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Beyond the Flight of the Falcon:
The immigration of the Indo-Aryans into Northwestern South Asia

- why this title?
- *upari śyena/upa*^{i}*ri saēna (para-uparisaēna* = Greek *paropanisos*)

Indo-Aryan migration: from Russian steppes near Ural mountains to India

"Arya" is the self-designation of Iranians and Northern Indians:
King Darius 519 BCE, Kauṣītaki Āraṇyaka 8.9 *yatrāryā vāg vadate*

* multidisciplinary approach is needed: archaeology, linguistics, population genetics (DNA), early Vedic texts

* Problem of dating oldest Veda: Ṛgveda c. 1200 BCE (see below)

§ 1. ARCHAEOLOGY

End of the Indus (Harappan) civilization at 1900/1300 BCE; for 1300, only small area studied, Cemetery H etc.

- with new pottery designs, shift to cremation / urn burial: homunculus
- overlap between Harappan and Vedic civilizations is not clear
- no use: recently found burials at Sinauli, with 2 wheel-ox cart, 1800-2000 BCE(?),

Vedic people were semi-nomadic: pastoral, with a little barley agriculture, leave little evidence behind

- extensive communication of local post-Indus sedentary and pastoral ethnicities (many loan words!)

Heated current discussion in India: Indus civilization as "Aryan"…

Example: question of horses and chariots.

- Horses imported into Ancient Near East and early India only around 1900/1700 BCE
- "chariot" was a light-weight (30 kg), horse-drawn vehicle, with two spoked wheels, one or two riders (*rathin, ratheṣṭha*) -- unlike Sinauli carts
- First proto-chariots (**ratha*) in Ural area (Sintashta) c. 2000 BCE
- In India: Gandhāra Grave Culture? — Swat

Immigration path via Inner Asian Mountain Corridor/ North Afghanistan (Bactria): high mountain grazing grounds (c. 3000 BCE--) like modern Kirgiz

§ 2. LINGUISTICS

- comparative and historical linguistic study of Indo-European (PIE) since19th cent. (Bopp 1816), formalized along strictly scientific lines since the 1870s… Similarly for Dravidian, Semitic, Polynesian etc. etc.
- But, Indo-European and Indo-Aryan (*not "Aryan"*) linguistics are constantly attacked as "(colonial) pseudo-science."

- *Proof of the pudding:* early (Mycenaean) Greek k^w and Hittite h_2 reconstructed (predicted) in 19th cent., but only discovered in newly deciphered texts in 1948 and 1916 (by Ventris, Hrozny)

Many remnant and substrate languages in India: Burushaski, Kusunda, Nahali, Vedda; "language X" substrate; not studied in India…

Linguistic data for migration:

Many Indo-Iranian loan words in Uralic (Finnish, Hungarian etc.)

- Many remnant and substrate languages in India: Burushaski, Kusunda, Nahali, Vedda… Language "X" etc.

Earliest IA words in Mitanni in N. Syria/Iraq, c. 1500/1400 BCE

- Marya-nnu charioteers, horse race terms; gods Mitra, Varuṇa, Indra, Nāsatya (Aśvin), royal names
- < path: BMAC **mani* 'jewel,' Mitanni IA *manni-nnu*, Ved. *maṇi*, Avest. – *ma^{i}ni.*>

- Mitanni words are slightly older than Ṛgveda: *–az-* as in *mazda* (= **mazdhā*) with post-Mitanni change > Ved. *–e-,* in *medh-ira; sede* < **sazdai* (Avestan *hazde*), still in progress in RV: *mene* etc.

- Thus : Ṛgveda a little later than 1400, before Iron Age (1000 BCE in Panjab)

How did early IA speakers arrive in the Iranian and Greater Panjab areas?

- via Bactria and (the so far neglected) Inner Asian mountain belt: local loan words in IA (and more in Old Iranian)
- 13th cent. BCE (archaeology): transition to mountain cattle-breeding and increase in riding skills (sparsely attested in the RV); with southern advancement
- Example: **Muža* land = *Muzh* Tagh Ata mountain */ river Muzh* Kol (in Kirgiz) in SW. Xinjiang and N. Kashmir*;* = Vedic *Mūja-vant* (with best Soma)*,* Avest. *Muža* person and land.
- Soma: adopted instead of IE mead / ambrosia in C. Asia (see below)

Loan words: frequently with unusual sounds, suffixes, no IE/IA etymology… (Jon.: p- *point*, g- *glass*, etc.)

Central Asian loans: *Indra, Atharvan/Gandharva/Śarva, ṛṣi*, *uṣṭra* 'camel', *khara* 'donkey,' *iṣṭi* 'brick' (Avestan *ištuuua*, Kalash *kh-iṣṭi-poktá*, Shina *d-ištik,* Burushaski *d-iṣc̣ik,* Tocharian *iścem).*

- [some Near Eastern loans: *godhūma* "wheat" ~ East Iran. *gantuma,* Caucas. (Proto-Kartvelian) **ghomu*, from a Near Eastern **xand*]

Hindukush loans: *kāca* 'crystal'; female *Šuci* mountain spirits (Kalasha *varōti* < **vātaputrī* ~ Ved. Apsaras); Nāgas (semi-human/snake shape shifting)

Greater Panjab loans: from neglected Northern Indus language:

- c. 300 in hieratic Ṛgveda (Kuiper 1991);
- oldest RV loans not from (Proto-)Dravidian (!).

- This northern Indus language (often misunderstood) "Para-Munda," with unusual sounds (*ṣ* after *a/ā, s* after *i, u*), suffixes (*-ūṣa, -īṣa*), *iti* in quotes, absolutives in *-tvā/tvī* and *–ya*
- question of retroflex sounds (*ṭ, ḍ, ṇ, ṣ*): a northwestern areal feature (even for vowels: Kalash *pũ* < *pūrṇa*)

Type of loans (Bactria, Panjab):

- agriculture, plants, wild animals, music/dance, low level spirits, demons; (but: PIE/IIr. Words retained: horse, cattle, sheep, dog, certain wild animals: like wolf, beaver; barley).
- *no* loans of Indus' international trade, seals, staple cereal wheat, cities, mythology (e.g., tree goddess and a tiger etc.).
- rather: loans were taken from post-Harappan rural population.

Interaction with locals:

some elements incorporated: local leadership (chieftains Bṛbu, Balbūtha); even poetry (poets Kavaṣa, Kaṇva)

• Process stops with codification of the four classes, *varṇa,* in late Ṛgvedic period, RV 10.90 (*puruṣasūkta*)

Loans increase in post-Ṛgvedic times, now also from early Dravidian, but not (Proto-)Tamil: many words start with *b-, d-, g-*

- Location/immigration of Dravidian?
- 4th class people: Śūdra < Alexander's time Sudroi? -- Meluḫḫa/ Mleccha/Milakkhu…

§ 3. GENETICS

Earlier data based on modern features: female-transmitted mtDNA, and male-transmitted Y chromosome data (NRY); autosomal data points (600,000), reflecting both parents, have helped. (Out of Africa theory, c. 65,000 BCE to India, then Australia, etc.)

- 10 years ago: ancient DNA (aDNA):
  results in population history in increasingly fine detail (my collaboration with D. Reich et al., Boston labs):
- thus, Europeans and East Asians, (but not Africans) have 1-4 % of Neanderthal DNA…

But: aDNA not yet extracted from ancient India (monsoon climate!), not even from Petrous bones (inner ear)

- yet, two ancient strands: Ancient North/South Indians (ANI and ASI), not = speakers of Indo-European and Dravidian languages.
- the paternal NRY R1a1: spread 2,000-2500 BCE from origin of R1 in Central Asia; suggests Indo-European connections.

Now: first India aDNA from Swat in NW Pakistan, after:

- southward spread of steppe pastoral people to Bactria etc., from 2300-1500 BCE, with limited spread further south (2100-1900), but no further spread into India.

- 2nd mill. BCE, a large scale Middle/Late Bronze Age steppe migration (Narasimhan *et al.* 2018), in part via the Inner Asian mountain corridor, from 1250 BCE onwards, in Swat Valley: first Indian aDNA

  These discoveries lead to further refinement of history of Indian genes.

- But: no Indus period aDNA so far: (political) controversy about Rakhigarhi samples…

Cf.: parallel immigration from Ukraine to Central Europe: 75 % population replacement

§ 4. RELIGION, MYTH, RITUAL

Quick adoption of myths, religion vs. retaining archaic features

- Comparing IA religion, mythology and ritual with Indus civilization:
- Veda is (neither contemporaneous) *nor* a continuant of the Indus civilization
- with exception of some "low level" deities, spirits and demons (*kimīdin* etc.)
- link with much later Hinduism is a phantasy: "*Śiva Paśupati"* (see Gundestrup vessel!), demon killing goddess (*Mahisāsuramardiṇī*), etc.
- but "low level" features retained: red parting line in married women's hair, *namaste* gesture…

Retaining many IE features:

- Father Heaven (*dyaus pitā*); *Uṣas*, the daughter of heaven (~ Greek *Eos,* Latin *Aurora,* Germanic *Ostera, Easter,* etc.); the two sons of heaven (*Aśvin, Diskuroi, Castor & Pollux, Hengist & Horsa*; Lithuanian *Ašvinai*); fire worship (*agni*).
- dragon slaying deity (~ Herakles/Zeus, Apollo, Sigurd, Thraētaona): Indra
- ancestor worship : *piṇḍapitṛ* ritual for three direct ancestors, Greek *Trito-patore*s
- ancient IE domestic (*gṛhya*) rituals for marriage, death, guest worship

Replacement of IE fermented honey by Soma:

- *mead,* Skt. *madhu*, *ambrosia*:
- In western Central Asia morphed into IA *Soma* / Avestan *Haoma*, most probably pressed out (*su*) from ephedra; mythological arrival: by an eagle
- Sweet mead/ambrosia, but Soma is bitter, had to be added to by milk; elaborate ritual developed in Iran and Vedic India.
- Local name: **ancću*, Skt. *aṃśu,* Avestan *ąsu,* ~ Proto-Tocharian **encuwan*, Toch. *ankwaṣ*, Chinese *yānkuì*, from Mt. Mūja-vant

Society:

- IE (Greek, Vedic, etc.) threefold divisions of society: priests/poets (*kavi, brahman, ṛṣi*), the nobility (*kṣatriya, rājanya*) and "the people" (*viś*),
- in both cases they added a fourth class, the Śūdra or Pan-Hellenes.

- Young men's association, the *Männerbund*/sodality: teenagers, dressed as wolves, had to prove themselves, also by some ritual (Spartan killing of a *helot*):
- playing a 'dice' game with dog knuckles: Greek *kuon*, Latin *canicula*, or, recently discovered in Russia, by evenly divided parts of dog skulls.
- = Vedic *Vrātya*s, put pressure on their neighbors and gather cows; play a dice game (with 150 nuts) by grabbing (*glaha*) a number of nuts; remnant must be divisible by 4: *kṛta* "done!" -- *kali glaha* with remnant 1 is the worst; loosing player is called *śvaghnin* "characterized by dog killing."
- IE archaeological equivalent: recently found at Krasnosamarskoye, west of the Urals: a winter ritual of young men using small pieces of dog skulls

Bactrian/Hindukush adopted deities:
• Gandharva (Bactrian -*rwa*) as wind/mountain spirits (modern Kalash v*aroti* < *vātaputrī*); Apsaras-like *Peri,* of high mountain pastures (modern *šucī*); the ancient local god *Indr*: a horse riding, New Year visitor from the outside.

• Nāga mythology: BMAC, in Nuristan, Hindukush, Kashmir: inhabit ponds, rivers and even ice lakes; bring snow and ice. Later: Indian shape shifting Nāga.

• Indra's dragon slaying: in Europe, via the steppes as far away in Japanese myth (Kojiki)

- Many other myths and rituals traveled well beyond Turan and India:
- Horse sacrifice: in Veda, ancient Rome, Ireland, steppe belt (including the Altai Turks in 1900 CE), in ancient Japan (*ema*!) and in N. China...

§ 5. IN SUM

Complex Indian data exhibit many overlaps in archaeology, genetics, linguistics and Vedic texts.

When comparing results of these fields they largely agree with each other and sustain an emerging picture of the origin and spread of the *arya,* their language, poetry, religion, ritual, culture, and even their genetic setup.

• Neither was India ever isolated, nor did all facets of its archaeological, linguistic, textual, genetic/somatic data arise "on their own" inside the Indian subcontinent (as chauvinists maintain).

• Just like other Asian subcontinents --Europe, the once dry S.E. Asian Sundaland, N.E. Asia-- the Indian subcontinent presents a fascinating array of internal developments and external influences that only patient and unbiased study can reveal.