

ga_nava_ to rub, smear (Si.)(CDIAL 4450). kas'un (past tense impersonal) to itch, scratch oneself (K.); kas. rub (Skt.)(CDIAL 2979). kas.a rubbing (Nais.) (CDIAL 2970). To rub the body; wipe off: khus, khos' to wipe off (Gypsy); ghasai rubs, polishes (Pkt.); gazoiki to grind (on flat stone with another stone)(Sh.); g^ahun to grind, polish (K.); gahan.u to rub, grind by rubbing; pp. gat.ho (S.); ghaun.a_ to grind, rub; ghau~h rubbing; ghi_h rubbing the body (P.); ghasnu to rub on; ghisinu to be rubbed (N.); gha~hiba to rub, grind (A.); ghi~sa_ to rub against; 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_ (P.); ghisinu (N.); ghisya_unu to drag along; ghisrinu to be bedraggled (N.); ghisna_ to be rubbed (H.); gha_svu~ to wear away (G.); gha_sn.e~ (G.)(CDIAL 4450). gasa_t.i with great force (of rubbing)(Ka.); ghas.t.a_ a rough rub or wipe (M.); gasa_t.i tikku to rub with force (Ka.M.); gasa a sound used in imitation of a somewhat gentle, but quick way of rubbing; gasagasa tikku to rub as the teeth, the body, or clothes on a stone slab etc. (Ka.M.); gasagasa tur..i to make clean or bright by treading as grain (Ka.); gasi, gas.t.u the sediment or dregs of oil or melted butter or of pickles (Ka.Te.); kat.t.u (Ma.); kat.uku (Ta.) (Ka.lex.)

cf. dosta = zinc (Santali) turu rust, verdigris, flaw; turucu, turuci blue vitriol, spot, dirt, blemish, stain, defect, rust; turicu fault, crime, sorrow, affliction, perversity, blue vitriol; tukku, tuppuru rust (Ta.); turis'u blue vitriol; turumpu, turuvu rust (Ma.); tukku rust of iron; tutta, tuttu, tutte blue vitriol (Ka.); tukku rust; mair(u)suttu, mairututtu blue vitriol (Tu.); t(r)uppu rust; trukku id., verdigris (Te.)(DEDR 3343). tuttha, tutthaka blue vitriol (used as an eye ointment)(Sus'r.); tu_taka (Skt.); dhu_rta iron filings (SKt.); tutho blue vitriol or sulphate of copper (N.); tuth (B.); thoth, thothas (K.); thotha_ (P.); tu_tio (S.); tutiya_ (A.); tu~te (B.); tutia_ (Or.); tu_ta_, tu_tiya (H.); tutiya_ (M.); tota_ (M.)(CDIAL 5855). tuttam < tuttha a prepared arsenic, vitrio, sulphate or zinc or copper (Cu_t.a.); tutty, blue or white vitrio, used as collyrium (Tailava. Taila. 69); tutta-na_kam < tuttha-na_ga zinc (Pin.)(Ta.lex.)

Tin: 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). cf. 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.)

Silver; gold: cokka-k-kat.t.i-vel.l.i, cekkavel.l.i pure silver (Ta.); cekkabel.l.i id. (Ka.); cekkabol.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.)

In the Babylonian Talmud (+2nd century), *asemon* is a commonly used word referring to bullion (gold, silver or mixed). Leiden X papyrus (ca. +3rd century) says: "no.8. It will be *asem*, (i.e. *electrum*, an alloy of gold and silver) which will deceive even the artisans (a tin-copper-gold-silver alloy); no.12. Falsification of gold (a zinc-copper-lead-gold alloy)..." (Needham, Joseph, 1971, *Science and Civilization in China*, Vol. 5, Part II, pp. 18-21). *Asem* denoted the natural alloy of silver and gold; it also meant any bright metal made with copper, tin, lead, zinc, arsenic and mercury. Twelve or thirteen different alloys were called *asem*. (ibid., p. 45). 'The existence of this alloy (*asem*) may have been the original cause for the suggestion of transmutation since by adding silver to it, one would get a metal nearly identical with the crude silver from the mine; and by adding gold, something indistinguishable from gold. [The paucity of the Egyptian language may perhaps have been responsible for a confusion. Gold was the 'yellow metal', and the alloy produced was also a 'yellow metal'.]' (Hopkins, A.J., 1967, *Alchemy*, pp. 103-4).

The presence of zinc in a Lothal artefact (2200-1500 B.C.) (No. 4189) assayed: 70.7 percent copper; 6.04 zinc; 0.9 Fe, 6.04 acid-soluble component (probably carbonate, a product of atmospheric corrosion). The zinc and other components could have come from the Ahar-Zawar area, Rajasthan. The next dated brass artefacts are: from the Gordian tomb in Phrygia of the eighth and seventh century B.C. and Etruscan bronze of the fifth century B.C. containing 11 percent zinc.

KTM Hegde and Ericson, J.E., 1985, Ancient Indian Copper Smelting Furnaces, in: *Furnaces and Smelting Technology in Antiquity*, ed. P.T. Craddock, Occasional Paper No. 48, British Museum, London, pp. 59-67: The survey covered six ancient copper ore mining and smelting sites in the Aravalli (Arbuda) hills extending over a thousand kms.: Khetri and Kho Dariba in NE, Kankaria and Piplawas in the Central part and Ambaji in SW.. A large majority of mine-pits measure 7-8 metres in dia. and 3-4 metres deep showing evidence of fire-treating of the host rocks on the mine walls to widen rock joints. The evidence indicated probable mining in the chalcolithic period. Timber supports recovered from a gallery at a depth of 120 metres at Rajpura-Dariba mines in Udaipur District were radio-carbon dated to 3120+/- 160 years before the present (1987). This correlates with the zinc-containing copper artefacts of Atran-jikhera.

kasa = quality of gold or silver (as determined by rubbing it on a touch-stone); *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.)

kas' = an iron instrument for digging; kos' = an iron bar sharpened at one end, used as an instrument for digging (G.) kus' = a ploughshare (Skt.)

kus' one-horned (of ibex, markhor, etc.)(Sh.); kus'ika squint-eyed (RV.); kus'o maimed, crippled; kus'ulo having a bit broken off (e.g., a cup), maimed ? (Sh.); kus'a depraved, mad, inebriate (Skt.)(CDIAL 3364).cf. us.un. young male ibex (Kho.)(CDIAL 1856).

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).

kasi_ trench, watercourse (S.); kass catch drain, ravine (L.); kassi_ small distributing channel from a canal (L.); ka~s artificial canal for irrigation (G.)(CDIAL 2909).

kasabo = a town (G.); kasvah = a town (Arabic)

kha_siyum = a double bag to load a donkey with (G.) ka_sad (Arabic) a messenger, a carrier; a runner; ka_sadiyum = serving as a messenger, carrying a message (G.) kaccha, kaccho = a piece of cloth worn round the loins (Dh. Des. kaccha_ fr. Skt. kaks.a, kaks.a_, kaccha 'the hem of a lower garment tucked up into a waistband'] (G.) kaso = to plait, a frill, a plait; kaskasao = to tighten, to pull tight, pull together; kaci, kacni = a piece of cloth worn round the loins as a skirt; kaci, kaca = a piece of cloth worn round the loins (Santali) kaccai = girth, girdle; kaccu = belt, girdle (Ta.); kacca = girdle, waist-belt, long cloth (Ma.); kacce = end of lower garment gathered up behind and tucked into waistband (Tu.)(DEDR App. 20; CDIAL 2592; Skt. kaks.ya_; cf. Pali. Pkt. kaccha_). Kan~cip (kan~cit) to fasten bullock to yoke (Pa.); kaccu to join (Ka.); gac- (-c-) to tie, bind (Pe.)(DEDR 1099). Kaccu = a kind of corset worn by Indian women in ancient times (Ta.); bodice to confine the breast (Ma.); Skt. kan~cuka (DEDR 1098).



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).

bhat.i = liquor from mohwa flowers (Santali)³³

bat.hi = a furnace for melting iron-ore (Santali)

kut.i = a woman water-carrier (Te.lex.) **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).

Water-carrier **kut.i** = a woman water-carrier (Te.) [Rebus: **kut.hi**, 'furnace']



Sign 12



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.

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

Signs 12 to 15 including variants and ligatures This sign could be a synonym of
kut.i = water-carrier (Te.)

Alternative:

ka_ja carrying-pole (Pali); kahar (K.); ka_ha_r = a low caste of palanquin-bearers and water-carriers (B.); ka_ha_l.a, ka_ha_ra, ka_a~_l.a, ka_a~_ra a low caste of bearers (Or.); kaha_r = palanquin-bearer, water-drawer (H.); palanquin-bearer (M.)(CDIAL 3011). **kahar** = a Hindu caste, a palki bearer (Santali.lex.)

Buffalo-horned divinity. Painting on a jar. Kot Diji. C. 2800-2600 BCE [After Khan 1965, pl. XVIIb; cf. Fig. 2.25 in JM Kenoyer, 1998, *Ancient cities of the Indus Valley Civilization*, Karachi, Oxford University Press].

go.l- (god.d.-) to beat, shoot with bow; god. to cut with axe (Kol.); gor.- (got.-) to strike, beat, kill (Nk.); kol. (kol.v-, kon.t.-) to strike, hurt; ko_l. killing, murder (Ta.); kol.ka (kon.t.-) to hit, take effect, come in contact (Ma.); kol.l.ikka to hit; ko_l. hitting, wound, damage (Ma.); kol.-/kon.- (kod.-) to pain, trouble (Ko.); kwil. (kwid.-) to quarrel (To.); kon.pini to hit; kol.puni, kolpuni to come into collision (Tu.); konu to be pierced as by an arrow (Te.)(DEDR 2152).

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

Water-carrier (rebus homonyms: ko_l., planet; kol.i_ water-carrier: hence, the hieroglyph depicting two stars with the water-carrier pictograph; thus, the depiction of fig around many standing persons in inscriptions may be treated as a phonetic determinative of the lexeme ko_l.i which also represents a fig family of trees which bear fruit without blossoming).

Alternative 1: **ko_l.** 'planet'; rebus: **kol** 'metal'

Alternative 2: **ukka_**, 'stars'; rebus: **ukka_**, 'furnace'; ka_~vad.iyo, 'water-carrier'; rebus: kamat.ha_yo, 'carpenter'; alternative: kut.i, 'woman water-carrier'; rebus: kut.hi, 'furnace'.

Glyphs showing seated persons in yogic posture



m0305AC 2235 Pict-80: Three-faced, horned person (with a three-leaved pipal branch on the crown with two stars on either side), wearing bangles and armlets. Two stars adorn the curved buffalo horns of the seated person **with a plaited pigtail**.

ukka_, 'stars'; rebus: **ukka_**, 'furnace'; together with horns, ku_t.a; rebus: ku_t.am, workshop; the glyph on m0305 is partly read as: furnace, workshop.

Substantive: *suki* 'a small silver coin, a four anna or two anna bit'; *t.aka* 'silver, rupee, money' (Santali)

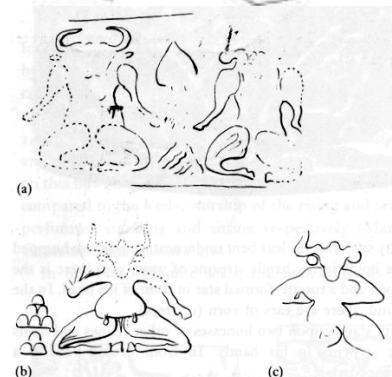


suk'erika 'stars' (Kuwi)(DEDR 2646) *sukar*, *sukor* 'the planet vennis as evening star' (Santali) Rebus: *sokol* 'fire' (Santali) *bar* 'two'; Rebus: *bara* 'oven' Seated person: *hasani* 'fireplace'; *asani* 'seated'

Motif of buffalo horns is combined with six-pointed star. [After Parpola, 1994, Fig. 14.19: Painted pottery, c. 3000-2600 BCE. a. Kot Diji, Sind; b,c. Gumla, NW Frontier Province; d. Burzahom, a Kashmir Neolithic site. After H.D. Sankalia, 1974, *The prehistory and protohistory of Bha_rata and Pakistan*. Poona, 354, fig. 88: k].



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)

sal 'Indian gaur'; **sal sakwa** 'horns of indian gaur'.

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, ukkum, 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.); sukhara. (G.); sukkila, sukkilla bright, white (Pkt.); s'ukl.i 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'; ka_~vad.iyo, 'water-carrier'; rebus: kamat.ha_yo, 'carpenter'; alternative: **kut.i** 'woman water-carrier'; rebus: **kut.hi** 'furnace'.

kut.i hut (G.Skt.)

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.) cf. **kan.d.a** = furnace, altar (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).

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

kut.i = the eyebrows (Santali.lex.)

An antelope is shown with a seven-pointed star around a dotted-circle on tablet h-349.



h349A



h349B

Dotted circles and Standard

sa~gad. = lathe component (drill); san:ga_d.o = cutting stone; **san:gataras'u_** = stone cutter; san:gataras'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.) agud.e = brazier (Tu.)



s'agad.i_ (G.); saghad.i_, s'aghad.i = a pot for holding fire (G.) Firepan: san:gha_d.o, saghad.i_ (G.) [cula_ sagad.i_ portable hearth (G.)]

sangha_d.o (G.) (things) given for approval; (goods) taken from a shop to be bought if approved; taken without definite settlement of purchase.

Dotted circle³⁴

Glyph: *khan:ghar, ghan:ghar, ghan:ghar gon:ghor* 'full of holes' (Santali)
Substantive: *kan:gar* 'portable furnace' (K.)

pa_sa = die (G.)

pa_sa lump of metal (H.)(CDIAL 7951).



san:gr.a, san:gr.i (Santali) = a pole with slings carried on the shoulders of two men

It may be hypothesized that the 'trefoil' glyptic motif is related to this lexeme, *tebr.a* 'thrice, three times'. tagad.o [Skt. trika, a group of three] the figure three (G.lex.) *t.haba t.hobo* = in a cluster, applied to fruit (Santali); rebus: *t.habu t.habu* = large, big, very big (Santali). **tamba** = copper (Santali)

Thus, the 'trefoil' motif may be read as: *tebr.a kan:ghar* 'copper [ta(m)bra] furnaces'. **tibira** = copper merchant (Akkadian). The 'priest-king' statuette adorned with a *uttari_yam* (*angarkha*, drape) with 'trefoil' embroidery is an apparent rebus representation of a very big copper merchant.

vahni = three (IE 7.1.2; EI 33; IEG)

vahni = fire (Te.lex.) vahani = fire (Skt.G.lex.) vahana = fire (G.lex.) hutavahana = fr. huta, sacrificed, the oblation (Skt.) vaha_n.um = Hem. Des. viha_n.am = lighted (G.lex.)

va_hini = a self-sufficient division or unit of an army (Te.lex.) vahan.i (IA 18), meaning uncertain (IEG). **va_hini_pati** (EI 28; IA 10), leader of forces, a general, sena_pati (IEG)

bharata = embroidery; working flowers on cloth (G.lex.)

Substantive: *bharatiyo* a caster of metals; a brazier; **bharata** casting metals in moulds; *bharatara*, *bharatala*, *bharatal.a* adj. moulded; *bharavum* to pour into; to fill in; to put in; to fill; *bharatiyum* an invoice (G.)

Priest statue (DK 1909), Mohenjodaro; four views; white steatite, with remnants of red paint inside the trefoils of the robe; height 17 cm.; National Museum of Pakistan, Karachi; After Marshall 1931a:pl.98; Parpola, 1994, p. 212.

Trefoil motif and dotted circle motif on the uttari_yam worn on the stone statuette. A buffalo-horned headdress perhaps was added to the back of the head, to depict him as a chief. (After JM Kenoyer/Courtesy Dept. of Archaeology and Museums, Govt. of Pakistan).

bharan.d.a = master, lord: Un. 1.128; a bull (Skt.lex.) **bharan.yu** = a protector, master (Skt.lex.) **bharatha** = a world protector (= loka pa_la: Un. 3.115); a king; fire



(Skt.lex.) **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.)

Three dotted circles appear on the robe of the sculpture in the round of a 'robed priest'. A dotted circle is also depicted as the eye of a fish or hare (Fish: H-329, H-330 and Hare: H-335).

potr. = priest of Vedic yajn~a (RV)

po_tra = the Potr.'s soma vessel (RV.), **pot** = jeweller's polishing stone (Bi.)

po_tramu = snout of a hog; po_tri = a hog; a boar (Te.)

po_tramu = a cloth; a ploughshare (Te.)

pot glass bead (P.); potti_ glass (Pkt.); pu_ti glass bead (S.); pote long straight bar of jewelry (N.); pot glass bead (B.); puti, pu_ti small bead (B.); puti necklace of small beads (Or.); pot glass bead (H.G.M.)(CDIAL 8403). pot.i-vet.t.i goldsmith's shears or scissors (to cut gold wire); pot.i solder, metallic cement; particle, fragment; that which is small (Ta.lex.) potti a kind of gem (S.I.I. iii,143)(Ta.lex.) Image: to perforate: cf. potir-ttal to pierce (Ci_vaka. 2778); potu-tal to be perforated (Tiv. Tiruccan. 73)(Ta.lex.) po~ti bead (B.)(CDIAL 4205). bud.hi mala a bead with wide hole (Santali.lex.)

t.hakkaru, t.hakkarud.u = a deity; an idol; an honorific title same as t.ha_ku_ru, t.ha_ku_ru = a father; a religious preceptor (Te.lex.)

ta_varam = lingam; ta_vara-lin:kam = lingam set up in tables for general worship; ta_varan- = God (Ta.lex.) tambal.a = a certain caste among s'u_dra, who are worshippers of S'iva and are priestlings in temples; tambal.i = a man of the tambal.a caste (Te.lex.) tammad.i = an attendant on an idol (Ka.); tambal.ava_d.u, tammal.a, tammad.i, tammali, tammal.ava_d.u (Te.)(Ka.lex.) tagidar = an overseer (Santali.lex.)

tamar = counselors, men guiding one's affairs: tammir- periya_r tamara_ vor..ukutal : (Kur-al. 444); tamar = servants (teva_ 907.1); tamar = relations, kindred (Ta.Ka.Ma.); friends, well-wishers (Pur-ana_. 157); tamarmai = friendship (Ta.); tamal. A female relative or friend (Ta.); taman- = a male relative or friend: cu_l.a_. araci. 182); tavan- < tapas = ascetic (Periyapu. Pura_n.aca_. 22); tavan- = religious austerity (Ta.lex.) tamaru (collo. pl. of ni_vu) you: used in respectful or polite address or to persons of higher station (Te.lex.) tavattar = ascetics; tavam < tapas = penance, religious austerities : Kur-al. 266 (Ta.) tameru, tamar, tamari, tamare = one who gives a bride away in marriage; a guardian (Tu.lex.) ta_mbu themselves (Kuwi); tamaru they, themselves (Kol.); ta_vu (Ka.); tamar = one's own people, relatives (Ta.)(DEDR 3162).tabe = dependent, subject; tabedar = a dependent, a follower, a subject; taben =

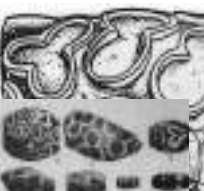
your (dual); tabol, tabon = ours, our, belonging to us (inclusive of person addressed)(Santali.lex.)

tabej = an ornament worn on the upper arm (Santali)

tavam < stava = praise, adoration: Ko_yir-pu. Iran.iya. 81 (Ta.lex.)

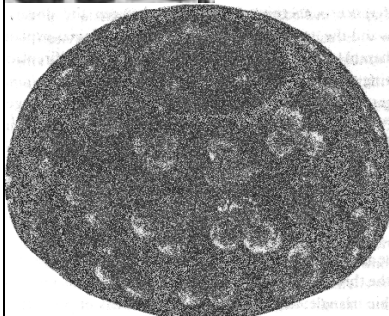


Bull with trefoil inlays; statue, Uruk (W.16017), c. 3000 BCE; shell mass with inlays of lapis lazuli; 5.3 cm. long; Vorderasiatisches Museum, Berlin; Parpola, 1994, p. 213.



Trefoil-decorated bull; traces of red pigment remain inside the trefoils. Steatite statue fragment; Mohenjodaro (Sd 767);. After Ardeleanu-Jansen 1989: 196, fig. 1; Parpola, 1994, p. 213.

Trefoils painted on steatite beads, Harappa (After Vats, Pl. CXXXIII, Fig.2)



Tre-foil inlay decorated base (for s'iva linga); smoothed, polished pedestal of dark red stone; National Museum of Pakistan, Karachi; After Mackay 1938: I, 411; II, pl. 107:35; Parpola, 1994, p. 218.



Two decorated bases and a lingam, Mohenjodaro.

Lingam, grey sandstone *in situ*,

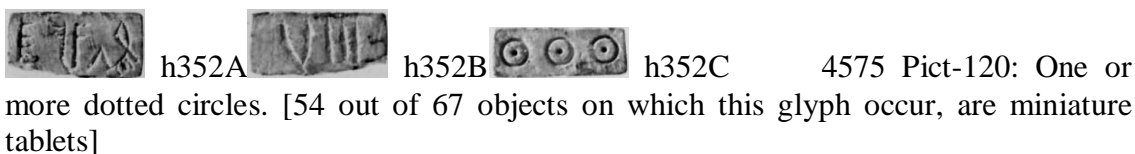
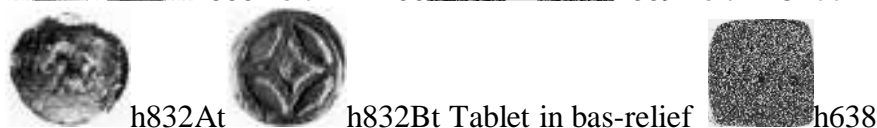
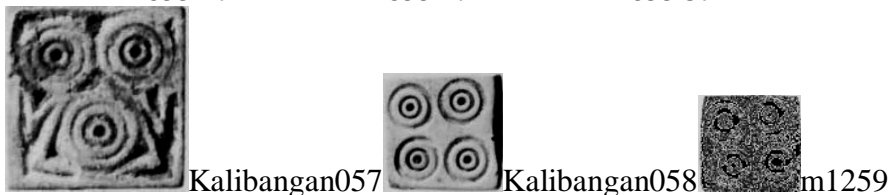


Harappa, Trench Ai, Mound F, Pl. X (c) (After Vats). "In an earthenware jar, No. 12414, recovered from **Mound F, Trench IV, Square I... in this jar, six lingams were found** along with some tiny pieces of shell, a unicorn seal, an oblong grey sandstone block with polished surface, five stone pestles, a stone palette, and a block of chalcedony..." (Vats, *EH*, p. 370).

Dotted circles betwixt standard device on a tablet

8093a.Image: to perforate; center: **bhog** the centre, the middle; bhogtetre ubpe empty in the center (Santali.lex.) bogoc to make a hole in, to open, to slit; pin.d.hako bogockeda they cut the dam; bhugak, bhuk a hole, an opening, a cave; bha~ora bhugak a window

opening, an opening to admit light (Santali.lex.) bhokvum. to pierce; to perforate; to bore; to puncture; to drive in or through; to stab; bhok a perforation, a hole; a bore; bhoka_vu hollowness; emptiness (G.lex.) bon:ku adj. hollow, empty; bon:g hollow inside; **boga_ri** copper-smith (Tu.lex.) bokko, bokkea_ blister, pustule (Kon.lex.)



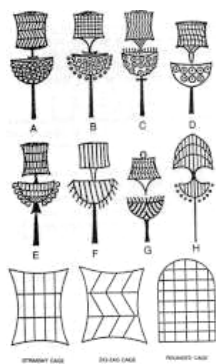
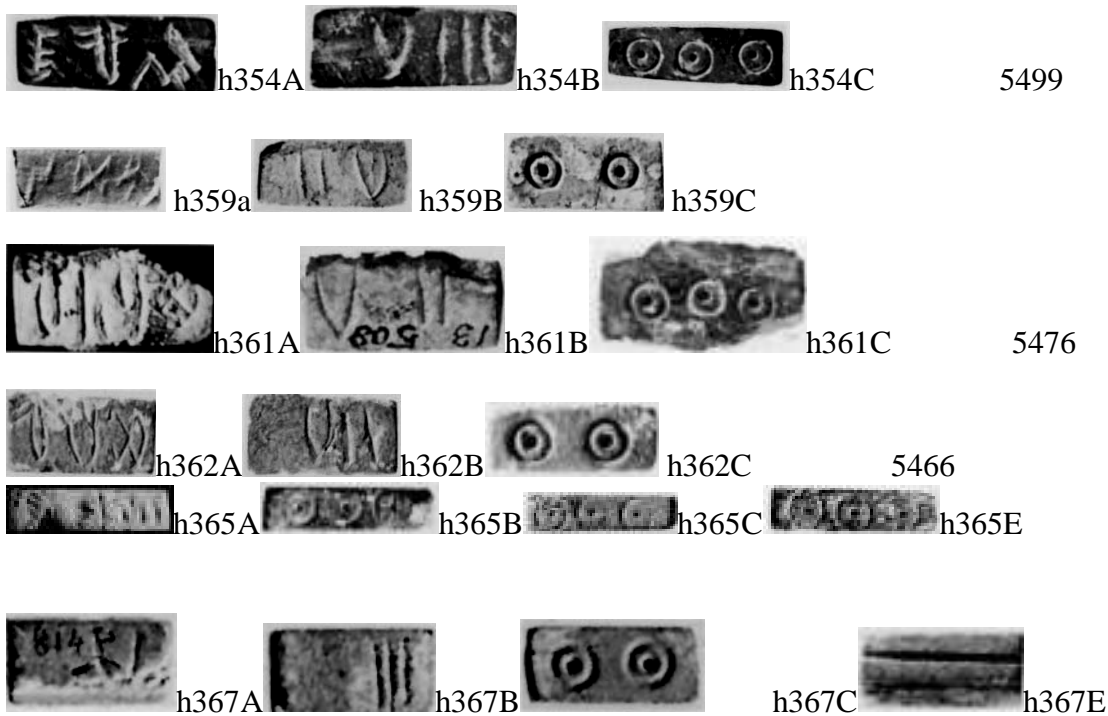
4575 Pict-120: One or more dotted circles. [54 out of 67 objects on which this glyph occur, are miniature tablets]

The text on top line occurs mainly on miniature tablets of Harappa over 46 times.

Top line of text 4575; third sign from left: Glyph, comb **kangha** (IL 1333) ka~ghera_ comb-maker (H.)

Rebus, substantive: **kan:g** = brazier, fireplace (K.)(IL 1332) Portable brazier; **ka~guru**, **ka~gar** (Ka.) whence, large brazier = **kan:gar** (K.)





4401

Tablet in bas-relief,
Mohenjodaro m490: insignia carried in procession: standard,
unicorn, ?pennant +?

Styles and structure of the standard and the top portion (cage?); cf. Mahadevan 1984: 185; Rissman 1989: 162

The top portion resembles a drill-lathe and a drill-head (gimlet). The wavy lines inscribed are a stylised depiction of 'turning motion' of the 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.

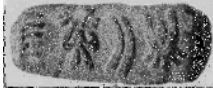
Phtanite drill-heads from the surface of MNSE area, Moenjodaro (Massimo Vidale, 1987, p. 147).



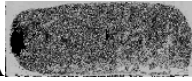
h098



4256 Pict-122 Standard device which is normally in front of a one-horned bull.



h228A



h228B

Standard device which is normally in front of a one-horned bull. The device is flanked by columns of dotted circles. 19 out of 19 occur at Harappa. [See h225 to h228].



h292A



h292B

m4443 Standard.



h293A



h293B

4441 Standard.



h887Ait



h887Bit (Incised tablet)



m1408At [The standard device is part of the tablet with a text containing four signs.]

m0008a and m0009a [Note the orthography on the device: The top portion ends in a pointed end, shaped like a gimlet [**tamiru** (gimlet); rebus: **tavaru**, 'tin'] has wavy lines indicating churning motion of a lathe: **san:gad.a**; the bottom portion is ligatured with dotted circles, indicating drilled beads; smoke emanates from the bottom pot held on a rod, indicating it to be a portable furnace: **san:gad.a**]. Combined with tavaru, the device connotes: **tavaru san:gha_ta**, (i.e. tin + composite material) alloyed with tin! The bill of materials indicated by the inscription is a list of metal weapons and tools made with tin alloy.



m0008a

1038



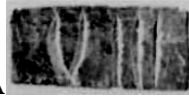
m0009a

2616

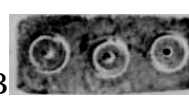
(Note the churning motion using a gimlet and emanating smoke depicted on the upper register of the lathe device and the dotted circles on the bottom vessel; both are mounted on a central 'stele') The dotted circles which appear on the bottom vessel on m008 are also seen on miniature tablets and other inscribed objects.



h353A



h353B



h353C

miniature

tablet, incised with 3 dotted circles similar the ones found on the bottom vessel.



[Reconstruction after I. Mahadevan, 1984, pp.165-86]

[Note the 'stele' found in fire-places in Kalibangan, Banawali and Dholavira and other Sarasvati River ancient settlement sites.]



Carved Ivory Standard in the middle

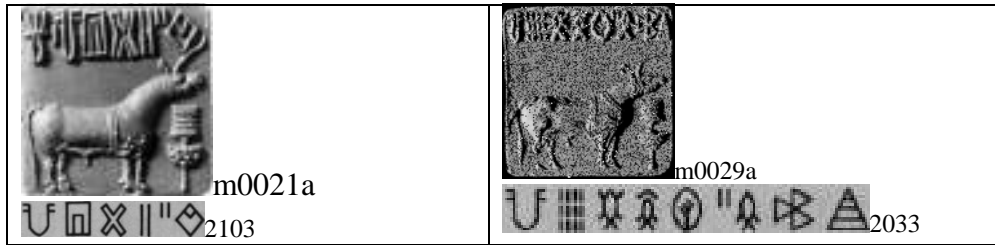
har501 Harappa 1990 and 1993: representations of 'standard device' a. faience token (top portion ends in a


sharp edge like a gimlet); b. standard device (top portion has cross-hatches, perhaps to denote a churning motion; the bottom portion has dotted-circles, perhaps to denote perforation using a gimlet); c. faience token. "Although this object is split in half, it was clearly made on a lathe and probably was cylindrical in shape. The top of the object is finished and incised with a circle motif, while a broken spot on the lower portion indicates where the stand shaft would have been." [From Richard H. Meadow and Jonathan Mark Kenoyer, *Harappa Excavations 1993: the city wall and inscribed materials*, in: *South Asian Archaeology* ; Fig. 40.11, p. 467. Harappa 1990 and 1993: representations of 'standard'; 40.11a: H90-1687/3103-1: faience token; 40.11bH93-2092/5029-1: carved ivory standard fragment (split in half, made on a lathe and was probably cylindrical in shape; note the incisions with a circle motif while a broken spot on the lower portion indicates where the stand shaft would have been (found in the area of the 'Mughal Sarai' located to the south of Mound E across the Old Lahore-Multan Road); 40.11c H93-2051/3808-2: faience token]



A stylized standard device? *san:gad.a*, 'portable furnace'.

Hundreds of orthographic representations match this description of this ligatured device. See for example m0021, m0029, m0035




Pict-123  Standard device which is normally in front of a one-horned bull. The device is flanked by columns of dotted circles.

Glyph: *khan:ghar, ghan:ghar, ghan:ghar gon:ghor* 'full of holes' (Santali)
 Substantive: *kan:gar* 'portable furnace' (K.)



Dotted circles appear on all sides of a seal or tablet (for e.g., M-352, M-1256, M-1260, H-128) or get inscribed on the 'cult object'.

 h353C miniature tablet, incised with 3 dotted circles similar the ones found on the bottom vessel.

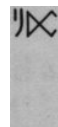
 Dotted circles also adorn inscribed ivory objects.

Kalibangan, Ivory comb with three dotted circles; Kalibangan, Period II; Thapar 1979, Pl.XXVII, in: *Ancient Cities of the Indus*.

After Vats, Pl.CXIX,.No.6 An ivory comb fragment with one preserved tooth and ornamented with double incised circles (3.8 in. long).



h1017ivorystick

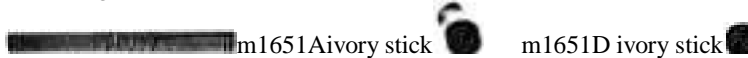


4561







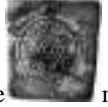
Ivory rod, ivory plaque with dotted circles.

Mohenjodaro. [Musee National De Arts Asiatiques Guimet, 1988-1989, *Les cites oubliees de l'Indus Archeologie du Pakistan*.]



m1651Aivory stick

m1651D ivory stick

m1651F ivory stick  2947  m1652A ivory stick  m1654A ivory
cube  m1654B ivory cube  m1654D ivory cube

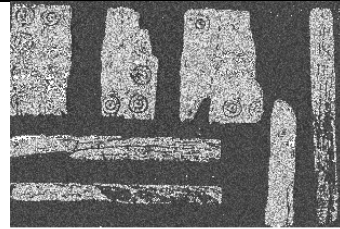


Amulet (?) Sonkh, Mathura, early 3rd cent. BCE. Bone. 5.7X3.4 cm. (MIK I 3242). The dotted circles are a motif dominant in inscribed objects of the civilization. The motif occurs on ivory objects and also on the 'standard device' in front of the 'one-horned heifer bull'. Elsewhere, it has been interpreted as, 'd.ha_l' connoting a shield; it is natural that this symbolism gets perpetuated on a 'protective device' such as an amulet made of bone. "Cracks at the tip of this plaque indicate that this object has only been preserved in a rather fragmentary condition... A comparison with a piece from Prabhas Patan (Gujarat) which is relatively intact leads to the conclusion that this amulet represents the torso of a human, possibly female, figure. Originally, there must have been

two horizontally stretched arms attached to the top of this torso as well as an inverted triangle which represented the face of the figure (see Ghosh 1957: 17 to pl. XVIII B5 and comp. Ghosh 1956: 14 to pl. XXIV B; see also Dwivedi 1976: 55f. and 59). Incised on the polished front side of the plaque there are parallel lines arranged in horizontal and diagonal patterns, as well as five circles, each with a dot in the centre. On the plaque from Prabhas Patan similar motifs were applied to suggest eyes (perhaps also a nose or a mouth), breasts and fingers. The remaining incisions, as seen on this fragment from the Museum of Indian Art, Berlin, may not be indicative of anything in particular: their purpose appears to be decorative -- to create a harmonious design. The workmanship with its uniform execution and sharp edged cuts reveals a high degree of precision... simple lines-and-circles... Identical workmanship is apparent on relics of the Indus Valley Civilization (Marshall 1931: pl. CXXXII; Mackay 1937-38 pl. CXXV, CXXVIII, CXLIII; Vergessene Stadte am Indus Fruhe Kulturen in Pakisttan 1987: fig. 107). The dating of this particular piece is established from the stratum where it was found in the excavation site at Sonkh (Haertel 1993: 277)." (Heino Kottkamp, Exhibit 1 in: Saryu Doshi, ed., 1998, *Treasures of Indian Art: Germany's tribute to India's cultural heritage*, Delhi, National Museum, p.19).



Finds at Altyn-depe: ivory sticks and gaming pieces (?) obtained from Sarasvati Sindhu civilization; similar objects with dotted circles found in Mohenjodaro and Harappa.



Bhagawanpura is a site located on the right bank of the River Sarasvati in Dist. Kurukshetra. Remains of semi-circular huts leaving behind only post-holes and rammed floors have been found. From Period IB levels bones of true domesticated horse, *equus caballus* have been found. Intersecting dotted circle designs are found on pottery of Painted Grey Ware which overlap the Late Harappan ware.



Mohenjo-daro. Dotted circle decoration on a steatite bowl (DK 3178), DK-B, house 3, room VIII (Jansen and Urban, 1985, RTWH, Aachen).



Vessel fragments with dot-in-circle design from Susa. Louvre

Museum. At the Royal Cemetery of Ur, Woolley 1934: 558-59 found a small container with a narrow neck and sides decorated with three dot-in-circle designs.

Terracotta female adorned with 'dotted circles'; Period Namazga II; Yalangach Tepe, Geoksyur (Weiner, 1984, Fig. 183)

khan.d.i = a sar.i, a full dress for a woman, a piece of cloth twelve cubits long by two in width; **khan.d.a** = a piece of cloth suitable for the dress of a woman's sar.i; **khan.d.i bande**, bande = to dress, of women binding round waist (Santali)





MS 2814 Royal inscription commemorating defeat of Magan, Melukham, Elam (?), and Amurru, and establishment of regular offerings to his statue, school text? Sumer, 2100-1800 BCE

MS in Neo Sumerian and Old Babylonian on clay, Sumer, 2100-1800 BC, 1 tablet, 14,8x14,0x3,3 cm (originally ca. 16x14x3 cm), 3+3 columns, 103 lines in cuneiform script.

Provenance: 1. Scribal training centre?, Sumer (2100-1800 BC); 2. Private collection, England (ca. 1965-1999).

Commentary: The text was copied from a Sargonic royal inscription on a statue in the Ur III or early Old Babylonian period. Magan was at Oman and at the Iranian side of the Gulf. Meluhha or Melukham was the Indus Valley civilisation (ca. 2500-1800 BC). This is one of fairly few references to the Indus civilisation on tablets. The 3 best known references are: 1. Sargon of Akkad (2334-2279 BC) referring to ships from Meluhha, Magan and Dilmun; 2. Naram-Sin (2254-2218 BC) referring to rebels to his rule, listing the rebellious kings, including "(...)ibra, man of Melukha"; and 3. Gudea of Lagash (2144-2124 BC) referring to Meluhhans that came from their country and sold gold dust, carnelian, etc. There are further references in literary texts. After ca. 1760 BC Melukha is not mentioned any more.

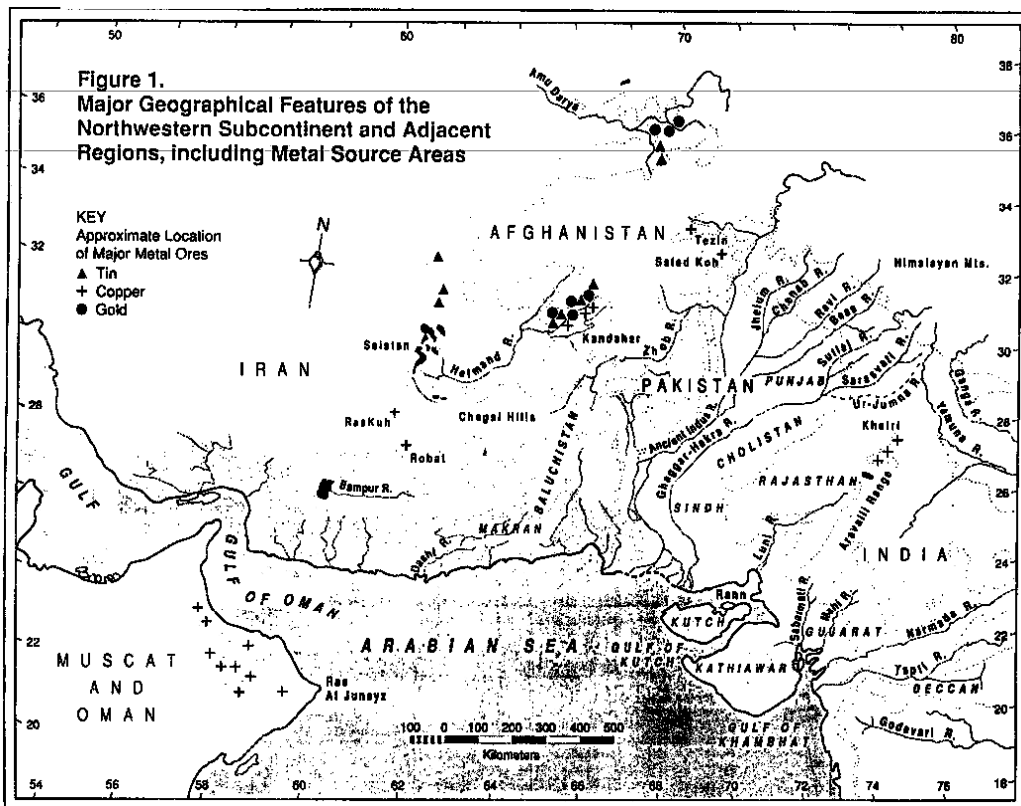
Contacts with Crete?

"The ancient Greeks themselves were quite conscious of the fact that, from the earliest times preserved in folklore, Crete had been occupied by various nations of whom more than one had spoken a 'barbarian', that is a non-Greek language. A celebrated passage in the ninth book of the *Odyssey* alludes to this mixture of nations: 'And one tongue is mixed with another; there are Achaeans therein, and great-hearted Eteo-Cretans, and Kydonians, and Dorians in their three tribes, and divine Pelasgians'...the late Professor Conway argued strongly that Eteo-Cretan was an Indo-European language possibly related to Venetic, and Krestchmer calls it a mixed speech embodying Anatolian elements related to Lydian in the east to Tyrrhenian in the west. It seems likely that this Eteo-Cretan language was spoken during the Bronze Age, but was not necessarily the only language spoken in Crete in those times." (R.W. Hutchinson, 1962, *Prehistoric Crete*, Baltimore, Penguin Books).

Glyph: *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.); *tav* to butt with both horns, gore (Ko.); *tamiru* gimlet (Tu.); *tamire*, *tagire* the pin in the middle of a yoke (Te.)(DEDR 3078).

Substantive: *ta_mra* copper (Skt.) *tamba* copper (Santali) *ta_mbum*, *ta_mra* copper (G.)

tabar = a broad axe (P.lex.) **tambira** = copper (Pkt.) **tibira** = merchant (Akkadian)



Major geographical features of the northwestern Bha_rata and adjacent regions, including metal source areas (composed after J. M. Kenoyer from various sources and Fig. 5.1 in: Jonahtan M. Kenoyer and Heather ML Miller, 1999, *Metal Technologies of the Indus valley tradition in Pakistan and Western India* in: *The Archaeometallurgy of the Asian Old World*, Ed. Vincent C. Piggott, University of Pennsylvania Museum Monograph 89. Philadelphia: University Museum Publications).

Likely source areas for raw materials such as agate, lapis lazuli, steatite, marine shell and copper were the Sarasvati and Sindhu river basins and the coastal regions of Makran coast, Gulf of Khambat and Gulf of Kutch. These raw materials were transformed into ornaments and tools at Harappa for local trade. The Ravi Phase denotes a newly discovered early phase of Indus culture (c.3300-2800 BC).

Double-axe

Axe in epigraphy and in archaeology



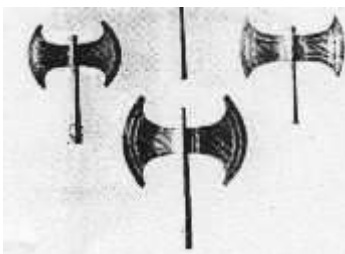
The double-axe is found at Harappa and in the copper hoards of Orissa.

A.: Double-edged axe, deeply curved, Bhagarapir, Orissa; B. Double-edged axe, less curved, Bhagarapir, Orissa; C. Double-edged axe from Harappa; D. Double-edged axe from Harappa. [After S.P. Gupta, 1963,

The copper hoards: the problems of homogeneity, stages and development, origin, authorship and dating, *Journal of the Bihar Research Society*, Vol. 49, Patna, pp. 1-7].

Vase with relief double axe. Mallia. MM II Sanctuary: Room 2 (Cat. 76). Courtesy of the French School of Archaeology. Athens. (Compare the axe pictograph with the one shown at Chanhudaro C23

at the top of the page).

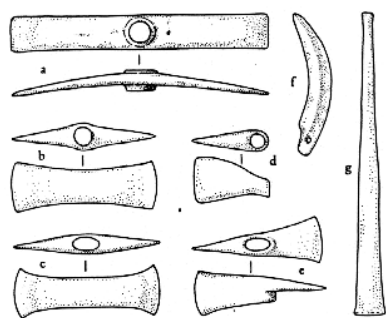


Gold double axes. Arkalokhori. Cave. Herakleion. Archaeological Museum. Courtesy of Alison Frantz (Fig. 83 in: Geraldine Cornelia Gesel, 1985, *Town, palace, and house cult in Minoan Crete*, Goteborg, Paul Astroms Forlag).

Bull, double-axe, sacral knot

"The double axe, the most common of the cult symbols, occurred only in tombs in the Prepalatial period. In the Protopalatial period pottery marked

with the double axe symbol was found in a town sanctuary, though the double axe itself has not appeared in such a cult room. An extant stand of this date, however, indicates that the double axe was put on display then. The stand and the double axe grew larger in the Neopalatial period. Elaborate incised and reduplicated blades of gold, silver, and bronze have been found. The symbol became more popular as a pottery motif, sometimes in connection with the bull and the sacral knot. The connection of the double axe with the bull suggest that the double axe is the axe of sacrifice and that as such it became the symbol of the divinity to whom the bull was sacrificed...The sacral knot, an object rarely found but often depicted on pottery together with the double axe, first appeared in a tomb deposit ranging from Prepalatial to Protopalatial in date...The horns of consecration, which probably represents the horns of the bull, rarely appears in the same sanctuary as the double axe and the bull...The snake, like the bird, became more prominent in the



Postpalatial period. Unlike the bird it was always an attribute on a goddess or a cult object...The meaning of the double axe is uncertain, but it seems to have been connected particularly with the palace at Knossos, which was known in mythology as the labyrinth. This word is derived from □□□□□□, a Lydian word meaning double axe according to Plutarch." (Geraldine Cornelia Gesel, 1985, *Town, palace, and house cult in Minoan Crete*, Goteborg, Paul Astroms Forlag).

Cretan bronze tools: a, double adze; b and c, double axes; d, single-bladed axe; 3, axe-adze; f, sickle; g, chisel.(After Fig.45 in: Sinclair Hood, 1971, *The Minoans: Crete in the Bronze Age*, Thames and Hudson) "The general all-purpose tool of the

Bronze Age Cretans was an axe-adze with a shaft hole for mounting on a wooden handle. The same tool, but made of iron, is still used throughout Crete today; the axe blade for cutting trees and clearing undergrowth, the adze for hoeing and weeding. Another standard tool in Bronze Age Crete was the double-bladed axe. Single-bladed axes and double adzes were also employed. At first the shaft holes for these tools were circular, but later they were made oval. The oval shaft hole was an improvement, because the wooden handle could not twist round in it." (Sinclair Hood, *opcit.*, p. 84).



Seal-inscriptions; the logograph of an axe is central to these four samples (Source: *Scripta Minoa*; After Fig. 65G, 26,31,159, p 33 and p 7a in Fig. 3: F. Melian Stawell, 1931, *A Clue to the Cretan Scripts*, London, G. Bell and Sons Ltd.)

Shrine of the Double Axes



Godess with attendants from the Shrine of the Double Axes at Knossos (After Fig.117 in: Sinclair Hood, 1971, *The Minoans: Crete in the Bronze Age*, Thames and Hudson) "...a small room with a bench at the back on which stood little clay images of a goddess and a god and their attendants or worshippers, together with two pairs of horns of consecration with holes in the top for inserting cult objects: either bronze double axes, as Evans thought, or leafy twigs or branches...Set into the floor was a circular

tripod altar...The goddess from the Shrine of the Double Axes has arms raised in the customary manner, and is wearing a long skirt and many necklaces and bracelets. On each wrist she carries a seal stone. Marks on her hands may be **meant for fishes**. On her head is a dove...Animals associated with Cretan goddesses apart from snakes and doves included goats, lions, and imaginary sphinxes and griffins which were merely lions, usually with wings, and with the heads of women or of birds." (Sinclair Hood, *opcit.*, pp. 134-135).

It is notable that the images of gods and goddesses in the Hindu pantheon in historical periods are adorned with weapons on their multiple hands. A pair of fishes is depicted on the *as.t.aman_galakaha_ra* on Yaks.i sculptures of *Sa_n~ci*.

The fishes associated with the goddess of the Shrine of the Double Axes are also associated with a short-horned bull on inscribed objects **ku_t.amu** = summit of a mountain (Te.lex.) **kut.t.ta_ra** = a mountain (Skt.lex.) **kudharamu** = a mountain, a hill (Te.lex.) *kut.haur.i* = a heap, a pile (of Sarasvati-Sindhu civilization).

The fish is rebus for an axe: **hako**; the double-axe (**hako**) is depicted by two fishes, which further gets stylised as *s'ri_vatsa* glyph.

hake = middle-sized axe for cutting wood (Mund.a); hake = axe (Ho.); go = axe (Bond.a.); vake (Kw); ak(h)ey (Mowasi); akh (Korku) (cf. Skeat and Blagdens' *Pagan Races of the Malay Peninsula*. A-3: gak, he:g etc. 'adze'; hak to split (Bahnar); hak to tear (Stieng); jik to cut (Stieng) ['Bonda Etymologies' in: Sudhibhushan Bhattacharya, 1968, *A Bonda Dictionary*, Poona, Deccan College, p. xxxi].

ah-ku-tal = to become sharp, acute (Ta.); cf. L. *acu_tus*, 'sharp', lit. 'sharpened', pp. of *acuere*, 'to sharpen', which is to *acus*, 'needle' (Ta.lex.)

It is surmised that two distinct ancient lexemes had been used by the artisans who inscribed the objects of the civilization to denote property items possessed by warriors or items of metal weapons and tools traded:

hako could, using the rebus method, be orthographically pictured by 'fish' and *atka* by 'leaf'. It is also surmised that *hako* and *atka* connoted to distinct pieces of armour: *hako*, middle-sized axe to hew wood; and *atka*, breast-plate as part of coat of mail of a warrior.

hakka-hakka = calling on, challenging (Skt. lex.) [*heko* = to brag, to boast, to chatter; *ha~k* = to call to cattle when driving them (Santali.lex.); *akaval* = calling, addressing (Ta.)(DEDR 10).] **hako** = a fish (Santali.lex.)

kut.ta_ra = sexual intercourse (Skt.lex.) **ku_t.amu** = copulation (Te.lex.)

kut.aru = cock (According to the commentator Mahi_dhara (VS 25.4.4), the word is synonymous with *kukku*, cock. The word is found in the Yajurveda Sam.hita_ only (TS 5.5.17.1; Maitra_yan.i_ S. 1.1.6; 3.14.4.20; 4.1.6; VS 24.23.39; cf. Zimer, *Altindischen Leben*, 93; cf. *Vedic Index*, I, p. 160). *kut.ru*, *gut.ru* = cooing of a pigeon (Ka.Te.)(DEDR 1667).

kut.ha_ru = a monkey (Skt.lex.) *gun.d.an:gi* = the white-faced black ape (Te.lex.)

kut.ha = crooked, bent (Santali.lex.) *kut.i* = id. (Skt.lex.)

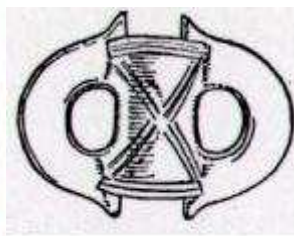


kut.ha_ra = axe (Vedic.lex.) cutter 'knife' (Latin); *kut.ha_rais. t.an:kais* = with axes and spades; *kut.*, *kut.t.* = to split (Vedic) (Surya Kanta, 1989, *A grammatical dictionary of Sanskrit (Vedic)*, Delhi, Munshiram Manoharlal, p.72). *kut.ha_raka* = an axe (Ra_ma_yan.a.); a small axe (Bhartrr. 3.23); *kut.ha_rika* = a wood-cutter (Skt.lex.)

kut.ta_ka = cutting (Pa_n. 3.2.155). *gun.d.ra* = to cut into pieces, to make fine or small (Santali.lex.) **kut.a_ri**, **ko_t.a_ri**, **ko_t.a_li** axe (Ta.); *ko_t.a_li*, *ko_t.a_li* id. (Ma.); *kod.ali* (Ka.); *kod.ari*, *kud.ari* (Tu.); *god.d.ali*, *god.d.eli*, *god.d.e_li*, *god.d.e_lu*, *god.ali* (Te.); *golli*, *goli_* (Kol.); *ghol.i* (Nk.); *kod.li* (Nk.); *god.el* (Go.); *gor.el(i)* (Kond.a.); *ku_r.el* (large variety axe)(Pe.); *kra_d.i* (? for *kr.a?li*, *gla'li* large axe (Kuwi)(DEDR App. 32). *kut.ha_ra*, *kut.ha_ri* (Beng. Or. forms have l for r)(CDIAL 3244; cf. Burrow, *BSOAS* 35.541). **kudda_ramu**, **kudda_lakamu**, **kudda_lamu** = a sort of spade (Te.lex.) *kut.ha_ra* axe (R.); *kut.ha_raka* (VarBr.S); *kut.ha_ri_* (Pali); *kud.ha_ra*, *kuha_d.a* (Pkt.); *kuha_r.o* (S.); *kuha_r.a_* (L.P.); *kulha_r.a_* (P.); *kurha_r.i_* (WPah.); *kulya_r.o*, *kulya_r.* (Ku.); *kur.a_l*, *kur.ul* (B.); *kur.a_la*, *kura_r.ha*, *kurha_r.i*, *kura_ri* (Or.); *kulha_ri* large axe for squaring logs (Bi.); *kulha_r.a_* axe (H.); *kuha_r.o*, *kuva_r.i_* (G.); *kurha_d.* (M.); *ken.eri* (Si.); *ket.eri*, *ket.e_riya* long-handled axe (S.)(CDIAL 3244).



kud.i = a large hoe, the Indian digging implement, the kudali; *t.amni kud.i* = a narrow



bladed kudali; *guji kud.i* this pattern has the hoe in the middle of the handle; *kat.a kud.i* a pronged hoe; *t.had.ia kud.i* the pattern handled like a hoe; *saheb kud.i*, *angreji kud.i*

the English pattern of kudali; **kud.i sakam** the blade of the kudali (Santali.lex.) [Note the

pictorial of 'leaf'; it may be read as 'sakam' or leaf, i.e. the metal blade of a weapon]. *guji kud.i* = a *kod.ali* or hoe worked by taking hold of both ends of the handle (Santali.lex.) *kat.a kud.i* = pronged hoe; *kat.a kat.i* = cutting; to slash, kill (Santali.lex.). **kata** = a pit saw; *kat* = a steel spur put on a fighting cock; *kat.i* = a screw, nail (Santali.lex.) **kat.a** = leg and foot from the knee downwards; *sim kat.a* = a fowl's foot; *bhid.i kat.a* = sheep's trotters; *hor. kat.a* = a man's foot (Santali.lex.)

Dagger and axes found in an Ur grave

Sumerian double-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 b.]

Double-bladed Sumerian axe, Ur.

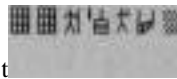
Copper tablet (Double-edged battle-axe): Mohenjodaro M 0592B



m0592At



m0592Bt

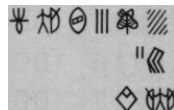


3413 Pict-133: Double-axe (?)

without shaft. [The sign is comparable to the sign which appears on the text of a Chanhudaro seal: Text 6422, Chanhudaro Seal 23].



Chanhudaro23



6402 Goat-antelope with a short tail. The object in front of the goat-antelope is a double-axe.

'A third type of axe that now appears for the first time has two blades; it is in fact the oldest double-axe.' (Childe, *opcit.*, p. 179).



h232A



h232B tablet in bas relief



4368 Inscribed object in

the shape of a double-axe.

The double-axe on the copper tablet of Mohenjodaro is comparable to the Mesopotamian double-axe found at Ur.

Glyph ligatures

Relief of two Big-weather-beasts, UGALLU, a human figure with a lion's head and eagle's feet, guarding the doorway to the North Palace, Nineveh. British Museum, London



The North Palace of Asurbanipal had a room which Richard Barnett called the 'Susiana room'. This room had a single entrance and had "reliefs on three walls depicting the assault and capture of the Elamite city of Hamanu (Khamanu) and the exodus of prisoners from it, as well as apotropaic figures in the large recess in the northwest wall. The doorjambes had identical pairs of apotropaic figures. In a Babylonian text about such figures, which F.A.M. Wiggermann called Big-weather-beasts, a person who may have been a conjuration priest is ordered to draw two figures of Big-weather-beasts (UGALLU) on the gate and to invest them with the power to defend the gate against aggressors. The same procedure and the effect may be assumed for the gate in this room of Assurbanipal's palace. In addition, in the lower register under the Big-weather-beasts there was the relief showing a lion-man identified by Wiggermann as an URM AHLULLU, a creature thought to protect lavatories and bathrooms against Shulak, a lion or lioness-demon who haunted such rooms (*Babylonian Prophylactic Figures*, p. 332)...by eternalizing the effect of the enemies' defeat and misery, they were also expected to influence future events...

Cylinder-seal impression of a lion attacking a mountain sheep, Middle Assyrian period. Pierpont Morgan Library, New York

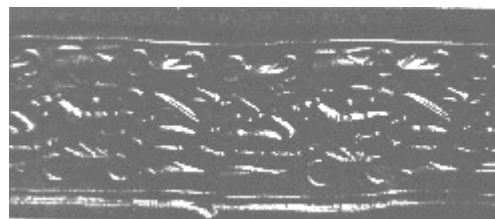


"The seals of the fourteenth to twelfth centuries BCE in northern Mesopotamia represent the art of the Middle Assyrian period. To appreciate the design engraved on a slender stone cylinder, it must be rolled over a flat surface of impressionable material such as Plasticene or some other product that can be hardened by baking. To illustrate how to appreciate a scene on a seal, I have chosen an example that shows a lion menacing a fallen mountain sheep. The heavily muscled lion extends

his body to touch the back of the sheep with one paw. He raises the other paw menacingly over his victim's head. A pine tree terminates the scene. A star fills what would otherwise be an empty space, but it may also be a meaningful symbol...The meaning of scenes in which a lion or a hybrid monster attacks a horned game animal, which represent the majority of Middle Assyrian seal designs, is unknown. Perhaps they represent battles that were pictured with human soldiers...



Cylinder-seal impression portraying a griffin and lion attacking horned animal, Syro-Mitannian, fifteenth to fourteenth centuries BCE. Pierpont Morgan Library, New York



The seals of northern Mesopotamia and Syria in the fifteenth and early fourteenth centuries, the time of the Mitannian Empire, largely manifest a striking abstract style produced by mechanically rotating cutting wheels and drills.

Cylinder-seal impression of a king positioned before the sun-god and other deities, Old Babylonian, circa 1800 BCE. Pierpont Morgan Library, New York

Eagle, lion



Eagle incised on a ceremonial axe made of chlorite. Tepe Yahya. (After Fig. 9.6 in Philip H. Kohl, 2001, opcit.)

Eagle incised on the lid of perhaps a compartmented box made of chlorite. Tepe Yahya. (After Fig. 9.7 in Philip H. Kohl, 2001, opcit.)

hila a kite (S.); hill, hili (L.); ill kite, a kind of hawk (P.); ill kite, vulture (WPah.)(CDIAL 1593). **i_lagrad**da = a species of vulture (Te.lex.) **illala** = a species of bird; **hilla** = a kind of

aquatic bird (Skt.lex.) **hil** = a kite (P.lex.)

illi = lion, tiger (Pkt.); **i_l a** wild animal (H.)(CDIAL 1593).

il.a_ a curved instrument for cutting grass (M.) **ili_** a kind of weapon, a cudgel or short sword; **i_li id.** (Skt.); **illi_**, **illiya_** short one-edged sword (Pali); **ili_** a sort of sword; **illa** sickle, harrow (Pkt.); **ili** cudgel, short sword (B.); **il.i** dagger, knife; **ira_** scythe (Or.); **il.i_** a blade set obliquely in a stock for slicing vegetables; **il.a_** curved instrument for cutting grass; **il.at** ploughshare scraper (M.)(CDIAL 1592). **i_l.ige** (Tbh. of **i_lika**) a curved instrument for cutting grass (Ka.); **il.a_** (M.); a blade set in a stock, used in slitting up vegetables (Ka.); **il.i_** (M.)(Ka.lex.)

ila_l, **ila_li** = an iron bowl grated or open-mouthed, containing oil and rolls of cloth, etc.; it is attached to the end of a stick, and kindled upon holidays (Ka.); **hila_la** (M.)(Ka.lex.)

ile, **ila_**, **id.e**, **ire**, **il.e**, **el.e** = the earth; **ile_s'a** = a king; **ileya piriya** = a bra_hman.a (Ka.lex.) **ila** = the earth (Te.lex.) **ila_val.aya** = the circumference of the earth (Ka.lex.) **ila_** = earth (Pkt.G.lex. Skt. fr. **i_l**, **i_s**. to go, to move (TS 6.4.2.6) **bali gitil**, **gitil bali** = grains of magnetic iron resembling sand; **gitil** = sand; **gitlaha ot** = sandy soil (Santali.lex.) **hila_**, **hilla_** sand, **va_luka_**, **ba_lu_**, **reti** (Pkt.lex.) **illari** = a house tax or hearth-tax (Te.lex.)

Split, crack

hil.a = a crack; **hil.i** = to crack, to burst, to split; **hil.l.e** = a small piece of wood or a piece of a stick used in the game of tip-cat (Ka.lex.) **id.iyu** = to fall to pieces; split, crack; **id.upu** = a breach, crack, hole (Te.lex.) **illi** small

hole (as in a pitcher), orifice in the teat; **cilli** leak, hole, crack (Ta.); cilli-kkuttu a little hole (Ma.); jilli small hole in an earthen vessel (Ka.); cilli small hole as in a pot, paper (Te.)(DEDR 2575).

hi_li = a peacock's tail; **pi_li**, **hilli** = a feather of a peacock's tail; an eye in a peacock's tail; navila hi_liya kan.n.u (Ka.lex.) **kanso il** = the first three or four large feathers in the wing of a bird; **il** = a feather (Santali.lex.)

id.a_ (in R.gveda) **il.a_**, **ila** = refreshing draught, refreshment, animation, recreation, comfort, vital spirit, RV; AV; AitBr.; offering, libation (especially a holy libation, offered between the Pra-ya_ga and Anu-ya_ga, and consisting of four preparations of milk, poured into a vessel containing water, and then partially drunk by the priest and sacrificers; personified in the cow, the symbol of feeding and nourishment), S'Br. 1.8.1.1; AitBr. (metaphorically) stream or flow of praise and worship (personified as the goddess of sacred speech and action, invoked together with Aditi and other deities, but especially in the A_pri_ hymns together with Sarasvati_ and Mahi_ or Bha_rati_), RV; AV; VS; the earth, food, Sa_yan.a; a cow; the goddess Id.a_ or Il.a_ (daughter of Manu or of man thinking on and worshipping the gods; she is the wife of Budha and mother of Puru_-ravas; in another aspect she is called Maitra_varun.i_ as daughter of Mitra-Varun.a, two gods who were objects of the highest and most spiritual devotion); name of Durga_; speech, BhP.; heaven; earth, MBh.; id.a_ya_s-pade (il.a_ya_spade), ind. At the place of Il.a_, i.e. of worship and libation, earth, RV; AV; id.a_vas = refreshing, granting fresh vital spirits; possessed of refreshment, refreshed; possessed of sacrificial food (Sa_yan.a), RV; containing the word id.a_, Ta_n.d.yaBr. (Skt.lex.) **ili** synonym of **bod.e** = beer brewed with any grains



generally cultivated in Chota Nagpur; beer brewed from grains is divided into ar.e-ili, which is simply poured off from the dregs; eipaili, which is squeezed out from the dregs after addition of water; ili = to brew into beer, to brew beer; ili-n rflx. V., to indulge in drinking beer; ili-o to receive beer to drink ili-bat.i = a rice beer shop; ili-got. = a gathering for

drinking beer, all sitting; ili-arki_ collective noun for all spirituous drinks; ili-mand.i – a banquet (Mundari.lex.) hi_luka = a kind of rum or spirit distilled from molasses (Skt.lex.) **i_d.a** = a date tree; i_d.ara-va_ru, i_d.iga-va_d.u (CITD), Telugu: a toddy-man or arrack-drawer (IEG). i_d.igeva_d.u = man of the toddy-drawer caste; i_d.iga = the toddy-drawer caste (Te.lex.)

Cylinder seal. Akkadian. Enki, water-god with streams of water with fish ; symbols of mountain and eagle; Person standing with bow and arrow with a lion looking up to him. .

sen:gel gidi = the male of the Indian king-vulture, *ologyps calvus* (Santali.lex.)

sen:gel = fire; sen:gel kut.ra = a spark of fire, a burning bit of wood; sen:gel ku_n.d. = a heavy fire (Mundari)

gitil bali = grains of magnetic iron resembling sand (Santali)

sen:gel gidi rebus: **sen:gel gitil** = (furnace) fire for meteoric iron fragments.

san:gil = to look up, raise or throw back the head (Santali); san:gil (Ho.) (Santali.lex.)

san:gin = a bayonet (Santali.P.H.) (Santali.lex.)

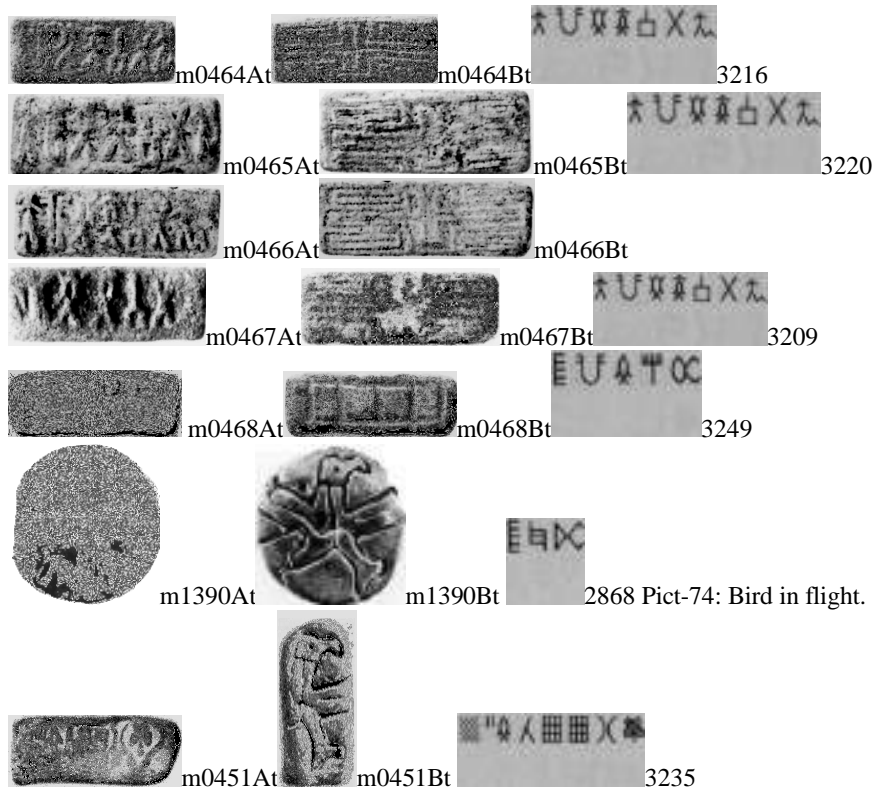


The ligature on the Nal pot ca 2800 BC (Baluchisan: first settlement in southeastern Baluchistan was in the 4th millennium BC) is extraordinary: an eagle's

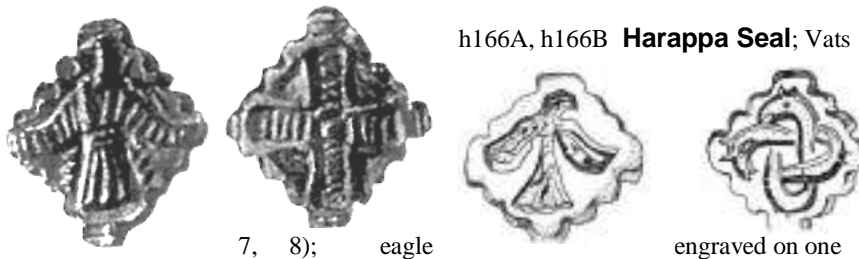
head is ligatured to the body of a tiger. In BMAC area, the 'eagle' is a recurrent motif on seals.

Ute Franke-Vogt: "Different pottery styles link this area also to central and northern Balochistan, and after about 2900/2800 BC to southern Sindh where, at this time, the Indus Civilization took shape. The Nal pottery with its particular geometric and figurative patterns painted in blue, yellow, red and turquoise after firing is among the earliest and most dominant styles in the south."

ugalu or urmahlullu = mythical weather-bird, 'eagle'. [See the pictograph of a lion ligatured with eagle's feet]. Could this connote cassiterite, 'tin-stone' alloy used to harden the bronze axe to make it a battle-axe?



h166A, h166B **Harappa Seal**; Vats 1940, II: Pl. XCI.255.



Two seals from Gonur 1 in the Murghab delta; dark brown stone (Sarianidi 1981 b: 232-233, Fig. face.



Seal impression. Louvre Museum; Luristan; light yellow stone; 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 lion striding across the field, with a smaller animal of the same type depicted above it; comparable to the seal found in Harappa, Vats 1940, II: Pl. XCI.255.



BM 22962; Wiseman, *opcit.*, 1962, Pl. 22d; Above: Bull-men crouch beside triple-plant on mountain. Vultures on their backs. Hero and bull-man: In field: snake, scorpion. Below: Bulls bow below eagle: Stag and goat. In field: bird. Wiseman, *Cylinder Seals*, 21. Lazulite.

Nippur vessel with combatant snake and eagle motif.

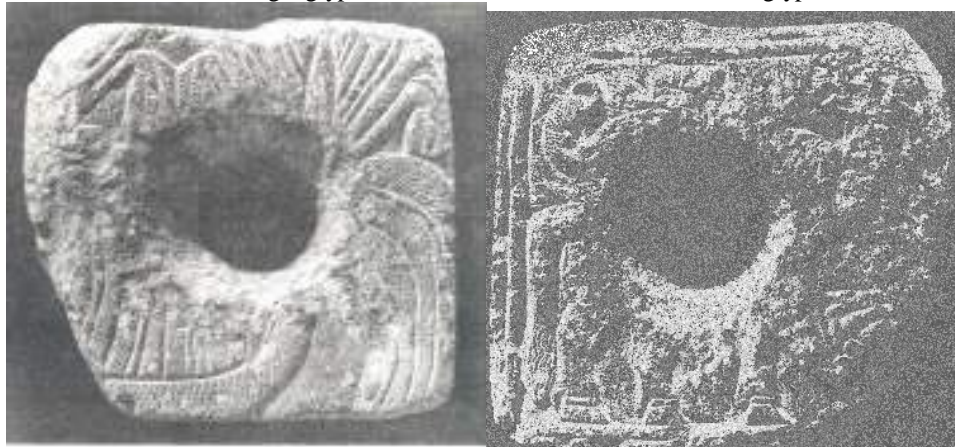
Istanbul Museum. The design is raised above the base; the vessel of chlorite was found in a mixed Ur III context at Nippur in southern Mesopotamia. An indication of the presence of the motif in Mesopotamia and in southwestern Iran, Failaka islands in the Gulf and SSVC.



pajhar. = the Indian tawny , the Indian black eagle, the Indian crested hawk; eagle, buru pajhar., the hill-eagle, aquila imperialis; hako sat.i pajhar. = a fish-eating eagle (also called dak pajhar.); huru pajhar. = the imperial eagle (Santali.lex.) panji-il = a certain feather in each wing of a vulture (Mundari.lex.)

Snake, scorpion, bull

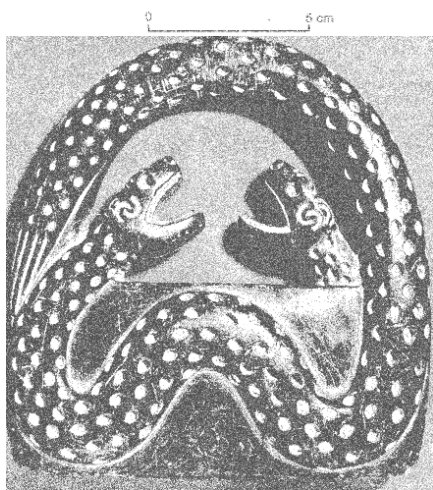
Snakes associated with eagle glyphs are also associated with the zebu bull glyph.





Two sides of Tepe Yahya 'weight' (?) fragment apparently reused as door socket during IVB times. One side depicts date palms, and the other has a representation of a humped bull with a scorpion set above its back. (After Fig. 9.11 in Philip H. Kohl, 2001, *opcit.*)

Humped bull and scorpion design on a plaque or 'weight' (?) from a late Early Dynastic temple context at Agrab (Frankfort 1936; Amiet 1977: 366, fig. 298; Fig. 9.12 in Philip H. Kohl, 2001, *opcit.*)



Combatant serpents on padlock-shaped 'weight' from Soch River of the Ferghana Valley in Uzbekistan. This unique chlorite find from Central Asia shows the serpents with ears and the oval holes for inlays on their bodies. (Brentjes 1971; After Fig. 9.14 in Philip H. Kohl, 2001, *opcit.*)

If the pictorial motif connotes *na_ga*, it may be a grapheme connoting **annaku**, tin. [In Sanskrit, *na_ga* is associated with the lead ore]. [A T-shaped ingot or clamp of lead was found in a level of the temple courtyard at Tell Rimah dated to the earlier thirteenth century BCE (Oates, D. 1965: 75). Assur has a textual reference to the 'lead courtyard' in the temple of the god Assur; excavation revealed nothing to indicate that it was paved with the metal (CAD, s.v. **aba_ru**; Landsberger 1965: 287 n.12; despite Landsberger's discussion suggesting that AN.NA (*annaku*) denoted lead rather than tin, Muhly argues convincingly that AN.NA indeed connoted tin. However, Smith (Smith, S. 1922) found lumps of lead, bearing stamped impressions, now invisible,

at the Ishtar Temple. AN.NA BABBAR (*pesu*) is fifteen times more valuable than AN.NA *aba_ru*; i.e. tin : lead ratio. Perhaps AN.NA BABBAR meant 'good-quality tin'. But then, *annaku* was casiterite, the oxide of tin (cf. Muller 1982: 272).

Cassiterite (leax oxide: SnO_2) is black and could be rebus for a black snake, **na_ga** (Skt.); **anakku** (Akkadian).

While the metals are white, ores tend to be recognized by their colour, particularly in early metallurgical societies.

Ore type and colour:

native copper (copper colour)
copper oxide: tenorite CuO (black)
copper oxide: cuprite Cu_2O (red)
copper carbonate: azurite (blue)
copper carbonate: malachite (green)
copper silicate: chrysocolla (*kupferpecherz*) (Blue)
copper silicates: tennantite, tetrahedrite, enargite, bournonite (Grey)

copper sulphate: chalcantite (blue)
 Copper sulphide: covellite CuS (blue)
 copper sulphide Chalcocite Cu₂S (grey)
 copper sulphide: bornite CuFeS₄ (peacock colour)
 copper/arsenic: whitneyite CuAs (reddish-white) [Which is perhaps the most used in Bha_rata to create hardened tools and weapons in SSVC]



copper/arsenic: *domeykite* Cu₃As (grey-white)

Copper/arsenic: *algodonite* (grey-white)

copper/arsenic: pseudomalachite (green)

Pure arsenic As (WHITE)

Arsenic oxide : *Arsenolite* As₂O₃ (grey)

Arsenic sulphides: orpiment As₂S₃ (yellow); realgar As₂S₂ (red); arsenopyrite FESAs (white)



In the old Akkadian period, the ingots of tin are called **s'uqlu** [cf. **s'ukla** 'white' (Skt.)] and weigh about 25 kg. The two ingots found at Haifa weigh about 5 kg. each.

Terracotta cake with incised motif. Horned divinity on one side of the cake and a tied animal on the other side.

Kalibangan. Period I c. 2800-2600 BCE. [After Lal, 1979, pl. XII; cf. Fig. 2.26 in: JM Kenoyer, 1998]

A characteristic feature of the epigraphs is the use of glyphs. Since many glyphs most often occupy an entire side of an inscribed object and dominate the field on which epigraphs also occur, the glyphs are interpreted as constituting substantive messages.

Kalibangan100A [The first sign could be 'fish' glyph.] The orthography incised on the potsherd led KB Lal to surmise that the writing was from right to left. The sequence of three signs occurs on over 24

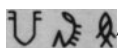
epigraphs; the message is comparable to the epigraphs:



m1294 𐎧 𐎠 𐎡 2291 or,



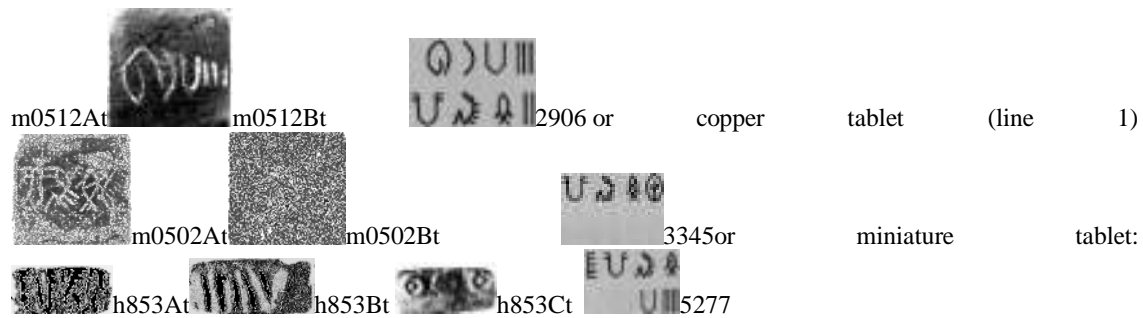
Lothal035



7101

or part of copper plate inscription (line 2):





Glyphs and meanings

The use of glyphs to convey messages of import is clearly seen in the boundary stones of Mesopotamia and Elam.

"The Staff of Nins'ubura'...The scene shows the sun-god as the chief justice of the world. He majestically places his foot on a hill, holding the saw with which he 'cuts decisions' (a translation of the Akkadian phrase for judging)...A goddess with hands raised in supplication stands behind the king as a protective figure whose prayer may be directed for the benefit of the seal owner...A goat placed beside a woman, to the right, helps us identify the latter as a goddess, inspirer of correct interpretations of omens appearing in sacrifices, who is mentioned in a Babylonian text on constellations, published by Christopher Walker and Hermann Hunger." (Edith Porada, 1995. *Understanding Ancient Near Eastern Art: A Personal Account*, in: Jack M. Sasson, ed. 1995, *Civilizations of the Ancient Near East*, Vol. IV, New York, Charles Scribner's Sons, pp. 2695-2705.)



























gurja = a mace; a club; a battle-axe (Persian.G.lex.)

kuruju = a frame-work of bamboo-slits covered with paper or cloth or leaves, used to put idols in, or by the bride and bridegroom to sit in (Ka.); kuruji, gurji (Tu.)(Ka.lex.) kur-uma_d.u = the gable end of a house (Te.lex.)

kurujute_ne = the most luscious of all kinds of honey, gathered by the smallest of bees (Te.lex.) [Note the framework, it appears like a bee-hive?].



gurji = a boundary pillar; gurji tehar.a, a boundary pillar marking the spot where the boundaries of three villages meet (Santali.lex.)

L35	SHIP?		Lc33	JA + KA	
L42	WHEAT		Lc40	A + KA	
L44			Lc41	LOOM + KU	
L49	OLIVES		Lc46	MA + RU	
L60	FIGS		Lc55	MAN + KA	
L67	BARLEY		Lm1		
L70	LOOM		Lm2		
L71	CYPERUS		Lm4		
L89	OIL		Lm5		
L99	MAN		Lm7		
L126	MAN		Lm9		
Lc3	WHEAT + QE		Lm18		
Lc12	OIL + A		Lm19		
Lc17	OIL + MI		Lm20		
Lc29	? + RU		Lm23		
Lc30	? + KA		Lc26		

kudurr (boundary stone) marking of Nebuchadnezzar I (1126-1050 BCE), marking the king's land grant to Ritti-Marduk for military service in the inscription (not shown). The symbols appear in six registers. The first register is the eight-pointed star of Ishtar, the crescent of Sin and the sun-disk of Shamash. The second register represents the shrines of Anu, Enlil, and Ea. The third register consists of serpent diases upon which are the **hoe** of Marduk, the **wedge** of Nabu, and an unidentified symbol. The fourth register includes an eagle-headed **scepter**, a double-lion-headed **mace**, a horse's head on a double base with an arch, and a bird on a rod. The fifth register shows the goddess Gula seated on a throne, with a dog (her symbol) lying beside her, and a **scorpion-man**, with the legs and feet of a bird, holding a bow and arrow. The last register includes double lightning forks supported by a bull (Adad), a tortoise, a **scorpion**, and a lamp on a pedestal (the symbol of Nusku, the god of light). A snake twists along the side of the kudurr. Ht. 56 cm. London, British Museum (After the notes in: Karen Rhea Nemet-Nejat, 1998, *Daily life in Ancient Mesopotamia*, London, Greenwood Press, p. 262). The 'star' sign denoted AN, sky god and also was the cuneiform sign to represent the word and syllable: AN. Many of these logographs are found among the Harappan glyphs. It is notable that the pictorial

motifs are associated with weapons.

Rebus: **kuduru** = a goldsmith's portable furnace (Te.lex.) *kudru* top of fireplace (Kuwi)(DEDR 1709).

These ligatures and scenes are clear representation of the hieroglyphic nature of the pictorial motifs. It is indeed possible to read the logographs: the lion representing ARA_, a saw; similarly, the griffin and the one-horned bull are representations in logography of lexemes denoting other bronze-age weapons; the exact lexemes will emerge from a study of the homonyms in the ancient Indian Lexicon.

This tradition of logography continues in the Cretan Hieroglyphic script. A single descendant of this script, Linear A, Linear B, and Cypro-Minoan survived in the first millennium on the island of Cyprus and was noted as the Classical Cypriot Syllabary.

Table of Cretan pictographic signs compared with Egyptian hieroglyphs, Phoenician and allied sign lists and classical Greek and allied alphabets (After Fig. 1 in: F. Melian Stawell, 1931, *A Clue to the Cretan Scripts*, London, G. Bell and Sons Ltd.) Some sound-values in Cretan and in Phoenician seem to correspond. Some Linear A ideograms, ligatures and fractions (After Fig. 6 in David W. Packard, 1974)

"The script begins at the time of the foundation of the first palaces in the MMI period (about 2000 BC) and continues into the early part of MM III (perhaps down to 1650 BC). Since the inscriptions are all extremely

	Egyptian	Cretan	Phoenician and Allied Semitic	Classical Greek and Allied Alphabets
1		A "Aix" - Goat	A "Aleph" - One of a Herd	A "Alpha" ΑΑ (A Lat. / P Lyc. &)
2		D "Domas" - House (shoulder to No. 4)	B "Beth" - House (shoulder to No. 4)	B "Beta" ΒΒ (F Cyp. do.)
3		G "Gonu" - Knee	G "Gimel" - Camel	G "Gamma" ΓΓ (A Cyp. go.)
4		D "Domas" - House	D "Daleth" - Door	D "Delta" ΔΔ
5		HEE "Herko" - Fence (shoulder to No. 6)	H "He" - Fence (shoulder to No. 6)	E "Epsilon" ΕΕ (D Cyp. Cor.)
6		VW "Verma" - Holdfast Support	VW "Vau" - Hook, Holdfast	VWF "Digamma" [FA] (I Cyp. ve.)
7		D "Domas" - Double-axe	Z "Zayin" - Weapon	Z "Zeta" ΙΖ
8		HEE "Herko" - Fence	H "He" - Fence	E "Eta" ΕΗ
9		I "TH" "Trocho" - Wheel	T "Teth" - ?	TH "Theta" ΘΘ
10		K "KH" "Kheir" - Hand (shoulder to No. 11)	Y "Yodh" - Hand (shoulder to No. 11)	I "Iota" ΙΙ (ex. Cret. & S. Cyp. Iota)
11		K "KH" "Kheir" - Hand	K "KH" "Kaph" - Palm of Hand	K "Kappa" ΚΚ (ex. Cret. & S. Cyp. Kappa)
12		L "Labi" - Crook	L "Lamedh" "Labl" - Herdsman's Staff	L "Lamda" ΛΛ (ex. Cret. & S. Cyp. Lamda)
13		M "Malandro" - Meander	M "Mem" - Water	M "Mu" ΜΜ (ex. Cret. & S. Cyp. Mu)
14		N "Nus" - Ship	N "Nus" - Flower, later Fish	N "Nu" ΝΝ (ex. Cret. & S. Cyp. Nu)
15		K "Klados" - Branch	S "Saneh" - Prep	KS "Xi" ΞΞ
16		O "Ophthalmo" - Eye	"Hayin" - Eye	O "Omicron" ΟΟ (ex. Cret. & S. Cyp. Omicron)
17		P "Pelviya" - Single-stalked papyrus	P "Pe" - Mouth (as of a blade)	P "Pi" ΠΠ (ex. Cret. & S. Cyp. Pi)
18		K "KH" "Knoster" - Adze	TS "Tsade" - ?	S "San" ΣΣ (ex. Cret. & S. Cyp. San)
19		K "Q" "Kephale" - Head	K "Q" "Keph" - Head	QK "Koppa" ϞϞ (ex. Cret. & S. Cyp. Koppa)
20		K "Q" "Kephale" - Head	R "Resh" - Head	R "Rho" ΡΡ (ex. Cret. & S. Cyp. Rho)
21		S "Soni" - Mound	S "SH" "Sh Skin" - Tooth	S "Sigma" ΣΣ (ex. Cret. & S. Cyp. Sigma)
22		Mark for commencement	T "Tan" - Mark	T "Tau" ΤΤ (ex. Cret. & S. Cyp. Tau)

They also occur (in the same order) on several Linear A tablets. (The Hieroglyphic table is P 121; the Linear A is HT 91; cf. HT 14, 21, 114, 116). The second Cretan palace script is Linear A. Despite its obvious resemblance to the earlier script it is not easy to document a natural development from one to the other. Linear A was in use in Phaistos as early as 1850 BC, long before the disappearance of the first script; but the bulk of the surviving texts date from the destruction of the palaces at the end of LM Ib (around 1450 BC) with a smaller number assignable to MM III and none securely dated after 1400 BC...Linear B script was used by the Mycenaean Greeks at Pylos, Mycenae, and Thebes for accounting documents in the Greek language. Its use in Crete is restricted almost entirely to Knossos at the time of the Greek occupation in the LM II period...A theory holds that the Greeks on the mainland had encountered Minoan writing earlier in their trade with Crete and had adapted it to their own language, perhaps already in the Shaft-Grave period." (David W. Packard, 1974, *Minoan Linear A*, Berkeley, Univ. of California Press).

short, the prospects for decipherment are discouraging; and there is fundamental disagreement about so basic a question as whether the script is ideographic or phonetic. About two dozen of the Hieroglyphic signs resemble signs occurring later in Linear A and B, and the same sequence of signs occurs both on Hieroglyphic seals and Linear A religious inscriptions. (Tables of parallel signs: Ventris-Chadwick (1956, 33), Pope (1968, opcit., 438), Raison-Pope (1971, *Index du lineaire A*, Rome, xiv). It is difficult to see how this could occur if the first script were purely ideographic and the second syllabic. In any case, the obvious ideographic use of four signs to designate agricultural commodities on a Hieroglyphic tablet has an exact parallel in Linear B where these same signs represent wheat, oil, olives and figs.

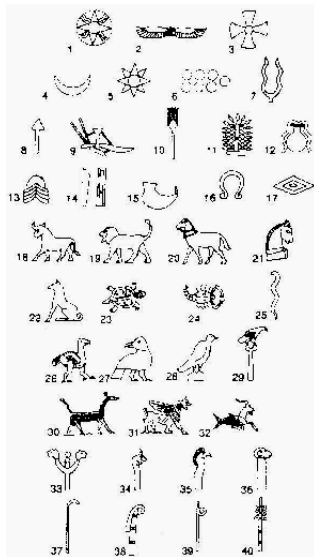
Kudurru recopied under Marduk-apla-iddina I, from Susa, 12th cent. BCE. A goddess wearing a tunic with pleats in the back and elbow-length sleeves, a cone-shaped headdress, and quilted slippers. Top register: sun, moon, star, scorpion: In Babylonia, a replica of boundary stone placed in a temple, recording a land grant, usually involving the crown. Land grants were made to crown prince, princess, temple officials priests, officers and generals, and courtiers. Personal names are accompanied by the phrase, 'his (i.e. the king's) servant'.



and

god;

in



Symbols of deities: 1 [Figure 1, Jack M. Sasson (ed.), *Civilizations of the Ancient Near East*, p. 1838]. 1. solar disk: Shamash; 2. winged disk: Shamash, sun-god; 3. cross: Shamash; 4. crescent: Nanna/Sin, moon-god; 5. 8-pointed star usually in disk (Akkadian **kakkabu**): Ishtar; 6. seven dots: Sebittu, the Pleiades; 7. lightning: storm-god, Ishkur Sumer; 8. triangular-headed spade or hoe (Akkadian **marru**): Marduk; 9. plough: Ningirsu (on Kass kudurrus); 10. barley stalk: Shala, goddess; 11. stylized tree: fertility? 12. vase with streams (Akkadian **hegallu**, 'abundance'): water-god Ea or Marduk; 13. horned cap: sky-god Anu; 14. stylus: Nabu, scribal god; 15. lamp: fire-god Nusku; 16. omega: weighing scales or yoke of a chariot pole; Ninkhursag, birth-goddess? 17. rhomb or lozenge: grain of corn, Ishtar; 18. bull: storm-god; 19. lion: Ishtar, goddess; 20. horse: Shamash; 21. horse head: ? 22. dog, usually sitting: Gula, goddess of healing; 23. turtle: Ea, water-god; 24. scorpion: Ishhara, goddess; 25. horned snake (Akkadian **bas'mu**, **nira_hu**): Ishtaran, god; 26. striding bird: Papsukkal, messenger god; 27. bird with back-turned head: Harbe, Kassite god; 28. bird on low perch: Ninurta, war-god. 29. bird on high perch: Shuqamura and Shumalia, twin-gods; 30. (snake-)dragon (Akkadian **mus'hus's'u**): ? 31. lion-dragon (**lion's forelegs, bird's hindlegs and wings**) (?Akkadian **u_mu na_ 'iru**): Ishkur, storm-god or Adad; 32. goat-fish (Akkadian **suhurmas'u**): Enki/Ea, water-god; 33. double lion-headed scepter: Nergal; 34. lion-headed staff: Nergal; 35. eagle-headed staff: Zababa; 36. ram-headed staff: Ea, water-god; 37. crook: Amurru, god of nomads; 38. ring-post with streamer: Inanna; 39. ring-post without streamer: Enki/Ea, water-god; 40. ring-post: Shamash, sun-god? [Note Symbol 31: the composite animal is a pattern seen on many composite animals of SSVC inscriptions].



headed winged lion: **s'e_du** (or **aladlammu**); 3. dog, sitting or standing: kalbu, 'dog'; 4. horned snake: **bas'mu/us'umgallu**, 'poisonous snake'; 5. (snake-)dragon: **mus'hus's'u**, 'furious snake'; 6. lion-dragon: **u_mu na_ 'iru**, 'roaring weather-beast'; 7. goat-fish: **suhurmas'u**, 'carp-goat'; 8. long-haired 'hero': lahmu,

'hairy', Enki/Ea, water-god or Marduk; 9. bull-man: **kusarikku**, 'bison(-man)', Shamash, sun-god; 10. scorpion-man: **girtablullu**, 'scorpion-man'; 11. lion-humanoid: **uridimmu**, 'mad lion'; 12. lion-garbed figure: Latarak; 13. lion-demon: **ugallu**, 'big weather-beast'; 14. lion-centaur: **urmahlullu**, 'lion-man'; 15. merman and mermaid: **kulullu**, 'fish-man; **kuliltu**, 'fish-woman'; 16. fish-garbed figure: **apkallu**, 'sage' (in fish-guise); 17. griffin-demon: **apkallu**, 'sage' (in bird-guise); 18. anthropomorphic god with bucket and cone: **apkallu**, 'sage' (in human guise); 19. anthropomorphic goddess with ring of beads: Narudu or Ishtar; 20. anthropomorphic god with axe and dagger: **Sebittu**, 'seven gods'; 21. anthropomorphic god with axe and mace: Meslamtaea; 22. smiting-god: Lulal; 23. bowlegged dwarf: Ritual dancer? 24. gigantic monstrous human figure: Khuwawa/Khumbaba, demon; 25. canine/leonine demon: Pazuzu.

Tigris and Euphrates were called **idigna** and **buranun**. Cities: **Nippur**, **Ur**, **Kish** are non-Sumerian words. Among other pre-Sumerian words are those for farmer, herdsman, fisherman, plow, metal smith, carpenter, weaver, potter, mason and merchant.

"Perhaps the most striking element in ancient Mesopotamian religious art was the symbol. Generally, its significance was simple and direct. Certain relatively uncomplicated images – such as phenomena in the sky, tools of the land, animals, animal hybrids or animal-headed and other standards – were used as direct substitutes for individual gods and goddesses [Anthony Green, *Ancient Mesopotamian religious iconography*, in: Jack M. Sasson (ed.), *Civilizations of the Ancient Near East*, pp. 1837-1858].

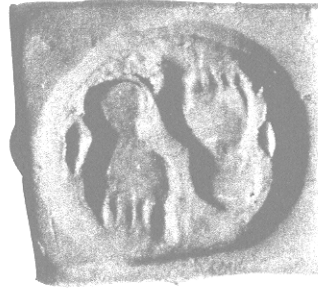
Trade routes going northwest

"The Harappan influence observed in southern Turkmenia, however, also indicates trade routes going northwest. It was apparently largely this northern trade of Harappa which led to the rise of Mundigak in southern Afghanistan, which was located advantageously to control the supply of copper and lapis lazuli going to the towns of the Indus Valley. The close resemblance between the unpainted pottery of southern Turkmenia, Seistan and southern Afghanistan is no coincidence. In Mundigak, this similarity with the Turkmenian sites extends to metal seals as well as to seals made of stone and baked clay, with their incised designs...The seals are an important pointer where social organization is concerned...Practically all the basic forms and motifs of these seals have their origin in the various magic symbols of the Late Chalcolithic. Seal impressions on clay in the Middle Bronze Age material indicate one of their functions: thus, one clay figurine of a bull had a brand, a symbol of property, incised on its flank. It is well known that livestock played an important part in the development of the institution of property; since only two seals were found in the collective tomb mentioned..., it is very likely that the valued property was that of the large clan, not personal property." (V.M. Masson and V.I. Sarianidi, 1972, *Central Asia: Turkmenia before the Achaemenids*, New York, Praeger Publishers, p. 125, 129; pl. 46 shows the ligatured three-headed animal seal of silver).

Fish and Lizard

Inventory of Hearth and Furnace

The pairing of fish and lizard is to connote possessions or an inventory of a hearth and a furnace.



Tepe Yahya. Six-legged lizard and opposing footprints shown on opposing sides of a double-sided steatite stamp seal perforated along the lateral axis. Lamberg-Karlovsky 1971: fig. 2C

Six legs of a lizard is an enumeration of six 'furnaces'; rebus: **kakra**. 'lizard'; **kan:gra** 'portable furnace'. That an enumeration is intended is seen from the glyph of a pair of soles depicted on the obverse side of the seal from Tepe Yahya:

talka sole of foot; **tala, tola** sole of shoe (Santali) **talka** = palm of the hand, ti talka (Santali.lex.) ti = the hand, arm (Santali.lex.) [A count of 12 phalanges on a palm, constitutes a palm of the hand]. Thus, the rectangle depicts, two talka-s or two palm-counts, i.e. two (san:gad.a) twelves or 24. bar, barea = two (Santali.lex.) ba~r.ia~ = merchant (Santali.lex.)

talika = inventory, a list of articles, number, to count, to number; hor.ko talkhaetkoa = they are counting the people; mi~hu~ merom reak talikako hataoeda = they are taking the number of the cattle (Santali.lex.) The boxed count of 24 (on

one side of tablet shown in Slide 205 represents an inventory of san:gha_ta or component articles, represented by the inscription of 4 glyphs: carpenter's axe (badhor. hako), anvil (d.ha~go), furnace (kan.d.a kanka), razor (bakhor.) (an instrument, with which tassar cocoons are cut into narrow strips for splicing purposes; teeth of a comb represented by **E**).

bhed.a hako a species of fish (Santali) **bedha** cross-grained (Santali)

The fish sign incised on an anthropomorph with ram's horns, a copper hoard find, is a phonetic determinant: bhed.a 'ram'

boda, bheda = a ram, the male of certain graminivorous animals, as goats, deer; boda jel = a stag; boda merom = a he-goat; bod khasi = a goat not effectually castrated (Santali.lex.) bhe_d.a = sheep; bhaid.aka of sheep (Skt.); bhi_r.o (Phal.)(CDIAL 9604). bhe_d.ra, bhe_n.d.a = ram (Skt.)(CDIAL 9606).

a~s = scales of fish (Santali); rebus: aya = iron (G.); **ayah, ayas** = metal (Skt.) [Assuming that the orthographic emphasis is on the scales of fish. The depiction of a fish glyph on a copper anthropomorph (copper hoard) may thus be: **bed.a ayas** = hearth for metal; rebus: **bhed.a** 'ram'; **a~s** 'scales of fish']

Substantive: **bed.a** either of the sides of a hearth (G.)



m0298 2133

The *bed.a* 'hearth' is for melting iron stone sand (*bali*; rebus: *bali* 'bullock') and copper ore (*dam.ra* 'heifer'; *ta_mbra* 'copper'):



B.

Early Harappan bowl. Fish. [After Fig. 23.35 in, Asko Parpola, New correspondences between Harappan and near Eastern glyptic art, in: in Allchin, ed., *South Asian Archaeology*, 1981, Cambridge].

kakra. lizard (Santali)

kan:gar furnace (K.)

d.okke lizard (Kol.)(DEDR 2977). Thus when a lizard is shown holding a fish in its jaw, the message is:

possession, *hako* (glyph: fish, substantive: axe); *ke~r.e* bell-metal, brass; *ken.ta* fish m0410

Pict-64: Gharial (or lizard) snatching, with its snout, the fin of a fish m0410 Glyph: *kakr.a* 'common lizard'; *kakr.a hako* a species of fish (Santali)

a~s = scales of fish (Santali); rebus: aya = iron (G.); **ayah, ayas** = metal (Skt.); hence, lizard + fish = **kan:gar** + **a~s** = furnace + metal

Substantive: *kan:gar* furnace; *ken.ta* (*ke~r.e~*) bell-metal, brass; hence, lizard snatching fish may be read as a compound term: bell-metal, brass furnace.

A logonym for a *kakr.a* is *khan:gar* 'dotted circle, hole' which gets depicted as the eye of 'fish' glyphs.



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

soksoko, sekeseke, sekseke covered, as the arms with ornaments, full; **seke doke, seke meke** covered with ornaments, as the neck (Santali)

seke seke to rage, fume (Santali)

sekra a Hindu caste who work in brass and bell metal; *sekra sakom* a kind of armlet of bell metal (Santali)

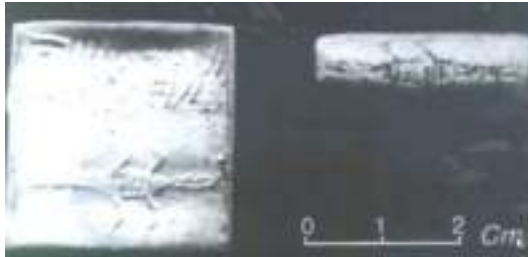
The lizard is: **kudur d.okka**; the rebus: **kuduru** 'goldsmith's portable furnace'; **dokr.a** 'a coin of value of one-fourth of a pice'; **dhokra** 'a metal worker'.

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

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

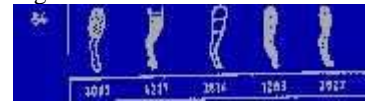
dokr.a = a coin of the value of one fourth of a pice (Santali.lex.)

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?]



Rakhigarhi: Cylinder Seal (Courtesy ASI)

Sign 84 and 85 and variants of Sign 84



d.o_n:ga = lower leg (Wot.); **d.on:g**, d.on:, za~_d.o~_ = knee (Ash.); d.udlik = id.; d.un:gurik = elbow (Shum.); d.un:go = knee (Gaw.); d.un:gi_ = elbow (Wot.); d.uin:gya = elbow, ankle-bone (Sv.); d.ho~ga_ = elbow (H.); do_ni = knee (Gypsy)(CDIAL 5605).

t.o~_ka = scorpion; tu_n:ga = id. (Wg.); t.a~uke (Shum.); t.o~k = beak, point (H.); t.o~k, t.o~kri_ (M.); t.o~g = point, beak (H.); t.hon:go = peck (S.); t.hu~_gn.a_ go peck (P.)(CDIAL 5478).

d.ho_ki = agapa, abaka, a ladle, spoon (Te.lex.)

d.ok, **d.oki**, **d.okum** = the neck; d.oka_vavum = to poke the head forward; d.okiyum = looking at by raising the head (G.lex.) d.oi_ = head (H.M.); d.oke~ = head (M.); d.ok kor.ik = to take someone on one's back (Kho.)(CDIAL 5566)

d.hon:ga = a dugout, a boat made from a hollowed tree, a wooden trough (Santali.lex.)

t.okn.a_ = to hinder (P.); t.oka_ = to thwart (B.)(CDIAL 5476)

d.okke = the body (Ka.); dokke (Tu.); d.okka skeleton, belly (Te.); d.okka bone (Nk.); ciparta d.okka rib (Nk.); d.okka belly (Go.); nenja-d.aki chest (Pe.); d.aki breastbone, chest (Kui); do_kku_ skeleton (Kuwi)(DEDR 2976).

d.on:ka footpath (Te.); d.on:g way, road (Nk.); it.an:kar narrow path (Ta.)(DEDR 2981).

d.haukana = a present (Skt.); d.ho_a_ a present (of fruits etc.)(P.); d.howa_ (Aw.)(CDIAL 5609).

d.hok = obeisance (Ku.); d.hok (N.H.); d.hoka (OMarw.); d.hoknu = to bow down before, salute respectfully (N.); dhokna_ = to bow down before (H.); dhok = obeisance (H.)(CDIAL 5611). Cf. d.okum = the head (G.lex.) **doggalu** = kneeling; doggu adj. kneeling; doggu sala_m saluting on one's knees; submission; dogguni to kneel (Tu.lex.)

d.on:ku, d.on:ka = to bend, to be crooked (Ka.); the state of being bent, curved (Ka.)

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

d.on:gara, don:gara = a steep rock; a precipice (Ka.); d.o_n:gara = a hill (M.) do_ra = a heap, pile, stack (Te.)

d.okkara, d.okkal.a, d.okkara, d.hokkara = thumping, striking; a blow, a cuff (Ka.); t.ho_kara thmping, striking against (H.M.)

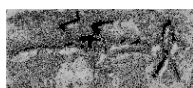
d.oke, doge = to make a hole, to excavate a hole (with the hand, a crow, the nails or claws etc.)(Ka.); do_ku (Te.); d.ogar-u, do_r-u, dogar-u, do_r-u. = a hollow, a hole in a wall, in a tree, in the ground etc. (Ka.); d.on:gu id. (Te.Ta.); d.ogar-u bi_r-u = a hole to be formed (Ka.); d.ok pp of d.oge, in: d.okkol.l.u (Ka.) da_ra = hole, rent, cleft (Ta_n.d.yaBr.); da_ri_ (Sus.r.); da_ru = fissure, cleft (S.)(CDIAL 6292). dara = piece; daram = a little (Skt.Pkt.); a half (Pkt.); dara = a little, partially (common in cmpds.) (Or.)(CDIAL 6187). dara = hole in the ground, cave (R.); dar = cave (K.); cave, hole, hollow in ground (B.); hole, burrow (G.); hole for putting a tree or stake in (M.); dara = cave, chasm (Si.); d.aro = hole in ground to fix anything in (S.); daro = hole, crack (Ku.); deri = hole (D.); d.ari = hole, den, burrow (of wild animal or reptile (S.); dari – hole, cave (B.)(CDIAL 6188).

d.o_ki, d.ho_ki = ladle, abaka, agapa (Telex.)

kakr.a = the common lizard; dhiri kakr.a, arak kakr.a, d.hibri kakr.a, species of lizards (Santali.lex.)

gr.hago_laka = house lizard (Ma_rkP.); gharago_li_, gharo_li_, gharo_liya_ (Pkt.); **gharoli**, ghar.oli_ (G.)(CDIAL 4431). **gha~t.** = protuberance on snout of crocodile (A.)(CDIAL 4420). Ghar.ya_lu long-snouted porpose (SS.); ghar.iya_l crocodile (N.); gha~r.iya_l alligator (A.B.); ghar.ia_l.a (Or.); ghar.ya_l, ghar.ia_r (H.)(CDIAL 4422). [The semant. of lizard X alligator are so close that it is difficult to identify if the orthography on many seals and tablets relates to a lizard or a crocodile; the presence of a remarkable lizard made of stone at Dholavira points to the possibility of recognizing **kakr.a** (lizard) as the rebus **kakar.**, Pilcu har.am, the first man of the Santal tradition]. Cf. **khe~kad.** crayfish, crab (M.)(CDIAL 2816). Karkara = stone (Skt.); kakkara stone, pebble (Pkt.); ka~_kro pebble (G.)(CDIAL 2820). A homonym is: kakkat.a = a large deer (Pali)(CDIAL 2585).

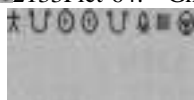
On epigraphs m0410 and m1429, the scale of fish is orthographically ligatured to the snout of a crocodile. If crocodile is: **it.an:kar** (Ta.), the scale of fish is **a~s** (Santali). The rebus lexemes are: d.han:gar ‘smith’ + ayas ‘metal’, i.e. metal-smith.



m0410



2133 Pict-64: Gharial snatching, with its snout, the fin of a fish.

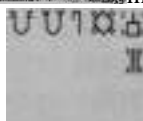


3246

Gharial holding a fish in its jaws



m1429Ct



2045



m1429At



m1429Bt

Pict-125:

Boat..



m0482At



m0482Bt



1620

Pict-65: Gharial, sometimes with a fish held in its jaw and/or surrounded by a school of fish.

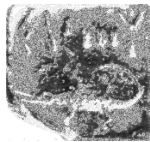
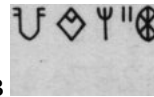


Kalibangan078A



Kalibangan078B

8104 [Tablet in bas-relief; on one side, lizard (gharial?) holds a fish]



m0292

Gharial

(or

lizard)

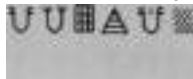
1361



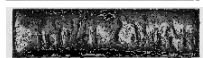
h599A



h599D



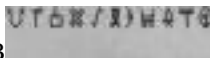
5076



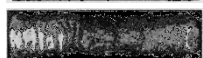
h283A



h283B



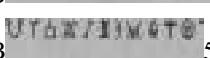
5253



h284A



h284B



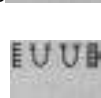
5229



h287A



h287B



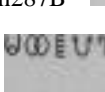
4430



h705At



h705Bt



4337

Chanhudaro Pict-67: Gharial (or lizard), sometimes with a fish held in its jaw and/or surrounded by a school of

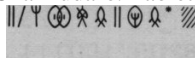


fish.

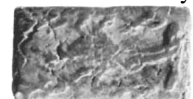


Chanhudaro. Tablet. Obverse and reverse. Alligator and Fish. Fig. 33 and 33a. of Plate

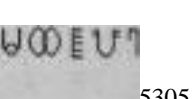
LII. After Mackay, 1943.



6233



h172B



5305



h173A



h173B



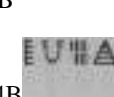
4333



h174A



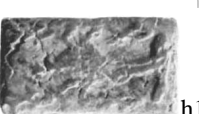
h174B



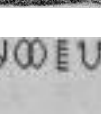
4338



h172A



h172B



5305

Pict-66: Gharial (or lizard), sometimes with a fish held in its jaw and/or surrounded by a school of fish.

Glyph: *kakkare* partridge (Kol.); *ka_kral* id. (Pa.); *kakra_nj*, *kakranj* id. (Go.); *karkara* a gallinaceous bird (Skt.); *kakkara* jungle cock (Pali)(DEDR 1078).

Stone Lizard (not a gharial)



Dholavira. Stone sculpture of monitor lizard. Stone sculpture of monitor lizard is a pointer to the identification of the commonly-occurring glyph as a lizard (and NOT an alligator or gharial). http://asi.nic.in/vsasi/album_dholavira8.html

That it is a lizard and not a gharial (alligator) is surmised from the find of a monitor lizard in the round, made of stone and discovered at Dholavira, a site which has some remarkable workings in stone including stone-cut reservoirs and stone drains.

Substantive: **ka~guru**, ka~gar portable brazier (K.); ka~gri_ small portable brazier (H.)(CDIAL 3006).

Glyph: **kakr.a** = the common lizard; dhiri kakr.a, arak kakr.a, d.hibri kakr.a, species of lizards (Santali.lex.)

Substantive: **ka_karn.i_** a file for blacksmiths (used in Surat.h); **kakra_yavum** to sharpen with a file (of the teeth of a saw); **kakarum** adj. rough; not smooth; **karkarum** adj. rough; sharp (G.)

Substantive: **kakar**. 'another name for Pilcu har.am, the first man according to Santal tradition (Santali)



Sumerian cylinder seal impression from Tell Asmar; the animals are: rhinoceros, elephant and alligator (or, lizard); glazed steatite, height 3.4 cm.; cylinder seal rolled over wet clay. (After Frankfort, 'The

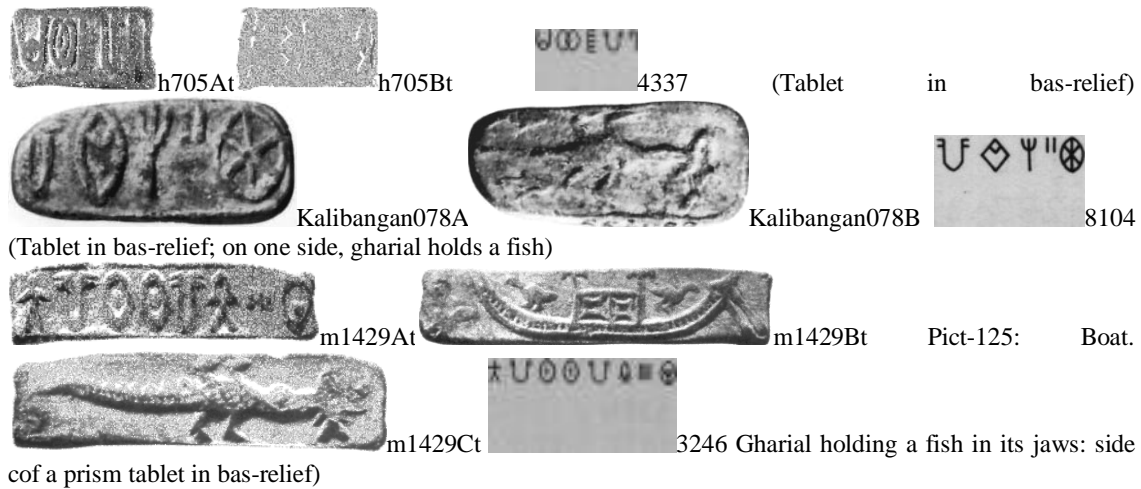
Indian Civilization and the near East', *Annual Bibliography of Indian Archaeology*, 1932, p.3, Pl. I and Heras, 1953, p. 219; Tell Asmar (Eshnunna), Iraq. IM 14674; glazed steatite; Frankfort, 1955, No. 642; Collon, 1987, Fig. 610.)

hako it.an:kar = fish, alligator; i.e. axe, blacksmith. The alligator, **it.an:kar** could be a pictorial motif equivalent of a bull, **d.an:gar**.



Pictorial

motifs 63 to 67 (Gharial sometimes with a fish held in its jaw or surrounded by a school of fish)



Ib is the name of a railway station, a place near Jharsaguda on the railwayline between Kolkata and Nagpur. Lohardaga is the name of a place in Bha_rata associated with Mun.d.a community, a place where minerals are found. > How to explain >> the suffix -daga in the place name? The word is a compound: loha + d.a_n:ga (n:g= velar nasal; d. = alveolar). There are many place names in Eastern Bha_rata with the ending -d.a_n:ga in Bengali, and Bihari languages. Some place names with lohar-: loharwala, Punjab, Pakistan; Loharwala, Rajasthan, India, Lohari Ragho, Haryana, India, Loharia, Rajasthan, India; Lohariana, Madagascar; Loharkhola, Lohachala, Dhaka, Bangladesh; Lohara, Madhya Pradesh, India

This resolves two major issues. We seem to have just cracked the code of the trough and bull pictorials on inscribed objects of the Civilization!

d.an:gar = a blacksmith.

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).

And, surprise, surprise! **d.han:gar** = bull, ox; the clear reference to the pictograph of a short-horned bull in front of the trough. d.an:gra = an ox, a bullock; mun.d.ra d.an:gra = a polled ox; a tiger; ran:gia d.an:gra = a red ox; fire; a tiger; d.an:gri = cattle in general, a cow (Santali.lex.)

it.an:kar = a type of crocodile (kur-in~ci); crocodile (Ta.lex.)

it.an:karam = menses of women (Ta.lex.) [Note the glyph of a woman with spread thighs].

d.an:gara, d.an:gura public notice by a crier who beats a tom-tom (Ka.); d.a_n:gora_ (M.); d.angura (Te.); tan.d.ora (Ta.); d.avan.di_ (M.)(Ka.lex.) **it.an:ka_ram** = left-hand side of a double drum (Ta.lex.) [Note a drummer glyph]

Yet another re-affirmation: **d.a_n:gra_** = a wooden trough just enough to feed one animal. cf. **id.ankar.i** = a measure of capacity, 20 id.an:kar...i make a par-r-a (Ma.lex.) d.aNga_ = small country boat, dug-out canoe (Or.); d.o~ga_ trough, canoe, ladle (H.)(CDIAL 5568). d.hakkai = shuts (Pkt.); d.hakan.u to cover (S.); d.hakna_ cover of a grain-pot (Bi.); d.ha_ka_ large open basket (N.); **d.ha_kar** = a kind of large basket (N.)(CDIAL 5574). **da_gara** = a large flat basket woven of thin bamboo strips in which articles are fried or exposed to the sun; **d.a_gara, d.a_gara_** = a large winnowing basket; a large shallow, square tray of bamboo splints (Te.)

Thus, it is possible to decode the 'trough' as a rebus representation of the word, d.a_n:gra_ (trough) which also means 'blacksmith or metalsmith'. When the trough occurs with the tiger, the total pictorial motif of tiger + trough may be read as: axe (**kr.a_n.d.i** 'tiger', 'axe')-(metal)smith; alternative: **kol** 'metal' (rebus: kul 'tiger') + **d.a_n:gra_** (smith)..

kamba = a post, pillar (Ka.Te.Tu.Ta.Ma.); sthambha (Skt.)

kamat.amu = a portable furnace for melting precious metals (Te.)

tagara = tavara Tbh. of tamara or trapu = tin (Ka.Te.Ta.Ma.) takaram = tin, white lead (Ta.); tagarm (obl. tagart-) tin (Ko.); tamaru, tamara, tavara id. (Tu.); tagaramu, tamaramu, tavaramu id. (Te.); t.agromi tin metal, alloy (Kui); tamara id. (Skt.)(DEDR 3001).

Glyph of **trefoil** or three dotted circles: **tebr.a** 'three' + **t.a~ko, t.a_ka, d.a_ga** 'dotted circle'; rebus: tamb(ra) 'copper' + **d.han:gar** 'smith'; alt. **t.an:ka** 'mint, gold'. **t.hakkura** = idol, deity, title (Skt.); Rajput, chief man of a village (Pkt.); t.ha_kor = god, idol (G.)(CDIAL 5488).

Dotted circle is read as syllable **t.ha** in Brahmi script. **This glyph and corresponding phoneme provides a basis for a hypothesis that the hieroglyphic script of Sarasvati civilization evolved into a syllabic Brahmi script. It is notable that Brahmi is another name for Sarasvati.**



35

Sign 70 Another glyph (inverted) which may so relate the hieroglyphs with a syllable in Brahmi is **ma-**

All the orthographic contexts in which the dotted circle and the trefoil motifs are inscribed can be explained with reference to the sememe: **d.a_~ga (r)** [**d.a_ga** 'a mark put on cattle with red-hot iron'] [Semantics: bull, thigh/leg of a seated woman (**kola** 'woman'; rebus: **kol** 'metal'), idol (**t.hakkura**), head-man, smith (**d.han:gar**), eye of ram (dotted circle: **me~t** 'eye' + **t.agar** 'ram' = **me~r.he~t** 'iron' + **tagar** 'tin'), eye of fish (dotted circle: **a~s** 'scale of fish' + **d.han:gar** = rebus **ayas** + **d.han:gar** = metal smith), dotted circle on a portable (gold) furnace]

Hence, the ligaturing of 'dotted circle' glyph on: the hip of a bull, on the shawl of a statuette of a person (head-man), on the hip/leg of a seated woman. Hence, the ligaturing of 'trefoil' on the back of a bull, on the shawl of a statuette of a head-man statuette, on a pedestal to install s'iva lin:ga.

t.agaru, tagaru, tagar, t.agara, t.egar = a ram (Ka.Te.); tagara, tan:gad.i_ (M.H.); tagade_ra, tagate_ra = having a ram for his vehicle, fire; tagarven.agisu = to cause rams to fight (Ka.) takar = sheep, ram, goat, male of certain other animals (ya_l.i, elephant, shark)(Ta.); takaran- huge, powerful as a man, bear (Ma.); tagaru, t.agaru ram (Tu.); tagaramu, tagaru id. (Te.); tagar id. (M.)(DEDR 3000).

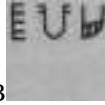
t.agara = squinting (Skt.); **t.agra_** cross-eyed (H.)(CDIAL 5425).

Standing person glyph³⁶

One or more of the ligaturing elements which occur on glyphs showing horned persons: curved horns (like a ram's or like a buffalo's, sometimes with a pair of stars flanking the horns), twig or sprig adorning the headdress, plaited pigtails.



h178B



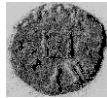
4318 Pict-84: Person ligatured to the back of a bovine with tail, wearing a diadem or tall head-dress (with twig?) standing within an arch or two pillars?

mandil, mandir = temple (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). **ma_d.a** = pavilion (Te.)

man.d.a_ = workshop (Kon.)



h238A



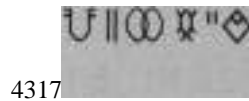
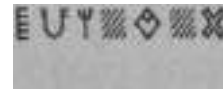
h242A



h242B



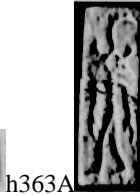
Pict-84



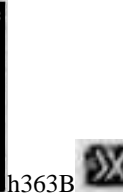
4317



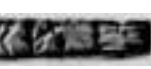
2863



h363A



h363B



h363C



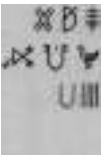
h363E

Pict-86



Pict-85 Standing person with horns and bovine features

(hoofed legs and/or tail).



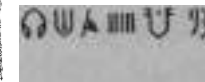
5471



h175A

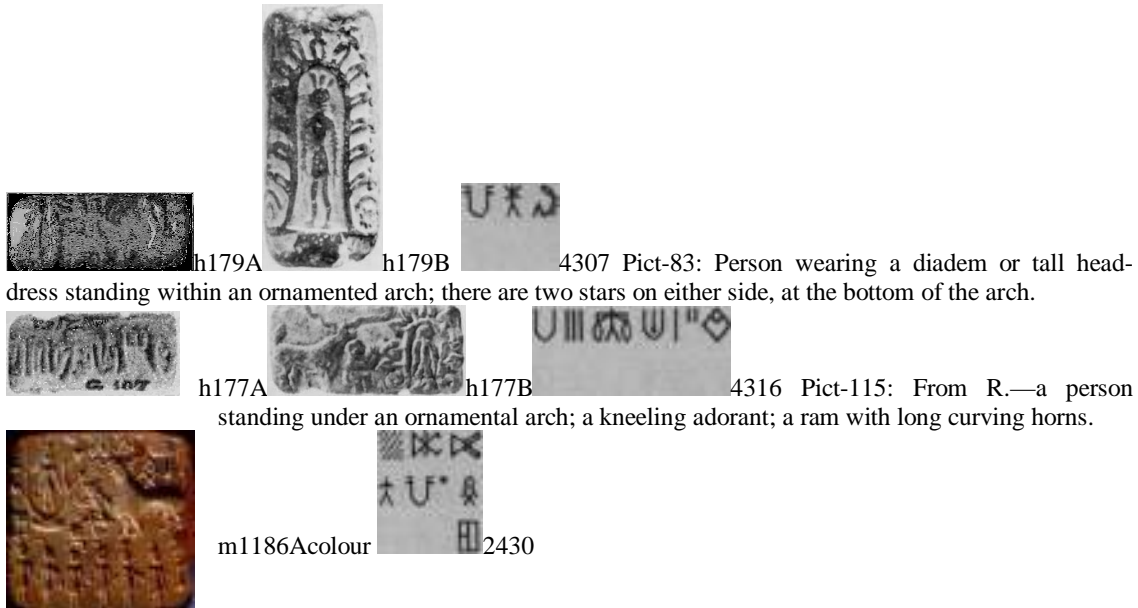


h175B Pict-87



4319 Standing

person with horns and bovine features (hoofed legs and/or tail).



There are some tablets where the standing person wearing a twig as headdress is within an ornamented arch decorated with *figus religiosa* leaves (as in tablets: h238A, h242B, Pict-84 shown together with Text 4317, m1186 and h177B); *loa figus religiosa* 'is rebus for: loh '(iron) metal'.

The twig or tree branch or feather(s) ligatured to the head of the composite motif may connote a possession of a blacksmith or coppersmith.

H178B tablet with epigraph shows a person ligatured to the back of a bovine; the person also wears a twig as a head-dress.

Glyph: back of a bovine

Substantive: **d.ha~_gar., dha~_gar** blacksmith; digger of wells (H.)

d.hagara_m pl. the buttocks; the hips (G.lex.) [Note the glyphs ligaturing other glyphs such as a man's body to the buttocks or hips of a bull]. d.aka_ waist (Wg.); da~k, d.an: back (Dm.); d.a~g (Shum.); dha~_k back (Kal.); d(h)a_k back (Bshk.); d.ha_k hip (L.); d.ha_ka (S.); side, hip (P.)(CDIAL 5582). t.an:ke, t.an:ka_ = the leg (Ka.) t.an:ka = leg (Skt.); t.an:g projecting spike which acts as a bolt at one corner of a door (K.); t.a_n:o rod, fishing rod (N.); t.a~_k iron pin, rivet (H.); t.am.ka leg (Pkt.); t.a_n:ka leg, thigh; t.a_n:ku thigh, buttock (Or.); t.a~_n., ten:ri leg, thigh (B.); t.a~_g, t.a~gri leg, foot (Mth.); t.a_n., t.an:ari leg (Bhoj.); t.a~_g (Aw.H.M.leg from hip to foot (G.)(CDIAL 5428) [Note the dotted circles inscribed on the leg from hip to foot of a seated woman].

The ligatured glyph (of horns + back of bull) could also denote **pot** 'bead' **kod.** 'workshop':

pot = glass bead (P.B.H.G.M.); **puti** = necklace of glass beads (Pkt.)

Thus, the dotted circles shown on the standard device could also depict a bead furnace. **pot** + **san:gad.a**

Upper part of back **pot.** upper part of back; pottel back; adv. behind (Pa.); pot., pot.tel, pot.t.u back (Ga.)(DEDR 4514). 6933. Image: hindquarter of an animal: puta buttock (Ka.Skt.)(Ka.lex.) pu_t.h back (also used in counting cattle, e.g., ca_r pu_t.h goru four oxen (Ku.); buttock (H.)(CDIAL 8371). put.tha

the buttock, the hip of an animal (P.lex.) **put.hiya** = the hips (G.) put.ha, pu_t.h = the back (G.) put.am = pur-am = the back; backside (Ta.) pu_ta = buttocks (Skt.); po_t.i_ = rectum (Pa_n.); pou = the hinder part (S.); puttara = vulva (Pkt.); pu~_tu = part of the body behind the pudenda (K.); puti_ = vulva (Ku.); phuti_, phuddi_ = vulva of small girl (Ku.); puti = vulva; putu = vulva of young woman (N.); po_ri_ = tail (Gy.); pot.h = rectum (K.); pu_t.ki = anus (B.); pu_t. = sacrum bone of a cow (H.)(CDIAL 8321). pe_n.d.a_ female organ; pe_nd.a (Go.); pind.ari rectum (Kui); pend.a buttock (Pa.)(DEDR 4398) pande, pan.d.e = the region over the symphysis pubis; penda = the bottom, base, foot, an underpart (Santali.lex.)). puccha = tail, hinder part (AV); tail (Pali.Pkt.); puchr.u~ = tail (G.)(CDIAL 8249). puccha [put-cha 'putam gudam (yonim va_) cha_dayati_t'i' cf. putau = buttocks, Hindi pud.a_] tail, hinder part (AV 9.4.13)(Vedic.lex.) Put.t.ha = the buttock, the hip of an animal (P. lex.) puccha = the hinder part; the end of anything (Ka.) puchd.i_, puchd.um = a tail (G.)

Glyph: small branches of a tree; twig, sprig, tree

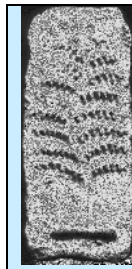
Substantives: *aduru* 'native metal'; **cul.l.ai** = kiln, furnace; rebus: **cul.li** = sprig, branch

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.]

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)

Thus, the glyph of a standing person with other glyptic features of the back of a bovine, twig and ficus-leaved-arch can be explained as: *d.ha~gar* 'smith'; *aduru* 'native metal'; *loh* 'iron'; that is, a blacksmith working with iron and native metal (maybe, natural copper + arsenic alloy).

Tree glyph



Molded terracotta tablet showing a tree with branches; the stem emanates from a platform (ingot?). Harappa. (After JM Kenoyer/Courtesy Dept. of Archaeology and Museums, Govt. of Pakistan).

kut.i, kut.am = tree; rebus: **kut.hi** = furnace

man.d.a_ = warehouse, workshop (Kon.lex.) *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). *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: 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).



Slide 205 (harappa.com) Faience tablet or standard. This unique mold-made faience tablet or standard (H2000-4483/2342-01) was found in the eroded levels west of the tablet workshop in Trench 54. On one side is a short inscription under a rectangular box filled with 24 dots (or one pairs of 12 dots). The reverse has a narrative scene with two bulls fighting under a thorny tree.

On one side of the tablet is depicted a pair of butting (or fighting, *dan:ga*) bulls, *d.an:gra* (blacksmith) [**d.an:gra** janum = prickly plant bare of leaves depicted as a phonetic determinant; janum is a thorn, thorny tree or bush]. He is also a *san:gatara_su* stone-cutter; *san:gad.i* = pair. Often, the bull is shown feeding from a trough (again, a phonetic determinant): **d.a n:gra** = wooden trough or manger sufficient to feed one animal. Thus, when a bull with a trough is shown, the substantive is *d.an:gra*, blacksmith. A synonym is a tree bare of leaves, *d.an:gra*. When two butting bulls are shown, he is a *d.an:gra* (blacksmith) who is also a *san:gatara_su*, stone-cutter.

d.an:gra janum = a rather uncommon plant, one of the very few prickly thistles found in Santalia, *echinops echinatus*, D.C. (Santali.lex.) *d.ha_kal.* = bare of leaves (M.) *d.hen.d.ra* = bare as a tree; having thin scanty hair (Santali.lex.)

Substantive: **dha~gar** 'blacksmith'

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

Substantive: *sal* workshop (Santali)

The bulls standing face to face: **samna samni** = face to face (Santali); rebus: **samanom** 'gold' (Santali) **homa** = bison (Pengo); rebus: **soma** = electrum (RV)

kut.i, kut.am = tree; rebus: **kut.hi** = furnace

Thus the glyphs of one side of the tablet connote: gold furnace.

baddi_ = ox (Nahali); **bad.hi** = worker in wood and metal (Santali)

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

Substantive: *sal* shop as in workshop, place; *kamar sal* 'smithy' (Santali) *sa_l* workshop (B.)

Twenty-four dots may be a grapheme analogous to the duplicated glyphs of twelve short linear strokes.



bed.a = twelve (pies)(Te.); **san:gad.a** = pair; rebus: **bed.a** 'hearth', **san:gad.a** 'furnace'.

The dots within a square on one side of the tablet may connote (copper) ingots or a storied house:

Glyph: *kot.ha* a division, as a stripe or spot, the several parts of a pattern, in patterns; *kabra kot.ha* speckled, spotted; *kot.ha kot.hage neloka* it is in patterns (Santali)

kot.ha an upper story, a ceiling; *kot.ha or.ak* a house with an upper story, or a house with a ceiling (Santali)

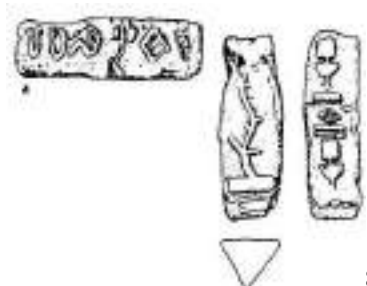
kanda kondo 'with lumps'; rebus: *kan.d.* 'furnace'

Glyph: square '*khon.d.*' (Santali)

Substantive: *gan.d.a* pit (furnace); *garn.d.a_lu* a stalwart man, giant (Kod.)

Glyph: *ad.ar* attack (Ka.)

Substantive: *aduru* 'native metal' (Santali)



8.04 Moulded tablet 3 sides



har612 faience tablet, bas-

relief.



Tree in front. Fish in front of and above a one-horned bull. Cylinder seal impression (IM 8028), Ur, Mesopotamia. White shell. 1.7 cm. High, dia. 0.9 cm. [Cf. T.C. Mitchell, 1986, *Indus and Gulf type seals from Ur in: Shaikha Haya Ali Al Khalifa and Michael Rice, 1986, Bahrain through the ages: the archaeology*, London: 280-1, no.8 and fig. 112]. "No.7...A bull, unhumped, of the so-called 'unicorn' type, raises his head towards a simplified

version of a tree, and two uncertain objects, one a sort of trefoil, are shown above his back. Under his head is an unmistakable character of the Indus script, the 'fish' with cross-hatchings..." (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. 117). The 'uncertain' glyphs above the back of the bull may be: fish + Y

The glyph Y is like a fork on Sign 161



Sign 161 Fork

bara_s carpenter's forked instrument (Tu.lex.)

barca the iron part of a spear (Mu.); cf. **barcha_** (Oraon.); **barca** (Sadani.); **barci** (M.); **barca** the spear-head when the shaft is of wood, and the whole spear, when the shaft and point are one single piece of iron, in which case the cmpd. **mer.edbarca** is used (cf. Pl. IV.A.)(Mu.lex.) [Perh. metath. **barca** = **pra_sa**].

7373a. **Axe**: **paras'u** axe (RV.); **parasu** axe (Pali.Pkt.); **parsa_** hatchet; **parsiya_** reaping hook (H.); **porova** axe (Si.); **furo_** (Md.); **pharasu** axe ((Pali.Pkt.); **phars** (Ku.); **pharsa_** long-handled battle-axe (N.); **pharsa_** axe (B.H.); **phars'i_** (G.); **pharas** battle-axe (M.); **phars'i_** battle-axe, large chisel (M.)(CDIAL 7799h). **pars'u** axe (R.); **pam.su** axe (Pkt.); **po_s** (Ash.); **pec** large axe (Kt.); **pec**, **poc** (Bashg.); **pa_u~si** vegetable chopper (Or.); **pihiyal**, **pihiye**, **pi_haya** knife, chopper (Si.); **pa_so** head of iron instrument such as axe or spade (N.)(CDIAL 7947). **pars'vadha** axe (Skt.); **paras'vadha** (MBh.); **paras'u-dhara** Gan.e_s'a, **Paras'ura_ma**, a soldier armed with an axe; **paras'u**, **parasu** an axe, a hatchet (Ka.lex.) **pharsa_** = hatchet

pharha_ = spearhead; **phal** = blade, arrowhead



kan.t.a = a fork, grapnel (Santali.lex.)



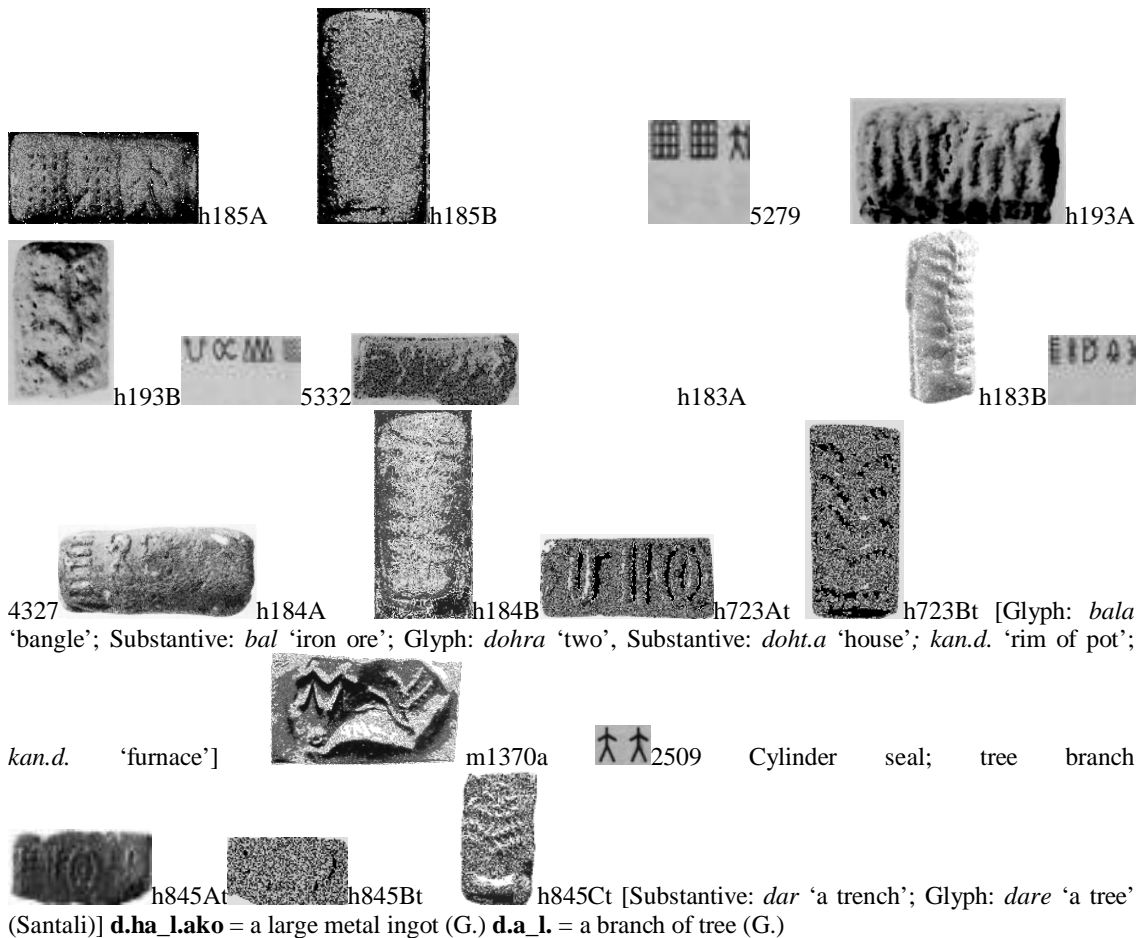
A fish in front of and over a short-horned bull and a bird over a one-horned bull; cylinder seal impression (IM 87798),

Tell as-Sulema (2: 662/236) in Mesopotamia, level IV (Akkadian to early Old Babylonian). Gypsum. 2.6 cm. Long 1.6 cm. Dia. [Drawing by Larnia Al-Gailani Werr. Cf. Dominique Collon 1987, *First impressions: cylinder seals in the ancient Near East*, London: 143, no. 609]

bat.a = a quail, or snipe, coturuix coturnix cot; bon.d.e bat.a = a large quail; dak bat.a = the painted stripe, rostraluta benghalensis bengh; gun.d.ri bat.a = a small type, coloured like a gun.d.ri (quail); ku~k bat.a = a medium-sized type; khed.ra bat.a = the smallest of all; lan.d.ha bat.a = a small type (Santali.lex.) **bat.ai**, (Nag.); bat.er (Has.); [H. bat.ai or bat.er perdix olivacea; Sad. bat.ai] coturnix coromandelica, the black-breasted or rain-quail; two other kinds of quail are called respectigely: hur.in bat.ai and gerea bat.ai (Mundari.lex.) vartaka = a duck (Skt.) batak = a duck (G.lex.) vartika_ = quail (RV.); wuwrc partridge (Ash.); barti = quail, partridge (Kho.); vat.t.aka_ quail (Pali); vat.t.aya (Pkt.); bat.t.ai (N.)(CDIAL 11361). **varta** = *circular object; *turning round (Skt.); vat.u = twist (S.)(CDIAL 11346) bat.er = quail (Ku.B.); bat.ara, batara = the grey quail (Or.)(CDIAL 11350).

bat.a; rebus, **bat.a** 'iron'

a~s = scales of fish (Santali); rebus: aya = iron (G.); **ayah**, **ayas** = metal (Skt.)



KOSALA, BHIR-MOUND PATNAHA, GHAZIPUR	PUNCH-MARKED COINS								
SVAT, BHIR-MOUND PATNAHA, AURIHAR	31								
HAMDAR, HIGADHA BHIR-MOUND, AURIHAR PATNAHA	31								
BHIR-MOUND, RAIRH, PATNA	31								
AURIHAR, RATGHAT JAUNPUR, RAIGARH	31								
BHIR-MOUND, HIGADHA PATNAHA, TANKA, RAIGARH, JAUNPUR, RAIGARH	31								
BHIR-MOUND, HIGADHA PATNAHA, TANKA, RAIGARH, JAUNPUR, RAIGARH	31								
BHIR-MOUND, HIGADHA PATNAHA, TANKA, RAIGARH, JAUNPUR, RAIGARH	31								
BHIR-MOUND, HIGADHA PATNAHA, TANKA, RAIGARH, JAUNPUR, RAIGARH	31								

[Pl. 39, Tree symbol (often on a platform) on punch-marked coins; a symbol recurring on many tablets of SSVc].

The combination of glyphs of fish and quail; Sign 63 and Sign 64: **bhed.a** 'fish'; **bed.a** 'hearth'; **bat.a** 'quail'; **bat.a** 'iron'; i.e., furnace for (s)melting iron. **bed.a** 'ingot' may be connoted by the ligaturing:



		Signs 63 and 64, bird and fish
		Hako, 'fish'; hako , 'axe'; bat.a, 'quail'; bat.hi , 'furnace'; the ligature () = kut.ila san:ga.d.a , i.e. bronze furnace

bhat.a = warrior

bhat.i = furnace; bhat.a = kiln

va_karan- = soldier

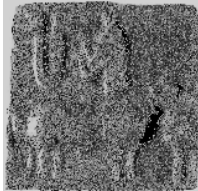
d.han:gar = blacksmith


hako = fish

hako = axe

bed.o = a ship, a vessel (G.lex.) be_d.a_ = boat (Skt.)(CDIAL 9308). bodam = sail (Santali.lex.)

bat.a = a kind of iron (G.lex.) **bhat.a** = a furnace, a kiln; it.a **bhat.a** a brick kiln (Santali)



h452a  4124 (bird + rimmed jar) Is it an egret?

bat.a = a quail or snipe, *coturnix coturnix* (Santali)

bat.ai = to divide, share (Santali) [Note the glyphs of nine rectangles divided.]

Furnace or kiln, native metal, zebu bull

bat.a = quail (Santali) Rebus: bhat.a = furnace, kiln (Santali).

A zebu bull tied to a post; a bird above. Large painted storage jar discovered in burned rooms at Nausharo, ca. 2600 to 2500 BCE. Cf. Fig. 2.18, J.M. Kenoyer, 1998, Cat. No. 8. Nausharo."Large, painted storage jar with a humped bull tied to a papal or sacred fig tree. A bird, possibly the egret, is sitting on the bull's back. Further along in the panel a wild goat is tied to a tree with ball-shaped leaves or fruit. The goat has alternating hatching to fill the body, while the humped bull is painted solid black. A geometric panel just below the rim has parallels to earlier pottery in this region and from the highlands of Baluchistan to the west. From shape and painted style, however, the vessel was clearly made at Nausharo. The designs were painted in a grey black pigment on top of a buff colored background. Found in burned rooms of Period ID (2600 – 2500 BCE) along with several other jars that were painted with similar style and motifs. 46 cm. Height, 35 cm. Minimum dia. 10 cm. Base dia." [After Samssun 1992: 248, fig. 29.3, no.3; JM Kenoyer, 1998, p. 188]

adar d.an:gra = bra_hman.i bull; rebus: aduru 'native metal'; d.han:gra 'blacksmith', that is, 'metalsmith'.
pagaia d.an:gra a pack bullock (Santali)

d.han:gar = blacksmith

d.an:gar = bull

d.hagara_m = n.pl. the buttocks; the hips (G.)

d.an:go = branch of a tree (Nahali); dagan (Ku.) d.e_nga = to be suspended (Kui)(DEDR 5495) d.on:gor = hill, jungle, forest (Nahali); don:gor (Ku.); do~gar = hill, mountain (H.M.)

d.o~ga_ = trough, canoe, ladle (H.)(CDIAL 5568).

dhan:kar = shepherd (Nahali); dhan:gar = shepherd (Ko.M.); dha~_gar = a caste whose business it is to dig wells, tanks etc. (H.);

adar, adar d.an:gra a brahmini bull, a bull kept for breeding purposes and not put to work (Santali) d.hor = cow; dhotta_ = cows, cattle (Nahali) d.hor-ku = cattle (Ku.); e_k d.hat.t.o_ = a bull (Baori-Lahore); d.hor = cattle, beast (H.M.); do_r (Ko.); d.ho_r.-k = cattle (Gondi); dhorai_ = shepherd (GuB.); t.o~d.a_~ = cattle (Bhili) adar. odor., adar udur fat and naked, over-grown, unwieldy; adar. odor.e calaoena he waddled away (Santali) dhur = draught cattle; either oxen or buffaloes; dhur menakkotaea se ban: = has he got plough cattle or not? (Santali) and.ren (pl. and.ran) male, man (Pe.); and.ra a male animal or bird, male (Kui); an.d.ra_ male (said only of animals)(Kur.); an.d.ya_ fierce, unmanageable (of h bulls, bullocks, and male buffaloes)(Kur.); an.d.ya a bull (Malt.); an.d.i_ra male (Skt.); an.d.ira_ id. (Or.)(CDIAL 1111; DE DR App. 7). an.d.ga, an.d.ge = testicle; an.d.ra = not effectually castrated (Santali) an.d.ia = male, of animals, birds and trees (Santali) an.t.ar, in.t.ar = shepherds (Ta.); an.t.ar id. (Ma.)(DE DR 125). ad.ar = herd of cows (Kond.a); ad.er id. (Pe.)(DE DR 84). da_yaro (Persian da_yareh a circle fr. da_yar fr. der revolving, turning, round) an assemblage; a company; a group (G.)

Rebus lexemes which get depicted as glyphs on epigraphs:

aduru = native metal (Ka.); ajirda karba = very hard iron (Tu.); ayil = iron (Ta.); ayir, ayiram any ore (Ma.)(DEDR 192). **darap** = metal, excluding iron, money, wealth (Santali) **darja** = property, house and stock; khub darja menaktae = he is very well-to-do; darja = degree, rank, station (Santali) **daran:**, **daran:** **daran:** = white hot, blazing hot, glowing (Santali) **dr.s'ad** = a stone (Skt.G.) **ayas** metal, iron (RV.); **ayo** (Pali); **aya** iron (Pali.Pkt.); **ya** id. (Si.)(CDIAL 590). **yahun.u** iron filings (Si.)(CDIAL 589). **yakad.a** iron (Si.); **ayaska.n.d.a** a quantity of iron, excellent iron (Pa.n..gan..) **atar** = fine sand (Ta.); **adaru** = a sparkle (Te.); **ayir** = iron dust (Ma.) **at.a_r** = sand (in Kathiawa_d.)(G.); **adar** = the waste of pounded rice, broken grains (Kur.); adru = broken grain (Malt.)(DEDR 134).

d.e_r = heap (Pas'); heap, stor, granary (K.); **d.her** = heap, large quantity (Ku.); large lump (M.); heap (H.G.)(CDIAL 5599).

The early substratum forms are retained in Kannada and Telugu lexemes as: **ad.aru** Cognate: Skt. root **dru** = wood.

ad.aru = twig; ad.iri = small and thin branch of a tree; ad.ari = small branches (Ka.); ad.aru = a twig (Te.)(DEDR 67). **ad.d.o**, **ard.u** = tree, wood (Nahali)

d.ar = a branch of a tree; **dare** = a tree, a plant; to grow, to grow well; **ban:** **darelena** = it did not grow well; **toa dare** = mother, the support of life (Santali) **dare kudrum** = cultivated for its fibre, *hibiscus cannabinus* (Santali) **da_ru** = wood (Skt.G.) deva-da_ru (Skt.); **devada_r** a species of pine; dealwood (G.); **devada_ri** adj. made of fir-wood (G.) dru = wood; druma tree (MBh.); duma tree (Pali.Pkt.); duminda the Bodhi tree (Pali)(CDIAL 6637, 6639). da_rava = made of wood (Mn.); da_ru, da_ro wood (Dm.); da_rav beam, rafter (K.); da_ruvu wooden (K.)(CDIAL 6296). Da_ru piece of wood (MBh.); in RV. Nom. da_ru (gen. **drun.ah, dro_h**); da_ru = wood (Pali.Pkt.); dar timber, firewood (Kho.); da_r timber (Ku.N.H.)(CDIAL 6098). de_vada_ru = Himalayan cedar (MBh.); de_vada_ruka (Pali); de_vada_ru (Pkt.); di_a_r (K.); dya_r (Ku.); dya_ra_n.i deodar forest (Ku.); dewa_r (N.)(CDIAL 6531). **deru, dreu-**. To be firm, solid, steadfast; hence specialized senses “wood,” “tree,” and derivatives referring to objects made of wood. Derivatives include *tree*, *trust*, *betroth*, *endure*, and *druid*. **1.** Suffixed variant form **drew-o-*. **a.** tree, from Old English *trēow*, tree, from Germanic **trewam* (Bartleby dictionary)

ad.a_li = a small tray of wood (G.); Skt. *a_* intense. + *stha_li*, *tha_li* ‘a dish’; ad.uso = name of a tree (G.); at.avi_ = a forest (Skt.G.) **at.a_ro** = household furniture (G.) **a_d.an.i** [Dh. Des. **satti** = Skt. vakrapa_da trayam vr.ttam da_ru kalas'a_dha_ra bhu_tam, fr. Skt. sapti = a horse; or, Hem. Des. **ohad.an.i** = Skt. phalaka_rgala_ = a wooden latch] a small wooden stool on which bread is made (G.) **a_d.alum** = a piece of wood with which fibres or threads are twisted into a rope [Dh. Des. **ohad.an.i** = Skt.phalaka_rgala_](G.) **a_d.asar** = a cross beam; a beam (G.) **argal.a, argala, agan.i** = bolt or bar to fasten a door (Ka.); argal.amu = a wooden bolt, bar or pin for fastening a door (Te.); argoli = crossbar, rail (Kui); argala (Skt.); aggala (Pkt.)(CDIAL 629; DEDR App. 9). **daran:** = steep, precipitous (Santali)

dar.e = strength, to vanquish, to conquer; dar.e hor = an able bodied man (Santali)

da~r.e~ = a sacrifice, a victim; to devote to sacrificial purposes (Santali)

at.al = a kind of fish; at.alai = a marine fish (Ta.); at.ava = a kind of marine fish (Ma.); ad.ami_nu = a kind of fish; ad.a_vu id. (Tu.)(DEDR 68). **dar.ka**, dan.d.ka = a species of fish (Santali)

darka dale = with disheveled hair; darka daleya rakeda = she weeps with her hair loose and in disorder; darkal markal, darkul markul = with disheveled hair, applied to men as ‘darkadale’ is applied to women (Santali)

dar.kak, dhan.dka, d.han.d.kak = stalks of certain crops left in the ground at time of reaping; stubble, a stalk (Santali)

at.avari = chin (Pe.Mand.)(DEDR 69).

da_ra adj. (Persian *da_r* ‘keeper’ fr. *da_s’tan* = Skt. *dhru*, *dh_r*, to hold, to keep, to put) A Persian suffix showing ‘holder, keeper, bearer, possessor’ (G.)

da_ra = a woman, wife (G.); **da_ra** id. (Skt.)

Semantics: pounding, powdering, working in wood

Glyph: “

ad.aruni = to crack (Tu.); *at.aruka* = to burst, crack, slit off (Ma.); *at.ar* = a splinter; *at.arcca* splitting, a crack; *at.artuka*, *at.attuka* = to split, to tear off, open (an oyster)(Ma.)(DEDR 66). **da_ravum** = to tear, to break (G.) **dar** = a fissure, a rent, a trench; **darkao** = to crack, to break; *bhit darkaoena* = the wall is cracked (Santali) **tarukku** = to pound, break (Ta.); *tarakkuka* = to deprive rice of its husk (Ma.)(DEDR 3099). **at.a** = flour, meal (Santali) *a_t.u* = to move, to shake; *a_t.al* = shaking, moving (Ta.)(DEDR 347) *at.ava_vum* = to be crushed (G.); *a_t.o* = crushing; flour; *a_n.t.o* [*a_vartana*, *a_vr.tti*] = a turn; a twist (G.); *at.a_vum* = to be pounded; **va_t.avum** = to pound; to ground by rubbing upon a stone with a muller; to mash (G.)(Skt. *vr.tta*, *varta* = Latin *verto* ‘to turn’); *va_t.a* = an iron circle put round the wheel of a carriage; a tire (G.)] *va_t.ika_* = a garden; an orchard (Skt. *va_t.a* ‘an enclosed space’)(G.) **va_d.iyo**, **vha_d.iyo** = a ship-builder; a carpenter; a title given to housebuilders and shipwrights; *va_d.havum* = to cut; *va_d.ha* = the edge of an instrument for cutting; a cut, a wound; reaping a field (G.) *a_d.iyum* = a saw (G.) *da_ru-kha_num* = a powder magazine; powder-works; fire-works; a liquor-shop (G.); *da_ru* = spirituous or vinous liquor (G.Persian) *da_l-ci_ni_* [See *da_ru* ‘wood’ + *ci_na* ‘China’](G.) *daru* = gunpowder; *daru* = distilled liquor, from *matkom* flowers (Santali) **dar cini** = cinnamon (Santali)

a_d.asod.a, **a_d.asod.iyum** = the manner of wearing the upper garment so that it covers one of the shoulders, and leaves the other uncovered; *so_d.a* = folds of a garment (G.)

a_n.ta = a knot or noose in thread; *a_n.t.o* = a turn, a twist; *a_n.t.i_* = a knot in thread; a skein of thread (G.) **adk-** to tie (knot)(Go.); *atuku*, *aduku* = to join, to unite (Te.)(DEDR 145). **ta_r**, **ta_ram** = cord, rope (Ta.); *da_ra* string, thread (Ka.Tu.); *da_ramu* id., cord, twine (Te.); *da_ra* = waistband, girdle (Pkt.); *davara(ka)* = string (Skt.)(DEDR 3167; CDIAL 6225).

dari, *dari chinari* = a prostitute (Santali)

d.aren, **ad.aren** to cover up pot with lid (Bond.a); *d.arai* to cover (Bond.a.Hindi)

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).

ad.ar an attack (Ka.); *at.ar* to beat, strike, mould by beating (Ta.)(DEDR 77).

ad.ar = harrow; *a~r.gom* ‘a clod crusher, a harrow without teeth; to harrow; *a~r.gom bhuk* ‘this hole into which the shaft to which the cattle are yoked, is inserted into the harrow’ (Santali)

Alternatives:

The dominant images are: **khu~t.**, **bagal.o**, **med.h** : zebu, egret (paddy bird), post. The rebus substantives are: **ku_t.a**, ‘chief (**kut.ha_ru**, ‘writer, armourer’); **bagal.o**, ‘merchant vessel (boat)’; **med.h**, ‘merchant’s clerk, writer’.

Hole: *kud.e* (Tu.); *got.aru* (Ka.), *khod.ar* (H.) [Note the glyphs of dotted circles].

Variation between absence and presence of the sign | at the beginning of 18 parallel sign sequences.
[After Parpola, 1994, Fig. 5.2]

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).

1254	†安	1155	大UIII人
2504	†安 〇	2581	大UIII人 〇
	†安	2557	U人
	†安 U大	0238	U人 U大
	U△〇U安〇大	1004	U△〇U安〇大
	大U安	2412	U△〇U安
	U△〇〇	1620	U△〇〇
	U△〇〇 〇	2066	U△〇〇 〇
	U△〇〇U〇〇〇	3074	U△〇〇
	U△〇〇	2157	U△〇〇
	U△〇〇	4116	U△〇〇
	U△〇〇 U△〇〇	5148	U△〇〇 U△〇〇
	U△〇〇	0135	U△〇〇
	U△〇〇	5064	U△〇〇 U△〇〇
	U△〇〇	2039	U△〇〇
	U△〇〇 〇	3628	U△〇〇 〇
	U△〇〇	2543	U△〇〇
	U△〇〇	2587	U△〇〇

The zebu is: **khu~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.

khu~_t.ad.um a bullock (used in Jha_la_wa_d.)(G.)

khu~_t.iyum an upright support in the frame of a wagon (G.)

Parpola notes that the sign appears to be redundant since many texts occur with comparable sign sequences but without such a sign. The sign may be a determinative, just as a 'man' glyph may be semantic determinative of a function or title. (Parpola, 1994, p. 80).

The long linear stroke on m0318 can be :
kod.a, kor.a = in arithmetic one; 4 kor.a or kod.a = 1 gan.d.a = 4 (Santali.lex.)

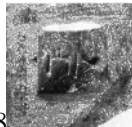


If **kod.a** is a determinative of Sign 197 including on the seal m0318, the sign may be read as: **kod.a**

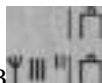
Rebus, substantive: **kod.**, 'artisan's workshop'. [Alternative: Line **ger-a** (Te.), gira_ (Or.); rebus: Battle **keral**. (Ka.); ceru (Ta.) qeru]



m0318



m0318B



2626

Fish glyphs

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).

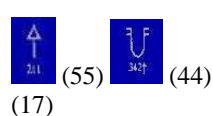
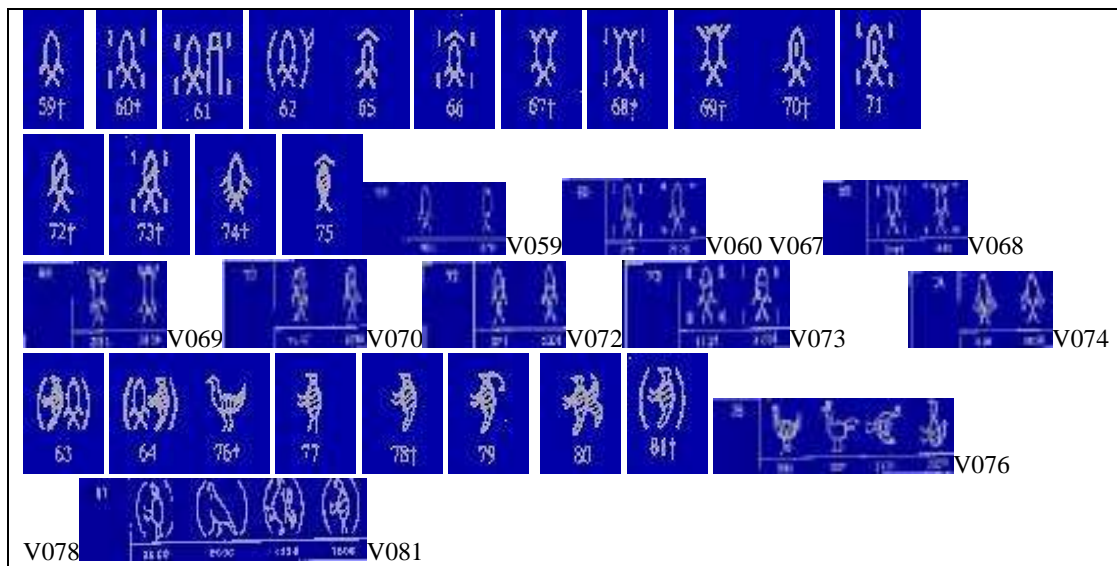
hako fish (Santali)

ke~r.e~ ko~r.e~ an aboriginal tribe who work in brass and bell-metal (Santali.lex.)

*ker.e sen:*gel fire in a pit, as the Koles burn charcoal (Santali)

ken.t.ai, freshwater fish, barbus (Ta.); **ken.t.a** a carp, cyprinus; gen.d.e-mi_n a sort of fish (Ka.); gan.d.e, gen.d.e a fish; gen.d.i, gen.d.iya, gen.d.e the carp, cyprinus fimbriatus (Te.; kin.d.o_ a species of fish; kindo_injo~ carp fish (Kur.)(DEDR 1947). kan.d.a_yi = gar fish (fish) (Ta.)

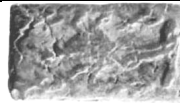
Fish and associated glyphs




Sign 59 (381)



Copper tablets (14)



h172B Field Symbol 36

Sign 59 

: **bed.a hako** = a fish (Santali)

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

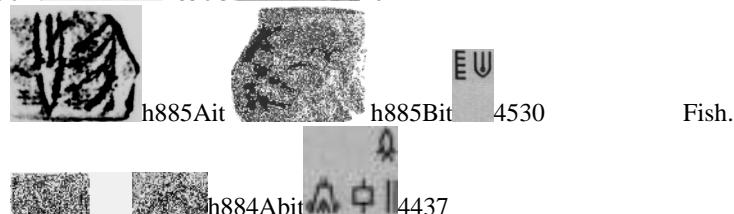
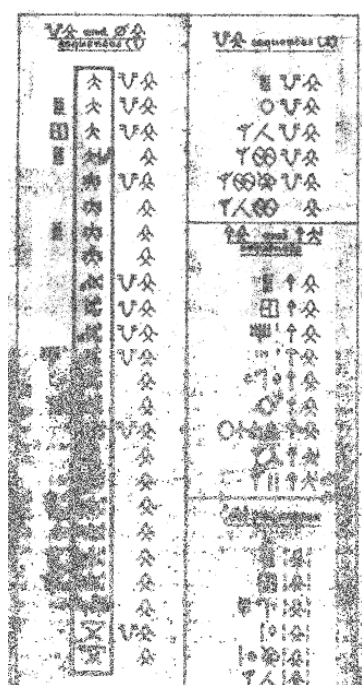
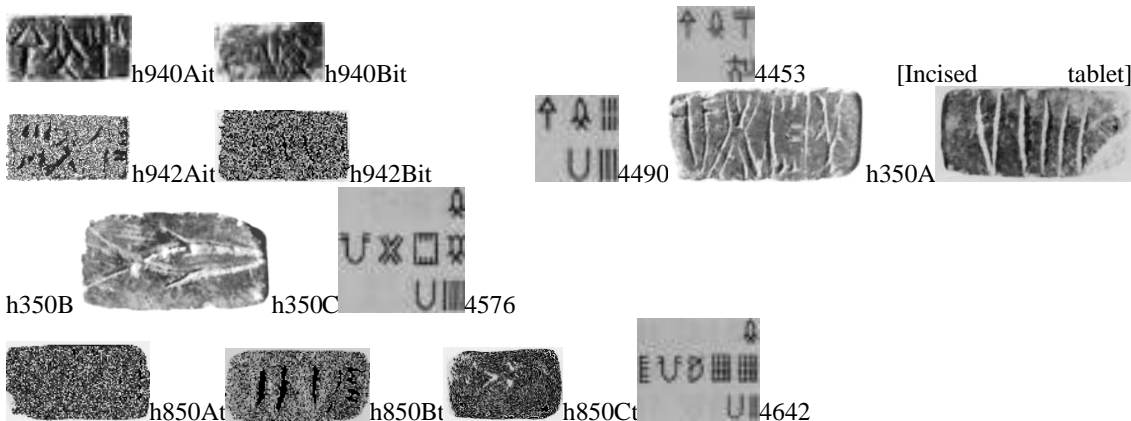
In the corpus of epigraphs, fish signs frequency is 1241 and there are 14 objects shaped like fish, all of which were found at Harappa.



This is a frequent pairing (about 60 occurrences) of 'fish' signs.



The 'fish' sign also gets duplicated in pairs.



The 'fish' glyphs are also ligatured with a circumgraph of four short strokes: The circumgraph of four short strokes is: *gan.d.a* 'four'

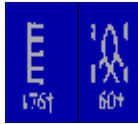
gan.d.a 'valiant male or hero'

Final sign clusters after 'fish' sign types and 'man' signs. Framed 'man' and other signs framed in a column are found only after 'jar' sign or its zero variant. [After Parpola, 1994, fig. 6.6]

On the use of circumgraphs associated with the 'fish' sign, Parpola notes (1994, pp.69-70): "...the four strokes around the 'fish' sign may in fact be understood to be read after it, and that their meaning is close to the sign 'arrow' that is often found in this position." The following sequences are shown as evidence.



4604



5477 Twenty signs occur with the circumgraph of four short strokes; many of these 20 signs



occur as final motifs of the text, functioning similar to the 'jar' sign which terminates many texts. The circumgraph may, therefore, be the terminating 'word' of the text, functioning similar to the 'arrow' sign. The 'arrow' sign terminates 184 inscriptions (out of a total of 227 inscriptions in which the 'arrow' occurs).



(44)



(24)



(18)



(20)

Sign 65 (216)



Copper tablets (16)

Sign 65 is a ligatured glyph: **bed.a hako** = a fish. Rebus: **bed.a** = hearth (G.) ligatured with a 'lid' glyph. d.aren-mund.i lid of pot; **d.aren, ad.aren** to cover up pot with lid (Bond.a); d.arai to cover (Bond.a.Hindi) Rebus: **aduru** 'native metal' (Ka.), i.e. hearth for native metal.



Pairing sign



Pairing sign

savat.u, savut.u, saut.u, so_t.u = ladle, spoon (Ka.) Rebus: **caval.ai** = lead, silver (Ta.)



(28)



(26)



(32)



(21)

Sign 67 (279)



Copper tablets (8)

Sign 67: **a~s** 'scales of fish'; rebus: **ayas** 'metal' (RV) bed.a hako = a fish; rebus: **bed.a** = hearth. Thus, **a~s bed.a** = metal hearth.



(10)

Sign 70 (73)



Copper tablets (5)

A spot or mark is ligatured to 'fish' glyph: **dag** = to mark, stain, brand, cauterize; a blemish, a spot, stigma, mark (Santali)

Rebus: **dagad.a, dagad.o** = a large stone; a large lump of earth (G.)

bed.a hako = a fish; rebus: **bed.a** = hearth. Thus, Sign 70 denotes a hearth for stone or lump of earth.



(21)



(20)

Sign 72 (188)

Copper tablets (20)

Glyph is a slanting stroke ligatured to 'fish' glyph: **d.ha_l.iyum** = adj. sloping, inclining; d.ha_l. = a slope; the inclination of a plane (G.)

Rebus: **d.ha_l.ako** = a large metal ingot; d.ha_l.aki_ = a metal heated and poured into a mould; a solid piece of metal; an ingot (G.)

bed.a hako = a fish; rebus: **bed.a** = hearth. Thus, Sign 72 denotes a hearth for metal ingot.



Sign 61 Sign 197 is ligatured with 'fish sign' and enclosed within a circumgraph.

The three ligaturing components of Sign 61 may be read as: **gan.d.a** 'four'; **bed.a** 'fish'; **kod.a** 'sluice'. The rebus substantives are: **kan.d.a** 'furnace'; **bed.a** 'hearth'; **kod.** 'artisan's workshop' [Alternative: **d.a l.** = water-course (G.); **d.ha l.o** = large metal ingot; **a~s** = scales of fish (Santali); rebus: **aya** = iron (G.); **ayah, ayas** = metal (Skt.)]

The circumgraphed 'fish'sign (Sign 60), i.e. the 'fish' enclosed within four circumgraphs or four short-strokes can be read as two words: X plus **bed.a** 'hearth'. What is X or what is the 'meaning' or 'reading' of the 'circumgraph'?



In an incisive, contextual analysis of the corpus of inscriptions containing the 'fish' sign, Asko Parpola demonstrates that the sign sequences (Sign 211 and Sign 59) are functionally similar to the ligatured sign (fish enclosed in four circumgraphs: Sign 60) (cf. Asko Parpola, Asko Parpola, 1994, *Deciphering the Indus Script*, Cambridge Univ. Press, Fig. 6.6, p.94) **er-aka** 'upraised arm' (Ta.); rebus: **eraka** = copper (Ka.)



kod.a, kor.a = in arithmetic one; 4 **kor.a** or **kod.a** = 1 **gan.d.a** = 4 (Santali.lex.)

Synonyms for **kod.** 'artisan's workshop': **s'al** (arrow); **s'al** (workshop).

The word for a 'set of four' is: **gan.d.a** (Santali); **bar gan.d.a poesa** = two annas; **pon gan.d.a aphor menaka**, there are 16 bunches of rice seedlings; **gan.d.a gun.d.a** to be broken into pieces or fragments; fragments; **gan.d.a gut.i** to dive, to make up an account; the system of '**gan.d.a gut.i**' is to put down a pebble, or any other small object, as the name of each person entitled to share is mentioned. Then a share is placed alongside of each pebble, or whatever else laid down. (Santali.lex.)



Thus, the circumgraphed 'fish' sign 60 can be read as: **bed.a gan.d.a** (rebus: **bed.a** 'hearth', **kan.d.** 'furnace'), i.e. hearth and furnace. Cf. *kan.t.am* 'arrow' (Ta.)

Banawali 23A A tall person with an upraised arm in front of a one-horned bull and a markhor with upturned faces (apparently listening to the person); two signs occur: 'fish' and 'arrow' graphemes. The sealing is on terracotta. The ten steatite seals and one sealing have only come from the lower town, not the citadel...these seals were generally recovered from houses which on the basis of their contents...have been tentatively attributed to a trader or jeweler (Bisht, R.S., 1982, Excavations at Banawali: 1974-77, in: Gregory L. Possehl, *Harappan Civilization*, Delhi, p.118).

Glyph: **gan.d.a** 'male person, hero' (Ka.)



Sign 68 **ken.t.ai** 'carp', **gan.d.e** 'fish'; rebus: **ke~r.e~** bell-metal, brass. **gan.d.a** 'four'; **kan.d.** 'furnace'

The frequently occurring pairs of 'fish' ligatures are as follows (frequencies are shown in parenthesis):



Signs 72, 67 (6)



Signs 72, 67, 65 (2)



Signs 67, 65 (4)



Signs 59, 65 (5)



Signs 70, 67 (3)



Sign 67; Alternative 1: four scales, a count of four, **gan.d.a**; rebus: **kan.d.** 'furnace', thus a count of four 'a~s' metal (ayas) furnaces; alternative 2: **ko_la_** 'flying fish, exocetus; garfish, belone (Ta.); ko_la_-mi_n, ko_li needle-fish (Ma.)(DEDR 2241); rebus: **kol** = metal; working in iron (Ta.); kole.l –smithy' (Ko.)(DEDR 2133).



Sign 72 with a sloping ligature can be explained: **d.ha_l.iyum** = adj. sloping, inclining; d.ha_l. = a slope; the inclination of a plane; d.ha.l.avum = to incline, to lean over (G.); rebus: **d.ha_lako** = a large metal ingot (G.) **a~s** = scales of fish (Santali); rebus: aya = iron (G.); **ayah, ayas** = metal (Skt.) Thus, Sign 72 can be read as: **d.ha_l. ayas** = large metal ingot.



The ligature of a short linear stroke on Sign 70 may be a grapheme (synonymous with Sign 72) and may also connote: **d.ha_l** = a shield, a buckler; the grand flag of an army directing its march and encampments; the standard or banner of a chieftain; a flag flying on a fort (G.); rebus: **d.ha_lako** = large metal ingot (G.) **ams'a** = a portion; the numerator of a fraction; an attribute; a degree in circular or angular measurement (G.); rebus: a~s = scales of fish (Santali) [**ams'a** is a technical term used in the R.gveda to describe an attribute of **soma**; in this context, **ams'u** may be a description of the metallic protrusions of **soma**, electrum mineral ore. Cf. **ams'u** = the ray, the sun (G.)]

These sequences demonstrate that the five types of 'fish' ligatures, i.e. Signs 59, 65, 67, 70, 72 are distinctly differentiated substantives.

Within the circumgraph, there are five 'fish' related signs and ligatures, i.e. the types of 'fish' ligatures enclosed within the circumgraph (of four short strokes):



affixed on top of 'fish' glyph

ad.aren, d.aren to cover up pot with lid; d.aren-mund.i lid of pot (Bond.a); d.arai to cover (Bond.a.Hindi) tal.l.e wooden handle, as of an axe (Ka.Tu.)(DEDR 3137). d.alu, ad.alulo to cover something (Boind.a) d.a_narai lid of pot (Bond.a.Hindi)

Alternative:

man.d.iga = an earthen dish (Te.lex.) **man.d.e** = a large earthen vessel (Tu.lex.) **man.di** earthen pan, a covering dish (Kond.a); cooking pot (Pe.); brass bowl (Kui); basin, plate (Kuwi)(DEDR 4678). man.d.e = head (Kod.)(DEDR 4682).

man.d.a = warehouse, workshop (Kon.lex.)

aduru native metal (Ka.); **ajirda karba** very hard iron (Tu.); **ayil** iron (**Par..amo. 8**)(Ta.); **ayir, ayiram** any ore (Ma.)(DEDR 192). **ayas** metal, iron (RV.); **ayo** (Pali); **aya** iron (Pali.Pkt.); **ya** id. (Si.)(CDIAL 590). **yahun.u** iron filings (Si.)(CDIAL 589). **yakad.a** iron (Si.); **ayaska_n.d.a** a quantity of iron, excellent iron (Pa_n..gan..) **atar** = fine sand (Ta.); **adaru** = a sparkle (Te.); **ayir** = iron dust (Ma.)

ayil javelin, lance (**Jn-a. 33**)(Ta.); **ayil** surgical knife, lancet (**Ja_n-a. 30**); **ayilavan-** Skanda as bearing a javelin (**Tiruppu. 312**)(Ta.lex.) **ayil** sharpness (**Na_lat.i. 386**)(Ta.) **ayil** javelin, lance (Ma.); **ayiri** surgical knife, lancet (Ma.)(DEDR 193).

bed.a hako 'fish' (Santali)

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)

a-s = scales of fish (Santali); rebus: aya = iron (G.); **ayah, ayas** = metal (Skt.)



Sign 65 The ligatured 'fish' sign can be interpreted as: **adaru bed.a** 'hearth for (smelting) native metal'. Alternative: **a-s** + **dagni** = scales of fish + an iron with which an owner brands his mark upon his cattle (Santali); rebus: d.hakni, d.haknic, d.hakon = an earthenware lid for a kan.d.a (Santali) + ayas 'metal'.

Code for ligatured 'fish' signs

Based on this concordance table, the possible interpretation of the ligatured 'fish' signs may be derived:

The circumgraph is orthographed with four short strokes. Four is a landing-point in ancient numeration in Bharat.



Sign 67 *ken.tai* carp (Ta.); **gan.d.e** = a fish (Te.lex.) The glyphs of ligatured fin: **cet.t.ai** fin (Ta.); cat.t.upa wing (Te.)(DEDR 2764) Rebus, substantive: **ke~r.e~** bell-metal, brass.

kolli = a kind of fish (Ma.); koleji (Tu.)(DEDR 2139).

Fish: gullo (Tu.), golla-dondu (Te.), **ko_la_n** = needle-fish (Ma.) ko_la (Ta.)

xola_ tail (Kur.); qoli (Malt.)(DEDR 2135)

kol 'smithy'; **kulme** = furnace (Ka.); kolimi = furnace (Te.)

Hence, Sign 70 = **kol** + **bed.a** 'smithy and hearth'



Sign 65 **adaru bed.a** 'hearth for (smelting) native metal'



Sign 70 A short stroke within the body of the fish) affixed to the basic 'fish' pictograph.

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.)

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

Hence, **sal** + **bed.a** (spike + fish); rebus: **sal** 'workshop'; **bed.a** 'hearth'



Sign 72 [Transverse line ligatured on fish or circumgraphed fish. The word *gan.d.* has a meaning, 'across', 'transversely' **gan.d. gan.d ar.eme** 'throw embankments across at several places'; **gan.d.ra, gan.d.rao** full of nicks or notches, to be nicked or notched; **gan.d.ra gun.d.ra** to cut or break into pieces (Santali.lex.) **gan.d.ralu, gan.d.arulu** pl. pieces, fragments, chips (Te.lex.) (Santali.lex.) This attribute, 'transverse' may be denoted by the transverse ligature used on the body of the 'fish' rebus: kan.d. 'altar, furnace'] If so, **bed.a kan.d.** 'furnace and hearth' Alternative: kolli a fish (Ma.); koleji (Tu.) (DEDR 2139).

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

badhor, badhor.ia = crooked, cross grained, knotty (Santali.lex.)

badhoria 'expert in working in wood' (Santali)

gan.d.ra = tree trunk (Kuwi); kan.d.a = bough (Pali)



Sign 66 Sign 71 Sign 73 These circumgraphed signs with 'fish' motifs can also be interpreted in the context of **kan.d.** 'altar, furnace' (rebus: four short strokes) For e.g., Sign 71: **kol** + **bed.a** 'smithy and hearth' + **kan.d.** 'altar, furnace'

Some inscribed objects containing the Sign 59 or ligatures including Sign 59

Some objects with only the ligatured 'fish' sign -- as in m-1084, m-1118, k-034, k-037, m-999 -- together with an 'antelope' pictorial motif, indicate that the 'fish' sign should be read as a 'substantive' and not assigned an alphabetical or syllabic value. Seal impressions containing the 'fish' sign also confirm that this sign may represent a possession, a property item or a 'commodity' traded. It may be related to processing or is a 'metal' object since it occurs on objects such as: copper plate/copper rod/copper celt.

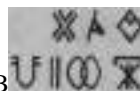
A fish appears together with a combined field symbol of the head of a unicorn attached to a short-horned bull motif. That a 'fish' glyph may connote a substantive is indicated by some inscribed objects shaped like a fish or an axe or a sickle.



h236A

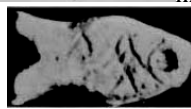


h236B



4658

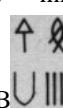
Incised miniature tablet. Object



h329A



h329B

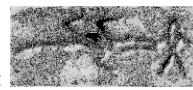


5496

Pict-68: Inscribed

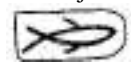
shaped like fish axe or sickle.
object in the shape of a fish.

The fish glyph alone is adequate to complete the inscription on some objects:



m0410 Pict-

64: Lizard (gharial?) snatching, with its snout, the fin of a fish

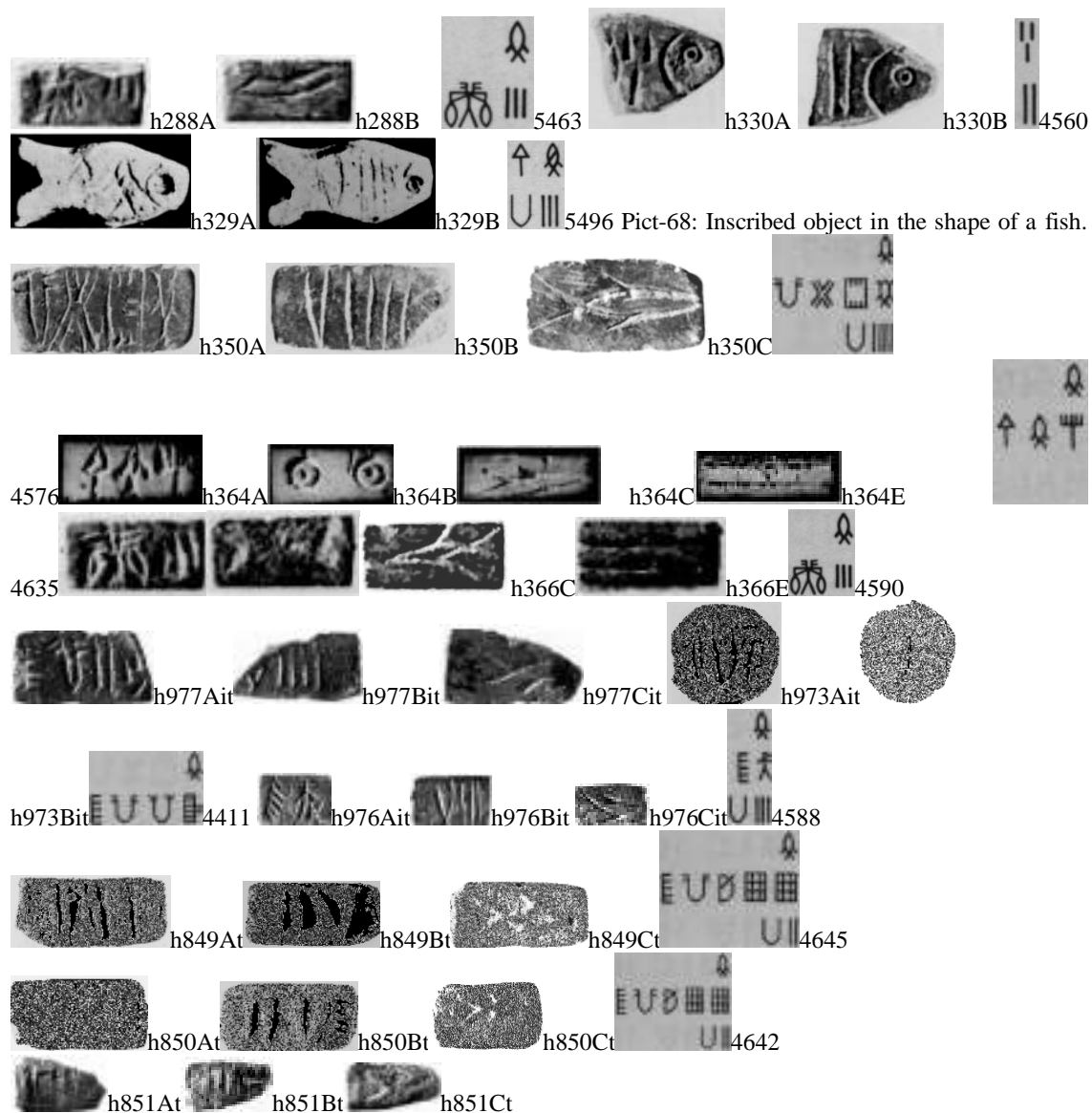


har607 Steatite



tablet, incised [1993-1995 excavations]
(hoofed legs and/or tail).

Pict-85 Standing person with horns and bovine features



Slide 208 Two steatite tablets. Two inscribed and baked steatite tablets from the Trench 54 area. One has the shape of a fish (H2000-4452/2174-191), while the other has a fish sign inscription (H2000-4477/2227-11). [Harappa, 2000 excavations].

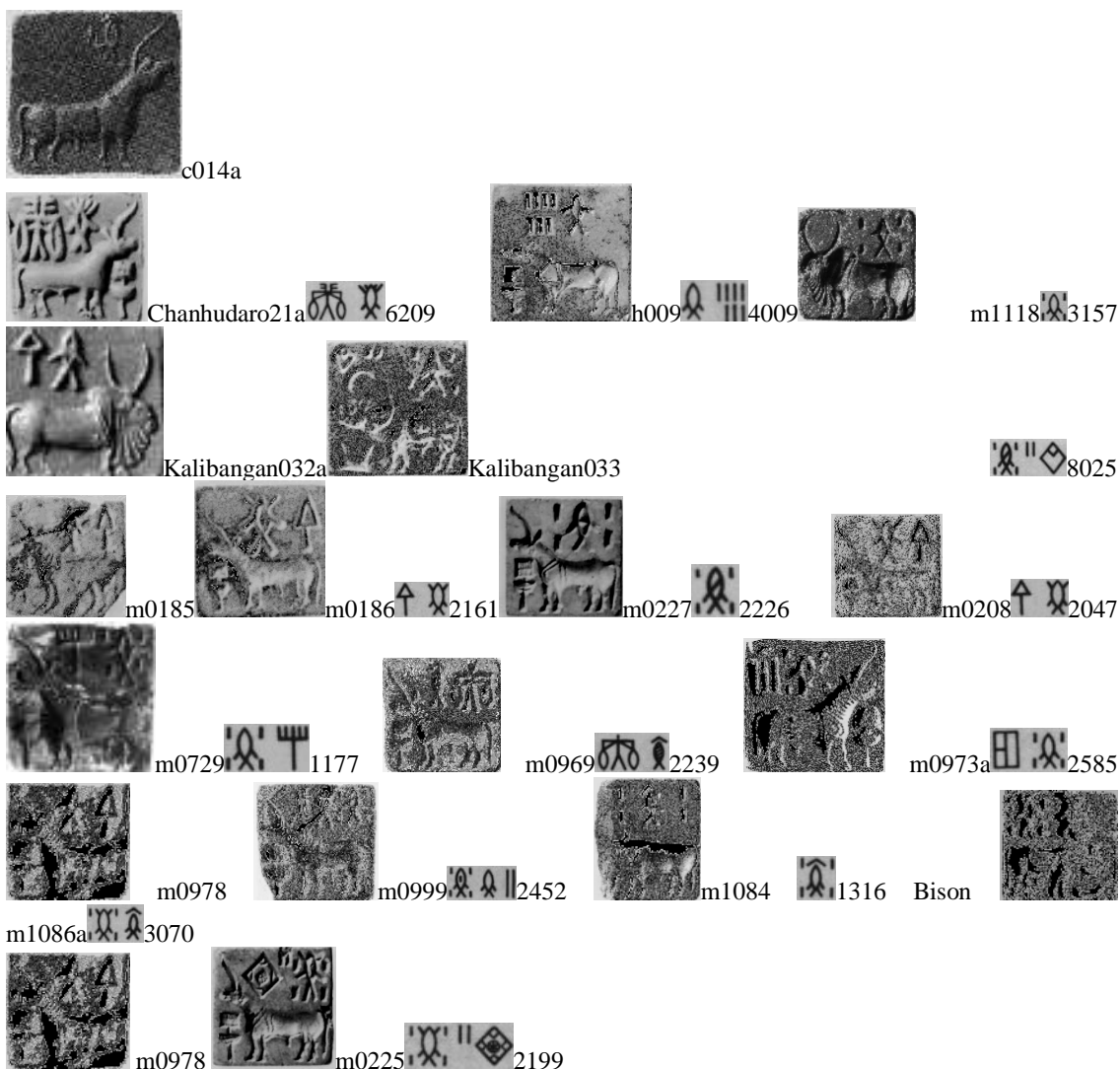


Kalibangan037 8042



Kalibangan034 8052

The following examples show the dominant use of the fish glyph together with another sign and/or a ligature:



Inscribed lead celt or ingot fragment from the Trench 54 area (Slide 209 H2000-4481/2174-321). The object was apparently chiseled to reduce its size. Lead may have been used as an alloy with copper, for making pigments, or as medicine. The epigraph may include a square with nine divisions: lokhan.d.a – lo ‘nine’, **khan.d.a** ‘divisions’; rebus: **loh** ‘metal’ **khan.d.a** ‘ingot’.



Iraq; IM 87798; (al-Gailani Werr, over a short-horned bull and a bird

cylinder seal impression, (Akkadian Gypsum. 2.6 cm. Long 1.6 cm. Dia. Werr. Cf. Dominique Collon 1987, in the ancient Near East, London:



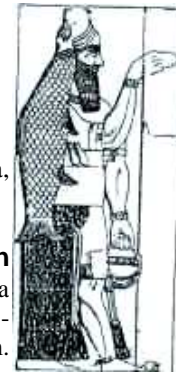
Tell Suleimeh (level IV), 1983, p. 49 No. 7). A fish over a one-horned bull;



to early Old Babylonian). [Drawing by Larnia Al-Gailani First impressions: cylinder seals 143, no. 609]

Parallels of 'fish' glyphs in Mesopotamia

Water-god Enki, streams of water flow from his shoulders; two stars beside his head distinguish the naked anthropomorphic man. Fish is seen beside the stream. 18th cent. BCE Syrian cylinder seal



impression. Pierpont Morgan Library, New York City; cf. Porada 1971. cf. Asko Parpola, 1994, Fig. 10.8, p. 184.



Masked as Enki, half-fish and half-priest;

from a relief of Assurnasirpal II (883--859 BC) from Calah. Gypsum. Height ca. 2.5 m. After Jeremias 1929: 353, fig. 183; cf. Asko Parpola, 1984, *Deciphering the Indus Script*, Cambridge Univ. Press, Fig. 10.19, p. 190). Mesopotamian water-god Enki -- distinguished by the fish emblem -- is the principal 'god of creation (d nu-dim-mud = s'a nab -ni-ti)...The Sumerian word apkallu (or abgal) meaning 'wise man, expert', and used as the title of a priest, exorcist or diviner, is an epithet of Enki. It refers to mythological sages, too, especially the seven antediluvian sages: the cuneiform texts speak of 'an oral tradition of the [seven] ancient sages from before the flood', and 'the seven sages of the *apsu*, the sacred *pura_du*-fish, who like their lord, Ea, have been endowed with sublime wisdom.' The servants of Enki are represented in the art as half-fish, half-man' (ibid., p. 190). Since this relief is dated to between 883 to 859 BCE, it is likely that the fish myth was

transferred from Bha_rata [S'Br. 1.8.1 which refers to Manu as the survivor of a flood, saved by a great fish (matsya, jhas.a)].

In Bharatiya tradition, 'fish' sign is emphatically associated with copper metallurgy, as attested by the pictorial incised on 'anthropomorph' of the Gangetic Copper Hoard (early 2nd millennium BC).

It will be demonstrated that the sign also occurs in and can be explained in 'metallurgical' contexts on early inscriptions of the civilization, dating from ca. 3500 BC.

Anthropomorph (copper) with 'fish' sign

A remarkable legacy of the civilization occurs in the use of 'fish' sign on a copper anthropomorph found in a copper hoard. This is an apparent link of the 'fish' broadly with the profession of 'metal-work'. The 'fish' sign is apparently related to the copper object which seems to depict a 'fighting ram' symbolized by its in-curving horns. The 'fish' sign may relate to a copper furnace. The underlying imagery defined by the style of the copper casting is the pair of curving horns of a fighting ram ligatured into the outspread legs (of a warrior).

Anthropomorph with 'fish' sign incised on the chest and with curved arms like the horns of a ram. Sheorajpur (Kanpur Dist., UP, India). State Museum, Lucknow (O.37) Typical find of Gangetic Copper Hoards. 47.7 X 39 X 2.1 cm. C. 4 kg. Early 2nd millennium BCE.

bed.a either of the sides of a hearth; cf. **be** two (G.)

takar = sheep, ram, goat, male of certain other animals (ya_l.i, elephant, shark)(Ta.); takaran = huge, powerful as a man, bear etc. (Ma.); tagar, t.agaru, t.agara, t.egar = ram (Ka.); tagaru, t.agaru id. (Tu.); tagaramu, tagaru id. (Te.); tagar id. (M.)(DEDR 3000).

t.hakkaru, t.hakkarud.u = a deity; an idol; an honorific title same as t.ha_ku_ru, t.ha_ku_ru = a father; a religious preceptor (Te.lex.)

ken.t.ai 'fish' (Ta.); rebus: **ke~r.e~** 'brass/bell- metal' [**ke~r.e~ ko~r.e~** workers in brass and bell-metal (Santali)]

The shape of the anthropomorph is like the head of a ram with curved horns. [*mel.h* 'goat' (Br.); *melukka* 'copper' (Pali)]

Alternative:

kor-r-a = black murrel (Te.), kur_icci = a fish many sharp bones (Ma.)
kur-avai = murrel (Ta.)

kor-r-a = ram (Ma.) [**kura** = bull calf (Go.)]

Substantive: **koru** a bar of metal (Tu.)

Bronze head of ibex. Iranian. C. 600-500 BCE. Ht. 14 in. Metropolitan Museum of Art
Copper Hoard culture artifacts: a. antennae hilted sword; 2. anthropomorph; 3. harpoon. [After Fig. 6.1 in DP Agrawal, 2000].



Caches of finds in Uttar Pradesh, Bihar and Madhya Pradesh yielded tools of various types: rings, flat and shouldered celts, trunnion axes, anthropomorphs, swords, double-edged axes, harpoons, socketed axes. Piggott identified these hoards with Harappan refugees. Heine Geldern (1936: 87-88) theorized that the trunnion axe came from Transcaucasia via Persia in c. 1200-1000 BCE. Originating from the Danubian region, the axe-adze also reached India via Iran in c. 1200-1000 BCE and the antennae swords were influenced by the Koban examples dateable to c. 1200-1000 BCE. BB Lal showed that the trunnion axes, the Fort Monroe sword, the socketed axe and axe-adze never occurred in the doab but were confined to the north-western part of the subcontinent. As a corollary, he showed that the harpoon, the bracelet and the anthropomorph were never found west of the doab. He also noted that the antennae swords of the doab were



cast as a single piece, unlike the Koban specimens. Socketed axes and adzes reported from Chanhu-daro, Mohenjodaro and even from Mundigak Period III, are found in much earlier contexts than c. 1200-1000 BCE claimed by Heine Geldern. It is, therefore, clear that the relationships and migrations suggested by Heine Geldern are not tenable. [BB Lal, 1951, Further copper hoards from the Ganga valley and a review of the problems, *Ancient India* 7: 20-39; DP Agrawal, 1982, *The Archaeology of India*, London, Curzon Press.].

“The most distinctive and enigmatic type is the anthropomorphic figure...I have examined several specimens from different museums and found three main features in the anthropomorph: externally sharpened and incurved forearms; plain hind limbs; and a thickened head. It was perhaps used as a missile to kill birds as the sharp arms could cut the bird, the thick head could stun it and the incurved arms could entangle and bring it down. The head was the thickest part and the extremities had thinner cross-sections. An experimental model, when thrown, went in a whirling fashion and seemed to make a trajectory which made one suspect a boomerang-like effect...at Bisauli harpoons and anthropomorphs occur together; at Bithur antennae swords and harpoons are associated; antennae swords and anthropomorphs were found together at Fatehgarh...Lal (1972) associates the Copper Hoards with the Mundari-speaking Australoid tribes of the primeval Uttar Pradesh but YD Sharma identifies them with the Late Harappans. Sankalia sees West Asiatic influence even in the Ochre Coloured Pottery (OCP), especially in the handled and spouted pottery of Saipai. I have suggested a Central Himalayan affiliation (Agrawal 1999). Thus identification of the authorship, at present, is purely a game of guess-work. There are two significant finds of Copper Hoards from Kumaun, one from Bankot and the other from Haldwani...at Bankot, a hoard of 8 anthropomorphic copper objects was discovered...” [DP Agrawal, 2000, pp.105-7].

“Discovery of the anthropomorphs in Kumaon and Nepal leaves no room for doubt...there is a community of the coppersmiths called Tamtas. They are traditional coppersmiths.” [MP Joshi, 1995-96, The anthropomorphs in the Copper Hoard culture of the Ganga valley: *Puratattva* 26: 23-31]. [Note. *damr.a* ‘steer, heifer’; *damr.i*, *dambr.i*, *damt.i* ‘one-eighth of a pice (copper)’; *tambra* ‘copper’].

Yaks.a, Pitalkhora. Detai of bead necklace of anthropomorphic shape. The hukan faced bead has its legs curved. It is dated to c. 1st cent. BCE. National Museum, New Delhi. [Deshpande., MN, 1959, The rock cut cave of Pitalkhora in Deccan, *Ancient India*, No. 15, New Delhi, pp. 66-93]. Madhuri Sharma and DP Sharma, 1998, Newly discovered anthropomorphic figures from Nurpur, UP, in: Vibha Tripathi, ed., *Archaeometallurgy in India*, Delhi, Sharada Publishing House, pp. 286-291]. Tamtas also called tamotas (equivalent of Thathera-s of the plains) belonged to the general ja_{ti} of Dom (Nevill 1904: 105). In the Punjab, **chhatera** is an engraver as distinct from a thathera who makes ornamental vessels (Kipling 1886: 6); the brass founder was called the **bhartya**. [Chakrabarti and Lahiri, 1996, p. 156]. In Tamil, they were **kamma_lar** and in Telugu, **kam.sala** (Holder 1894-95: 81).



Boats and egret

Two types of boats are seen in epigraphs: **bagala** (Arab boat), **san:gad.a** (Sindhu sa_gara boat). One is represented by an egret (paddy bird) and another by a ‘standard device’ – san:gad.a. The owners of many inscribed objects were boat-people indeed, navigating the Rivers Sarasvati, Sindhu, the coastline of the Sindhu sa_gara and the Persian Gulf. The lexeme **san:gada**. can also be connoted when a composite animal is formed by joining features of more than one animal or by ligaturing the heads of animals to a bovine body. In Mara_t.hi_ **san:gad.a** means a joined animal.

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.)

kolimi ‘furnace’ (Te.) **kol** ‘metal, alloy of metals’ (Ta.)

ko_l, *ko_lam* raft, float (Ta.); *ko_lam* raft (Ma.); *ko_l* raft, float (Ka.); *ko_lamu* (Te.); *kola* boat, raft (Skt.); *kulla* id. (Pkt.)(DEDR 2238).

Rebus: **ban:gala** = a portable stove (Te.) **bat.a** = quail (Santali); rebus: **bat.hi, bat.a** = smelting furnace (Te.) **kuduru** = lizard (Kuwi); rebus: **kuduru** = portable gold furnace (Te.) **bed.a hako** = fish (Santali); **bed.a** = hearth (G.)



m1349A



m1349B

[The epigraph may contain a

'partitioned rectangle' glyph]



m1429At



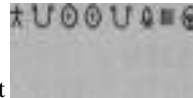
m1429Bt

Pict-125:

Boat.

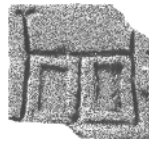


m1429Ct



3246 Gharial (or lizard) holding a fish in its jaws.

The raised
m1187



platform (macan) or cabin on the boat is paralleled on an inscribed object. May be, this connotes a commodity (copper ingots?) loaded on the boat?

Boat
middle

depicted on a Mohenjodaro triangular prism tablet. A rectangular cabin is in the flanked by two birds. "A later Buddhist story (Ja_taka no. 339) relates how 'some (Indian) merchants came to the kingdom of Ba_veru [= Ba_bilu in Babylonian], bringing on board ship with them a direction-crow.' Such a crow was released if the sailors wandered too far towards the open sea from the coast; by flying towards the land, the bird would show the right direction" [Parpola, 1994, p. 14] The merchants also brought a royal peacock which would dance at the clapping of the hands which was purchased for a thousand gold coins. The land of Meluhha also supplied to Mesopotamia carnelian (= Akkadian sa_mtu, lit. 'red stone'). The two birds (egrets) may be phonetic determinants of the boat: **bagad.e**, two; **bagla_** egret; **bagala_**, Arab boat. Ca. 1015 BCE., King Solomon and King Hiram of Tyre sent ships sailing directly from the Arabian port to India, touching 'Ophir', Sophir or Sauvira in the Gulf of Khambat (near Lothal) and brought back gold, silver, ivory and peacocks.

Sarasvati Civilization

An overview

A historical project in search of River Sarasvati to discover our roots, has become a magnificent opportunity for national resurgence and to make Bharat a developed nation.

This is presented in three sections: observations, conclusions and areas for further research.

Observations

Many sparks have emerged from the anvils of scholars and researches of a variety of disciplines – all focused on the roots of civilization of Bharat.

Collated together, these sparks have become a floodlight which throws new light on the civilization of Bharat.

It is a new light on the civilization because of the following reasons:

A mighty river, a river mightier than Brahmaputra had drained in North-west Bharat for thousands of years prior to 1500 BCE (Before Common Era).

The collective memory of a billion people, carried through traditions built up, generation after generation, recalls a river called Sarasvati; this memory is enshrined in the celebration of a Mahakumbha Mela celebrated every 12 years at a place called Prayag where the River Ganga joins with River Yamuna. River Sarasvati is also shown as a small monsoon-fed stream in the topo-maps of Survey of India and in village revenue records in Punjab and Haryana.

Yet, the tradition holds that there is a triveni (confluence of three rivers). The third river is River Sarasvati. This tradition has now been established as a scientific fact – ground truth -- thanks to the researches carried out using satellite imageries, geomorphological studies, glaciological and seismic studies and even the use of tritium analysis (of traces of tritium present in the bodies of water found in the middle of the Marusthali desert) by atomic scientists. The desiccation of the river was caused by plate tectonics and river migrations, between 2500 and 1500 BCE.

These studies have established beyond any doubt that River Sarasvati was a mighty river because it was a confluence of rivers emanating from Himalayan glaciers; the River Sutlej and River Yamna were anchorage, tributary rivers of River Sarasvati. The river had drained over a distance of over 1,600 kms. from Manasarovar glacier (W. Tibet) to Somnath (Gujarat) with an average width of 6-8 kms. At Shatruna (south of Patiala), satellite image shows a 20 km. wide palaeo-channel (ancient course), at the confluence of five streams – Sutlej, Yamuna, Markanda, Aruna, Somb – referred to as Pan~ca Pra~ci~ Sarasvati in Bharatiya tradition. This becomes Saptatha Dha~ra Sarasvati when two other streams – Dr.sadvati and Ghaggar – join the River Sarasvati at Sirsa

A civilization was nurtured on the banks of this River Sarasvati as recognized through the work of archaeologists and the geographical/historical facts contained in ancient texts of Bharat, such as the

Mahabharata and *Pura_n.a*. This civilization was an indigenous evolution from earlier than 10000 BCE and can be said to be one of the oldest civilizations in the world, heralding the Vedic heritage. Over 2,000 archaeological sites have been discovered in the Sarasvati River Basin. There is a description, in 200 s'lokas, in the S'alya Parva of *Mahabharata* of a pilgrimage undertaken by Balarama, elder brother of Kr.s.n.a, along the River Sarasvati from Dwaraka to Yamunotri. The oldest extant human document is the R.gveda which is a compilation of 11,000 r.ca-s perceived by hundreds of seers. An understanding of this document is fundamental to an understanding of the cultural ethos of Bharat.

R.gveda presents a world-view in allegorical and metaphorical terms perceiving an essential unity in cosmic phenomena and r.ta (a rhythm which modulates the terrestrial and celestial events alike). While the document presents the early philosophical thought related to *dharma*, it also describes the lives and activities of people – the Bharatiya. R.gveda thus presents a variegated picture covering a variety of facets of a maritime-riverine civilization, such as transport systems, agriculture, use of fire, minerals and metals to produce household utensils, ornaments, tools and weapons. Archaeologists have unearthed many examples of technology used in the days of the Sarasvati Civilization (from circa 3500 BCE to 1500 BCE). These provide evidence for the evolution of s'ankha industry in 6500 BCE, preparation of alloys such as pan~caloha, bronze, brass, pewter and bell-metal.

A dialectical continuum has existed in Bharat from the days of R.gveda and Sarasvati Civilization. The civilization constituted a linguistic area, as it is even today in Bharat. Mleccha was a language spoken by Vidura and Yudhis.t.hira as evidenced by *Mahabharata*. Mleccha were vra_tya-s who worked with minerals and metals. The semantic structures (words and meanings) of all languages of Bharat – Munda, Dravidian or Indo-Aryan categories – present an essential unity among the speakers of various dialects of Bharat. The seven volume work on Sarasvati substantially draws upon the *Indian Lexicon*, which is a comparative dictionary of over 25 ancient languages of Bharat. Using this lexical repertoire of the linguistic area called Bharat, it has been possible to crack the code of the epigraphs of the civilization inscribed on over 4,000 objects including seals, tablets, weapons and copper plates. The epigraphs are composed of hieroglyphs (referred to as Mlecchita Vikalpa – picture writing --, one of the 64 arts listed by Va_tsya_yana).

The code of hieroglyphs is based on rebus (use of similar sounding words and depicted through pictures) and represent the property possessions of braziers – possessions such as furnaces, minerals, metals, tools and weapons. These were also traded over an extensive area upto Tigris-Euphrates river valley in Mesopotamia and the Caspian Sea in Europe.

The tradition of epigraphy evidenced in punch-marked coins and copper plate inscriptions in the context of Sarasvati Epigraphs points to millions of manuscripts and documents remaining unexplored all over Bharat.

Ongoing projects for the rebirth of River Sarasvati has opened a new vista in water management in Bharat, which has an ancient tradition of water management exemplified by the rock-cut reservoir in Dholavira, the grand anicut on Kaveri, the step wells and pus.karin.is in all parts of Bharat.

Desiccation of River Sarasvati is a warning to us about the unpredictability of the impact of tectonics on hydrological systems sourced from the Himalayas, for e.g. the Rivers Ganga and Brahmaputra.

Conclusions

River Sarasvati is neither a legend, nor a myth, but ground-truth, a river which was flowing for thousands of years prior to Vedic times.

Bharatiya Civilization is an indigenous evolution and cultural continuity is established from the Vedic times to the present day.

For thousands of years before the days of Mahabharata War (ca. 3000 BCE), the Bharatiya had contacts with neighbouring civilizations.

The historicity of *Mahabharata* has been established making it a sheet anchor of Bharatiya Itihasa. After the desiccation of River Sarasvati (finally by about 3000 years ago), Bharatiya-s moved to other parts of the world.

The metaphor of Samudra manthanam (celebrated in the *Bhagavata Purana*) is a depiction of the reality of a cooperating society which had united all the people of Bharat into life-activities including the environmentally sustainable use of natural resource offered by Mother Earth (Bhudevi).

Sarasvati is adored in Bharatiya tradition as a river, as a mother and as a divinity – *ambitame, nadi_tame, devitame sarasvati*. This is an abiding spiritual foundation which resides in the heart of every Bharatiya.

The epigraphs evidence one of the early writing systems of the world.

The search and discovery of River Sarasvati has revealed a thread of essential unity – a bond among the people of Bharat. This has emerged from Vedic times and continues even today. This is the unity of an integral society, a resurgent nation and a unified culture which can be found in all parts of Bharat, from the Himalayas to the Indian Ocean.

Research Institutions have to be established in different disciplines of historical studies to study the manuscripts and documents in the archival collections in all parts of the country.

The initiation of a project for interlinking of rivers is a laudable, first step in creating a National Water Grid which has the potential to ensure equitable distribution of water resources to all parts of the country and to make Bharat a developed nation in 15 years' time.

The establishment of the Water Grid is a national imperative and should be an unmotivated action (<i>l'acte gratuite</i>) devoid of political overtones.
--

The establishment of an inter-disciplinary Sarasvati Research Centre in Kurukshetra will help in progressing further researches on water resources management, and study of our history, heritage and culture.

Areas for further researches

Glaciological researches are needed in relation to the glacial source of River Sarasvati which is referred to as *Plaks.a Pras'ravan.a* in the ancient texts.

Seismological studies are needed to determine the chronology of events connected with the submergence of Dwaraka, the Gulf of Khambat and other coastal regions of Bharat.

Meteorological, glaciological and seismological studies have to be related to plate tectonics – the dynamic Indian plate and the evolving Himalayas – for a better understanding of the hydrological systems, sustainability and management of a National Water Grid for Bharat.

Archaeological work on the 2,000 sites on Sarasvati River Basin have to be related to the events described in the ancient epics: *Ramayana* and *Mahabharata*

The Vedic texts, epics and Purana-s contain historical information which can be validated through archaeological, astronomical and geographical studies.

Epigraphical and language studies in relation to the evolution and spread of languages and scripts of Bharat.

Scholars have to be encouraged to study the unexplored manuscripts lying in museums, libraries and private collections.

Researches for establishing the National Water Grid should be objective and provide a new vision to reach out the water and agricultural resources of the country, equitably, to all people and for the development of the nation.

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End Notes

¹ If it is a skull, it could connote, *man.t.ai* = skull (Ta.)

man.d.a_ = warehouse, workshop (Kon.lex.)

² **karat.i;** ‘elephant’; rebus, *kharad.e* ‘account’:

karad.u, *kard.u*, *kharad.e* = rough, as an account; *kharad.e_m* a rude sketch (M.); *kha_tkarad.a_* a daily account, a day-book (Te.); *kharad.e_mid.* (M.); *karad.a_* stout, as paper (M.); *kharad.a_* (Te.); *karad.e* (Ka.)(Ka.lex.)

karad.e = an oblong drum beaten on both sides (Ka.lex.) *karad.imeyita_ye* = a hairy man; *kara_d.i* = a class of Mahratta brahmins (Tu.lex.)

³ Substantive: *t.a_n:gi* stone chisel (A.); *t.en:goc* = small axe (Santali) *tega* ‘a cutlass, scimitar’ (Santali) *tah’nai* ‘to engrave’ (Kuwi)(DEDR 3146).

Substantive: *ten:* ‘to weave’; *tetenic* ‘a weaver’; *kicricko tena* ‘they weave cloth’ (Santali)

t.he~ga_ = stick

Glyph: *ten:go*, *ten:gon* = to stand, upright position (Santali)

Glyph: *ten:gra hako* ‘a species of fish’ (Santali)

Glyph: *t.en*, *tec* ‘used with the numeral one (mit) to form the indefinite article a or an; a single animal or thing’; *mitt.en* ‘one individual’; *mitt.en hor.e calak kana* ‘a man is going’ (Santali)

⁴ Glyphs: neck; bull, hoof, to copulate.

dhakuc = to have sexual intercourse with, to copulate; to shake the loins (Santali.lex.) *d.haka*, *d.haklau* = to push, to thrust (Santali.lex.)

d.ok ‘neck’ *dhakuc* ‘to copulate’, *d.ekka* ‘hoof’ (Te.Nk.Kuwi); *d.eka* (Kond.a)(DEDR 2970), *dega* to run, jump, leap (Kui); *d.egna_* to leap, jump (Kur.)(DEDR 2971), *tagulu* ‘to have sexual intercourse with’ (Ka.)(DEDR 3004); rebus: *dok* ‘possessions, occupancy’

d.an:gra ‘bull’; *d.han:gar* ‘smith’; *adar*, *adar uric* ‘breeding bull’; *aduru* ‘native metal’.

⁵ Alternative homonyms: **bar**, **barea** ‘two’ (Santali); rebus: **ba~r.ia~** = shopkeeper, pedlar (Santali)

⁶ *kasera_* worker in pewter (P.Bi.H.); *kasero* maker of brass pots (N.); *ka_m.syaka_ra* worker i bell-metal or barss (Ya_jn~.com.); *kam.saka_ra* (BrahmavP.); *kasa_r* = maker of brass pots (N.); *ka~ha_r* worker in bell-metal (A.); *ka_sa_ri* = pewterer, brazier, coppersmith (B.); *ka~sa_ri_* (Or.); *kasa_ri_* maker of brass pots (H.); *ka~sa_ro*, *kasa_ro* coppersmith (G.); *ka~_sa_r*, *ka_sa_r* worker in white metal; *ka_sa_rd.a_* contemptuous term for worker in white metal (M.); *kasau~r.i_* cooking pot (N.); *ka~_sa_l.u~* large bell-metal cymbals (Or.); *ka~_su~* bell-metal (OG.); *ka~_sa_l.* large cymbal (M.); *ka~sa~_d.i_*, *ka_sa~d.i_* metal vessel of a particular kind (M.) *kam.sa* metal cup (AV.); bell-metal (Skt.); bronze dish (Pali); *kan~jho* bell-metal (S.); *ka~_h* gong (A.); *ka~sa_* big pot of bell-metal (Or.); *ka_so* bell-metal tray for food, food (OMarw.); *ka~_sa_* cymbals (G.); *kaso_t.* metal pot (Wot.); *kam.sia_* a kind of musical instrument (Pkt.); *kenzu* clay or copper pot (K.); *ka~_hi* bell-metal dish (A.); *ka~_si_* bell-metal cymbal (G.); *ka~_siyo* open bell-metal pan (G.) **kas-kut.** = metal alloy (brass or bronze) (N.) *kan~cu* = bell-metal, bronze, a hard alloy consisting usually of about three to four parts of copper to one of tin (Te.lex.) *kan.sa_ro* (cf. *ka_m.sum* fr. Skt. *ka_m.sya* bell-metal + *ka_ra* worker) a copper-smith (G.lex.) *ka~_se~* bell-metal (M.); bronze (Kon.); *ka_m.sya* made of bell-metal (Ka_TyS'r.); bell-metal (Yajn~.); cup of bell-metal (MBh.); *ka_m.syaka* bell-metal (Skt.); *kam.sa* (?) bronze (Pali); bell-metal, drinking vessel, *cyk bal* (Pkt.); *ka_sa* id. (Pkt.); *ka~_ja_* adj. of metal; *ka_sa_ jar* (L.); *ka~_so* bronze, pewter, white metal; *kas-kut.* metal alloy (N.); *ka_h* bell-metal (A.); *ka~_sa_* (B.Or.Bi. Bhoj.H.); *ka~sa_* (Or.);

ka_s (Bhoj.); ka_s (H.); ka~_su~ (G.); kasa (Si.) ka~_iha~_ bell-metal (O.); ka~_ssi_, ka~_si_ (P.); ka~_si_ (H.)

⁷ *kasis* iron sulphate (Santali) *kaci* = scissors (Sh.); *kocu* = betelnut scissors (K.); *kaciya_* = sickle (N.); *ka_si* (A.); *ka_ci* (B.); *kacia_* = big scythe (Or.); *kaciya_* toothed sickle (Bi.); *kicca_* = cutting (Pkt.) *ka_yppu* hard inferior iron (Ga.); *ka_ypu* inferior iron (Ma.)(DEDR 1465). *ka_s* to be lit (as fire), burn; *kasis* to light (lamp, fire)(Kond.a); *kacay* id. to light (lamp)(Pe.); *hiccu kahinomi* we kindle fire (Kuwi)(DEDR 1090). *kacan-ai* censer (Ci_vaka. 2140)(Ta.lex.)

⁸ *kar-i* to chew, eat by biting or nibbling (Ta.); *kar-uvu* (kar-uvi-) to nibble as a rat (Ta.); *kar-ur.* bridle, bit (Ta.); *kar-ampuka* to nibble, gnaw (Ma.); *kajepuni* to chew, husk with the teeth or beak (Tu.); *kar-acu* to bite, gnaw (Te.)(DEDR 1390). *kaccuni* to bite (Tu.); *kacc* id. (Kol.Pa.); to sting (Pa.Ga.)(DEDR 1097). *Itch*: *kajji*, *gajji* scab, itch (Ka.); *kajju* itch (Ka.); *kajji* itch (Kod.); *gajji* itch, scab (Tu.Te.); *kasi* itching, desire (Te.); *khaj* itch (Nk.); *kajra* id. (Pa.); *kajra* ringworm (Go.); *gajji*, *gajju* itch (Go.); *kusee* id. (Go.); *gazi* id. (Kond.a); *kasa* the itch (Kui); *khasra_* id. (Kur.)(DEDR 1104). *Itch, measles*: *khasa* itch, scab (Skt.); *khahi*, *khahi_* itch (S.); *khas'a* (Or.); *khas* itch, scab (G.); *kas* itch, skin disease (Si.); *khasu* itch (Pkt.); *khahu*, *khahuwa_* *adj.* (A.); *khasu* (B.); *khassar* itching (L.); *khasra_* smallpox (P.); scab, measles (H.)(CDIAL 3854). *kharju* itching, scratching, scab (Skt.); *khajju_* (Pkt.); *khajju* (Pali); *xanj* (Gypsy); *khazu_* (Sh.Dardic); *kha_ji* (S.Ku.); *kha_j* (P.WPah.H.M.); *khaj* (G.); *khajuri_*, *khujli_* itch, prickly heat (G.); *khajuli_*, *khujli_* mange (H.); *khujuri*, *khujul.i* itch (Or.); *khajjati* is itchy (Pali); *xanj* (Gypsy); *khazoiki* to itch (Sh.Dardic); *kha_oja_* to scratch (B.)(CDIAL 3827). *kacchu_* itch, scab, cutaneous disease (Sus'r.); *kacchu* (Pali); *kacchu_*, *kacchu* (Pkt.); *ka_chu* (Or.); *kas* (Si.)(CDIAL 2621). *kacchur* affected with itch (Ka_s' on Pa_n.); *kacchula* (Skt.); *kacchuria* envious (Pkt.); *ka_chura_* suffering from itch (Or.); *kacchula* attacked by itch; *kacchulla* (Pkt.)(CDIAL 2620).

⁹ Alternative homonyms: **er-r-a** = an earthworm; **era** a bait, food (Te.lex.) [Note. The earthwork flanked by two antelopes on a Lothal Persian Gulf seal].

Rebus: **ere** 'a dark-red or dark brown colour, copper' (Ka.); **eruvai** copper (Ta.)(DEDR 817). **mlekh** = antelope; **melukka** = copper. What is depicted may be Meluhha copper.

¹⁰ Homonyms: **t.ot.ha** = neighbourhood, vicinity; non t.ot.hare do banukanan: = there is none in this neighbourhood (Santali) **tot.t.i** enclosure for selling timber, fire wood; **small village** (Tanippa_. 8,142,37)(Ta.lex.) *ton.t.iyo_r* the Cholas (Cilap. U_rka_n.. 107); the Cheras (Patirrup. 88)(Ta.lex.) *tot.t.iyan* person of a Telugu caste of cultivators, settled in the western portion of the Madura district, who assume the title of *Na_ykka* (E.T.)(Ta.lex.)

tun.d.u – fragment, piece (Ka.); *tun.d.u* piece, slice (Te.)(DEDR 3310).

Insignia of kings: **to_t.t.i** an insignia of kings (Ta.lex.) Authority: **to_t.t.i** authority (Paripa_. 8,86)(Ta.lex.) *to_t.t.i* watch, guard (Patir-r-up. 25,5)(Ta.lex.) *ton.t.u* service (Ta.lex.)

¹¹ *to_t.t.i* elephant hook or goad (Man.i. 27,47); sharp weapon planted in the ground to keep off enemies (Tol. Po. 65, Urai.)(Ta.lex.) *to_da* driver (RV.); *to_daga* one who hurts (Pkt.)(CDIA 5969). Image: elephant hook: *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.); *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.); *to_t.t.uka* to pluck fruit with a *to_t.t.i* (Ma.); *do_t.i*, *lo_t.i* pole with a hook for plucking fruit, gathering flowers (Ka.); *to_t.al* bamboo rake (Pa.); *to~_r.na_* to hook in; *to_r.o~_* a pole with an iron hook or branch curved down at one extremity; *tu_r.si_* a variety of the native rake or *to_r.o~_* (Kur.); *to_r.o_* a long stick with an iron hook (Kur.)(DEDR 3547). *tur-at.u* a hook, (Ma.); *tor-ad.u* crook, hook, crooked instrument for taking down fruits from trees (Ka.)(DEDR 3366). *tur-at.t.i*, *tur-at.u*, *tur-o_t.t.i* iron crook, elephant goad, pole with iron hook to pluck fruits, entanglement (Ta.lex.); *cor-at.u* a rod for plucking coconuts (Ta.)(DEDR 3366).

¹² Homonyms: **kha_siyum** = a double bag to load a donkey with (G.) ka_sad (Arabic) a messenger, a carrier; a runner; ka_sadiyum = serving as a messenger, carrying a message (G.) kaccha, kaccho = a piece of cloth worn round the loins (Dh. Des. kaccha_ fr. Skt. kaks.a, kaks.a_, kaccha 'the hem of a lower garment tucked up into a waistband'] (G.) kaso = to plait, a frill, a plait; kaskasao = to tighten, to pull tight, pull together; kaci, kacni = a piece of cloth worn round the loins as a skirt; kaci, kaca = a piece of cloth worn round the loins (Santali) kaccai = girth, girdle; kaccu = belt, girdle (Ta.); **kacca** = girdle, waist-belt, long cloth (Ma.); kacce = end of lower garment gathered up behind and tucked into waistband (Tu.)(DEDR App. 20; CDIAL 2592; Skt. kaks.ya_; cf. Pali. Pkt. kaccha_). Kan~cip (kan~cit) to fasten bullock to yoke (Pa.); kaccu to join (Ka.); gac- (-c-) to tie, bind (Pe.)(DEDR 1099). Kaccu = a kind of corset worn by Indian women in ancient times (Ta.); bodice to confine the breast (Ma.); Skt. kan~cuka (DEDR 1098).

kars.a = gold coin (Vedic) **kasa** = quality of gold or silver (as determined by rubbing it on a touch-stone); 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).

¹³ **kra_d.i** (? for kr.a?li, gla'li large axe (Kuwi); kut.ha_ra, kut.ha_ri (Beng. Or. forms have l for r)(CDIAL 3244; cf. Burrow, *BSOAS* 35.541).**kut.a_ri**, **ko_t.a_ri**, **ko_t.a_li** axe (Ta.); ko_t.a_li, ko_t.a_l.i id. (Ma.); kod.ali (Ka.); kod.ari, kud.ari (Tu.); god.d.ali, god.d.eli, god.d.e_li, god.d.e_lu, god.ali (Te.); golli, goli_ (Kol.); ghol.i (Nk.); kod.li (Nk.); god.el (Go.); gor.el(i) (Kond.a); ku_r.el (large variety axe)(Pe.)(DEDR App. 32).

kr.a_d.i, kra_nd.i tiger, leopard, hyena (Kui); khar.yal, kariya_l panther (Go.); karad.a tiger (Pkt.); khar.eyak panther (Nk.); ked.iak tiger (Kol.); kr.ani tiger; kla_'ni leopard, tiger (Kuwi); kr.a'ni (pl. -na) tiger (Kuwi)(DEDR 1132). ko_-n.a_y < ko_l. + na_y Indian wolf; male jackal (Ta.lex.) kat.a_s'ia_ fierce like a wild cat (Or.); kha_t.a_s civet- or pole-cat (B.); civet cat (H.); kat.a_s, kat.a_r id. (H.); kat.a_s'a wild cat, civet (Or.); khat.t.a_s'a civet-cat (Skt.)(CDIAL 3780). ka_t.an tom-cat, male tiger, wild hog (Ma.); kat.uvan- tom-cat, male monkey (Ta.); kar.vn tom-cat (Ko.); kan.t.a male cat (Ka.); gad.o, gad.a-berge a wildcat (Malt.)(DEDR 1140). Image: male cat; male animal: gan.d.u male of the lower animals (Te.); kan.t.an the male esp. of cat (Ta.); gan.t.e, kan.t.e male cat (Tu.); kan.d.e male (of dogs and other animals, mostly wild; not of cats) (Kod.)(DEDR 1173); kuttiri civet cat (Tu.); kotti male or female cat (Ka.); kwat-y cat (To.); kor-r-an tomcat, boar, ram (Ta.)(DEDR 2170). kid-en contraction of kina:n a tiger, panther (Santali.lex.)

¹⁴ In the Babylonian Talmud (+2nd century), asemon is a commonly used word referring to bullion (gold, silver or mixed). Leiden X papyrus (ca. +3rd century) says: "no.8. It will be asem, (i.e. electrum, an alloy of gold and silver) which will deceive even the artisans (a tin-copper-gold-silver alloy); no.12. Falsification of gold (a zinc-copper-lead-gold alloy)..." (Needham, Joseph, 1971, *Science and Civilization in China*, Vol. 5, Part II, pp. 18-21). Asem denoted the natural alloy of silver and gold; it also meant any bright metal made with copper, tin, lead, zinc, arsenic and mercury. Twelve or thirteen different alloys were called asem. (ibid., p. 45). The existence of this alloy (assem) may have been the original cause for the suggestion of transmutation

since by adding silver to it, one would get a metal nearly identical with the crude silver from the mine; and by adding gold, something indistinguishable from gold. [The paucity of the Egyptian language may perhaps have been responsible for a confusion. Gold was the 'yellow metal', and the alloy produced was also a 'yellow metal'.] (Hopkins, A.J., 1967, *Alchemy*, pp. 103-4).

¹⁵ karmaka_ra = labourer (Pa_n.ini's As.ta_dhya_yi: ka_rukarma = artisan's work (Arthas'astra : 2.14.17); karma_nta = a workshop or factory (Arthas'astra : 2.12.18, 23 and 27, 2.17.17, 2.19.1, 2.23.10). **kamaru** to be singed, burnt or scorched (by the sun, by fire)(Ka.); kamaru, kamuru, kamalu (Te.); kamarike, kamarige = the state of being singed etc.; kamaru, kanaru, kamara, kamut.u, kavut.u, kavuru, gavulu = id. (Ka.) (Ka.lex.) **kamar** = a blacksmith; rana kamar, the ordinary blacksmith in the country (rana is their caste or tribal name); saloi kamar, a kind of blacksmith. Kamar kami mit bar hor.ko cet akata = a few Santals have learnt blacksmith work (Santali. Boddling). Kambru = a blacksmith; ale t.hen bar or.ak kambru menakkoo = two families of blacksmiths live with us; kambru t.hene sen akana = he has gone to the blacksmith (Santali.Boddling). **karuman-**, **karumakan-** blacksmith (Ta.lex.) **kammam** = kammiyar tor.il (i.e. work of kammiyar or kamma_l.ar: kan-n-a_r, kollar, cir-par, taccar, tat.ta_r); kammiyanu_l = cir-panu_l, i.e. book of sculpture (Ta.lex.) **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 (Te.lex.) kammar-a, kammaga_r-a = blacksmith (Ka.lex.); kamma_l.a = an artisan, an artificer; a blacksmith, a goldsmith (Ka.Ta.Ma.); a goldsmith (Ka.lex.) **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 (Te.lex.) **kamba_r-a** = blacksmith; kamba_r-ike, kamma_r-ike = a blacksmith's business (Ka.lex.) kama_r (Or. kamha_r, toil) syn. of **bar.ae**, blacksmith. This term seems to be applied especially to the blacksmiths of Gangpur, who, though of Mund.ari race like the lohars of Biru, Barway and other Oraon parts, are considered outcasts by the latter because they use tanned hides for their bellows. (Mundari.lex.) kambru = a blacksmith. Ale t.hen bar or.ak kambru menakkoo = two families of blacksmiths live with us; kambru t.hene sen akana = he has gone to the blacksmith (Santali.lex.Boddling) **kambru guru** = the reputed original teacher of the ojhas, a mythical teacher of charms and incantations, as also of medicine. Acc. To one form of the Santal traditions the person who taught the women witchcraft was Kambru; acc. To another, it was Maran buru. It is not possible to decide whether there has been an old sage of this name; or whether it should be understood as a person from Kamrup; the Santal traditions may be understood both ways (Santali.lex.Boddling). kamar = a blacksmith, a semi-hinduized caste; kolhe kamar, a Kolhe blacksmith and iron-smelter; lohar kamar, a caste of blacksmiths that live more in conformity with Hindu caste rules (do not eat meat, do not drink beer; rare in the Santal country); rana kamar, the ordinary blacksmiths in the country (rana is their caste or tribal name); saloi kamar, a kind of blacksmith. Kamar kami mit bar hor.ko cet akata = a few Santals have learnt blacksmith work. The rule among the Santals is that a village (or several villages) keep a blacksmith who does all repairs to agricultural implements free of charge, but receives twenty seers of paddy and one winnowing-fan full of Indian corn cobs and two sheaves of paddy for each plough; to make a ploughshare he is paid for the iron; to put teeth on a sickle he gets two seers of paddy, and he is also paid half a seer of rice from each house at the Sohrae. He is paid for whatever else he makes new; kara era, the wife of a blacksmith (Desi kamar; H. karmka_r; B. ka_ma_r); kamari = the work of a blacksmith, pay for such work (Santali.lex.) karmaru_d.u a blacksmith, an artisan (Te.lex.) kamarsa_r_i smithy (Mth.); kamarsak_yar (Bi.)(CDIAL 2899). 2104.**Workshop: kamhala** workshop (Si.); kammala smithy (Si.); kammasa_la_ (Pkt.); karmas'a_la_ workshop (MBh.)(CDIAL 2896). cf. karuman-, karumakan- blacksmith (Ta.lex.) **Blacksmith: labourer:** kamarsa_r_i smithy (Mth.); kamarsa_yar id. (Bi.)(CDIAL 2899). karuman- blacksmith (Ta.); karumakan- id. (Kampara_. Pampa_. 37)(Ta.lex.) **karma_ra** blacksmith (RV.); **kamma_ra** worker in metal (Pali); kamma_ra, kamma_raya blacksmith (Pkt.); kama_r (A.); ka_ma_r (B.); kama_ra blacksmith, caste of non-Aryans, caste of fishermen (Or.); kama_r blacksmith (Mth.); kam.bura_ (Si.)(CDIAL 2898). karmakr.t performing work, skilful in work (AV.); one who has done any work (Pa_n.); workman (Skt.); kam.bul.a doing menial work (Si.)(CDIAL 2891). karmaka_ra doing work without wages (Ka_s.); karmaka_raka one who does any work (Pa_n.); kammaka_ra hired labourer, workman (Pali); kammaga_ra servant (Pkt.); kamma_riya_ female servant or slave (Pkt.); ka_mar slave (Sv.); kama_ra_ servant (L.); kama_ro slave (Ku.N.)(CDIAL 2888). karmakara workman, hired labourer (MBh.); kammakara (Pali); kammayara servant

(Pkt.); kamera_ hired labourer (H.); kam.buranava_ to serve as a menial or slave (Si.)(CDIAL 2887). karmaka_ra_payati causes to work as a servant (Skt.); kama_ra_in.u to cause to work (S.)(CDIAL 2889). ka_rma active, laborious (Pa.n.); kamma connected with work (Pkt.); ka_mu, ka_mo slave (K.); ka_mma~, ka_ma_ farm servant (P.); ka_ma_, ka_mo servant (WPah.)(CDIAL 3074). ka_rmika engaged in action, name of a partic. Buddhist sect (Ya.j.); Public officer: ka_mi_ public officer (S.); servant (WPah.)(CDIAL 3076). Work: karman act, work (RV.); kamma (Pali); **kramam.**, kramane, kam.ma (As'.); kama (NiDoc.Si.); kamman, kamma, kamma_ (Pkt.); kam work, esp. smith's work (Gypsy); ga_m (Shum.Gaw.Bshk.); kam (Wot..K.); krum (Kal.); korum (obl. kormo)(Kho.); kam work, thing, booty (Gypsy); ka_m (Mai.Tor.Ku.); id. (N.A.B.Mth.Bhoj. H.Marw.G.M.); keram (Sv.); krom (Sh.D.); kom (Sh.); komu (K.); kamu (S.); kamm (L.P.WPah.); ka_ma (Or.Konkan.i); ka_mu (Aw.); ka_mu~ an office, administration (G.); krem, kam, klem (Ash.); s.lam (Ash.Wg.); kram (Dm.Tir.Phal.); la_m, s.am, kur.u_m, ga_m, plo_m (Pas'.)(CDIAL 2892). Fatigue: s'rama labour (RV.); fatigue (S'Br.AV.); sama fatigue (Pali); samam. energy (As'.); sama fatigue, effort (Pkt.); seu~ worry (WPah.); mehe-ya, me_-ya work, service (Si.)(CDIAL 12683). sammati is weary (Pali); s'ramyati is tired (RV.); sammai (Pkt.); s'amu_na to become tired (D.); s.omoiki, s.omo_nu (Sh.)(CDIAL 12693). santa tired (Pali); s'ranta wearied (RV.); sam.ta (Pkt.); s'a_ndn.u to tire (WPah.)(CDIAL 12692). Labourer: ka_mat.h, ka_mi_t. busy, diligent (M.); karmis.t.ha very active (Skt.)(CDIAL 2901). kama_t.hi_, kamet.hi_ beating (P.)(CDIAL 2890). ka_ma_t.t.i labourer, one who works with a hoe, digger of earth (Ta.Ma.); ka_ma_t.i (Te.Ka.); ka_ma_t.e (Tu.); ka_ma_t.hi (M.)(Ta.lex.) kamaveti causes to work, works (NiDoc.); kamma_ve_i earns, works (Pkt.); kama~_wun to work, earn, smelt (metal)(K.); kama_in.u to work, earn, slaughter (S.); kama_van. to work, earn (L.); kama_un.a_ (P.); kuma_n.a_ (WPah.); kamu_n.o to work, cultivate (Ku.); kama_unu (N.); ka_ma_na to earn, shave (B.)(cf. kammai does barber's work (Pkt.); kramoi_ki to use, employ, spend (Sh.)(CDIAL 2894)); kama_iba to work, earn (Or.); kama_eb to serve, weed (a field)(Mth.); kama_vai earns (OAw.); kama_na_ (H.); kama_vvu~ to help to earn (G.); kama_vu~ to earn (G.); kama_vin.e~ (M.)(CDIAL 2897). kramo_nu hardworking; labourer, farmer (Sh.); kamun.a artisan (Si.)(CDIAL 2893). kra_mi_n low-caste labourer such as a D.om (Sh.); karmi_n.a competent (S'Br.); kami_n. labourer (man or woman)(WPah.); ka_min.a_ labourer (MB.)(CDIAL 2902). kammika overseer (Pali) kammi, kammia industrious; evildoer (Pkt.); ki_yema blacksmith (Pr.); ki_ma slave (Pr.); kami_ labourer (S.); kammi_village labourer, menial (L.P.); ka_mi blacksmith (N.); ka_mi_ day labourer (Or.); industrious (H.M.); ka_mia_ servant who works in repayment of interest on money borrowed by his master (Or.); kamiya~_ agricultural labourer who works on advances (Bi.); ka_miya_ labourer (H.); kami artificer (OSi.); kamiya_ worker (Si.); ka_min.i female labourer (Or.); kamyulu farm labourer who lives in (K.); kamilo ant (N.); kamila_ useful (A.)(CDIAL 2900). **ka_ma_t.i** a caste of Hindus who are generally labourers and palanquin bearers (G.); komat.i_ (M.)(G.lex.) ka_ma_t.a = labour or work (for wages)(Ka.); ka_ma_t.i, ka_ma_t.a = a day-labourer (Ka.M.Te.Ma.Ta.); a house-servant (M.)

¹⁶ **bod.e** = an inferior kind of han.d.i (liquor); bodoc mela, bod.oc sod.oc = the liquor obtained by squeezing the malted grain, and being refuse is of an inferior quality; bod.oc han.d.i = liquor obtained by pouring water on the malted grain and squeezing it (Santali.lex.)

¹⁷ Homonym: **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.)

¹⁸ Alternative homonyms: bed.a hako = a fish (Santali) Rebus: **bed.a** 'hearth' (G.) **hako** 'axe' (Santali)

¹⁹ Alternative: **kut.hi** = an earthenware barrel-shaped receptacle for storing paddy (Santali.lex.Bodding) **kut.hi** = a receptacle in which rice is stored (Santali.lex.) **kut.i** = a vessel with openings used for fumigations (Ka.lex.) **kun.d.i** = a student's water-pot, made of hollow coconut etc.; kun.d.ike, gun.d.ige = a waterpot

(Ka.lex.) **kun.d.i_**, **kun.d.a_** = pot (Pkt.lex.) kun.d.a = bowl, waterpot (Ka_tyS'r.); basin of water (MBh.); kun.d.ika_ (Pa_n.); kut.am (Ta.); gun.d.i (Ka.); kunju = water jar (Pr.); kun.i = pot (Kt.); kun.d.o_k = wooden milk bowl (Kal.)(CDIAL 3264). kun.d.a = a spring (EI 23, IEG) gun.d.ige (Tbh. of kun.d.ike) = water vessel; gun.d.i = a large round earthen or metal vessel (Ka.); kun.d.i_ = a vessel of stone or earth (M.) (Ka.lex.) gun.d.iga = a large wide-mouthed vase or jar (Te.lex.) **kut.am** = waterpot, hub of a wheel (Ta.); kod.a = earthen pitcher or pot (Ka.); ku_t.a = waterpot (Skt.)(DEDR 1651; CDIAL 3227). **kud.aka** = a cup, a bowl, a small pan, any cup-like or concave thing (Te.lex.) **kut.amu** = a waterpot (Te.lex.) **kod.a** pot (Ka.) **kut.hi**, **kut.i** (Or. **kut.t.hi**) a mud walled store box for paddy, formerly sometimes found in the houses of Mundas (Mundari.lex.) **kut.t.akam** = cauldron, large vessel with narrow mouth (esp. for treasure)(Ma.); kut.t.uva = big copper pot for heating water (Kod.)(DEDR 1668). **kut.am** = waterpot (Ta.); kod.a = earthen pitcher or pot (Ka.); ku_t.a = waterpot (Skt.)(DEDR 1651; CDIAL 3227). ko_s.t.ha = pot (Kaus'); granary, storeroom (MBh.); ko_s.t.haka = treasury (Skt.); ko_s.t.hika_ pan (Skt.)(CDIAL 3546). kut.hri_ chamber (B.); kot.hari ((Or.); kothla_ room, granary (H.); kot.hlo wooden box (G.)(CDIAL 3546). kotthali_ sack (Pali); kotthala = bag, grainstore (Pkt.); ku_thli_ satchel, wallet (B.); kuthali.i, kothal.i wallet, pouch (Or.); kothla_ bag, sack, stomach (H.); kothl.o large bag (G.); large sack, chamber of stomach (M.)(CDIAL 3511).

²⁰ **bari_** = blacksmith, artisan (Ash.)(CDIAL 9464). **bar.ae** = **bad.ae** (Santali.lex.) **bar.ae** = a blacksmith. "Although their physique, their language and their customs generally point to a Kolarian origin, they constitute a separate caste, which the Mundas consider as inferior to themselves, and the Baraes accept their position with good grace, the more so as no contempt is shown to them. ...In every Munda village of some size there is at least one family of Baraes...The ordinary village smith is versed in the arts of iron-smelting, welding and tempering, and in his smithy, which is generally under one of the fine old large trees that form the stereotyped feature of the Mundari village, are forged from start to finish, all the weapons and the instruments and implements the Mundas require. There are of course individuals who succeed better than others in the making of arrows and various kinds of hunting-axes and these attract customers from other villages... they dig the **kut.i** (smelting furnace), they prepare and lay the bamboo tubes through which the air is driven from the bellows to the bottom of the furnace, they re-arrange the furnace after the lump of molten metal has been removed from it, and then the smith starts transforming it into ploughshares, hoes, yoking hooks and rings, arrow-heads, hunting axes of various shapes and sizes, wood axes, knives, his own implements, ladles, neat little pincers to extract thorns from hands and feet, needles for sewing mats and even razors. Formerly, he was also forging swords...susun-**kanda** (dancing-sword)...If it appears too bold to attribute the invention of iron smelting and working to some of the aboriginal inhabitants of this, in many respects so richly blessed part of India (Chota Nagpur), it is certain that no land in the world is better qualified to push man to this invention. The excavations made recently (in 1915) by Mr. Sarat Chandra Roy, the author of the *Mundas and their Country* have shown conclusively, that it was inhabited by man in the stone age, the copper age and the early iron age. Baraes are also found in the villages of Jashpur, Barwai, Biru, Nowagarh, Kolebira and Bano from which the Mundas have been either driven out by the Hindus or crowded out by the Uraons. There they have adopted the Sadani dialect but retained their own social and religious customs. In the districts named above they are called lohar or loha_ra, but in Gangpur they go under the name of Kamar. These Kamars are animists like the Lohars, but they use tanned hides for their single bellows, which they work by bulling, like the blacksmiths in Europe. The Lohars say that is is on account of this that they do not intermarry or eat with them any more. Baraes, Kamars and Lohars must not be confounded with the Aryan blacksmiths also called Lohars. These latter differ not only in race from the first but also in their methods of working. The Aryan blacksmith does not smelt iron, and uses only the single-nozzled hand bellows. He is met with only in such Chota Nagpur villages, where colonies of Hindu or Mohammedan landlords, merchants, money-lenders and native policement require his services, especially to get their bullocks and horses shod...The account the Baraes, Lohars and Kamars generally give of themselves is as follows: they say that they descend from Asura and Asurain, i.e., Asur and his wife, and that they were originally of one and the same caste with the Mundas. In this the Mundas agree with them... If the iron smelters and workers of the legend really belonged to the Munda race then their trade and art must in the beginning have given them a prominent position, such as is held in some ancient races by smiths...Like the Mundas they formerly burnt their dead, the bones of those dying out of their original village were carried back to it in a small earthen vessel into which some pice were

placed, and this was then dashed to pieces against a rock in a river...Like the Mundas they practise ancestor worship in practically the same forms. Like them they worship Sin:bon:ga, whom the Lohars call Bhagwan... They also worship Baranda Buru whom the Sadani-speaking lohars call Bar Pahari...**bar.ae-ili** = the rice beer which has been brewed by the whole village, one pot per house, in honour of the Barae, and is drunk with him, at the end of the year; **bar.ae-kud.lam** = a country-made hoe, **bar.ae-mer.ed** = country-smelted iron; in contrast to **cala_ni mer.ed**, imported iron; **bar.ae-muruk** = the energy of a blacksmith." (Mundari.lex., *Encyclopaedia Mundarica*, Vol. II, pp. 410-419).

bar.hi, **bar.hi_-mistri_**, **bar.u_i_**, **bar.u_i_-mistri_** (Sad.H. **barha_i_**) = a professional carpenter. This class of artisans is not found in purely Munda villages because every Munda knows carpentry enough for all his own purposes; trs. caus., to make somebody become a professional carpenter; intr., to call someone a carpenter; cina ka_m koko bar.hi_ako? What kind of artisans are called carpenters; bar.hi-n rflx. v., to train oneself for, or to undertake, the work of a professional carpenter; bar.hi_-o, v., to become a professional carpenter; **bar.hi_kami** = the work, the profession of carpenter, carpentry; bar.hi_-mistri_ a professional carpenter (Mundari.lex.)

bad.ohi = a worker in wood, a village carpenter; **bad.hor.ia** = expert in working in wood; bad.hoe = a carpenter, worker in wood; bad.horia = adj. Who works in wood; (as a scolding to children who use a carpenter's implements) mischievous (Santali.lex.) **ba_r.** blade of a khukri (N.); badhri_, badha_ru_ knife with a heavy blade for reaping with (Bi.); **ba_r.h**, **ba_r.** = edge of knife (H.); **va_d.h** (G.); **ba_r.h** = book-binders papercutter (Bi.); **brdha_n.u_** = to shear sheep (WPah.)(CDIAL 11371). **vardha** a cutting (Skt.); **vad.hu** a cut (S.)(CDIAL 11372). **vardh-** = to cut (Skt.); **vardhaka** carpenter (R.); bardog, bardox axe (Kho.); wadok (Kal.); **wa_t.** axe (Wg.); **wa_t.ak** (Pas.')(CDIAL 11374). **bad.gi**, **bad.gya_** carpenter (Kon.lex.) **bad.hi**, **bar.hi** mistri, bad.hoe, bad.ohi, kat. bad.hoe carpenter (Santali.lex.) **bad.agi**, **bad.a_yi**, **bad.iga**, **bad.igi**, **bad.ige**, **bad.igya_**, **bad.d.agi** (Tadbhava of vardhaki) a carpenter; bad.agitana carpentry (Ka.lex.) **Image: stick:** **bar.ga**, **bar.iya** stick (Kuwi); **bur.ga** stick, club; badga walking stick (Kuwi); **bar.ga**, **bad.ga**, **bad.d.e**, **bad.d.i**, **bar.iya**, **war.iya_** stick (Go.); **bar.iya** stick (Pa.); **vat.i** small cane or stick; **vat.ippu** iron rod (Ta.); **vat.i** stick, staff, club or armed brahmans, shaft, stroke; **vat.ikka** to strike; **vat.ippikka** to have the measure struck (Ma.); **bad.i**, **bad.e**, **bod.i**, **bod.e** to beat, strike, thrash, bang, pound; **u.** beating, blow, castration, a short thick stick, cudgel; bad.ike beating; bad.ige stick, staff, cudgel, hammer, mallet; bad.isu to cause to beat; bad.ukatana beating, etc.; **ba_y** bad.i to prevent one from speaking, silence one (Ka.); **bad.i** (bad.ip-, bad.ic-) to hammer, pound; **ba.y** bad.i- to bawl out (Kod.); **bad.ipuni**, **bad.iyuni** to strike, beat, thrash; **bad.u** stick, cudgel (Tu.); **bad.ita**, **bad.iya**, **bad.e** thick stick, cudgel (Te.); **bed.ta** club; **bad.ya** walking stick (Kol.); **bad.iga** big walking stick; **bad.ga** stick (Kond.a); **bad.ge** stick, staff (Pe.); **bad.ga** stick (Mand.); **bad.ga_** cudgel, stick; **bad.vin.e~** to bruise, beat (M.)(DEDR 5224). **bharia** a carrying stick (Santali.lex.) **vad.aga_** a stick, staff (M.); **bad.iko_l** a staff for striking, beating or pounding; **bad.i-man.i** an instrument for levelling a surface by beating; **bad.iho_ri** a gelded young bull (Ka.)(Ka.lex.) **vardhaka** = in compd. = cutting (Skt.); **ci_vara-vad.d.haka** = tailor; **vad.d.haki** = carpenter, building mason; **vad.d.hai_** = carpenter (Pkt.); **vad.d.haia** = shoemaker (Pkt.); **ba_d.ho_i_** = carpenter (WPah.); **ba_d.hi** (WPah.); **bar.hai**, **bar.ahi** (N.); **ba_rai** (A.); **ba_r.ai**, **ba_r.ui** (B.); **bar.hai_**, **bar.ha_i**, **ba_r.hoi** (Or.); **bar.ahi_** (Bi.); **bar.hai_** (Bhoj.); **va_d.ha_ya_** (M.); **vad.u-va_** (Si.); **vardhaki** carpenter (MBh.); **vad.d.haki** carpenter, building mason (Pali)(CDIAL 11375). **vad.hin.i_** cutting (S.); **vardhana** cutting, slaughter (Mn.)(CDIAL 11377). **vad.d.ha_pe_ti** cuts (moustache)(Pali); **badhem** I cut, shear (Kal.); **so_r-berde_k** custom of cutting an infant's original hair (Kho.); **bad.n.o_** to cut, (K.); **vad.han.u** (S.); **vad.d.han.** to cut, reap (L.); **ba_d.hna_** to cut, shear (H.)(CDIAL 11381). **va_d.ho** carpenter (S.); **va_d.d.hi_**, **ba_d.d.hi_** (P.)(CDIAL 11568). **bed.i_r** sledgehammer (Kho.); **bad.il** (Gaw.); **bad.i_r** (Bshk.); **bad.hi_r** axe (Phal.); **sledgehammer** (Phal.)(CDIAL 11385).

²¹ **bara_ha**, **barha_**, **ba_riha_**, **ba_ria_** boar (Or.); **ba_ra_h** (H.); **vara_** (Si.); **vara_ha** wild boar (Pali.Pkt.RV.); **vara_hu** (RV.); **bara_** boar (A.B.); **sow**, **pig** (A.)(CDIAL 11325). **Vara_hamu_la** name of a place in Kashmir (Ra_jat.); **warahmul** = a town at west end of the valey of Kashmir (K.)(CDIAL 11326). **varaha** (Tadbhava of **vara_ha**), **varaha_**, **vara_** a boar, a hog; a gold coin with a boar-stamp, a pagoda (Ka.); **ora**, **oraha** boar (Tadbhava of **varaha**)(Ka.)(Ka.lex.) **varaha_**, **varaha_si**, **vara_** boar, hog (Te.); **vara_kan-** (Ta.); **vara_ha** (Ma.); **varaha_-kat.t.u** a brush made of hog's bristle (Ka.); **vara_kat.t.e** (Te.); **vara_ha** a boar, a hog;

the third or boar-incarnation of Vis.n.u; vara_ha-timmappa the Venkat.araman.a of Tirupati (Ka.)(Ka.lex.) vara_kam boar, swine (Tiruva.ca. 30); the boar-incarnation of Vis.n.u, one of taca_vata_ram; vara_kan- id.; pagoda, a gold coin = 3 1/2 rupees, as bearing the image of a boar; arhat; vara_kan-et.ai weight of a pagoda, a unit of weight = 5/16 rupee = 54 gms. (Ta.lex.) bir sukri the wild pig, sus indicus (Santali.lex.) a_ru hog (Skt.); airia_s. (Dm.)(CDIAL 1321). vara_ki va_ra_ki, a divine energy (Tiruppu. 179); vajra-vara_hi a goddess worshipped by the Jains (Ta.lex.)

Homonyms for **bar.ea**:

bar.i-daru, **bar.e-daru** (Sad. bar.) *ficus bengalensis*, Linn. Urticaceae, the banyan, a tall, spreading tree with numerous aerial roots, which if not browsed by cattle, form new stems **bar.e**, variant of **bar.i**, the banyan tree; in songs it is bar.e, not bar.i which is used. (Mundari.lex.)

baria~o, **ba~r.ia~** = a shopkeeper, a peddler who sells salt, spices, tobacco; baria~u = rich, great, powerful, arrogant (Santali.lex.) **van.ika** (Skt. Van.ik) a trader, a merchant; a grocer; a grain-vendor (G.lex.) va_n.iyo (Dh.Des. va_n.iyaya_ fr. Skt. va_n.iya-ka_ traders) = a Bania, an individual of a particular caste in Gujarat, the members of which are generally traders, shop-keepers, or money-lenders; a trader, a merchant; a dealer in grain (G.lex.) van.aja_r = a caravan; a camp or company of traveling merchants; a number of bullocks laden with corn, salt and other merchandise; van.ajaro = a traveling merchant who carries for sale goods in a caravan (G.lex.) van.ij = trader (RV); trade (Gaut.); van.i = trader (Pkt.); van.ic, va~r.ic = to sell (Ash.); vra_le (Kt.)(CDIAL 12230)

²² Alternative homonyms: *sike* spit (Santali) *sikwar* to give way, crack (of earthen pots)(Santali) *kiccu* fire (Ta.Ga.); *kis* (Kol.Go.); *ciccu* fire, flame (Te.); *cicc* fire (Kur.); *cicci_* fire (Pkt.)(DEDR 1514).

s'i_kh is the rod used to hold the gimlet or grinding rock (hard rock such as jasper or agate or carnelian) is made of copper. *s'i_kh* a pointed iron bar; a hollow pointed iron bar use to draw out grain etc. from a bag; *s'ikha_* the crest; peacock (G.)

s'i_kum (Skt. *s'ikya*) a sling for suspending things on (G.) *s'in:gi_* horned, having horns; *s'in:ga* [Dh.Des. *s'iggu*] a horn, a trumpet; *s'in:gad.i_* a small horn (G.) *sikuar*, *sikwar* a sling slung to each end of a pole in which things are carried (Santali)

Substantive: *sikol*, *sikri* a chain; *sikr.i makr.i* marriage bonds; *makr.i*, *makor.i* an earring *sikil* to polish, to burnish, to make bright as iron on a grindstone; *san sikil kedae* he ground and polished (Santali)

Glyph: *hig-* (*hikt-*) to lower head (Pe.); *sika* (*siki-*) to bend the head down (Kui); *hikali* to crouch; *hikk-* to hand the head (Kui)(DEDR 2493).

²³ **Upside down, birth**

put.t.ha = upside down, having the face downward (P.lex.)

put.t.u = birth, origin; progeny (Ka.)

Depicting kamar sa_la_ (blacksmith's workshop) or, 'saloi kamar' = a kind of blacksmith (perhaps, knife grinder) [**sala** = afterbirth, kamar]

[Note the glyph of a woman with spread thighs and something (placenta? menses? dead foetus?) emanating from the womb].

sa_l afterbirth (N.); cause of pain (G.); dead foetus in womb (M.); hal = afterbirth (K.); s'alya = anything lodged in the body and causing pain (applied to dead foetus)(Sus'r.); salla = thorn in body (Pkt.)(CDIAL 12332).

Some glyphs on Text 4304, rebus:

Alternative 1: **kut.t.a_r**, **kut.a_r** = corn without grains (Go.); kut.t.a_ = chaff (Kur.)(DEDR 1665). kuta = jowari stubble (Go.); gut.t.u = stubble of paddy (Pe.)(DEDR 1676). *khut.t.a, *khun.t.a (CDIAL 3893, 3746). gundli = a cultivated millet, panicum miliare (Santali.lex.) Rebus: **kut.ha_ru** = armourer, writer (Skt.)

Alternative 2: **ko_li** a stubble of jo_l.a (Ka.); **ko_le** = a stub or stump of corn (Te.)(DEDR 2242). kol, kolhe = an aboriginal tribe of iron smelters speaking a language akin to that of the Santals (Santali.lex.) **kol** 'metal' (Ta.)

Pictorial motif on side b of tablet h180: a woman with legs spread out, accent on pubes: **kut.hi**; rebus: **kut.hi** = a furnace for smelting iron ore].

²⁴ **kundi**, **kundiyamu** = a sort of rim of stone placed upon a mortar to prevent spilling of rice (Te.lex.) kundau dhiri = a hewn stone; kundau murhut = a graven image (Santali.lex.) **kur..a**, **kud.a**, **kur.u**, **gur..a**, **gur..u** a piece of iron used for the ran.t.e (and kun.t.e), a ploughshare (Ka.) ***khut**. pin (N.); **khu~t.i** wooden pin (M.)(CDIAL 3893); **khun.t.a** peg (Pkt.); **khu~t.a** stump, stake, post, peg (H.); **khu~t.i** peg (H.); **khu~t.a**, **khu~t.i** stake, peg (M.)(CDIAL 3893). **Pin**: **khu~t.a** pin, wedge, stake, wooden post (B.); **khut.nu** to stitch (N.); **khut.a** peg, post (Mth.); **khu~t.a** stake; **khu~t.i** wooden pin (M.)(CDIAL 3893). **gu_n.t.a**, **gun.t.i**, **gun.t.e**, **gu_n.t.ige** peg, pin, stake (Tu.); **gun.t.a**, **gu_n.t.a**, **ku_t.a** peg, plug (Ka.); **gud.ida** id., stumpy post (Ka.); **gu.t.a** peg, post (Kod.); **gu_t.amu** stake, post, peg (Tu.); **gud.ide** hinge, peg, pivot (Te.); **kut.t.a** pillar, post (Go.)(DBIA 104).

²⁵ Other homonyms: **d.hon.d.** = a big wood pigeon (P.lex.)

dondhor.o, **dondkor.o** squatting, cowering, sitting close to the ground (Santali)

d.on.d.o polled, as an ox or buffalo (G.)

d.on.d.obot to salute by bowing down (Santali)

d.ondor a cave, *den*; *don.d.hor* a hole, a hollow; d.od.hio hollow; *d.od.hor* a hole, a hollow; a cavity, hollow (Santali)

d.on.t.ho, **dhon.t.ho**, **dhon.t.o** a knot (Santali)

dod.o = an ear of corn (G.lex.)

dhon.d.ra khalak a large leaf cup; *d.hon:ga* 'a dugout, a boat made from a hollowed out tree, a wooden trough' (Santali) *don* 'a wooden trough' (Santali)

²⁶ **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.NiDoc.); **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).

²⁷ Alternative homonyms: **tebr.a** = three (Santali)

ta_mbum = copper (G.); **ta_mra** (Skt.); **ta_mba_na_n.um** = copper coin; **ta_mba_va_d.ako** = a porringer made of copper; **ta_mba_kun.d.i_** a copper trough in which water for bathing is kept; **ta_mbad.i_** = a copper pot (G.)

²⁸ **kum.ta** spear (Pkt.); **kundu** spike of a top (S.); **kundi_** spike at the bottom of a stick (S.); **kundiri.i_**, **kundiri_** spike of a spear or stick (S.); **kutu** lance (Si); **konta** standard (Pali); **kom.ta** spear (Pkt.); **ko~t** spear, dart (H.); **kota** spear, spire, standard (Si.) (CDIAL 3289). < Perh. Greek **kontos** spear. **kauntika** a spearman, lancer; **kunta** a lance (Skt.lex.) **kuntam** < **kunta** javelin for throwing; barbed dart (**Ci_vaka. 1678**); spear, lance (**Pu. Ve. 4,7**); pike, stake (**Mullaip. 41**) (Ta.lex.) **kunta**, **konta** = a lance, spear (Ka.lex.) **kundena**, **kundi** = a barbed dart (Te.lex.) **kuntam** = spear (Ta.lex.) **kund-** (**kunt-**) to punch with fist, pierce with spear (Pe.); **kutkaha_** to strike one another with fists (Pe.); **kut-** to push with fist (Mand.); **kund-** (**kunt-**) to pierce, prod (Mand.); **kuta** (**kuti-**) to prick; n. act of pricking (Kui); **kuttinai** to stab, stitch; **kut-** (**-it-**) to prick (Kui); **xutting** to dig, probe (Br.) (DEDR 1719). **khu~ca_na_** to prick (B.); **khu~ci** inserting new thatch in old (B.); **khu~cvu~** to pierce (G.); **khu~c** indentation (G.) (CDIAL 3890). **khor.an.u** to drive into (S.) (CDIAL 3802).

²⁹ **kut.t.am** depth, pond (Ta.); **kut.t.** a large pit (Kui); **kun.d.a** pit, round hole in ground for sacred fire (Skt.) (DEDR 1669). **kun.d.a** a reservoir of water surrounded with steps to go down to the bottom (G.) **ku~n.d.** a pit, a pitfall, a hot spring; norok ku~n.d. hell (Santali) **kon.d.**, **kon.d.a_**, pit (Kon.); **kun.d.a**, **kon.d.a** = a hole in the ground, a pit (Ka.); **kon.d.aban.d.i** = a cart used at the **kon.d.a** feast; **kon.d.ahabba** = a feast in honour of Vi_rabhadra at which Lin:gavantas carry an idol of Vi_rabhadra and dance with it on live coals in a pit (Ka.); **kun.d.a** = a pit, especially of sacrificial fire; **kon.d.a** = a pit, hole; **tu_takon.d.a** = a fire-pit (Tu.); **kon.d.upa_runi** to run away with; **kon.d.upo_pini** = to take away, convey; **kon.d.ubarpini** = to bring; **kon.d.opini**, **kon.opini** id. (Tu.lex.)

³⁰ **tamba** = copper; **tambar.a** = a copper coloured gem of inferior value; a copper vessel with a wide mouth; **tambesar**, **tamesar** = a variety of copper; **tabitia** = one who writes amulets (P.lex.) **ta_mbum** = copper; **ta_mbad.i_** = a copper pot (G.lex.) **ta_mbra**, **ta_mbara** = copper (Ka.lex.) **ta_mra** copper; a coppery red colour, made of copper (VS 16.6 **ta_mro** arun.ah) (Vedic.lex.) **tamba** = copper; **tamro** = a precious stone (Santali.lex.) **tambabica**, copper-ore stones (Mundari.lex.) **tamba** red, copper (Pali); **tamba** adj. and n. (Pkt.); **tambira** copper, red coloured (Pkt.); **tra_m** copper (K.); **tamba_** (Or.) (CDIAL 5779). **tamaut.e**, **tamot.e** = coppersmith (N.) (CDIAL 5781). **tamher.a_** = brass-founder (Bi.); **tamher.i_** round copper vessel (Bi.) (CDIAL 5781, 5782). **ta_mbara_** coppersmith (Or.) (CDIAL 5780). **ta_bulu** a tinsel; the cut as of a precious stone; **ta_bulu_ka_ji** an artistic bangle; **ta_mba_n.o** a metallic dish (Tu.lex.) **ta_mbt.i** coppersmith (Kon.lex.) cf. **tampit.i**, **tampat.i** < **damri** (H.) cash, a small coin = 1/12 anna (Ta.lex.) cf. **damad.i**, **dammad.i** a **ka_su**, the fourth part of a **dud.d.u** or **paisa** (Ka.); **damad.i_** (M.H.) (Ka.lex.) **tambige**, **cembige**, **tambagi**, **tambuge** = **kamat.ha**, **kalas'a**, **kut.a**, **cambu**, a water-pot (Ka.); id. (Te.); cf. **ta_mraka** (Ka.lex.) **ta_mraka** = copper; **ta_mrika** = made of copper (Skt.); **ta_mbra** = **ta_mbara** Tbh. of **ta_mra**; **ta_mrakut.t.aka** = a brazier or coppersmith (Ka.lex.) **tabuku** = a tray, slaver, plate, platter (Te.lex.) **ta_marasa** = red lotus (MBh.); lotus (Pkt.); copper (Skt.) (CDIAL 5774). **ta_mra** copper (Kaus'); **ta_mraka** copper (Ya_j.); **ta_m** copper (Bshk.); **ta_mba** copper (Phal.); **ta_mba_** copper (Sh.); **tra_m** copper (K.Sh.); **t.ra_mo** copper (S.); **tra_ma_**, **tara_ma~_** (L.); **ta_mba_** (P.); **t.l.a_m** (WPah.); **ta~_bo_** (WPah.); **ta_mo pl.** young bamboo shoots (N.); **ta_m** (A.); **ta~_ba_**, **ta_ma_** (B.); **tamba_** (Or.); **ta_m**, **ta_ma_** (Mth.); **ta_ma_** (Bhoj.); **ta_m** in compounds, **ta~_ba_**, **ta_ma_** (H.); **tra~_bu~**, **ta~_bu~** (G.); **ta~_be~** (M.); **ta_mbe** copper (Konkan.i); **tama**, **tam** copper (Si.) (CDIAL 5779). **ca_mba**, **cambo** copper (WPah.) (CDIAL 5779). **ta_ram** a copper coin, 12 pice of 13 fanam (Ma.); **ta_ra** a copper coin of 2 **ka_su** (Ka.); two pie (Tu.) (DEDR 3168). **teb** copper (To.); **cambu**, **cembu**, **combu** copper (Ka.); **cembi** copper (Kod.); **cembu** brass, copper (Tu.); **cempu** copper (Ma.); copper, gold (Ta.) (DEDR 2775). **Copper, red**: **cempan-** brown-coloured cow or bull (Ta.) (DEDR 2775). **tambavan** copper-coloured, dark red (Si.); **ta_mravar.n.a** copper-coloured (TA'r.) (CDIAL 5790). **ta_mrpat.t.a** copper plate (for inscribing) (Ya_j.); **ta_mra-pattra** id. (Skt.); **ta~_bot.i_** piece of copper of shape and size of a brick (M.); **tamotⁱ** copper plate (Ku.) (CDIAL 5786-7). **Coppersmith**: **ta_mbara_** coppersmith (Or.) (CDIAL 5780). **tamaut.e**, **tamot.e** coppersmith (N.); **ta_mrakut.t.a** coppersmith (R.) (CDIAL 5781). **tamher.a_** brass-founder (Bi.) (CDIAL 5783).

³¹ **asita** = name of a black snake (AV iii.27.1; v.13.5.6; vi.56.2; Taittiri_ya Sam.hita_ v.5.10.1; Maitra_yan.i_Sam.hita_ iii.14.18; Va_jasneyi Sam.hita_xxiv.37). If **ahi** denotes a snake (Vedic), it may be homonymous with **asi** which denotes the sacrificial knife (RV i.162.20; x.79.6; 86.18; AV ix.3.9; x.1.20)); it also means a knife used in war (AVxi.9.1). Note is made of a sheath (vavri--Ka_t.haka Sam.hita_xv.4 to which a belt (va_la--Maitra_yan.i_Sam.hita_ii.6.5) was attached. An asi-dha_ra_ is a 'sheath' (Jaimini_ya Upanis.ad Bra_hman.a iii.139). But, va_l.=sword (Ta.); and va_l.= tail (a ligature in Harappan pictographs, which may denote a sword or, perhaps, a sheath linked with another pictograph denoting a weapon)."Snake" is also a pictograph in Sarasvati epigraphs; in a pair, two snakes may denote a double-edged knife.

³² 1438.Implement for turning up clods: kusa_ hand implement for turning up clods (a pole with an iron blade or head)(M.); kusi_ a tool made of iron (Pkt.); kus'i_ small wooden pin used to mark in recitation (MaitrS.); small wooden pin made of metal (S'Br.); ploughshare (Skt.); kus'ika (Skt.); kus'a_ pin for marking in recitation (Pa_n.); kus'ika_ piece of wood used as a splint for a broken limb (Car.); kuhi_, kahi_ mattock (L.); kahi_ (P.); kusi_, kusiya_ ploughshare; kus, kussa_ mattock (H.); kas', kos' iron instrument for digging; koslu~ bar of iron attached to a plough (G.); kos'iya_l.o wooden wedge holding ploughshare in wooden frame of plough (G.)(CDIAL 3367). kus'e a plank for covering anything; a piece of wood (Ka.lex.) cf. ku_ci, ku_cu (pl. ku_ckul) crowbar (Pa.); gusi id. (Ga.); ku_nj (pl. ku_sk) hoe, shouldered digging stick; ku_nj crowbar; ku_ysa_ id., ploughshare (Go.)(DEDR 1879). kor..u bar of metal, bullion (Ta.); koru (Tu.); cf. kus. (Skt.) kus. to plough, make furrows; to draw, drag, pull, drag away, tear; to draw towards oneself, attract; to plough, till; caus.: to draw out, tear up; to extract; to plough, till, cultivate; kus.aka attractive, drawing; ploughing; a ploughman, husbandman; kus.akam a ploughshare; kus.a_n.ah., -kr.s.ikah. a ploughman, husbandman; kr.s.i ploughing; agriculture, husbandry; kr.s.i-karman agriculture; kr.s.i-ji_vin living by husbandry; kr.s.i-kalam agricultural produce or profit; kr.s.i-se_va_ agriculture, husbandry; kr.s.i_vala one who lives by husbandry, a farmer; kr.s.t.a drawn, pulled, dragged, attracted etc.; ploughed; kr.s.t.a-upta sown on cultivated ground; kr.s.t.a-pacya, -pa_kya ripening in cultivated ground; cultivated; kr.s.i-phalam the product of a harvest; kr.s.t.i drawing, attracting; ploughing, cultivating the soil (Skt.lex.) kus'a ploughshare; kus'ika a ploughshare (Skt.lex.) kus. to tear, extract, pull or draw out (Skt.lex.) cf. guju to pull, contract, move convulsively (Ka.); gunju drag, to pull (Te.)(DEDR 1648). Crowbar, digging stick; ploughshare: gusi crowbar (Ga.); ku_ci, ku_cu (pl. ku_ckul) crowbar (Pa.); ku_nj (pl. ku_sk) hoe, shouldered digging stick; crowbar (Go.); ku_ysa_ crowbar, ploughshare (Go.)(DEDR 1879). a~_kus'i_ hooked stick (M.); akussa elephant goad (Si.)(CDIAL 111).

1451a.Ploughshare: kus'i ploughshare (Skt.); kus'ika_ piece of wood used as a splint for a broken limb (Car.); kusa_ hand implement for turning up clods (a pole with an iron blade or head)(M.)(CDIAL 3367). kos to plough (Kon.lex.) kuci pit for erecting a flagstaff (Ci_vaka. 143); flagstaff (Ta.lex.)

1438.Implement for turning up clods: kusa_ hand implement for turning up clods (a pole with an iron blade or head)(M.); kusi_ a tool made of iron (Pkt.); kus'i_ small wooden pin used to mark in recitation (MaitrS.); small wooden pin made of metal (S'Br.); ploughshare (Skt.); kus'ika (Skt.); kus'a_ pin for marking in recitation (Pa_n.); kus'ika_ piece of wood used as a splint for a broken limb (Car.); kuhi_, kahi_ mattock (L.); kahi_ (P.); kusi_, kusiya_ ploughshare; kus, kussa_ mattock (H.); kas', kos' iron instrument for digging; koslu~ bar of iron attached to a plough (G.); kos'iya_l.o wooden wedge holding ploughshare in wooden frame of plough (G.)(CDIAL 3367). kus'e a plank for covering anything; a piece of wood (Ka.lex.) cf. ku_ci, ku_cu (pl. ku_ckul) crowbar (Pa.); gusi id. (Ga.); ku_nj (pl. ku_sk) hoe, shouldered digging stick; ku_nj crowbar; ku_ysa_ id., ploughshare (Go.)(DEDR 1879).kassa_ mattock; kassi_ small mattock; kussi_ (H.)(CDIAL 2906).

³³ **bod.e** = an inferior kind of han.d.i (liquor); bodoc mela, bod.oc sod.oc = the liquor obtained by squeezing the malted grain, and being refuse is of an inferior quality; bod.oc han.d.i = liquor obtained by pouring water on the malted grain and squeezing it (Santali.lex.)

³⁴ bhagal.a, bhagada_l.um, bhopa_l.um = a hole; a bore (G.lex.) [Note: glyph, dotted circle] bagarage, bagarige, bagerage = a hole dug for water in the dry bed of a river or stream, a spring (Ka.lex.) bagge = spot,

mark (Te.lex.) bakhola = a cleft in a tree; a hollow in a tree; a hole (G.lex.) pagad.e = a mark on a die (Ka.); pagad.a_ (M.); pakat.ai (Ta.); pagad.e, pagid.e (Ma.); pagad.e = an ace on a die (Te.); a die (or cowry) for playing a kind of back-gammon; a piece used at play (Te.); [cf. Skt. vat.aka_]; pagad.e = the play itself (Ka.); pagad.eya ka_yi = a piece used in playing pagad.e; pagad.eya letta = a die (or cowry) at pagad.e; pagad.eya sa_lu = the line of squares a player's pieces have to cross to arrive at the center of a dice-cloth or board (Ka.lex.)

bagat.u = to disjoin the thighs, to open the legs, to straddle (Ka.); vaku = to dive, separate (Ta.Ma.)(Ka.lex.)

³⁵ **men~ca** = fish roe (Or.) matsya fish (RV); maccha, macchi_ fish (Pali); **me_c** (Nin:g); mechli_ (Pah.); ma_chali_ (Omarw.); maci (Kt.)(CDIAL 9758). **man~chari_** fisherman (L.)(CDIAL 9762).

men~ca_ = lump (Or.) men.d.a_ = lump, clot (Or.) mede = a crude mass (Ka.) meduka = greasiness or dirt in the hair, clottedness (Te.) [Rebus: me_n.d.ha = ram (Skt.)(CDIAL 10310). Note the glyph of 'fish' ligatured on a copper anthropomorph which is orthographically a depiction of the curved horns of a ram.]

maccu, maca-ppon-, maccam = piece of gold kept as a sample (Ta.); macca, maccu = little piece of gold or silver taken by the goldsmith from what was given to him and returned to the owner to be kept as a sample or test (Ka.); macca id. (Tu.); maccu = the touch of precious metals, specimen, standard, quality (Te.)(DEDR 4629).

matsya = a mole on the body (M.); masa_ wart, mole (H.); maja, maje a natural speck, spot, mole (Tu.)(DEDR 4632)

³⁶ Alternative homonyms:

marada = a man, a male; a hero, a brave or warlike man; marada_i_, marada_nagi_ = manliness, bravery, virility; marada_ni_ = manly, bold; maradi_ = boldness, manliness, valour; marade-a_dmi_ = a gentleman; a respectable man (G.lex.) *maran:* = great, large, big, to become great; first born, principal, head, chief; *ad.i maran:* sadom = a very big horse (Santali)

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.)

marud.i_ = a hut, a cottage (G.lex.)

man.d.a_ = warehouse, workshop (Kon.lex.)

man.d.a = a branch; a twig (Te.lex.)

hil.li, hil.le = a branch, a shoot, a rootlet; hil.li.yod.e = shoots to break forth (Ka.lex.) **vi_l.ya** (Tbh. of vi_t.a) the betel-leaf pepper, piper betel (Ka.lex.) **cilla** small branch of a tree; illi twig (Ma.); **cil.le** bifurcation (Ka.); **cella, jella** branch, bough (Pa.); **cil** branch of a tree, tine of antlers, tributary of river (Ko.)(DEDR 2587).

il.a_ a curved instrument for cutting grass (M.)

hila_ shoulder, hand (Pkt.lex.)

hillola = a wave, surge; hilati = to sport amorously, dally, wanton, express amorous inclination (Dha_tup. 28.69) (Skt.lex.)

hillola = a particular form of sexual union; hi_la, hi_laka = semen virile (Skt.lex.) hel = membrum virile; hel mel hona_ = to mingle, to be mixed (P.lex.)

hil.alu, hin.i = a bullock's or bull's hump (Ka.lex.)

hi_la_ = [Arabic hilah] occupation, work, employment; hi_la_ wasi_la_ employment and protection, one by whose aid employment is obtained (P.lex.)

illa = watchman, servant (Pkt.lex.)