents a substantive message, a possession or traded item -- say, a mineral or a tool-of-trade of a lapidary or smith.

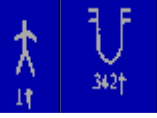
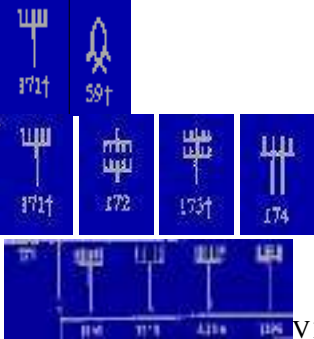
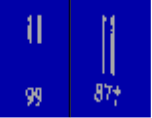




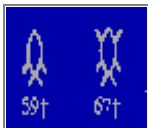
Sign 372 ('oval' grapheme) ligatures with sign 162, yielding sign 387

Stable pairs of signs

There are some stable sequences of signs in inscriptions, stability being measured by the frequency of occurrence of two signs within each inscription.

There are five pairs with between 65 and 87 occurrences in the inscriptions.

	<p>ten:go, 'to stand'; ten:go, 'to assume responsibility'</p> <p>Rebus: tan:kam = pure gold (Ta.Ma.); t.an:ka = a stamped (gold) coin (Skt.)(DEDR 3013). mountain kan.d., 'pot'; kan.d., 'furnace' [i.e. person managing a furnace]. te_jate_ = is sharp, sharpens (RV); te_jati = is sharp, shapens, incites (Pali); te_ai sharpens (Pkt.); tevn.e~ = to shine, burn (M.)(CDIAL 5945). Te_jas = sharp edge of a knife, glow (RV); fiery energy (AV); te_h = fire, arrogance (K.)(CDIAL 5946) tega = a sword; tega_ = a scimitar (G.Persian) tega_r = property, substance (G.Persian)</p>
	<p>ken.ta 'fish'; ke~r.e~ brass or bell-metal; Alternative 1: hako, 'fish'; hako, 'axe';</p> <p>Alternative 2: a~s = scales of fish (Santali); rebus: aya = iron (G.); ayah, ayas = metal (Skt.)</p> <p>kun.te, khu~t.i, 'harrow, stake'; kut.hi, 'furnace'</p> <p>Alternative: ad.ar 'harrow'; aduru 'native metal'</p>
	<p>ib 'two' (Ka.); rebus: ib 'iron' (Santali)</p> <p>: <i>at.ar</i> a splinter; <i>at.aruka</i> to burst, crack, slit off, fly open; <i>at.arcca</i> splitting, a crack; <i>at.artuka</i> to split, tear off, open (an oyster)(Ma.); <i>ad.aruni</i> to crack (Tu.)(DEDR 66).</p> <p>Rebus: aduru 'native metal' (Ka.)</p> <p>san:gad.a, 'two'; san:gad.a, 'portable furnace'; sal, 'splinter'; sal, 'workshop' OR kin 'two' rebus: gina 'metal vessel'</p> <p>Alternative decoding for Sign 99: por space between joints (H.); per joint, articulation (M.) Two, pair par (To.)</p> <p>por- 'to sell' (Ko.) bari_ = blacksmith bari_ = anvil</p>
	<p>bat.i 'wide-mouthed metal vessel' (H.) rebus: bat.hi = smelting furnace, kiln (Santali) bhra_s.t.ra (Skt.) The pair could mean 'iron smelting furnace'</p> <p>san:gad.a, 'two'; san:gad.a, 'portable furnace'; kamat.ha, 'wide-mouthed pot'; kammat.a, 'furnace, coinage, mint'</p> <p>Alternative readings of the 'pot' glyph:</p>

	<p>Glyph: <i>mer.go</i> ‘rimless vessel’; Rebus substantive: <i>meruku</i> ‘shine, glitter, silver’</p> <p>Broad-mouthed pot ka_t.a = vessel for holding liquid (KS. X.6.4); ka_t.i (Ta.), kha_ri_ = a measure of capacity for grain (Ta. S.I.I., iii,9) ka_t.i-cca_l = broad-mouthed pot for keeping sour rice water (Ta.); ka_t.icca_lmu_lai = NE corner where waster water is emptied in a pot at a sacrifice (Ta.); gad.d.a proyyi = a fireplace or hearth with 3 or 4 inverted hemispherical clods placed on it (Te.)</p> <p>Rebus: ka_t.i = fireplace in the form of a long ditch (Ta.); ka_t.ya = being in a hole (VS. XVI.37); ka_t.a hole, depth (RV. i. 106.6)</p> <p>ka_t.i (Ta.) knife</p>
	<p>ken.ta ‘fish’; ke~r.e~ brass or bell-metal; Alternative: hako, ‘fish’; hako, ‘axe’;</p> <p>a~s = scales of fish (Santali); rebus: aya = iron (G.); ayah, ayas = metal (Skt.) Sign 67 with four scales may be a count of ‘four’, gan.d.; rebus: kan.d. ‘furnace’.</p> <p>kor-r-a, ‘a fish’; <i>kot.ra hako</i> a species of fish (Santali); kor-r-a, ‘mason’</p>

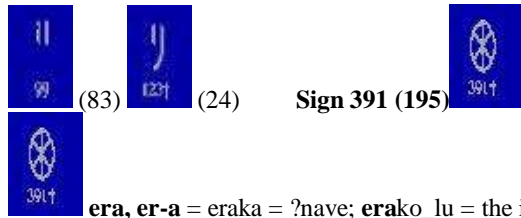
Word for Tin

trapus = tin (TS iv, 7,5,1); **cakra-sam.jn~a** = tin (Skt.); [trapu = tin (AV xi.3.8); Taittiri_ya Bra_hman.a iii.12,6,5; Jaimini_ya Upanis.ad Brahman.a III.17.3; Chan_ndogya Upanis.ad IV.17.7); trapu = tin in enumeration of metals: Ka_t.haka Sam.hita_ xviii.10; Maitra_yan.i_Sa.hita_ii.11.5; Va_jasneyi Sam.hita_, xviii.13]

The Sanskrit lexeme *cakra sam.jn~a* connoting tin points to an early use of hieroglyphs to represent minerals and metals. Since **kana** (perhaps connoting copper or compounds occurring naturally) represented by a rhombus-corner is to be distinguished from molten cast copper together with tin, a *cakra* sign was used; the sign is given by the lexeme which connotes the knave of a wheel: **era**. Hence, the term **cakra sam.jn~a** = **lit. symbol of wheel**.



Another explanation is possible. It is notable that Skt. attest to the use of the compound, **cakra-sam.jn~a** [lit. ‘circle’ glyph] to denote tin; an echo of the writing system of the civilization: **mlecchita vikalpa!** (cryptogrphy); is the use of a circle (oval?) glyph to ligature (or enclose) the **tagara** (*taberna montana*) glyph an echo of this explanation?



era, er-a = eraka = ?nave; **erako_lu** = the iron axle of a carriage (Ka.M.); cf. irasu (Ka.lex.)

Metal: akka, aka (Tadbhava of arka) metal; akka metal (Te.) **arka** = copper (Skt.) **erka** = ekke (Tbh. of arka) aka (Tbh. of arka) copper (metal); crystal (Ka.lex.)

erako molten cast (Tu.lex.) agasa_le, agasa_li, agasa_lava_d.u = a goldsmith (Te.lex.)



Sign 99 : *at.ar* a splinter; *at.aruka* to burst, crack, slit off, fly open; *at.arcca* splitting, a crack; *at.arttuka* to split, tear off, open (an oyster)(Ma.); *ad.aruni* to crack (Tu.)(DEDR 66).

Rebus: **aduru** 'native metal' (Ka.) **aduru** = **gan.iyinda tegadu karagade iruva aduru** = **ore taken from the mine and not subjected to melting in a furnace** (Ka. Siddha_nti Subrahman.ya' S'astri's new interpretation of the Amarakos'a, Bangalore, Vicaradarpana Press, 1872, p. 330); *adar* = fine sand (Ta.); *adaru* = a sparkle (Te.); *ayir* – iron dust, any ore (Ma.)

tot.xin, tot.xn goldsmith (To.); *tat.ta_n-* gold or silver smith (Ta.); goldsmith (Ma.); **tat.te** = goldsmith (Kod.); *tat.rava_~d.u* = goldsmith or silversmith (Te.); **t.hat.t.haka_ra* brassworker (Skt.)(CDIAL 5493).



tat.tai = mechanism made of split bamboo for scaring away parrots from grain fields (Ta.); **tat.te** = a thick bamboo or an areca-palm stem, split in two (Ka.)(DEDR 3042).



When reduplicated, this may be read as: **erako** 'nave' **san:gala** 'pair'; rebus: **erako** 'molten cast' **san:gad.a** 'furnace'. As distinct from non-melted native metal, *aduru*.



erako 'molten cast (copper)';



erako san:gala = furnace for metal.

This may explain the multiple use of the glyph on Dholavira signboard.



Glyph



: **erako** 'nave'; **san:gala** 'pair' Rebus: **erako san:gad.a** = furnace for metal.



Glyphs: **erako** (nave); rebus: **erako** 'molten cast'.



Glyph: **kod.a**, 'one'; rebus: **kod.**, 'artisan's workshop'.



Glyph: **ad.aren, d.aren** 'lid'; rebus: **aduru** 'native metal'



(9)



(10)

Sign 176 (355)

Ivory or bone rods (12)

'Tree'Field symbol 44 (12)




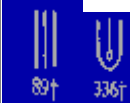



h352C Dotted circles. Field symbol 83 (23)



h172B Field Symbol 36 (17)

Glyph: comb **kangha** (IL 1333) ka~ghera_ comb-maker (H.)Rebus: **kan:g** = brazier, fireplace (K.)(IL 1332) Portable brazier **ka~_guru, ka~_gar** (Ka.) whence, large brazier = **kan:gar** (K.)Pairing sign: **kan.d. kanka** 'rim of pot'; rebus: **kan.d.** 'furnace' + **kan-ka** 'copper metal'

The following seven pairs have between 93 and 291 occurrences in the inscriptions.


	<p>Glyph: <i>mer.go</i> 'rimless vessel'; Substantive: <i>meruku</i> 'shine, glitter, silver'.</p> <p>Alternative: ka_t.i 'pot'; rebus: ka_t.i 'fireplace'; tebr.a = mint + attendant of an idol, tammat.a cf. tamta 'coppersmith' (Nepali); dambr.i 'one-eighth of a pice (copper)'</p>
	<p>ladle (tamali, cavat.u)+ ka_t.i = furnace for fuller's earth (cavat.u); tebr.a, 'three'; tamali, 'ladle' rebus: 'attendant of an idol';OR dambr.i 'copper'</p>
	<p>kanac 'corner'; rebus: kan~cu 'bronze' + kin 'two'; rebus: gina 'metal vessel'; hence, the pair connotes a bronze vessel</p> <p>Alternative: khu~t.a (corner) + s'il (splinter); rebus: kut.hi, 'furnace' + s'a_la (workshop) khu_n.t.ad.i_ = an angle (G.)</p>
	<p>mwehra_, 'image'; mehara, 'chief of village'; bakhor., 'teeth of comb'; bakhor., 'splicer for tassar cocoon'; bakher 'homestead'.</p> <p>Alternative decoding of Sign 176: Comb kangha (IL 1333) ka~ghera_ comb-maker (H.)</p> <p>kan:g = brazier, fireplace (K.)(IL 1332) Portable brazier ka~_guru, ka~_gar (Ka.) whence, large brazier = kan:gar (K.)</p>
	<p>kolom, 'sprout'; rebus: kolimi, 'furnace'; paired: san:gad.a, 'portable furnace'; kan.d, 'furnace'. This pair depicts two types of furnaces: one, for smelting (ore); and the other for melting, refining or alloying.</p>

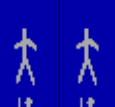
	<p>bharad.o ‘spine’; rebus: bharata ‘casting metals in moulds’.</p> <p>Alternative: kamra, ‘back’; kamar, ‘blacksmith’; kan.d. ‘furnace’.</p>
	<p>kan.d., ‘furnace’; the pairing: san:gad.a, ‘portable furnace’. Or, barea, ‘two’; barea, ‘smith’</p> <p>Alternative: kan.d. kin ‘two furnaces’; rebus: kan.d. ‘furnace’ + gina ‘metal vessel’</p>


Reduplication of signs


There are also paired or re-duplicated occurrences of signs.


	<p>leaf, ‘lo’; rebus: metal; pairing: san:gad.a, ‘portable furnace’</p>
	<p>pot, ‘kamat.ha’; rebus: kammat.a, ‘mint’; Alternative: ka_t.i ‘pot’; ka_t.i ‘fireplace’; + kin ‘two’; rebus: gina ‘metal vessel’; pairing: san:gad.a, ‘portable furnace’</p>
	<p>field division, ‘khan.d.’; rebus: khan.d., ‘sword’; pairing: san:gad.a, ‘portable furnace’</p>
	<p>sprout, ‘kolom’; rebus: kolimi, furnace [A count of four furnaces].</p>
	<p>kut.aru, ‘cock’; kut.ha_ru, ‘armourer, writer’; pairing: san:gad.a, ‘portable furnace’</p>
	<p>fish, ‘hako’; rebus: axe; pairing: san:gad.a, ‘furnace’</p>
	<p>bellies, ‘put.ia’; rebus: put.ia, ‘copper’; put.a, ‘calcining’; pairing: san:gad.a, ‘furnace’</p>



 kan.d.era, 'eyelid'; rebus; kand.ali, 'billhook' [A count of three billhooks]


 ten:go, 'standing'; rebus: ten:go, 'assume responsibility'; pairing: san:gad.a, 'portable furnace'; i.e. managing furnace.


 s'an:ku, 'twelve fingers' measure'; rebus: arrowhead; or, talka, 'palm of the hand (with twelve phalanges on four fingers)'; rebus; talika, 'inventory, list of articles'; pairing: san:gad.a, 'furnace'; thus a list of furnace articles. Alternative: **bed.a** 'twelve (pies)' (Te.); **bed.a** 'hearth'. Thus two 'twelves' may be read as: **bed.a** + **baria** = hearth + blacksmith smith.


 Lute can:gu (IL 2909)
 Copulation san:ga_ (IL 2910)
 Pannier s'an:kara, akkha (IL 2892)
 Goose s'an:ku (IL 2879)



 (14)


Sign 121 (70)

barot.i = twelve (Santali) Rebus: **bharata** = a factitious metal compounded of copper, pewter, tin (M.)

Glyph: twelve fingers' measure = **s'an:ku** (IL 2878), co~ga_ = two hand-breadths (IL 3121)

Rebus: **s'ankha** = *turbinella pyrum*, conch shell (Skt.)


 kut.ila, 'bent'; rebus: kut.ila, 'bronze (8 parts copper, 2 parts tin)'; when duplicated a number of times, a count of bronze ingots

Mirror-reflected pairs of graphemes

This could be an orthographic variant style to depict duplicated glyphs while conserving space on small objects used for inscribing epigraphs.



Pincer, **sanni_**, 'smith's vice'; rebus: **saniya**, 'short sword'
 Mountain, **bo_re**, 'top of hill'; rebus: **bo_riga**, 'hoe'

Corner, **khu-t.a**, ‘corner’; rebus: **kut.hi**, ‘furnace’
 Furrow, **khu-t.a**, ‘furrow’; rebus: **kut.hi**, ‘furnace’

Alternative homonyms/hieroglyphs:

ta~ku = to touch, hit, attack, encounter, oppose in battle; n. combat, attack; ta~cu = to kick (Te.); ta_n:ku = to hit against, strike (Ta.); ta_kuni = to hit, to touch (Tu.)(DEDR 3150).

t.an:kamu = top or side of a hill (Te.)

t.an:gu, t.an:guva_ru = a girth, surcingle (Te.)

Rebus: **t.an:ka** = a stamped (gold) coin (Skt.); tan:kam = pure gold (Ta.Ma.)(DEDR 3013) t.an:kasa_la = a mint; tan:kava_t.u, t.an:kasa_lava_ru = an old gold coin (Te.) t.an:kutanamu = artistic pride (Te.)

This could be an orthographic style of pairing to save space on a small inscribed object. Pairing may connote, san:gad.a, ‘two’; rebus: ‘portable furnace’

Mahadevan notes, "Compounds of mirror-reflected pairs. A rather curious feature of the script is the occurrence of mirror-reflected pairs as bound signs." (Mahadevan, 1977, p. 16) He adds that the mirror-reflected pairs may have the sign doubled on the horizontal or vertical axis. Mirror-reflection is also noticed on svastika_ glyphs with right-handed and left-handed arms.

‘Ligatured’ signs

A characteristic feature of the use of graphemes in the inscriptions is ‘ligaturing’. Two or more signs can be combined into one sign motif. For example, the ‘jar’ sign is ligatured in four instances: An inverted ‘v’ is ligatured on Signs 65, 66, 75 (fishes), Sign 163 (corn sheaf), Sign 138 (cross-road), Sign 334 (pot). This inverted ‘v’ is also ligatured on a jar pictorial(Fig. 111 field symbol, Mahadevan corpus).

FS111 m0478 The glyph to the left of the tiger is a rim of a short-necked jar ligatured with a ‘lid’ glyph: ad.aren ‘lid’; rebus: aduru ‘native metal’; kan.d.a kanka = kanka metal furnace, i.e. furnace for copper and native metal.

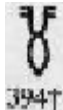


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Sign 352, jar + corn sheaf

kan.d. + kolom = **kan.d. + kolimi** = furnace + furnace [One could be a portable goldsmith’s furnace; the other, a blacksmith’s (**kol**) furnace]



Sign 394, jar and oval



Sign 353, jar and pot

kamat.ha + kan.d. = **kammat.a + kan.d.** = mint + furnace



Sign 15 itself seems to be a ligature of signs 12 and 342

kan.d., ‘jar’; rebus: ‘furnace, altar’; **kut.i**, ‘woman water-carrier’; **kut.hi**, ‘furnace’; one is a refining goldsmith’s furnace; and the other a blacksmith’s furnace.



(40)



(76)

Sign 171 (132)





(7) Sign 173 (38)

Glyph: **ad.ar** 'harrow' (Santali); Rebus: **aduru** 'native metal' (Ka.)



The ligaturing pattern is extended further in Sign 418: Sign 15 is further ligatured with a harrow (Sign 171) and oval (Sign 374).

Sign 373 could be a pairing of two 'brackets' (), thus, **kut.ila san:gad.a**, i.e. bronze furnace.

Sign 373 could also circumscribe when ligatured with other signs:



The ligature is made up of two glyphs: () together with **tagara** = taberna montana (Skt.) Rebus: t.agromi = tin metal alloy (Kuwi) **kut.ila** = bent, crooked (Skt.) **kut.ila** (Skt. Rasaratna samuccaya, 5.205) Humpbacked kud.illa (Pkt.)

Rebus: **kut.ila, katthi_1** = bronze (8 parts copper and 2 parts tin) [cf. a_ra-ku_t.a, 'brass' (Skt.)]

The ligatured signs could thus connote: bronze furnaces: **kut.ila** 'bronze' (Skt.) + **kolmi** 'furnace' (Ka.)

Two additional glyphs are ligatured; one of these is **khu-t.**, 'harrow'; rebus: **kut.hi**, '(smelter's) furnace' [**kud.e**, a rat's hole; thus, the type of furnace indicated by the water-carrier glyph may be different from a **kut.hi**, indicated by the harrow glyph] cf. **gud.d.e** = a heap, a pile (Ka.) One **kut.hi (kud.e)** may be by heaping up the ore; the other **kut.hi (gud.d.e)** may be a pit dug into the ground.

Pot a phonetic determinative? d.a_~gra = blacksmith; da_ka = pot (rebus: da_kali, anvil)]. In front of a tree without leaves: **d.ha_kal.** = bare of leaves (M.) **d.a_l.** = a branch of a tree (G.) **d.ha_l.ako** = a large ingot (G.)



Sign 355 seems to ligature sign 347 and sign 391



Sign 232 seems to be a liagure of sign 230 and sign 326

lo + bo_re = loha + bo_riga = metal hoe



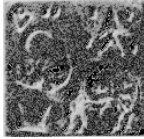
The U sign could be bat.i 'broad-mouthed, rimless metal vessel'; rebus: bat.i 'smelting furnace'. The structural form within which this sign is enclosed may represent a temple: **kole.i** 'temple, smithy' (Ko.); **kolme** smithy' (Ka.)

Thus, the ligatured Sign 243 may be read as: **kolme bat.i** = smithy furnace.

Bastion, *kottala*, trough

kottala bastion (Tu.); *kottal.amu k(r)ottad.amu* bastion (Te.); *kottal.am* bastion (Ta.); bastion stone pavement (Ma.); *kottal.a kottala* bulwark, bastion (Ka.)(DEDR 2090). *kot.ho* a warehouse; a tower (in *Ka_t.hia_wa_d.*); a revenue office, in which dues are paid and collected; *kot.* a nest, a fort; *kot.d.i_* a small room; *kot.d.a_m* pl. houses, walls; *kot.va_li_* the office of a magistrate; *kot.hi_* the residency of a political officer (G.)

Glyph: trough: *kottala* trough (Tu.); *kottal.am* trough (Ma.)(DEDR 2090).



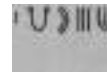
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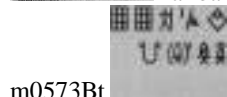
8025



m0527Bt



3336



m0573Bt

3415

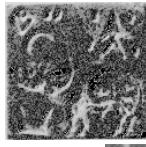
Smithy, *pasra*

pasra = a smithy, a place where a blacksmith works; to do a blacksmith's work; *kamar pasrat.hene sen akantalea* = our man has gone to the smithy; *pasrao lagao* (or *ehop*) *akata* = he (the blacksmith) has started his work (Santali); **pasra** (Mundari)(Santali.lex.Bodding) **pasra**, **pasa_ra** (Sad.; Or. **pasra_**, a blacksmith's implements) = a blacksmith's forge; the place where a brazier (t.ent.era, malar.a) makes his bowls, armlets; *ne pa_l t.apuakana pasarate idiime* = this ploughshare is blunt, take it to the smithy; the set of a blacksmith working in his forge; **pasra o** = of the blacksmith's work in the forge; *pa nasra* = the length of a blacksmith's work in the forge; **pasraili** = rice beer offered for sale; **pasra mer.ed**, **pasa_ra mer.ed** = syn. of **kot.e mer.ed** = forged iron, in contrast to **dul mer.ed**, cast iron (Mundari.lex.) **pan~ja_va_**, **pa~ja_va_** = brick kiln (P.); *pa~ja_ kiln* (B.); *paja_vo* (G.)(CDIAL 7686). **paya_n** = potter's kiln (B.)(CDIAL 8023). *paja_vo* = a kiln; cf. *paca_vavum*, to digest in the stomach (G.lex.) **pa_car-ai** = *pa_t.i vi_t.u.*, i.e. town house or army house (Pur-ana_)

prasta_ra = a process in preparing minerals (Skt.); *prastara* = anything strewn, grass to sit on (RV); rock, stone (Skt.); *pa_thar* = stone (Ku.A.b.); *patthal* = hailstone (Bi.)(CDIAL 8857). *pathraut.i_* = clay mixed with fine gravel (Bi.)(CDIAL 8861). *pasa_re*, *pasa_ra* = a grocer's shop (Ka.Te.); **pasarike**, **pasara** = articles of a shop (Ka.lex.)

pa_s'o = a silver ingot; *pa_s'a_ta_n.iyo* = one who draws silver into a wire (G.) **pa_slo** = a nugget of gold or silver having the form of a die (G.)

pasaramu, **pasalamu** = an animal, a beast, a brute, quadruped (Te.lex.) Thus, the depiction of animals in epigraphs is related to smithy, **pasra**.



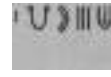
Kalibangan033



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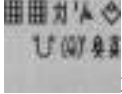
m0527Bt



3336



m0573Bt



3415

pa_so = a die (Skt. pa_s'a); **pa_rasa** = the philosopher's stone [Skt. spars', to touch]; **pa_ras-pi_pal.o** = a kind of pipal tree (G.lex.) [Note the glyph, 'dotted circle'] **pa_s'aka**, **pa_cike**, **pa_san:gi**, **ha_san:gi**, **pa_s'a** = a die used in playing (Ka.) **pa_so** = a die (G.)



On this seal: a slanted linear stroke is depicted fronting a deer: Pict-49 Uncertain animal with dotted circles on its body. The depiction of dotted circles on a small deer pisera_ could represent a bead workshop
: **pot** 'bead' + **pasra** 'smithy'

pisera_ = a small deer brown above and black below (H.)(CDIAL 8365). pr.s.ata = spotted; spotted deer (VS.); pr.s.ita = spotted (n. 'rain' Gobh.); pr.s.at = spotted (AV); spotted antelope (R.); pasata-miga = spotted deer (Pali); pasaya = a kind of deer (Pkt.); pusia id. (Pkt.)(CDIAL 8364). paha_ru (P.); pa_hr.a_ = stag (P.) pa_ri_ (G.), paha_r, paha_ray (M.) Spotted antelope **pa_r.ho** hogdeer or cervus porcinus (S.); pa_hr.a_ (L.); pa_r.ha_ = spotted antelope, hogdeer (P.H.) pr.s.ata = spotted deer (VS.)

pa_msali_i, **pa_msalum**, **pa_sum** = a rib; **pa_s'ali_** = a rib (G.) **panjar** = a rib, the part of the body in which the ribs are; ibil panjar = the fifth rib; panjri = a rib, ribs; gad.i panjri = the cross bars uniting the shafts (hudar.) of a cart (Santali.lex.) cf. paks.a = wing, feather, fin, shoulder, side (RV)(CDIAL 7627) panjarao (Skt. panjari_, rib; Sad. panjraek) = a poke in the ribs with a stick (Mundari.lex.) pa_njarum = a frame; a skeleton; pa_kha = a side (G.lex.) *pajhrao*, *pajhr.ao* = to become lean, to lose flesh (Santali.lex.)

panjaramu = the body; skeleton (Te.lex.) panjara = skeleton, ribs (MBh.)(CDIAL 7685).

panjaramu = a cage for the birds (Te.) pa_njarum = a cage (G.)

panja_yi_, panju = a sort of torch (Te.lex.) panju, ponju = a torch (Ka.Te.); pantam (Ta.Ma.); panja_yi (H.); **panjuvid.iva**, **panjupid.iva** = a torch-bearer (Ka.lex.)

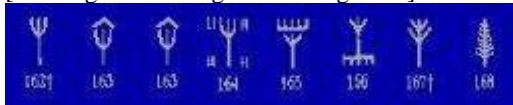
panje, **panjho** = the hand opened out; a claw, a paw; the five on a dice in play; *pasli_* the hollow of the hand (G.) pan~jali = with outstretched hands, as token of reverence (Skt. pra_n~jali)(Pali.lex.) pan~ja_ = the paw, the palm; the image of a hand worshipped and taken in procession during the Mohurrum festival (Te.lex.) *paslo* the cavity formed by putting two hands together (G.)

pasra = smithy (Santali)

pagra = a cutting of sugar-cane used for planting (Santali.lex.)



Signs 90,91,223,224,227,235,262,270,273,274,282,283,291,331,347-352,355-357, 371,372, 388-390,395,405
[With ligatures of Sign 162 or Sign 169]



Signs 162 to 168 [Orthography: sprout]. As a countable object, the sign represents the rebus of (number of) [brick] kilns, the number (count) being indicated by short linear strokes. A variant lexeme of Sign 167 (because of five petals shown) could be: **tagara**, *tabaernae montana*, a flowering, fragrant shrub; rebus: **takaram** = tin (Ta.lex.)

pasu_r.u, **pasr.u** = the condition of a man or boy with uncovered private parts; pasu_r.u-n = of the loin cloth, to slip or be pulled aside; of the parts, to be rendered or become visible (Mundari.lex.) [Note the orthography of the seated person with horns and bangles on his arms surrounded by a boar, a buffalo, a jumping tiger and an elephant].

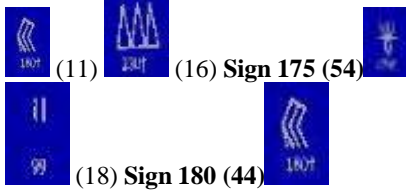
Mineral, stone

dha_tu 'mineral' (Vedic); **dhatu** a mineral, a metal (Santali); *dha_ta* id. (G.) **ta_tu** = powder (Ta.)(DEDR 3159) Possibly cassiterite? **tan.t.ava_l.am** = cast iron, iron rail, girder (Ta.); **tan.d.ava_l.a** cast iron (Ka.)(DEDR 3050). **dad.ko, dad.o** a lump; **dad.ba** a lump of earth, a clod (G.) **da_ntar-kut.ha** = fireplace (Sv.)(CDIAL 3546)

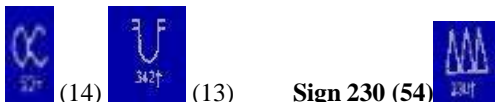
da~tela a large wild boar with huge tusks (Santali)

S'iva's dance **ta_n.d.ava** (Skt.); **da_n.t.u** = to jump, cross (Ka.); **d.a_t.** = to hop, jump, hop in dance, jump over (Kond.a) [See the glyph of a jumping tiger: *semant. da_t.* 'to jump'; a tiger is horned on another epigraph: *ku_t.a* 'horns'; *ku_t.am* = workshop].

Line of cattle **ta~_d.a** a train or line (as of cattle)(M.); **ta~_r.a_**; **dan.d.am** = herd (IL 4362) **dan.d.u** (Te.); **tan.d.a_** = caravan, troop, encampment, herd (Te.); **tan.d.amu** = troop, group (Te.); **tan.d.aa** = a group, party, assemblage (Apabhram.s'a) **ta~_d.a_** = troop, party, compay (M.); **tan.t.u** = army, troops (Ta.); troop, detachment (Ma.); **tan.d.u, tan.d.a** army, host (Tu.); **ten.d.i** = herd (Kor.) **dan.d.u, dan.d.a** = an army (Ka.Te.); **tan.t.u** (Ma.Ta.) **dan.d.ike** = a row, a line, a series (Ka.lex.)



ku_t.amu = summit of a mountain (Te.lex.) Rebus: **ku_t.akamu** = mixture (Te.lex.) **ku_t.am** = workshop (Ta.) The Sign 230 thus connotes an alloyed metal, **ku_t.a** [e.g. copper + **dha_tu** 'mineral (ore)' as in: **a_raku_t.a** = brass (Skt.)]



'Tree' Field symbol 44 (5)

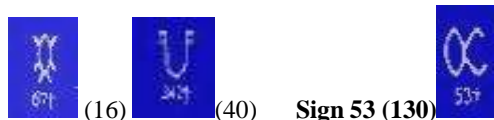


V053, Sign 53 **era_** = claws of an animal that can do no harm (G.) Rebus: **erka** = ekke (Tbh. of arka) aka (Tbh. of arka) copper (metal); crystal (Ka.lex.) **erako** molten cast (Tu.lex.) **agasa_le, agasa_li, agasa_lava_d.u** = a goldsmith (Te.lex.) **akasa_la, agasa_la, agasa_liga, akasa_liga, agasa_le, akasa_le, akkasa_la** = a gold or silver smith (Ka.lex.); **akasa_like, akkasa_like** = the business of a gold or silver smith; **akasa_liga, akkasa_liga, agasa_liga** = a gold or silver smith; **akasa_le, akkasa_le** = the workshop of a goldsmith; a goldsmith (Ka.lex.) **eraka, er-aka** = any metal infusion (Ka.Tu.); **urukku** (Ta.); **urukka** melting; **urukku** what is melted; fused metal (Ma.); **urukku** (Ta.Ma.); **eragu** = to melt; molten state, fusion; **erakaddu** = any cast thng; **erake hoyi** = to pour melted metal into a mould, to cast (Ka.); cf. **arika** = rice beer (Santali.lex.) **er-e** = to pour any liquids; to pour (Ka.); **ir-u** (Ta.Ma.); **ira-i_i** (Ta.); **er-e** = to cast, as metal; to overflow, to cover with water, to bathe (Ka.); **er-e, ele** = pouring; fitness for being poured (Ka.lex.) **erako** molten cast (Tu.lex.) **eh-kam** any weapon made of steel (**Cu_t.a_**); **eh-ku** steel; **eh-ku-pat.atal** to melt, to soften (Cilap. 15, 210, Urai.)(Ta.lex.)

era, er-a = eraka = ?nave; **erako_lu** = the iron axle of a carriage (Ka.M.); cf. **irasu** (Ka.lex.)

era female, applied to women only, and generally as a mark of respect, wife; hopon era a daughter; era hopon a man's family; manjhi era the village chief's wife; gosae era a female Santal deity; bud.hi era an old woman; era uru wife and children; nabi era a prophetess; diku era a Hindu woman (Santali)

d.ato 'claws or pincers (chelae) of crabs'; d.at.om to seize with the claws or pincers, as crabs, scorpions (Santali)



era_ = claws of an animal that can do no harm (G.) era, eraka = copper (Ka.)

er-r-a = red; eraka = copper (Ka.)

Substantive: **dha_tu** 'mineral' (Vedic); a mineral, metal (Santali); *dha_ta* id. (G.) tan.t.ava_l.am = cast iron, iron rail, girder (Ta.); tan.d.ava_l.a cast iron (Ka.)(DEDR 3050).

d.ato 'claws or pincers (chelae) of crabs'; d.at.om to seize with the claws or pincers, as crabs, scorpions (Santali)

Pairing sign: **a~s** = scale of fish (Santali) Rebus: ayas = metal (Skt.)

The three signs together: Middle sign: **kan.d. kanka** 'rim of pot'; rebus: **kan.d.** 'furnace' + **kanka** 'copper metal' Flanking this sign are **d.ato** 'claws'; rebus: **dhatu** 'mineral'; **a~s** 'scales of fish'; rebus: **ayas** 'metal'. Thus furnace for metal and mineral.

dat.hi, dat.i the petioles and mid-ribs of a compound leaf after the leaflets have been plucked off, stalks of certain plants, as Indianc orn, after the grain has been taken off (Santali)

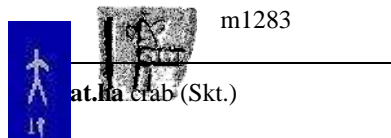
d.had.ra = lean, worn to a skeleton (Santali.lex.)

d.at.u, d.at.hu big headed, bullet-headed (Santali)



V136 Signs 134, 135, 136 d.a_t.o, da_t.o a plug, a cork, a stopple (G.)¹

ta_t.u = to strike against, come in contact with (Ka.); ta_d.uni = to gore, butt; ta_d.u = goring (Tu.); ha-n.t.u to collide (Tu.); ta_n.t.i = to hit (Kor.)(DEDR 3156). t.at.he = to strike or beat with a stick (Santali)



at.ha crab (Skt.)
dauli = a weeding knife, of iron or wood (Santali.lex.) **da_ule, da_uli** = claw (Kon.); rebus: **ka~_kr.a** crab; **ka~_gar** = portable furnace (K.); kammat.a = portable furnace (Te.) coiner, mint (Ta.)

got. = one (Santali) Rebus: **got.i** = silver (G.)
ka_t.hi = body; Rebus: **ka_t.i** = furnace³

kallan mason (Ma.); *kalla* glass beads (Ma.); *kalu* stone (Kond.a); *xal* id., boulder (Br.)(DEDR 1298).



Tarakai Qila01A



Tarakai Qila01B

Stamp seal, large ibex walking left. Black steatite or chlorite, North Syria or Anatolia, 4th millennium BC, 1 rectangular gabled stamp seal, 4,7x5,1x1,3 cm, pierced through. *Provenance:* 1. Erlenmeyer Collection, Basel (before 1958-1981); 2. The Erlenmeyer Foundation, Basel (1981-1997); 3. Sotheby's 12.6.1997:8.



kala stag, buck (Ma.); *kal a.r.* Nilgiri ibex (Ko.); *kalai* stag, buck, male black monkey (Ta.); *kalan:kompu* stag's horn (Ta.)(DEDR 1312)

Tin, Pewter

ran:ga, ran: pewter is an alloy of tin lead and antimony (an~jana) (Santali). **ran:ku** 'tin' (Santali) Tin, solder: ran:ga tin (Skt.); ram.ga (Pkt.); ra~_g pewter, tin (P.H.); ra~_ga_ pewter, tin (P.H.); solder (Or.Bi.Mth.); ra_n. tin, solder (Ku.N.A.B.); ra~_k (Ku.); ra_n.o (N.); ra_n:ga tin (Or.); ra_n:ga_ solder (Or.); ra_m.ga (OAw.); ranga tin (Si.)(CDIAL 10562). ra_n.(g)ta_ tinsel, copper-foil (B.)(CDIAL 10567). [cf. ren. cement for metallic objects (G.); ren.i_ ingot (L.)(CDIAL 10639).] **ran: t.odor** a wristlet of pewter (Santali.lex.) ran:ga = tin; splendour, brilliance, glow and glitter (Ka.lex.) ran:garincu = to mix or rub with the finger, as any liquid and a solid or semi-solid substance (Te.lex.)

ran:ga, ran:gada borax (Skt.); run. saline ground with white efflorescence, salt in earth (Kho.)(CDIAL 10563). run:got solution of saline earth (Kho.)(CDIAL 10573).

rakamu = an item or article (of an account); an amount of money; an appointed quantity; a piece (Ka.M.H.); rakamu va_ru = article by article, piece by piece (Ka.M.H.)(Ka.lex.) rakam (Arabic rakm) an item; an article; a sum, an amount, a number (G.lex.) rakam upa_d.vi_ to borrow a sum of money; rakam na_me lakhvi_ to sell on credit a sum of money or an article of value, and enter it in the account-book (G.lex.)



ran:ku 'liquid measure (Mundari)



(54)



(47)

Sign 249 (170)



ran:ku 'measure'; rebus: **ran:ku** 'tin' + **kolmo**

'sprout'; rebus: **kulme** 'furnace'



(13)


Sign 252 (51)



Copper tablet (11); bronze implements (2) 'Tree' Field symbol

44 (7)



may be a grapheme, a synonym of sign 99 : *at.ar* a splinter; *at.aruka* to burst, crack, slit off, fly open; *at.arcca* splitting, a crack; *at.artuka* to split, tear off, open (an oyster)(Ma.); *ad.aruni* to crack (Tu.)(DEDR 66).

Rebus: **aduru** 'native metal' (Ka.) **aduru** = **gan.iyinda tegadu karagade iruva aduru** = **ore taken from the mine and not subjected to melting in a furnace** (Ka. Siddha_nti Subrahman.ya' S'astri's new interpretation of the Amarakos'a, Bangalore, Vicaradarpana Press, 1872, p. 330); *adar* = fine sand (Ta.); *adaru* = a sparkle (Te.); *ayir* – iron dust, any ore (Ma.)



Liquid measure: **ran:ku**; rebus: **ran:ku** = tin (Santali)

ra~_go **buffalo bull** (Ku.N.)(CDIAL 10559). ra~_kat. **big and boorish** (M.)(CDIAL 10538). cf. **ran:ka slow, dull** (Skt.)(CDIAL 10538). ron:ke, ran:ke **the grunt of a wild buffalo** (Ka.lex.)

rakha = a secret term for three (G.lex.) [Three long linear strokes is a recurrent motif in inscriptions of the civilization and appear in contexts where the 'sign' should be read not as a numeral but as 'rakha', tin or made of tin + copper, i.e .bronze].

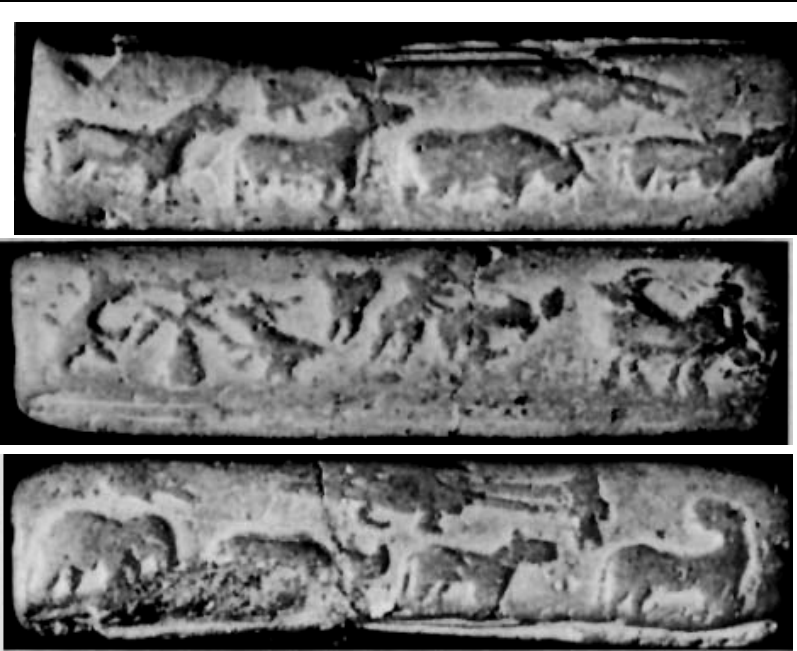
ran:ga ran:gi = fiercely quarrelling or disputing fiercely (Santali)

Glyphs showing mating⁴ scenes

r-an:ku, ran:ku = fornication, adultery (Te.lex.)



A bull mating with a cow. Seal impression (BM 123059). From an antique dealer in Baghdad. Cf. Gadd 1932: no. 18.



m0489At m0489Bt A standing human couple mating (*a tergo*); one side of a prism tablet from Mohenjo-daro (m489b). Other motifs on the inscribed object are: two goats eating leaves on a platform; a cock or hen (?) and a three-headed animal (perhaps antelope, one-horned bull and a short-horned bull). The leaf pictorial connotes on the goat composition connotes loa, the copulation motif connotes kamd.a; hence, the reading is of this pictorial component is: lohar kamar = a blacksmith, worker in iron, superior to the ordinary kamar, a Hindu low caste (Santali.lex.)]

Seal, Dilmun seal from Failaka island in the Gulf. A standing human couple mating (a tergo). [After Paul Kjaerum, 1983, *Failaka/Dilmun: the second millennium settlements, I.1: the stamp and cylinder seals*, Jutland Archaeological Society Publications, 17.1, Aarhus: no. 269]



Seal, Dilmun seal from Failaka island in the Gulf. A standing human couple mating (a tergo). [After Paul Kjaerum, 1983, *Failaka/Dilmun: the second millennium settlements, I.1: the stamp and cylinder seals*, Jutland Archaeological Society Publications, 17.1, Aarhus: no. 269]



Coitus a tergo. A symbolism which reurs on some SSVC inscribed objects. Cylinder-seal impression from Ur showing a squatting female. L. Legrain, 1936, *Ur excavations, Vol. 3, Archaic Seal Impressions* "It seems probable that these seals (with erotic art scenes) were products meant for a lower level of state officials (the owners of the country estates, for instance) instead of those living in town in close contact with the center of administration." (Jack M. Sasson (ed.), *Civilizations of the Ancient Near East*, p. 2527).

Antelopes



(30)

Sign 182 (43)



h172B Field Symbol 36 (11)



Sign 183 (11)

Copper tablets (10) Hare. Field symbol 16 (9) Hare = **kulai** (Santali) Rebus: **kol** 'metal of 5 alloys, pan~caloha' (Ta.)



V182



V184



Signs 182, 183, 184

The sign 182 is used on a copper plate epigraph and substitutes for an 'antelope' glyph.

Two tin ingots with Sarasvati epigraphs

Two other rosetta stones are the two late bronze age tin ingots from the harbor of Haifa, Israel contain glyphs used in epigraphs of Sarasvati civilization!

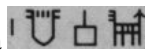


The picture of these two ingots was published by J.D. Muhly [New evidence for sources of and trade in bronze age tin, in: Alan D. Franklin, Jacqueline S. Olin, and Theodore A. Wertime, *The Search for Ancient Tin*, 1977, Seminar organized by Theodore A. Wertime and held at the Smithsonian Institution and the National Bureau of Standards, Washington, D.C., March 14-15, 1977]. Muhly notes: "A long-distance tin trade is not only feasible and possible, it was an absolute necessity. Sources of tin stone or cassiterite were few and far between, and a common source must have served many widely scattered metallurgical centers. This means that the tin would have been brought to a metallurgical center utilizing a nearby source of copper. That is, copper is likely to be a local product; the tin was almost always an import...The circumstances surrounding the discovery of these ingots are still rather confused, and our dating is based entirely upon the presence of engraved signs which seem to be in the Cypro-Minoan script, used on Cyprus and at Ugarit over the period 1500-1100 BCE. The ingots are made of a very pure tin, but what could they have to do with Cyprus? There is certainly no tin on Cyprus, so at best the ingots could have been transhipped from that island. How did they then find their way to Haifa? Are we dealing with a ship en route from Cyprus, perhaps to Egypt, which ran into trouble and sank off the coast of Haifa? If so, that certainly rules out Egypt as a source of tin. Ingots of tin are rare before Roman times and, in the eastern Mediterranean, unknown from any period. What the ingots do demonstrate is that metallic tin was in use during the Late Bronze Age...rather extensive use of metallic tin in the ancient eastern Mediterranean, which will probably come as a surprise to many people." (p.47)

We will demonstrate that the symbols incised on the ingots are not Cypro-Minoan symbols but Harappan pictographs.



m-1336a



2515 (Mahadevan)



m-1097 (On this seal, the antelope appears in the middle of the inscription; it is apparently this pictograph that gets normalised as a 'sign', Sign 184 and variants).



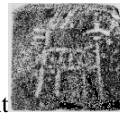
m1341



2092



m0516At



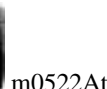
m0516Bt



m0516Bt



3398



m0522At



m0522Bt



3378

The sign pictographs are:

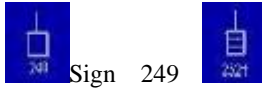


Sign 137 and variants

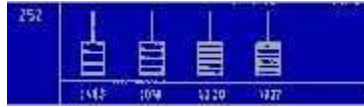


Sign 142 and variants

kulhi 'the village street' (Santali) Rebus: **kol** metal (Ta.)



Sign 249



Sign 252 and variants



This pictograph clearly refers to an antelope as depicted on the Mohenjodaro copper plate inscription: (m-516b shown).

Sign 182 is a stylized glyph denoting a ram or antelope: **tagar** (Skt.); rebus: **takaram** 'tin' (Ta.)

signs as shown below:

[Let us refer to these signs as, 'antelope X']

[Let us refer to these signs as, X and 'mould' or 'liquid measure'].

Liquid measure: **ran:ku**; rebus: **ran:ku** = tin; rebus: **ran:ku** = antelope. Thus both liquid measure glyph and antelope glyphs are graphonyms (graphically denoting the same rebus substantive: ran:ku, 'tin').

X glyph which is common to epigraphs on both the tin ingots may refer to an 'ingot' or a **dha_tu** 'mineral'. **upadha_tu** an inferior metal, a semi-metal: svarn.am ma_ks.ikam ta_rama_ks.ikam tustham ka_syam rati sindu_ram s'ila_jatu (Skt.)(Skt.lex.) **siddha-rasa** quick-silver (Ka.lex.) **siddha-dha_tu** quick-silver (Skt.); ore (as gold) (Ka.lex.) **cittam** < **kit.ta** iron dross (Ta.lex.) **siddha-patra** hemp-leaves for smoking etc. (Ka.lex.) **dha_tu** strength, courage (Ka.); **dha_tu-ged.u** strength to be impaired or be gone; to become deprived of strength or courage (Ka.); **dha_tunas.ta** loss of strength (Ka.)(Ka.lex.) The semant. 'strength' points to the dha_tu being tin since the addition of tin as an alloy strengthened copper. **sapta-dha_tu**, **tridha_tu** 'seven/three elements' are recurrently occurring compound lexemes in R.gveda.

In RV 6.044.23 the term used is: **tridha_tu divi rocanes.u** = 'three-fold amr.tam hidden in heaven' is the metaphor; and in RV 8.044.12 the term is: **tridha_tuna_s'arman.a_**.

6.044.23 This Soma made the dawns happily wedded to the sun; this Soma placed the light within the solar orb; this (Soma) has found the threefold ambrosia hidden in heaven in the three bright regions. [**ayam tridha_tu divi rocanes.u, trites.u, trites.u vindat amr.tam nigu_l.ham** = Soma becomes as it were ambrosia when received or concealed in the vessels at the three diurnal ceremonies, which ambrosia is properly deposited with the gods abiding in the third bright sphere, or in heaven].

8.040.12 Thus has a new hymn been addressed to Indra and Agni, as was done by my father, by Mandha_ta_, by An:girasa; cherish us with a triply defended dwelling; may we be the lords of riches. [Triply defended dwelling: **tridha_tuna_s'arman.a_ = triparvan.a_gr.hen.a**, with a house of three joints; in RV. 1.34.6, **tridha_tu s'arma = va_tapitta s'les.ma dha_tutrayas'amana vis.ayam sukham**; in RVV 1.85.12 **s'arma tridha_tu_ni = pr.thivya_dis.u tris.u stha_nes.u avasthita_ni sukha_ni gr.ha_ni va_**; Note: it is possible that the term may simply mean, three elements, copper, silver, gold].

Rebus (for the glyptic of crossing over):

da~_t.u = cross over; da.t.- (da.t.-t-) to cross (Kol.); da_t.isu – to cause to pass over (Ka.); da.t.- (da.t.y-) to cross (mark, stream, mountain, road)(Ko.); ta_t.t.uka to get over or through (Ma.); ta_n.t.u = to cross, surpass (Ta.)(DEDR 3158).

Rebus: **ta_t.u** = to strike against, come in contact with (Ka.); ta_d.uni = to gore, butt; ta_d.u = goring (Tu.); ha-n.t.u to collide (Tu.); ta_n.t.i = to hit (Kor.)(DEDR 3156).

ta_tu = powder, dust, pollen (Ta.); **to.0** = powdery, soft (of flour or powdered chillies)(To.). There is a possibility that the early semant. Of 'dha_tu' was cassiterite, powdery tin mineral.

The three signs used have parallels in the inscriptions of the civilization; in m-1336 the 'antelope' pictograph appears together with the 'mould' pictograph; **X** sign occurs on many inscriptions with many variants elaborating it as a junction of four roads:

The Sign 249 which is shown on the second tin ingot of Haifa, Israel is a representation of an ingot, assuming that this shows an ingot is shaped like the one taken out of a mould. The **X** sign (with a ligatured perpendicular short linear stroke) is common on both the tin ingots.

ran:ku a species of deer; ran:kuka (Skt.)(CDIAL 10559). ra_n:kava made from the hair of the ran:ku deer (Ka.lex.) ra~_kat. big and boorish (M.)(CDIAL 10538). cf. ran:ka slow, dull (Skt.)(CDIAL 10538). cf. ro_hi a kind of deer (R.)(CDIAL 10870). rauhis.a, ro_his.a a kind of deer (Ka.lex.) **ran:ku** 'antelope' (Santali) **ran:ku** = a species of deer (Skt.); ran:kuka id. (Skt.)(CDIAL 10559). ra_n:kava belonging to the ran:ku deer (MBh.); made from the hair of the ran:ku deer, woollen (R.); coming from ran:ku (said of animals) (Pa_n. 4.2.100); a woollen cover or blanket (MBh.R.); ra_n:kava ku_t.a s'a_yin lying on a heap of woollen rags (MBh.); ra_n:kavajina a woollen skin; ra_n:kavastaran.a a woollen coverlet (R.); ra_n:kavastr.ta covered with a woollen rug (Skt.); ra_n:kavaka coming from ran:kiu (said of men) (Pa_n. 4.2.134); ra_n:kava_yan.a coming from ran:ku (said of animals) (Pa_n. 4.2.100). ran:ku a species of deer or antelope (Skt.lex.) ran:ku = a species of deer or antelope, the spotted axis (mare)(Ka.lex.)

kurunga = a kind of antelope; kurunga miga = the antelope deer (Pali); kulunga, kulanga (Skt.)(Pali.lex.) kulan:ga (MaitrS.); kulun:ga (TS); kuran:ga, kurun:ga (Pkt.); kuram.ga (Pali); kuran:g (P.); karam.gi_ (OG.); kura~g (G.); kurunga (Si.); kurangu the elk *Rusa aristotelis* (Si.)(CDIAL 3320). cf. kuran:g light chestnut colour (Kho.)(CDIAL 3321). **kuran:ga** = a species of antelope, antelope or deer (in general); kulun:ga = an antelope (VS 24; TS 5); kuran:gaka, kulan:ga = antelope; **kuran:gama** = an antelope; **kuran:ga_yate** to take the shape of an antelope (Skt.lex.) **kurahu** antelope (Kuwi), kuran:ga (Ka.) kulanga, kulunga = going in a herd, antelope (VS.); kulmi = a herd (TS. ii.4.5.2)

Mleccha, copper

mlecchamukha = copper (Skt.); what has the copper coloured complexion of the Greek or Mahomedans]. meriya = a rock; merayu = to shine, glitter (Te.lex.) **mer** = a kind of large copper or brass pot (G.lex.) cf. **milakkhu** = copper (Pali); mleccha = copper (Skt.)

mer.ed, me~r.ed iron; **enga mer.ed** soft iron; **sand.i mer.ed** hard iron; **ispa_t mer.ed** steel; **dul mer.ed** cast iron; **i mer.ed** rusty iron, also the iron of which weights are cast; bicamer.ed iron extracted from stone ore; **balimer.ed** iron extracted from sand ore; **mer.ed-bica** = iron stone ore, in contrast to **bali-bica**, iron sand ore (Mu.lex.)

Substantive: *med.o* merchant' clerk (Hem.Dec.); *mehto* a schoolmaster, an accountant, a clerk, a writer (G.)
Glyph: *med.ho* a ram, a sheep (G.); *mid.hia_o* (Dh.Des.); *men.d.h, men.d.* a ram (Skt.); *medhya* a goat; fr. *medh* a sacrifice (Skt.) **mr..eka** = goat (Te.); mlekh (Br.) **mer.h, mer.ha_**, me~d.ha_ ram (H.), med.hia_o (Dh.Des.) ram, goat, sheep (G) mid.iyo = having horns bent over forehead (G.)(CDIAL 10120). **me~r.a_**,

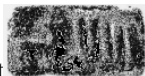
me~d.a = ram with curling horns (H.)(CDIAL 10120). **me_t.am** = goat (Ta.lex.) [cf. the pictorial motif of antelope with head turned backwards]. **merom me~t** = the goat's eye (Santali.lex.) **mes.a** = ram (RV 8.2.40) **mer.om** = a goat; mer.om jel = the hind of the ravine deer, *gazella bennettii*; mer.om (Santali)

mer.go = with horns twisted back; mer.ha, *m.*, mir.hi.f. = twisted, crumpled, as a horn (Santali.lex.)

mer.hao = to entwine itself, wind round, wrap around, roll up (Santali.lex.) [Note the endless knot motif].



h702At



h702Bt



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m0271

Goat-antelope with horns turned backwards and a short tail



Three caprids. Tepe Yahya. Cylinder seal reconstructed from seven fragments.

To the left of this pair is a third caprid rampant with head turned back whose horns are viewed frontally rather than in profile. Beneath the belly of each animal is a four-sided cross. There are 9 fragments of clay slab wall sealings. Wall plaster is preserved on the reverse of most fragments. Seal is carefully roled along horizontal axis of sealing. Lamberg-Karlovsky 1971: pls. 4, 5; cf. Fig. 10.27 in Pittman, 2001, opcit.

Two caprids with heads turned back rampant against a stepped platform (mountain) surmounted by a tree.

Iron, ib

ib 'iron'; **sund** 'pit furnace'; **sund** = a subterranean passage, a mine, pit, large hole; **koela la lateka sund akata** = they made a deep pit by digging for coal (Santali) **kar.c ib** = very excellent iron (Ko.)

Two scorpions: **kacc** + **ib** = reduplicated terms for iron, very excellent iron [**kar.c ib** = excellent iron (Ko.)]

ib = two; as in: **ibbaru** = two persons (Ka.)



(42)

Sign 87 (365)



Copper tablets (21)

ib = two (Ka.) Rebus: **ib** = iron (Santali)⁵ **ib** = iron (Ko.); **irumpu** = iron, instrument, weapon (Ta.); **irimpu**, **irimpu** = iron (Ma.); **ib** = needle (To.); **irimbi** = iron (Kod.); **inumu id.** (Te.); **rumba vad.i** = ironstone (Kui)(DEDR 486). **ibhya** = rich, wealthy (Skt.)



Seal. Elephant. Elephant is covered with a saddle cloth. (After Scala/Art Resource)

ibha = elephant (Skt.) **ibhi**, **ibhya** = female elephant (Skt.Ka.Te.) **ibhagati** = a female with the dignified gait of an elephant (Ka.) **ibhapuri** = hastina_puri (Ka.) **ibhahasta** = an elephant's trunk (Ka.)

The depiction of a saddle cloth on the elephant may also be related to the orthographic significance of depicting a pannier² on a one-horned bull. It may connote a waist-zone, belt, **kamarasa_la** (Te.); rebus: **kamma_rasa_le** = workshop of a blacksmith (Ka.) When an elephant is shown on epigraphs with such a saddle cloth, the depiction may be of a **kamma_ra** 'smith' involved in ironsmithy: **ib** 'iron'; rebus: **ibha** 'elephant'.



(11)

Sign 211 (227)



m1148 Field Symbol 7 (9) Sign 176 **kan:gha**

'comb' (H.) Rebus: **kan:ga** 'furnace' (K.) **bhallaka** 'arrow'; **bhallaka** 'copper'

² [Alternative: **kac** 'waist-belt'; rebus: **kacc** 'iron']

Bronze

kas kasa bronze; *ka_s*, *kasa* bell-metal; *kasa pitar* bell-metal and brass (Santali) *kan~cu* bronze (Te.) *ka~c* glass (Santali) *ka_cu* gold, gold coin, money, a small copper coin (Ta.); *ka_s'u* gold, money, the smallest copper coin (Ma.); *ka.c* rupee (Ko.); *ko.c* id. (To.); *ka_su* the smallest copper coin, a cash, coin or money in general (Ka.); an old copper coin worth half a pie, a cash (Tu.); a cash, a coin in general, a gold coin, money (Te.); pice <Te. (Go.); *kars.a* (Skt.)(DEDR 1431). **kaca** = a piece, one quarter of an anna (Santali) **kase_ra** metal worker (L.)⁶

kac, kas, kacci iron (Go.); *kacc* iron, iron blade (of spade)(Go.); *kacci* iron sword (Go.); sword (Kol.) ? < IA (DEDR 1096; CDIAL 2866)⁷

kars.a = gold coin (Vedic) **kasa** = quality of gold or silver (as determined by rubbing it on a touchstone); *kas*. To rub, to test (Skt.); *kas* = pith (Arabic); *kas* = remunerativeness (of a trade)(G.) *kasan.* = rubbing, testing; *kasan.uvum* = to mix by gradually rubbing the ingredients together, to mix by rubbing (G.) *kasot.i_* (*kasa* 'rubbing' + *vr.tti* 'a circle') a touchstone, generally round in form; making a trial, an experiment (G.) *kasabi_* = an artist, an artisan; adj. skilful, clever (G.) *kasab* (Arabic) a business, a trade, a profession; conversancy in an art, proficiency; an artifice, a device (G.) *kasa_ya*, *kasa_ba* a butcher (Ka.); *kasa_i_* (M.)(Ka.lex.) *kaca_ppu* slaughter of animals for food; butcher (Ta.); *kassa_b* (U.)(Ta.lex.)

kasi_do (Persian *kas'i_dan* to draw) embroidery; a piece of brick or tile burnt in fire and turned hard (G.) *kaja* (*kaji-*) to be congealed, solidified by growing cold; *ganja* (*ganji-*) to solidify, coagulate, become solid (Kui); *kajali* = to be congealed, become curdled (Kuwi)(DEDR 1102). *kas-* = to be lit (as fire), burn (Kond.a); *hiccu kahinomi* = we kindle fire (Kuwi)(DEDR 1090).

kaca kupi = scorpion (Mand.); *kasa* (*kasi-*) to bite, sting (Kui); *kaccinai* = to bite, sting (Kuwi)(DEDR 1097). *kharju_raka* scorpion (Skt.); *khajuro* centipede (N.); *khajria_* (Or.); *khaju_ra_* (H.); *khajura_* twisted (of thread)(H.)(CDIAL 3829). **Bite:** *kaccu* (*kacci-*) to bite, gnaw, nibble (nursery)(Ta.); *koc* to bite (To.); *kaccu*, *karcu* to bite, sting (Ka.); *qaswe* to eat greedily, nip off with the teeth (Malt.)(DEDR 1097).⁸



Rahman-dheri01A and B Rhd1: Two scorpions flanking a 'frog?' [**?kamat.ha**] and a sign **T** with two holes on the top, possibly to be tied on a string [Together with *bica_*, sand ore, the sign, 'T' may connote another ore, perhaps tin].
Glyph: **kaca kupi** = scorpion (Kuwi)



Pict-40: Frog. 2565 Frog

Rebus: **kanca_** = a marble (made of stone or lac)(Ka.) Stone beads! **ka_ca_** = glass (Santali) **kaca_ra** = dealer in glass bangles (Or.); **ka~_ca_r**, *ka~_ca_ri_*, *ka_ca_r*, *ka_ca_ri_* = maker of glass bangles (M.); *ka_cera_* = glass-worker (H.)(CDIAL 3012). **ka_s'i_** = glazing put on earthenware (S.); *ka_yo*, *ka_vo*, *kacu* = glass (S.) *ka_seuli* = stone cutter *ka_si_d.u*, *ka_seva_d.u* = a stone cutter, mason; *ka_su* = gold coin; *ka_camu* = glass; *ga_ju* = glass, glass bracelet or bangle (Te.)

kan~cu = bronze (Te.) *kas-kut.* = metal alloy (brass or bronze) *ka~_se~* bell-metal (M.); bronze (Kon.) *ka~_ha_r* = worker in bell metal; *ka~_se* = bell metal, *kance_ra*, *kancari* = bell-metal work (Te.)

kacc = iron blade (of spade)(Go.); *kas* = iron (Go.) *ka_ci* (B.), *ka_si* (A.), *kaciya_* (N.) = toothed

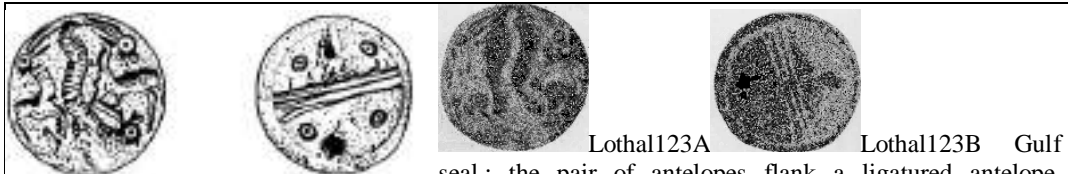
sickle (Bi.); reaping-hook (H.) kacci (Kol.Go.) kacia_ (Or.) ka~_jo = band of metal round joint of a khukri (H.)



V039 Cylinder seal; Louvre, ca. 3000 B.C

ka_tri = trap; **kha~_ca_** hen-coop B.H.P.); kha~_c basket for carrying birds (such as quails)(N.); kha~_ca_ large basket of tamarisk twigs (Mth.); kha~_ci_ small basket of tamarisk twigs (Mth.)

kiculaka earthworm (Skt.); **ke~su, kesu** earthworm (A.); ke~cua_, ke~co, ke~cui (B.); kecu, kecu_ earthworm, tape-worm (Or.); ke~cua_ earthworm (H.)(CDIAL 3459).

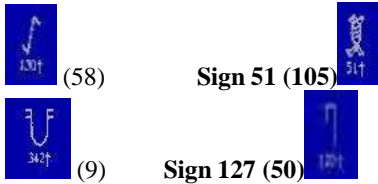


Lothal123A Lothal123B Gulf seal.; the pair of antelopes flank a ligatured antelope, ligatured to a snake or earthworm). Circular style Gulf seal from Lothal (After Rao, 1985, Pl. CLXIb). "The Lothal seal (Persian Gulf Seal) is made of light grey steatite... Four circles with a central dot are also drawn on the back, while on the face is a reptile or dragon having two heads and flanked by two jumping goats or gazell-like animals with protruding eyes and looking over the shoulder. None of these figures has any resemblance to Indus motifs. On the contrary, the goat-like animals on the seal under discussion are more like the Sumerian goats...Some of the late circular seals from Failaka...assigned by Dr. Bibby to the Sargonic period, are identical in all details with the Lothal seal." (Rao, SR, 1985, *Lothal, A Harappan Port Town, 1955-62, II, Delhi*).

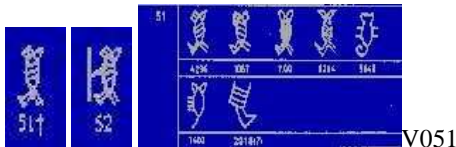
ran:ku 'antelope'

keccu 'earthworm'

Rebus: **ran:ku** 'tin'; **kas** 'bronze'.⁹



The pair of signs: Sign 51 and Sign 130 may thus be read as:
kaca kamar t.ot.ha = neighbourhood of bronze-smiths.



If this represents a scorpion, it could be: **kamar** kidin:: rebus: kamar, blacksmith (Santali)

tutia, tutiya = bluestone, blue vitriol, sulphate of copper; **tutia reak misiko benaoa d.at.a hende ocoe lagit** = they make misi with bluestone to blacken the teeth (Santali); **tu_tiya_** (H.) **misi** is a powder composed of yellow myrobalan, gall-nut, vitriol etc. used for tingeing the teeth a black colour (Santali)¹⁰


This glyph is associated with Sign 130, which appears like a **to_t.t.i** See also Signs 127 to 129 which may depict a pole with a hook.



to_ttra goad for cattle or elephants (SBr.); tutta (Pali); totta, tutta (Pkt.); tutta (Si.)(CDIAL 5966). to_da driver (RV.); to_daga one who hurts (Pkt.)(CDIA 5969). to_ya pain (Pkt.)(CDIAL 5968). Image: pole with an iron hook: t.o_r.o_ a long stick with an iron hook; a pole with an iron hook or branch curved down at one extremity (Kur.); t.o_r.na_ to hook in (Kur.); tu~r.i_ a variety of the native rake or t.o_r.o_(Kur.); **to_t.t.i** elephant hook or goad, hook, clasp, sharp weapon planted in the ground to keep off enemies (Ta.); hook for driving an elephant, hook for plucking fruit (Ma.); do_t.i, lo_t.i pole with a hook for plucking fruit, gathering flowers (Ka.); do_n.t.i long pole with hook to pluck fruit (Tu.); do_t.i long pole with hook for cutting off fruit from high trees (Te.); t.o_t.al bamboo rake (Pa.)(DEDR 3547).¹¹

Glyphs: animal in heat and trampling upon a long necked person (?)



It is seen from an enlargement of the bottom portion of the seal impression that the 'prostrate person' may not be a person but a ligature of the neck of an antelope with rings on its necks or of a post with ring-stones. The head of the 'person' is not shown. So, it may be surmised that this is an artist's representation of an act of copulation (by an animal) + a ligatured neck of another bovine or alternatively, a pillar with ring-stones ligatured to the bottom portion of a body (perhaps of a cow, why not?). It is not uncommon in the artistic tradition to ligature bodies to the rump of, for example, a bull's posterior ligatured to a horned woman (Pict. 103 Mahadevan) or standing person with horns and bovine features (hoofed legs and/or tail) -- Pict. 86-88 Mahadevan. Bison (gaur) trampling a prostrate person (?) underneath. Impression of a seal from Chanhujodaro (Mackay 1943: pl. 51: 13). The prostrate 'person' is seen to have a very long neck, possibly with neck-rings, reminiscent of the rings depicted on the neck of the one-horned bull normally depicted in front of a standard device.  6114



The pictorial motif on this Chanhudaro seal is compared with a pictorial motif on a Margiana stamp seal using line-drawings:

Left. Margiana, stamp seal: obverse, attacking lion; reverse: a bull copulating with a woman. ; Right: Chanhujo-daro seal: the bull is leaning over a lying woman with opened legs (Mackay, 1943, pl. 51:

13).

Tosi notes the occurrence of Harappan steatite seals and etched carnelian beads at 'Bactrian sites', materials which were found in the 'looted graveyards of Bactria'. (Tosi, M., 1979, The proto-urban cultures of eastern Iran and the Indus civilization', in M. Taddei (ed.) *South Asian Archaeology 1977*, II. Naples: 643-59; Francfort, H.P., 1984, The Harappan settlement of Shortughai, in B.B. Lal and S.P. Gupta, eds., *Frontiers of the Indus Civilization*, Delhi, 301-10.)

The prostrate 'person' pictograph is comparable to the 'scorpion' glyph, ligatured to a lanky woman, shown at the bottom register of a Failaka seal. Obverse of steatite Dilmun stamp seal from Failaka Island (c. 2000 BCE).



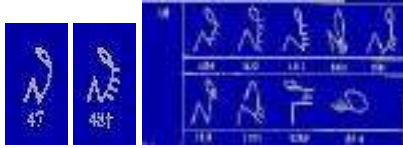
d.han:ga = tall, long shanked; *maran: d.han:gi aimai kanae* = she is a big tall woman (Santali.lex.) Rebus: **d.han:gar** 'blacksmith'

Obverse of steatite Dilmun stamp seal from Failaka Island (c. 2000 BCE). A human figure and a variety of animals – two antelopes one with its head looking backward; possibly a scorpion at the feet of the human figure. A dotted circle is seen above one antelope and a vase in between the antelope and the human figure. Kuwait National Museum. French Archaeological Expedition in Kuwait. Several inscriptions at Failaka mention the Dilmunite god Enzak and his temple or Mesopotamian deities. [Remi

Boucharlat, *Archaeology and Artifacts of the Arabian Peninsula*, in: Jack M. Sasson (ed.), *Civilizations of the Ancient Near East*, pp. 1335-1353].

Alloy: brass and bell-metal or bharan

ri_tī = yellow brass, bell metal (Skt.); ritika = calx of brass; ritika_ = brass (Skt.); ri_ri_, riri_ = yellow brass (Skt.); rit = copper (Dm.); ri_t (Gaw.); ri_da (Sv.); ri_a = brass (Bshk.); ri_ri_ = brass (Pkt.); **ri_l** = brass, bronze, copper (Sh.)(CDIAL 10752).



V048, Signs 47, 48 **ri_r**. = backbone (WPah.) ri_rh = backbone (Aw.); ri_r.h (H.); ri_d.haka = backbone (Skt.)(CDIAL 10749a).

d.han:ga = a crook used for pulling down the branches of trees, for goats, sheep and camels (P.lex.)



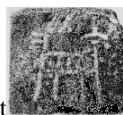
Sign 130

The glyph 'skeleton' may also be explained as rebus: da_kali, da_gali = an anvil (Te.lex.) **d.ha~go** = skeleton; lean (Ku.); d.a_n:ga = one who is reduced to a skeleton (Or.); d.a~_gar, d.a~_gra_ = starveling (H.); d.ha~_kal., d.ha~_ku_l. = old and decaying (M.); d.ege = old, weak (Wg.)(CDIAL 5524).

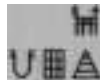
Rebus: **d.a_n:ro** = a term of contempt for a blacksmith (N.)(CDIAL 5524) t.ha_kur = blacksmith (Mth.); t.ha_kar = landholder (P.); t.hakkura – Rajput, chief man of a village (Pkt.); t.hakuri = a clan of Chetris (N.); t.ha_kura – term of address to a Brahman, god, idol (Or.)(CDIAL 5488). **dha~_gar., dha~_gar** = a non-Aryan tribe in the Vindhya, digger of wells and tanks (H.); dha_n:gar = young servant, herdsman, name of a Santal tribe (Or.); dhan:gar = herdsman (H.)(CDIAL 5524). 4064. **Blacksmith:** t.ha_kur blacksmith (Mth.)(CDIAL 5488). d.a_n.ro term of contempt for a blacksmith (N.); d.a_n.re large and lazy (N.); d.an.ura living alone without wife or children (A.); d.a~_gar, d.a~_gra_ starving (H.); d.an.or unwell (Ash.); dan:gor lazy (Bashg.); d.angur (dat. d.anguras) fool (K.); d.a~_go lean (of oxen)(Ku.); d.a~_go male (of animals); d.a_n. wicked (A.); d.a_n:ga one who is reduced to a skeleton (Or.); d.i~glo lean, emaciated (Ku.); d.i~go, d.in.o abusive word for a cow (N.); d.in:gar contemptuous term for an inhabitant of the Tarai (N.); d.in:gara rogue (Or.); d.hagga_ small weak ox (L.); d.han:garu, d.hin:garu lean emaciated beast (S.)(CDIAL 5524). **A tribe:** d.ha~_gar., dha~_gar a non-Aryan tribe in the Vindhya, digger of wells and tanks (H.); dhan:gar herdsman (H.); d.ha_n:gar. herdsman, name of a Santal tribe, young servant (Or.); dha_n:gar.a unmarried youth (Or.); dha~_gad. rude, loutish (M.); f. hoyden (M.)(CDIAL 5524). t.an:kan.a, t.an:gan.a name of a people living northwest of Madhyades'a (R.); t.am.kan.a a non-Aryan tribe (Pkt.)(CDIAL 5454). [cf. association of blacksmith and goldsmithy terms: t.an:ka-ca_lai < t.an:ka-s'a_la_ mint; t.an:kan.am borax (Ta.lex.) t.an:ka stone-cutter's chisel (Ta.lex.); spade, hoe, chisel (R.); stone-mason's chisel(CDIAL 5427). t.an:kam mace (Ma.)(DEDR 2940)].



m0516At



m0516Bt



3398

[Copper tablet; side B perhaps is a graphemic representation of an antelope; note the ligatured tail comparable to the tail on m273, b012 and k037] **ri_r**. high mountain (WPah.)(CDIAL 10749a) **rir**. = a ridge; sakam rir. = the mid-rib of a leaf (Santali) buru rir. = the ridge of the hill (Santali.lex.)

The pictograph on m516 B (antelope) appears on a tin ingot found in Haifa, Israel. The antelope may be connoted by **ran:ku**, deer; ran:ga = tin.




V132, Signs 132, 133 **ri_tī** = stream³ (RV.); **ri_i** = path, fashion (Pkt.); **ria** = shallow narrow channel for catching fish, in dry season (Or.); **ri_** = method, manner (G.)(CDIAL 10751)

r.s. = **thrust** (Skt.); **r.s.t.i** = spear, lance, sword (RV 1.167.3; 1.169.3; 10.87.7; 1.37.2; 1.85.4; 2.36.2); **r.s.t.i-**mant = equipped with spears (RV 3.54.13; 5.57.2; 5.60.3; 1.88.1); **r.s.t.i-vidyut** = glittering with lances (Maruts)(RV 1.168.5)(Vedic.lex.) **r.s.t.i** = spear, lance (RV.); **it.t.hi** spear (Pali); **rit.t.hi** sword (Pkt.); **ris.t.i**, **ris.t.a** sword (Skt.); **hes.t.** yoke-pole (Kho.Kal.); **ri_t.h** sword (H.); **i_t.hi_** spear, spear-shaft (H.); **vi_t., it.a., vit.a_** a spear carried before a **ra_ja_** in procession (M.); **it_i_** the bit of stick struck in the game of trapstick (S.); **i_t.hi, i_t.i_** (H.); **it_i_** (M.)(CDIAL 2461). **r.s.t.i, ris.t.i** = a sword (Ka.lex.) **it.t.ti, i_t.t.i** = spear (Ta.lex.)

ret rete = in line, in a row (Santali.lex.)

Pict103 Horned (female with breasts hanging down?) person with a tail and bovine legs standing near a tree



fisting a horned tiger rearing on its hindlegs.  1357

rindi_ [te rindi_ va lambante nodaka-- said of breasts hanging down in old age. The text commentary compares them with leather water bottles without water (**udaka-bhasta_ viya**); **rindi** = shrunken as skins without water (Pali.lex.) **rimd.i_** = an old torn worn-out garment (Pkt.); **rin.d.** widow (Bshk.); **re~r.a_** = stunted wheat (Bi.)(CDIAL 10815). [On an inscribed objects, the pictograph depicts a person bending down with

breasts hanging down]

d.okkara = thumping, striking, a blow (Ka.); **t.ho_kara** = thumping, striking against (H.)

d.okri_ 'old woman' (Hi.); **dokri, dukri** 'old woman' (Kurku); **d.okra_** 'aged, old' (Hi.Mar.) **d.okro** an old man; **d.okri_** an old woman (G.) **t.on:ku < d.on:ku** (Te.) crookedness (Ta.); **d.on:ku id.** (Ka.)(Ta.lex.) **dhokar.a** decrepit, hanging down (of breasts)(Or.); **duk** hunched up, hump of camel (Kho.); **dok^u** hump-backed (K.); **d.okro, d.okhro** old man (Ku.); **d.okra_** old, decrepit (B.); decrepit (H.); old man (M.)(CDIAL 5567). **d.osa, d.usa** having a maimed or bent body (from disease etc.)(K.)(CDIAL 5563).

Substantive: **dhokra** 'metal worker'

bharatiyo, caster of metals

bharata = a factitious metal compounded of copper, pewter, tin etc.; green carbonate of lime (M.lex.) A semant. expansion occurs in the following lexemes: **bhart** = a mixed metal of copper and lead (G.) **bharan.a** = filling stuff, filling material (Ka.M.lex.) **bhoron** = a mixture of brass and bell metal (Santali.lex.) **bhart-i_ya_** = a barzier, worker in metal; **bhat.a, bhra_s.t.ra** = oven, furnace; **bari_** = blacksmith (G.) **barad., barhat.** = rough; not hard; brittle (G.lex.) **bharata** = casting metals in molds; **bha_ravum** = to keep live coals, buried in the ashes (G.lex.) **bharata** = fire in which the rice for **bra_haman-s** is boiled; name of Rudra (the Maruts are called his sons: RV 2.36.8); name of an **A_ditya**: Nir. 8.13); name of Agni (kept alive by the care of men)(RV); of a particular Agni (father of Bharata and Bharati_)(MBh.); a priest (r.tvij: Naigh. 3.18)(Skt.lex.) **bharta** = a method of cooking fish, mushrooms and vegetables by wrapping up in leaves and roasting in ashes (Santali.lex.) **bara_t.a** = a kind of firework (Tu.lex.) **bharta** = bake in live coals (Santali); **bharta** (Desi)(Santali.lex.) **bharan.yu** = fire (Skt.lex.)

³ **bat.te** = a canal, a channel, a streamlet, a brook (Te.) Rebus: **bat.hi** = furnace (Santali)

bharad = in comp. for bharat: bharadva_ja = bearing speed or strength (of fight); a skylark (Skt.lex.)
bharad-va_ja = name of a R.s.i (with the patronym ba_rhaspatya, supposed author of RV 6.1-30; 37-43; 53-74; 9.67, 1-3; 10.137.1 and Purohita of Diva-da_sa, with whom he is perhaps identical; name of a district: Pa_n. 4.2.145; name of an Agni (MBh.)(Skt.lex.)

bharan = to spread or bring out from a kiln (P.lex.) **bha_ran.** = to bring out from a kiln (G.)
ba_ran.iyo = one whose profession it is to sift ashes or dust in a goldsmith's workshop (G.lex.)
bharant (lit. bearing) is used in the plural in Pan~cavim.s'a Bra_hman.a (18.10.8). Sa_yan.a interprets this as 'the warrior caste' (bharata_m – **bharan.am kurvata_m ks.atriya_n.a_m**). *Weber notes this as a reference to the Bharata-s. (*Indische Studien*, 10.28.n.2)

In the Punjab, the mixed alloys were generally called, **bharat** (5 copper, 4 zinc and 1 tin). In Bengal, an alloy called **bharan** or **toul** was created by adding some brass or zinc into pure bronze. Sometimes lead was added to make it soft. **bharatiyo** = a caster of metals; a brazier; bharatar, bharatal, bharatal. = moulded; an article made in a mould; bharata = casting metals in moulds; bharavum = to fill in; to put in; to pour into (G.lex.)

?furnace. Suffixed o-grade form *g^whor-no-. **a.** fornax, furnace, hornito, from Latin *furnus, fornus, forna_x*, oven; *g^whr-. **a.** burn from Old English *beornan, byrnan* (intransitive) and *baernan* (transitive), to burn; ?forge. Middle English, from Old French, from Vulgar Latin *faurga, from Latin *fabrica*, from *faber*, worker.
?hearth. Middle English *herth*, from Old English *heorth*.



Glyph: *ba_ran.um* [Hem. Des. *ba_r, dva_r*, fr. Skt. *dva_ra*] a door, a gate, an entrance; the court-yard in front of a house; *ba_r* a door (G.)

Glyph: *ba_r* a courtyard in front of a house (G.)

Glyph: *khud*. A terrace of a house (Used in *Ka_t.hiawa_d*.)

Substantive: *khud.do, khurdo* (Persian *khurdah*) small change in copper; *khurdiyo* a merchant who exchanges copper coins for silver (G.)



Sign 17 (91) The glyph is a ligature of a 'guard' + *ficus glomerta*: **loa + bhat.a** = iron smelting furnace.

The term, **bharan**, evokes two semantic interpretations: 1) an asterism represented by pudendum muliebre and 'bearing in the womb'; 2) act of filling as in creating mixed alloys.



(26) **Sign 15 (126)**



V176 Ligatured signs:



V173



Signs 176, 165, 166, 382 *ka_m.sako* = a large-sized comb (G.lex.) Alternative decoding of Sign 176: Comb **kangha** (IL 1333) *ka~ghera_ comb-maker* (H.)

kan:g = brazier, fireplace (K.) (IL 1332) Portable brazier **ka~guru**, **ka~gar** (Ka.) whence, large brazier = **kan:gar** (K.); *ka~gri_* = small portable brazier (H.) *ka_gni* = a small fire (Vop.) *ka_n:kai* = heat of fire (Ta.); *ka.g* = black thread; blue cloth of olden times, now used for funeral purposes (To.)

ba_ran.e, *ba_rane*, *ba_rpan.i* = a comb; *ba_runi* = to comb the hair (Tu.lex.) **bar.ae**-bur.ui = to oil and comb someone's hair (Mundari.lex.) *va_raki_ra* = a small comb (Skt.); *va_ruka* = to comb (Ma.); *va_r* = to comb as hair (Ta.); *ba_can.ige* = a comb (Ka.); *ba_grka_* wooden comb worn by boys and girls (Kur.) (DEDR 5357).



(114)

Sign 48 (168)



Copper tablets (13)



h172B Field Symbol 36 (10)

Glyph: **t.hat.ra** = m. emaciated (Santali)

Rebus: **t.hat.era** = a brazier, a caste who manufacture and sell brass ware; *t.hat.ori* = a worker in brass, a goldsmith (Santali)

bharan.i_ 7th asterism (figured by pudendum muliebre) (AV.); **bharan.a** bearing in womb (RV.); **bhara** carrying, booty (RV.) [**bhr.** bear] **bharan.i_** 2nd asterism (Pali.Pkt.); second lunar mansion (G.) *bha_reva_yi* = pregnant (G.lex.)

barad.u, **bar-ad.u** = an empty pot (Ka.lex.) **bhala_n.d.e~** = the half-pot or the shard which, with fire in it, the *gosa_yi_* or the *gondhal.i_*-people hold on their hand; *gondhal.i_* are musicians and singers; *gondhal.* = a tumultuous festivity in propitiation of *devi_* (M.lex.) **bha_liyo** = a waterpot (G.lex.) **baran.i**, **baran.e** = the trough of a water-lift; a china jar (Tu.lex.) **bhara.ni_** = a cooking pot (G.)



bharad.o = cross-beam in the roof of a house (G.lex.) *bha_rat.iyum*, *bha_rvat.iyo*, *bha_rot.iyo* = a beam (G.lex.) *ba_ri* = bamboo splits fastened lengthwise to the rafters of a roof from both sides (Tu.lex.) *ba_rapat.t.e* = chief beam lying on pillars (Te.lex.) **bharan.um** a piece in architecture; placed at the top of a pillar to support a beam (G.)

barot.i = twelve; as in: *barot.i panjaram*, adj. lit. = who has twelve ribs; important, who is able to get things done (Santali)

bha_rot.i_ = a bundle of fuel; *bha_ro* = a load, a bundle (g.lex.)

bharna = the name given to the woof by weavers; **otor bharna** = warp and weft (Santali.lex.) **bharna** = the woof, cross-thread in weaving (Santali); **bharni_** (H.) (Santali.Boding.lex.)

bharad.o a devotee of S'iva; a man of the *bharad.a_* caste in the *bra_hman.as* (G.) **barar.** = name of a caste of **jat-** around Bhat.in.d.a; *barar.an da_ mela_* = a special fair held in spring (P.lex.) **bhara_d.** = a religious service or entertainment performed by a *bhara_d.i_*; consisting of singing the praises of some idol or god with playing on the *d.aur* (drum) and dancing; an order of *at.hara_ akha_d.e* = 18 *gosa_yi_* group; *bhara_d.* and *bha_rati_* are two of the 18 orders of *gosa_yi_* (M.lex.) **bharat.aka, bharad.aka** = a particular class of mendicants (Skt.lex.) **bharat.a** = a potter or a servant: Un. 1.104 (Skt.Ka.lex.) **bard** Middle English, from Irish and Scottish Gaelic *bardand* from Welsh *bardd*. One of an ancient Celtic order of minstrel poets who composed and recited verses celebrating the legendary exploits of chieftains and heroes. **2.** A poet, especially a lyric poet. **ballad:** etymology: Middle English *balade*, poem or song in stanza form, from Old French *ballade*, from Old Provençal *balada*, song sung while dancing, from *balar*, to dance, from Late Latin *balla_re*, to dance. <http://www.bartleby.com>

ba_rn.e, ba_ran.e = an offering of food to a demon; a meal after fasting, a breakfast (Tu.lex.) **barada, barda, birada** = a vow (G.lex.)

barad.o = spine; backbone; the back; *barad.o tha_bad.avo* = lit. to strike on the backbone or back; hence, to encourage; *barad.o bha_re thato* = lit. to have a painful backbone, i.e. to do something which will call for a severe beating (G.lex.) *barad., barad.u* = barren, childless; *baran.t.u* = leanness (Tu.lex.) *man.uk.o* a single vertebra of the back (G.)

vara_d., vara_d.h = a quarrel; *vara_d.havum* = to cause to quarrel (G.lex.)

marud.iyo = one who makes and sells wristlets, and puts wristlets on the wrists of women (G.lex.) **marad.a** = twisting; a twist; a turn; *marad.avum* = to twist, to turn; *marad.a_vum* = to bend; *marod.a* = a twist, a turn; writhing, a bend; *marod.avum* = to writhe, to twist, to contort; to bend (G.lex.)

bara_d.o = a loud cry (G.lex.)

Metal ingot, trade

mu~h metal ingot (Santali) **mu~ha~** = the quantity of iron produced at one time in a native smelting furnace of the Kolhes; iron produced by the Kolhes and formed like a four-cornered piece a little pointed at each end; **mu_ha_ me~r.he~t** = iron smelted by the Kolhes and formed into an equilateral lump a little pointed at each end; **kolhe tehen me~r.he~tko mu_ha_ akata** = the Kolhes have to-day produced pig iron (Santali.lex.)

muh face (Skt.) **mu~he~** = face (Santali); **mu~h** (H.); **mu_ha_ mu_hi_** adj. adv. face to face, facing one another (Santali.lex.Bodding) Rebus: **mleccha-mukha** = copper (Skt.) mlekh = goat (Br.); mr..eka = goat (Te.)

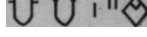
sodo [Persian. **soda_**, dealing] trade; traffic; merchandise; marketing; a bargain; the purchase or sale of goods; buying and selling; mercantile dealings (G.lex.) **sodagor** = a merchant, trader; **soda_gor** (P.B.) (Santali.lex.) **sadgal** = a moneylender (Santali.lex.) **soda_gar** [Persian. fr. sodo + gar = Skt. kar, a doer fr. kr. to do] a merchant who deals in valuable things, or with large sums; **soda_giri** = dealing in valuable things or with large sums; adj. Mercantile, commercial (G.) **sod.ra** = a rolled up document, authority (Santali.lex.) [Note: use of cylinder seals to roll up and authenticate a transaction document on clay].

sodo bodo, sodro bodro adj. adv. rough, hairy, shoggy, hirsute, uneven; **sodgo** =adj. shaggy, having a large beard (Santali.lex.Bodding) **sodo bodgo** = hairy, hirsute, rough (Santali.lex.) [Note the bristly hair on the face]. **Sadga badga** = rough, surface uneven (Santali.lex.) **sodro** = a beard, a man with a beard (Santali) **sodro** = adj. bearded, large and rough (beard)(Santali)

A human face with beard, is ligatured to orthographically represent a composite animal:



m0301  2258


m1177  2450 Composite animal: human face, zebu's horns, elephant tusks and trunk, ram's forepart, unicorn's trunk and feet, tiger's hindpart and hooded serpent-ligatured as a tail.



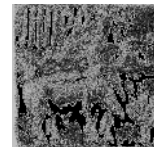
Kalibangan035 [Notes. (1) the bearded face markhor; (2) many animals shown face to

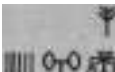
ligatured to composite animal and to face].



m1179  2606 Human-neck-bands and a short tail.

faced markhor with long wavy horns, with



m1180a  1303 Human-faced markhor [Note the twisted horns:

Gold, mint

tan:kam = pure gold, that which is precious, of great worth (Ta.); pure gold (Ma.); t.an:ka = a stamped (gold) coin (Skt.)(DEDR 3013). **t.an:kasa_la** = a mint; t.an:kava_t.u, t.an:kasa_lava_ru = an old gold coin (Te.) **t.an:ka** = a stamped coin (Ka.) t.an:ka, t.an:ga = weight of 4 ma_s.a (Skt.); a stamped coin (Skt.); t.an:kaka = a silver coin (Skt.); tanka = ka_rs.a_pan.a (Khot.); t.am:ka = a stamped coin; t.a~_k button (N.); t.an:ka_rupee (Or.); t.a~_k a particular weight (H.); a particular weight equivalent to 1/72 ser (G.); a particular weight (M.); t.an:ga_a coin worth 2 paisa_ (H.); t.ako two paisa_, pl. money in general (S.); t.rakaku – worth two paisa_; coin of that value (S.); t.aka_a copper coin (P.); t.a_ka_ two paisa_ (Ku.); t.ako money (N.); t.aka_ rupee (A.); t.a_ka_ (B.Bhoj.); t.aka_, t.akka_, t.akwa_ money (Mth.); t.aka_ two paisa_ coin (H.); t.ako (G.); t.aka_ (M.)(CDIAL 5426). ut.a~ko = rough estimate of weight, guess; ut.a~_kru~ to weigh (G.)(CDIAL 1682). chat.a_k 1/16 of a ser (about 2 ounces)(B.); chat.a~_k (H.)(CDIAL 12785). t.an:kas'a_la_, t.an:kakas'o = mint (Skt.); t.aksa_l, t.aksa_r (N.); t.a_ksa_l, t.a~_ksa_l, t.eksa_l (B.); t.aksa_r (Bhoj.); t.aksa_l, t.aksa_r (H.); t.a~ksa_l. (G.); t.a~_ksa_l, t.a_ksa_l, t.a~ksa_l, t.aksa_l (M.); t.aksa_l.i_ mint master (G.); t.a_ksa_l.ya_ id. (M.)(CDIAL 5434). **t.aka** = a rupee, money; to take money (Santali); t.aka_ (H.)



The most frequently occurring glyph is that of a one-horned bull with a pannier; it occurs on 1159 epigraphs (according to Mahadevan corpus). The orthographic accent is on the waist-zone, the pannier¹².

m1656 On this petoral, the pannier is vividly displayed. This is an orthographic feature unique to the one-horned heifer. It is a phonetic rebus determinative of the artisan's workshop.

Rebus: **ten:goc** = standing person (Santali)

tan:ga = a horse-belt; the belt by which the saddle is fixed right on the back of a horse; a garter (G.) **tan:gula**, **tan:guda** = a horse's or an elephant's trapping (Ka.); **t.an:gu**, **t.an:guva_r-u**, tan:gu, tan:guva_r-u = a girth, surcingle (Te.) t.an:gu, tan:gu, tan:gu = a girth, especially of a horse-saddle (Ka.M.Te.); tan:ga, tan:gu = id. (H.); t.an:guhar-e = the girth to be broken: to be reduced to poverty (Ka.) **t.a_kan.a**, **t.a_n:kn.a** = a pony (Ka.Te.); t.a_kana_, t.ha_kan.a_ (H.) t.a~_gan. A species of pony (G.); t.a~_gan hill pony (H.)(CDIAL 5454). t.an:gna baber = the strap or thong by which a dancing-drum is carried (Santali)⁴

t.an:gao = to stop, hinder, obstruct (Santali) **tagar** = to be stopped or impeded; to impede (Ka.) ta_gu, ta_ku, ta_n:gu = to come in contact with, touch, hit, strike or dash against, attack (Ka.); ta~_ku = to touch, hit, attack; combat (Te.); ta~_cu = to kick; ta~_pu = a kick (Te.)(DEDR 3150). t.akka ar.inu = to come to a dead stop (N.); t.akvu~ = to stop (G.); t.eko = prop, obstacle (P.)(CDIAL 5420). t.akkara_ = blow on the head (Skt.); t.akkara = collision (Pkt.); t.akara (K.); t.akaru = butting (S.); t.akkar – pushing, knocking; t.akkarn.a_ to collide, meet (P.); t.akar = obstacle, collision (N.); t.akkar blow (B.H.G.M.)(CDIAL 5424).

⁴ Glyph: **an.d.ige** = one pannier or pack, half a bullock load (Ka.); an.d.emu, an.d.iyamu id.; **a.digamu** = a sort of pannier (Te.)(DEDR 127).

Substantive, **ingot**: **an.d.ige**, **an.d.e**, **ad.e** = a sticky, clotty mass, a lump, as of dates, tamarind, sugar, hair etc. (Ka.Te.); ad.egat.t.u = to become a sticky mass, to be clotted or matted together, as the hair etc. (Ka.Te.); ad.egallu = a stone-like mass of unclean hair (Ka.M.) **an.t.a** = matted or clotted hair; **ant.alugat.t.u** = to become matted or clotted (Te.) a~_t.ho, a~_t.i = bundle, sheaf, plait of hair (Ku.N.)(CDIAL 181).



Sign 18 (27) Copper tablets (15) **dan:go, d.an:goro** = a thick club; a cudgel (G.lex.) t.an:kam = mace (Ma.); t.an:ke, d.an:ke, d.an:gi, d.an:ge = staff, cudgel (Ka.)(DEDR 2940). tan:ka, t.in:ka, tan:ka = a stone-mason's hammer; a stone-cutter's chisel (Ka.) t.an:ka = spade, hoe, chisel (R.); t.an:ga = sword, spade (Skt.); t.an:ka = stone mason's chisel (Pali); t.am:ka stone-chisel, sword (Pkt.); t.ho~ axe (Wot.); t.hon: battle-axe (Bshk.); tunger axe (Tor.); t.o~nguru kind of hoe (K.); t.a~_gi adze (N.); t.a~_ki_ chisel (H.); t.a~_k pen nib (G.G.); t.a~_ki chisel (M.); t.a_n:gi stone chisel (A.); t.a_n:g, t.a_n:gi spade, axe (B.); t.a_n:gi battle-axe (Or.); t.a~_ga_, t.a~_gi_ adze (Bi.); t.a_n:i_ axe (Bhoj.); t.a~_gi_ hatchet (H.)(CDIAL 5427). t.an:kita-man~ca = a stone (i.e. chiseled) platform (Pali); t.a~_kvu~ to chisel (G.); t.a~_kn.e~ (M.)(CDIAL 5433). t.ha_kun = to hammer (K.)(CDIAL 5487).

t.an:kamu = the top or side of a hill (Te.) t.an:ka = peak, crag (MBh.); t.akuru = mountain; t.akiri_ = hillock; t.a_kara low hill (S.); t.a_kuro hill top (N.); t.a_n:gi_ hill, stony country (Or.); d.aggara = upper terrace of a house; d.agar = little hill, slope (M.); d.a~_g, d.a~_k stony land (Ku.); d.a_n:ga_ hill, dry upland (B.); d.a~_g mountain-ridge (H.); hill tract (M.)(CDIAL 5423) d.an:ga, a reference to highlands. dan:ga, d.an:gal = highlands unsuitable for rice cultivation; d.an:gal ocokedam khet do = you have allowed the rice field to become high land (allowed it to be silted up with sand). dan:gaur.a = a rubbish heap; dangi = a part of the slop of a hill; buru dangi = above the bed.a; buru bed.a = the part higher up than the 'dhasna; buru dhasna = the foot of the hill. Thus, d.an:ga seems to connote a high level terrace of a mountain (Santali.lex.)

Glyph: *dotted circle*: **t.a_k** button (Sh.)(CDIAL 5426) **d.a_gu** = a stain, spot, blot, mark (Te.) **t.a_ka_, t.a_ki, t.a_ku** = a stitch (Ka.); t.a_ka_, t.a_ca_ id. (M.) **d.a_ku, d.a_gu** = a spot, stain, blot; a mark put on cattle with a red-hot iron; inoculated cowpox (Ka.M.); **d.a_ga** id. (H.Ta.); d.a_gu (Te.) t.a~kan.u = to stitch (S.); t.a~_ko = stitch (S.); sewing, patch (Ku.)(CDIAL 5432).



(14)

Sign 1 (134)



t.ha_n:kum = a skeleton (G.) ten:goc = to stand upright (Santali) **ten:go**, 'to stand'; ten:go, 'to assume responsibility (Santali) te_jate_ = is sharp, sharpens (RV); te_jati = is sharp, shapens, incites (Pali); te_ai sharpens (Pkt.); tevn.e~ = to shine, burn (M.)(CDIAL 5945). Te_jas = sharp edge of a knife, glow (RV); fiery energy (AV); te_h = fire, arrogance (K.)(CDIAL 5946) tega = a sword; tega_ = a scimitar (G.Persian) tega_r = property, substance (G.Persian)

t.a_n:kan.um = a chisel (G.); t.an:ka_ = an instrument for digging, khanitram (Hem.Des. G.)



Signs 30 to 37 an array of ligatures to the 'standing person' glyph, Sign 1. The ligaturing elements include on Sign 32 and Sign 36: a pot, and a carb (claws).



dhad.a [Hem. Des. **tan.d.am**] headless trunk; the trunk as distinct from the head (G.)⁵

Glyph: **t.ha_t.hum** = a frame-work, the body; t.ha_t.ha = state, dignity, pomp (G.) Hem. Des. t.ha_n.a

⁵ Alternative homonyms: **ka_t.hi_** = body, person; **ka_t.hi_** the make of the body; the stature of a man (G.) **cola** = body, life; cola cabaentaea = he is dead; cola taken bhor kami jarur.tabona = we must work on so long as we remain in the body (Santali) s'u_la = death, dying (Ka.)

= Skt. ma_nah pride, fr. Skt. stha_nam manner of standing, fr. stha_ 'to stand' (G.)

Rebus: **t.hat.era** = a brazier, a caste who manufacture and sell brass ware; t.hat.ori = a worker in brass, a goldsmith (Santali)

An alloy of five metals, kol

There is a lexeme which connotes *pan-caloha*, an alloy containing five metals: **kol** This word is represented *rebus* (lit. sounds like) by a tiger, **kolhu-o** (G.)

kol = *pan-calo_kam* (five metals); **kol** metal (Ta.lex.) **pan-caloha** = a metallic alloy containing five metals: copper, brass, tin, lead and iron (Skt.); an alternative list of five metals: gold, silver, copper, tin (lead), and iron (dha_tu; Na_na_rtharatna_kara. 82; Man:gara_ja's Nighan.t.u. 498)(Ka.) *kol, kolhe*, 'the koles, an aboriginal tribe if iron smelters speaking a language akin to that of Santals' (Santali) **kol** = *kollan-, kamma_l.an-* (blacksmith or smith in general)(Ta.lex.) *kollar* = those who guard the treasure (Ta.lex.) cf. *golla* (Telugu) **khol, kholi** = a metal covering; a loose covering of metal or cloth (G.) [The semant. expansions to *kolla_puri* or *kolha_pur* and also to '**kolla_ppan.t.i**' a type of cart have to be investigated further].

kol 'working in iron, blacksmith (Ta.); *kollan-* blacksmith (Ta.); *kollan* blacksmith, artificer (Ma.)(DEDR 2133)



V267 Sign 261 **kan-** copper work, copper (Ta.)

kana kona = corner (Santali) [Glyphs of **corner** + **splinter** shown on the first line of the epigraph on the gold pendant, may thus connote: worker in copper.]

Alternative: **kolle, kolli** = corner (Ka.); **kolli** corner (Ma.) **kole, kuli** = a small space set apart in a corner of the house for fowls (Santali)⁶



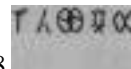
Axe-head of brown schist (L 15 cm) with the head of a leopard or lioness on the butt. From the palace of Mallia, destroyed in LM I B ca. 1450 BC; but the axe-head may be older. The spiral-net design covering it was at home on clay vases at the beginning of the LM I period. The eyes of the animal were inlaid, and there were inlays in the drop-shaped hollows on the shoulders. The collar round the neck and the diagonal band running from it are reminiscent of the harness worn by the goats on the ring from Avdhou; the animal may have been conceived as drawing the chariot of some god (J. Charbonneaux, *Monuments Piot* 28, 1925-26, pp. 6-18) (After Plate 90 in: Sinclair Hood, 1971, *The Minoans*, New York, Praeger Publishers).



m1517Act



m1517Bctm1518



1709



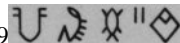
h094



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3121

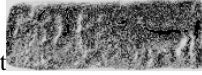
⁶ **kundau, kundhi** corner (Santali) **kun.d.a** corner (S.); *ku~_t.* corner, side (P.)(CDIAL 3898).



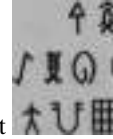
m0486at



m0486bt



m0486ct



1625



Interlocking bodies: **ca_li** (IL 3872)

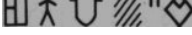
Bull salaga (IL 3861)

cala_kai (Ta.) spear

Babool tree ja_li (IL 3868), sala_ = tree (IL 3897)

Quail salle (IL 3867)

Spider s'alaka (IL 3882a)

m0295 Pict-61: Composite motif of three tigers  1386 :

This unique ligaturing of three bodies of lions may connote an alloy of three metals.

The first two signs of epigraph 1386 (from right) are also repeated on an inscribed potsherd from Bakarbuthi. Bakkar Buthi is a small Harappan site located in the remote mountainous area to the east of the Las Bela plain. The first phrase (first and second signs from the right) could be:



s'a_likā (IL) village of artisans. [cf. sala_yisu = joining of metal (Ka.)]

got.h, got. 'assembly' (Santali) **got.** = the place where cattle are collected at mid-day (Santali); gos.t.ha (Skt.); kod. = place where artisan's work (Kur.); cattle-shed (Or.) **kod.** = a cow-pen; a cattlepen; a byre (G.lex.) gor.a = a cow-shed; a cattlepsed; gor.a orak = byre (Santali.lex.) got.ho [Skt. kos.t.ha the inner part] a warehouse; an earthen vessel in wick indigo is stored (G.lex.) kot.t.amu = a stable (Te.lex.) Substantive: **got.h, got.** Place where cattle are assembled (Santali)

got.an.; *got.ec*, *got.en* used when reduplicated with 2,3, 4. *pepe got.an.*: three each; *popon got.an.*: four each (Santali). **got.a** = numerative particle (Mth.) **got.a** = the whole (Santali)



(16)

Sign 402 (99)



ko_d.i = a kind of flag, an image of garud.a, basava, or other demi-god set upon a long post before a temple; cf. gud.i, temple (Ka.lex.)


got.i_ = a lump of silver (G.lex.)

kod., 'artisan's workshop'

kod.a, kor.a = a shell, a mite (Santali)



(12) (10) **Sign 86 (149)** Glyph: a long linear stroke; got. = one (Santali) **kod.a** = in arithmetic, one (Santali) Rebus: **kod.a, kor.a** = shell


(Santali) Together with pairing sign Sign 99 : *at.ar* a splinter; *at.aruka* to burst, crack, slit off, fly open; *at.arcca* splitting, a crack; *at.artuka* to split, tear off, open (an oyster)(Ma.); *ad.aruni* to crack (Tu.)(DEDR 66) the epigraph of Signs 86 and 99 may be read as: shell, native metal (**kod.a aduru**).

go_ti = a woman (Te.lex.); *ko_tai* woman (beautiful as a garland)(Ta.)(DEDR 2214).

got.i a clot of blood (G.)

got.imad.um a somersault; a leap heels over head (G.)



m0009a  2616 The third sign from right is a long linear stroke: |

Warp-pegs **kor.i** = pegs in the ground in two rooms on which the thread is passed back and forth in preparing the warp (S.)

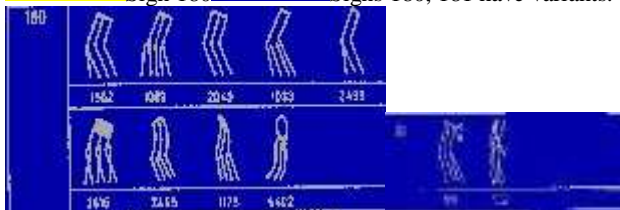
Cloak, trefoil glyph: got.a a garment with clusters of flowers woven in it; *got.a_kor* [+ *kor* a border] a border of a garment having clusters of flowers woven in it; got.iyum a piece of cloth made use of in making up a turban to give it a round shape (G.) *go_t.u* embroidery, lace (Tu.); *go~_t.u* an ornamental appendage to the border of a cloth, fringe, hem, edging (Te.); *got*. Hem of garment; *got.a_* edging of gold lace (H.)(DEDR 2201). **go_t.u** = an ornamental appendage to the border of a cloth, fringe, hem, edging (Te.); embroidery (Tu.) kont.l.= pocket in outside edge of cloak (Ko.); got. = hem of garment (M.); *got.a_* = edging of gold lace (H.) **got**. hem of a garment, metal wristlet (M.); **got.ta_** gold or silver lace (P.)(CDIAL 4271).

ko_t.u = line (Ta.) **kod.a** = 4 **gan.d.a.** kod.a = one in arithmetic. **got.a** = numerative particle (Mth.) *got.i* the largest bead in a rosary from which the counting begins (G.)

Fish signs (and variants) seem to be differentiated from, perhaps a loop of threads formed on a loom or loose fringes of a garment. This may be seen from the seal M-9 which contains the sign:



Sign 180  Signs 180, 181 have variants.



Edging, trimming (cf. orthography of glyph in the middle of the epigraph)

erka, era, 'copper'

eru = copper (?), bronze [**eru** = engrave, carve]; **urudu** = bronze (Akkadian) **hurru** (CAD) = mined copper (Akkadian) **urru**, **u ru** = heap, mountain (Akkadian/Assyrian) **eruvai** = copper (Ta.); **ere** - a dark-red colour (Ka.)(DEDR 817). Cf. Akkadian/Assyrian **eru** = copper (?), bronze [**eru** = engrave, carve] **eraka**, **er-aka** any metal infusion (Ka.Tu.); urukku (Ta.); urukka melting; urukku what is melted; fused metal (Ma.); urukku to melt (Ta.Ma.); eragu to melt (Tu.); eraka molten state, fusion; erakaddu any cast thing; eraka hoyi to pour melted metal into a mould, to cast; erako_lu the iron axle of a carriage (Ka.); er-e to pour any liquids; to pour (Ka.); to cast as metal (Ka.) erande sp. fruit, red in colour (Ka.); re_cu, re_cu-kukka a sort of ounce or lynx said to climb trees and to destroy tigers; a hound or wild dog (Te.)(DEDR 817). re_gad.a, re_gad.i clay (Te.)(DEDR 820). **erkem** = billhook (Go.)(DEDR 824)

eraka, era, era = syn. **erka**, copper, weapons (Ka.) **erako_lu** = the iron axle of a carriage (Ka.M.); cf. irasu (Ka.lex.) **erako** molten cast (Tu.lex.) **eh-kam** any weapon made of steel (**Cu_t.a_**); **eh-ku** steel; **eh-ku-pat.atal** to melt, to soften (**Cilap. 15, 210, Urai.**)(Ta.lex.)

he_rka pl. plough; pair of ploughing bullocks (Kuwi)(DEDR 2816). e_r-c-ci_r implements of husbandry; wealth produced by husbandry (W.)(Ta.lex.) si(h)a_ra_drill (for sowing seed)(L.); sia_ra furrow (Or.)(CDIAL 13429). xir furrow, one ploughing; xirlu_furrow; xirluwa_furrowed (A.); si_r ploughing (H.); siru-va, siri plough; (h)ira, (h)iri- line, streak (Si.)(CDIAL 13441).

kere to prepare charcoal, to carry out the process by which charcoal is made (Santali.lex.) here, ere black grease for wheels (Ka.); heregombu a horn or hollow piece of bamboo in which such grease is kept (Ka.) (Ka.lex.) ere a dark-red or dark-brown colour, a dark or dusky colour (Ka.); er-e, er-upu (Te.); eruvai blood, copper (Ta.); irumpu iron (Ta.); inumu (Te.); irul. the colour black (Ta.); ere black grease for wheels; soil of a dark colour, black soil (Ka.)(Ka.lex.)

kamat.ha_yo 'smith' (G.O); *lo* 'iron'; [**kamat.ha_yo** 'a learned carpenter or mason working on scientific principles' (G.)] *ka_ma_t.i_* [komat.i_ (M.)] a caste of hindus who are generally palanquin bearers and labourers (G.); *ka_m* work (G.) **kamat.ha_n.a** [cf. karma, ka_m, business + stha_na, tha_n.am, a place fr. Skt. stha_ to stand] arrangement of one's business; putting into order or managing one's business (G.lex.) **kaba_lo** (Ar. keba_lah cf. Hem. Des'. **kabba_lam** = Skt. karma-stha_nam, karma_layam, a place of work or business, fr. karma work + a_laya, a house] a title-deed; a deed of sale or purchase; kabilo [Ar. keba_lah] a family; a household (G.lex.) **kampat.t.am** 'mint' (Ta.); **kamat.amu**, **kamat.amu**= gold furnace (Te.)

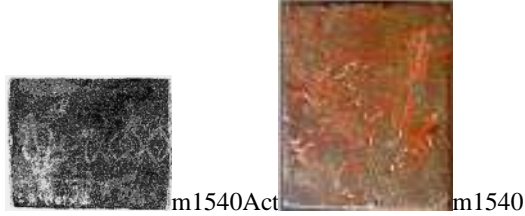
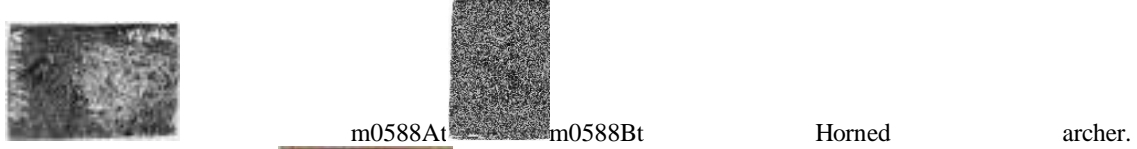
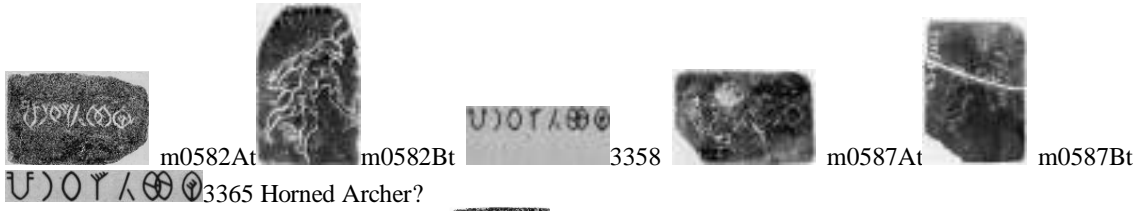


Glyphs: erako (nave) + **khut.i** (pin) + lo kamat.ha (ficus leaf) = Rebus: **erako** 'molten cast' + **khut.i** 'furnace' + lo kamat.ha 'metal mint: **kammata**' [**khut.i** Nag. (Or. **khut.i_**) diminutive of **khun.ta**, a peg driven into the ground, as for tying a goat (Mundari.lex.) **khut.i_** wooden pin (M.)(CDIAL 3893)]



Alternative: **tamire** = the pin in the middle of a yoke (Te.)
Rebus: **tavara** = tin (Te.Ka.)

Archer, fig leaf



Allographs of a leaf sign, ligature with crab sign [After Parpola, 1994, fig. 13.15]



The archer shown on one copper tablet seems to be a synonym of the leaves ligated with crab on another copper tablet since the inscription on the obverse of each of the tablets is identical. [cf. Parpola, 1994, fig. 13.13] This ligatured sign appears on two seals- one from Harappa and another from Lothal. Leaves ligatured with crab is a sign which occurs on these seals and with similar sign sequences. [cf. Parpola, 1994, fig. 13.12]

Proto-Bharatiya language!

The language in which such a synonym can be found is mleccha!

kamar.kom = fig leaf (Santali.lex.) **kamarmar.a_** (Has.), **kamar.kom** (Nag.); the petiole or stalk of a leaf (Mundari.lex.)

kama_t.hiyo = archer; **ka_mat.hum** = a bow; ka_mad.i_, ka_mad.um = a chip of bamboo (G.) **ka_mat.hiyo** a bowman; an archer (Skt.lex.)

Glyph: *kamat.hi_*, *ka_mat.hum* a bow (G.); *kamat.ha* a tortoise, a bamboo (Skt.)



(37)

Sign 287 (88)



Copper tablets (15)

Field Symbol 52 (6)



V326

V327

lo = nine (Santali) [Note the count of nine fig leaves on m0296]

loa = a species of fig tree, ficus glomerata, the fruit of ficus glomerata (Santali.lex.)

loha lut.i = iron utensils and implements (Santali.lex.)

lauha = made of copper or iron (Gr.S'r.); metal, iron (Skt.); lo_haka_ra = coppersmith, ironsmith (Pali); lo_ha_ra = blacksmith (Pt.); lohal.a (Or.); lo_ha = metal, esp. copper or bronze (Pali); copper (VS.); loho, lo_ = metal, ore, iron (Si.)

Old Akkadian illustration on a cylinder seal



Another rosetta stone is MS 2645 cylinder seal found in NW Afghanistan (Kalena near the Turkmeni frontier) showing Old Akkadian glyphs together with an epigraph of the civilization with four signs:

MS 2645 Sarasvati-Sindhu valley script, and old akkadian illustration. North West Afghanistan, ca. 21st cent. BCE

Name of owner or scribe?

This seal links Indus Valley and Old Akkadian civilizations. The seal is of blue stone, North West Afghanistan, ca. 23rd-21st c. BC, 1 cylinder seal, 3,9x2,7 cm, 5 Indus valley signs, illustration standing archer aiming his bow at a falling boar, in the style of the best Old Akkadian art in Sumer.

Provenance: 1. Bronze age site, Kalena near the Turkmeni frontier, North West Afghanistan.

Commentary: While numerous Indus Valley stamp seals are known (cf. MS 2394), this is the only known cylinder seal (MS 2645) with the hitherto undeciphered Indus Valley script. Furthermore, this is the only known document linking together over land two of the great civilisations of the Old Akkadian period in Mesopotamia and the Indus Valley. Sea-borne trade has been known for a long time, and documented in practical terms by the Norwegian explorer and scientist, Thor Heyerdahl, in his expedition with the reed boat, Tigris, in 1977.

MS 2814, a copy of a Sargonic royal inscription mentioning the defeat of *Melukham*, the Indus Valley civilisation.

Exhibited: The Metropolitan Museum of Art, New York, from October 1999.



(10) Sign 28 (50)



Ligature on sign 28: dhanus 'bow' (Skt.) dhan.i_ = the owner, the possessor (G.)



287: **kut.ila** = bent, crooked (Skt.) kut.ila (Skt. Rasaratna samuccaya, 5.205) Humpbacked kud.illa (Pkt.)

Rebus: **kut.ila, katthi_1** = bronze (8 parts copper and 2 parts tin) [cf. a_ra-ku_t.a, 'brass' (Skt.)]

() The glyph of a curved line when mirrored becomes a ligature, an enclosure to other glyphs.



V050 **kutru, kutu** = a dog, a puppy (Santali.lex.)

kut.i = a nosegay (Ka.lex.) gun.d.ri = a quail (Santali.lex.) gun.d.agi = waterfowl (Te.lex.) kut.is = white-throated munis, *uroloncha malabarica* (Santali.lex.) gund.ral = a kind of quail (Go.)(DEDR 1696).Rebus: **kut.hi** = furnace



V009



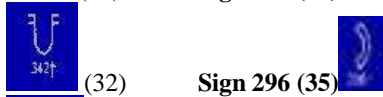
(54) **Sign 293 (136)**



h172B Field Symbol 36 (12)



(28) **Sign 294 (53)**



(32) **Sign 296 (35)**



(8) **Sign 307 (69)**

Glyph: **ka_mat.hum** = a bow; ka_mad.i_, ka_mad.um = a chip of bamboo (G.)

Rebus: kammat.amu = gold furnace (Te.)



(18) **Sign 326 (35)**

Copper tablets (6)



(16) **Sign 327 (42)**

loa = *ficus glomerata* (Santali) Rebus: loha = iron, metal (Santali)

kamar.kom = fig leaf (Santali.lex.) **kamarmar.a_** (Has.), **kamar.kom** (Nag.); the petiole or stalk of a leaf (Mundari.lex.)



kamat.ha ‘ficus’; *lo* ‘ficus glomerata’

eru_, **aru** = eagle (Akkadian/Assyrian) **eruvai** = a kind of kite whose head is white and whose body is brown; eagle (Ta.); **eruva** = eagle, kite (Ma.)(DEDR 819).

Since the eagle is ligatured with a tiger on a Bluchistan potsherd, it is likely that the eagle is connoted by *eruvai*; rebus: copper + tiger ‘*kul*’ rebus: *kol* alloy of five metals + *na_ga* ‘snake’; rebus: *na_ga* ‘lead’ (Skt.)



The ficus is **kamat.ha**; rebus: **kamat.amu**, **kammam.amu** = a portable furnace for melting precious metals (Te.) The fish are **bed.a hako** (Santali); rebus: *bed.a* = either end of a hearth (G.)

Griffin, Baluchistan (Provenance unknown); ficus leaves, tiger, with a wing⁷, ligatured to an eagle.

Lentoid seal with a griffin, ca. 1450–1400 B.C.; Late Minoan II Minoan; Greece, Crete Agate; H. 1 1/16 in. (2.7 cm), W. 1 1/16 (2.7 cm), Diam. 1/2 in. (1.2 cm) It is engraved with an image of a crouching griffin, a powerful mythical creature with the head and wings of a bird and the body of a lion. <http://www.metmuseum.org>



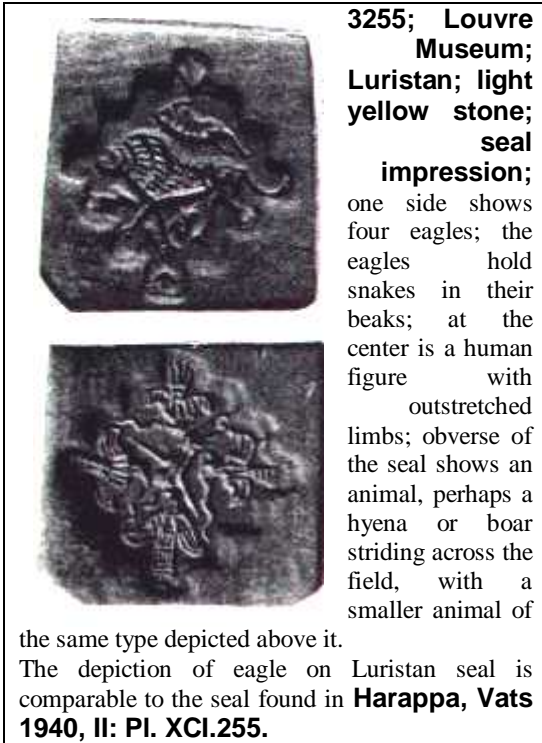
aru_ = lion (As god of devastation, Nergal is called A-ri-a) (Akkadian)

⁷ **aba_ru** = lead; antimony (**annaku** is most unlikely to be lead rather than tin).(cf. CAD A (II): 126; AHw 49) (Akkadian/Assyrian).

abru = wing (Akkadian/Assyrian)

abaru = enclose, surround; aburru = enclosure (Akkadian/Assyrian)

abaru = be strong, powerful; strength, power (Akkadian/Assyrian)



3255; Louvre Museum; Luristan; light yellow stone; seal impression; one side shows four eagles; the eagles hold snakes in their beaks; at the center is a human figure with outstretched limbs; obverse of the seal shows an animal, perhaps a hyena or boar striding across the field, with a smaller animal of

the same type depicted above it. The depiction of eagle on Luristan seal is comparable to the seal found in **Harappa, Vats 1940, II: Pl. XCI.255.**

BMAC Compartment seal; double-headed eagles.⁸



Taxila, temple of the double-headed eagle. The sculpted double-headed eagle may be seen on top of the niche/door on the left.

883-59 BCE
Mesopotamian,
Neo-Assyrian;
Limestone;
height 1 m (39
3/8 in.);47.181
Detroit Institute
of Arts, USA.

An eagle-headed, winged divinity stands facing a tree of life (the ends of the branches are just visible at the right edge). The figure was a small section of the wall decoration in the state apartments of the royal palace at Nimrud in northern Iraq, built by Assurnasirpal II, King of Assyria. The deity holds a bucket in one hand and in the other a spathe (leaflike sheath for the flowers) of the date palm.



<http://www.dia.org/collections/ancient/mesopotamia/47.181.html>

⁸ *ke~he* a kite; *arak ke~he* the male kite (Santali) *arak* 'red, scarlet' (Santali) *araku* resin melted with turpentine, lac (Ta.); gumlac (Ma.); *alakta(ka)* (Skt.)(DEDR 199).

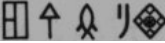
Duplicated and paired glyphs

A characteristic feature of use of glyphs to compose epigraphs is the duplication of glyphs or pairing of the same glyph. Some examples are:

- Duplicated and paired one-horned heifer
- Duplicated and paired shor-horned bull
- Duplicated and paired antelope looking back
- Duplicated and paired scorpions
- Duplicated and paired fishes



Duplicated and paired bangles (or millstone)

m0296 Two heads of one-horned bulls with neck-rings, joined end to end (to a standard device with two rings coming out of the top part?), under a stylized tree with **nine leaves**.  1387

kamat.ha 'ficus religiosa'; rebus: **kampat.amu** 'furnace'.

Substantive: *lo* 'iron' (Assamese, Bengali); *loa* 'iron' (Gypsy) Glyph: **lo** = nine (Santali); **no** = nine (B.) [Note the count of nine 'ficus' leaves depicted on the epigraph.]

damad.i, dammad.i = a *ka_su*, the fourth part of a *dud.d.u* or *paisa* (Ka.M.); *damad.i_* (H.) *damr.i, dambr.i* = one eighth of a *pice* (Santali) *dammid.i* = *pice* (Te.)

Grapheme: *damad.i, dammad.i* = a small tambourine with *gejjes* (Ka.)

Grapheme: **damr.a** m. a steer; a heifer; *damkom* = a bull calf (Santali)

Rebus: **damha** = a fireplace; *dumhe* = to heap, to collect together (Santali)



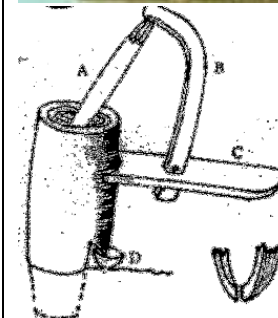
m440AC Two short-horned bulls facing each other on the top register.

Rebus: **samanom** = gold (Santali) Glyph: **samna samni** = face to face (Santali)

Rebus: **hom** = gold (Ka.); **soma** = electrum (RV) Glyph: **homa** = bison (Pengo)

kuduru = lizard (Santali) Rebus: **kuduru** = portable furnace for gold (Te.)

badhia = castrated boar (Santali) Rebus: **bar.ae** = blacksmith (Ash.)




us: **ib** = iron (Santali)








ebus: **t.agromi** = tin (Kuwi)

i.lex.) *gar.i* = the macaque, *macacus sinicus*, a long-tailed monkey; smaller (Mundari.lex.)

ga~r.i (Has.); syn. of **kulhu** (Nag.); an oil-press; trs. To shape into an oil-press; **gar.i-o** = to be shaped into an oil press (Mundari.lex.) *ga~r.i* =

oil press. A. end of pestle crushing into the hollowed tree trunk; B. komcon, curved piece; C. keoar, plank serving as a handle; D. ground level [After Pl. XV, 2, *Encyclopaedia Mundarica*] **ga~r.i** = oil-press (Santali)

 Glyph: **cur.i** a bracelet, a bangle (Santali)
 Glyph: millstone: **san:ghat.i** = a millstone, that crushes (Ka.)
 Rebus: **cu_l.ai**, 'kiln' (Ta.) **culli** = a fireplace (Ka.)
 Rebus: **saghad.i_** = furnace (G.)

 (34)  (21) **Sign 403 (93)** 
 (10)  (17)  **Sign 407 (48)** 
 (26)

The pairing can be explained by a lexeme: **san:gad.a** = two; **san:gad.am** double-canoe (Ta.); **jan:gala** (Tu.); **san:gala** pair; **han:gula**, **an:gula** double canoe, raft (Si.) (CDIAL 12859).

Rebus: **san:gha_d.o**, **saghad.i_** (G.) = firepan; **saghad.i_**, **s'aghad.i** = a pot for holding fire (G.) [cula_sagad.i_ portable hearth (G.)]

Thus, the pairing or duplicating a glyph is a way of connoting a **saghad.i_** 'a portable hearth' (G.)

Each of the paired glyphs can be explained as a hearth, **saghad.i** for (1) copper; (2) native metal; (3) tin alloy; (4) axe; and (5) bangle:

Rebus: **damr.i** = copper; **tamb(r)a** = copper (Skt.); **tamba** = copper (Santali) Glyph: one-horned bull **damr.a** 'steer, heifer'

Rebus: **aduru** = native metal (Ka.) Glyph: **ad.ar** = bull (Santali)

Rebus: **t.agromi** = tin metal alloy (Kuwi) Glyph: **tagara** = antelope, ram (Skt.) [Looking back: **krammarincu** (Te.) Rebus: **kamar** = blacksmith (Santali)]

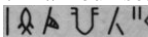
Rebus: **kanca**, **kancu** = bell metal (Ka.); **kan~ca** = id. (Ta.); **kamsa** = id. (Ka.) **kanca_** = a marble (made of stone or lac) (Ka.) Glyph: **kaca kupi** = scorpion (Kuwi) **kaccu** = biting, a bite (Ka.)

Rebus **hako** = axe (Santali); **bed.a** = hearth (G.) Glyph: **bed.a hako** = fish (Santali)

Rebus **culli** = furnace, kiln (Ka.) Glyph: **cur.i** = bangle (Santali)

Person (woman) seated on a tree branch, a spy, eraka



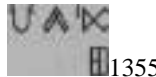
m0309 Pict-109: Person with hair-bun seated on a tree branch; a tiger looks at the person with its head turned backwards. 2522

Glyph: *sal* a gregarious forest tree, *shorea robusta*; *kambra* a kind of tree (Santali)

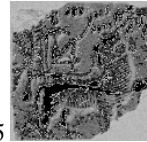
Substantive: *sal* workshop (Santali)



m0310AC



1355



Kalibangan049

k049



8013



h163



h181A



h181B Planoconvex molded tablet found

on Mound ET. A. Reverse. a female deity battling two tigers and standing above an elephant and below a six-spoked wheel; b. Obverse. A person spearing with a barbed spear a buffalo in front of a seated horned deity wearing bangles and with a plumed headdress. The person presses his foot down the buffalo's head. An alligator with a narrow snout is on the top register.



Chanhudaro27



m1185



m0488At [One side of a

three-sided tablet] Note the glyph showing a person seated on the branch of a tree on m0488At and on m1431A.



m1431: Row of animals in file (a one-horned bull, an elephant and a rhinoceros from right); a gharial (or lizard) with a fish held in its jaw above the animals; a bird (?) at right. Pict-116: From R.—a person holding a vessel; a woman with a platter (?); a kneeling person with a staff in his hands facing the woman; a goat with its forelegs on a platform under a tree. [Or, two antelopes flanking a tree on a platform, with one antelope looking backwards?]

The tradition of working with **kol**, an alloy of five metals is exemplified by the use of the term, **pan~camas'a_le** (lit. five metals workshop) to connote a brazier's shop; it is also exemplified by the name assigned to the entire region on the upper reaches of banks of River Sarasvati as **pa_n~ca_la** and the use of the term **pan~ca_la** to connote five artisans:

pan~ca_la, **pa_n~ca_la** (**pan~caka_ruka**) = the five classes or caste of artificers: goldsmiths, carpenters, blacksmiths, braziers, and stone-cutters (Ka.M.); the first three classes; a goldsmith (Ka.) **pa_n~ca_la** = an association of five guilds, viz. those of the carpenter, weaver, barber, washerman, and shoemaker (Skt.); or, those of the carpenter, brazier, ironsmith, goldsmith, and stone-mason (Ka.) **pan~camas'a_le** = a brazier's shop; **pan~camas'a_leyava** = a brazier (Ka.) **pan~ca_n.amu** = handicraft, handcraft, manual occupation; a workshop; **pan~ca_n.udu** = an artisan, a mechanic, a handicraftsman (Te.) **pan~cama** = dexterous, clever (Ka.)



har401Harappa 1993: H93-2093/4093-1: terracotta 'mask'; tiger's maw, human eyes and possibly mustache and bovine

pa_n~ca_lika = a doll, a puppet, an image carved on pillars (Te.) **pa_n~ca_like**, **pa~n~ca_la** = a doll, a puppet; **pa_n~ca_lika_ni_ka** = an image, *pratime* (Ka.)

A glyph which explains the substantive, 'copper' is a glyph denoting the nave of a spoked-wheel: **era**, **er-a** = **eraka** = ?nave [this is a reasonable, semantic deduction since the compound **erako_lu** connotes the iron axe of a carriage]

eraka, **hero** = a messenger; a spy (G.lex.) **he_raka** = spy (Skt.); **e_ra** = to spy (Kui); **er** = to see (Malt.); **he_ru** = spy (Pkt.); **he_riu** = spy (Kl.); **hero** (G.); **heru~** spying (G.); **hern.e~** to spy (M.); **herna_** (H.); **herai** (Oaw.)(CDIAL 14165). **heriya_m** = prying, peeping; **heravum** = to spy (G.lex.) **ere** = to see, behold; **erye** to peep, spy (Malt.); **her** to look at or for (Pkt.); **er uk-** to play 'peeping tom' (Ko.); **e_ra** spying, scouting (Kui); **he_ri** **kiyali** to see (Kuwi); **e_rna_** (**i_ryas**) to see, look, lok for (Kur.)(DEDR 903).

era = female, applied to women only, and generally as a mark of respect; **era iri** = to be at enmity with each other (Santali.lex.) **gosa~e era** = the goddess of the Sal grove; **gosa~e** = the general name given to bon:gas;

teben in gosa~e kana = I am engaged in sacrificing today (Santali.lex.) er-r-*apo_tamma* = the name of a village goddess supposed to cure diseases among cattle (Te.lex.)



m0478Bt **erga** = act of clearing jungle (Kui) [Note image showing two men carrying uprooted trees].



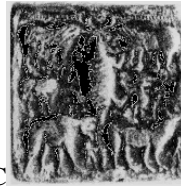
Signs 45/46 (seated person) seem to ligature the pictorial of a kneeling-adorant with sign 328 **erugu** = to bow, to salute or make obeisance (Te.) **er-*agu*** = obeisance (Ka.), *ir_ai* (Ta.)



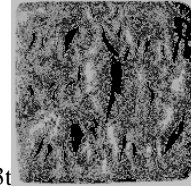
m0439t



m440AC



m1393t



m1394t



m0441At



m0441Bt



m1395At



m1395Bt Multiple heads of tigers joined/interlocked to a tiger's body in m1395At and m0441At [The motifs on m 439, m440 and m1393 to m1395 seem to be identical; on one side three or more (perhaps five) tiger heads emanating from a body are shown; on another side a group of animals surrounding a lizard (gharial): two short-horned bulls facing each other, a rhinoceros, an elephant, a tiger looking back and a monkey (?) with face turned backwards.]

kuduru = a goldsmith's portable furnace; **kudul.l.u** (pl.) (Te.lex.) *kudru* top of fireplace (Kuwi)(DEDR 1709).

kudur d.okka = a kind of lizard (Pa.); kudur d.okke, kudur d.ekke = garden lizard; kidri d.okke house lizard (Go.)(DEDR 1712). **d.okke** = lizard (Kol.); d.okka (Pa.); d.okod. (Ga.); dokke garden lizard; d.oke lizard; dokke_ small lizard; pidri_ dokke_ the house-lizard; d.ogga_l chameleon (Go.); d.o_ki lizard (Kond.a); d.oi chameleon (Kui); d.rui'i lizard (Kuwi); droi, d.orgi, d.rogi chameleon; d.ro_gi lizard (Kuwi); tuska (Kur.)(DEDR 2977). [Note the glyphs of what is often called the gharial or alligator; could it be the common house lizard?]



m1187 **kudur** 'a wall' (Ka.)

dhokra dom = a section of the semi-hinduised caste of **doms**; **dhokra** could connote craftsmen or metal workers (Santali.lex.)

dokr.a = a (copper) coin of the value of one fourth of a pice (Santali.lex.) **dokd.o** = a half pice; a measure of value, being one hundredth part of a rupee (G.)

dokhol to occupy, or be in possession; occupancy, possession (Santali)

dohr.a 'to double, to do a second time or over again'; *bar dohr.ale pokeda* 'we hoed it twice after the first time'; *kami dohr.aepe* 'do the work over again' *don.n.i* 'two' (Ap.); dat. *don* (K.); *don* (M.); *do_ni* (Konkan.i) *d.oht.a* 'having two houses in different places; a town and country residence; *nui doe d.oht.a akata* he has built himself another house in a different village (and has now two houses) (Santali).

d.on:kan.i, d.on:kali, d.hon:kan.i = a spear, a lance (Ka.); *don:kane id.* (Te.)

d.oge, doge = to make a hole, to excavate a hole (Ka.); *do_ku* to dig slightly so as to loosen the soil for weeding, cutting up the turf; *do_kud.uba_r-a* = a turf-spade (Te.)



h172B The over-arching glyph is that of a lizard. The glyph is sometimes shown catching the scale of a fish. *a~s* = scale of fish (Santali); rebus: *ayas* 'metal' (Skt.) **bed.a** = either opening of a hearth (G.); **bed.a hako** = a type of fish (Santali) cf. *assem* 'electrum' (Old Egyptian) cf. *kamsala* = of the goldsmith's caste; *kamsamu* = bell-metal; *kamsalava_d.u* = a goldsmith, a silversmith, a jeweler working in gold, silver and gems; *kamsa_lava_d.u, kamsa_li* = *kamsa* (Te.) *ams'u* = filament of soma (S'Br.); *amsu* thread (Pali); *amsu sunbeam* (Pkt.)(CDIAL 4) *hasli_* = gold or silver collar (P.); *hasu* = silver collar (S.)(CDIAL 6).

kan:gar 'portable furnace (K.) **kan:g** portable brazier (B.)



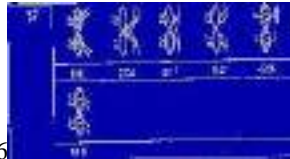
V054



V055



V056



V057

Spider **kan:gara_** (Tir.) *gan:ges.* (Ash.)

kha~_g (H.) *kha_g* (B.H.Ku.N.); **khagga** = rhinoceros (Pkt.)

kakr.a 'common lizard'; *kakr.a hako* a species of fish (Santali)



m1168  2360 Tiger with long (zebu's) horns?

kollan-ulai-k-ku_tam blacksmith's workshop, smithy; Text 2360: lid: *dakhna*; rebus: *d.a_kin.i_*, 'sword'; rim of jar: *kan.d. kanka*, 'gold furnace'.

ku_t.am 'horns'; ku_t.am 'workshop'

kumpat.i = chafing dish (Te.)



gummat.a cupola, dome (Ka.)

Glyph of disheveled hair may be connoted by the phrase: **salae sapae** = untangled, combed out, hair hanging loose (Santali.lex.)

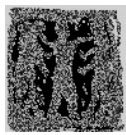
Rebus: **sa_la** = workshop (B.) **sapap** = arms, tools, implements, instruments, gear; sendra reak sapap = gear for hunting; raj mistri reak sapap = the tools of a mason; kurta rorok reak sapap = the tools with which to sew a coat (Santali)


sal = wedge joining the parts of a solid cart wheel (Santali.lex.) sa_l = a joint that fits a socket; sa_lvi_ a maker of joints, a carpenter (G.lex.) s'al.i_ [Skt. s'ala_ka_] a chip; a covert term for a quarter of a rupee, used by merchants in secret conversation (so called because a quarter of a rupee is represented by (i) in writing which resembles a s'al.i_ or chip (G.lex.) sal mon:garu = a very large and heavy mallet used to hammer together the three parts of a saga_r.i wheel so as to drive in the dowels (sal) tightly (Mundari.lex.)

Association of woman glyph with tiger¹³ glyphs:

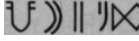
kaidau = to subdue; rebus: **kaida** = a kind of knife with a curved blade; a big thick sickle, used to pollard trees or to cut branches (Santali)

A woman is subduing two tigers. **kola_** 'woman' (Nahali) is a phonetic determinant, a re-inforcement of the semantics of **kol** 'tiger': rebus: **kol** 'metal of five alloys, pan~caloha' (Ta.) The pair of tigers is connoted by the lexeme: san:gad.a 'two, pair'; rebus: san:gada 'furnace'. Thus the owner of the inscribed objects possesses a furnace – **san:gad.a** -- for alloying five metals, **kol**



m1183a m0306 Person grapwipling th two tigers standing on either side of him and rearing on their hindlegs. 2086



m0307 Person grappling with two tigers standing on either side of him and rearing on their hindlegs. 2122

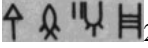
bar 'two'; *bhar* 'oven'; *kul* 'tiger'; *kol* 'smithy' **kol** metal (Ta.) **kol** = pan~calo_kam (five metals) (Ta.lex.) Rebus: **kola** = woman (Nahali) a_r = six (Ka.)

[six locks of hair] Rebus: ara, era = copper (Ka.) bhat.a = six (G.); rebus: bhat.a = furnace (Santali)



Six locks on the **cu_d.a** 'diadem, hairdress' of the woman can be read as a hieroglyph: **pota** 'six'; pot 'bead'; thus **pot** + **cu_d.a** = bead workshop. Together with kol 'tiger, woman'; rebus: *kol* 'metal of five alloys, pan~caloha' the glyph connotes: metal bead workshop.

pota adj. 'six' (used in secret conversation by merchants)(G.)

m0308AC Pict-105: Person grappling with two tigers standing on either side of him and rearing on their hindlegs. 2075 [The third sign from left may be a stylized 'standard device'?)

ko_l = woman, wife (Nahali); ko_l-na kupra = the wife's cloth (Nahali); ko_lama wife (Ko.); **kolay** wife (K.); kulis wife (Ta.Burgandi dialect); khulis'i_ id. (Yerukala); khulsa_ husband (Malar); kola = bride, son's (younger brother's) wife (Kui)

kola, kolum = a jackal (G.) **kolhuyo** (Dh.Des.); **kulho, kolhuo** (Hem.Des.); **kros.t.r.** (Skt.) kul seren = the tiger's son, a species of lizard (Santali) **kolo, kolea_** jackal (Kon.lex.) **Jackal**: kur..i-nari jackal (Kur-r-a_. Tala. Ve_t.an-valam. 13)(Ta.); id. (Ma.)(Ta.lex.) kul tiger; kul dander den of tiger; an.d.kul to become tiger; hudur. to growl as tiger; maran. d.at.kap kul a big-headed tiger (Santali.lex.) ko_lupuli = a big, huge tiger, royal or Bengal tiger; ko_lu = big, great, huge (Te.lex.) kula tiger; syn. of maran: kula, burukula, kamsikula, the striped royal tiger; syn. of maran: kula, lar.okula, the brown royal tiger without stripes; syn. of hur.in: kula, soncita, leopard: sin:kula = the lion; kindorkula, kinduakula = the panther; tagukula (lit. the shaggy tiger), the hyena; d.urkula, a smaller feline animal, which when attacking a man bites him in the knee, probably a tiger-cat; kula-bin: collective noun for all dangerous animals; kulabin:-o to become infested by dangerous animals; kla (Khasi.Rongao) tiger (Mundari.lex.) kros.t.r. = jackal (RV.); kro_s.t.u = id. (Pa_n.); kro_s.t.r. = crying (BhP.); kot.t.hu, kot.t.huka, kotthu, kotthuka = jacka (Pali); kot.t.hu (Pkt.); kot.a (Si.); kot.iya = leopard (Si.); ko_lhuya, kulha = jackal (Pkt.); kolha_, kola_ jackal; adj. crafty (H.); kohlu~, kohlu_ jackal (G.); kolha_, kola_ (M.)(CDIAL 3615). Fr. krus' = cry, call; kro_s'ati cries out (RV)(CDIAL 3613). Kot.ho = a call, a messenger; kot.ha invitation; kot.han.u = to send for (S.)(CDIAL 3614). Kos' to abuse, curse, blame (Gypsy); kosna_ to curse (H.); kosn.a_ (P.); akos' to abuse (Gypsy); kros'ati cries out (RV)(CDIAL 3612). kros'a shout (VS); kuru_ voice, word (Pas'); kosa_ curse (H.)(CDIAL 3611). **kul.** = the tiger, filis tigris; kul en:ga = tigress; *kul seren* 'the 'tiger's song', a species of lizard (Santali)

kola foetus (OMarw.)(CDIAL 3607). **kola** = foetus; **kor.o** bosom, breast (S.); kurouru breast (Dm.); kor.i_ breast of a quadruped (L.); koli_ chest of an animal (L.)(CDIAL 3607). kol breast, bosom; kaula_, kola_, kauli_ id., lap (H.); kro_d.a breast, bosom (AV.); ko_la breast, lap (Skt.prob. MIA.); kor.o bosom, breast (S.); kor.i_ breast (S.); kor.i_ breast of a quadruped (L.); kor.a lap (Or.); kor lap (Mth.); kora_ id. (Bhoj.); kor womb (H.); kol. lap (M.); ko_la breast, bosom (Pkt.); koli_ chest of an animal (L.); kol womb (Ku.); lap (B.); kol, kola_ lap, hip on which children are carried (A.); kol.a lap (Or.)(CDIAL 3607). kalalam < kalala thin membrane covering the foetus (Cu_ta. Ja_n-a. 10,9)(Ta.lex.)

ko_l. 'planet'; rebus: **kol** 'metal'

ko_lamu = a boat (Te.lex.) ko_l = a raft, a float (Ka.lex.) **kola** = boat (Skt.lex.)

ko_lamu = adornment (of a bride or an idol)(Te.lex.)

Substantive: **kol**, kal = a machine, any mechanical contrivance; a trap, the spring of a pigeon trap; kal jet.ha, kol jet.ha = the part of a pigeon trap on which the decoy bird sits (Santali.lex.)

kal = a snake (Santali.lex.) ka_hal.e snake (Ka.)

kolhe = a species of small black ant (Santali.lex.)

Glyph: *kolma hor.o* 'a variety of rice plant' (Santali.lex.)

Image: foetus: kola foetus (OMarw.)(CDIAL 3607). **kola** = foetus; **kor.o** bosom, breast (S.); kurouru breast (Dm.); kor.i_ breast of a quadruped (L.); koli_ chest of an animal (L.)(CDIAL 3607). kol breast, bosom; kaula_, kola_, kauli_ id., lap (H.); kro_d.a breast, bosom (AV.); ko_la breast, lap (Skt.prob. MIA.); kor.o bosom, breast (S.); kor.i_ breast (S.); kor.i_ breast of a quadruped (L.); kor.a lap (Or.); kor lap (Mth.); kora_ id. (Bhoj.); kor womb (H.); kol. lap (M.); ko_la breast, bosom (Pkt.); koli_ chest of an animal (L.); kol womb

(Ku.); lap (B.); kol, kola_ lap, hip on which children are carried (A.); kol.a lap (Or.)(CDIAL 3607). kalalam < kalala thin membrane covering the foetus (Cu_ta. Ja_n-a. 10,9)(Ta.lex.)

Portable stove of a goldsmith, ban:gala

ban:gala = kumpat.i = an:ga_ra s'akat.i_ = a chafing dish a portable stove
a goldsmith's portable furnace (Te.lex.) cf. ban:garu ban:garamu = gold (Te.lex.)



V403**ban:gad.i** a bangle, a bracelet of glass, gold, or other material, worn on the wrist by women (G.lex.) bhagan.a = a bangle (IA 19)(IEG) **ban:gan** = bangle (cf. Ka_li_ban:gan, black bangle: name of a site on River Sarasvati banks)

bahula_ = Pleiades (Skt.) **bagala.a** = name of a certain goddess (Te.lex.) bagal.a_, bagal.e, vagala_ (Ka.); bakala_, bagal.a_, vagal.a_ (Te.); bagal.a_devi = one of the s'akti deities by means of which one may shut the mouth of an opponent, etc. (Ka.lex.) bakkula = a demon, uttering horrible cries, a form assumed by the Yakkha Ajakala_paka, tto terrify the Buddha (Pali.lex.) bahula_ pl. the Pleiades (VarBr.S.); bahulika_ pl. (Skt.); bahul (Kal.); ba_l, baul, balh (Kho.); bol, boul, bolh (Kho.); bale (Sh.)(CDIAL 9195). bahulegal. = the Pleiades or Kr.ittika_-s (Ka.lex.) **bahula_** (VarBr.S.); bahul (Kal.) six presiding female deities: vahula_ the six presiding female deities of the Pleiades (Skt.); va_kulai id. (Ta.)(Ta.lex.) 5719.Image: pleiades: bahulika_ pl. pleiades; bahula born under the pleiades; the pleiades (Skt.lex.) bahule, bahulegal. the pleiades or kr.ttika_s (Ka.)(Ka.lex.) Image: female deities of the pleiades: va_kulai < vahula_ the six presiding female deities of the Pleiades; va_kule_yan- < va_kule_ya Skanda (Ta.lex.) pa_kulam < ba_hula the month of Ka_rttikai = November-December; pa_kul.i full moon in the month of purat.t.a_ci (Vina_yakapu. 37,81)(Ta.lex.) ba_hule_ya Ka_rttike_ya, son of S'iva; ba_hula the month ka_rttika (Skt.Ka.)(Ka.lex.)



bha_gal.a = a gate in the wall of a town; the precincts of a village; bazaar (G.lex.)

bagalo = an Arabian merchant vessel (G.lex.) bagala = an Arab boat of a particular description (Ka.); bagala_ (M.); bagarige, bagarage = a kind of vessel (Ka.)(Ka.lex.)



bakhor. = teeth of a comb (Santali.lex.)

Fire-pit, furnace, kulme

kolime, kolume, kulame, kulime, kulume, kulme fire-pit, furnace (Ka.); kolimi furnace (Te.); pit (Te.); **kolame** a very deep pit (Tu.); kulume kanda_ya a tax on blacksmiths (Ka.); **kol, kolla** a furnace (Ta.) *kole.l* smithy, temple in Kota village (Ko.); *kwala.l* Kota smithy (To.); *konimi* blacksmith; *kola* id. (Ka.); *kolle* blacksmith (Kod.); *kollusa_na_* to mend implements; *kolsta_na_*, *kulsa_na_* to forge; *ko_lsta_na_* to repair (of plough-shares); *kolmi* smithy (Go.); *kolhali* to forge (Go.)(DEDR 2133).] **kolimi-titti** = bellows used for a furnace (Te.lex.) **kollu-** to neutralize metallic properties by oxidation (Ta.lex.) **kol** brass or iron bar nailed across a door or gate; *kollu-t-tat.i-y-a_ni* large nail for studding doors or gates to add to their strength (Ta.lex.) **kollan-kamma_lai** < + *karmas'a_la_*, *kollan--pat.t.arai*, *kollan-ulai-k-ku_t.am* blacksmith's workshop, smithy (Ta.lex.) cf. *ulai* smith's forge or furnace (Na_lat.i, 298); *ulai-k-kal.am* smith's forge; *ulai-k-kur-at.u* smith's tongs; *ulai-t-turutti* smith's bellows; *ulai-y-a_ni-k-ko_l* smith's poker, beak-iron (Ta.lex.) [**kollulaive_r-kan.alla_r: nait.ata. na t.t.up.**]; **mitiyulaikkollan- mur-iot.ir.r.an-n-a: perumpa_**(Ta.lex.) Temple; smithy: *kol-l-ulai* blacksmith's forge (*kollulaik ku_t.attin-a_l* : Kumara. Pira. Ni_tiner-i. 14)(Ta.lex.) cf. *kolhua_r* sugarcane mill and boiling house (Bi.); *kolha_r* oil factory (P.)(CDIAL 3537). *kulhu* 'a hindu caste, mostly oilmen' (Santali) *kolsa_r* = sugarcane mill and boiling house (Bi.)(CDIAL 3538).

kola_ burning charcoal (L.P.); *ko_ila_* burning charcoal (L.P.N.); id. (Or.H.Mth.), *kolla* burning charcoal (Pkt.); *koilo* dead coal (S.); *kwelo* charcoal (Ku.); *kayala_* charcoal (B.); *koela_* id. (Bi.); *koilo* (Marw.); *koyalo* (G.)(CDIAL 3484). < Proto-Munda. *ko(y)ila* = *kuila* black (Santali): all NIA forms may rest on *ko_illa*.] *koela*, *kuila* charcoal; *khaura* to become charcoal; *ker.e* to prepare charcoal (Santali.lex.)



(29)

Sign 178 (35)



'Tree' Field symbol 44 (6)



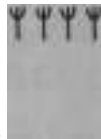
va_holo = adze; *vahola_* = mattock; *bahola_* = a kind of adze (P.lex.)

Rebus: **ban:gala** = *kumpat.i* = *an:ga_ra s'akat.i_* = a chafing dish, a portable stove, a goldsmith's portable furnace (Te.lex.) cf. *ban:garu*, *ban:garamu* = gold (Te.lex.)

Grapheme: **ko_lemu** = the backbone (Te.)



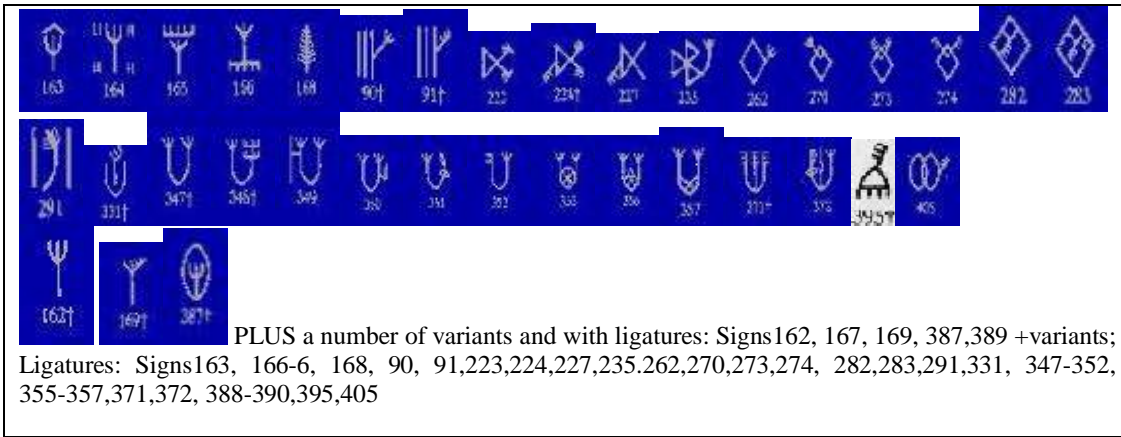
2949 Dotted circles



2950

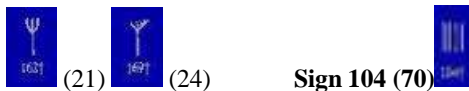


Rojdi



kolom = cutting, graft; to graft, engraft, prune; kolom dare kana = it is a grafted tree; kolom ul = grafted mango; kolom gocena = the cutting has died; kolom kat.hi hor.o = a certain variety of the paddy plant (Santali); kolom (B.); kolom mit = to engraft; kolom porena = the cutting has struck root; kolom kat.hi = a reed pen (Santali.lex.) cf. kolom = a reed, a reed-pen (B.); qalam (Assamese.Hindi); **kolma hor.o** = a variety of the paddy plant (Desi)(Santali.lex.Bodding) kolom baba = the threshed or unthreshed paddy on the threshing floor; kolom-ba_rum = the weight a man carries in taking the paddy from the threshing floor to his house; kolom = a threshing floor (Mundari); cf. kal.am (Tamil) [Note the twig adorning the head-dress of a horned, standing person]

ku_l.e stump (Ka.) [ku_li = paddy (Pe.)] xo_l = rice-sheaf (Kur.) ko_li = stubble of jo_l.a (Ka.); ko_r.a = sprout (Kui.) **ko_le** = a stub or stump of corn (Te.)(DEDR 2242). kol.ake, kol.ke, the third crop of rice (Ka.); kolake, kol.ake (Tu.)(DEDR 2154) [kural = corn-ear (Ta.)]



Pairing signs could be graphemes or variants of the same glyph, i.e., glyphs connoting the same lexeme.⁹
kolma = a paddy plant (Santali) Rebus: **kolime**= furnace (Ka.)¹⁰

Five-petalled plant or five-branched shrub

Ur cylinder seal with *taberna montana* plant, BM 122947; Signs 162 and 169



Ur cylinder seal impression (cut down into Ur III mausolea from Larsa level; U. 16220), Iraq. BM 122947; enstatite; Legrain, 1951, No. 632; Collon, 1987, Fig. 611. Source: Editors of Time-Life Books, 1994, *Ancient India: Land of Mystery*, p. 12. The legend reads:

tagara = *taberna montana* (Skt.) Rebus. **lagromi** = tin metal alloy (Kui)

¹⁰ Alternative homonym: **gan.t.a** = a stub, the stump of a corn-stalk; gan.t.e = the cereal *holcus picatus*; pl. gan.t.elu = id., also called sajjalu in southern Telugu districts (Te.lex.) Rebus: kan.d. = furnace (Santali)

"The seal was discovered in a pre-2000 BCE tomb in Ur, but the bull image is stylistically like those found in the Indus Valley. The seal and similar ones unearthed elsewhere in Mesopotamia offer compelling evidence of trade contacts between Harappans and Mesopotamians." Trader who? Trading, what?

takaram tin, white lead, metal sheet, coated with tin (Ta.); tin, tinned iron plate (Ma.); tagarm tin (Ko.); tagara, tamara, tavara id. (Ka.) tamaru, tamara, tavara id. (Ta.); tagaramu, tamaramu, tavaramu id. (Te.); **t.agromi** tin metal, alloy (Kuwi); tamara id. (Skt.)(DEDR 3001). trapu tin (AV.); tipu (Pali); tau, taua lead (Pkt.); tu~_ tin (P.); t.au zinc, pewter (Or.); **taru_aum** lead (OG.); tarvu~ (G.); tumba lead (Si.)(CDIAL 5992).

takar sheep, ram, goat (Ta.); *tagar* ram (Ka.); *tagaru* (Tu.); *tagaramu*, *tagaru* (Te.); *tagar* (M.)(DEDR 3000).

t.agara = *taberna montana* (Skt.)

ran:ga, ran: pewter is an alloy of tin lead and antimony (an~jana) (Santali).

ran:ga ron:ga, ran:ga con:ga = thorny, spikey, armed with thorns; edel dare ran:ga con:ga dareka = this cotton tree grows with spikes on it (Santali) [Note the thorns on the round object in front of the bull on the Ur cylinder seal impression – U 16220]

Each of the glyphs shown on this cylinder seal may relate to lexemes connoting mineral ores: a flowering shrub; scorpion; bull; a wide-mouthed pot, monkey(?), two serpents on the upper register. Humped bull stands before a palm-tree, feeding from a round manger or a bundle of fodder (probably, rays of sun or a cactus); behind the bull is a scorpion and two snakes; above the whole a human figure, placed horizontally, with fantastically long arms and legs, and rays about his head.

The glyphs on this cylinder seal are:

*Short linear strokes borders on top and bottom of the cylinder

*A zebu (Bra_hman.i) bull

**A cactus (with thorn) or radiating sun in front of the bull

If the round object with thorns in front of the bull is a stone, then it may connote **vat.loi**, stone, a rebus of brass, vat.loha is apposite, the enstatite seal may contain other metal/mineral rebus representations. [Or, sun depicted with rays? glyph: **arka** 'sun'; rebus substantive: **akka, arka** 'copper']

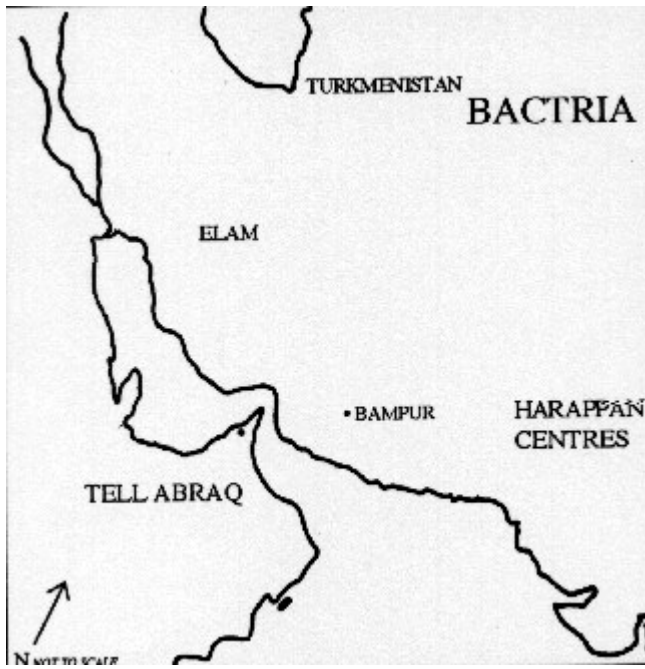
*A scorpion

*A wavy line (snake? glyph: **na_ga** 'snake'; rebus substantive: **na_ga** 'lead') below the scorpion (horizontal)

*A five-petalled plant (or, flower?) *Tabernae montana*? [A similar pictorial motif is noticed in some inscribed objects of Bactria-Margiana Archaeological Complex (Lamberg-Karlovsky)]

*A person with a turned face and hair tied into a bun (?) and bangles on one visible arm [depicted on the upper register (horizontally, perhaps to save space on the cylinder)] The person is tall and thin: *kan:kar.*, *kan:kur.* very tall and thin, large hands and feet (Santali)

Taberna montana motif on an inscribed copper-alloy axe



In the pictures of a shaft-hole axe with relief decoration, there are motifs which recur in the SSSC inscribed objects: *taberna montana* (with three prongs, possibly five), smiting person with his hair tied into a bun at the back bound by a rolled fillet and with a short beard or stubble on his face, kneeling adorant, tree:

Shaft-hole axe with relief decoration (both sides). Copper alloy. Southeastern Iran. C. late 3rd or early 2nd millennium BCE 6.5 in. long, 1980.307 Metropolitan Museum of Art, New York. "However, the combined problems of unknown provenance and unparalleled features make this attribution tentative. The symmetrical axe has a splaying blade, an elliptical shaft hole with semicircular outline pierced by rivet holes, and a fan-shaped butt. Both sides are ornamented with low-relief figural decoration, cast as one with the axe. The

features of the figures



holding a club and his extended and carrying his body. On the butt is petalled floral form leaves emerging from a



were detailed by chasing that has been partially obscured by corrosion. On one side is a male figure in a smiting posture, with his left hand raised above his head right leg the weight of a three- with two circular stem. two registers: figure turning

his head back and perhaps raising his left hand in a plea for mercy; below, in front of a tree, is a bound, kneeling prisoner, behind whom is the upper body of a victim falling headfirst to the ground. **The images on the axe, when both sides are considered, suggest the commemoration of military victory. The smiting figure is the victorious ruler, and the standing figure and bound, falling captives are his vanquished enemies. In Mesopotamia, military victories were often celebrated on monumental carved and inscribed steles set up on public view. One of the most famous of these monuments, even in antiquity, and one that shares numerous features with the axe, is the stele of Naraim Sin, thought to have been originally displayed in the city of Sippar to memorialize his victory over rebellious tribes in the Zagros mountains...It is likely that the same imagery also inspired the victory scene illustrated on the copper axe...it is possible to suggest that it was made in the east under the influence of Akkadian**

imagery.”[After Fig. 7 in: Holly Pittman, 1984, *Art of the Bronze Age: Southeastern Iran, Western Central Asia, and the Indus Valley*, New York, The Metropolitan Museum of Art, pp. 29-30].

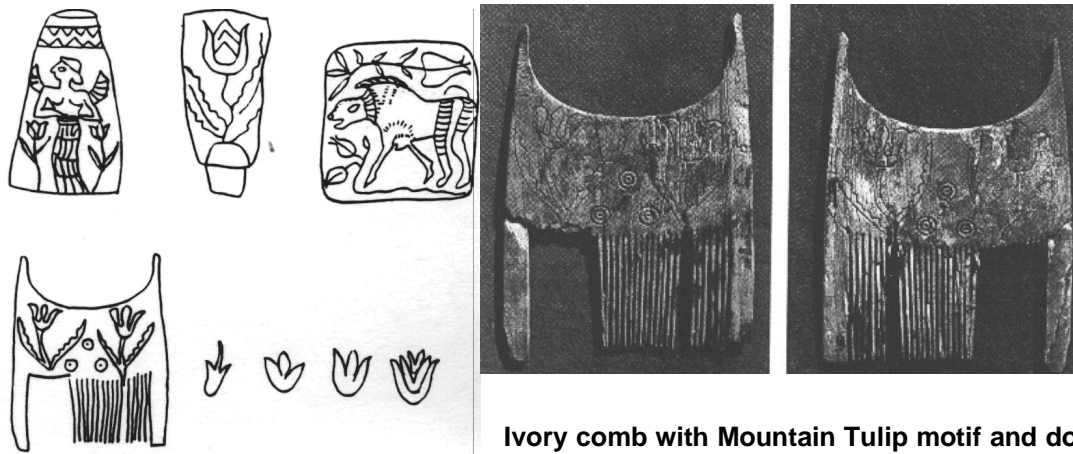
Logographs: (1) Dotted circles and (2) *taberna montana* motif

Tell Abraq comb (TA 1649; 11x8.2x0.4 cm); decorated bone comb in a context datable to ca. 2100-2000 BCE at Tell Abraq, emirate of Umm al-Qaiwain, United Arab Emirates, on the southern coast of the Arabian Gulf (Fig. 2 a and b in: D.T. Potts, 1993, A new Bactrian find from southeastern Arabia, *Antiquity* 67 (1993): 591-6) Two logographs used are: dotted circles (3) and two flowers, long-stemmed, with lanceolate-linear leaves with undulate margins (like *Tulipa montana*, Lindl. or mountain tulip). The flower motif occurs on a Bactrian flask (picture below).

A soft-stone flask, 6 cm. tall, from Bactria (northern Afghanistan) showing a winged female deity (?) flanked by two flowers similar to those shown on the comb from Tell Abraq (After Pottier, M.H., 1984, *Materiel funeraire e la Bactriane meridionale de l'Age du Bronze*, Paris, Editions Recherche sur les Civilisations: plate 20.150)

Location of Tell Abraq, southern coast of Arabian Gulf

It will be established through the use of lexemes from the Indian linguistic area that the motifs: (1) dotted circles which recur on ivory combs; and (2) the flower -- 'three-leaf motif' (which looks like a mountain tulip)- - both motifs are related to the cosmetic substances used by women to beautify their hair and bodies (unguents for hair and body). The 'dotted circles' motif also occurs in metallurgical contexts. The 'three-leaf motif' also occurs in metallurgical contexts (See the inscription of the single sign resembling this motif on the Cretan copper ingot--illustrated). The homonyms which relate to cosmetics also represent lexemes related to metallurgy.



Ivory comb with Mountain Tulip motif and dotted circles. TA 1649 Tell Abraq.

[D.T. Potts, South and Central Asian elements at Tell Abraq (Emirate of Umm al-Qaiwain, United Arab Emirates), c. 2200 BC—AD 400, in Asko Parpola and Petteri Koskikallio, *South Asian Archaeology 1993*: , pp. 615-666]

Tell Abraq is an Arabian peninsula site which used Harappan weights circa 2200 BCE..



Harappan weight TA 1356 from Tell Abraq. C. 22nd cent. BCE. Banded chert or flint weight 54.06 g. This is approx. 4 times the unit Harappan weight of 13.63 g.

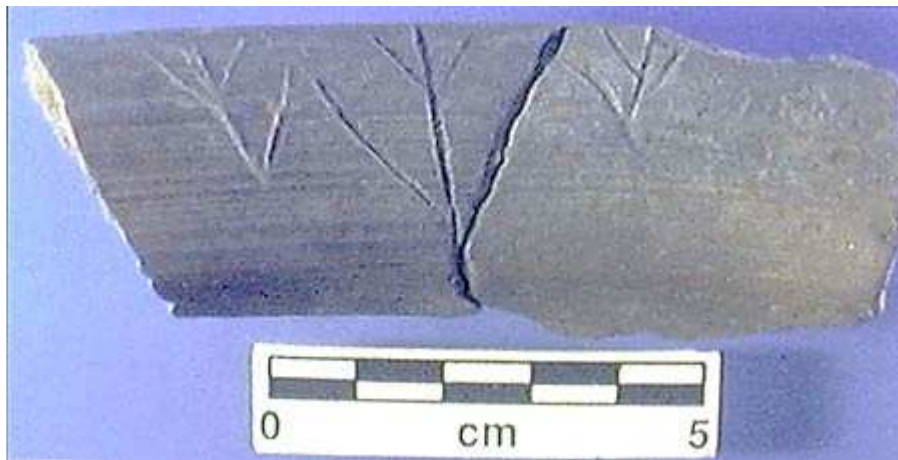
Wild tulip motif. A motif that occurs on southeast Iranian cylinder seals and on Persian Gulf seals. 1st row: Bactrian artifacts; 2nd row: a comb from the Gulf area and late trans-Elamite seals [After Marie-Helene Pottier, 1984, *Materiel funeraire de la Bactriane meridionale de l'age du bronze*, Recherche sur les Civilizations, Memoire 36, Paris, fig. 21; Sarianidi, V.I., 1986, Le complexe culturel de Togolok 21 en Margiane, *Arts Asiatiques* 41: fig. 6,21; Potts, 1994, fig. 53,8; Amiet, 1986, fig. 132]. The ivory comb found at Tell Abraq measures 11 X 8.2 X .4 cm. Both sides of the comb bear identical, incised decoration in the form of two long-stemmed flowers with crenate or dentate leaves, flanking three dotted circles arranged in a triangular pattern. Bone and ivory combs with dotted-circle decoration are well-known in the Harappan area (e.g. at Chanhu-daro and Mohenjo-daro), but none of the Harappan combs bear the distinctive floral motif of the Tell Abraq comb. These flowers

are identified as tulips, perhaps Mountain tulip or Boeotian tulip (both of which grow in Afghanistan) which have an undulate leaf. There is a possibility that the comb is an import from Bactria, perhaps transmitted through Meluhha or SSVC to the Oman Peninsula site of Tell Abraq.

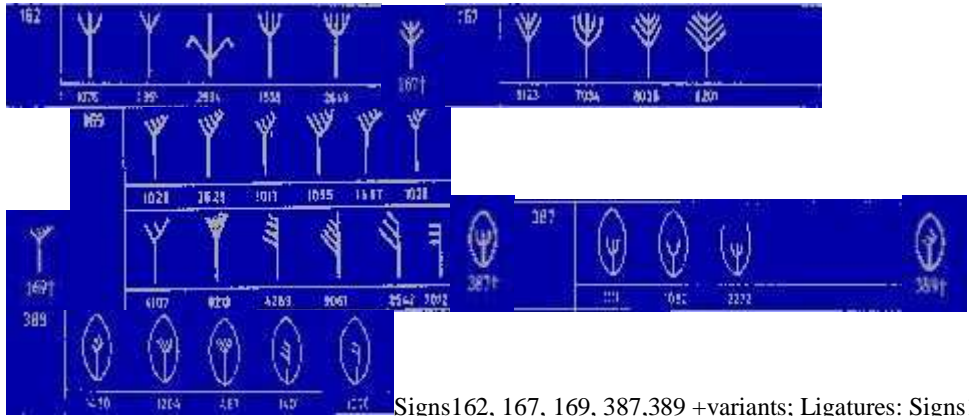
[The homonym, **takarai**, or **tagaraka** is a five-petalled *tabernaemontana* flower used as a hair-fragrance]. tagar = a flowering shrub; a plant in bloom (G.lex.) tagara = the shrub *tabernaemontana coronaria*, and a fragrant powder or perfume obtained from it, incense (Vin 1.203); *tagara-mallika*_ two kinds of *gandha*_ (P.lex.) *t.agara* (*tagara*) a spec. plant; fragrant wood (Pkt.lex.) *tagara* = a kind of flowering tree (Te.lex.)



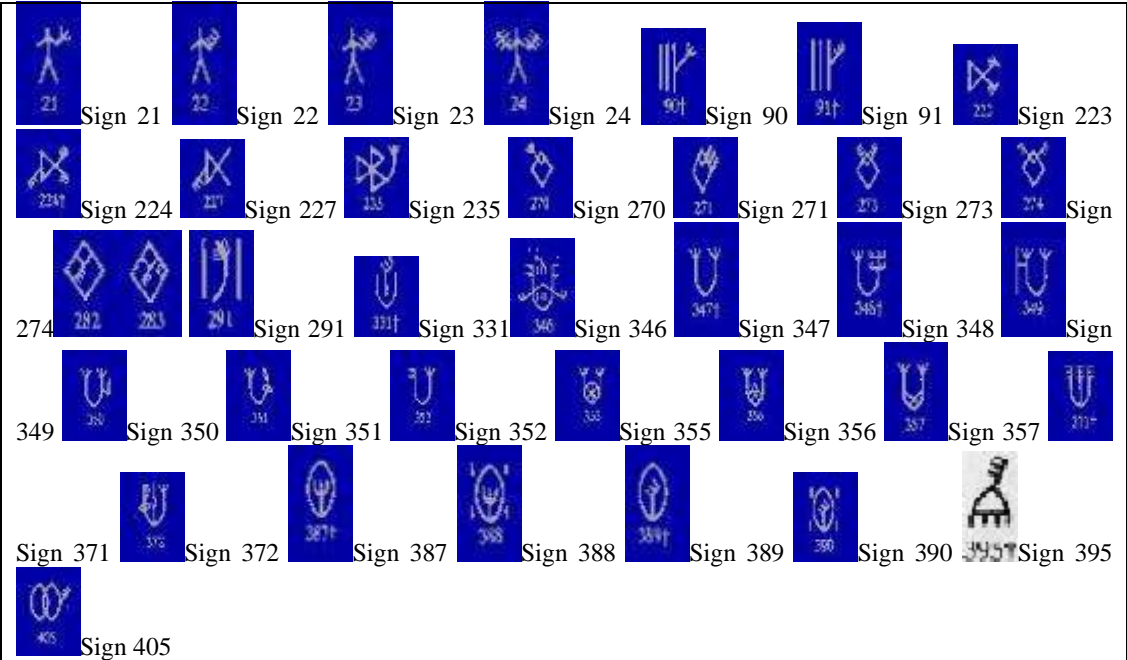
Seal impression from Harappa (Kenoyer, 1998); a woman is carrying a three-petalled flower (interpreted as **tagaraka**, used as an aromatic unguent for the hair; see the emphasis on the hair-do, with two buns of hair). takaram means 'tin' (Tamil).



Slide 124 Inscribed Ravi sherd (1998 find at Harappa: Kenoyer and Meadow); the sherd contains the same sign (ca. 3300 BCE). The sign on this potsherd (with five petals as in *Taberna Montana*) is stylized as Sign 162 (with three prongs) and Sign 165 (with five petals). Sign 167 shows five petals (and variants show many more branches). The sign also is ligatured to form other signs:



Signs 162, 167, 169, 387, 389 +variants; Ligatures: Signs 163, 166-6, 168, 90, 91, 223, 224, 227, 235, 262, 270, 273, 274, 282, 283, 291, 331, 347-352, 355-357, 371, 372, 388-390, 395, 405



Signs 90, 91, 223, 224, 227, 235, 262, 270, 273, 274, 282, 283, 291, 331, 347-352, 355-357, 371, 372, 388-390, 395, 405 [With ligatures of Sign 162 or Sign 169]



Signs 162 to 168 [Orthography: sprout]. As a countable object, the sign represents the rebus of (number of) [smith's] forges, the number (count) being indicated by short linear strokes. A variant lexeme of Sign 165 (because of five petals shown) could be: **tagara**, *tabarnae montana*, a flowering, fragrant shrub; rebus: **takaram** = tin (Ta.lex.)



(40)

Sign 162 (212)



h352C Dotted circles. Field symbol 83 (10)



Grapheme: **tamar** = hole in a plank, commonly bored or cut; gimlet, spring awl, boring instrument; tavar = to bore, a hole; hole in a board (Ta.); tamar = hole made by a gimlet; a borer, gimlet, drill (Ma.); tamire, tagire = the pin in the middle of a yoke (Te.); tamiru = gimlet (Tu.)(DEDR 3078).

tavaru, tavara, trapu, tavarinadu, **tagara, tamara** = tin, tra_pus.a (Ka.); tavaramu, tamaramu (Te.); tamara = tagara = tin, lead; trapu = id. (Ka.) trapulamu, trapuvu = tin; lead (Te.)



(48)

Sign 169 (240)



Copper tablets (60) Hare. Field symbol 16 (19)

Glyph: field symbol: **kulai** = hare (Santali)

Rebus: **kol** = metal (Ta.); kola = blacksmith (Ma.); kol, kollan- (Ta.); kolime, **kulime**, kolume = a fire-pit or furnace (Ka.); kolime id., a pit (Te.); kulume kanda_ya = a tax on blacksmiths (Ka.) kolimi titti = bellows used for a furnace (Te.)

Graphemes: kolike, kun.ike, kulike, kol.ike = a clasp, a hook (Ka.Te.); kol.uvu = to connect, join, tie together, hook (Ta.)



Graphemes: **kolom** = paddy plant (Santali) **ko_li** = a stubble of jo_l.a (Ka.); ko_le a stub or stump of corn (Te.) **kolime** = furnace (Ka.) cf. **tagara** = taberna montana (Skt.) Rebus: **tagromi** tin metal alloy (Kuwi) Sign 169 thus connotes a specific metal (**kol**): tin; lexemes: t.agromi + ko_li; glyphs: stubble, taberna montana: **tagara ko_li**

This cluster of signs –Sign 169 and Sign 162 (representing taberna montana) is sometimes prefixed with short numeral strokes. The count of short numeral strokes might represent the number of parts used to alloy with 8 parts of copper.

This is surmised from a specific lexeme **tara_** : an alloy of 8 parts of copper and 5 parts of tin, a ratio of alloying for making bronze vessels.

panje, panjho = the hand opened out; a claw, a paw; the five on a dice in play; *pasli_* the hollow of the hand (G.) pan~jali = with outstretched hands, as token of reverence (Skt. pra_n~jali)(Pali.lex.) pan~ja_ = the paw, the palm; the image of a hand worshipped and taken in procession during the Mohurrum festival (Te.lex.)

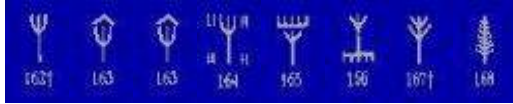


Sign 169

pajhar. = to sprout from a root; pagra = a cutting of sugar-cane used for planting (Santali.lex.)



Signs 90,91,223,224,227,235,262,270,273,274,282,283,291,331,347-352,355-357, 371,372, 388-390,395,405
[With ligatures of Sign 162 or Sign 169]



Signs 162 to 168 [Orthography: sprout]. As a countable object, the sign represents the rebus of (number of) [brick] kilns, the number (count) being indicated by short linear strokes. A variant lexeme of Sign 167 (because of five petals shown) could be: **tagara**, *tabaernae montana*, a flowering, fragrant shrub; rebus: **takaram** = tin (Ta.lex.)

tagr.a = large, massive, strong; tagoj = strength (Santali.lex.)

taran:ga wave (R.Pali); taram.ga (Pkt.); taran:g (P.); taran. brook, current, stream of water (Ku.); taran:ga, **tagara** wave (Si.)(CIDAL 5699).

tagar = to be stopped or impeded; to impede (Ka.lex.) [cf. the motif of a person holding back tigers or bulls on either side].

tagar. = a trough; tagar.re surti ar cunko sipia they mix surti and lime in a trough (Santali.lex.) **taga_rum** [Pers. **tagarih**] a bricklayer's trough; a hod (G.lex.) [Is this a representation of a trough shown in front of the short-horned bull and other animals on many seals? The possibility is enhanced because the shrub also appears in front of a short-horned bull.] **tagar.a** = syn. of **masala gar.a**, a pit for preparing mortar; masala = mortar (Mundari.lex.) tagar = a tub, a bucket, a trough, a platter (P.lex.) d.aka d.ak = a wooden trough used for feeding pigs, watering cattle, and at times for bathing (Santali.lex.) da_gara, d.a_gara. d.a_gara_ = a large flat basket woven of thin bamboo strips in which articles are fried or exposed to the sun (Te.lex.) d.agri_ = winnowing basket (Mth.)(CIDAL 5522). d.haki = a large basket (Santali.lex.) [Rebus: 'trough' in front of animals]. **d.a_gara, d.a_gara_** = a large winnowing basket; a large square tray of bamboo splints (Te.lex.) **tavaya** = frying pan (Pkt.); **tawa** = griddle (K.); taula_ large earthen cooking vessel (Bi.Mth.); **tavali_** metal or earthen vessel (M.)(CIDAL 5670).

t.agara, borax (Si.Skt.) t.angan.a, t.anka, t.ankaks.a_ra borax (Skt.); t.a_kan:kha_r brute borax, tincal (M.); t.a_ngan.a_id. (Or.); dana_ka_r borax, alum (Kho.) < Prob.Ir., cf. Persian tanga_r (CIDAL 5431. 5437).

tagara, tavara [Tbh. of *tamara* or *trapu*] tin (Ka.Te.Ta.M.)(Ka.lex.) takaram tin, white lead, metal sheet, coated with tin (Ta.); tin, tinned iron plate (Ma.); tagarm tin (Ko.); tagara, tamara, tavara id. (Ka.) tamaru, tamara, tavara id. (Ta.); tagaramu, tamaramu, tavaramu id. (Te.); t.agromi tin metal, alloy (Kuwi); tamara id. (Skt.)(DEDR 3001). trapu tin (AV.); tipu (Pali); tau, taua lead (Pkt.); tu~_ tin (P.); t.au zinc, pewter (Or.); taru_aum lead (OG.); tarvu~ (G.); tumba lead (Si.)(CIDAL 5992).

tagad.u = a plate sheet leaf or foil; of metal (Te.lex.) takat.u foil set below a precious stone to enhance its luster; metal plate (Kampara_. Nakarni_. 28)(Ta.lex.) Thin metal plate: takat.u quality of being thin and flat, metal plate, leaf blade (Ta.); takat.u, takit.u thin metal plate, spangle (Ma.); takit.a copper leaf written over and worn as an amulet (Ma.); tagad.u metal beaten into a plate, flat piece or sheet of metal (Ka.); thin metal plate (Tu.); takat., takt.e_ metal beaten into a plate or leaf (M.)(DEDR 2995). *tagat.u* = gold lace; tagat.i = of gold lace; ornamented with gold lace (Te.lex.) takat.i gold-embroidered silk (Ta.) (Ta.lex.) cf. takat.u foil set below a precious stone to enhance its luster; metal plate (Kampara_. Nakarni_. 28)(Ta.lex.)

Alloy: **tara_** alloy of 8 parts of copper to 5 of tin, used for making metal vessels (pukar..tara_-p-po_kkillai) (Cine_n-. 169)(Ta.lex.)

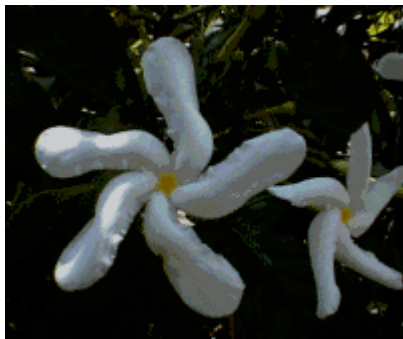
Rebus glyph: **ta_ra_** = stars (Skt.)

tagad.o = [Skt. trika a group of three] the figure three (3)(G.lex.) [Note. Three persons shown next to a tree on a tablet].

tagara = ram (Te.lex.); takaram (Ta.lex.); t.agaru, t.agara, t.igaru, tagar = a ram (Ka.); tagara, tan:gad.i (H.M.); **tagade_ra, tagate_ra** = having a ram for his vehicle: fire (Ka.)(Ka.lex.) Old Tamil: **takar** 1. sheep; 2. ram; 3. goat; 4. aries in the zodiac; 5. male ya_r.i 6. male elephant; 7. male shark. **t.agarudaleya, t.agarutaleya** = daks.abrahamanu, Daks.a, the son of Brahma_, father of Durga_ and father-in-law of S'iva, who on one occasion celebrated a great sacrifice to obtain a son, but omitted to invite S'iva, wherefore S'iva interrupted the sacrifice, and by his incarnation Vi_rabhadra had Daks.a decapitated; for the decapitated head that of a ram was substituted (Ka.lex.) 4080. **Images: ram; male elephant; male shark:** takar sheep, ram, goat, male of certain other animals (porutakar ta_kkar-ku-p- pe_run takaittu : Kural.486); male elephant; male shark (Ta.lex.) (ya_l.i, elephant, shark)(Ta.); takaran huge, powerful as a man, bear, etc. (Ma.); tagar, t.agaru, t.agara, t.egaru ram (Ka.) tagaru, t.agaru id. (Tu.); tagaramu, tagaru id. (Te.); tagar id. (M.)(DEDR 3000). tan:gad.i, tagara a ram (M.H.); tagade_ra having a ram for his vehicle: fire; tagarven.agisu to cause rams to fight (Ka.lex.) da_dlo bokro ram (Kon.lex.) [cf. kara_ male alligator; kar.e_n.u elephant (Ta.lex.)]

Tabernae Montana coronaria

Tabernaemontana amsonia 4077. Wax-flower: takaram wax-flower dog-bane, tabernaemontana; aromatic unguent for the hair, fragrance (Ta.); takaram tabernaemontana coronaria (Ma.); tagara id. (Ka.); t.agara (Pkt.)(DEDR 3002). Tabernaemontana coronaria, tabernaemontana heyncana: nandivraksha, tagara (Skt.); chandni, tagar (H.); siulicop, tagar (B.); East Indian rose-bay wax-flower plant, ceylon jasmine (Eng.);



nandivardhanamu (Te.); nandiyavertam, gandhitagarappu (Ma.); maddarasagida (Ka.); vadli namdit (Konkan.i); is met with in Bengal and south India. Root contains resin, extractive matter and a bitter alkaloid... root or bark is chewed for the relief of toothache... root rubbed with lime-juice is applied to remove opacities of the cornea... milky juice of leaves is dropped into the eye to cure ophthalmia. (Indian materia Medica, p. 1189). cf. tagara a shrub with fragrant white flowers, cultivated in gardens, tabernaemontana coronaria (Ka.lex.) takara-



ja_r.al an aromatic unguent for the hair, mayircca_ntu (Nan-. 368, Mayilai.); tagaram wax-flower dog-bane, tabernae montana (Ci_vaka. 349); aromatic unguent for the hair (Kur-in~cip. 108); fragrance (Aka. Ni.)(Ta.lex.) tagara the shrub tabernaemontana coronaria and a fragrant powder obtained from it (Kaus'); tagaraka (VarBr.S.); sthagara, sthakara a partic. fragrant powder (TBr.); tagara (Pali); takara (Dhp.); tagara, t.ayara a kind of tree, a kind of scented wood (Pkt.); tuvara, tra a species of cassia plant (Si.)(CDIAL 5622).

tagara = the shrub *tabernaemontana coronaria* and a fragrant powder obtained from it (Kaus'); tagaraka (VarBr.S.); sthagara, sthakara = a particular fragrant powder (TBr.); tagara (Pali); takara (Dhp); tagara, t.ayara a kind of tree, a kind of scented wood (Pkt.); tuvara, to_ra a species of cassia plant (Si.)(CDIAL 5622). Tuvrala_ an incense prepared from a species of tabernaemontana (Si.); tagaravalli_ cassia auriculata (Skt.); tagaravalli_ cassia auriculata (Skt.); tuvarala_ an incense prepared from a species of tabernaemontana (Si.)(CDIAL 5624). tagara tabernaemontana coronaria, an ingredient of perfumes (Jain.Skt.); bigonia chelonoides (Skt.); delphinium brunonianum (Car. Su. 4.42, Ci. 3.268). nata synonym of tagara (Car. Su. 3.23,28). Delphinium ajacis: larkspur seed, field larkspur, feldritterspornsamen (Ger.); part used: the dried ripe seed; habitat: Europe; use: externally as tincture as a parasiticide in pediculosis; internally its action resembles aconite. (Heber W. Youngken, Textbook of Pharmacognosy, Philadelphia, The Blakiston Co., 1950, pp. 337-338). Aromatic unguent: kokke-gid.a tabernaemontana coronaria a shrub with fragrant flowers cultivated in gardens (Ka.lex.); kokke-ka_yi fruit of the tree tabernaemontana coronaria (Tu.)(DEDR 2035). nandi bat.lu gid.a a shrub with fragrant white flowers, cultivated in gardens, tabernaemontana coronaria (Ka.); nandya_varta, nandi-vat.t.a (Ka.)(Ka.lex.) The juice of the flowers is mixed with oil is used to relieve the burning sensation of sore eyes; is rubbed into the head to cure pain in the eyes. (Medicinal Plants of the Philippines, p.739). *Ervatamia coronaria* = *ervatamia divaricata* = *tabernaemontana coronaria*: tagar

(B.M.H.Skt.); nandiyavattam (Ta.); gandhitagarapu (Te.); wood: refrigerant; milky juice: used for diseases of eye; root: acrid, bitter, used as local anodyne and chewed for relief of tooth-ache; habitat: upper gangetic plain, Garhwal, E. Bengal, Khasia Hills, Assam, N. Circars and hills of Vizagapatam (GIMP, p.110).

t.akkara = collision (Pkt.); t.akora (K.); **t.akar** = butting (S.); t.akkaran. = to meet, agree (L.); t.akkara = pushing, knocking (P.); t.akkarn.a_ = to collide, meet (P.); t.akkara = shock, jerk, loss (Ku.); t.akar = obstacle, collision (N.); t.akkara = blow (B.); t.akkara, t.a_kara (Or.); t.akkara (H.G.M.)(CDIAL 5424). *tagar* = to be stopped or impeded; to impede (Ka.lex.) [cf. the motif of a person holding back tigers or bulls on either side].

ko_lemmu = the backbone (Te.lex.)

Glyph: old cattle: **kholi_**, kholli_ (P.) [koli_ = a cow (G.)] cf. goul.i, goul.ia_ herdsman (Kon.lex.) goil cowhouse, hut, pasture ground (P.); gol drove of cattle sent to another village (P.); go_uliya herdsman (Pkt.); goili_ (P.)(CDIAL 4259).

xola_ = tail (Kur.); qoli id. (Malt.)(DEDr 2135). [Note the rump of ox with tail depicted ligatured to horned, standing persons].

Adornment of an idol **ko_lamu** (Te.)

Ficus elastica, banyan: **go_li** (Ka.); ko_li (Ta.)

Ornamental design: **ko_lam** (Ta.)

ko_la_n mason, builder (Ma.)

Boat, raft **ko_lamu** = boat (Te.); raft (Ma.); ko_l = raft (Ta.)

Tub: **go_lemu** (Te.) gollemu, gol.l.emu (Te.)

xolla_ (Kur.) razor

ko_l = a planet, navagraha; ra_ku (planet)[Skt. ra_hu] (Ta.lex.)

Pictorial motifs of spearing or killing

koru, *kori*, *korru* to kill (Kor.)

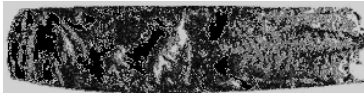
Rebus: *koru* 'a bar of metal' (Tu.)



Limestone wall plaque from Susa (After J. Boese, 1971, *Almesopotamische Weihplatten: Eine sumerische Denkmalsgattung des 3. Jahrtausends v. Chr.*, Berlin/New York: de Gruyter, Taf: XXIV.21]. This plaque shows, on the lower register a person plunging a dagger at a tiger which seems to have subdued a bull. Both the tiger and bull are motifs which recur on inscribed objects of Bharatiya civilization. The top register shows a scene with two seated persons receiving some vase; one on the left is playing on a lute. The plaque is perhaps related to a temple which stood on the Acropole.

A parallel pictorial motif occurs in Crete on an ornamented dagger. A sword, found in the palace of Mallia and dated to the Middle Minoan period (2000-1600 BC), is an example of the extraordinary skill of the Cretan metalworker in casting bronze. The hilt of the sword is of gold-plated ivory and crystal. A dagger blade found in the Lasithi plain, dating about 1800 BCE

(Metropolitan Museum of Art), is the earliest known predecessor of ornamented dagger blades from Mycenae. It is engraved with two spirited scenes: a fight between two bulls and a man spearing a boar.



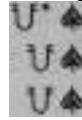
m1430Bt



m1430C



m1430At Pict-101: Person throwing a spear at a buffalo and placing one foot



on its head; three persons standing near a tree at the centre.

2819 Pict-60: Composite animal with the body of an ox and three heads [one each of one-horned bull (looking forward), antelope (looking backward) and bison (looking downwards)] at right; a goat standing on its hindlegs and browsing from a tree at the center.



“The motif of a figure grasping two felines (usually tigers) by the neck is found on another terracotta example from Mohenjo-daro. It appears to depict a male with genitalia (Parpola, 1994, p. 247 and Franke-Vogt, 1991: Taffel XXXV: 248). Other examples have usually been assumed to represent females. As a likely female, the figure from Harappa conforms in sex with the depiction of a composite female-bovine figure grasping



a horned tiger on a seal from Mohenjo-daro (Franke-Vogt, 1991: Taffel XXXVI: 263). A Parpola (1994, p. 246) points out, the ‘contest’ motif is one of the most convincing and widely accepted parallels between Harappan and Near Eastern glyptic art.’ In the Harappan case, however, bulls and lions are replaced by tigers, and females



as well as males are depicted as ‘hero(ine)’. Another interesting feature of the tablets is that whereas the bovine especially are depicted as clearly male, the sex of the human figures is often not so evident.” [Richard Meadow and Jonathan Mark Kenoyer, 1997, Excavations at Harappa 1994-1995: new perspectives on the Indus script, craft activities, and city organization, in: Raymond Allchin and Bridget Allchin, 1997, *South Asian Archaeology 1995*, Oxford and IBH Publishing].

"We have found two other broken tablets at Harappa that appear to have been made from the same mold that was used to create the scene of a deity battling two tigers and standing above an elephant. One was found in a room located on the southern slope of Mount ET in 1996 and another example comes from excavations on Mound F in the 1930s. However, the flat obverse of both of these broken tablets does not show the spearing of a buffalo, rather it depicts the more well-known scene showing a tiger looking back over its shoulder at a person sitting on the branch of a tree. Several other flat or twisted rectangular terracotta tablets found at Harappa combine these two narrative scenes of a figure strangling two tigers on one side of a tablet, and the tiger looking back over its shoulder at a figure in a tree on the other side." [JM Kenoyer, 1998, p. 115].

Feline figurine terracotta. A woman's face and headdress are shown. The base has a hole to display it on a stick. (After JM Kenoyer/Courtesy Dept. of Archaeology and Museums, Govt. of Pakistan).

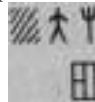
It appears that the person holding back the two rearing jackals on the tablet is a woman: **ko_I** 'woman' (Nahali); dual. **ko_lhilt.el** (Sudhibhushan Bhattacharya, Field-notes on Nahali, *Ind. Ling.* 17, 1957, p. 247); kola = bride, son's (younger brother's) wife (Kui) **ko_I** is a phonetic determinative of the two jackals, **kol** 'tiger'; rebus: **kol** 'metal' (Ta.)

The decoding of 'woman' glyph on the tablet as a phonetic determinative of **kol** 'tiger' gains surprising validation from a ligatured terracotta image of a feline tiger with a woman's face and headdress..



Mesopotamia. Cylinder seal, ca. 2254-2220 BCE (mature); ceramic; cat. 79; two groups in combat. A naked, bearded hero wrestles with a water buffalo, and a bull-man wrestles with a lion. In the centre: inscription (unread). Appears to be recut. Pictorial motif: Person grappling with two tigers standing on either side of him and rearing on their hindlegs.

Person throwing a spear at a buffalo and placing one foot on the



head of the buffalo. 2279 seal impression, Mohenjodaro (DK 8165); after Mackay 1938: pl.88, no.279



ad.arincu, ad.arucu *caus.* of ad.a.ru = to shoot as a missile (Te.)

aduru = native metal (Ka.)

homa = bison (Ko.)

soma = electrum (Skt.); hom = gold (Ka.)

kolsa = to kick the foot forward, the foot to come into contact with anything when walking or running; **kolsa pasirkedan** = I kicked it over (Santali.lex.)

kola = killing, e.g. a_d.ukola = woman-slaying (Te.) Thus, **homa kola** = bison slaying. Rebus: **hom** = gold (Ka.) **kol** =metal (Ta.)

kulai = a hare (Santali)

ko_le = the outer angle of the eye (Ka.Ta.)

kol., koral = the throat (Ka.)

ko_le = a stub or stump of corn (Te.)

ko_lu = an orifice, hole (Te.) kolo = a hole in a wall (G.); koravum = to bore a hole (G.) khol = hollow (Santali)

kholoe, khaloi = a fish basket (Santali)

The act of throwing a spear may be connoted by lexemes: **d.an:gara, d.a_n:gara** = throwing (Skt.lex.)



m0492At



m0492Bt

Pict-14: Two

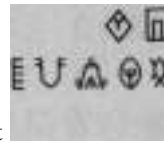
bisons standing face to face.

saman: = to offer an offering, to place in front of; front, to front or face (Santali)

sa_man = song accompanying processing of soma in sa_maveda (Vedic) **samr.obica**, stones containing gold (Mundari.lex.) **saul., saul** = rather brackish (M.); **caud.u** = fuller's earth (Te.)(DEDR 2386) cf. *soma* (R.gveda) **sovnakay, somnakay** = gold [cf. suvarn.a 'gold' (Skt.)]; Dardic **son, surun** = gold. **soma man.al** = sand containing silve ore (Ta. Winslow) **assem**¹⁴ = electrum (Old Egyptian)



m0492Ct



2835 Pict-99: Person throwing a spear at a bison

and placing one foot on the head of the bison; a hooded serpent at left. [substantive: *bakher* 'homestead'. glyph: *phan.i* 'hood of cobra'; substantive: *pan.e* stone quarry. In thie context of *bail* ox; rebus: *bali* (iron ore), iron stone quarry]. **na_ga** = snake (Skt.)¹¹ Rebus: **na_ga** = lead (Skt.) **homa** = bison (Pengo); **soma** = electrum (RV) Alternative: **ad.ar** = bull (Santali) **aduru** = native metal (Ka.)



Sibri-damb01A



Sibri-damb01B



Tepe Yahya. Rectangular steatite (?) stamp seal with perforated knob on the back with lines crossed from corner to opposite corner. Impression on a pottery sherd of a Harappan seal of a type illustrated by Joshi and Parpola (Joshi and Parpola 1987: 88-100). Lamberg-Karlovsky and Tosi 1973: fig. 121.

kulhi = village street (Santali)

¹¹ **pan.du bin:** = a cobra snake (Santali.lex.) **pan.du bin:** = a sword (Santali.lex.)

Smith, karma_ra

kamar a semi-hinduised caste of blacksmiths; **kamari** the work of a blacksmith, the money paid for blacksmith work; **nunak ato reak in kamarieda** I do the blacksmith work for so many villages (Santali) **ka_rma_ra** = metalsmith who makes arrows etc. of metal (RV. 9.112.2: **jarati_bhiih os.adhi_bhiih parn.ebhiih s'akuna_na_m ka_rma_ro as'mabhiih dyubhiih hiran.yavantam icchati_**) **kammar a, kamma_ra, kammaga_ra, karma_ra, karmaka_ra, kammaga_ra, kamba_ra** = one who does any business; an artisan, a mechanic; a blacksmith (Ka.)¹⁵ **kamma_la** = an artisan, an artificer: a blacksmith, a goldsmith (Ta.Ka.); a goldsmith (Ka.) **kammara** = the blacksmith or ironsmith caste; **kammaramu** = the blacksmith's work, working in iron, smithery; **kammarava_d.u, kammari, kammari_d.u** = a blacksmith, ironsmith; **kammarikamu** = a collective name for the people of the kamma caste (Te.) **karma_ras'a_la** = workshop of blacksmith (Skt.) **kamma_r-asa_le** = the workshop of a blacksmith (Ka.); **kamasa_lava_d.u** = a blacksmith (Te.) **kamarsa_ri_** smithy (Mth.) **kamba_r-ike, kamma_r-ike** = a blacksmith's business (Ka.Ma.)(Ka.lex.)(DEDR 1236).

The seated person wears a waist-band.

Rebus: **karma_ras'a_la** = workshop of blacksmith (Skt.)

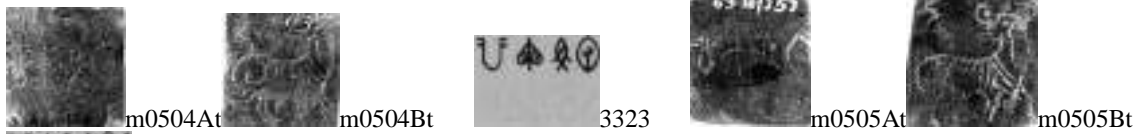
Glyph: **kamarsa_la** = waistband (Te.)

kamba, kambha = Tbh. of stambha or skambha = a post, a pillar (Ka.Te.Tu.Ma.M.Skt.); a mast (Ta.Ma.) **kambhagat.t.u** = a construction on pillars (Ka.)

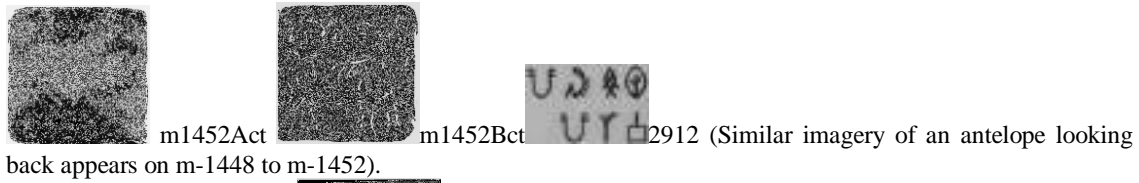
kambu = a conch, a shell (Ka.); a bracelet (Ka.)

kamarasa_la = waist-zone, waist-band, belt (Te.) **kammaru** = the loins, the waist (Ka.Te.M.); **kamara** (H.); **kammarubanda** = a leather waist band, belt (Ka.H.) **kammaru** = a waistband, belt (Te.) **kammarincu** = to cover (Te.) **kamari** = a woman's girdle (Te.) **komor** = the loins; **komor kat.hi** = an ornament made of shells, resembling the tail of a tortoise, tied round the waist and sticking out behind worn by men sometimes when dancing (Santali) **kambra** = a blanket (Santali) [Note the pannier tied as a waist band to the one-horned heifer.]

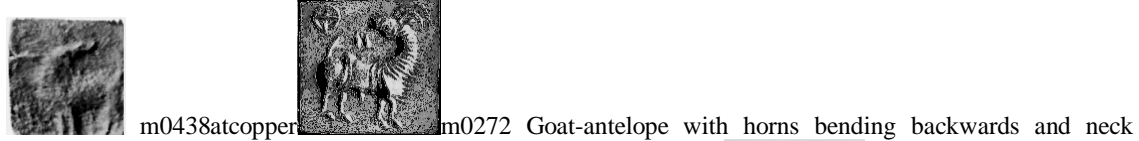
krammar-a = to turn, return (Te.); **krammar-ilu, krammar-illu, krammar-abad.u** = to turn, return, to go back; **krammar-u** = again; **krammar-incu** = to turn or send back (Te.lex.) [Note the glyph showing an antelope or a tiger turning back]. **kraman.a** = act of walking or going (G.lex.) **krama** = step, series (AV); **krame_n.a** by degrees (R.); **kama** = step, way (Pali); foot, series (Pkt.); **-krem** in **oi~n-krem** and **u~_krem** = upper and lower teeth (Wg.); **krammar-ilu, krammar-illu, krammar-abad.u** = to turn, return, to go back; **krammar-u** = again; **krammar-incu** = to turn or send back (Te.lex.) [Note the glyph showing an antelope or a tiger turning back]. **kraman.a** = act of walking or going (G.lex.) **krama** = step, series (AV); **krame_n.a** by degrees (R.); **kama** = step, way (Pali); foot, series (Pkt.); **-krem** in **oi~n-krem** and **u~_krem** = upper and lower teeth (Wg.) ***kamra** = the back (Skt.); **krem** = the back (Kho.)(CDIAL 2776). ***parikamra** = near the back (Skt.); **parikama_** = behind the shoulder (Ash.)(CDIAL 7799v). **kamak** = back (Sang.); **com** = back of an animal (Shgh.); ***kamak** = back of an animal (G.M.); **kama neck** (Yghn.)(CDIAL 14356).



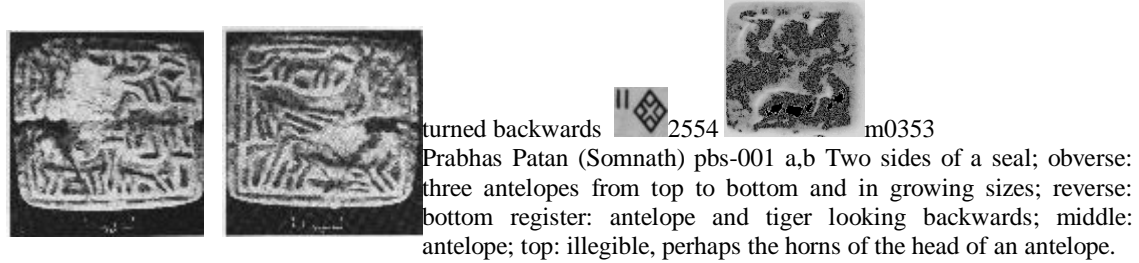
m0504At
m0504Bt
1702



m1452Act
m1452Bct
2912 (Similar imagery of an antelope looking back appears on m-1448 to m-1452).



m0438atcopper
m0272 Goat-antelope with horns bending backwards and neck turned backwards



turned backwards
2554
m0353
Prabhas Patan (Somnath) pbs-001 a,b Two sides of a seal; obverse: three antelopes from top to bottom and in growing sizes; reverse: bottom register: antelope and tiger looking backwards; middle: antelope; top: illegible, perhaps the horns of the head of an antelope.

Substantive: *aduru* 'native metal'.

ad.rna_ to twist back one's limbs or bend the body inward (as under threat of a blow)(Kur.); *ad.re* to strut; *ad.ro* a swaggerer (Malt.)(DEDR 108). [cf. the glyphs of antelope and tiger with their heads turned backwards.]

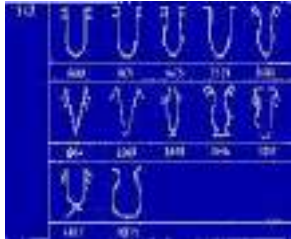
kamari, kammari declivity, steep bank, cliff, ravine (Ka.); **kamar** chasm, crack, cleft in the ground caused by drought (Ta.)(DEDR 1229).

kamar kidin a small species of scorpion; *kidin, kidin kat.kom* a scorpion; *kidin marmar* a species of centipede (Santali)

Copper work

Copper work; brazier: **kan** copper work, copper; kan- n-a_n brazier (Ta.); bell metal worker, one of the divisions of the Kamma_l.a caste (Ta.lex.) kanna_n id. (Ma.)(DEDR 1402). kan workmanship (Tiv. Tiruva_y. 5,8,3); kan mam (Tiv. Tiruva_y. 6,2,7)(Ta.) kanaka = a metal (Pali); kanaka = gold (Skt.)

kan.d. furnace, altar (Santali) gan.d.a pit (furnace) **kan.d.i** = furnace, altar; khandha = a trench used as a fireplace when cooking has to be done for a large number of people (Santali.lex.) **kandaka** = a ditch, a trench (Ka.); khandaka (M.H.Te.)(Ka.lex.) This lexeme can be denoted by the dotted circle which is often depicted on ivory (**khan.d.**) objects. *khan.d.ar.an.*; *khan.d.run.*: 'pit (furnace)' (Santali)



V342**kankha**, **kan.d.a kankha** = brim, rim of a vessel (Santali); **ka-kh**; **kanna_** (H.)(Santali.lex.Bodding) **kan.t.u** = the rim of a vessel (Ka.lex.) **kan.d.a** = an earthenware pot (having a neck a little longer than that of a t.hili, but otherwise of about the same shape as this, only somewhat larger; ghar.a kan.d.a = a waterpot of brass (Santali.lex.Bodding)

khan.d.i_ = ivory in rough (Jat.ki_)



V247 **khan.d.a** a division; a section (G.)

gha~_t. = protuberance of snout of alligator (A.) **gan.d.e** (Te.) gha~r.iya_l (A.B.); ghar.ya_lu = long-nosed porpoise (S.); gha~t. = protuberance on the snout of an alligator (A.)



(70)



(21)

Sign 245 (207)



Copper tablets (48)



Field Symbol 14



(20) Field Symbol 29 (10)



(25)

Sign 25 (53)



Copper tablets (12)

Pairing glyph: nine divisions; **lo** 'nine' (Santali) rebus: loh 'iron, metal' (Skt.); khan.d.a 'division' (Skt.); kan.d. = furnace, altar (Santali) lokhan.d. 'iron, ironware, tools' (G.) lo + khan.d. = rebus: loh 'iron' + kan.d. 'furnace, altar' (Santali)



Signs using four short strokes to subscribe another glyph.

gan.d.a 'a set of four'; *gan.d.a gut.i* to divide, to make up an account (Santali) *gan.d.i* hole, orifice (Te.); *kan.d.i*, *gan.d.i* opening, hole, window (Tu.)(DEDR 1176).



gan.t.ave_t.a = batfowling, nightfowling wherein lights and lowbells are used; **gan.t.a** = bat (Te.lex.)



gan.d.e 'to place at a right angle to something else, cross, transverse'; *gan.d. gan.d.* 'across, at right angles, transversely' (Santali) [Note: A slanted line Lahn.d.a writing of accounts connotes a quarter; a straight line connotes 'one'.]



ga~r.i~ = a monkey; sakam ga~r.i~ a small species of monkey (Santali) Monkey **gad.ava** = male monkey (Ka.); gad.d.i, **gad.d.e_** (Go.); **kat.uvan**= (Ta.)(DEDR 1140) [Note a seal where a monkey is shown in lieu of a standard device in front of a one-horned bull]. **sakam ga~r.i~** a small species of monkey (Santali)

Smelting furnace, bat.hi

bat.hi furnace for smelting ore (the same as **kut.hi**) (Santali) **bhat.a** = an oven, kiln, furnace; make an oven, a furnace; **it.a bhat.a** = a brick kiln; **kun:kal bhat.a** a potter's kiln; **cun bhat.a** = a lime kiln; **cun tehen dobon bhat.aea** = we shall prepare the lime kiln today (Santali); **bhat.t.ha_** (H.) **bhart** = a mixed metal of copper and lead; **bhart-i_ya_** = a barzier, worker in metal; **bhat.**, **bhra_s.t.ra** = oven, furnace (Skt.) **me~r.he~t bat.i** = iron (Ore) furnaces. [Synonyms are: me~t = the eye, rebus for: the dotted circle (Santali.lex) **bat.ha** [H. **bat.t.hi_ Sad.**] any kiln, except a potter's kiln, which is called **coa**; there are four kinds of kiln: **cunabat.ha**, a lime-kin, **it.abat.ha**, a brick-kiln, **e_re_bat.ha**, a lac kiln, **kuilabat.ha**, a charcoal kiln; **trs.** Or **intrs.**, to make a kiln; **cuna rapamente ciminaupe bat.hakeda?** How many limekilns did you make? **Bat.ha-sen:gel** = the fire of a kiln; **bat.i** [H. **Sad. bat.t.hi**, a furnace for distilling) used alone or in the **cmpds.** **Arkibut.i** and **bat.i.ora**, all meaning a grog-shop; occurs also in **ilibat.i**, a (licensed) rice-beer shop(Mundari.lex.)

bhat.i = liquor from mohwa flowers (Santali)¹⁶



Bull's head (bucranium) between two seated figures drinking from two vessels through straws. Yale tablet. YBCE.5447; dia. c. 2.5 cm. Possibly from Ur. Buchanan, studies Landsberger, 1965, p. 204; A seal impression was found on an *inscribed tablet (called Yale tablet) dated to the tenth year of Gungunum, King of Larsa, in southern Babylonia--that is, 1923 BCE according to the most commonly accepted ('middle') chronology of the period. The design in the impression closely matches that in a stamp seal found on the Failaka island in the Persian Gulf, west of the delta of the Shatt al Arab, which is formed by the confluence of the Tigris and Euphrates rivers. We find that on the top register, above the bull's

head, the Yale tablet shows two squares with divisions flanking a circle while in the Failaka tablet shows two birds with wings flanking a tree (or corn stalk).

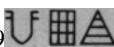
ka_t.i = fireplace in the form of a long ditch (Ta.Skt.Vedic) **ka_t.ya** = being in a hole (VS. XVI.37); **ka_t.a** hole, depth (RV. i. 106.6) **kha_d.** a ditch, a trench; **kha_d.o khaiyo** several pits and ditches (G.) **khan.d.run:** 'pit (furnace)' (Santali)

bhin.d.ia 'a lump, applied especially to the mass of iron taken from the smelting furnace'; **bed.a** 'ingot' (Santali) **bi_d.u** dross, alloy of iron (Tu.); iron filings or dust (Te.)(DEDR 4218)

khat.a = six (G.)



m0269



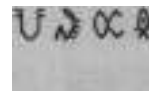
2663



h171A



h171Btablet



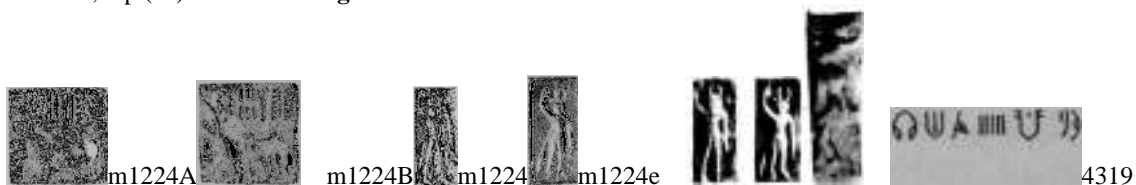
4312 Buffalo. m0312 **kad.ru** 'buffalo' (G.); **kad.a** buffalo (Santali) **kat.ra_** bull calf; **kat.hr.a_** young buffalo bull; **kat.iya_** buffalo heifer (H.); **kat.r.a** buffalo calf (WPah.); **kat.ai** buffalo calf (Gaw.); **kat.r.a_** young buffalo (P.)(CDIAL 245). **kat.a damu** = a he-buffalo (Te.lex.)¹⁷ **ko_r.i** buffalo (Kond.a); **kud.ru** (Pe.Mand.); **ko_ru pl. ko_rka** (Kui); **ko_d.ru, ko_dru, ko_d.ru, go_d.ru** (Kuwi)(DEDR 2256).

bidia to turn a somersault (Santali) *bhindran*: 'to fall to the ground, to knock down', *bindar*: 'to fall down, to collapse', *bindr.an* 'to fall or tumble down backwards from a standing or sitting position' (Santali)

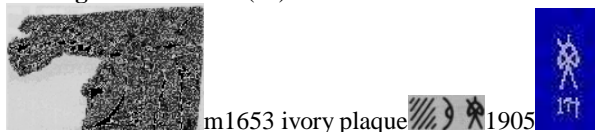
bat.i trs. To overturn, to overset or overthrow; to turn or throw from a foundation or foothold; to turn on the ground to any extent, or roll; **uaurbat.i**, to upset or overthrow by shoving or pushing; *mabat.i* to overturn by cutting, to fell trees; **bat.i-n** rlfx. v., to lay oneself down; **ba-p-at.i** repr. V., to throw each other; **bat.i-o** to be overturned, overthrown; *ba-n-at.i* vrb.n., the extent of the overturning, falling down or rolling; **bat.i-n** rlfx.v., to lie down; **bat.i-ar.agu** to bring or send down a slope by rolling; **bat.i bar.a** to roll again and again or here and there; **bat.i-bur** to turn over by rolling (Mundari.lex.)



A variant of Sign 8 is a horned, standing person ligatured to the buttocks of a bull. **d.hagara_m** = pl. the buttocks, hip (G.) Rebus: **d.han:gar** = blacksmith



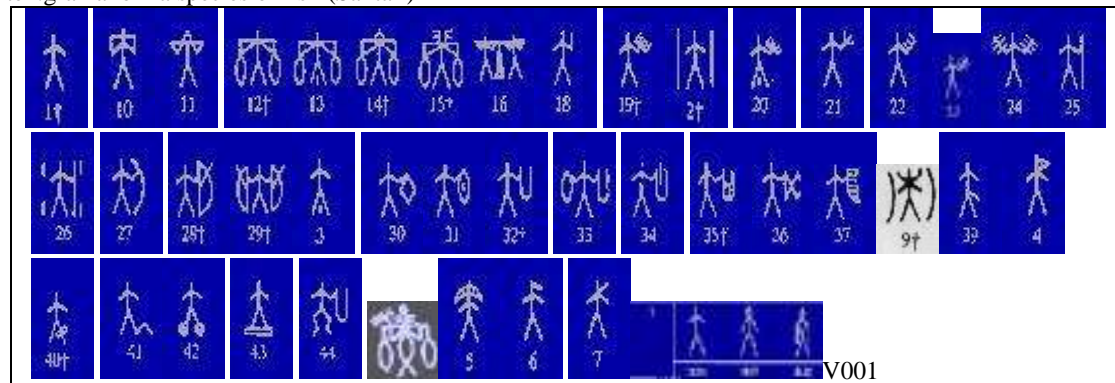
Standing person with horns and bovine features (hoofed legs and/or tail). **d.hagara_m** 'thigh' (G.); rebus: **d.han:gar** 'blacksmith' (H.)

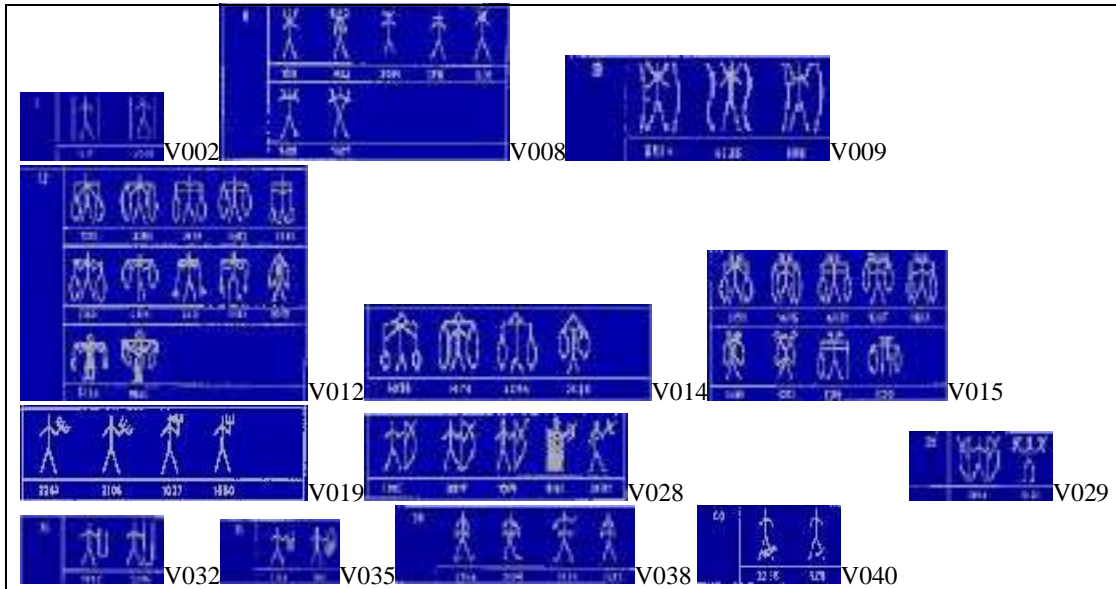


ten:go ten:gon = to assume responsibility to appoint (Santali) [The rebus representation of 'standing person' pictograph can thus be interpreted as a functionary related to the ligatured pictograph (and related substantive rebus)].

ten:go, ten:gon = to stand, to stand still, to assume an upright or perpendicular position, to raise to an upright position (Santali) *ten:gen* = to kill for sacrifice by cutting off the head with a knife (Santali) [Note the orthography of Sign 1 and many variants is that of a headless body.]

ten:gra hako = a species of fish (Santali)





V008 **bhat.a** = a warrior (G.lex.) bhad.a a warrior; a hero; adj. Strong, mighty; opulent; an opulent person (G.lex.) **bhar.** = soldier (B.); warrior (G.); hero, brave man (Ku.); bhat.a = hired soldier (MBh.) pat.ai = army, weapons, battle (Ta.); pat.a = battle, army (Ma); pad.eyila = soldier (Ka.); pad.eval.a = a general (Ka.); pad.ava = fight, battle; pad.avalamu = van of an army; pad.ava_lu = commander of an army (Te.)



bata = lattice work, inter-lacing (Santali.lex.)

Tempered metal with sharp edge!

bat.t.al, bat.t.alu, bat.t.ala, bat.la, bat.lu (Tbh. of vartula) a concave metal vessel: a bowl, a cup, a basin, a goblet (Ka.); vat.t.il (Ta.); vat.t.i, vat.t.ige (Ma.); bat.ud.i (Te.); vat.t.al.a a large cooking vessel; a brass pan (Ma.); vat.t.a = a large water-pot (Ta.); va_t.aga = a large metal dish; va_t.i_ a saucer-form vessel of metal; a half of a coconut shell; the pan of the knee (M.); bat.le = a sort of earthen dish or plate (Te.)

bat.i = a cup of metal; various sizes and shapes are distinguished by a prefixed word: **adhoili bat.i** = an eight-anna cup, of a middling size; **car ana bat.i** = a small size cup; baro ana bat.i = a cup originally costing twelve annas; **bin.d.i bat.i** = a cup with a rim below, to make it stand; chip bat.i = a small flattish cup or dish; **dul bat.i** = a cup made by casting, not by beating; **jam bat.i** = a large cup, mostly of **ka_sa_**, especially for drinking purposes; **khan:ka bat.i** = a cup with a flat rim (only the larger kinds, suitable for pouring out fluids; **khora bat.i** = cooking pot; **laua bat.i** = a cup similar to a lot.a, but without a neck; mi~r.u~ bat.i = a cup without an outstanding flat rim (khan:ka); **sunum bat.i** = a small cup used when anointing oneself with oil (Santali) **bat.i** (Desi) **bat.i** = a metal cup or basin; bhat.i = a still, a boiler, a copper; dhubi bhat.i = a washerman's boiler; jhuli bhat.i = a trench in the ground used as a fireplace when cooking has to be done for a

large number of people (Santali.lex.) bha~utic = a leaf cup, a cup made of leaves pinned together (Santali.lex.)

bha_tha_ quiver (OAw.H.); bha_Tho, bha_to, bha_thr.o quiver (G.); bha_ta_ quiver (M.); bha_tad. id. (M.); bathi_ quiver (S.)(CDIAL 9424). **Basket**: vat.t.i basket made of palm-stem fibre; (ve_t.t.uvan- ma_n-r-acai corinta vat.t.iyum : Purana_ 33); round basket of grass, straw, leather or palm-leaves (Ma.); vat.t.ikai basket (Ta.); bat.t.i basket (Kod.); rattan basket (Tu.); vat.t.il quiver for arrows, basket, measure of capacity (Ta.)(DEDR 5231).



(10)Sign 328 (323)



The pairing may be a way of counting two furnaces (**kut.hi**) for med. 'iron'.

kamat.ha = a water-pot; kaman.d.alu = an ascetic's or religious student's water-pot, kun.d.ike (Ka.lex.) **kamat.hamu** = a water-jar (Te.lex.) **kamad.ha** = pot for curds; Baladeva; face (Pkt.lex.) cf. **mer.go** adj. rimless (vessels); having horns twisted backwards, buffalo) (Santali)



(58)

Sign 95 (64)



pon, ponea, ponon = four (Santali)

Rebus: pon, hon = a gold coin, the half of a varaha (Ka.); honnu = gold (Ka.); ponnu (Te.); **pon-**, **por-** = metal, gold, luster, beauty (Ta.); pol = gold (Ma.) The pair: **pon bat.hi** (gold furnace).



Sign 112 is composed of four and three: pon, ponea, ponon = four (Santali)

Rebus: **pon-** = metal (Ta.)

rakha = three (G.); tebr.a = three (G.)

Rebus: ran:ku = tin (Santali) ta_mbra = copper (Ka.)



gat.a = a small stream or water course (Santali) gat.t.u = a shore, a bank; a dam, embankment, dike (Te.) kat.t.a_ platform (Kol.); kat.t.a bund of field, dam, dike (Nk.)(DEDR 1147).

Rebus: Ingot: **gat.t.i ban:ga_ru** = gold in ingots or bars (Te.) kat.t.i = clod, lump (Ta.); solid, ingot (Ma.); kat.y solid lump (Ko.); gad.d.a = lump, mass, clod (Te.)(DEDR 1148). kad.rna_ to congeal (Kur.); kat.hina hard, firm (Skt.)(CDIAL 2650). kat.hara, kat.hura, kat.hora hard (CDIAL 2651) kad.d. to be hard, severe (DhP.)(CDIAL 2657). gat.i = nodular limestone; gat.i cun = lime made from nodular limestone (Santali)



Thus pairing with **Sign 112**, the pair of signs can be read as: gold (**pon**) or tin (**rakha**) ingot (**gat.t.i**).



(17)

Sign 409 (26)



Rebus: **mo~r.e~** = five (Santali)

Grapheme: *mon.d.* the tail of a serpent (Santali)

Sign 409: glyph: cart: **gad.i** 'cart' (Santali)

gat.t.i = ingot, as in: gat.t.i-ban:ga_ramu = gold ingot (Te.) Paired with the glyph denoting 'five', the epigraph may read: five metals (alloy)



(67) (78)
mer.go = rimless vessels (Santali)

min.d.a = naligan.d.lapa_mu, nalikiri, naliki_cu = the greenish house lizard with a scarlet tail (Te.lex.) [Note the glyph of lizard (or alligator?) dominating a group of animals on tablets in bas relief]

Rebus: **med.** iron, iron implements (Ho.) *me~rhe~t* 'iron'; *me~rhe~t icena* 'the iron is rusty'; *ispat me~rhe~t* 'steel', *dul me~rhe~t* 'cast iron'; *me~rhe~t khan.d.a* 'iron implements' (Santali) (Santali.lex.Bodding)

Alternative: **luiha** = an iron vessel or pot used for cooking and other purposes (Santali) Rebus: **luhui** = iron-stone sand; iron obtained by washing the sand of river beds and nallahs (Santali)



The pairing sign: **a~s** = scales of fish (Santali) **ayas** = metal (RV)¹⁸

bat.i = rimless vessel.¹⁹

hadi = a layer of stone or brick in the ground (Ka.); **padre** a layer (Ka.); **paduru** = id., stratum (Tu.)(DEDR 3915). [Note glyph of ringstones on pillar on tablets in bas-relief.]

Substantive: **patam** = sharpness (as of the edge of a knife)(Ta.); padm (obl. Padt-) temper of iron (Ko.); pada = keenness of edge or sharpness (Ka.); **hada** = sharpeness (as of a knife), forming (as metals) to proper degree of hardness (Tu.); panda_ sharpness (Go.); padanu, padunu = sharpness, temper (Te.); padnu = sharpening (of knife by heating and hammering)(Kond.a); pato = sharp (as a blade); **patter** = to sharpen (Malt.)(DEDR 3907).

badhi = 'to ligature, to bandage, to splice, to join by successive rolls of a ligature' (Santali) **bata_** bamboo slips (Kur.); **bate** = thin

slips of bamboo (Malt.)(DEDR 3917). Ligature! **badhi!** This becomes a characteristic feature of the orthography of epigraphs.



Two short linear strokes on the upper register [Frequency: 99]



Mohenjodaro gold pendant is made from a hollow cylinder with soldered ends and

perforated point. Museum No. MM 1374.50.271; Marshall 1931: 521, pl. CLI, B3.

9176).
(P.);
= herd
(P.);
bal.ada
bardha_



Naha_li_ **baddi_** = ox ; **pa_d.o_** = bull (Sikalga_ri_, mixed Gypsy language.)(CDIAL **bal.ad** = an ox; a bullock; a bull (G.lex.) baredi_ = herdsman (H.); baldi_ = oxherd baldiya_ cattle-dealer (Ku.)(CDIAL 9177). balivarda = ox, bull (TBr.); baleda_, baled of bullocks (L.); baledo (S.); bald, baldh, balhd = ox; baled, baleda_ = herd of oxen bahld, bale_d = ox (P.); balad, bald = ox (Ku.); **barad** (N.); balad(h) (A.); balad (B.); (Or.); **barad(h)** (Bi.); barad (Mth.); barad (Bhoj.); bardhu (Aw.); balad, barad(h), (whence baladna_ to bull a cow (H.); bal.ad (G.)(CDIAL 9176). **pa_r-al** = bull (Ta.)(DEDR 4020). **bare itat** = a bullock given at marriage by bridegroom to bride's brothers (Santali.lex.) baro barabbar = opposite, face to face; baro, baron. = provisions, food rations, supplies (P.lex.) barotwa_la_ = a partner (K.)(P.lex.)

There is another semantic stream, **vad.d.e** (Telugu), **vad.d.haki** (Pkt.), [?***barad.a**] connoting, respectively, a digger of tanks (perhaps the same group of people who had the competence to create a rock-cut reservoir in Dholavira) and carpenter, mason.

To depict him pictorially, in a writing system, a backbone (**barad.o**) or a bull (**baradh**) or a kneeling adorant (**bharad.o**, 'devotee of S'iva') are depicted, since all these semantics are represented by a word which sounds similar to the word used to connote an artisan -- a mason, a carpenter, a worker in wood and metal: ***barad.o** (**vardhaki**). **barduga** = a man of acquirements, a proficient man (Ka.)

To add greater precision in the message conveyed , other pictorials -- as semantic determinants -- may be ligatured; for e.g. a trough may be shown in front of a bull; the trough is **d.han:gar**; a rebus representation of **d.han:gara, t.hakkura**, 'blacksmith'. A new principle in the writing system emerges: ligaturing as a means of conveying multiplicity of functions performed or alloys created, using multiplicity of ores and metals.

bat., bate = a road; bat. par.a = a highwayman, a spy (Santali.lex.) bhat.akavum [Skt. bhra_nta wandered fr. bhram to wander] to roam, to wander; bhat.aka_m pl. wanderings (G.lex.) **bhat.au** to go about, to go here and there, as a dog in heat (Santali.lex.) bha_t.iyo = a class of va_nia_s; a milkman; a vegetable-seller; bha_t.hela_ pl. a class of bra_hman.as (G.lex.) *dobat.ia* 'cross roads, the junction of two roads' (Santali) bat.oi traveller (Ku.); bat.ohi (N.); ba_t.oi, ba_t.ei (N.); bat.ohi_, bat.ohia_, bat.ohini (Mth.); bat.o(h)i_ (H.)(CDIAL 11367).



(39)

Sign 130 (63)



h172B Field Symbol 36 (10)

Sign 51 **kaca kupi** 'scorpion' (Santali) Rebus **kacc** = iron (Go.); **kan~cu** = bronze (Te.)



(44)

Sign 150 (63)



Sign 150 glyph: **tat.am** = road, path, route, gate, footstep (Ta.); **dad.d.a** road (Ir.); dar.v path, way (Ko)(DEDR 3024).

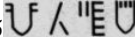


tat.t.ai = mechanism made of split bamboo for scaring away parrots from grain fields (Ta.); **tat.t.e** = a thick bamboo or an areca-palm stem, split in two (Ka.)(DEDR 3042).

tot.xin, tot.xn goldsmith (To.); tat.ta_n- gold or silver smith (Ta.); goldsmith (Ma.); **tat.t.e** = goldsmith (Kod.); tat.rava_~d.u = goldsmith or silversmith (Te.); *t.hat.t.haka_ra brassworker (Skt.)(CDIAL 5493).

bad.hi 'a caste who work both in iron and wood' (Santali)²⁰ **bar.ae** = a blacksmith; bar.ae kudlam = a country made hoe, in contrast to cala_ni kudlam, an imported hoe; **bar.ae** mer.ed – country smelted iron; **bar.ae** muruk = the energy of a blacksmith (Mundari.lex.) bar.ae = bad.ae (Santali.lex.) **bari_** = blacksmith, artisan (Ash.)(CDIAL 9464). The occurrence of **bari_** in Ash. (CDIAL 9464) and **bar.ae** in Mundari and of **vardhaka** in Skt. point to the early phonetic form: **bard.a**; semantic: worker in iron and wood, artisan. Thus, it is suggested that the depiction of the backbone, barad.o is rebus for **bard.a**, artisan. **barduga** = a man of acquirements, a proficient man (Ka.)



m1135  2140 Pict-50 Composite animal: features of an ox and a rhinoceros facing the standard device. This seems to indicate that the lexeme connoting the young bull may have be cognate with a lexeme connoting a boar. **badhia** = castrated boar, a hog; **bhator. sukri** = a huge wild boar with large tusks; rata sukri = a boar in hunting parlance; sukri kud.u = a boar; datela sukri = a wide boar (Santali.lex.) basa, **bara** (Has. Syn. of ekend.a, Nag.) = a male wild boar, whether living with one female (larger kind) or leading a herd (smaller kind) (Mundari.lex.)²¹

Glyph: *badhor*. 'a species of fish with many bones' (Santali)

Smelting furnace, kut.hi

kut.hi 'a furnace for smelting iron ore to smelt iron'; *kolheko kut.hieda* koles smelt iron (Santali)
kut.hi, kut.i (Or.; Sad. **kot.hi**) (1) the smelting furnace of the blacksmith; **kut.ire bica duljad.ko talkena**, they were feeding the furnace with ore; (2) the name of **e_kut.i** has been given to the fire which, in lac factories, warms the water bath for softening the lac so that it can be spread into sheets; to make a smelting furnace; **kut.hi-o** of a smelting furnace, to be made; the smelting furnace of the blacksmith is made of mud, cone-shaped, 2' 6" dia. At the base and 1' 6" at the top. The hole in the centre, into which the mixture of charcoal and iron ore is poured, is about 6" to 7" in dia. At the base it has two holes, a smaller one into which the nozzle of the bellow is inserted, as seen in fig. 1, and a larger one on the opposite side through which the molten iron flows out into a cavity (Mundari.lex.) **kut.hi** = a factory; *lil kut.hi* = an indigo factory (H.kot.hi)(Santali.lex.Bodding) **kut.hi** = an earthen furnace for smelting iron; make do., smelt iron; *kolheko do kut.hi* *benaokate baliko dhukana*, the Kolhes build an earthen furnace and smelt iron-ore, blowing the bellows; *tehen:ko kut.hi yet kana*, they are working (or building) the furnace to-day (H. kot.hi_)(Santali.lex.Bodding)
kut.t.hita = hot, sweltering; molten (of tamba, cp. *uttatta*)(Pali.lex.) *uttatta* (ut + *tapta*) = heated, of metals: molten, refined; shining, splendid, pure (Pali.lex.) *kut.t.akam, kut.t.ukam* = cauldron (Ma.); *kut.t.uva* = big copper pot for heating water (Kod.)(DEDR 1668). *gudga_* to blaze; *gud.va* flame (Man.d); *gudva, gu_du_vwa, guduwa id.* (Kuwi)(DEDR 1715). *da_ntar-kut.ha* = fireplace (Sv.); **ko_ti** wooden vessel for mixing yeast (Sh.); *kot.ha_* house with mud roof and walls, granary (P.); **kut.hi_** factory (A.); *kot.ha_* brick-built house (B.); *kut.hi_* bank, granary (B.); **kot.ho** jar in which indigo is stored, warehouse (G.); **kot.hi_** lare earthen jar, factory (G.); *kot.hi_* granary, factory (M.)(CDIAL 3546). *kot.ho* = a warehouse; a revenue office, in which dues are paid and collected; *kot.hi_* a store-room; a factory (G.lex.) **kod.** = the place where artisans work (G.lex.)

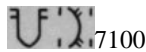


kor.o Has. Syn. of *ged.e, ger.e* Nag. A domesticated duck, *anas domestica* (Mundari.lex.) *ged.e* = a duck (Santali.lex.) *ka_ran.d.avamu* = a sort of duck (Te.lex.) *ka_ran.d.ava* = a duck (G.lex.)

phut.a = the hood or expanded neck of a snake (Skt.)



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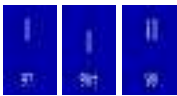
kut.i = the eyebrows

(Santali.lex.)

put.a = an eyelid (Ka.)

put.a = the purifying or calcining of metals etc. by fire (Tu.lex.); *put.amu* = refining a metal; calcining, calcinations (Te.) *put.a* = crucible; *put.akke ha_ku* = to put into a crucible in order to prepare drugs; to refine, as metals (Ka.); *put.avikku* = to apply fire in order to refine metals; to burn (Ka.lex.) **put.-** (-t-) to set fire to, kindle (Pe.); *put.pa* (*put.t-*), *pur.pa* (*pur.t-*) to roast (Kui)(DEDR 4260).

put.abhedana = a town, a city (Ka.lex.)



kut.i = a slice, a bit, a small piece (Santali.lex.Bodding)

sal stake, spike, splinter, thorn, difficulty (H.); **sal.i_** small thin stick; **sal.iyo** bar, rod, pricker (G.); **s'ol.** reed (Kho.)(CDIAL 12343). **salleha, selleha** = splinter (Ka.lex.)

sal 'workshop' (Santali); **s'a_la** id. (Skt.)

bed.a 'either of the sides of a hearth' (G.) **bhin.d.a** a lump, applied especially to the mass of iron taken from the smelting furnace (Santali)

hako = axe (Santali)

hak to split (Bahnar); **hak** to tear; **jik** to cut (Stieng); **gc?** axe (Bonda) cf. **paku** (pakuv-, pakk-) to be split, divided (Ta.) (DEDR 3808).

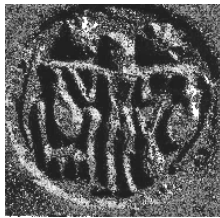
hako, bed.a hako a fish (Santali)

kut.he = leg of bedstead or chair (Santali.lex.)

kampat.t.tam coinage coin (Ta.); *kammat.t.am kammit.t.am* coinage, mint (Ma.); *kammat.a* id.; *kammat.i* a coiner (Ka.) (DEDR 1236)

kut.i, kut.hi, kut.a, kut.ha a tree (Kaus'); **kud.a** tree (Pkt.); **kur.a_** tree; **kar.ek** tree, oak (Pas.); (CDIAL 3228). **kut.ha, kut.a** (Ka.), **kudal** (Go.) **kudar.** (Go.) **kut.ha_ra**, **kut.ha, kut.aka** = a tree (Skt.lex.) **kut., kurun:** = stump of a tree (Bond.a); **khut.** = id. (Or.) **kut.amu** = a tree (Te.lex.)

Water-carrier glyph²²



Seal impression, Ur (Upenn; U.16747); [After Edith Porada, 1971, Remarks on seals found in the Gulf States. *Artibus Asiae* 33 (4): 331-7: pl.9, fig.5]; Parpola, 1994, p. 183; water carrier with a skin (or pot?) hung on each end of the yoke across his shoulders and another one below the crook of his left arm; the vessel on the right end of his yoke is over a receptacle for the water; a star on either side of the head (denoting supernatural?). The two celestial objects depicted on either side of the water-carrier's head can be interpreted as a phonetic determinant: **ko_l.** 'planet'. The whole object is enclosed by 'parenthesis' marks. The parenthesis is perhaps a way of splitting of the ellipse (Hunter, G.R., *JRAS*, 1932, 476). An unmistakable example of an 'hieroglyphic' seal. enclosure signs of the field: Rebus: **kol** = metal (Ta.) Two ko_l. 'planets'; rebus: **kut.hi kol kin** = two furnaces for metal vessels.

() **kut.ila** = bent, crooked (Skt.) **kut.ila** (Skt. Rasaratna samuccaya, 5.205) Humpbacked kud.illa (Pkt.)

() The glyph of a curved line when mirrored becomes a ligature, an enclosure to other glyphs.



Sign 12 (80) **kut.i** 'water carrier'; rebus: **kut.hi** 'furnace' is a ligature of kan.d.a kanka 'rim of pot' + kut.i 'water carrier'. Rebus: kan.d.a kanka 'altar for copper' + kut.hi 'metal furnace'.



Graphemes, i.e. glyphs which could be rebus for **kol** 'metal': **kol.i_** = water carrier (M.)

xola_ = tail (Kur.); **qoli** = id. (Malt.) (DEDR 2135). **kolli** = a fish (Ma.); **koleji** id. (Tu.) (DEDR 2139).

ko_la_ flying fish, exocetus, garfish, belone (Ta.) **ko_la_n, ko_li** needle-fish (Ma.) (DEDR 2241). **ko_li** = a stubble of **jo_la** (Ka.) **ko_le** a stub or stump of corn (Te.) (DEDR 2242).

ko_l.i = banyan, fig (Ta.Ma.); **go_li** fig (Ka.); banyan (Tu.)(DEDR 2254).

ko_l raft, float (Ta.Ka.); kola boat, raft (Skt.BHSkt.); kulla (Palli)(DEDR 2238)

ko_la decoration (Ka.); ko_lam = form (Ta.Ma.)(DEDR 2240).

Rebus: **kol** = metal (Ta.)



(26)

Sign 15 (126)



Sign 15: Ligature: kut.i ‘water-carrier’ + kanka ‘rim of pot’; rebus: kut.hi ‘furnace’ + kan- ‘copper

Pairing glyph: kan:kata = comb (Te.) Rebus: kan:gar = portable furnace (K.)

gad.d.a proyyi = a fireplace or hearth with 3 or 4 inverted hemispherical clods placed on it (Te.)



kut.ila, katthi_l = bronze (8 parts copper and 2 parts tin) [cf. a_ra-ku_t.a, ‘brass’ (Skt.)]

Thus the ligatured glyph with enclosing ‘brackets’ connotes a bronze furnace: **kut.ila kut.hi**

The vivid use of the Sign 15 as a pictograph is found on m-1405: a person stands at the centre, points to a short-horned bull facing a trough, with his right hand and to the Sign 15, with his left hand.



m1405At Pict-97: Person standing at the center pointing with his right hand at a bison facing



a trough, and with his left hand pointing to the sign

[*bali* ‘bull’; *bali* ‘iron’; *tagar.* ‘trough’; *tagara* ‘tin’; *kan.d.kanka* ‘rim of pot’; **kan- kand.** ‘copper-furnace’; **kut.i** ‘woman water-carrier’ (Te.); rebus: **kut.hi** = furnace; alternative: *kol.i* ‘water-carrier’; *kolhe* ‘smelters of iron’.]



Sign 12 **kut.i** is a woman water-carrier (Te.) kut.i = to drink; drinking, beverage (Ta.); drinking, water drunk after meals (Ma.); kud.t- to drink (To.); kud.i to drink; drinking (Ka.); kud.i to drink (Kod.); kud.i right, right hand (Te.); kut.i_ intoxicating liquor (Skt.)(DEDR 1654).


Obverse: A tiger and a rhinoceros in file.




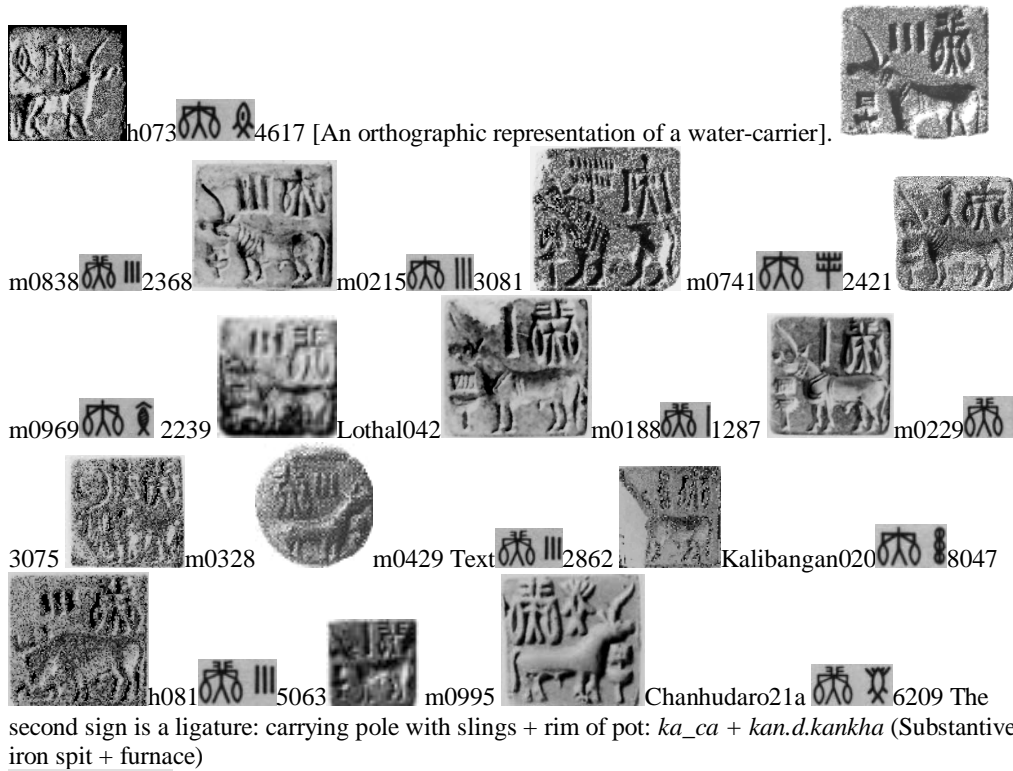
m1405Bt Pict-48 A tiger and a rhinoceros in file [*kha~g* ‘rhino’; rebus: *kan:gar* ‘furnace’; *kol* ‘tiger’; rebus: *kolhe* ‘smelters of iron’.] **kol** metal (Ta.) **kol** = pan~calo_kam (five metals) (Ta.lex.) Thus, the entwined figures of 3 or more tigers may connote an alloy of 3 or more metals.

The person standing between the sign 15 and the bull facing a trough has his arm raised: *er-aka*, 'raised arm' = rebus: copper. The bull (**d.an:gra**) facing a (phonetic determinant) trough (**d.an:gra**) is rebus: blacksmith. Thus the inscription on m1405At can be read as: **d.an:gra er-aka kan.d kanka kut.i** = rebus: blacksmith copper gold furnace of the smelter. [*kan.d.* = a furnace, altar (Santali.lex.)]



ligature of Sign 12 and Sign 342  Thus, Sign 15 can be orthographically read as: kola, kol.i = water-carrier; khan.d.a kanka = rim of a jar. The rebus representation, i.e. homonyms could be: kanaka = gold; **kolhe** = smelters of iron.]

 2841 Is the Sign 12 (a component of the ligatured Sign 15) a synonym of the tiger (jackal), kola? If so, the ligatured sign 15 can be read as: kan.d. kanka kol.i = short-neck of jar + water-carrier = rebus: gold furnace of the smelter (kol) The person standing between the sign 15 and the bull facing a trough has his arm raised: *er-aka*, 'raised arm' = rebus: copper. The bull (**d.an:gra**) facing a (phonetic determinant) trough (**d.an:gra**) is rebus: blacksmith. Thus the inscription on m1405At can be read as: **d.an:gra er-aka kan.d kanka kol.i** = rebus: blacksmith copper gold furnace of the smelter.



Chanhudaro Seal obverse and reverse. The 'water-carrier' and X signs of this so-called Jhukar culture seal are comparable to other inscriptions. Fig. 3 and 3a of Plate L. After Mackay, 1943.



[Pierre de talc. Louvre, AO 9036. P. Amiet, Bas-reliefs imaginaires de l'Orient ancien, Paris, 1973, p. 94, no. 274...ils proviendrait de Tello, l'ancienne Girsu, une des cites de l'Etat sumerien de Lagash. Musee National De Arts Asiatiques Guimet, 1988-1989, *Les cites oubliees de l'Indus Archeologie du Pakistan.*]

kut.amu = a tree (Te.lex.)



kamat.ha = a crab, a tortoise (G.lex.) **kamat.ha** = tortoise (Skt.) **kamad.ha**, **kamat.ha**, **kamad.haka**, **kamad.haga**, **kamad.haya** tortoise (Pkt.lex.) **kamat.hamu** = a tortoise; **kamat.hi** = a female tortoise (Te.lex.)



(10)

Sign 28 (50)



Ligature on sign 28: **dhanus** 'bow' (Skt.) **dhan.i_** = the owner, the possessor (G.)

Glyph: **kama.t.hiyo** = archer; **ka.mat.hum** = a bow; **ka.mad.i_**, **ka.mad.um** = a chip of bamboo (G.) **ka.mat.hiyo** a Bowman; an archer (Skt.lex.)

Rebus: **kamat.ha.yo** 'a learned carpenter or mason, working on scientific principles' (Santali) **kammata** = mint, gold furnace (Te.)

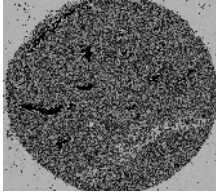
Pairing sign: kolmo = graft; rebus: kolme = furnace (Ka.)

Alternative: t.agara = *taberna mntana* (Skt.) **t.agromi** = tin metal alloy (Kuwi)



Glyph: **kamat.ha** bamboo (Skt.) **ka_ca** bhangi pole (Kuwi); **ka_njui_** (pl. **ka_ska**) a banghi (Kuwi); **ka_sa** the shaft of a **ka_vr.i** (Kond.aj. Kui); **ka_nj** carrying yoke (Kond.a); **ka_nju** id. (Kui.Kuwi); **ka_ca**, **ka_ja** (Skt.); **ka_ca**, **ka_ja** (Pkt.); **ka_a** a yoke to support burdens (Pkt.); **ka_** pole with ropes hung on each end, used to carry loads on the shoulder (Ta.); **ka_gad.i**, **ka_vad.i** bamboo lath or pole provided with slings at each end for the conveyance of pitchers (Ka.); **ka_nja_na_**, **ka_nj** to carry on the shoulders (Go.); **ka_vat.i** pole used for carrying burdens (Ta.); **ka_vu** to carry on the shoulder, bear anything heavy on the arms (Ta.); **ka_vu**, **ka_vat.i** split bamboo with ropes suspended from each end for carrying burdens (Ma.); **ka_vad.i** id. (Tu.); **ka_vat.i**, **ka_vad.i** id. (Te.); **ka_vuka**, **ka_vikka** to carry on a pole (Ma.); **ka_var.i** carrying yoke (Kol.); **ka_vr.i**, **ka_ver.i**, **ka_vir.(i)**; **ka_har.i** (Go.); **ka_vr.i** id. (Mand. Pe.); **ka_vad.a** id. (Pkt.); **ka_vad.ia** one who carries burdens with yoke (Pkt.); **ka_war.** carrying yoke (H.)(CDIAL 3009, 3011, 2760; DEDR 1417). **ka.mat.hum** [Skt. **kamat.ha** a bamboo] a bow (G.lex.) **kamat.ha** = bamboo; **kambi** = shoot of bamboo; **karmuka** = bow (Mn.); **kamad.ha**, **kamad.haya** = bamboo (Pkt.); **ko_ro** = bamboo poles (Bhoj.); **ka_mro** bamboo, lath, pieces of wood (N.); **ka_mviri** bamboo pole with slings at each end for carrying things (OAw.); **ka~_war**, **ka_war.**, **ka_war.**, **ka_war** (H.); **ka_var.** (G.); **ka_vad.** (M.); **ka_vad.ia**, **kavva_d.ia** one who carries a yoke (Pkt.); **ka~_war.i_**, **ka~_war.iya_** (H.); **ka_var.iyo** (G.); **ka_va.t.hi_** carrying pole (S.); **ka_va.t.hyo** the man who carries it (S.); **ka_mar.a_**, **ka_mur.a_** rafters of a thatched house (Or.); **ka_mr.u~** chip of bamboo; **ka_mar.kot.iyu~** = bamboo hut (G.); **ka_m.t.ha_** bow (B.); **ka_mt.hu~** (G.); **kamt.ha_**, **kamt.a_** bow of bamboo or horn (M.); **ka_mt.hiyo** archer (G.); **kaba_ri** flat piece of bamboo used in smoothing an earthen image (A.); **ka~_bi_t.**, **ka~_bat.**, **ka~_bt.i_**, **ka_mat.**, **ka_mt.i_**, **ka_mt.hi_**, **ka_ma.t.hi_** split piece of bamboo etc., lath (M.)(CDIAL 2760). **ka_jaha_raka** = bearer of a carrying-pole (Pali); **ka_ha_ra** = carrier of water or other burdens (Pkt.)(CDIAL 3011). **ka~_d.i**, **ka~_d.i**, **ka_d.i** (Te.), **ka_har.i** = carrying yoke (Go.); **ka_n~**, **ka~_j**, **ka_nj** (Ga.) **xa_xo_** = triangular frame made by folding a bamboo stem used in pairs for carrying logs (Kur.); **ka_nju_** (pl. **ka_ska**) = a banghi, **ka_nju** (Pl. **ka_ska**) carrying yoke (Kuwi) Glyph: (palanquin bearer) **ka_ma.t.i_** [**komat.i_** (M.)] a caste of hindus who are generally palanquin bearers and labourers (G.); **ka_m** work (G.) Substantive: **ka.mat.ha.yo** a learned carpenter or mason, working on scientific principles (G.)

Thigh of a sitting person. urseal9Seal; BM 122945; U. 16181; dia. 2.25, ht. 1.05 cm; Gadd PBA 18 (1932), p. 10, pl. II; each of four quadrants terminates at the edge of the seal in a vase; each quadrant is occupied by a naked figure, sitting so that, following round the circle, the head of one is placed nearest to the feet of the preceding; two figures clasp their hands upon their breasts; the other two spread out the arms, beckoning with one hand. If the orthographic intent is to image a 'thigh'; the homonyms are: **ukka_** 'thigh' (RV); **ukka_** furnace (Pkt.) Alternative: **ku_t.i** = hip (Kui); **ku_t.u** = hip (Tu.); **kut.a** thigh (Pe.)(DEDR 1885); rebus: **kut.hi** = furnace (Santali)



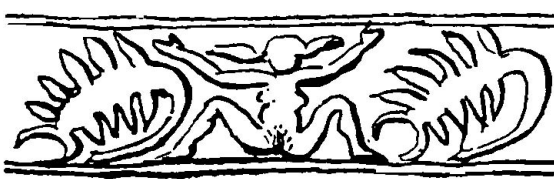
Terracotta female, Gumla; Terracotta miniature plough; Jawaiwala, Bahawalpur (Weiner, 1984, Figs. 187 and 188)

ukka_ 'thigh' (Vedic) **ukkalai** the hips (Ta.); **ukkal** (Ma.); **okkal, okkalai** hip side of the body (**Par..a. 290**); **okku** (Ma.)(Ta.lex.)

ukka_ 'furnace' (Skt.) was- = fireplace (To.)(DEDR 2857).

The most emphatic rebus representation of the pubes of a woman yields the homonym **kut.hi**

See <http://www.hindunet.org/saraswati/smith/blacksmith.htm> A symbolism of a woman spreading her



legs apart, which recurs on an SSVC inscribed object. **Cylinder-seal impression from Ur showing a squatting female.** L. Legrain, 1936, *Ur excavations, Vol. 3, Archaic Seal Impressions*. [cf. Nausharo seal with two scorpions flanking a similar glyph with legs apart – also looks like a frog]. Fig. 95; Susa,

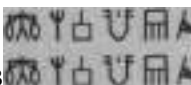
stamp seal of bitumen compound, Louvre, MDAI, 43, no. 1725; a woman shown full-face is squatting with legs apart, possibly on a stool. (A similar image of a woman with legs spread out occurs on an Ur seal impression and on a Mohenjodaro tablet). (Not illustrated).



h180A



h180B



4304

Tablet in bas-relief h180a Pict-106: Nude female figure upside down with thighs drawn apart and crab (?) issuing from her womb²³; two tigers standing face to face rearing on their hindlegs at L. Pict-92: Man armed with a sickle-shaped weapon on his right hand and a cakra (?) on his left hand, facing a seated woman with disheveled hair and upraised arms.

kut.hi = pubes. **kola** 'foetus'¹² [Glyph of a foetus emerging from pudendum muliebre.] **kut.hi** = the pubes (lower down than pan.d.e) (Santali.lex.) **kut.hi** = the womb, the female sexual organ; sorrege **kut.hi** menaktaea, tale tale gidrakoa lit. her womb is near, she gets children continually (H. **kot.hi_**, the womb)(Santali.lex.Bodding) **ko_s.t.ha** = anyone of the large viscera (MBh.); **kot.t.ha** = stomach (Pali.Pkt.); **kut.t.ha** (Pkt.); **kot.hi_** heart, breast (L.); **kot.t.ha_**, **kot.ha_** belly (P.); **kot.ho** (G.); **kot.ha_** (M.)(CDIAL 3545). **kottha** pertaining to the belly (Pkt.); **kottha_** corpulent (Or.)(CDIAL 3510). **Kot.ho** [Skt. **kos.t.ha** inner part] the stomach, the belly (G.lex.)

The **bunch of twigs** = **ku_di_**, **ku_t.i_** (Skt.lex.) **ku_di_** (also written as **ku_t.i_** in manuscripts) occurs in the Atharvaveda (AV 5.19.12) and Kaus'ika Su_tra (Bloomsfield's ed.n, xlv. cf. Bloomsfield, American Journal of Philology, 11, 355; 12,416; Roth, Festgruss an Bohtlingk, 98) denotes it as a twig. This is identified as that of **Badari_**, the jujube tied to the body of the dead to efface their traces. (See *Vedic Index*, I, p. 177).

khut.i Nag. (Or. **khut.i_**) diminutive of **khun.t.a**, a peg driven into the ground, as for tying a goat (Mundari.lex.) **khun.t.i** = pillar (Santali.lex.)²⁴

Yogi with bangles, headdress and seated on a hooped platform: silver smithy, metal kiln

In the corpus of inscribed objects of the Sarasvati Sindhu Civilization, there are 7 inscribed objects showing a seated person. There are 13 inscribed objects depicting a standing, horned person, sometimes ligatured to the hindpart of a bull (bovine) with a tail.

jhoka_ = one whose business is to feed a furnace or an oven (P.); **jokha** = to measure; **lekha jokha emok hoyoktama** = you must give an account (Santali) **jhokn.** = to cast to throw fuel into a furnace; **jhokh** = a flame (P.lex.) **jo_** to put in insert (Pe.); **ju_** id. (Mand.)(DEDR 2868). **jokka_na_**, **johka_na_** to kill (Go.); **soka** to strike at (Kui)(DEDR 2831).

cokka-k-kat.t.i-vel.l.i, **cokkavel.l.i** pure silver (Ta.); **cokkabel.l.i** id. (Ka.); **cokkabol.l.i** id. (Te.); **cokku** gold; **cokuca_** < **sogsa_** pinchbeck, gold-like alloy of copper and zinc (U.); **cokucu** refinement, neatness; fineness, as of work; superior quality (Ma.)

cokho = sharp, keen-edged; **coega** = sharp, pointed (Santali.lex.)

jo_gat.t.e = **sitting cross-legged** (Tu.lex.)

cogu = food for birds (S.); **cogga_** (L.); food for birds (P.)(CDIAL 4920).

coko, **cocko** = the female organ, human and bestial; **coe** = part of female private member, clitoris (Santali.lex.) **coccal**, **cocalu** = the first pregnancy; the first birth, the first offspring (Ka.lex.)



¹² **ku_ti** = pudendum muliebre (Ta.); posteriors, membrum muliebre (Ma.); **ku.0y** anus, region of buttocks in general (To.); **ku_di** = anus, posteriors, membrum muliebre (Tu.)(DEDR 188). **ku_t.u** = hip (Tu.); **kut.a** = thigh (Pe.); **kut.e** id. (Mand.); **ku_t.i** hip (Kui)(DEDR 1885). **gu_de** prolapsus of the anus (Ka.Tu.); **gu_da**, **gudda** id. (Te.)(DEDR 1891).

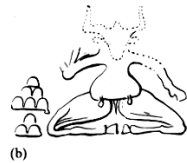
kamat.amu, kammat.amu = a portable furnace for melting precious metals; kammat.i_d.u = a goldsmith, a silversmith (Te.lex.) ka~pr.aut., kapr.aut. jeweller's crucible made of rags and clay (Bi.); kapr.aut.i_ wrapping in cloth with wet clay for firing chemicals or drugs, mud cement (H.)[cf. modern compounds: kapar.mit.t.i_ wrapping in cloth and clay (H.); kapad.lep id. (H.)](CDIAL 2874). kapar-mat.t.i clay and cowdung smeared on a crucible (N.)(CDIAL 2871).

kampat.t.am coinage, coin (Ta.); kammat.t.am, kammit.t.am coinage, mint (Ma.); kammat.i a coiner (Ka.)(DEDR 1236) kammat.a = coinage, mint (Ka.M.) kampat.t.a-k-ku_t.am mint; kampat.t.a-k-ka_ran- coiner; kampat.t.a- mul.ai die, coining stamp (Ta.lex.)

Glyph: kamad.ha, kamat.ha, kamad.haka, kamad.haga, kamad.haya = a type of penance (Pkt.lex.)



Buffalo's horns.
Gumla, NW Frontier province. After Sankalia 1974: 354, fig. 88: b (=b), c (=c)



Buffaloes sitting with legs bent in yogic a_sana. Susa Cc-Da, ca. 3000-2750 BC, proto-Elamite seals: (a-c) After Amiet 1972: pl. 25, no. 1017 (=a); and Amiet 1980a: pl. 38, nos. 581-2 (b-c)

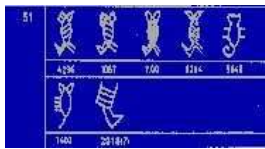


m0305AC 2235 Pict-80: pipal branch on the crown with two armlets. Two stars adorn the curved buffalo horns of the seated person with a plaited pigtail. The pigtail connotes a pit furnace:

Three-faced, horned person (with a three-leaved star on either side), wearing bangles and armlets. The pigtail connotes a pit furnace:

Substantive: *sund* 'pit (furnace)'; *sum*, *sumbh* a mine, a pit, the opening into a mine, the shaft of a mine; *sum bhugak* the entrance to a mine, pit's mouth (Santali). *sun.d.i* a semi-hinduised aboriginal caste; this caste are the distillers and liquor sellers; *sun.d.i gadi* a liquor shop (Santali) *cun.d.* to boil away (Ko.); *sun.d.u* to evaporate (Ka.); *cun.d.u* to be evaporated or dried up (Te.); *s'un.t.hi* to become dry (Skt.)(DED 2662).

Glyph: *su_nd gat.* knot of hair at back (Go.); *cundi_* the hairtail as worn by men (Kur.)(DEDR 2670).



V051 Sign 51 might have been normalised from an early variant which depicts a mouse or rat seen from the back. There could be two glyphs involved: one, that of **kaca** 'scorpion'; rebus: **kacc** 'iron' and the second, that of rat **sun.d.a**; rebus: **sun.d.** 'pit furnace'. **sun.d.a** musk-rat (Ka.)(DEDR 2661)]. **s'un.d.i-mu_s.ika_**, s'un.d.a-mu_s.ika_ musk-rat (Skt.)(CDIAL 12517).



V205 Sign 205 and variants: **son.d.a** = a tusk, as of wild boar, elephant (Santali.lex.) **sonda** = a billhook, for cutting fire wood (Santali.lex.)

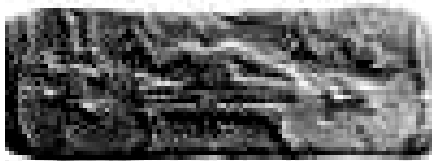


An antelope – **mlekh** 'goat' (Br.); rebus: **mleccha** 'copper' (Skt.); **melakku** 'copper' (Pali)-- is shown with a seven-pointed star around a dotted-circle on tablet h349A, h349B

suk'erika 'stars' (Kuwi)(DEDR 2646) *sukar*, *sukor* 'the planet venus as evening star' (Santali) Rebus: *sokol* 'fire' (Santali) *bar* 'two'; Rebus: *bara* 'oven'
Seated person: *hasani* 'fireplace'; *asani* 'seated'

Furnace or forge of a smith; a goldsmith's smelting pot; torch: **ukka_** (Vedic *ulka_* and *ulkus.i_*; Latin *volcanus*; Old Irish *olca_n* to be fiery) firebrand, glow of fire, torch; tin.-*ukka_* firebrand of dry grass; **ukka_** a furnace or forge of a smith; a meteor; *ukka_-dha_ra* a torch-bearer; *ukka_-pa_ta* falling of a firebrand, a meteor; *ukka_-mukha* the opening or receiver of a furnace, a goldsmith's smelting pot = **kamma r'uddhana** (Pali); *ukka_cana_* enlightening, clearing up, instruction; *ukka_cita* enlightened, made bright; (fig.) or cleaned, cleared up; *ukka_ceti* to bale out water, to empty by means of buckets (Pali)(Pali.lex.) Image: fireplace: cf. *cu_l.ai* kiln, furnace, funeral pile (Ta.); *culli_*, *ulli_* fireplace (Pkt.)(DEDR 2709)(CDIAL 4879). **huko**, **hukko** [Hem. Des. **ukka_** fr. Skt. **ulka_** a firebrand; Arabic **hukka** a casket] a smoking apparatus; a *hukkah* (G.) **huka** the hooka, the hubble bubble (Santali) **sukar** evening star (Santali.lex.) *cukkai* star (Ta.); *cukka* star (Te.); *cikke*, *cikki* star (Ka.); *sukka* star (Kol.); *cukka* (c = ts) id. (Nk.); *cukkin* id. (Nk.); *cukka* id. (Pa.); *sukka* star (Ga.); *sukkum*, *huko*, *hukka*, *hukkom*, *hukka*, *ukcum*, *ukka*, *ukam* id. (Go.); *suka* id. (Kond.a); *huka* (pl. -n) id.; *hukeran*, *hukerin* (pl. only recorded) stars (Pe.); *hukerin* id. (Mand.); *suka* star (Kui); *hu_ka*, *hukka* id.; *suk'erika* stars (Kuwi)(DEDR 2646). <http://www.hindunet.org/saraswati/dictionary/2863TO.HTM> 3132. Bright; handsome: *s'ukra* bright; brightness (RV.); *s'ukla* bright, white (AitBr.); bright half of month (Gr.S'r.); *sukka* bright (Pali); *s'ukar* pretty, pleasant; *s'uka_r* quietly (Gypsy); *s'u_kri* naked (woman)(Kal.); *chuk* good fortune (N.); *suk* bright, white; bright half of month (H.); *su_kad.i* sandal-wood (OG.); *sukhar*. (G.); *sukkila*, *sukkilli* bright, white (Pkt.); *s'ukli_* moon; *s'uklo_* white (WPah.); *s'ukula* white (D.); *sukilo* white, shining (Ku.N.); *xukula_* (A.); *sukka* planet, star (Pali); *sukka* the planet Venus (Pkt.); *s'u_k-ta_ra_* (WPah.); *suk-ta_ra_* Venus (B.); *su_k*, *suk* Venus, Friday (H.); *su_k* Venus (M.)(CDIAL 12506).

Meteor, to shine *ul.ku*, *ul.uku* (Ka.); *ulka_* (Skt.); *ul.ku* = to shine (Ka.); **ukka_** (Pkt.) [Note two stars shown as phonetic determinants of a water-carrier on a Mesopotamian Gadd seal]. **ukka_**, 'stars'; rebus: **ukka_**, 'furnace'

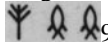


The yogi is in penance. Mohenjo-daro. Sealing. Surrounded by fishes, gharials? (monitor lizards) and snakes, a horned person sits in 'yoga' on a throne with hoofed legs. One side of a triangular terracotta amulet (Md 013); surface find at Mohenjo-daro in 1936. Dept. of Eastern Art, Ashmolean Museum, Oxford.

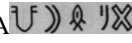
There are objects with epigraphs with a comparable motif of a yogi.



Unprovenanced Harappan-style cylinder seal impression; Musee du Louvre; cf. Corbiau, 1936, An Indo-Sumerian cylinder, *Iraq* 3, 100-3, p. 101, Fig.1; De Clercq Coll.; burnt white agate; De Clercq and Menant, 1888, No. 26;

Collon, 1987, Fig. 614. A hero grasping two tigers and a buffalo-and-leaf-horned person, seated on a stool with hooved legs, surrounded by a snake and a fish on either side, a pair of water buffaloes. Another person stands and fights two tigers and is surrounded by trees, a markhor goat and a vulture above a rhinoceros. Text:  9905 Prob. West Asian find Pict-117: two bisons facing each other.



m1181A  2222 Pict-80: Three-faced, horned person (with a three-leaved pipal branch on the crown), wearing bangles and armlets and seated, in a yogic posture, on a hooved platform

kabat.a, **kapat.e**, **kappat.e**, **kappad.i**, **kappad.e**, **kabat.e**, **kabbat.e**, **gabbila_yi** = a bat (Ka.); **kapt.** = butterfly, moth (Ko.)(DEDR 1216).

kundu = to sit (Ta.); **kun.d.aru** =, **kun.d.ru** = to fall so as to sit on the ground (Ka.lex.) **kun.d.ru**, **kun.d.aru**, **kul.ir**, **kul.l.ir**, **kul.l.iru**, **ku_d.aru**, **ku_d.ru** = to sit down (Ka.) **kun.d.rike**, **kun.d.rike** = sitting down or on; that on which one sits down, as a mat, a cumbly (Ka.lex.) **kudikilu**, **kudikilabad.u** = to squat down (Te.lex.) **kul.iyu**, **kul.irdu**, **kul.tu**, **kul.l.atu**, **kul.l.ardu**, **ku_tu**, **kuntu** = having sat down (Ka.lex.) **kuntu** (**kunti-**) to sit on the heels with legs folded upright, squat; n. sitting on the heels, squatting (Ta.); **kuttuka** = to squat, sit on one's heels (Ma.); **kuton.u** = to sit (Tu.); **gondu-gu_rcun.du** to squat, sit with the soles of the feet fully on the ground and the buttocks touching it or close to it; **kudikilu**, **kudikila~bad.u** to squat down; **kundika_l.l.u**, **kundikundika_l.l.u** = a boys' game like leapfrog; **kunde_lu hare** (Te.); **kud-** to sit; **kuttul** = a stool to sit on (Go.)(DEDR 1728).

The glyph of seated person may be analysed with reference to the orthographic details depicted in two parts: one above the waist and the other below the waist.

Glyphs above the waist seem to depict the semant. of kiln, furnace. Glyphs below the waist seem to depict the semant. of workshop.

The substantive property item conveyed by the message is a kiln or furnace (**cul.l.ai**) for native metal (**aduru**).

Rebus: **cul.l.ai** = potter's kiln, furnace (Ta.); **cu_l.ai** furnace, kiln, funeral pile (Ta.); **cul.l.a** potter's furnace; **cu_l.a** brick kiln (Ma.); **culli_** fireplace (Skt.); **culli_**, **ulli_ id.** (Pkt.)(CDIAL 4879; DEDR 2709). **ulgao**, **salgao** to light a fire; **sen:gel**, **sokol** fire (Santali.lex.) **hollu**, **holu** = fireplace (Kuwi); **sod.u** fireplace, stones set up as a fireplace (Mand.); **ule** furnace (Tu.)(DEDR 2857).

[Together with (1) **cu_d.a_**, 'bracelets', a number of other phonetic detriminatives are used in the orthography of the horned, seated person: (2) **cu_d.a_**, **cu_la_**, **cu_liya_** tiger's mane (Pkt.) [note the mane on the face]; (3) **cu_d.a**, 'head-dress'. The rebus substantive points to: **cu_l.ai**, 'kiln, furnace'].

Mane **ul.a** (IL 1240)

ur..a = king's paraphernalia (Ma.)

Rebus: **aduru** 'native metal' (Ka.)

The face is depicted with bristles of hair, representing a tiger's mane.

cu_d.a_, **cu_la_**, **cu_liya_** tiger's mane (Pkt.)(CDIAL 4883)

ka_ruvu = mechanic, artisan, Vis'vakarma, the celestial artisan (Te.); **-ga_re** = affix of noun denoting one who does it, e.g. **samaga_re** = cobbler (Tu.); **garuva** (Ka.); **gar_uva** = an important man (Te.) **garia** = in comp. Possessed of; doer or agent; **badgaria** = wise; **bal garia** = strong (Santali.lex.) **gar** [Skt. kr.; **karavum** = to do] a suffix found at the end of compounds, showing the 'doer of an action'; **soda_gar** =

a seller; **ka_ri_-gar** = an artisan (G.lex.) If the pubes of the woman with spread out thighs are connoted by **kut.hi**, 'furnace'; the pictorial motif together with a foetus emerging out of the thighs is intended to connote a furnace-artisan: **kut.hi-gar_uva** (pubes, foetus) or, alternatively: **kut.hi-garu** (furnace-mould).

ka_ruvu = mechanic, artisan, Vis'vakarma, the celestial artisan (Te.);
ga_re = affix of noun denoting one who does it, e.g. *samaga_re* = cobbler (Tu.); *garuva* (Ka.); *gar_uva* = an important man (Te.) cf. **-ka_ra** *suffix*. 'worker' (Skt.)

Bristles, erection of hair of the body: **garu, gaguru** (Te.) [Note the imagery of bristles on the face of the seated person, almost looking like a tiger's mane. The tiger's mane is: **cu_l.a**; rebus: **cu_l.a** 'furnac, kiln' + bristles '**garu**'; rebus: **ga_re** 'important person, worker'; thus the composite glyph can be read as: **cu_l.a ga_re** 'furnace-kiln worker']. See also: Mane **ul.a** (IL 1240) **ur..a** = king's paraphernalia (Ma.)

karu = embossed work, bas-relief (Ta.); *karukku* (Ta.) *karavi*, *karu*, **garu** = a mould (Tu.) **karuvi** = tool (Ta.) [Thus, when tablets are embossed with glyphs to create objects in bas-relief, the artisan is trying to denote the nature of the function carried out by the **-ga_re** 'important person'; for example, when a tree is so depicted, it may represent **kut.hi ga_re** 'furnace worker'.]

Foetus **karuvu, karugu** (Te.) [Rebus: **-ga_re** 'important person, worker'. See the glyph of foetus emanating from a woman with her thighs spread out and lying upside down. **kut.hi** 'pubes'; rebus: *kut.hi* 'smelting furnace'; hence, the composite glyph connotes: **kut.hi ga_re** = furnace worker.]

The person wears bangles on his arms, from wrist to fore-arm.

cu_d.a = bracelet (Skt.); *cu_d.a*, *cu_la* bracelet (Pkt.); *cu_r.o* (S.); *cu_r.*, *cu_r.a_* (L.P.); *cur.o* (Ku.); *curo*, *curi* (N.); *suri_a* a kind of ornament (A.); *cu_r.*, *cu_r.a_* bracelet (B.); *cu_r.i_* (Or.Mth.); *cu_ra_* anklet, bracelet (OAw.); *cu_r.a_* ring on elephant's tusk, bracelet; *cu_r.i_* bangle (H.); *cu_r.*, *cu_r.i_*, *cu_r.o* (G.); *cu_d.a_* (M.)(CDIAL 4883). *chur.* bangle, bracelet (P.) *chhura_* (P.) *tsud.o*, *tsude.a_* (Kon.); *suri*, *surye* (Kon:kan.i) [Note the glyph of a horned, seated person wearing bracelets from wrist to forearm]

Alternative rebus of glyphs of person seated on a platform: *hasani* 'furnace'; *asani* 'seated'; *pin.d.i* 'platform'; Rebus: *bhin.d.ia* 'a lump, applied especially to the mass of iron taken from the smelting furnace'.

The person wears a headdress with twigs; the glyph can be represented by two lexical clusters.

cul.li = dry twigs, small stick, branch (Ta.); a dry spray, sprig, brushwood (Ma.); *cul.l.ai* a chip, fuel stick; *nul.l.i* small sticks for firewood (Ma.); *cul.k* long pliable stick, stalk of plant (Ko.)(DEDR 2706).

ad.aru twig; *ad.iri* small and thin branch of a tree; *ad.ari* small branches (Ka.); *ad.aru* twig (Tu.)(DEDR 67). Cf. **at.artti** = thickly grown as with bushes and branches (Ta.) *d.ar* a branch; *dare* a tree; a plant; to grow well; *ban: darelena* it did not grow well; *toa dare* mother, the support of life (Santali)

caul.am, caul.am = tufted hair; *cu_d.a_karumam* (Ta.lex.). *cu_d.a_* = topknot on head; *cu_lika_* cockscomb (Skt.); *cu_la_* ceremony of tonsure (which leaves the topknot)(Skt.); *cu_l.a* = crest; *cu_l.a_* topknot (Pali); *cu_d.a_*, *cu_la_*, *cu_liya_* topknot, peacock;'s crest (Pkt.); *cula_* hair of head, lock, headdress (B.); *cu_r.* topknot, ceremony of tonsure (H.)(CDIAL 4883). **cu_l.war** = a grown-up woman wearing all her plaits of hair (Kho.)(CDIAL 4886). **caud.a** = relating to tonsure (skt.); *caula* (Mn.A_s'vGr.); *co_laa* shaving the head (Pkt.); *col.e~* tonsure of a child's head (M.)(CDIAL 4936).

[Note the seven women with plaited hair: **cavul.a** [plaited hair; rebus: cavat.u, lead-silver ore (fuller's earth) + **bagala_** (pleiades; rebus: ban:gala_ goldsmith's furnace); the reading is: **cavat.u ban:gala_** = furnace for lead-silver ore].

Stone Quarry

pan.e ground that is worked; tillage; a quarry (Ka.Ma.); pan.ai, pan.n.ai (Ta.); pan.n.eya, pan.ya, pan.e a farm, a landed estate (Ka.lex.) **ba_n:ggar** land dependent on rainfall; hard, barren soil (P.lex.) cf. **va_n-am-pa_rtta-pu_mi** id. (Ta.lex.) **banjri** land irrigated by canal water alone (P.lex.) pan.e quarry; **kalpan.e** quarry where red laterite stones are cut (Tu.lex.) **pan.ai**, **pan.n.ai** agricultural tract, garden (Ta.); **pan.a** ground which is worked (including stone-quarry (Ma.)(DEDR 3891). **pad.uku** stone (Te.); **pan.ku** id. (Kond.a)(DEDR 3890).

pan.ai pipal (Ta.); **pan.i** id. (Ka.)(DEDR 3895).

phan.i_, **phan.i_dhar**, **phan.i_ndra** a large serpent (G.); **phan.a_**, **phan.i_** the hood of a serpent (G.); **phan.a** [Dh. Des. **phad.a_**; Hem. Des. **phad.am** fr. Skt. **phan.a_**] the hood of a snake (G.) **pat.am** cobra's hood (Ta.Ma.); **ped.e** id. (Ka.); **pad.aga** id. (Te.); **par.ge**, **bar.ak**, **bar.ki**, **bir.ki** hood of serpent (Go.); (**s)phat.a**, **sphat.a_** a serpent's expanded hood (Skt.); **phad.a_** id. (Pkt.)(DEDR App. 47; CDIAL 9040).

d.hon.d.-phod.o [M. **dhon.d.a_**, a stone] a stone-cutter, a stone-mason; **d.hon:d.-jhod..o** [M. **dhon.d.a_** a stone + **jhod.avum**] a stone-cutter; a stone-mason; **d.hon.d.o** a stone; a blockhead; a stupid person (G.)

dho~n.d. a species of snake found in water; **bitkil dho~n.d.**, **raj dho~n.d.**, **ayan: dho~n.d.** (Santali) **d.ond.ya_** water-snake (Kol.); **d.ond.uli**, **dho_ndi_** (Go.); < **dun.d.ubha** (Skt.)(DEDR 2985; CDIAL 6411)²⁵.

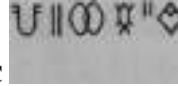
That silver metal --**khura**--is conveyed by the glyph (hoof on the legs of the stool) is reinforced on other epigraphs where a seated person is shown with hooked snakes rearing on either side of the platform. Since silver ore occurs with lead, the snake glyph may be read as: **na_ga** 'snake' (Skt.)²⁶ Rebus: **na_ga** = lead (Skt.) **na_g** lead (K.); **na_ga** id. (Skt.); **nan** lead (Sh.)(CDIAL 7040).cf. **anakku** = lead, tin (Akkadian). On glyphs of composite animals, a hooked snake is depicted as a tail of the animal composite. **xola_** = tail (Kur.) Rebus: **kol** 'metal' (Ta.) Thus conveying lead-metal: **na_ga kol** cf. **tuttuna_kam** = zinc (Te.); **tuttuna_gamu** = zinc, pewter (Te.)



m0453At



m453BC



1629 Pict-82

Person seated on a pedestal flanked on either side by a kneeling adorant and a hooded serpent rearing up.

khura silver (Nk.); **kuruku** 'whiteness'; **kuru** brilliancy (Ta.); **kuro** silver (Kol.Nk.Go.)(DEDR 1782). **koru** = bar of metal (Ta.)

bhallaka = a kind of copper, enumerated under the eight **pisa_caloha_ni**, or copper coming from **Pis'a_ca** country (Pali.lex.)

pa_la = ingot of gold or silver (Ka.)

bhalwa = an instrument used by blacksmiths when punching holes in iron to guide the punch (Santali)
bha_lod.um = the spear-head fixed at the end of an arrow (G.lex.)¹³ phala = point of arrow (Kaus'); blade of knife (MBh.); point of arrow or sword (Pali); point of arrow (Pkt.); phal = blade of mattock, tip of arrow (K.); phal = blade (P.N.B.); phal.a_ blade (Or.); phal.i_ = arrowhead (Or.); phal = blade (H.); phal. (G.M.); phal.e~ =spearhead (M.); pharha_ = blade, nib (P.) bhalla = a kind of arrow (MBh.); bhalli_ = arrowhead of a particular sharpe (Skt.); bhalla = spear (Pkt.); ba_la (K.); bha_lo (S.Ku.N.); bha_la_ = spear, crescent-headed arrow (Or.); spear for driving an elephant (Bi.); spear (Mth.M.); large spear (H.); bha_lu~ = spear (G.)



Copper tablets (29)



Sign 89 **rakha** = three (G.)²⁷ Rebus: **ran:ku** = tin (Santali)



mer.go = rimless vessels (Santali) The rimless vessel occurs on 323 epigraphs according to statistics from Mahadevan corpus.

Rebus: **med.** iron (Ho.); *me~rhe~t* 'iron' (Santali) **meruku** = lustre, shine, silver (Ta.) *meruku* glitter, luster, polish (Ta.); *merugu* shine, luster (Te.); *mer_acu* glitter (Te.); *me_r* to shine (stars)(Kuwi); *merxa_* sky, heaven (Kur.); *mergu*, merge sky, heaven (Malt.)(DEDR 5074). The early meaning could be: 'silver'.

Substantive: *paghal* pig-iron (Santali)

Glyph: *pagari*, *pagal.i* arrow, dart (Tu.); *pakar..i* arrow (Ta.Ma.)(DEDR 3806).



Alternative homonym: **kundu** (S.)

spear²⁸ **bhalwa** = arrow with spearhead (Santali)

Rebus: **bhallaka** = a kind of copper (Skt.)



(10)

Sign 155 (49)



(10)



(24)



(10)



(24)

Sign 155: **kan.d.a**, **ka_n.d.a**, **ka_d.e** = an arrow (Ka.) **ka_n.d.**, **ka_n.**, **ko_n.**, **ko~_**, **ka~_r.** arrow (Pas'); **ka~_d.i** arrow (G.)

Rebus: **kan.d.** = altar, furnace (Santali)

Glyph: **kan.** = arrow, wooden handle of a hoe, pickaxe or other tool (Ta.)(DEDR 1166).

Rebus: **kan-** = copper (Ta.)

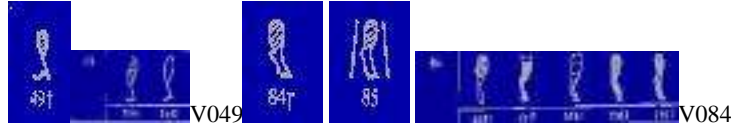
¹³ Homonym: **bhala_n.d.e~** = the half-pot or the shard which, with fire in it, the *gosa_yi_* or the *gondhal.i_*-people hold on their hand; *gondhal.i_* are musicians and singers; *gondhal.* = a tumultuous festivity in propitiation of *devi_* (M.lex.) **bha_liyo** = a waterpot (G.lex.)

s'ili_ dart, arrow (Skt.)

s'ila = rocks (Skt.)

khuro (N.) head of a spear; ks.ura (RV.), sharp barb of arrow (R.); khura_ iron nail to fix ploughshare (H.) khura = razor (Pali) **co_i, co_** sickle (Wg. < **ks.auri_**); **ks.aura** performed with a razor (VarBr.S.); n. shaving (Skt.); **ks.auri_** knife (Skt.); **c.ho_ra** knife (Dm.); **c.hor** (Kal.)-- **khaura** razor (Pkt.influenced by Skt.)(CDIAL 3756).

kurappam currycomb (Ta.Ma.); **korapa, gorapa** id. (Ka.); **kurapamu, kor.apamu, gor.apamu** id. (Te.)(DEDR 1771). **khara_ramu** id. (Te.lex.) **currycomb** a comb consisting of a series of upright serrated ridges, for grooming horses (English)(Doubleday lex.)[cf. **curry** rub down with a comb and brush XIII cent.; Sp. **correar** prepare (wool) for use; OF. **correier** arrange, equip, curry (a horse); **curry favel** rub down the fallow or chestnut horse, which, for some obscure reason, was taken as a type of perfidy or duplicity; hence **curry-comb** (ODEE).]



Thigh = khura (Ka_tyS'r.), kuracu , kuraccai = horse's hoof (Ta.), kul.ampu = hoof (Ta.) kur_aku (Ma.)
ku_t.a = hip (Tu.) kurki = thigh (Go.) Glyph: **khura** = hoof (Santali) ku_t.a = hip (Tu.)
kurki = thigh (Go.)

ma~r. a chaplet sometimes worn by bridegrooms and brides at marriage (Santali) *mod.a* a kind of chaplet worn by females on auspicious occasions (G.) *man.d.ana* an ornament, a decoration; jewels; trinkets; adorning (G.) fr. *man.d.* (Skt.) *man.n.u* to do, perform, adorn, decorate, polish (Ta.); *man.ai* to create, fashion (Ta.); *manayuka, maniyuka* to fashion, form earthenware, make as a potter (Ma.)(DEDR 4685).

Glyph: platform: *man.d.hwa, man.d.ua, man.d.wa* 'a temporary shed or booth erected on the occasion of a marriage'; *man.d.om* 'a raised platform or scaffold'; *ma~r.om* 'a platform, used to keep straw on, or from which to watch crops' (Santali) *man.ai* low wooden seat, low earthen dais, wooden base of cutting instruments, footstool (Ta.); *man.i, man.e* stool, low bench, seat (Ka.); *man.e* low stool to sit upon (Tu.)(DEDR 4675).

Rebus: **man.d.a_** = warehouse, workshop (Kon.lex.) *mad.hi_, mad.hud.i_* a hut, shed, a cottage (G.) *man.i* jewel of office (Skt.); *man.iyam* office of the village headman (Ta.); superintendence of temples, palaces, villages (Ma.); *man.e.v, man.ye.v* the office of monegar (Ko.); *man.iya, man.iha, man.eya, man.e* superintendence of temples, maths, palaces, custom-houses (Ka.); *man.iga_re* revenue inspector (Tu.); *man.iyamu* office or duties of the manager of a temple (Te.)(DEDR 4674).

Glyph: seated: *asan man.d.ao* 'to sit tailor-wise for a long time, to sit about with nothing to do; lazy; to lie down, as an animal in its lair'; *asan man.d.ao akanae, hokrho kan leka* 'he has taken up his position as if he were a watchman' (Santali) *mat.ku* squat, squab, fat and short (Santali) *asan man.d.ao, pat.gan.d.o* to squat, to sit tailorwise (Santali)

ma_d.a = shrine of a demon (Tu.); ma_d.ia = house (Pkt.); ma_l.a a sort of pavilion (Pali); ma_l.ikai = temple (Ta.)(DEDR 4796).

cu_l.ai = kiln; **cul.l.ai** = furnace (Ta.). **culli** = a fireplace, a cooking stove, ole (Ka.) **culli** = a fireplace, a hearth, a funeral pile (Te.) **cula_sagad.i_** = a portable hearth or stove of iron, clay etc. (G.) **culi_, culd.i_** = a small fireplace, a hearth; **culo, cu_l, cu_lo** = a fireplace, the hearth; a stove (G.) **culha** = a fireplace; mit achia culha = a fireplace with one opening; bar achia culha = a fireplace with two openings (Santali)

cul.li = dry twigs, small stick, branch (Ta.); a dry spray, sprig, brushwood; cul.l.ai = a chip, fuel stick (Ma.); long pliable stick, stalk of plant (Ko.)(DEDR 2706).

cu_li = scales of fish (Ma.)(DEDR 2740).

cuila, coelo = sharp, pointed (Santali) **s'u_la, s'u_le, sul.a, su_la, su_la** = a sharp or pointed weapon: a pike, a spear, a lance; **s'u_li** = spearman; **s'u_lika** = piercing, killing (Ka.)

cu_l = pregnancy; **cu_li** = pregnant woman (Ta.); **cu_l** = pregnancy (Ma.Ka.); **cu_lu** = pregnancy, child, offspring; **cu_li** = child, offspring; **cu~_d.i** = pregnancy (Te.); **su_l** pregnant (animal)(Kuwi)(DEDR 2733).

eruvai copper, blood (Ta.); **ere** a dark-red or dark-brown colour (Ka.)(DEDR 817). **ere** black soil (Ka.)(DEDR 820). **ke~r.e~ ko~r.e~** an aboriginal tribe who work in brass and bell-metal (Santali) **ker.e sen:gel** fire in a pit (Santali)

Glyph: **garud.a** eagle (Skt.) [**garud.a bar got.an** two eagles duplicated; **kod.** place where artisans work; **kot.** fort]

Substantive: **gara_d.o, gara_d.** a ditch, a pit (G.)

Substantive: **garad.o, garod.o** A priest of the pariahs (G.)

ero = watering place for cattle (G.)

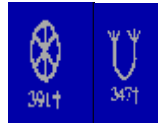
eru = a serpent (G.)

er-aka = upper arm, wing (Te.) [Note the orthographic emphasis on the wing of a bird].¹⁴

¹⁴ Substantive: **araka** a plough with bullocks complete (Ta.); **are** a plough (Malt.)(DEDR 198).

kundan = pure gold (G.Persian); the socket of a gem (G.) **kundanamu** = fine gold used in very thin foils in setting precious stones; setting precious stones with fine gold (Te.lex.) **kundamu** = one of the seven nidhi-s of Kubera (Te.) **kunda** = a city of vidya_dhara-s (Pkt.lex.) kundan-am = interspace for setting gems in a jewel; fine gold (Ta.); kundan.a = setting a precious stone in fine gold; find gold; kundana = fine gold (Ka.); kundan.a = pure gold (Tu.)

kunda_r turner(A.); **ku~da_r, ku~da_ri** (B.); **kunda_ru** (Or.); **kundau** to turn on a lathe, to carve, to chase; **kundau dhiri** = a hewn stone; **kundau murhut** = a graven image (Santali) **kunda** a turner's lathe (Skt.)(CDIAL 3295).¹⁵



Sign 355 seems to ligature sign 347 and sign 391 (Sign 391 depicts the opening in the nave or hub of wheel and also six spokes: **ara_ kund** opening in the nave or hub of a wheel to admit the axle (Santali) **kund ruka** = a gouge, a chisel with which circular holes are made in wood; **sagar. kund** = the opening in the nave of a wheel to receive the axle (Santali.lex.)



m0304AC  2420

kundavum = a manger, a hay-rick (G.lex.) **kundhavum** = a heap of hay or sticks (G.lex.) **kuntam** = haystack (Ta.); kuttar-i = a stack, a rick (Ka.)(DEDR 1724). [Note the haystack on the stool on which a person sits].

ku~d. = basin (G.)

kunda = a pillar of bricks (Ka.); pillar, post (Tu.Te.); block, log (Malt.); **kantu** = pillar, post (Ta.)(DEDR 1723). **kunda** = a post or pillar (Te.)

kun.d. = a pit (Santali) **kun.d.amu** = a pit for receiving and preserving consecrated fire; a hole in the ground (Te.) **kun.d.am, kun.d.a** sacrificial fire pit (Skt.) **kun.d.a** an altar on which sacrifices are made (G.)²⁹ **gun.d.amu** fire-pit; (Inscr.)

¹⁵ **kundakara** turner (Skt.); **kunda_r** (A.); **ku~da_r, ku~da_ri** (B.); **kunda_ru** (Or.); **ku~dera_** one who works a lathe, one who scrapes (H.); **ku~deri_f_**; **ku~derna_** to scrape, plane, round on a lathe (H.)(CDIAL 3297). **gud.i-ga_r**-a a turner, one whose occupation is to form wooden articles (also the plaything called cakra, hubble-bubbles, etc.) with a lathe and to cover them with shellac of different colours; **gud.ugud.i ma_d.uvavanu id.** (Ka.)(Ka.lex.) **ku~dnu** to shape smoothly, carve (N.); **kund** lathe (A.); **kundiba** to turn and smooth in a lathe (A.); **ku~d** lathe (B.); **ku~da_, ko~da_** to turn in a lathe (B.); **ku~nda** lathe (Or.); **ku~diba_, ku~diba_** to turn (Or. > **ku~d** lathe (Kur.); **kund** brassfounder's lathe (Bi.); **kunna_** to shape on a lathe (H.); **kuniya_** turner (H.); **kunwa_** turner (H.)(CDIAL 3295). **Wood-worker**: **cundaka_ra** turner (Pali); **cuna_ro** maker of wooden vessels (Ku.); **cuna_ro, cana_ro, cu~da_ro id.** (N.)(CDIAL 4862). **cunda** wood or ivory work (Skt.); ivory worker (Pali); **cundiba_** to do woodwork (Or.)(CDIAL 4861). **kuni ruka** a gouge (Santali.lex.) **ks.no_tra** whetstone (RV. ii.39.7)(Vedic.lex.)

kun.d.i_ = chief of village. **kun.d.i-a** = village headman; leader of a village (Pkt.lex.)

khu~t.ro = entire bull; **khu~t.** = bra_hman.i bull (G.) **khun.t.iyo** = an uncastrated bull (Kathiawad. G.lex.)
kun.t.ai = bull (Ta.lex.) cf. **khu~_dhi** hump on the back; **khui~_dhu~** hum-backed (G.)(CDIAL 3902). The zebu is: **khui~t.**, a bra_hman.i_ bull, a bull found even today in many parts of Gujarat, roaming the streets of Ahmedabad, for instance. The word may connote the rebus of **kut.ha_ru**, armourer or weapons maker (metal-worker), also an inscriber or writer. **khui~_t.ad.um** a bullock (used in Jha_la_wa_d.)(G.)

kun.d. = the opening in the nave or hub of a wheel to admit the axle; **kund ruka** = a gouge, a chisel with which circular holes are made in wood; **sagar. kund** = the opening in the nave of a wheel to receive the axle (Santali.lex.)

khon.d. square (Santali)

kun.d.i_ crooked (of buffalo's horns)(L.); **kun.d.a_** a bullock whose horns have been turned (L.)(CDIAL 3260). **khun.d.ha_ blunt** (P.)(CDIAL 3899).

kut.ha_ri = an axe-bearer, a chief of the door-keepers (Ka.lex.)

Naked woman **kot.a_ri** = naked woman (IL 1829a)

khui~_t.iyum an upright support in the frame of a wagon (G.) **kut.aramu**, **kut.haramu** = the post round which the string of the churning stick passes (Te.lex.)

ku_t.a, 'chief (**kut.ha_ru**, 'writer, armourer')(G.)

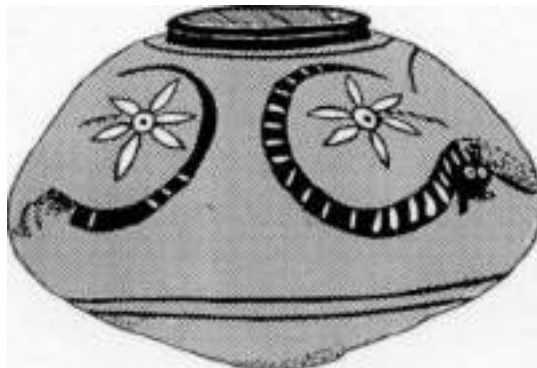
Tent, house **kut.a_ram** (Ta.)(IL 4872) **ku_t.a** a house, dwelling (Skt.lex.) **khui~t.** = a community, sect, society, division, clique, schism, stock; **khui~t.ren** per.a kanako = they belong to the same stock (Santali)
khui_t. Nag. **khui~t.**, **ku_t.** Has. (Or. **khui_t.**) either of the two branches of the village family.

Glyph: **ko_t.u** = horns (Ta.)¹⁶

Rebus: **kod.** = artisan's workshop (Kuwi)

d.ab, **d.himba**, **d.hompo** 'lump (ingot?)', clot, make a lump or clot, coagulate, fuse, melt together (Santali)
d.himba = become lumpy, solidify; a lump (of molasses or iron ore, also of earth); **sadaere kolheko tahe_kanre d.himba me~r.he~t reak khan.d.ako bena_oet tahe_kana_** = formerly when the Kolhes were here they made implements from lumps of iron (Santali)

darap, **dorob**, **dorob** 'metal, excluding iron, money, wealth'; **dorobos** all the necessities of life (Santali)



d.abe, **d.abea** 'large horns, with a sweeping upward curve, applied to buffaloes'; **d.abea kad.a** = a buffalo with large curved horns; **d.abe deren** = horns as described (Santali)

Buffalo-horned face. Painting on a jar. Kot Diji. C. 2800-2600 BCE [After Khan 1965, pl.

animals (Go.); **ko_r** (pl. **ko_hk**), **ko_r.u** (pl. **ko_ska**) horn, antler (Kui)(DEDR 2200).
ob = branch (Ko.) **gorka**, **gohka** spear (Go.)

XVIIb; cf. Fig. 2.25 in JM Kenoyer, 1998, *Ancient cities of the Indus Valley Civilization*, Karachi, Oxford University Press].

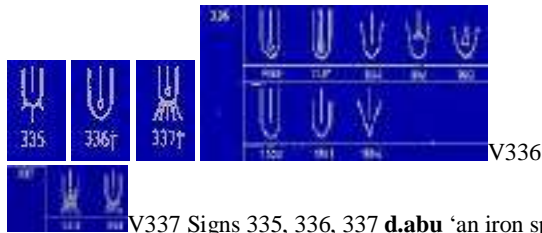
mu~he~ = face; rebus: **mu~ha_** = quantity of iron smelted at one time in the earthen furnace of the Kolhes; **mu~ha_ me~r.he~t** = iron smelted by the Kolhes and formed into an equilateral lump a little pointed at each of four ends (Santali)

The painting on a pot shows large horns and a six-pointed star¹⁷, pleiades **bahula_**; rebus: **ban:gala** = portable stove of goldsmith (Te.) What is being transported in the pot is **d.ab** 'metal ingot'

d.hompo = knot (on a string)(Santali)



Sign 44 **d.abe** = adj. bandy-legged (with knees a little bent)(Santali)



V337 Signs 335, 336, 337 **d.abu** 'an iron spoon' (Santali)



(13)Sign 336 (236)



Copper tablets (27)



m1148 Field Symbol 7 (10)

Alternatives: **gan.te** = a spoon; a ladle (Te.lex.) Rebus: **kan.d.** = furnace, altar (Santali) **mer.go** = rimless vessel; **bat.i** = rimless pot; rebus: **me~r.he~t bat.hi** = iron smelting furnace (Santali)



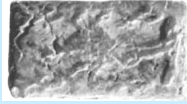
dab dabia adj. broad, broud-mouthed (Santali)

d.abri 'a small earthenware dish, used as a lid'; **dap** 'to cover, to thatch' (Santali)

d.abbu a dub or copper coin, four pays (Ka.Te.); **t.appu** (Ta.); **d.habbu_** a double pice (M.)(Ka.lex.) **ta_mbroy** = copper (Tu.lex.)³⁰

¹⁷ Alternative homonyms: **tara_** alloy of 8 parts of copper to 5 of tin, used for making metal vessels (pukar..tara_p- po_kkillai) (Cine_n-. 169)(Ta.lex.) **ta_ra_** = stars (Skt.) **ko_l.** = planet (Ta.); rebus: **kol** alloy of five metals (Ta.)

Goldsmith's tool: saw

Sign 48  (114) **Sign 48 (168)**  Copper tablets (13)  h172B Field Symbol 36 (10)

Sign 48: **barad.o** = spine, the backbone, back (G.)

Rebus: **bharatiyo** = a caster of metals, a brazier; bharatar, bharatal, bharatal. = moulded; an article made in a mould (G.)
barduga = a man of acquirements, a proficient man (Ka.)

Glyph: **t.hat.ra** = m. emaciated (Santali)

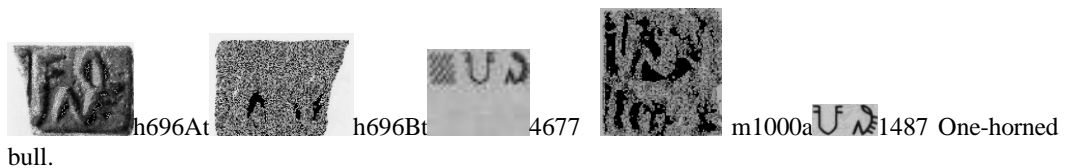
Rebus: **t.hat.era** = a brazier, a caste who manufacture and sell brass ware; t.hat.ori = a worker in brass, a goldsmith (Santali)

kuduru = lizard (Te.); Rebus: **kuduru** = portable gold furnace (Te.)


karod. = spine (G.lex.) kro_d.amu = bosom or breast (Te.); krod.a = breast (Skt.) karot.h = side of the body (G.lex.)


karad.a saw (Apabhram.s'a) (DEDR 1265). **karad.o** = a goldsmith's tool (G.lex.) **khara_di_** = a turner; **khara_da** = a turner's lathe (G.lex.) kara_d.i_ = a goldsmith's tool; kara_d.o = a carpenter's tool used in hewing down large pieces of wood (Used in the Surat district); **kara_i_** = a sawyer; one whose business it is to saw timber; a crow bar (Used in Kathiawa_d.)(G.lex.) karan.d.amu = a sword (Te.lex.) **karata** = **saw** (Or.); karapatta (Pali); karapattra (Skt.); kart.u (S.); kalvattar (L.); karvattar, karvat large iron blade for cutting a man in two (L.); karot.li small saw (WPah.); karau~ti, kara_ti saw (N.); karat (A.); kara_5 (B.); kara_ta goldsmith's saw (Or.); karavata saw (OAw.); karaut, karauta_, kara~_t (H.); karauti_ small saw (H.); karavata saw (OMarw.); karvat, karvati_ (G.M.); karavata (Si.); kara_ti_ sawyer (B.); **karati_** sawyer (Or.); kara~_ti_ sawyer (H.); karvatiyo sawyer (G.); karatiba_ to saw (M.); karavan saw (Si.)(CDIAL 2795). **kalahoya**, kaladhauta = gold; silver (Pkt.lex.) **kala_da** = a goldsmith (G.lex.)

karud.u = a lump, mass, clot (Te.lex.)





m0301  2258 That just two signs constitute the inscription is indicative of the substantive nature of the 'skeleton' glyph in relation to the kan.d., 'altar, furnace'.

The pair of signs (Sign 48 and Sign 342) is a frequently-occurring pair with over 100 occurrences among the epigraphs. 



Sign 48 is the centre-piece on a raised copper tablet: Harappa. Raised script. H94-2198. [After Fig. 4.14 in JM Kenoyer, 1998]. Eight inscribed copper tablets were found at Harappa and all were made with raised script, a technique quite different from the one used at Mohenjodaro for flat copper tablets with many duplicates. The duplicates occur on steatite and faience tablets at Harappa; these may have represented **a commodity or a value**. [cf. JM Kenoyer, 1998, p. 74].



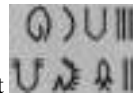
7.02 Harappa. Cast tablet, copper alloy. The glyph (Sign 48) depicting the backbone of a kneeling person occurs on side A of a copper plate (m0511).



m0511At



m0511Bt



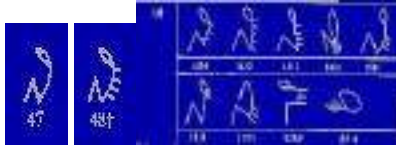
2905



The epigraphs (including Sign 48) on a faience tablet are comparable to a portion of text on the copper tablet. Slide 247 Faience tablet. (H2001-5082/2920-02) made from two colors of faience was found eroding from the Trench 54 South workshop area. Identical tablets made from two colors of faience were recovered in Area J, at the south end of Mound AB, in the excavations of Vats during the 1930s.


Sign 48 also occurs on incised potsherds. Kalibangan100A.

Kalibangan100




Seated skeletal person (Sign 48) It will be seen from the sign variants that the artist is focusing on three characteristics: the person is seated, the backbone is emphasized, the person wears a hair-do. The kneeling posture is clearly comparable to Sign 45 which shows a kneeling adorant, but Sign 48 is evolved



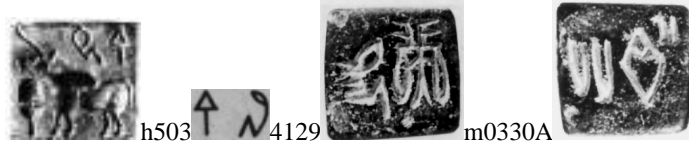
without the ligature of a rimless pot  Sign 45




Evolution of Sign 48  can be explained from the orthography of a seal from Kalibangan (048) which clearly demonstrates that the artist is trying to emphasise the semantics of a backbone of a kneeling person, perhaps also making an offering.

Kalibangan048 “The seated person is facing right (in the original seal), leaning forward. He has a large head and a massive jaw jutting forward. The complete ribcage is shown in clear detail with almost all the ribs in position, curving naturalistically on either side of the backbone. The deity appears to be holding a ladle (?) in his right hand. His knees are drawn up and he seems to be squatting on his haunches. The details are clearly visible in the highly enlarged photograph of the seal published in Pl. 275: Omananda Saraswati 1975. *Ancient Seals of Haryana* (in Hindi). Rohtak.” (I. Mahadevan, 'Murukan' in the Indus Script, *The Journal of the Institute of Asian Studies*, March 1999).

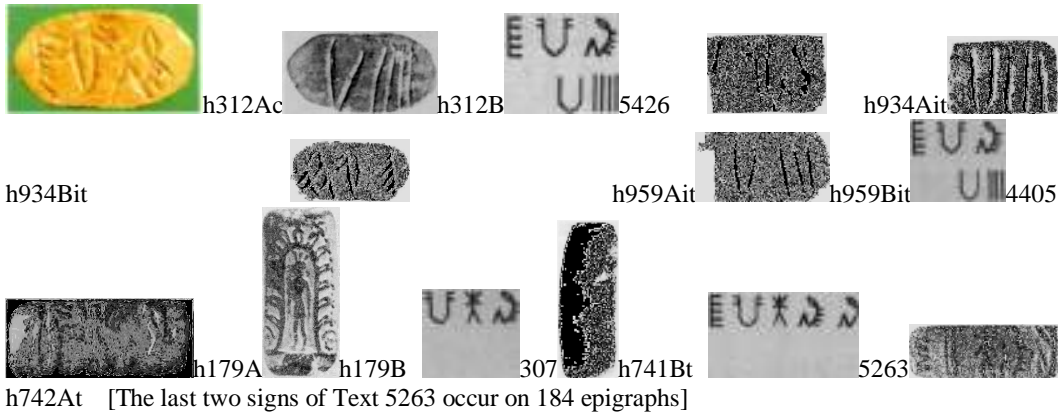
A three sign sequence including this ‘seated skeletal person’ is the most frequently occurring three-sign sequence among the inscribed objects. The occurrence is mostly on miniature tablets of Harappa

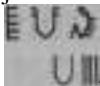


Perforated through the narrow edge of a two-sided seal  1475 Many incised miniature tablets of Harappa contain this sign within a sequence as shown on one side: h959Ait (incised tablet). Many duplicate texts contain this sign sequence.

[glyphs: backbone, rim of pot, comb]

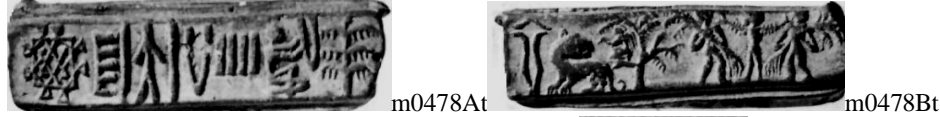


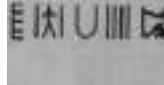





[At least 46 inscribed objects with epigraphs contain the sequence of three signs – line 1 (Statistics from Mahadevan corpus)  4387]





[Dh. Des. **karod.iya** from Skt. *karot.ika* the skull; cf. Hem. Des. *kod.iyam* fr. Skt. *kos.t.ha* the inner part] *kod.iyum* an earthen cup holding oil and a wick for a light (G.) Seller of earthenware, earthen goblets, smoking pipes etc. = **kara_d.iyo**, **kara_l.iyo** (G.) *kot.ho* an earthen vessel in which indigo is stored (G.) *khora* a kind of large brass bowl; the vessel which receives the juice of sugar-cane when being pressed (Santali)

karadamu = present to a superior (Te.lex.) **karet.um** = an annual offering and present to a goddess or to an evil spirit (G.lex.) karavr.tti (Skt.)



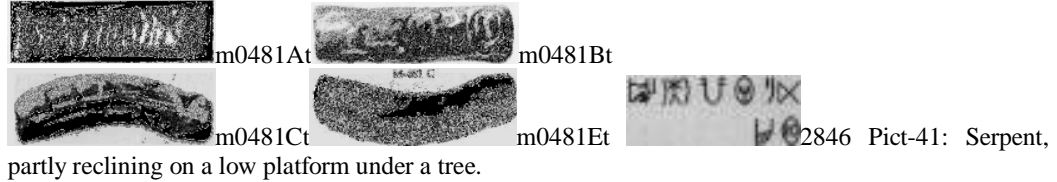
 3224 Repetitive also occurs as texts: 2815, 3230. The text is repeated on three double-sided moulded tablets in bas-relief. The first sign of the text is a glyph depicting a kneeling person, in front of a leafless tree, making an offering, holding a rimless pot in his hands.

 m0480At  m0480Bt Tablet in bas-relief. Side a: Tree Side b: Pict-111: From R.: A woman with outstretched arms flanked by two men holding uprooted trees in their hands; a person seated on a tree with a tiger below with its head turned backwards; a tall jar with a lid. Is the pictorial of a tall jar the Sign 342  with a lid?

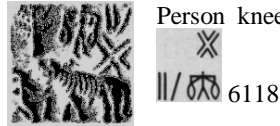
Sign 45  seems to be a kneeling adorant offering a pot (Sign 328 )  Signs 45/46 seem to ligature the pictorial of a kneeling-adorant with sign 328 

Depicting a kneeling adorant in glyphs and signs

On a twisted, moulded tablet (m0481), there are pictorial motifs on four sides. On side A, there is an epigraph containing six-signs; the last sign of this epigraph (text 2846) includes Sign 45 – kneeling person holding a rimless pot.



Person kneeling under a tree facing a tiger. [*Chanhudaro Excavations*, Pl. LI, 18]



h177Ah177BPict-115:
From R.—a person standing under an ornamental arch; a kneeling adorant; a ram with long curving horns.

m1186Acolour 2430 Composition: horned person with a pigtail standing between the branches of a pipal tree; a low pedestal with offerings (? or human head?); a horned person kneeling in adoration; a ram with short tail and curling horns; a row of seven robed figures, with twigs on their pigtails.



h179Ah179B 4307 head-dress standing stars on either side,



h178Ah178B 4318 Pict-84: Person wearing a diadem or tall head-dress (with twig?) standing within an arch or two pillars?



Pict-83: Person wearing a diadem or tall within an ornamented arch; there are two at the bottom of the arch.



kneeling adorant glyphs.

Glyphs tablet two

of two kneeling adorants are shown on side B of a (m0453), flanking a person seated on a low platform; serpents rear up on either side, close to the two

med. iron (Ho.); *me-rhe-t* 'iron' (Santali)

man.t.i kneeling on one knee as an archer (Ta.); *man.tuka* to be seated on the heels (Ma.); *man.d.i* what is bent, the knee (Ka.); knee (Tu.); kneeling on one knee (Te.); *men.d.a*, *mind.a* knee (Go.); **med.a**, **men.d.a** id. (Kond.a); *mend.a* id. (Pe.KuiKuwi); *mand.u_ki* part of elephant's hind leg; *met.* knee-joint (M.)(DEDR 4677). **man.d.i** = kneeling position (Te.lex.) mandil, mandir = temple (Santali)

karad.a_pa_t.i_ = a wooden board in the form of a slate, on which little boys learn elementary figures and the letter of the alphabet (G.lex.) **karud.u** = a rough day book, account (Te.lex.); kharad.o = a rough copy, a register of fields in a village; a subscription list (G.lex.)

kara.d.amu = a wave (Te.lex.) kharad.akum = a streamlet (G.lex.); ks.ar = to drop (Skt.)

karot.i = human skull (G.Skt.)

ka_rad.o = a field; a plot of ground; a bed of rice (G.); keda_ra (Skt.)(G.lex.) kara_d.o = a high and steep bank; kara_d. = a precipice (G.lex.)



karat.i, karat.ikai a kind of drum (said to sound like a bear)(Ta.); karad.i, **karad.e** an oblong drum beaten on both sides, a sort of double drum (Ka.); karat.a a kind of drum (Skt.)(DEDR 1264).

karat.i, karut.i, kerut.i fencing, school or gymnasium where wrestling and fencing are taught (Ta.); garad.i, garud.i fencing school (Ka.); garad.i, garod.i (Tu.); garid.i, garid.i_id., fencing (Te.)(DEDR 1262).

karat.i, 'elephant' (Te.)

khara_di_ = turner (G.)

karad.o, kara_d.i_ a goldsmith's tool (G.lex.)

karan.d.amu = a bee-hive (Te.)

karad.a = crown

khared.o = a currycomb (G.lex.)

karad.a = a sting (G.lex.)

karad.o = a toe ring (G.lex.)

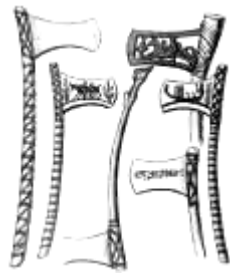
kad.iyo [Hem. Des. **kad.a i o** = Skt. sthapati a mason] a bricklayer; a mason; kad.iyan.a, kad.iyen.a a woman of the bricklayer caste; a wife of a bricklayer (G.)



kad.i_ a chain; a hook; a link (G.);

kad.um a bracelet, a ring (G.)

khad.a_i_ a heifer (used in the Sorat.h Pra_nt)(G.)



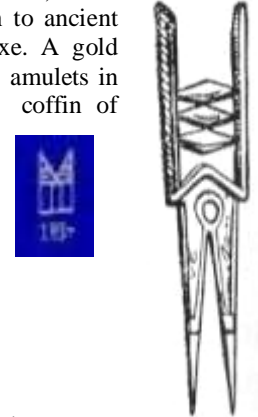
Depicting a kat.a_r, dagger in inscriptions of the civilization

Egyptian axes of bronze (After Fig. 89 in: Richard F. Burton, 1884, *The Book of the Sword*, New York, Dover Publications, Inc., p. 89). "The Akhu or war-axe was, as we might expect, known to ancient Egypt in early days, and became an object de luxe. A gold hatchet and several of bronze were found buried as amulets in the coffin of

the Queen Askhept, the ancestress of the Eighteenth Dynasty.



Sign 193 and variants.

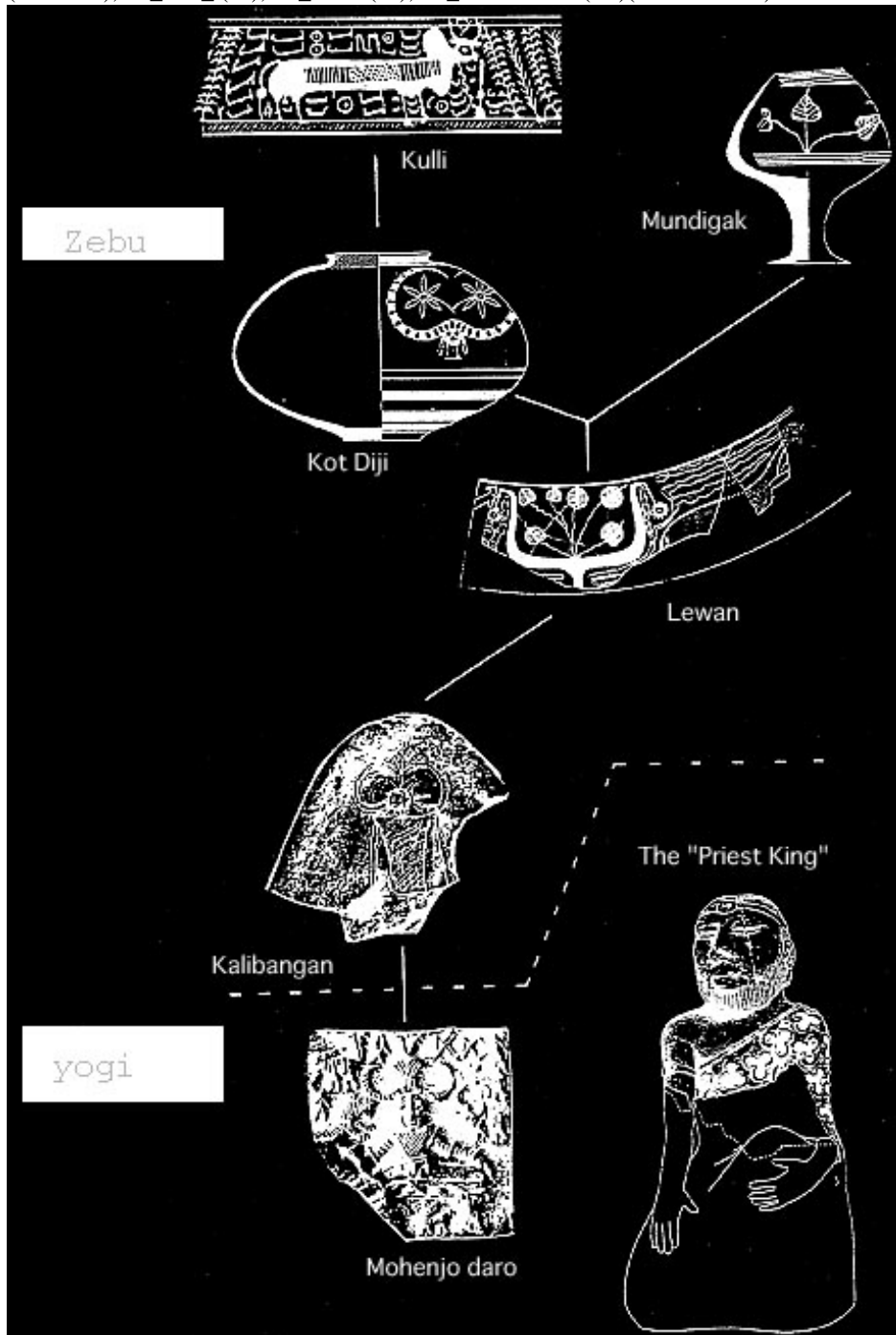


Again, a bronze weapon occurred with a mummied queen of the Seventeenth Dynasty (BC 1750). Useful in war, the implement, probably when in the stone period, rose to be a symbol of the Deity: hence, doubtless, the hatchet votives of the later Bronze Age without edge to serve for work or weapons, and intended only for religious use....From Egypt the axe passed into the heart of Africa. Here it still serves, before and after use, as a medium of exchange; and this circulation from tribe to tribe explains the various forms that have overspread the Dark Continent. " (pp. 89-90). Kit.a_r or kat.a_ri (After Fig. 149 89 in: Richard F. Burton, 1884, *The Book of the Sword*, New York, Dover Publications, Inc., p. 140). The shape of this 'Hindu kit.a_r' is analogous to a sign and its variants found in inscriptions of the civilization.

kat.ta_ri trident of S'iva (**Tan-ippa_ ii,160,399**) (Ta.lex.) **kat.a_ri**, **kat.ha_ri** a sort of dagger (Ka.); **kat.a_ra**, **kat.a_ri**, **kat.ha_ri** (Te.); **kat.ta_ri** (Ta.); **kat.ta_ra**, **kat.ta_ri** (Ma.); **kat.a_r** (H.M.)(Ka.lex.) **kat.ta_ri** cross-hilted dagger (**Kalaicaic. 83**)(Ta.lex.) **kati.r-** (**katrc-**; < **katy-tayr**, **katy-tarc-**) to cut (Ko.); **kan:keyt**, **kan:ki.t** sickle [**kan. koty** dagger-shaped knife burned with the corpse (To.)(DEDR 1166); **kan.-** handle]; **katti** knife, cutting instrument, razor, sword, sickle (Ta.); knife (Ma.Kod..Tu.); knife, razor, sword (Ka.); **katy** billhook, knife (Ko.); **kati.r** to cut (Ko.); **kan. koty** dagger-shaped knife burned with the corpse (To. cf. **kan.a** arrow); **katte** knife (Tu.); **katti** cock's spur (Go.); **ka_ti** knife attached to the cock's spur (Go.)(DEDR 1204).

ka_tar, **ka_tri** scissors (Kon.lex.) **kat.ta_ri**, **kat.ta_riya** knife (Pkt.); **katara** dagger (Ash.); **katere** (Pr.); **kta** (Kt.); **kat.a_** (Wg.); **kat.e_r** (Dm.); **kat.e_ri** small dagger (Dm.); **kata_ri** knife (Tir. <Ind. or Psht.); **ka_t.are** spear (Pas'); **kat.a_ro** large knife (Gaw.); **mus.-kat.a_ri** dagger (Gaw.); **kat.a_r** (Kal.); **kuter** knife, dagger (Kho.); **ka_t.er** knife (Bshk. **kat.a_re_i** (Sv.); **kat.o_ro** dagger (Phal.); **kat.a_ro** long knife (Sh.); **kat.a_ro** knife (S.); **kat.a_r** dagger (P.N.Or.Mth.H.G.); **kat.a_ra** large dagger (P.); **kat.a_ri** small dagger (P.); dagger (Ku.A.Bhoj.H.G.); knife (OMarw.); khukri (Or.); **kat.a_rⁱ**, **ka_t.a_r** dagger (B.); **ka_t.a_ri** billhook (B.); **ka_ta_ri** shears (B.); goldsmith's scissors (Or.); knife (N.); **kat.a_ra** chopper, billhook (Or.)(CDIAL 2860). **karta** knife (Skt.) [cf. Avestan. **kareta**, **kareti** knife]; **ka_ti** shell-cutter's saw (B.); **ka_ta_n** large sacrificial knife (B.); **kata_** small billhook (Or.); **ka_ti_** knife (Or.); **ka_t** brazier's cutters (Bi.Mth.); **ka_t** shears for shearing sheep, cock's spur (H.); **ka_ta_** knife for cutting bamboos (H.)(**katta_** small curved sword (H.); **katti** knife (H.); **kat.ti** small sword (H.) < EP.); **ka_tu~** knife (G.); **ka_ti_** knife, saw (G.); **ka_ti_** cleaver (M.[?]< **ka_rti** (CDIAL 3069).][To distinguish from **katt** spin < **kartati**, MIA forms extend with **kat.t** replacing **kr.ntati** : **kartavo** to be cut off (NiDoc.); **kartati** cuts (Skt.); **kattai**, **kat.t.ai** cuts (Pkt.); **kat.** (Pas'. > **kat.** Parachi. Iranian]; **kat.un**, **kat.n.o_** cuts (K.); **kat.an.u** (S.); **kat.t.n.a_** (P.); **ka_t.n.o** (Ku.);

ka_t.nu (N.); ka_t.iba (A.); ka_t.a_ (B.); ka_t.iba_ (Or.); ka_t.ab to reap (Bi.); ka_t.ab to cut (Mth.Aw.); ka_t.na_ (H.); ka_t.vu~ (G.); ka_t.n.e~ to cut (M.)(CDIAL 2854).



The stone sculpture of "Priest" from the Civilization may have originally had a horned head-dress affixed to the back of its head. Graphic reconstruction of the "Priest" [courtesy of Professor Michael Jansen (RWTH, Aachen University)] After http://bosei.cc.u-tokai.ac.jp/~indus/english/2_3_02.html

The zebu is: ad.ar d.an:gra (Santali); rebus: aduru 'native metal' (Ka.) d.han:gar 'blacksmith' (WPah.) The bull is tied to a post. tambu = pillar (G.); stambha id. (Skt.) Rebus: tamba = copper (Santali) tamire = the pin in the middle of a yoke (Te.) Rebus: ta_marasamu = copper, gold (Te.)

Woman with horns and two stars: ko_la = woman (Nahali); rebus: kol 'metal' ko_d.u 'horns' (Ta.); kod. artisan's workshop (Kuwi) ko_l. = planet (Ta.); kol 'metal'; a pair (planets): sagal.a = pair (Ka.); saghad.i_ = furnace (G.)

Ficus glomerata: loa, kamat.ha = ficus glomerata (Santali); rebus: loha = iron, metal (Skt.) kamat.amu, kammat.amu = portable furnace for melting precious metals (Te.) kampat.t.am = mint (Ta.) kammat.i_d.u = a goldsmith, a silversmith (Te.)

Seated person adorned with horns: kamad.ha = a person in penance (G.) Rebus: kamat.amu, kammat.amu = portable furnace for melting precious metals (Te.) kampat.t.am = mint (Ta.) kammat.i_d.u = a goldsmith, a silversmith (Te.) cu_r.i = bangles (H.); rebus: culli = fireplace, kiln (Ka.) The seated person's face is like a tiger's mane: cu_r.i

Priest: tammad.a, tammad.i = an attendant on an idol (Ka.); tammal.ava_d.u, tammal.i, tammad.i, tammali, tambal.ava_d.u (Te.) Rebus: tamba = copper (Santali) tamire = hole; t.ebra = three (cf. glyph of trefoil inlaid on the uttari_yam – upper garment); Rebus: tamara = tin (Ka.)

me~t = the eye

me~t me~t nepel = v. see face to face

mer.ed, me~r.ed iron; enga mer.ed soft iron; sand.i mer.ed hard iron; ispa_t mer.ed steel; dul mer.ed cast iron; i mer.ed rusty iron, also the iron of which weights are cast; bicamer.ed iron extracted from stone ore; balimer.ed iron extracted from sand ore; mer.ed-bica = iron stone ore, in contrast to bali-bica, iron sand ore (Mu.lex.)

mlecchamukha = copper (Skt.); what has the copper-coloured complexion of the Greek or Mahomedans]. mer-ya = a rock; mer-ayu = to shine, glitter (Te.lex.) mer = a kind of large copper or brass pot (G.lex.) cf. melukka = copper (Pali); mleccha = copper (Skt.)

mr.eka = goat (Te.); mlekh (Br.) mer.h, mer.ha_, me~d.ha_ ram (H.), med.hia_o (Dh.Des.) ram, goat, sheep (G) mid.iyo = having horns bent over forehead (G.)(CDIAL 10120). me~r.a_, me~d.a_ = ram with curling horns (H.)(CDIAL 10120). me_t.am = goat (Ta.lex.) [cf. the pictorial motif of antelope with head turned backwards]. merom me~t = the goat's eye (Santali.lex.) mes.a = ram (RV 8.2.40) mer.om = a goat; mer.om jel = the hind of the ravine deer, gazella bennettii; mer.om (Santali)

mer.go = with horns twisted back; mer.ha, m., mir.hi f. = twisted, crumpled, as a horn (Santali.lex.)

mer.hao = to entwine itself, wind round, wrap around, roll up (Santali.lex.) [Note the endless knot motif].

Substantive: na_g lead (K.); na_ga id. (Skt.); nan lead (Sh.)(CDIAL 7040).

nakar..-tal to creep, crawl along (Kampara_. Atika_. 136)(Ta.)(Ta.lex.) na_ga, na_gara, na_gala a snake, especially the coluber or cobra capella (Ka.)(Ka.lex.) na_ga snake (S'Br.Ni.Doc.); n.a_ya (Pkt.); nay, na_, naya_ snake (Si.); na_ga-danta elephant tusk, ivory < snake-shaped tusk (Skt.); na_ga (Pali); n.a_ya (Pkt.); n (Gypsy); naa euphem. term for snake (Or.); na_ng (Bshk.); non. (Kt.Pr.); nhon. name of a god (Kal.)[<? Pers. nahang](CDIAL 7039). na_kam cobra (Man.i. 25,195); serpent (Kampara_. Kalan-ka_n.. 37)(Ta.)(Ta.lex.) s'is'una_ka young snake (R.); young elephant (Skt.); susva_l. crocodile (G.)(CDIAL 12477).

A pattern of associations emerges from these inscribed objects: eagle is associated with (1) tiger; (2) elephant; (3) zebu bull; (4) serpent³¹.

kol metal (Ta.) **kol** = pan~calo_kam (five metals) (Ta.lex.) Thus, the entwined figures of 3 or more tigers may connote an alloy of 3 or more metals.

kul, kol ‘tiger’

aru_ = lion (As god of devastation, Nergal is called A-ri-a) (Akkadian)
a_ru = offspring, child (Akkadian)

eru_, **aru** = eagle (Akkadian)

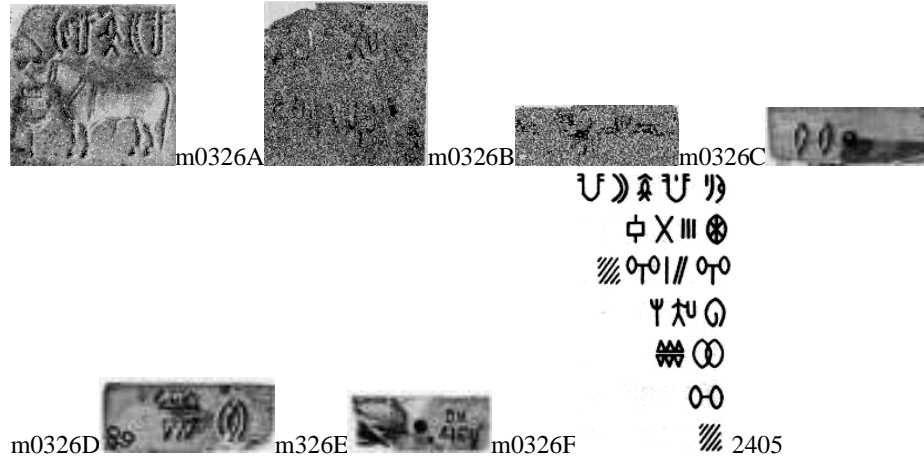
eruvai = a kind of kite whose head is white and whose body is brown; eagle (Ta.); eruva = eagle, kite (Ma.)(DEDR 819). Cf. Akkadian/Assyrian **aru**, **eru** eagle

eru_ = copper (?), bronze [eru_ = engrave, carve]; **urudu_** = bronze (Akkadian)

eruvai = copper (Ta.); **ere** - a dark-red colour (Ka.)(DEDR 817). Cf. Akkadian/Assyrian **eru_** = copper (?), bronze [eru_ = engrave, carve] **eraka**, **er-aka** any metal infusion (Ka.Tu.); urukku (Ta.); urukka melting; urukku what is melted; fused metal (Ma.); urukku to melt (Ta.Ma.); eragu to melt (Tu.); eraka molten state, fusion; erakaddu any cast thing; eraka hoyi to pour melted metal into a mould, to cast; erako_lu the iron axle of a carriage (Ka.); er-e to pour any liquids; to pour (Ka.); to cast as metal (Ka.) erande sp. fruit, red in colour (Ka.); re_cu, re_cu-kukka a sort of ounce or lynx said to climb trees and to destroy tigers; a hound or wild dog (Te.)(DEDR 817). re_-gad.a, re_-gad.i clay (Te.)(DEDR 820). **erkem** = billhook (Go.)(DEDR 824)

kere to prepare charcoal, to carry out the process by which charcoal is made (Santali.lex.) here, ere black grease for wheels (Ka.); heregombu a horn or hollow piece of bamboo in which such grease is kept (Ka.) (Ka.lex.) ere a dark-red or dark-brown colour, a dark or dusky colour (Ka.); er-e, er-upu (Te.); eruvai blood, copper (Ta.); irumpu iron (Ta.); inumu (Te.); irul. the colour black (Ta.); ere black grease for wheels; soil of a dark colour, black soil (Ka.)(Ka.lex.)

The longest epigraph occurs with glyphs and sign inscribed on a multi-faced seal. This indicates that what is sought to be conveyed is a series of ‘sets’. The composition of the epigraph is unlikely to be a sentence. The signs could be a set of property items of the owner of the inscribed object, in this case, a seal.



A similar interpretation is possible for a seal impression from Kalibangan with about 20 ‘signs’:

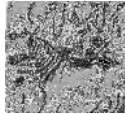


Kalibangan089A14c

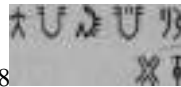


khod.rao = to cut, to scrape; khoda = to tattoo, to prick, as when tattooing; **khodna** (M.), **khudni** (F.) the male and female members of two tribes, one semi-hinduized and the other semi-mohammedanized, who gain a subsistence by tattooing (Santali.lex.) **khodao** = to carve, as letters on a stone; dhiri reak pat. are gel hukum khodao kateye emadea, he wrote the ten commandments on a stone slab and gave it to him (Santali.lex.) **khodro** = rough, unpolished (Santali.lex.)

ku_d.ali = a meeting of several roads (Te.lex.) ku_d.alir-a_yi = a boundary stone, a corner stone (Te.lex.)



am0068



3108

[Note the sign on line 2 depicting the cross-roads, perhaps a variant of



Sign 149

Sign 149 and variants




h043



4077



urseal18  9902 Prob. West Asian find Pictorial motif: Pict-45 Bull mating a cow. Seal and impression (BM 123059), from an antique dealer, Baghdad; script and motif of a bull mating with a cow; the tuft at the end of the tail of the cow is summarily shaped like an arrow-head; inscription is of five characters, most prominent among them the

two 'men' standing side by side. To the right of these is a damaged 'fish' sign.cf. Gadd 1932: no.18; *Parpola, 1994, p.219. Gadd Seal 18. BM. "Above there is an inscription of five characters, most prominent among them two 'men' standing side by side. To the right of these (in the impression) is a damaged 'fish' sign, and to the left two others which closely resemble CCXCVII and XXVIII of the Sign Manual in M. Below is a unique representation of a bull in the act of mating with a cow; the head and legs of the cow are rather obscured by damage and the tuft at the end of the tail is summarily shaped like an arrow-head, but nevertheless the purport of the device is quite clear."(C.J. Gadd, Seals of Ancient Indian Style Found at Ur', in: G.L. Possehl, ed., 1979, *Ancient Cities of the Indus*, Delhi, Vikas Publishing House, p. 119).



Axe-head, knife, and hoe, Tell Sifr, Mesopotamia [British Museum, 1904, *A Guide to Antiquities of Bronze Age*, London, British Museum, pp. 67-68; Fig. 123]. 'In Babylonia the copper implements (axes, lance-heads etc.) of Tello go back probably beyond 4000 BC, the bronze vase of the time of Ur Gur (about

2500) and the bronze statuette of Gudea proving the extreme antiquity of copper, and showing that

bronze-working cannot have been introduced very much later than 3000 BC. The discoveries in graves at Mukayyar and Warka (the Biblical Ur of the Chaldees and Erech respectively) throw further light upon metallurgical knowledge at a period estimated between 2500 and 1000 BC. The graves contained weapons of stone, copper, and bronze; and in some of the latest, iron also appears, but is only used for ornamental purposes: lead and gold also occurred in the tombs, but no silver. At Tell Sifr, north of Mukayyar, between the Tigris and the Euphrates, a number of copper or bronze implements and weapons have been excavated. They include axes and adzes with shaft-holes at one end, semi-circular tools split at the butt, straight daggers with riveted tangs, and curved knives; one of the latter on analysis proved to contain no tin. These objects, some of which are in the collection (fig. 123), are said to have been all found together, and are conjectured to date, if not from the first half of the second millennium, at least from between 1500 and 1000 BC, a period towards the close of which iron was coming into use. That iron was not generally employed much before the year 1000 BC may be assumed from the existence of a bronze sword with a cuneiform inscription, giving the name of an Assyrian king (Abad-nira_ri I) of the fourteenth century, as well as from the presence of bronze weapons in the ruins of Nimrud, a city which was only founded about 1300 BC...The forms of Babylonian and Assyrian weapons and implements are simple, and there is no attempt at decoration. The swords have only one edge, and socketed selts are absent, though the axes with split butts represent a type from which a socketed celt might easily be derived.' [British Museum, 1904, *A Guide to Antiquities of Bronze Age*, London, British Museum, pp. 127-128].



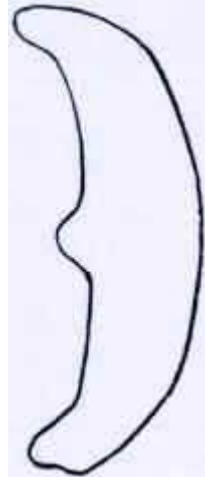
Sumerian single-bladed axe, Ur. [V. Gordon Childe, 1929, *The Most Ancient East: the oriental prelude to European prehistory*, London, Kegan Paul, Trench, Trubner and Co. Ltd., Fig. 72 a].

Sumerian transverse axe, Ur. [V. Gordon Childe, 1929, *The Most Ancient East: the oriental prelude to European prehistory*, London, Kegan Paul, Trench, Trubner and Co. Ltd., Fig. 73]

Sumerian axe, Kish [V. Gordon Childe, 1929, *The Most Ancient East: the oriental prelude to European prehistory*, London, Kegan Paul, Trench, Trubner and Co. Ltd., Fig. 74 a].



'The axe-heads were of course provided with a shaft-hole and include both the sloping and the transverse type...It is, however, curious that the shaft-hole was still formed in some cases by folding the butt over into a loop.' (Childe, *opcit.*, p. 178).



Sumerian axe, Kish [V. Gordon Childe, 1929, *The Most Ancient East: the oriental prelude to European prehistory*, London, Kegan Paul, Trench, Trubner and Co. Ltd., Fig. 74 b.]

'...segmental blades with a scalloped back mounted in curved wooden shafts, derived from the boomerang-club formed a sort of weapon intermediate between the axe and the sword. They constitute the prototypes from which the harpe was subsequently evolved'. (Childe, *opcit.*, p. 179).

pin.d.ha, pin.d.he = a ridge, as of a rice field; an embankment, as of a tank, dam etc. (Santali.lex.)

pin.d.a = a raised platform round a house occupying the space between the wall and the drip of the eaves (Santali.lex.)

pin.d. = an altar, a small raised platform for the purpose of an altar (Santali.lex.)

Rafters on roof

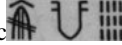
Glyph: *va.cr* eaves (Ko.); *va_cu_ru* id. (Te.)(DEDR 5338)..

va_cci adze (Te.); adze, scraper (Ma.); *ba_ci* adze (Ka.); *ba_ci*, *ba_ji* (Tu.); *va_s'i*_ adze (Skt.)(CDIAL 11588; DEDR 5339).

Glyph: *bali* to pull (Kor.); *velba* to pull; pulling (Kui); *vali* to draw, pull, row (Ta.); drawing, pull, tug (Ma.)(DEDR 5282).



m0018Ac



1548



Sign 318 Note the ^ ligatured on the last sign read away from the neck of the one-horned bull. The ligature ^ is vividly depicted like the neck of a horse; the ear of the horse and the eye of the horse is also seen. (No optical illusion this). The ^ could also be read as: **dhakna**, 'lid'

ku_d.ali *va_yi* = the gable end of a house, the meeting place of two roofs whose lengths are at right angles to each other (Te.lex.) If this semant. is applied to Sign 318, the inscription on m018 may be read as **d.a_kin.i** 'sword' + **kud.ali**, 'hoe' = (**dakhna**, image: lid) (**ku_d.ali**, image: gable). Alternative: **dagad.a**, **dagad.o** = a large stone; a large lump of earth (G.); cf. dr.s'ad (Skt.)

bind = a pin of wood, used instead of a nail (Santali.lex.) [Note the glyph of a pin on the Dholavira sign-board].

bin.d.i = a straw stand for earthen pots, rim round the bottom of any vessel to make it stand steady (Santali.lex.)

bindu = a drop, atom (Santali.lex.) *ce_rcukka* = *bindi* = an ornament suspended on the forehead from the parting of the hair; a pearl spot on the forehead, i.e. *mutya_labot.t.u* (Te.lex.)

Glyph: *bal.e*, *bale* reapers or slips of bamboo used to fasten the rafters of a roof; *bal.ara* a kind of cornice ornamenting the beam on a wall, window or door-sill (Tu.); *val.a* crossbars that support the rafters of a roof, wooden needle driven into the rafters; *val.ar* large beam, smaller beam put on the main beam of a roof, big stick (Ma.); *val.ar* twig, tender branch; *val.ai* small beam, long piece of wood (Ta.)(DEDR 5309).

Glyph: *val.a* bracelet, ring (Ma.); *val.ai* bangle, bracelet (Ta.); *valaya* bracelet, ring, girdle, circle (Skt.)(DEDR 5313; CDIAL 11405, 11407).



Possibly worn on the wrists of prehistoric women some 3000 years ago: bangles (about 2 1/2 in. across) of blue glass paste, found at Harappa. Plate II. Material recovered from Mohenjodaro in the first season of excavations by Sir John Marshall (G.L. Possehl, ed., 1979, *Ancient Cities of the Indus*, Delhi, Vikas Publishing House).

2914. **Image: beam laid across the roof: san:ga, san:gi** a beam laid breadthwise supporting the roof of a house (Santali.lex.) **Image: crossbeam in triangular thatch: san:gha, san:ga** bamboo scaffolding inside triangular thatch, crossbeam of thatched house (Or.)(CDIAL 12862). **si~gha_ra** triangular packet of betel (Bi.); **si~gha_r.a** piece of cloth folded in triangular shape (H.)(CDIAL 12859).

bhindran: = to fall to the ground, to knock down (Santali.lex.).

A synonym could be:



m0290



2527pin.d.i_ = the calf of the leg (G.lex.) [Note the glyph on a seal].

bhin.d.iva_la, pin.d.iva_la, bhindama_la, pin.d.iva_la, bhin.d.ima_la, bhindipa_la = a short javelin or arrow thrown from the hand; an iron-bound club, used as a weapon (Ka.lex.) bhin.d.i-pa_la is a compound term: bhin.d.i < min.t.i instrument to thrust; + < pa_la ingots; i.e. some sort of tubular mechanism to catapult round stone or metallic missiles. Kautilya categorises this as a weapon with piercing points.] bhindati splits (Dha_tup.); bhinatti (RV.); bhindati splits, breaks (Pali); bim.nam.ti they break pret.3 sg. bim.nida, bhinita (NiDoc.); bhim.dai pp. bhim.dia (Pkt.); bhi~dn.e~ to pierce, penetrate, soak into (M.); bindinava_, pret. binda_ to break, be broken (Si.); caus. bhinda_pe_ti (Pali); bindavanava_, binduvanava_ (Si.)(CDIAL 9496). cf. Image: javelin: vit.t.-e_r-u missile weapon, javelin (Ta.); javelin (Ma.); bit.t.-e_r-u missile weapon, dart, javelin (Ka.); bit.ing to throw, throw down (Br.)(DEDR 5393). Image: a missile: pin.t.ipa_lam a missile (Ci_vaka. 2269)(Ta.); bhin.d.iva_la id. (Skt.)(Ta.lex.) bhindama_la, bhin.d.iva_la, pin.d.iva_la a short javelin or arrow thrown from the hand; an iron-bound club, used as a weapon (Ka.Skt.lex.) [Note the spear used on scenes spearing a buffalo or a bull].

bhin.d.ipa_la short javelin or arrow thrown by hand or shot through a tube (MBh.); **bhin.d.ipa_la** (BHSkt.); **bhin.d.ima_la** (Skt.); **bhindiva_la** a sort of spear (Pali); **bhim.diva_la**, **bhim.d.ima_la** a sort of weapon (Pkt.); **bendi-vala**, **benduvala** a sort of spear (Si.)(CDIAL 9497). [Prob. this was a heavy club with a broad and bent tail end, measuring one cubit length; the weapon was used to cut, hit, strike and break; it was like a kunta (metal lance with darts and six edges) but with a big blade; used by Asuras in their fight with Ka_rtavi_rya Arjuna; cf. **Agni Pura_na**, 252,v.15; **S'ukrani_tisa_ra**, IV.30-31; loc.cit. V.R. Ramachandra Dikshitar, War in Ancient India, 1944, repr. 1987, p.106.]

me~r.he~t iron; ispat m. = steel; dul m. = cast iron; kolhe m. iron manufactured by the Kolhes (Santali); mer.ed (Mun.d.ari); **med.** (Ho.)(Santali.lex.Bodding)

me_r.sa = v.a. toss, kick with the foot, hit with the tail (Santali.lex.) cf. me_s.a = goat (Skt.lex.)

med.h = the helper of a merchant (Pkt.lex.) me_t.i, me_t.ari = chief, head, leader, the greatest man (Te.lex.) ?med.i (EI 9), also called meli, a kidnapper of victims for sacrifices (IEG). mehara = (EI 33) a village headman (IEG). mehto [Hem. Des. med.ho = Skt. Van.ik saha_ya, a merchant's clerk, fr. mahita, praised, great] a schoolmaster; an accountant; a clerk; a writer (G.lex.) mel. = tallying, balancing of accounts; a cash book; mel.van. = a mixture, a composition; mixing (G.lex.) me_r.iyar = pu_vaiciyar, ve_la_l.ar, i.e. agriculturists, traders (Ta.lex.)

mesri_ = a class of va_n.ia_s (G.lex.) **metr.** = builder, one who creates a column (RV 4.6.2) meteva dhr.mam stabha_yadupa dya_m sthu_n.eva (Vedic.lex.) **me_t.i**, **me_t.ari** = chief, head, leader, lord, the greatest man (Te.lex.) mehto [Hem. Des. **med.hi** = Skt. van.ik-saha_ya: **a merchant's clerk**, fr. Skt. mahita praised, great fr. mah to praise, to make great] a schoolmaster; an accountant; a clerk; a writer (G.lex.) milakat [Ar. Milkate] property; estate; effects; chattels; goods (G.lex.) **medin** = ally, friend, companion; sahamedyedhi snigdha (RV 10.84.6)(Vedic.lex.) But, me_dara = the basket-maker caste; a basket-maker; of or pertaining to the basket-maker caste; me_dari = a basket-maker (Te.lex.) cf. **me_stri** = a head workman (Ka.Te.M.Ma. fr. Portuguese mestre)(Ka.lex.) Could this be a re-borrowing – metr., 'builder' > mestri (Portuguese) > me_stri (Ka.)?

me_t.u = a heap, a stack, rick, as of hay (Te.lex.) [Note the haystack shown next to an antelope on the platform on which a horned person is seated].

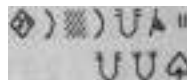
me_d.hramu = the penis (Te.lex.) [Note the penis on the horned seated person].



m1400At



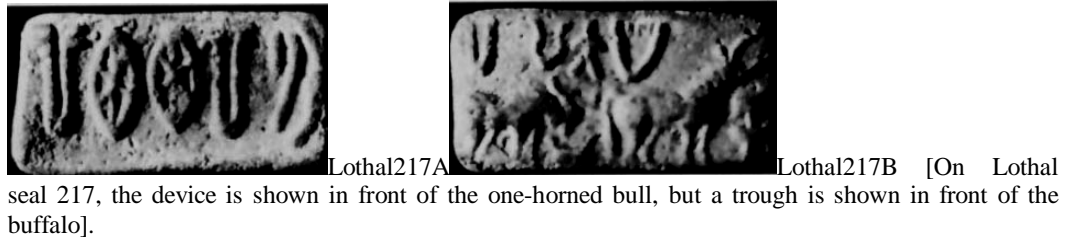
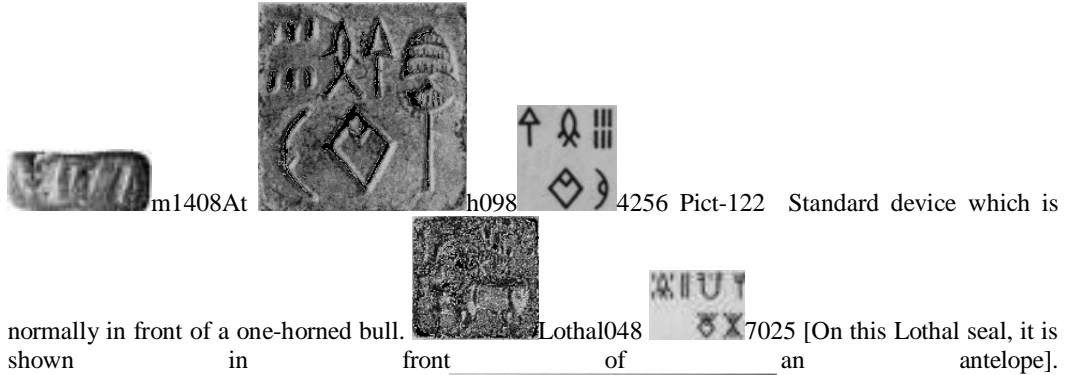
m1400B



2851 animal. [Perhaps a ram with horizontal curving horns is shown in two parts of the tablet m1400B]

Standard device

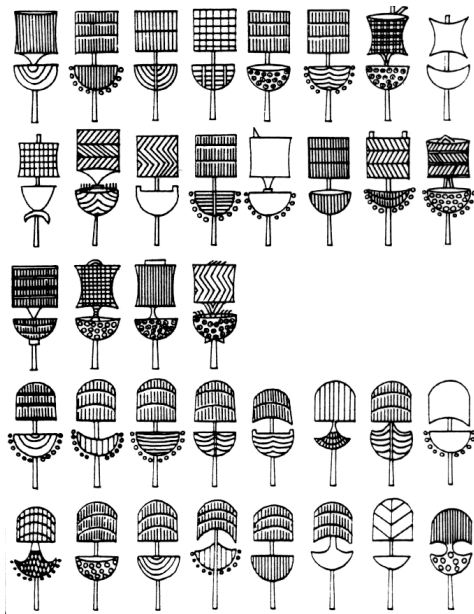
The standard device occurs in over 1,000 epigraphs, generally shown in front of the one horned heifer. It is suggested that this device is a ligature composed of a gimlet drill lathe superimposed on a portable furnace which is represented by the bottom vessel. The device was clearly an important part of the lives of the people who created the epigraphs; it is shown being carried in a procession; a replica of the device also exists in the round. There is one lexeme in Bharatiya languages which explains the ligatured components: **san:gad.a** The rebus substantive is consistent with other glyphs denoting the property items of braziers.



san:gad.amu = help, friendship; a party, company, an army; san:ga_d.i = a friend, a companion (Te.lex.)



The standard device (**san:gad.a**, 'lathe, portable furnace'; rebus: battle) is associated with a warrior (**va_kara**, 'heifer, warrior'; **kandali**, 'deer-antelope, warrior'; **med.h**, 'ram, chief'); the trough is associated with a number of artisans [**d.an:gara**, 'trough, smith' or, **tagr.a**, 'trough, copper (**tagara**)]. A trough is shown, for example, with: **kol**, 'tiger, smithy or smelter'; **sal**, 'buffalo, workshop'; **d.angar**, 'bull, blacksmith'; **e_na**, 'elephant, tool' [Alternative: **kari**, **kalabha**, 'elephant', **karuvi**, **kalapa**, 'plough tools']; **badhia**, '(castrated) boar, carpenter (**badhoe**)'.



kol metal (Ta.) **kol** = pan~calo_kam (five metals) (Ta.lex.) Thus, the entwined figures of 3 or more tigers may connote an alloy of 3 or more metals.

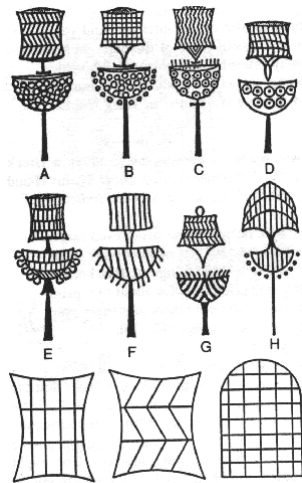
Orthography: Three components on a stele: gimlet on turning lathe; portable furnace; dotted circles on the bottom vessel



It looks like a gimlet, a drilling device to make 'pointed' holes, a device for a lapidary to drill holes in, say, beads. The wavy motion depicted on the top part of the device may be an artistic depiction of circular motion of the drill.

The dotted circles on the bottom part of the device may denote perforated beads.

The 'standard device' motif also occurs in front of an elephant on an Allahdino seal. Allahdino (Nel Bazaar)08



STRAIGHT CAGE ZIG-ZAG CAGE ROUNDED CAGE
standard); cf. Rissman 1989:

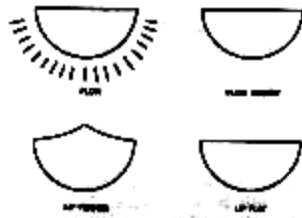
Styles and structure of the cf. Mahadevan 1984: 185; resembles a drill-lathe and a inscribed are a stylised lathe. The style depicted as G is related to the practice of inserting the upper pivot of the drill-head into a coconut-shell; see below.

Various representations of the 'standard' shown generally in front of the one-horned bull on inscriptions (Drawing by G. de Vries, cited in During Caspers, *South Asian Archaeology*, 1987, p. 250).

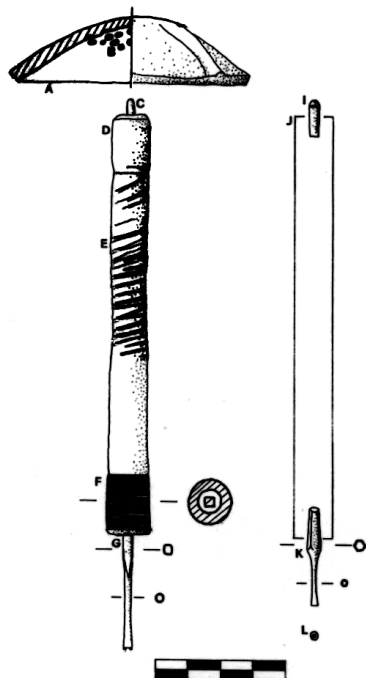
Since the 'standard device' is associated with the one-horned bull, a representation of a commander of an army of a fort, it is a reasonable hypothesis that the 'elephant' motif also was a rebus representation of some artefact related to the army, perhaps an an array or category of attack weapons. It is noted that one seal text associated with the pictorial motif, the elephant, is repeated 11 times out of about 100 clay tags found at a burnt-down warehouse at Lothal.



Styles of the bowl (or bottom portion of the standard); Styles of depiction of 'flow' and lip treatment on the bowl (or bottom portion of the standard); cf. Rissman 1989: 162



standard and the top portion (cage?); Rissman 1989: 162 The top portion drill-head (gimlet). The wavy lines depiction of 'turning motion' of the



Phtanite drill-heads from the surface of MNSE area, Moenjodaro (Massimo Vidale, 1987, p. 147)

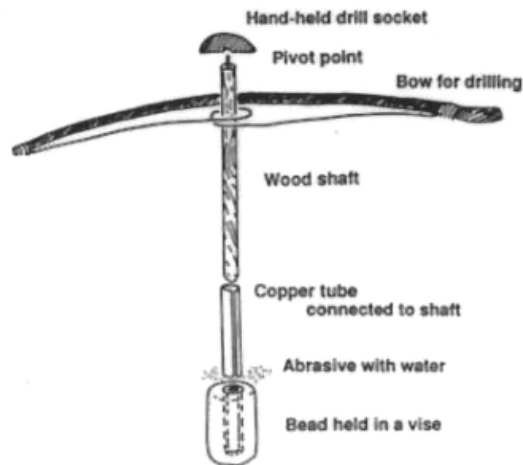
Reconstruction of a drill based on analogical comparisons with the drills used nowadays at

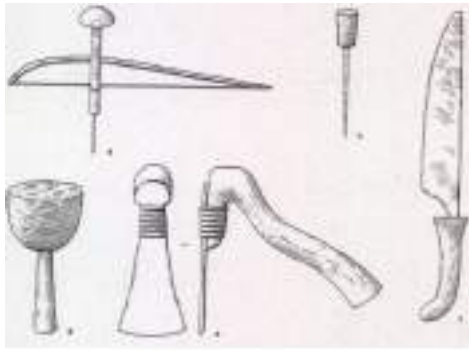
Nagara, Gujarat, India: Upper pivot in copper is centered with the drill-head and

inserted into a coconut shell. Wooden haft is used with a bow-string to churn. The phtanite drill-head is secured in the haft-hole with a thin coiling thread. The tip of the drill's working end shows the characteristic feature of the shallow hemispherical depression: a 'dotted circle'. (After Massimo Vidale, 1987, p. 148). Macro-photo of two very used drill-heads, showing the little depression at the tip of the working end; closeup of the distal ends of four drill-heads showing depth and shape of depression. cf. Piperno, Marcello, 1973. Piperno, Marcello,

Micro-drilling at Shahr-i Sokhta; the making and use of the lithic drill-heads, in: Hammond, Norman Ed., *South Asian Archaeology*, 1973, Pl. 9.2 and 9.3 "granite drill heads used to perforate beads, prepare stone seals... use of the "bow drill" or the "pump drill" which revolved the point of the drill in an alternating rotary motion...the level of technical performance reached in this micro-drilling work was peculiar to a class of highly-specialized craftsmen who must have enjoyed a considerable social and economic position in the life of Shahr-i Sokhta." (p.128) [ca. 2700-2300 BCE].

Bow-lathe-drill. An available guide is a broken fragment of a stone relief of the second century AD from a gem-cutter's tomb in Lydia in Turkey showing a bow-lathe; the depiction of the cutting edge is lost (cf. Charleston 1964: 85, fig. 2: the drawing is a reconstruction. Rehman Dheri, where carbon-14 dates of 4400 and 4520 BCE are given for the earliest levels, is said to possess 'the richest bead industry of the contemporary sites on the subcontinent. The few round furnaces, lumps of lapis, cornelian, agate, and turquoise, and the availability of unfinished beads with stone drills intact would suggest that bead manufacturing was carried out at the site...The rich contemporary lithic industry of flint, jasper, chalcedony, and agate included microdrill heads. A cornelian bead with a drill still in the half-finished perforation confirmed their use (Durrani 1981: 204, pl. III), as at Hissar and Shar-i-Sokhta in eastern Iran and as at Chanhudaro and Lothal]. Ur. Mes-kalam-dug's grave chamber had: a shield, two gold-mounted daggers, chisels and other tools, copper jugs, silver bowls and a set of arrows.





Mesopotamia; tools of the craftsmen equipped with stone or metal cutting edges: (a) drill; (b) awl or chisel; (c) saw or knife; (d) hammer; (e) adze (or axe).

Tubular drilling technique used to perforate ringstones and tiny beads. reconstruction. [After Fig. 9.9 in JM Kenoyer, 1998].



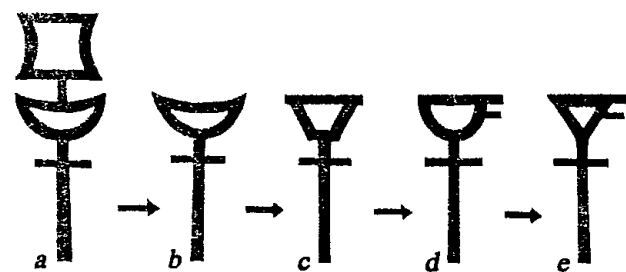
Hypothetical reconstruction of an Harappan drill based on the analogical comparison with the drills nowadays used at Nagara, Gujarat, India. A. Coconut shell; B. Circular depression left by the revolving pivot ©; C. Upper pivot in copper centered with the drill-head; E. Wooden haft (note the spirally oriented wear traces left by the bowstring); F. Functional extremity of the drill-haft, covered with a thin coiling thread. The same thread secures the drill-head in the haft hole; G. Drill-head manufactured out of an umbrella reed. The functional part of the tool is rounded before the point's utilization; H. Working end of the drill head showing two diamond chips hammered into the tip; I. Broken phtanite drill re-utilized as upper pivot. Note the rounded wear trace on the tip. J. Analogical hypothesis on the dimentions of the wooden haft; K. Phtanite drill-head; L. Tip of the drill's working end showing the characteristic feature of the shallow hemispherical depression. [After Fig. 66, Massimo Vidale, *More Evidence on a Protohistoric Ceramic Puzzle*, in: *Interim Reports Vol. 1: Reports on Field Work carried out at Mohenjo-daro, Pakistain 1982-83 by IsMEO-Aachen University Mission*, ed., Michael Jansen and Gunter Urban (Aachen: RWTH-IsMEO, 1984), p. 148]

Egyptian drawing of a craftsman drilling beads by pushing a horizontal bow which rotates the spindle holding the drill bits. From a wall painting in the Tomb of Rekhmira from Theban Necropolis, Eighteenth Dynasty. Holly Pittman, *Ancient art in miniature: near Eastern seals from the collection of Martin and Sarah Cherkasy* (1986).

“The bow drill, clearly represented in tomb reliefs of Old Kingdom of Egypt, was the most common tool used for cutting seals (figure). Analysis of the tool marks remaining on the seals suggests that the horizontal lathe and the cutting disk were also important tools for seal carving from early in the third millennium. ” Unbaked, hollow clay ball with multiple seal impressions. Late Uruk period. Louvre Museum, Paris. (Holly Pittman, *Cylinder seals and scarabs in the ancient Near East*, in: Jack M. Sasson (ed.), *Civilizations of the Ancient Near East*, pp. 1589-1595).

PATRANA MAYUABKARZ PE SHAMBE, HAGPA, BHUJALAND	PUNCH-MARKED COINS												
BHAGALPUR ARARUA GARAL MAYAPPA, YERAMOUR	"												
TEATHARI VZAWA BESLA - FMD PATANA BARRA	"												
KOUSAMBI	UNINSCRIBED- INSCRIBED COINS												
ERAN	LOCAL COINS												
KANAUZ (1) TAYLA (2-3) PEAYAPPI (4-5)	"												
AYODHYA (1-3) ALNDRA (4) USDEHINA (5)	"												
KUNINDA YAUMHYA	TRIBAL COINS												
SATAVARANA	COINS												

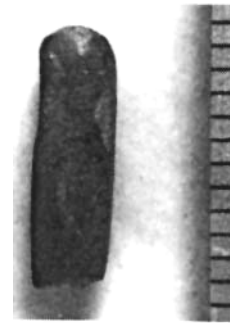
[Pl. 55, Standard symbol on punch-marked coins and on local coins; this is paralleled by the standard device in front of the one-horned bull shown on many inscribed objects of SSVC].



drill-heads Mohenjo-daro. MNSE Area. Drill-heads - refunction of upper drill pivot, recovered from the surface of [After Fig. 64-65, Massimo Vidale, More Evidence on a Ceramic Puzzle, in: *Interim Reports Vol. 1: Reports on carried out at Mohenjo-daro, Pakistan 1982-83 by IsMEO-University Mission*, ed., Jansen and Gunter Urban RWTH-IsMEO, 1984), p.



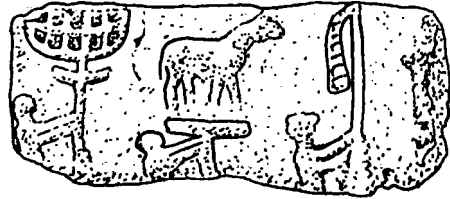
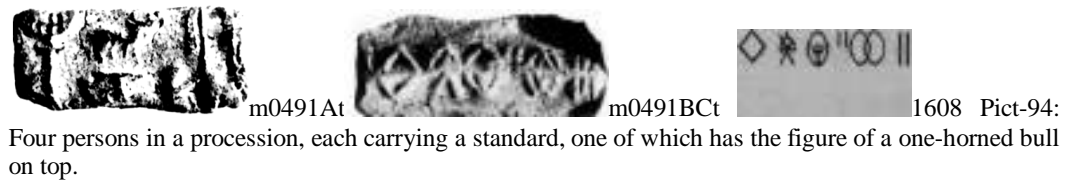
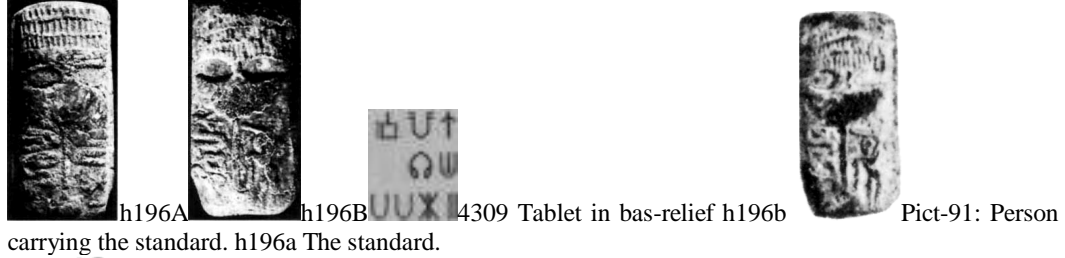
Note that one of the pendants looks like the 'device' normally found in front of the one-horned bull, the san:ga.d.a, portable brazier and lathe (also meaning, battle).



Particulars of a broken phtanite utilized with the site. Protohistoric Field Work Aachen Michael (Aachen: 148]

Schematic diagram showing the evolution of the standard device (a) found normally in front of the one-horned bull on inscribed objects. Mahadevan relates the evolution into indradhvaja ('triangle-headed standard') (b) triangle-headed standard Indra-dhvaja with trapezoid-shaped trough; (c) with hemispherical bowl; (d) with wineglass-shaped cup (e) [After Fig. 39.10 Iravatham Mahadevan, The sacred filter standard facing the unicorn, p. 444 in: *South Asian Archaeology*, Helsinki] The glyph shown in (e) is also shown on the as.t.aman:galaka ha_ra. What was a standard device in the days of the Sarasvati Sindhu Civilization, mature periods, becomes a symbol, the Indra dhvaja.

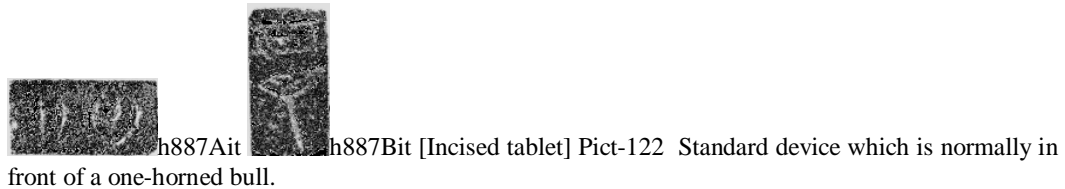
The portable nature of the device is also represented on glyphs with a person carrying the device on his shoulder.

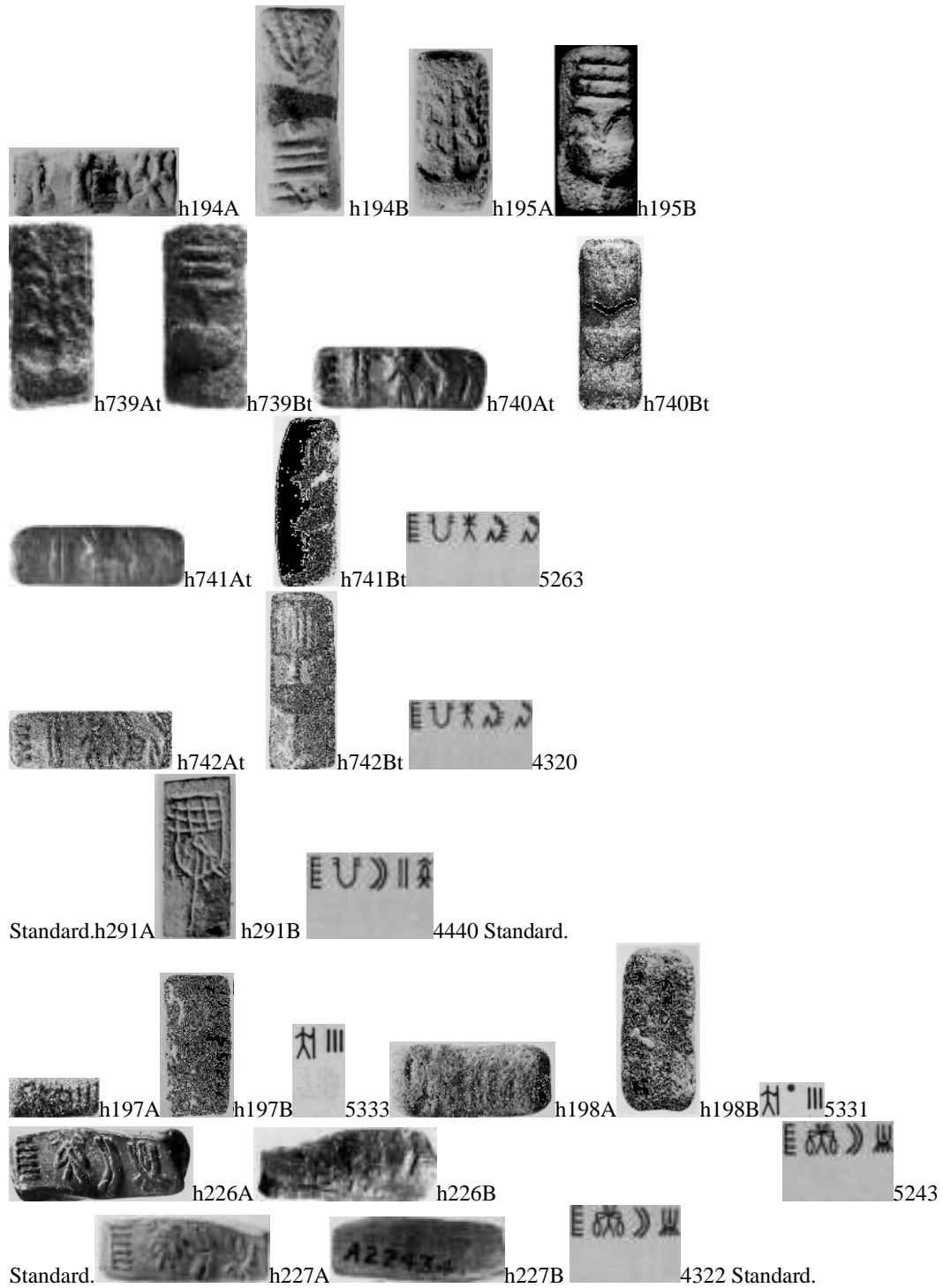


Mohenjo-daro. A procession depicted on a terracotta tablet. [After Marshall 1931, Pl. CXVIII,9; cf. Fig. 5.6 in JM Kenoyer, 1998]. Is this a representation of a public ceremony which included carrying standards topped by objects representing important motifs of the civilization? Not all animals with which the people of SSVC were familiar are used as

pictorial motifs; for example, they were familiar with peacocks, hooded cobras, monkeys, squirrels, mongooses and onagers (wild asses); the pictorial representations of these animals are not found on the square stamp seals.

A procession carrying (fr. right) a pennant, a one-horned bull and a standard device is depicted on an inscribed object. This seems like an army on the march. [cf. bavaramu = a battle, fight, combat, war (Te.)]





The glyph is a ligature. Ligature elements are: top, lathe and gimlet (with rotating motion indicated by wavy lines); bottom, portable furnace (with smoke emanating from the bowl) ligatured with dotted circles (indicating bored beads); a shaft which is attached to the furnace (indicating its portable nature).

kan.d. ‘altar, furnace’ (Santali) **kanduvu** = an oven; an iron pan; kandakamu = a ditch, trench (Te.lex.)

kan.t.i = a gold wire with a golden plate attached, being an ornament for the neck and breast of men (and women)(Ka.lex.) [Note the ornaments worn by the seated person].

kan.d.i = a hole, an opening (Ka.Ma.Tu.); gan.d.i (Te.)(Ka.lex.)

kan.d.eya = a kind of sword; **kad.i** = to cut (Ka.lex.)

s'agad.i_ (G.) = lathe **san:ga_d.o** a lathe; **sa~gha_d.iyo** a worker on a lathe (G.lex.) **sa~gha_r.o** lathe (G.); **sa~gad.** part of a turner's apparatus (M.); **sa~_ga_d.i_** lathe (Tu.)(CDIAL 12859). **jan.d.i_** a lathe (S.lex.) **jan.d. khan.d.** ivory (Jat.ki.lex.) Perh. **san:gad.i** lathe > **an:ga_d.i** shop? cf. **sam.yuta** joined with (AV.); joined (Pali); **sam.jua** (Pkt.); **sam.yauti** mixes (VS.)(CDIAL 12988). cf. **ad.a, ad.e, ad.i** the piece of wood on which the five artisans put the article which they happen to operate upon, a support (Ka.)(DEDR 86).

Rubbing, friction: **san:ghat.i** that crushes: a millstone; **san:ghat.isu** to strike (one thing) against (another); to crush; **san:ghat.t.a** rubbing together, friction; striking against, touch; **san:ghat.t.ana** id.; **san:ghat.t.ita** struck against, touched; **san:ghars.an.a** rubbing against (another)(Ka.lex.)

jan:gad.iyo (G.) Military guards who carry government treasury from one place to another;
san:gad.amu (Te.) = army

san:gha_d.o, saghad.i_ (G.) = firepan; **saghad.i_**, **s'aghad.i** = a pot for holding fire (G.)[cula_sagad.i_ portable hearth (G.)] **agud.e** = brazier (Tu.)

jan:ga a battle, a war; a noisy quarrel (G.lex.) san:ga battle (RV)(CDIAL 13082). sanga_meti to fight; to come into conflict with; samgha_ta striking, killing, murder (Pali.lex.) sam.gra_ma = war, battle (AV 5.21.7; 11.9.26; TS 2.1.3.1; 8.4); sam.gha_ta battle (Ka_t.haka Sam.hita_ 29.1; VS 1.16; S'Br. 1.1.4.18); cf. *Vedic Index*, II, pp. 417-18.

jan:gad.iya_ pl. military guards who carry government treasury from one place to another (G.lex.)

Standard device with dotted circles decorating the portable furnace (with emanating smoke); a gimlet is ligatured on top of the standard with wavy lines denoting churning, turning motion (of a lathe). **sangha_d.o** (G.) = **cutting stone, gilding**; **san:gatara_s'u_** = **stone cutter**; **san:gatara_s'i** = **stone-cutting**; **san:gsa_ru karan.u** = **to stone** (S.), **can:katam** = **to scrape** (Ta.), **san:kad.a** (Tu.), **san:kat.am** = **to scrape** (Skt.)

Stone cutter



Dholavira: Approach Steps in the North Gate (Courtesy ASI)

san:gatara_s'u_ = stone cutter [The evidence for the work of the stone-cutters is provided by the ancient settlement of Dholavira, not too far from the Gulf of Khambhat, where a Neolithic settlement dated to ca. 10,000 years ago has been found on the sea-bed on the banks of two submerged rivers, possible extensions of River Tapati.]



Dholavira: Broadway and a drain (Courtesy ASI)

san:gad.a, portable furnace, lathe;
san:gha_d.iyo, a worker on a lathe;
san:gha_ta, killing; jan:gha_d.iyo, military
guard accompanying treasure into the treasury
(G.)

See the ligatured lathe, with smoke emanating
from a portable furnace (m008: **san:gad.i**); see
the cage-like component on the device (m026:
ku_t.u); see the device carried on a person's
shoulder (h196); see the pointed edge of the
top part of the device, suggesting a gimlet of a
lathe on inscribed objects (m1203: **tamiru**);
the device is also known from Harappa as an
ivory object in the round (discovery by
Meadow and Kenoyer during the
archaeological campaign at Harappa in 1998).

sam.gha_d.a, sam.gha_d.aga, sam.gha_d.i
pair (Pkt.); sam.gha_r.i pair of fish roes, two
rolls of thread for twisting into the sacred
thread (Or.); san:gad.am double-canoe (Ta.);
jan:gala (Tu.); san:gala pair; han:gula, an:gula
double canoe, raft (Si.)(CDIAL 12859).
sangha_t.i_ one of the three robes of a
Buddhist (Pali.lex.) san:gad.i (Te.) = a pair

In the Sa_m.khya Ka_rika_ of I_s'vara Kr.s.n.a
(ca. 2nd cent.), there is a remarkable, technical
term: **san:gha_ta**.

san:gha_tapara_rthatva_t
trigun.a_diviparyaya_dadhis.t.ha_na_t

purus.osti bhoktr.bha_va_t kaivalya_rtha
pravr.ttes'va (Verse 17)

[Kapila is the founder of the Sa_m.khya
philosophy. He had a disciple, A_suri.
A_suri's disciple was Pan~ca S'ikha_. Other
followers are: Vod.hu, Devala, Sanaka,
Vindhya_va_sa, Vars.agan.ya, Jaigi_s.avya
(perhaps a contemporary of Pan~ca S'ikha_).
Is'vara Kr.s.n.a of the Kaus'ika family is listed
as a teacher in Tattva Kaumudi of MM
Ganganath Jha].

Trans. The spirit exists because (a) the
aggregate is for another's sake; (b) of the
absence of three gun.as and other properties;
(c) there must be some controller; (d) there
must be some experienter; and (e) of the
tendency of activities towards final beatitude.
In this translation, the terms are elaborated as:

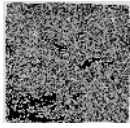
san:gha_ta, (because) all composite products;
para_rthatva_t, are for the sake of another's
use.

Thus, **san:gha_ta** is a composite product.
Thus, when a standard device is shown in front
of, say, a one-horned bull, the device, i.e.
san:gad.a connotes a composite product,
created or alloyed with cut stones (or
minerals). The inscription on an inscribed
object depicting such a device can, thus be
interpreted as a list of 'composed (alloyed)'
products.

san:gha_r.iba_ to mix many materials, stir
boiling curry, tie two cattle together and leave
to graze (Or.) (CDIAL 12859,12860). to mix
many materials, stir boiling curry, tie two
cattle together and leave to graze (Or.)
(CDIAL 12859,12860).

sa~gad. = a body formed of two or more fruits
or animals or men and linked together
(M.)(CDIA 12859). san:gha_r.iba_ tie two
cattle together and leave to graze (G.)(CDIAL
12860). saga_d.i_ = Skt. yugalam, a couple
(Hem.Des. G.lex.) [Note the ligaturing
techniques on inscribed objects].

frame of a building = **sa~_ga_d.a** (IL 2972)



m1171



Amri06 Ligatured animal **san:gad.i** = joined animals (M.)

san:gad.a = army; jan:gad.iyo = military guards who carry government treasury from one place to another; ja_n:gad.= things given for approval (taken without definite settlement of purchase).

The ligatured animal may connote the heads of a short-horned bull, a one-horned bull and an antelope ligatured to the body of a bull – a rebus representation of three people working together: va_kara (warrior), d.han:gar (blacksmith), mer.h (clerk of a merchant). Alternative: three minerals: **damr.i** 'heifer'; **ta_mbra** 'copper'; **bali** 'bull'; **bali** 'iron ore'; melh 'goat'; **melukka** 'copper'.



m1170a



1382 Composite animal Is the ligatured 'comb' glyph (bakhor.) + vad.d.h,

'ears of corn'; **bad.d.ha_**, 'stumps of stalks' [Rebus: **bad.hoe** 'carpenter']; alternative: **pasra** 'sprout'; **pajhar**. 'furnace'. Alternative decoding of Sign 176: Comb **kangha** (IL 1333) ka~ghera_ comb-maker (H.) **kan:g** = brazier, fireplace (K.)(IL 1332) Portable brazier; **ka~_guru**, **ka~_gar** (Ka.) whence, large brazier = **kan:gar** (K.)

d.aula_ = upper arm (IL 4982)

da_ula_, **d.a_ula_** = a gold or silver washer, one who washes the sand of a river to obtain gold (P.lex.) daulat = wealth, property; daulatan = wealthy, possessed of property (Santali.lex.) daulat = wealth, money; daulat kha_na_ = a treasure house (P.)

d.ha_la, d.a_lu = shield (Te.lex.)

dauli a weeding knife, of iron or wood; instrument for weeds (Santali.lex.)

Carrying on shoulders d.ehka (Kui), d.e_k = to carry on shoulder (Mand.); d.e_ka (IL 4110)

cekil=on the shoulders (Ta.)

te_kai-y-a_t.t.am (Ta.)

tegal, tegal. = shoulder (Ka.), cekil, cuval = upper part of the shoulder (Ta.) tega (Santali)

Overflow, brimful tekul.am = full, overflow (Ta.), **teke** = brimful (Tu.)

Sprout tegal (Tu.) tegl (Tu.)
Rim **deg, dege** (Kon:kan.i)

deko = a Hindu (Santali)

Retreat, flee tege (Ka.)

Cauldron.d.hegi (S.)

Boat d.e~_gi (Bhoj.)

Pillar placed at the junction of 3 boundaries = **tehr.a** (Santali)
t.eka = prop (OAw.)

hako and **atka** (axe and breast-plate)

atka, armour (breast-plate or coat of mail) or axe

atka axe or armour (breast-plate or coat of mail) (R.gveda)

atka = robe; Gk. $\alpha\sigma\chi\omicron\zeta$ hose; $\mu\epsilon\omicron\chi\omicron\zeta$ (Surya Kanta, 1989, *A grammatical dictionary of Sanskrit (Vedic)*, Delhi, Munshiram Manoharlal, p.9). The gk. atkos, 'hose' =

(historical) breeches or pl. short trousers fastened just below knee, now chiefly worn for riding or as part of ceremonial dress; Origin OE hosa, of Germanic origin. The Greek form thus attest to the explanation of **atka** in Vedic times, as a tight-fitting breast-plate, armour or coat of mail. cf. atuku, atiku, aduku = to cling together, to be fit (Ka.lex.)

RV 8.41.7: ya a_svatka a_s'aye; 1.95.7: ucchukramatkamajate 'sa_rabhu_tam rasam'; 1.122.2: stari_na_rtkam vyutam vasa_na_aktam satatam va_ru_pam'; 4.16.13: atkam na puro jarima_ vi dardah 'vayo vis'es.am ru_pamiva'; 6.29.3: vasa_no atkam 'satatagamana s'i_lam a_tmi_yam ru_pam'; 9.69.4: atkam na niktam 'kavacamiya'; 10.95.8: saca_yada_su jahati_s.vatkam 'atka iti ru_pana_ma'; atka is also interpreted as an Asura in 10.49.3: ahamatkam kavaye s'is'natham yathai 'a_ccha_dakam s'atruputram' (Vedic. lex.: Su_ryaka_nta)

This word occurs frequently in the Rigveda, but its sense is doubtful. Roth, Grassmann, Ludwig, Zimmer, and others render it as 'garment' in several passages (RV 1.95.7; 2.35.14; 4.18.5; 5.55.6; 74.5; 6.41.7; 9.101.14; 107.13; Sa_maveda 2.1193), when the expressions 'put on' (vya_ or prati mun~c) or put off (mun~c) are used of it, and when it is said to be 'woven' (vyuta) (RV 1.122.2) or 'well-fitting' (surabhi) (RV 6.29.3; 10.123.7). On the other hand, Pischel (*Vedische Studien*, 2, 193-204) denies that this sense occurs, and otherwise explains the passages. He takes the term to mean 'axe' in four places. (RV 5.55.6; 6.33.3; 10.49.3; 99.9; cf. Oldenberg, *R.gveda--Notes*, I, 94, n.1) (A.. A. Macdonell and A.B. Keith, 1912, *Vedic Index*, I, p. 16).

Sa_yan.a translates the word as 'breast-plate':

5.055.06 When you yoke your spotted mares to the poles (of your chariots), you lay aside your golden breast-plates, for you dissipate all hostility; may the cars of the quick-moving (Maruts) arrive for our good.

In the following r.ca, Sa_yan.a interprets 'atka' as a proper name:

10.049.03 I smote Atka with many weapons for the defence of the sage; with those

protections I preserved Kutsa; I am the slayer of S'us.n.a; I grasped the thunderbolt I who have not given the water (na_ma) of the A_ryas to the Dasyu.

In the following passage, Sa_yan.a interprets 'atkam' as 'weapons':

sa vra_dhatah s'avasa_nebhir asya kutsa_ya s'us.n.am kr.pan.e para_da_t ayam kavim anayas'c chasyama_nam atkam yo asya sanitota nr.n.a_m

10.099.09 Let him overthrow the mighty with powerful (weapons); he destroyed S'us.n.a for the sake of the liberal Kutsa; he humiliated Kavi, who praised him, who was the giver of form to Indra and his men. [Kutsa: kutsa_ya s'us.n.amas'us.am ni barhi_h : RV 4.16.12; let him overthrow: asya = his, s'avasa_nebhir; or, asyatu, let him throw; Kavi = Us'ana_, the son of Kavi].

Roth, Grassmann and Ludwig regard 'atka' as a proper name in both the passages in RV 10.49.3 and 99.9. Zimmer explains it as the 'armour of a warrior as a whole'. Pischel thinks

that in both cases, an 'axe' is meant. (*Vedic Index*, *ibid.*)

atxa_ leaf, blade, plate made of sewn-up leaves (Kur.); atge leaf, palm of the hand; atgen ere to divine by looking at a leaf; atgo a diviner (Malt.)(DEDR 141) a_ku leaf, young rice not yet transplanted, young sprout of corn, any filament (Ka.); leaf, petal, seedlings of paddy for transplantation (Te.); a_ki, a_k leaf (Go.); a_ku (Kond.a. Kui. Kuwi); a_ki (Pe.Mand.)(DEDR 335) akai to sprout (Ta.); aka germ, bud, shoot (Ma.); age seedling, shoot from the root of a plant or tree, sprout (Ka.); paddy seedling (Kod.); agge the shoot of a branch (Tu.); akra_rna_ to germinate, shoot, sprout; akhua_ seed-bud, sprout, shoot (Kur.)(DEDR 15).

[Considering that *atxa_* and *age* have comparable semant., it is reasonable to assume a concordance between R.gvedic atka (axe) and Bond.a hako (axe)].

Dotted circles

Dotted circles and vedi (yajn~a kun.d.am)

A dotted circle connotes a fire altar.

Slide 203 (Kenoyer, 2002). Steatite button seal Fired steatite button seal with four concentric circle designs from the Trench 54 area (H2000-4432/2174-3).



kandhi = a lump, a piece (Santali.lex.) [The dotted circle thus connotes an ingot taken out of a **kan.d.i**, furnace]. **ka_ndavika** = a baker; kandu = an iron plate or pan for baking cakes etc. (Ka.lex.)

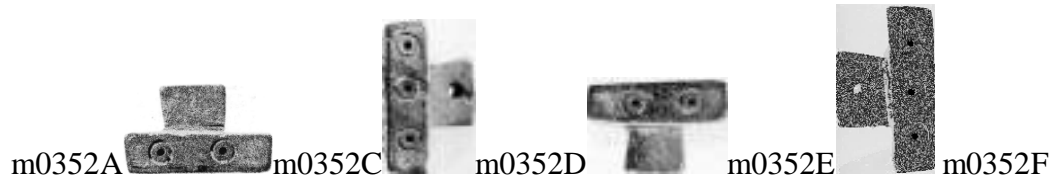
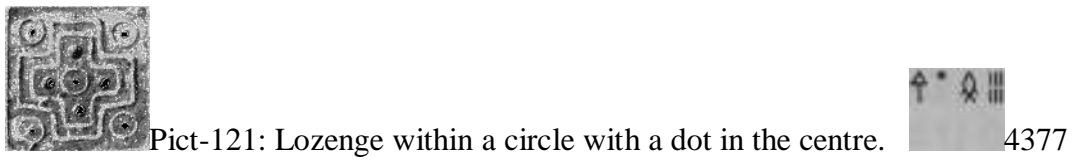
kan.d. = altar, furnace (Santali) This yajn~a kun.d.am can be denoted rebus, by perforated beads (**kandi**) or on ivory (**khan.d.**):

kandi (pl. -l) beads, necklace (Pa.); kanti (pl. -l) bead, (pl.) necklace; kandit. bead (Ga.)(DEDR 1215). The three stringed beads depicted on the pictograph may perhaps be treated as a phonetic determinant of the substantive, the rimmed jar, the **khan.d.a**

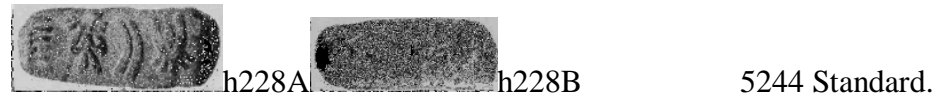
kanka: khan.d.a, xanro, sword or large sacrificial knife. **kandil**, **kandi_1** = a globe of glass, a lantern (Ka.lex.)

jan.d. **khan.d.** = ivory (Jat.ki) **khan.d.i_** = ivory in rough (Jat.ki_); gat.i_ = piece of elephant's tusk (S.) [This semant. may explain why the dotted circle -- i.e., kandi, 'beads' -- is often depicted on ivory objects, such as ivory combs]. See also: **khan.d.iyo** [cf. khan.d.an.i_ a tribute] tributary; paying a tribute to a superior king (G.lex.) [Note glyph of a kneeling adorant]

Glyph: *khan:ghar, ghan:ghar, ghan:ghar gon:ghor* 'full of holes' (Santali)
 Substantive: *kan:gar* 'portable furnace' (K.)



ausharo10 Slide 187 A faience button seal with geometric motif (H2000-4491/9999-34) was found on the surface of Mound AB at Harappa by one of the workmen. [Harappa 2000 find].



Dotted circless are ligatured on the bottom pot of the standard device as may be seen from m008 epigraph which also shows that the device is a ligature of a gimlet + a portable furnace + staff.



Sign 243 seems to be a ligature sign 242 and sign 328

kammat.a-ku_t.am = mint (coiner, i.e. seal-maker) workshop

Sign 286 seems to ligature sign 267 and sign 391

Sign 19 seems to ligature sign 1 and sign 171

ten:go, 'standing'; assume responsibility; khu~t., 'harrow'; **kut.hi**, 'furnace'

Sign 218 seems to ligature sign 217 and sign 328

Pairing: san:gad.a, 'furnace'; kamat.ha, 'pot'; kammat.a, 'mint'; sannu_, 'vice'; sana_, 'short sword'; sword mint furnace

Sign 32 seems to ligature sign 1 and sign 328

Ten:go, 'standing'; assume responsibility; kamat.ha, 'pot'; rebus: kammat.a, 'mint'; thus, mint-in-charge

Sign 372 is a three-fold ligature with signs 397 and 162

Sign 387, corn sheaf within an oval Ligature of sign 162 and sign 373 yields sign 387.

kut.ila, 'bent'; **kut.ila**, 'bronze'; pairing of the (), san:gad.a, 'furnace'; i.e. bronze furnace; kolmo, 'sprout'; **kolimi**, 'furnace'

Signs 63 and 64, bird and fish

a~s = scales of fish (Santali); rebus: aya = iron (G.); **ayah**, **ayas** = metal (Skt.)

Hako, 'fish'; **hako**, 'axe'; bat.a, 'quail'; **bat.hi**, 'furnace'; the ligature () = **kut.ila san:gad.a**, i.e. bronze furnace

Sign 36, man and pincers

sanni_, 'vice'; **sanna_**, 'short sword'; **ten:go**, 'standing'; rebus: 'assume responsibility'; i.e. swordsman

Sign 90, three linear strokes and corn sheaf

pene 'three'; pen.e 'griddle'; kolmo, 'sprout'; kolimi, 'furnace' [Alternative: pajhar. 'sprout'; rebus: pasra 'smithy']

Sign 362, oval and comb

bakhor. = splicer for tassar cocoons; bakhor. = teeth of comb; pairing of the glyph: san:gad.a, 'furnace'

Two () = san:gad.a kut.ila, i.e. bronze furnace and splicer

Alternative decoding of Sign 176:

Comb **kangha** (IL 1333) ka~ghera_ comb-maker (H.)

kan:g = brazier, fireplace (K.)(IL 1332) Portable brazier **ka~_guru**, **ka~_gar** (Ka.) whence, large brazier = **kan:gar** (K.)

Sign 383 ligatures signs 374, 373 and 176

Sign 19, man and harrow

khu~t. + ten:go = kut.hi + ten:go = managing furnace.

Sign 21, man and corn sheaf

kolom + ten:go = kolimi + ten:go = managing furnace

Sign 348 ligatures with sign 162 and a pair of 172
(See pairing in Sign 173)

khu~t. paired, i.e. san:gad.a kut.hi, portable furnace and (smelter's) furnace
kolom = kolimi = furnace (blacksmith's)

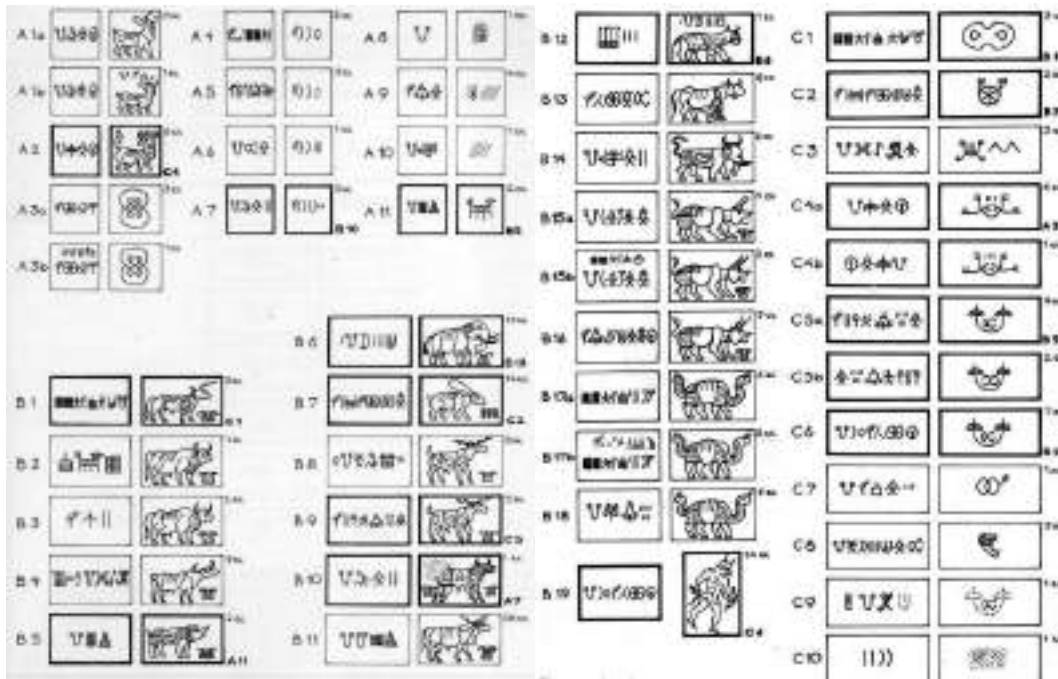
Sign 173 is a ligatured representation of a pair of the sign 172.

khu~t. paired, i.e. san:gad.a kut.hi, portable furnace and (smelter's) furnace



List of ten groups of similar signs in the corpus. After Parpola, 1994, fig. 6.18
[Based on affinities with other signs within texts of inscriptions].

Copper plate epigraphs; signs equivalence with pictorial motifs

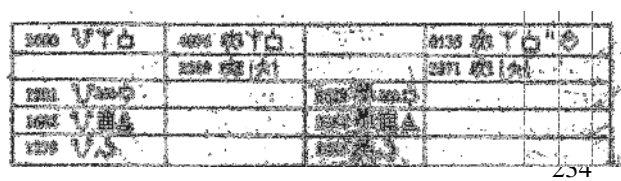


Copper tablets from Mohenjo-daro: an analysis [After Parpola, 1994, fig. 7.14]. The number in the upper right corner indicates how many identical tablets belonging to each group have been found. A group drawn with thicker lines is linked to another tablet group – with an identical inscription -- referenced in bold letters in the lower right corner.

46 tablet groups. 34 tablets are square (2.66 X 2.65 X .35 cm), 144 are rectangular (3.38 X 2.65 X .35 cm) and 39 long and narrow (rectangular) (3.3 X 2.4 X .3 cm).

Group B12 has an inscription which connects it to group B6.

A pictogram which occurs on both C5 and C6 is connected with two different iconohgraphs – the markhor goat (B9) and the horned archer (B19). These iconographs seem to be synonyms of the texts. Mackay (1931: 401) noted that the copper tablets ‘were probably used as amulets, wrapped up in some material and worn round the neck or wrist, or sewn to the clothing. This would account for the rough finish of some of them, for if worn in this way they would not have been exposed to view. It is possible that the possession of one of these amulets placed the wearer under the special protection of the deity whose particular animal was engraved upon it.’



Alternations at the end of some recurring sequences of signs. [After Parpola, 1994, fig. 6.7].

3061 𐑦𐑦𐑦𐑦 6272 𐑦𐑦𐑦𐑦𐑦 2472 𐑦𐑦𐑦
 3497 𐑦𐑦𐑦 2818 𐑦𐑦𐑦𐑦 3021 𐑦𐑦
 2526 𐑦𐑦𐑦

Last sign missing.

3213 𐑦𐑦𐑦 2078 𐑦𐑦𐑦𐑦 3012 𐑦𐑦𐑦𐑦
 2212 𐑦𐑦𐑦 2021 𐑦𐑦𐑦𐑦 2218 𐑦𐑦𐑦𐑦 RPOII

Jar sign dropped.

3025 II/ 𐑦𐑦𐑦𐑦 3442 (rev.) 𐑦 (obv.) 𐑦𐑦𐑦𐑦
 2244 𐑦𐑦𐑦𐑦 1109 𐑦𐑦𐑦𐑦

'man' sign types and equivalence.

3164	𐑦𐑦𐑦𐑦	7631	𐑦𐑦𐑦𐑦
3325	𐑦𐑦𐑦𐑦	2775	𐑦𐑦𐑦𐑦
2404	𐑦𐑦𐑦𐑦𐑦	3153	𐑦𐑦𐑦𐑦𐑦
1227 (obv.)	𐑦𐑦𐑦𐑦	1536	𐑦𐑦𐑦𐑦𐑦

2380 𐑦𐑦𐑦
 2775 𐑦𐑦𐑦𐑦
 3325 𐑦𐑦𐑦𐑦
 3625 𐑦𐑦𐑦𐑦 4087 𐑦𐑦𐑦𐑦𐑦
 3026 𐑦𐑦𐑦𐑦 1057 𐑦𐑦𐑦𐑦

𐑦𐑦𐑦𐑦	𐑦𐑦𐑦𐑦
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𐑦𐑦𐑦𐑦	𐑦𐑦𐑦𐑦

With and without 'man' sign

Many pictorials in inscriptions in field symbols also occur in **pairs**: two tigers, two bisons, two heads of the unicorn.

The occurrence of pictorials and glyphs (signs) in pairs can be explained as an 'alloyed' version of the metal connoted rebus by the respective pictorial or glyph:

bagr.a (Sad.) = the condition of being mixed largely in different varieties; adj. used of grains, seeds, pulses, of which different varieties have been mixed in large or nearly equal proportions; bagr.a-o to be mixed, used of grains and also of men or animals of mixed blood (Mundari.lex.) bagr. adj. Mixed, impure; mix up; bagar. = mixed, not of one kind or quality, impure; untidy; bagar. caole = mixed rice (clean and not clean, or different kinds)(Santali); bagar. (H.)(Santali.lex.Bodding) baggad.a = sediment,

settlings, dregs as of oil, the mud or mire in a well, cow-dung mixed with water (Ka.); vagal.a refuse, dregs; van:gal.a bad, foul, nasty (M.)(Ka.lex.) 'Doubling' may be connoted by the lexeme, **barea** = two or, '**bagad.o**' = the figure 2 (G.lex.) [**bagr.a**, **baggarr.a**, **bagar.ao** = adj., used of grains, seeds, pulses, of which different varieties have been mixed in large or nearly equal proportions; condition of being mixed largely in different varieties; for a mixture in lesser proportion **boja** is used (Mundari.lex.) bagar., bagr.a = mixed, impure, confused; cf. bagar. (H.); bagar. is used mostly about rice, and bagr.a more about what is different in kind; bagr.i = adj. Mixed, impure; mix up, spoil by bringing foreign matters (Santali.lex.) Could the term, **bagr.a** have connoted an **alloyed ore** used for making the double-axe?] *bagad.avum* 'to be adulterated'; *baga_d.*, *baga_d.o* adulteration (G.)

ban:guri_ = a kind of hoe used for hoeing sugarcane (P.lex.)

The nature of an alloy can also be represented by using a homonym of **bagad.o**.

Rosetta stones

There are a few 'rosetta stones' of the writing system.

These 'rosetta stones' are seals found in Mesopotamian civilization area with glyphs which occur again on many epigraphs of the Sarasvati Civilization. Three such seals found in Mesopotamia are:

MS 4602 Indus Valley cylinder seal with a glyph of two seated monkeys and other motifs characteristically comparable to those in many epigraphs of the Civilization

Umma seal or Gadd Seal 1 square-shaped, with a cuneiform inscription and with a bison (short-horned bull) glyph

Seal Impression of a round seal found at Ur depicting a water-carrier with two stars

Ur cylinder seal BM 122947 containing early glyphs comparable to Signs 162 and 169

These 'rosetta stones' are two tin ingots found in a ship-wreck in Haifa, Israel containing glyphs which are comparable to those recorded on epigraphs of the civilization; Haifa was on a caravan-cum-shipping route from Sarasvati Civilization!

Sarasvati-Sindhu doab cylinder seal containing glyph of monkey

Sarasvati-Sindhu doab cylinder seal, ca. 3000 BCE depicting a palm tree and a man between two lions with wings and snakeheads, holding one arm around each, two long fish below, and one fish jumping after one lion's tail or the tail of a sitting monkey above it. MS 4602 (Manuscript in Metropolitan Museum of Art) Mehrgarh. Seal matrix on creamy stone or shell, Indus Valley, Pakistan, ca. 3000 BCE, 1 cylinder seal, diam. 2,0x3,7 cm, in fine execution influenced by the Jemdet Nasr style of Sumer.

Cylinder seal in Jemdet Nasr style of Sumer, shows two seated monkeys, in addition to typical glyphs of the Sarasvati Civilization. MS 4602



Apart from a seated monkey, the glyphs shown are:

three fishes, one of which is jumping up to the tail of one of the two tigers. [**hako** 'fish'; rebus: 'axe'; **a~s** = scales of fish (Santali); rebus: aya = iron (G.); **ayah, ayas** = metal (Skt.)]

A quiver with arrows, ligatured with two bows and other unidentifiable weapons within. (**sar, d.ol** = arrow); **bat.i** = a small brass bow; **khora** = a large brass bow; **d.ubha** = a metal bow (Santali) Rebus: **bat.i** = a metal cup or basin; **bat.hi** = a furnace for melting iron-ore (Santali)

Two tigers standing up with their heads turned backwards and being subdued by a standing person. (**kol** 'tiger'; rebus: 'metal'). **kaidau** = to subdue; rebus: **kaida** = a kind

of knife with a curved blade; a big thick sickle, used to pollard trees or to cut branches (Santali)

A sprout with five petals (taberna montana, ‘**tagara**’; rebus: **tagara** ‘tin’) in front of the legs of the standing person.

Since the context is clearly a reference to **kol** ‘metal’ (rebus: ‘tiger’), the cylinder seal depicts the metallic (bronze) weapons in possession of the seal owner.

Molded faience figurine with a hole in centre. Three ligatured monkeys. This miniature carved faience bead or pin ornament is possibly placed on a stick or cord. Possibly molded and carved. Material: yellow brown glazed faience; 1.6 cm. high and 1.4 cm. dia; Mohenjodaro K 1053. Marshall 1931: pl. CLVIII.5; after Fig. 8.23, Kenoyer, 2000.

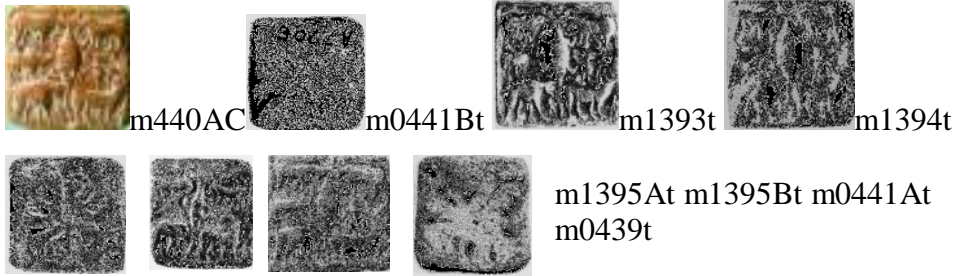
The ligaturing comparable to the ligature of three tigers on a tablet is an indication that the count of three is related to three objects made of copper (**tebr.a** ‘three’; **ta(m)bra** ‘copper’).



Glyph: **ga~r.i~** = a monkey; sakam ga~r.i~ a small species of monkey (Santali) Monkey **gad.ava** = male monkey (Ka.); gad.d.i, **gad.d.e_** (Go.); **kat.uvan**= (Ta.)(DEDR 1140) [Note a seal where a monkey is shown in lieu of a standard device in front of a one-horned bull]. **sakam ga~r.i~** a small species of monkey (Santali)

Substantive: **kan.d.i** = furnace (Santali)

A monkey is shown together with other animals on many seals:



[The motifs on m 439, m440 and m1393 to m1395 seem to be identical; on one side three or more tiger heads emanating from a body are shown; on another side a group of animals surrounding a horned lizard (gharial): two short-horned bulls facing each other, a rhinoceros, an elephant, a tiger looking back and a monkey (?) with face turned backwards.]

gadiau = to carry a sword, to be armed with a sword (Santali) **kar.c ib** = very excellent iron (Ko.) **kad.tale** (Tu.) long-edged sword

Glyph: *gad.i* markers or lines in a children's game; **enec gad.iko benaca** they make lines for the game (Santali)

gad.i the groove of a pulley; a globule formed in fried cakes (G.) *ga_d.i* a cart; *ga_d.um* a cart (G.) *gad.i* 'a wheel, a cart, a carriage, anything that runs on wheels'; *ra~t gad.i* 'a chariot'; *ghar. ghar.i* 'a pulley wheel'; *ghar.ghar.ao* 'to roll, as a ball; to revolve, as a wheel, or as a spindle; to whir'; *gharr.iko ghar.ghar.aoa* (Santali) *ghared.i* a pulley; *gharad.*, *gharod.* A cart-road; a wheel-rut (G.)

Glyph *gad.*, *ga_n.t.h*, *gra_nth* a knot, an entanglement (G.)

Substantive: *ga_n.t.h* possession (G.)

Substantive: *gadi* a shop (Santali) *kat.ai* shop, bazaar, market (Ta.); *kat.a* market (Ma.)(DEDR 1142).

Substantive: *gar.* a fort. a palace; *gad.hi* 'resident of a hill-fort'; *gad.i* a companion, a servant (M.); a domestic servant, a labourer (G.) *gada gad*, *gad.a gud.* in crowds, numerous; *gadi* populous, as a village; *gadi t.an.d.i* the capital of T.an.d.i; *gadi sirampur* the capital of Serampore; *gad* crowd; *hor. gad* a crowd of people; *gad.i* lair of certain animals, as of a hare, pig (Santali) *gad.di* a crowd (G.) *gad.o* an octroi; a duty levied at the gates of a town (used in *Ka_t.hia_wa_d.*). A residence of a zamindar, a fort is: *gad.hi* the inhabitant of a hill-fort (G.) *gar.*, *gar.h* (Santali) *ghar* 'house' (Hindi) *gharana* 'household' (Santali) *gad.h* a hill-fort; a hill; a mount (G.); *gad.ho* (Hem.Des.) *gad.hvi* the governor of a fort (G.); *kat.t.at.am* building (Ta.); *ket.t.akam* house (Ma.);

kat. To build, manage (house) (Ka.); *kat.t.e* platform build under tree on village green (Ka.); *kat.t.ad.a* a building (Ka.); *kat.t.alme* building (Tu.); *kat.t.ad.amu* building (Te.); *ghat.t.a* quay, landing-place, bathing place (Skt.)(DEDR 1147).

Glyph: *gad.do* [Hem. Des. gud.da_liyam = Skt. pin.d.i_kr.tam formed into a ball] a beating with the fist (G.)

Glyph: *gad.i* a seed bed (Santali)

Bracelet **khar.ua** = wrist ornament (H.); *khad.u* (Skt.); *kha_ruwa* = large iron ring (A.) *kat.akam* (Ta.)

kat.avu = cattle-path (Ta.)

kad.avu = turning lathe (Tu.) To throw *kad.* (kat.t.-) = to throw (Pa.); **kat.a_vu** = to drive in a nail (Ma.)

kat.avu = male of sheep or goat (Ta.)(DEDR 1123); Ram *gar.era* (Or.); *xar.* (Br.); *ga_d.ar* = sheep (G.) *gad.ariya* = shepherd (H.) *kad.ava* = elk, Indian stag, *rusa aristotalis* (Ka.) *gad.d.ar* small sheep (G)

kat.avai = leap, jump (Ta.) [Note the glyph of a jumping tiger].

kat.a = stride

Glyph: *gan.d.e* 'to place at a right angle to something else, cross, transverse'; *gan.d.* *gan.d.* 'across, at right angles, transversely' (Santali) [Note: A slanted line *Lahn.d.a* writing of accounts connotes a quarter; a straight line connotes 'one'.]

ka~t.a = a hook; **kat.a** = a pit saw (Santali.lex.) **kat.a kat.i** = cutting, to slash, kill; *kat.ao* = to cut (Santali.lex.); *kat.aha* = fierce, ravening; applied also to any cutting instrument used to kill an animal with; *den, kat.aha odoktape*, bring out your cutting instrument (to kill the goat with)(Santali.lex.) *khat.*, *khat. marte* = with one blow, or with one cut; *khat. menteye get topakkeda*, he cut it right through with one blow; *khar, khar marte* = sharp[; to whish as when cutting with any sharp instrument (Santali.lex.) *khad.u_ra* = swing (AV 11.9.6) (Vedic.lex.)

gan.t.ave_t.a = batfowling, nightfowling wherein lights and lowbells are used; **gan.t.a** = bat (Te.lex.)

" Sign 99 **gan.t.u** = a notch, cut, indentation (Te.lex.) **granthi** = a joint or articulation of the body; a knot or prutuberance of any kind (Ka.lex.)

kan.t.a = a fork, grapnel (Santali.lex.)

kan.t.a = throat, tonsils (Santali.lex.); cf. *kan.t.ha* throat (Skt.lex.)

khar. = a herd, a flock; *khar. ke khar.* = in multitudes, flock after flock (Santali.lex.)

gan.t.e = a spoon; a ladle (Te.lex.)

Glyph: *gan.d.a* 'a set of four'; *gan.d.a gut.i* to divide, to make up an account (Santali)
gan.d.i hole, orifice (Te.); *kan.d.i*, *gan.d.i* opening, hole, window (Tu.)(DEDR 1176).

kad.uve = hero (Ka.)

Substantive: *gan.d.a* male person; *gan.d.iga* a valliant man (Ka.)(DEDR 1173).

Substantive: *kan.t.am* iron style for writing on palmyra leaves (Ta.); *gan.t.amu* id. (Te.)(DEDR 1170)

gan.t.a = a stub, the stump of a corn-stalk; *gan.t.e* = the cereal *holcus picatus*; pl. *gan.t.elu* = id., also called *sajjalu* in southern Telugu districts (Te.lex.)

Alternative:

Small monkey *ko_d.a* (Ir.), *ko_d.ag* = monkey (Ir.) **ko_t.aram** (Ta.), *korg* = black monkey (Ko.)

god.d.ali = axe (Te.)

kuran:ku = monkey (Ta.lex.) [On a seal, a monkey is shown in lieu of the standard device; this may be a rebus for an anvil, **kuraga**].

ku_r-ige a seed-drill, sowing machine drawn by oxen (Ka.cf. **MIAI**, p.29. **kurgi** is a distance that may be ploughed and sown in one day, with a pair of bullocks and drill plough (M.). **ku_ru** to fill or stuff anything, to load (Te.); **ku_r-ige hod.e** to work with the *ku_r-ige* (Ka.lex.)

korn:ga a Hindu caste of wood turners (Santali.lex.)

kuraga = an instrument of goldsmiths; a sort of anvil (Ka.); *khura_rya_* (M)(Ka.lex.)
kura = ploughshare (L.); *kurelna_* to poke (P.); to dig (H.); *kuredna_* to scrape (H.)(CDIAL 3319). [**kora-mut.t.u** = tool, instrument (Ka.)]

Decoding of cuneiform in Gadd Seal 1 using lexemes from the substrate language

It is possible that the early lexeme for cassiterite or tin ore was '**kasa**'.

“aurichalcum...In the poetic phase, which loves the vague, this ‘mountain-copper’ was a mythic natural metal, ranking between gold and silver...Plato (the ‘Critias’ ix, treating of Atlantis, America) makes oreichalc, ‘now known only by name,’ the most precious metal after gold. Pliny (xxxiv.2) tells us truly enough that aurichalcum no longer exists...Festus speaks of ‘orichalcum (copper), stannum (zinc or pewter?), cassiterum (tin), and aurichalcum (brass).’..When Dioscorides (v.cap.84) seems to allude to artificial or furnace-calamine, an impure oxide of zinc, he may mean the more modern *tutiya* (Avicenna), *touthia*, *cadmie des fourneaux*, or *tutty*. Reduced to powder, and mixed with an equal quantity of wetted charcoal by way of

fondant or flux, it is melted with copper to form brass...aurichalcum was made synonymous with electrum, natural or artificial...Brugsch (i.345) understands by 'usem' brass, and thinks asmara or asmala equivalent to the Hebrew hasmal or hashmal = electrum. In Bunsen (v.757) **Kasabet** and **kakhi** are brass (aurichalcum), and **Khesbet** is a metal connected with **Kassiteros** = tin...Herodotus (iii.115), in the historic age (BCE 480-30), gives the name of the mythical metal to the 'tears of the Heliades,' which the Latins called succinum (succum), the Low-Latins ambrum, the Arabs anbar, and we Amber...The staters of Lydian Croesus, held by the Greeks to be the most ancient of coins, were, according to Bockh, of electrum, three parts gold and one part silver..." (Richard F. Burton, 1884, *The book of the sword* (repr. 1987), New York, Dover Publications, pp. 85-87).

Umma seal or Gadd Seal 1

If the cuneiform reading of this seal is: sak kasi, the lexemes may connote: **sak** 'shell or conch' and **kasi** 'cassiterite'. The bull may be read as: d.han:gar 'smith'. Thus the message of the seal is the possession of the smith or the commodities traded by the smith: shell and copper.



Gadd Seal 1 Seal impression and reverse of seal from Ur (U.7683; BM 120573); image of bison and cuneiform inscription; cf. Mitchell 1986: 280-1 no.7 and fig. 111; Parpola, 1994, p. 131: signs may be read as (1) *sag(k)* or *ka*, (2) *ku* or *lu* or *ma*, and (3) *zi* or *ba* (4)?. The commonest value: *sag-ku-zi* Or, SAG.KU(?).IGI.X or SAG.KU(?)P[AD]?

On the problem of the Indus (Sarasvati-Sindhu) Script, it is important to refer to one message on a sealing from Umma, since no bilingual script messages have so far been found: "...an imprint of (Indus (Sarasvati-Sindhu)) seal upon the fragment of a clay label from a bale of cloth had also been published by Father Scheil (*Revue d'Assyriologie*, Vol. 22: 56), and this was said to come from the site of Umma, the neighbor city of Lagash...No.1. First among the seals discovered at Ur (in 1923) is the unique object ...in the British Museum...On the face stands, below, the figure of a bull with head bent down...the inscription...is in archaic cuneiform writing...of a period before 2500 BCE There are three signs and very probably traces of a fourth, almost obliterated; the three preserved are themselves scratchy and rather worn, though not ill-formed. Hence their reading is doubtful--the choices are, for the first SAG(K) or KA, for the second KU or possibly LU, while the third is almost certainly S'I, and the fourth, it existed at all, is quite uncertain...using the commonest values of the signs, sak-ku-s'i--(with possible loss of something at the end) may be pronounced the best provisional reading...It does not, at least, seem to be any Sumerian or Akkadian name...(the seal is) probably, a product of some place under the influence both of Indus (Sarasvati-Sindhu) and of the Sumerian civilizations." (Gadd, 1932, pp.3-32.)

The seal is a 'rosetta stone' available to provide a lead to decode the epigraphs of Sarasvati Civilization. It is a 'rosetta stone' because it contains a message written in a known script: the cuneiform. Assuming that the inscription in cuneiform on this seal is

a transliteration of morphemes of the language of the civilization, an attempt may be made to relate the messages in terms of the general pattern of the use of pictorial motifs to convey weapons and tools.

The possible rebus lexemes conveyed by **sak lu...** are: **sak** = conch shell; **luhia, luiha** = an iron vessel or pot used for cooking and other purposes; **loha luti** = iron utensils and implements (Santali) The bull is **d.han:gar**; rebus: blacksmith.

Entries from the *Indian Lexicon*: *sag, zag* 'a conical form; the teat'; the dug of a beast (G.) *sagan* 'an iron nail fixed in the pole of a plough for fastening the yoke' (G.) *kus'* a ploughshare (Skt.), *kos'* 'an iron bar sharpened at one end, used as an instrument for digging' (G.) *kus* 'a hand-held implement for turning up of clods--a pole with an iron blade or a head: also the iron member of this implement' (M.)³²

Reading: **sag ka-si-ta**

Rebus: **saga** denoting pha_tries or clans in Gond.; *kase_ra_* metal worker (L.); *kasera_* worker in pewter (P.Bi.H.); *kasero* maker of brass pots (N.);

Alternative: **kusi_da** = usurer. *kasat.iyo* a pawnbroker, a money-lender (G.)

kus. to test, examine; to shine (Skt.lex.) *kusumbha, kusumbham* gold (Skt.lex.) *kah, dat. kus^u* testing gold on a touchstone (K.)(CDIAL 2970). *ko_cikam Sa_ma ve_da* (Cu_t.a.)(Ta.lex.) Gold: *ku_r..ai* gold (Ta.); cf. *kus'* (Skt.)(Ta.lex.) *kr.s'a_nu* burning, tormenting (Rudra_, Agni_); *kr.s'a_nu* guarding of the Soma, name of an archer who guards the soma from gods and men (*kr.s'a_nurasta_ etanna_makah- so_mapa_lah- : RV. iv.27.3*) (Vedic. lex.) cf. the interpretation of soma as electrum, gold-silver ore, op cit. *kr.s'anam* gold; form, shape; a pearl; *kus'a* wrought iron (Skt.lex.) *kr.s'ana* pearl (RV. x.68.11); *kr.s'anvant* decorated with pearls (RV. i.126.); *kr.s'anin id.* (RV. vii.18.23)(Vedic.lex.) cf. *ka_cam* gold; *ka_cu* gold; *ka_can-am* gold (Ta.lex.) *ko_s'am* gold or silver wrought or unwrought; treasure, money, wealth (Skt.lex.) Money-lender: *kucchar. miserly* (WPah.)(CDIAL 3420). *kusi_dika, kusi_din* a usurer; *kus.i_da* usury; *kusita* one who lives on usury (Skt.lex.) *kahu_ mean, miserly* (K.)(CDIAL 3441). **kusi_da** usury, a usurer (Skt.Ka.); *kusi_daka* a usurer (Skt.Ka.); a money-lender (Ka.lex.) *kaca-vaci niggard; kaya-vaci id.* (Ta.lex.) *kus'i_dam.* usury; *kusi_dam.* any loan or thing lent to be repaid with interest; lending money, usury, the profession of usury; *kusi_daka, kusi_din* a usurer *kusi_dah.* (also written as *kus'i_-s.i_-da*) a money-lender, usurer; *kusi_da-pathah.* usury, usurious interest; any interest exceeding 5 percent; *kusi_da-vr.ddhiih.* interest on money; *kusi_da_* the wife of usurer; *kusi_da_yi_ id.* (Skt.lex.) Usury: *kausi_da* connected with a loan; usurious; *kausa_dhyam* the practice of usury (Skt.lex.) cf. *kucar < khusr* (U.) anything obtained from shopkeeper as a bargain (Ta.lex.) *kusita_yi_* a kind of demoness (Maitra_yan.i Sam.hita_. iii.2.6);

kusida_yi_ wife of a money-lender (Ka_t.haka Sam.hita_. x.5)(Vedic.lex.) r.s.i:
kusi_di_ ka_n.va is the r.s.i of su_kta RV 8.81 to 8.83

armu = ibex, mountangoat (W. Muss-Arnolt, *A concise dictionary of the Assyrian language*, Berlin, Reuther and Reichard, 1905).

ka_cam blue vitrol (Ta.lex.) ka_si_sa green vitriol (Sus'r.); ka_s'i_s'a (Skt.); kasis green sulphate of iron, copperas (N.); ka_si_sa (Or.); kasi_s blue or green vitriol (H.); ka_hi_ (H.); hira_-kas, hira_-kas'i_ green vitriol, copperas (M.); kahijan.u to become coated with verdigris (S.)(CDIAL 3140).

kacai-mur-ukki goldsmith's pincers; cf. kaca + ; kacai-val.aiyal bracelets made of braided gold wire; kacai-ve_lai braiding with gold wire (W.); kacai-vaitta-put.avai gold-fringed cloth (W.); kacitam < khacita setting, mounting with precious stones, inlaying (Ta.)(Ta.lex.)

ka_sai, ka_sye a kind of tortoise (the bigger kind) (Kon.lex.) kaccakad.i a tortoise shell (Tu.lex.) kaccam tortoise (kat.alpu-k-kur..i-k-kaccama_ki) (Kampara_. Kat.ar-a_vu. 42)(Ta.lex.) kacchapa turtle, tortoise (MBh. Pali); kacchava, kacchavi_ (Pkt.); kochuw^u (K.); kacha~u~, kachu~_ (S.); kacchu_, kacchu_-kumma~_ [< ku_rma- (P.); kachuwa_ (N.); ka_cha (A.); ka_chim (B.); kechu, kecho, ke~chu, kai_cha, kai~_ca, kachima, kacima (Or.); ka_chⁱ (Mth.); kachua_ (Bhoj.Aw.H.); kachwa_ (H.); kacch, kach (H.); ka_sav, ka~_sav (M.); ka_savu (Konkan.i); kacchabha (Pkt.); kasumbu, kasubu (Si.); ka_cbo (G.)(CDIAL 2619). kaccapam, kaccan-, kaccam turtle, tortoise; kat.alpu-k-kur..i-k-kaccama_ki (Kampara_.Katar-a_vu.42) (Ta.lex.) ?kavve tortoise (Kol.Nk.Ga.); kavva (Pa.); gavva cowrie (Te.)(DEDR 1342).

kacce, kacci the organ of generation (yo_ni) of cows and buffaloes (Ka.M.Te.); kari (Te.)(Ka.lex.) kuci, kucu membrum virile, as small (Ta.lex.) Pubic hair: kuco pubic hair (S.); kuciro one who lets the pubic hair grow (S.)(CDIAL 3408). kucci penis (Ma.); kuci membrum virile; kucu membrum virile (Ta.); kun.n.e genitals (Ka.); kua genitals (Tu.)(DEDR 1639).

kaccam a very small kind of fish; kaccar--karuva_t.u kaccal fish salted and dried; kacca-c-celvam bone of the kaccam fish (Ta.lex.) ka_ca_mpa_rai a kind of fish; kayar--ken.t.ai a kind of ken.t.ai fish (W.)(Ta.lex)

Girdle, girth; loincloth: kaccai girdle, belt; (ma_cun.a-k-kaccaipa_t.i : Tiruva_ca. 9,19); whole piece of new cloth; kacikai garment, cloth; curtain; ka_ci woman's waist girdle consisting of seven strings of beads or bells; (ka_ci-y-er..u ko_vai : Cilap. 4,30, Urai); ka_cu girdle strung with gems; (pat.t.ut.ai cu_r.nta ka_cu : Ci_vaka. 468)(Ta.lex.) ka_ci_girdle (Skt.); kam.ci_ (Pkt.); ka_ci tinkling girdle (Or.); ka~_ca a kind of loose

pantaloon (S.)(CDIAL 3015). kaks.ya_ girdle, girth (RV.); kaks.ya pertaining to a girdle, girdled (?) (RV.); kaks.a_ girdle (MBh.); loincloth (Skt.); kaks.a girdle (MBh.); end of lower garment, hem (Skt.); kaccha_ belt, loin- or waist-cloth (Pali); ka_kha_ strings by which a load is tied to the back (Ku.); kakkha_, kaccha_, kaccha loincloth (Pkt.); ka_ch cloth worn between the legs, edge, hem (N.); loincloth (H.); tuck in a dhoti, loincloth (G.); ka_ch, ka_c hem of loincloth tucked in between the legs (B.); ka_cha a small cloth (Or.); ka_cha_ loincloth (Or.H.); small tight loincloth (Bi.) kacha_ end of garment tucked in (Or.); ka_chni_ a cloth worn over the loincloth (H.); kachani a small loincloth (Mth.); ka_cho tuck in a dhoti, loincloth (G.); ka_chr.o tuck in a sari (G.); ka_s, ka~_s tuck in a dhoti (M.); ka~_cya_ fold of dhoti, girdle (M. <H.); kasa-pat.a fold in a body cloth (Si.)(CDIAL 2592). Girdle: kaccu belt, girdle, sash, cummerband; mal.l.ar...ya_tta pu_n:kaccu (Ci_vaka. 16); broad tape bad; ta_r.kaccir-pin.ippun.t.u (Ci_vaka. 1748)(Ta.lex.) kaccam the end piece of the Hindu garment tucked up in folds at the waist, such fold brought up from the front and tucked up behind (Ta.lex.) kaccam elephant's neck-rope; stirrup (Ta.lex.) kaccai rope, girth, girdle, belt, piece of new cloth (Ta.); kacca girdle, waist-belt, long cloth (Ma.); end of the lower garment passed between the legs and tucked in behind (Te.); kaccad.amu cod-piece (Te.); kacv perineal cloth (Ko.); koc embroidered perineal cloth (To.); cloth given at funeral (To.); kacce cloth passed between the legs to cover the privities, girdle (Ka.); perineal cloth (Kod.); end of lower garment gathered up behind and tucked into waistband (Tu.)(DEDR App.20). Loincloth: kacevo_k, koco_k coat, mantle; kuchok bag (Wg.)(CDIAL 2594). kaccanti gunny bag; kaccanti-y-avir.. to spin a yarn, lit., to untie the bag (Ta.lex.) kacchat.t.i_, kacchut.t.iya_, kaccho_t.i_ loincloth (Pkt.); kachvat.t.i_ gusset (L.); kachot.a_ loincloth (P.); kast.a_, ka_sut.i (A.); ka_chat.a_ (Or.); kachaut.i_ (H.); kachot.o, kachot.i_ (G.); kasot.a_ tuck or end of dhoti (M.)(CDIAL 2590). kaccat.t.am < kacchat.ika_ folds in the garment of a Hindu; strip of cloth worn over a man's private parts; kaccam the end piece of the Hindu garment tucked up in folds at the waist, such fold brought up from the front and tucked up behind (Ta.lex.) kucavam < koycakam folds of cloth put on by Indian women (G.Tj.D. 63)(Ta.lex.) (kaccatu kat.intu : Kalla_. 44); gajji corset (Kur.); kacuka corselet, jacket (R.); bodice, armour (Pali); snake's slough (Skt.); kam.cu woman's bodice (Pkt.); kam.cua bodice, armour (Pkt.); ka~_jo band of metal round of a khukri (N.); ka~_cu_, ka~_cuwa_ bodice, shirt (H.); ka~_c.va_ a sort of waistcoat (M.)(CDIAL 2626). kaja_k the waist-band or sash worn by peons or sepoy (Ka.H.)(Ka.lex.) kaculi_ bodice (Skt.); kam.culi (NiDoc.); kam.culia_ (Pkt.); kajuro (S.); kajli_ (L.); ka~_culi_ clothes (Ku.); bodice, sheath (H.); ka~_suli woman's bodice (A.); ka~_culi (B.); kacul.a (Or.); ka~_cali (OMth.); ka~_cl.i_ bodice (G.); ka~_c.ol.i_, ka_c.ol.i_ bodice (M.)(CDIAL 2627)[with o from col.i_ < co_d.a jacket (Skt.)(CDIAL 4923). Tunic, jacket: kacukan-one who wears a tunic or jacket; kacuki, ka_cukan, ka_cuki the body-guard of a king, wearing a jacket; jacket; curtain; ka_cukam jacket; ka_cuki id. (Ta.lex.) Dress, costume: ka_ca dress, costume, character (B.); kicca to be done; duty (Pali) to be done; action (Pkt.)(CDIAL 3428). Cloth merchant: kaccavat.a-k-ka_ran- merchant, trader;

kaccavat.am (Ta.); kaccavat.am (Ma.) peddling, trade especially in cloth; mixing up of things (Ta.lex.) kaks.apat.t.a loincloth (Skt.); kacchat.t.i_, kacchut.t.iya_, kaccho_t.i_ loincloth (Pkt.); kachvat.t.ti_ gusset (L.); kahot.a_ loincloth (P.); kast.a_, ka_sut.i (A.); ka_chat.a_, ka_chot.i (Or.); kachaut.i_ (H.); kachot.o (G.); kachot.i_ (G.); kasot.a_ tuck or end of dhoti (M.)(CDIAL 2590). [cf. koch curve above hip where babies are carried (K.); ka_kh lap (N.); ka_s loins, waist, udder (M.); kaks.a armpit (RV.)(CDIAL 2588). kar.ma_ waist (Kur.); kar.me id. (Malt.)(DEDR 1143).] kacca-vat.akka_ran- merchant, trader; kaccavat.am peddling, trade especially in cloth (J.); id. (Ma.); mixing up of things (Ta.)(Ta.lex.) **Clothing**: {Two types of clothing are related to parts of the body: kaccai girdle worn around the lap or hip and tied; and kaccu bodice taken around the armpits and breasts and tied.} > **Stream 1: Armpit, hip, lap, side of the body below the armpit**: kaca~_t near; kacant-kow armpit (Wg.)(CDIAL 2593). kachur.i flank below armpit (S.)(CDIAL 2591). **Groin**: keccal the udder of beasts (Ka.lex.) ked belly from navel to groin (Ko.); ke0 lower belly (of man)(To.); gejje the groin between the belly and the thigh (Ka.); gajja id. (Te.)(DEDR 1938). kaks.a armpit (RV.); groin ? (AV.); kaks.a_ armpit (Sus'r.); kaccha id. (Pali); kakkha, kaccha (Pkt.); kakh, kak (Gy.); xac.em my armpit (Pas'); koch curve above the hip where babies are carried (K.); ka_kh lap (N.); side of the body, armpit (Ku.); ka_khi side of the body below the armpit, armpit (N.); ka_ch side, edge (N.); ka_x side of the body, edge (A.); ka~_kh flank, hip, waist; armpit (B.); side, armpit (Mth.Bhoj.H.); ka_kh id. (G.); ka_s loins, waist, udder (M.); ka_kha side, armpit (Or.); kach armpit (K.); kach, kachu (S.); kacho side of a boat (S.); kakchli_ id. (WPah.); kaccha_ id. (P.); kacch armpit (L.P.); ka~_kh armpit (M.); kha_kko (Konkan.i); kasa armpit (Si.); kac.-kuru_ armpit (Kt.); kacant-ko_u (Wg.); kus.lok (Pr.); kacya_l (Gaw.); kac.a_l (Bshk.); kas.a_l (Tor.); ka_xe by the side of (A.); kakhu to, for (OB.); kaha~_ beside, near (N.)(CDIAL 2588). kamukkat.t.u armpit (Ta.); ganjguy, ganjgu.l.y armpit (Ko.); komkwir. (To.); kavun:kur, kan:kur, kan:kar., kan:kur..a, kon:kur.. id. (Ka.); gan:kelu id. (Ka.); kavunki vital spot (Kod.); kan:kkul.a armpit (Tu.); karkiled.i (Kor.); kaun:gili breast, bosom; an embrace; kaun:gilincu to embrace, hug, press to the bosom (Te.); kavkor, kavkod. armpit (Pa.); kavngil, kangil lap (Pa.); kalgil id. (Ga.); ka_kri_, kakri armpit (Go.)(DEDR 1234). kidukilu armpit (Tu.); kitki lomber.i, ki_ti kola id.; ki_ti tickling (Kui); kitkorod.i armpit (Kui); kutli_ id. (Go.); gutu id. (Kur.); kusul id. (Ga.)(DEDR 1551). akkul., can:kam armpit; akkul.u to tickle (Ta.); akkul.am armpit, tickling (Ma.); cakkili armpit (Te.); can:ka, can:kili id. (Te.); sanka_, sankha, sakka id. (Kol.); sakka id. (Nk.); canka id. (Ga.); ceql kund.e to tickle (Malt.)(DEDR 2274). tokku armpit (Ma.); tol^okh side of the body, flank (Kur.); tolokh armpit (Kur.)(DEDR 3520). **Breast, udder, teat**: a~_car breast (Aw.); a~_cal. udder, teat (G.); a~_cu_l. udder (M.)(CDIAL 168). ca_ci mother's milk (Ta.) a childish word for the female breast (Ka.); woman's breast (Te.)(DEDR 2436). > **Stream 1**: kaccu a kind of corset worn by Indian women in ancient times (Ta.); bodice to confine the breast (Ma.) < ? kacuka (Skt.)(DEDR 1098). kaccu > **Stream 2**: kaks.ya girdle, girth (RV.); kaks.a_ girdle (MBh.); loincloth (Skt.); kaccha_ belt, loin-or waist-cloth (Pali); loincloth (Pkt.); ka_kha_ strings by which a load is tied to the

back (Ku.); ka_ch cloth worn between the legs, edge, hem (N.B.); tuck in a dhoti, loincloth (G.); ka_c hem of loincloth tucked in between the legs (B.); ka_cha a small cloth (Or.); loincloth (H.); ka_cha_ loincloth (Or.H.); kacha_ end of garment tucked in (Or.); small tight loincloth (Bi.); kachanⁱ a small loincloth (Mth.); ka_cho tuck in a dhoti, loincloth (G.); ka_chr.o tuck in a sari (G.); ka_, ka~_s tuck in a dhoti (M.); ka~_cya_ fold of dhoti, girdle (M. < LM); kasa-pat.a fold in a body cloth (Si.); kaci near (Dardic <?kaks.ye_); kas, kac, gasi~_ beside, with, by (Dardic)(CDIAL 2592). khesiyu~ a cloth loosely worn over the shoulders (G.); khe~s a partic. kind of cloth (cotton, wool, or silk)(M.); kes' silk, silk threads (Gy.); khes' a kind of silk cloth worn by women as a girdle (K.); a woollen wrapper (B.); khesr.a_ a figured cloth (H.); khesu thick cotton cloth (S.); khes thick cotton shawl with coloured border (L.); a particular kind of cloth made in Bhadgaon (N.); a figured cloth (H.); a cloth loosely worn over the shoulders (G.); a kind of cloth (P.); khesi_ small shawl (P.)(CDIAL 3924). cf. kayal string (Ma.); kayir-u rope, cord, string (Ta.)(DEDR 1254).

kajam yard-measure (Ta. < gaz (U.); kasi_, kasai_, kesai_ rope used in land measurement (H.)(CDIAL 2965).

kaca, kasa, kasara, gaji, kacapici the sound of mixing miscellaneous boiled things (as rice, vegetables, etc.) with the hand: confusion; kacapici kalasu to mingle boiled things in a confused manner; kacapicakelasa confused work (Ka.lex.) kaca kaca a sound produced as when kneading any glutinous substance (Tu.lex.) kujalam sour gruel (Skt.lex.) To mix; rice and lentils: kacapu a dish of boiled vegetables or fruits seasoned with salt, pepper, etc. (Ka.); kajapu, kajipu (Tu.); katipaya several, some (Ka.)(Ka.lex.) ginjna_ to mix (Kur.); ginjye id.; ginjgro mixed (as food)(Malt.)(DEDR 1522). kiccad.i a kind of vegetable dish; kaccari a kind of sauce (Ka.lex.)

ka_cam < ka_ca crystal; ka_calavan.am salt of potash or soda in crystalline state, one of pan~ca-lavan.am; ka_cu gem, crystal bead (Ir-ai. 2, Urai. Pak. 29)(Ta.)(Ta.lex.)

keccu (the marrow, essence, or pith of plants etc.); core, the heart of a tree; essence, strength (majjan, sa_ra); marada-keccu id.; keccu-kat.t.u to become strong, firm, or excessive; kecco_r..ad.ike pieces of areca nut that are hard (Ka.lex.) kirci slippery mud (Ka.)

kas kasa = bronze, bell-metal (Santali) ka_msum = bell-metal; any amalgam of zinc and copper; :Skt. ka_msya (G.); ka_msa_m, ka_msi_ = large cymbals made of bell-metal (G.) kamsa_r, kanasa_ro, kan.asa_ro (cf. ka_msum fr. Skt. ka_msya = bell-metal + ka_r 'worker fr. kr. 'to do') a copper-smith (G.) kasis = sulphate of iron (Santali) ka~c = glass; kaca, khanca, khaca = a pice, 1/4 of anna (Santali) ka_cu = gold, gold coin, money, a small copper coin (Ta.); ka_s'u = gold, money, the smallest copper coin (Ma.); ka.c = rupee (Ko.); kos. id. (To.); ka_su = the smallest copper coin, a cash, coin

or money in general (Ka.); ka_su an old copper coin worth half a pie, a cash (Tu.); ka_su = a cash, a coin in general, a gold coin, money (Te.); pice (Go.); Skt. kars.a (DEDR 1431). ka_n~canam = gold (Skt.) ka_ji a glass bangle (Tu.lex.) ka_ju (Tadbhava of ka_ca) glass; ga_ju glass; ga_ju-dod.ige a glass-ornament (Ka.lex.) ka_ch glass (so termed in poetry); kachch glass (P.lex.) ga_ju glass (Te.lex.)

kacam hair on the head (Ta.lex.) kaca the hair of the head (Ka.Skt.); matted and twisted hair; a bundle of hair at the back of the head; a binding, band; the hem of a garment; kaca-paks.a a quantity of hair; much hair; thick or ornamented hair; kacapa_s'a = kacabhara a quantity of hair etc. (Ka.); kacabandha a braid of hair (Ka.)(Ka.lex.) For semant. 'hem' cf. kaks.a, kacca, kacce the hem of a garment tucked into the waist-band (Ka.Skt.); kacce (Tadbhava of kaks.e) id.; a female's cloth; a girdle (Ka.); kaccai (Ta.); kaccha the hem or end of a garment tucked into the waist-band; the tuck of a do_tra etc.; ka_ca_, ka_si a cloth used as girdling for the loins (Ka.); ka_cya_ (M.H.); ka_s'a_karpat.a = ka_sigappad.a, ka_sikacad.i, ka_sigappad.a a rag used to cover the privities or to gird the loins (Ka.); ka_s'e, ka_ca_, ka_si, ka_se (Tadbhava of ka_s'a_) a cloth used to cover the privities or to gird the loins (Ka.); the end of a woman's garment tucked into the waist-band (Ka.); ka_cya_ (M.)(Ka.lex.)

kaca-put.am < gaja + calcining medicine with the fire prepared from burning 100 cakes of cow-dung (Mu_. A.)(Ta.lex.) cf. kacaga_r-like the business of a brazier, a worker in bell-metal, a coppersmith; kacaga_rti a woman of the brazier caste; kaciga name among Telugu bra_hman.as and s'u_dras (Ka.); kacuga_r-a, kacaga_r-a brazier; vyo_ka_ra, lo_haka_ra (Ka.lex.) Still: kacchapa a flat kind of still (Ka.lex.) A treasure of Kube_ra: kacchapa an apparatus used in the distillation of spirituous liquor; one of the nine treasures of Kube_ra (Skt.lex.) To rub, scrape, assay: kasan assaying (H.); kasn.i_ test by rubbing, distress (G.); kas.an.a rubbing, testing (Skt.)(CDIAL 2971). kas.ati rubs on a touchstone (Pa_n..com.); scratches (ChUp.); kas. hurts (Skt.); kasai rubs (Pkt.); ks.e to scrape, rub (Kt.); kas.a_ to whittle, lick (Wg.); kos.o to scratch (?Pr.); ka_z. to smear, wipe (Pas'); khos.ik to groom a horse (Kho.); kaha_iba to apply a mordant substance (A.); kasiba_ to rub, scrape, scratch, labour hard (Or. semant. cf. gahan.u)(CDIAL 2972). Touchstone: kas.a rubbing (Skt.); touchstone (Pa_n..com.); kasa striking; rubbing on a touchstone (Pkt.); touchstone (Or.); kahu wearying (K.); kahu tinder (L.); kasi touchstone (N.OMarw.OG.); kah a mordant substance (A.); kas touchstone (B.P.); assay, test (H.); quality of gold or silver as determined by rubbing on a touchstone (M.); kasaya touchstone (Si.)(CDIAL 2970). kasapat.t.a, kasavat.t.a touchstone (Pkt.); kas.apat.t.ika_ touchstone (Skt.)[perh. hyper-sanskritism]; kahwut.^u (K.); kasaut.i_ (Ku.); kasat.i (B.); kaxat.i (A.); kasot.i (Or.); kasaut.i_ (Bi.OAw.H.P.); kasawat.i_ (Bhoj.); kasot.i_ (S.); kasvat.i_ (S.M.); kasaut.au (OG.); kasot.i_ (G.M.); kasvat. (M.)(CDIAL 2973). Friction, trituration, abrasion: ghars.a friction (R.); gharisa, ghamsa, gha_sa id. (Pkt.); gos. dough (Kho.)[cf.a_raz.el to knead (Psht.)]; gah, g^{ah} trituration (K.); ghaso rub, scrape (S.); ghe~s a touch, a rub (B.); ghas abrasion (L.);

ghassa_ loss (L.); rubbing (esp.in copulation)(P.); gha_s wear and tear (G.); gha_sa_-gha_s reiterated rubbing (M.)(CDIAL 4448). Miller: ghat.ero, ghat.t.ero miller (N.)(CDIAL 4452). ghars.an.a rubbing (Sus'r.); gharisan.a-, gharasan.a-, gham.san.a rubbing (Pkt.); gahana beating (Si.)(CDIAL 4449). Grindstone, mill: ghars.t.a grindstone, mill (Skt.); gharat.t.a grindstone (Skt.); gharat.t.aka, gharat.t.ika_ grindstone (Skt.MIA.< ghar^a.s.t.ra or ghrat.t.hra- (Skt.) ghurat. handmill (L.)(CDIAL 4488). To pound; rub, polish, wear away: ghr.s.t.a rubbed, pounded (Sus'r.); frayed, sore (MBh.); ghat.t.ha, ghit.t.ha rubbed (Pkt.); gat.ho rubbed (S. with a for i after pres. st. gasan. < ghars.ati); ghat.t.ha_ hard place on palm by attrition (P.); gha_t.ha_ blister (P. ?<H.)(CDIAL 4510). xarbna_ to give an extra pounding of rice, for cleaning it from grains unhusked or spoiled (Kur.); qarwe to clean rice by pounding; qarwre to be bruised or hurt by falling (Malt.)(DEDR 1295). ghr.s.t.i rubbing, pounding (Skt.); ga_t.hi an excoriation (a_?)(S.)(CDIAL 4511). ghars.ati rubs (Sus'r.); ghr.s.yate_ is rubbed (Skt.); gham.sati rubs, grinds (Pali); gha_sai rubs (Pkt.); gas., gas to rub, rub in (Dardic); ghasun. to rub (L.); gha_sta_ polishes (Konkan.i); gasanava_, gahanava_ to beat, strike (Si.); ghasai rubs, polishes (Pkt.); gaz.oiki to grind (on flat stone with another stone)(Sh.); g^ahun to grind, polish (K.); gahan.u to rub, grind by rubbing (S.); ghaun.a_ to grind, rub (P.); ghau~h rubbing (P.); ghi_h rubbing the body (P.); ghasnu to rub on (N.); gha~hiba to rub, grind (A.); ghi~sa_ to rub against (B.); ghasa_ to rub (B.); ghasiba_ to rub, massage (Or.); ghisna_, ghasna_ to rub (H.); ghasvu~ to rub, polish (G.); gasan.u to be abraded, to fret (S.); ghassan., ghassun. to be rubbed, wear away (L.); ghasn.a_ id. (P.); ghisinu id. (N.); ghisna_ to be rubbed (H.); gha_vu~ to wear away (G.); gha_sn.e~ id. (M.)(CDIAL 4450). ghars.a friction (R.); gharisa, gham.sa, gha_sa (Pkt.); gah, g^ah trituration (K.); ghas'o rub, scrape (S.); ghas abrasion (L.); ghassa_ loss (L.); rubbing (esp. in copulation)(P.); ghe~s a touch, rub (B.); gha_s wear and tear (G.); gha_sa_-gha_s reiterated rubbing (M.)(CDIAL 4448). ghat.t.ayati rubs, touches, shakes (Sus'r.); ghat.t.ate_ (Dha_tup.); ghat.t.ita (MBh.); ghat.t.ai touches, rubs against (Pkt.); ghot.o to rub with a pestle (S.); gho_t.un. to rub (L.); ghot.n.a_ to grind, rub, smoothe; ghot.t.a_ a paper-polishing instrument (P.); ghot.nu to rub, polish, wear away (N.); gho~t.a_, ghu~t.a_ to rub (B.); ghot.na_, gho~t.na_ to rub (H.); gho~t.n.e~ to grind, rub, polish (G.)(CDIAL 4417). To rub; to pulverize: xo_sna_ (xu_syas) to pulverize by pounding with a heavy instrument which beats vertically, harass (Kur.); qose to pound, smash (Malt.); xo_shking, xo_shing to rub (Br.); tene xo_shking to consort with, interfere with (Br.)(DEDR 2189). sok to pound grain; chakachun, khijau to pulverise (Santali.lex.) Rubs; grinds: gos. dough (Kho.); a_gazel to knead (Psht.); gah, g^ah trituration (K.); ghas'o rub, scrape (S.); ghas abrasion; ghassa_ loss (L.); rubbing (esp. in copulation)(P.); ghe~s a touch, rub (B.); gha_s wear and tear (G.); gha_sa_-gha_s reiterated rubbing (M.)(CDIAL 4448). cf. ghars.an.a rubbing (Sus'r.); rubs oneself (MBh.); ghr.s.yate_ is rubbed (Skt.); gham.sati rubs, grinds (Pali); gham.siya, gha_sai rubs (Pkt.); gas. (Dm.); gas' to rub, rub in (Wot.); ghas' to clasp, bite (Phal.); ghasun. to rub (L.); ghasa_ (B.); ghasna_ (H.); gha_svu~ (G.); gha_sn.e~, gha~_sn.e~ (M.); gha_sta_ polishes (Konkan.i); gasanava_, gahanava_ to beat, strike;