India Discovery Center

Vedic Period

Geography and People

Reshma Ghanekar

Areas Of Study

- **Geography**
  - Geographical extent as derived from Vedic texts
  - Climatic variations in the Vedic period
- **People**
  - Establishment of initial and late communities
  - Genetic data of contemporary population
  - Societal organization and life as presented in Vedic texts

Textual references

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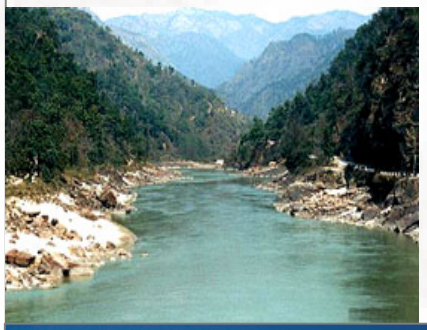
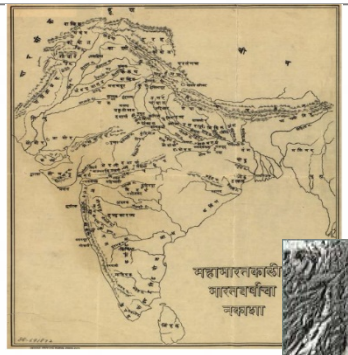
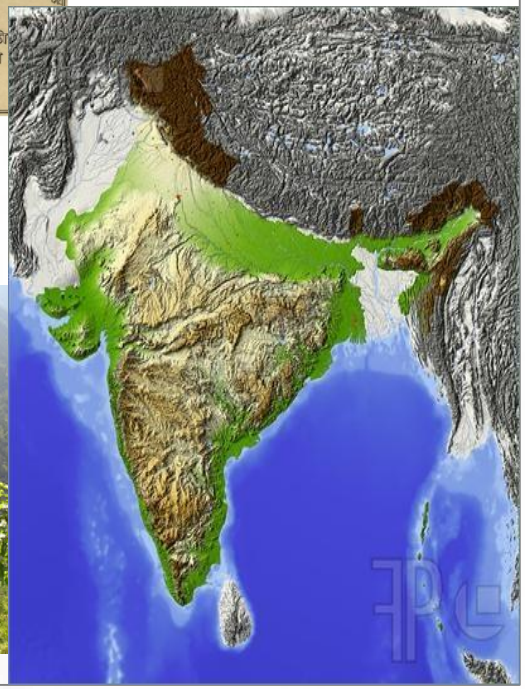
- Yajurveda-www.sacred-texts.com
- Atharvaveda-www.sacred-texts.com
- Manu smriti
- Mahabharata

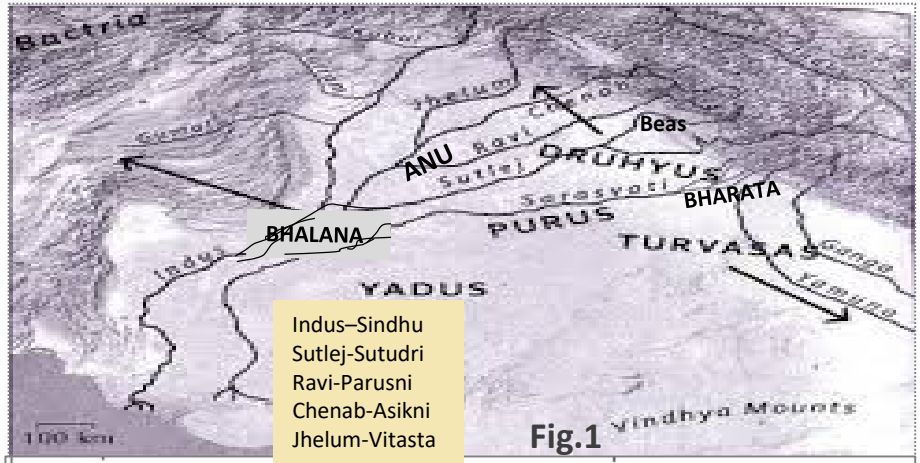




Geography



Geographical Extent derived from Vedic texts



Indus–Sindhu
Sutlej-Sutudri
Ravi-Parusni
Chenab-Asikni
Jhelum-Vitasta

Fig.1

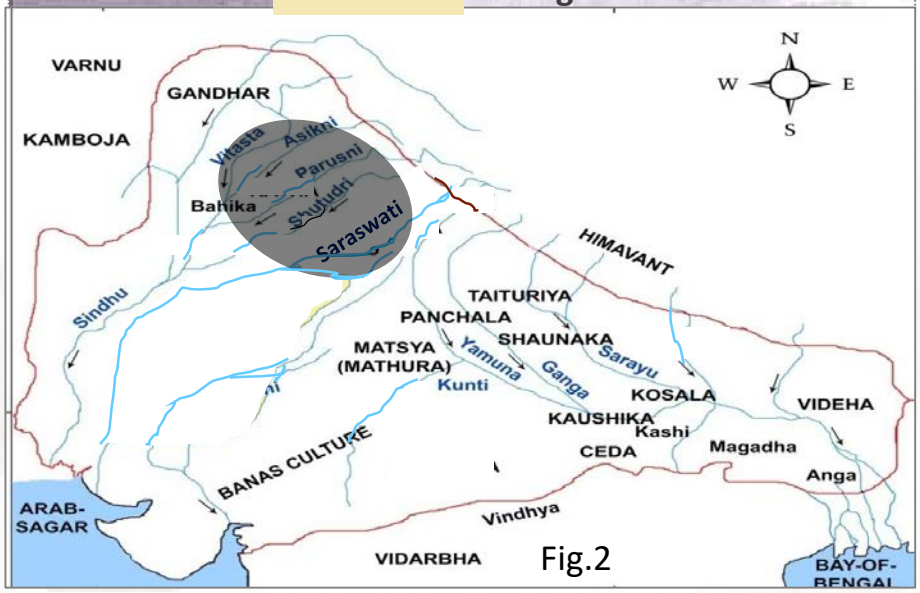


Fig.2

- 'Saptasindhu' was locus of the early Rigvedic culture(RV 8.24.27)(Fig.2)
- Saraswati River was particularly revered (RV2.41.16)
- Nadistuti gives a sequence of east to west rivers-Ganga to the western tributaries of Indus with Saraswati between Yamuna and Sutlej (RV 10.75.9)
- Climate and biodiversity mentioned in Rigveda is uniquely indigenous to the area
- Mention of multiple clans north of Vindhyan mountains, south of Himalayas (RV 7.18,7.19)(Fig.1)

Geographical Extent derived from Vedic texts

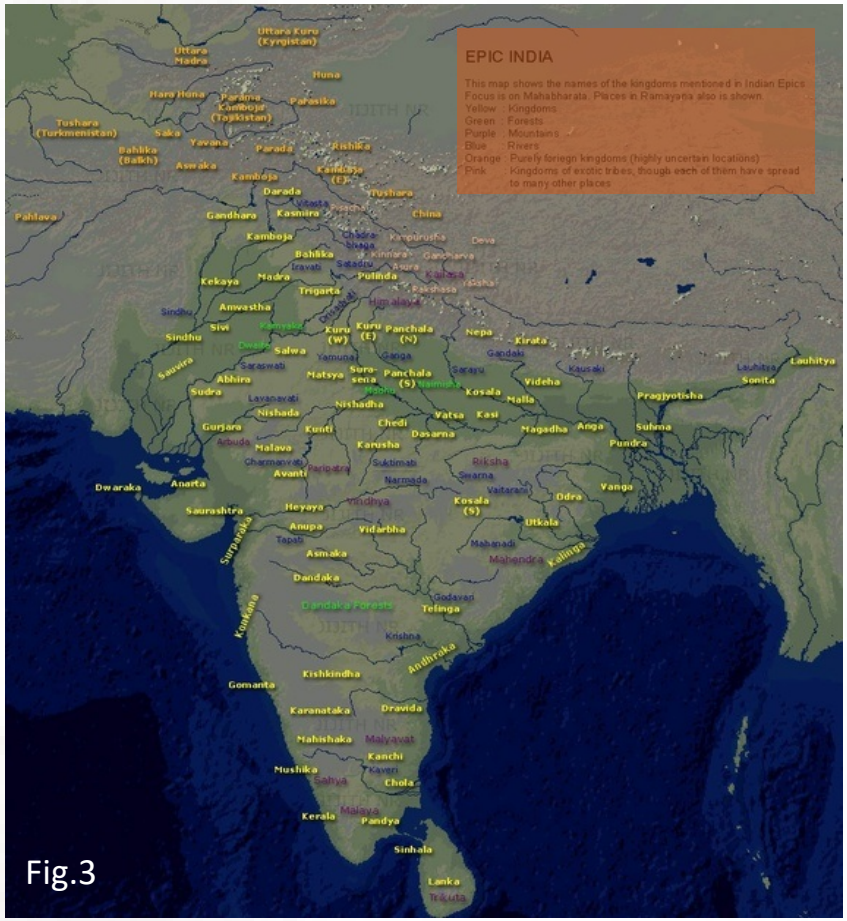
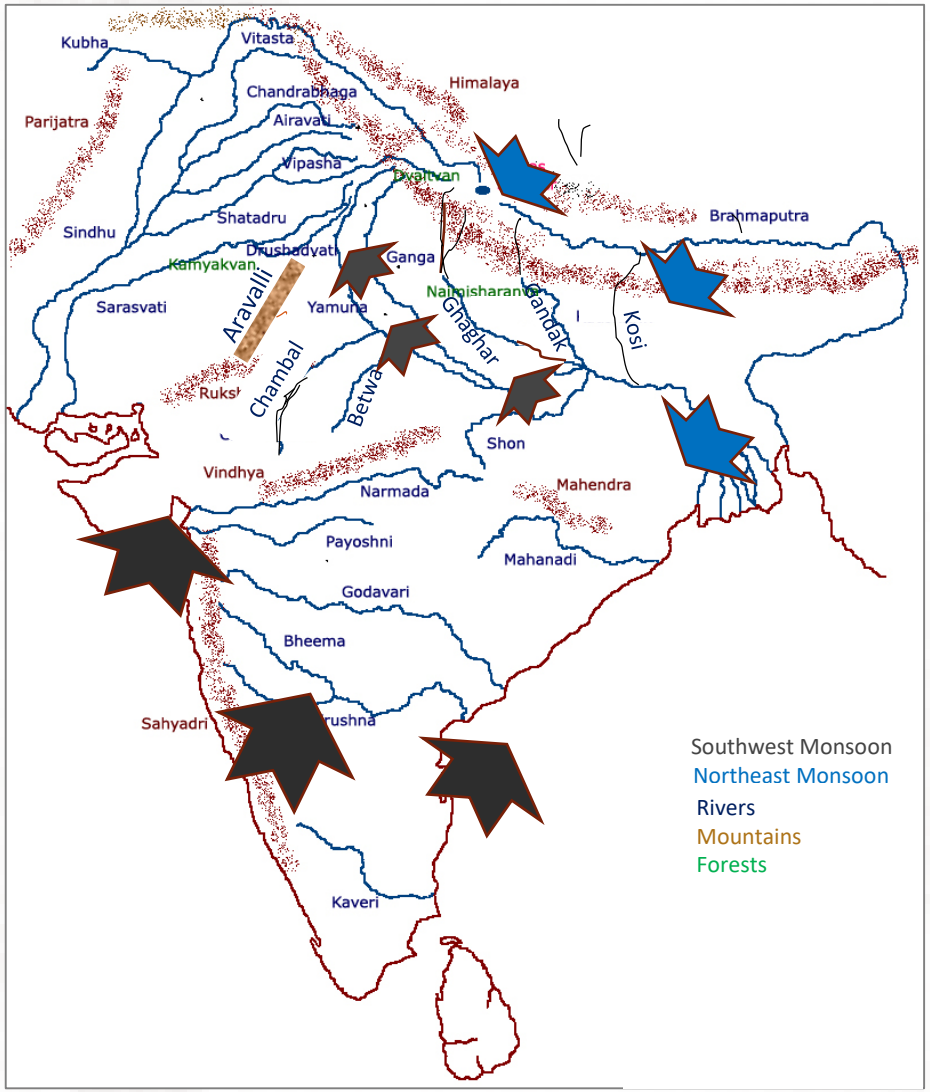


Fig.3

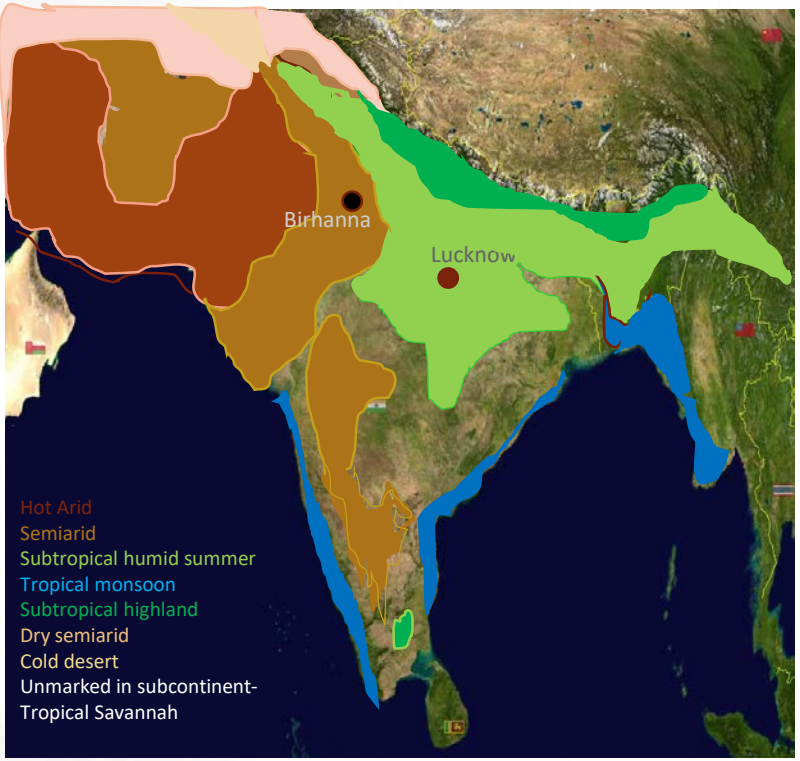
- Later texts mention more distant people, rivers, forests and oceans
- Manusmriti defines ‘Madhyadesh’ within the boundaries of ‘Aryavarta’
- Geography and people mentioned in Mahabharata cover almost the entire subcontinent(Fig.3)

Climate in the Vedic period



- Himalayan mountains made the indogangetic plains warm,wet and humid
- Extensive fertile network of rivers and riverine tracts made inhabitation possible
- Summer and winter monsoons enabled year round crop cultivation

Climatic Variations(7000-1000 bc)



Adapted from Koppen Climate Classification

- Extensive climatic changes happened over multiple events
- Changes are confirmed by geological and oxygen isotope studies of teeth and bone specimens in multiple areas across west and central gangetic plain(Thar, Birhanna, Lucknow)
- West(aridity) to east(tropical) climate gradient extending into the peninsula developed by 2100 BC

Comparative Regional climate change

7000-1000 BC

SARASWATI RIVER VALLEY

CLIMATE	Wet/Humid	→ extended drought	→	Arid/Semiarid
RAINFALL	Intense	→ decrease (100-150mm)	→	400-600mm/yr
RIVERS	Heavy river flow	→ (4000-2000 bc)	→	Disruption of Saraswati River System
SOIL DEPOSITION	Rapid	→ Stable alluvial table(5200-4600ybp)	→	Dry river bed
VEGETATION	Fresh Water	→		Semiarid

CENTRAL GANGETIC PLAIN

CLIMATE	Humid	→ Decrease	→	Subtropical/Tropical
RAINFALL	High	→ Decrease	→	600-1000mm/ yr (west-east)
RIVERS	Heavy river flow	→ Decrease	→	Lake formation/Organic siltation in lakes
SOIL DEPOSITION	Rapid	→		Slow
VEGETATION	Grassland/Forest	→ Increased diversification (4422-1150 bc)	→	Rich Forest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People


Painted Grey Ware


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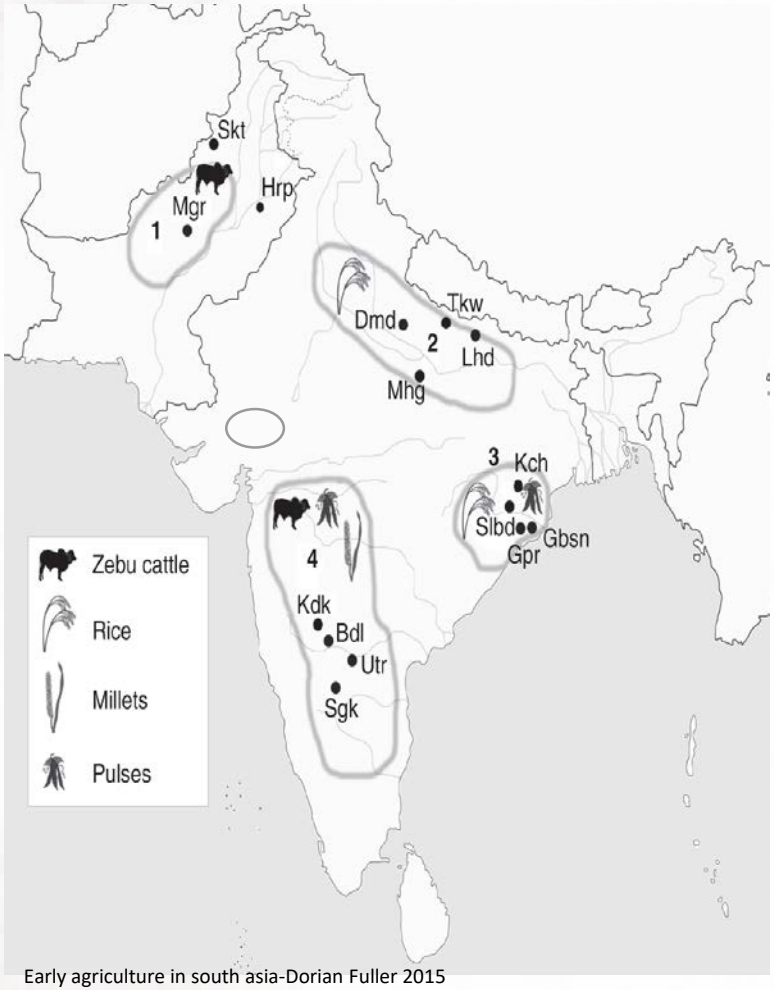
Origins of Neolithic cultures



Early agriculture in south asia-Dorian Fuller 2015

Mgr- Mehrgarh Lhd- Lahuradeva

*OCP-ochre colored pottery
PGW-painted greyware pottery

- 'Neolithic' is archaeologically identified with advent of crop and animal domestication
- In the subcontinent neolithic cultures
  - show aceramic or early handmade pottery
  - four major areas of development

1. Indus Valley-Mehrgarh 7000BC(wheat,barley,cattle)

- later urbanized to mature Harappan phase
- shows OCP(ochre colored pottery)in late Harappan

2. Gangetic plain - Lahuradeva 6400 BC (Rice)

developed to non urban chalcolithic(Copper)culture

- OCP* / copper hoard / PGW* pottery
- both OCP and PGW associated with late gangetic culture

3. Odisha delta-2500-3500 BC(Pigeon Pea, Rice)

4. South Savannah-3000 BC (Horse Gram,Millet,Cattle)

- only truly independent domestication zone

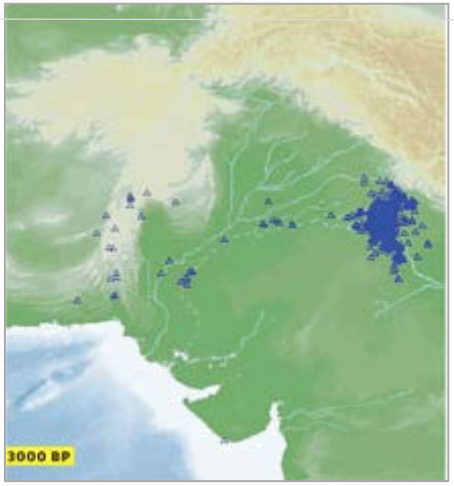
Evidence of late Population Movement

Vedic Period

- **2500 bc**
- **Mature Harappan / Gangetic chalcolithic**
- Climate change begins
- Adaptation by crop rotation
- Reduced granary use

- **1900 bc**
- **Late Harappan / Gangetic chalcolithic (Cu)**
- Climate change intensifies
- Rivers dry up
- De-urbanization of Indus begins
- Eastward movement begins
- Harappan /OCP/PGW overlap in Ganga Yamuna doab

- **1000 bc**
- Increase in late gangetic cultures(PGW/Iron Age)



- **1500 bc**
- **Post Harappan /Late Gangetic**
- Increase in semi-urban gangetic cultures(OCP/PGW)
- Decrease in Harappan establishments

The truth about Saraswati, OPEN magazine; 01 September 2012; Adapted from PNAS June 26 2012

Saraswati &Yamuna Rivers-Archaeological Sites

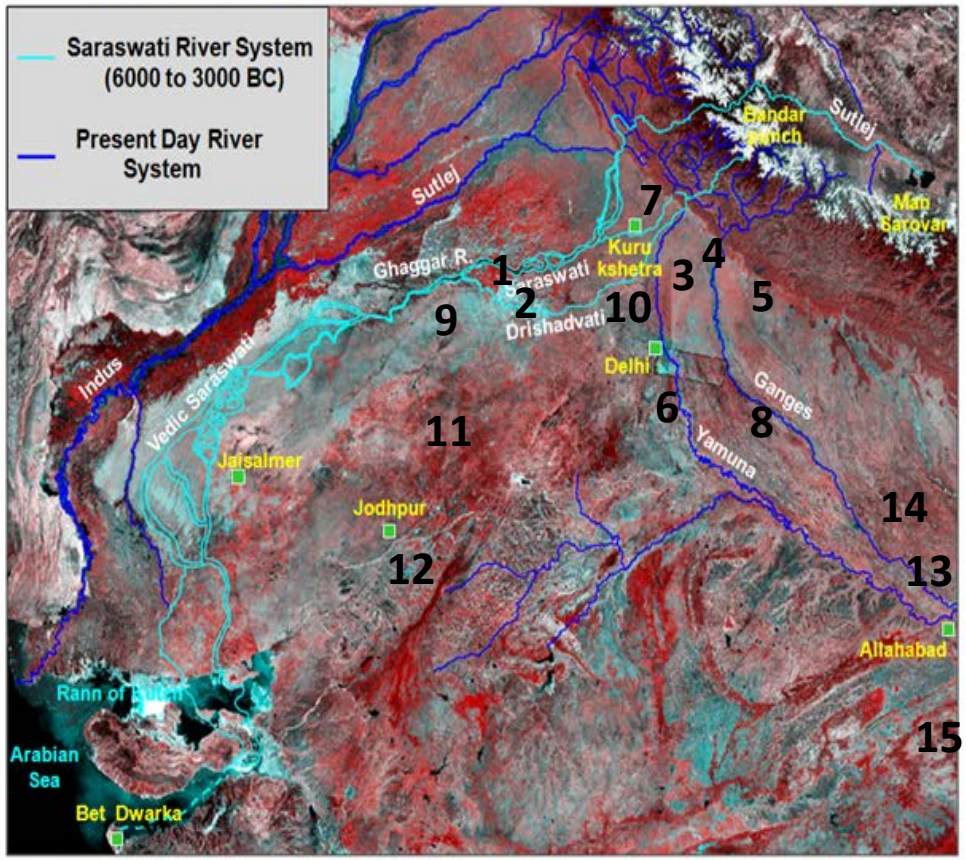


Figure-5: Simplified map of Vedic Saraswati River Network from Mansarovar to Dwarka in NW India

1.Birhanna 2.Rakhigari 3.Alamgirpur 4.Hastinapur 5.Ahichatra 6.Mathura 7.Bhagwanpur 8.Atranjikhera 9.Hissar 10. Farmana 11.Ganeshwar 12.Bagor 13.Jhusi 14.Hettapati 15.Koldihwa

- Harappan culture extends east beyond Yamuna River(3)
- Largest and Oldest sites (1,2,10) do not show Late Harappan phase
- Region of Upper Drishadvati and to its east shows Late Harappan(OCP)-PGW overlap(3,4,5,7)
- Thus was a region of cultural continuity with gangetic cultures further east (13,14)
- Saraswati river is the only region showing continuous archaeological evidence of inhabitation leading into the late gangetic cultures identified by OCP-PGW pottery
- Appendix: List of archaeological sites

Genetics of contemporary populations

- To trace common ancestral lineages
- To identify genetic groups
- To identify population changes
- Both mitochondrial(mtDNA) and Y chromosomal DNA studied
- No DNA results have been obtained from Harappan or its contemporary gangetic cultures

Mitochondrial DNA

- Current mitochondrial DNA lineages remain unchanged or show in situ diversity since establishment in the subcontinent
  - 'M' lineages(about 70%) most common
  - Minimal secondary gene flow (10-12% from Eurasian and East Asian tribes)
- mtDNA is uniform across India irrespective of tribes, castes, location and languages
- Skeletons with South Asian 'M' lineages have been found as far as present day Syria (2650-2450 BC)

Y Chromosomal DNA

- All present day populations descend from one or more ancient ANI,ASI,AAA,ATB* clusters
- All present day populations are a mix of ANI and ASI clusters
  - ASI has older presence in subcontinent
  - ANI-ASI mixture is complex and initial date of mixing is unknown
- No large displacement of populations observed
- Current populations however show evidence of Endogamy(Genetic isolation in spite of geographical proximity)
  - Endogamy is not genetically observed before 3000 years ago

*ANI- Ancestral North Indian(Commonality with Central Asia and Europe) ASI-Ancestral South Indian(no commonality out of India)

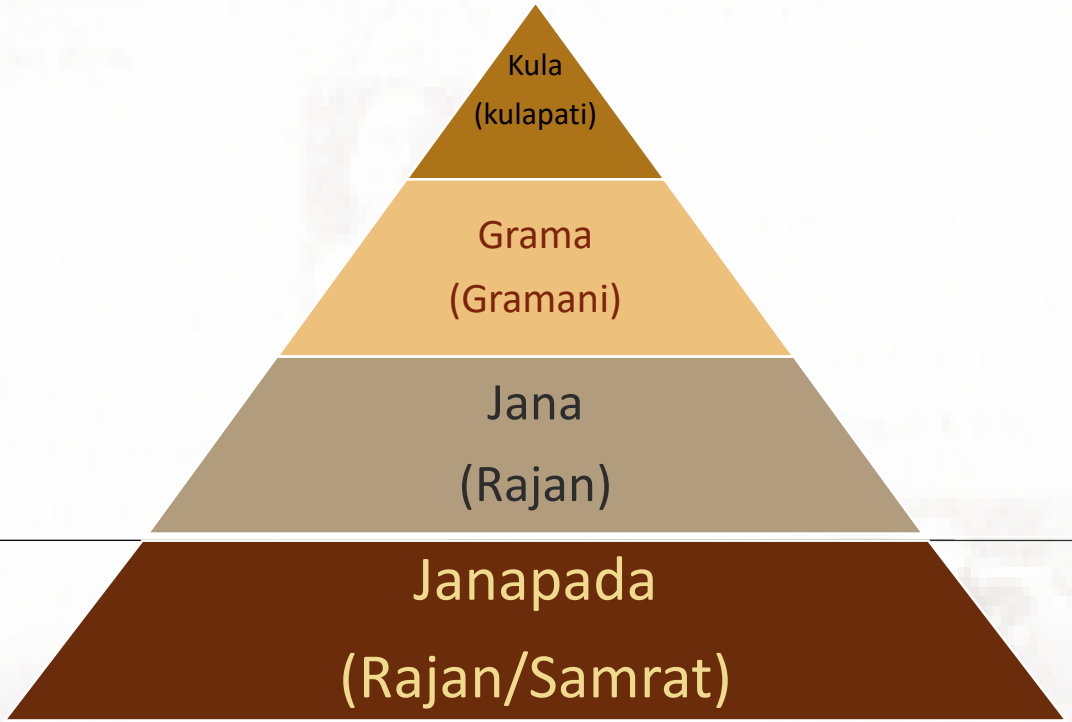
AAA- Ancestral Australoasiatic (commonality with SE Asia) ATB- Ancestral Tibeto-Burmese(commonality with east Asia)

Based on data from the Human genome project

Genetics Of Agricultural Animals

- Domesticated animals live in proximity to human populations
- Sometimes possible to trace human presence by animal evidence
- Zebu cattle, sheep, goats were common herd animals from Vedic texts
- All show a pre-domestication presence and genetic diversity in the sub-continent
- Independent domestication of zebu cattle(humped) began around 7000 BC in the sub-continent
- All species of commensal mice(domesticated by agriculture)originated in the sub-continent about 10000 years ago

Societal Structure in Vedic period



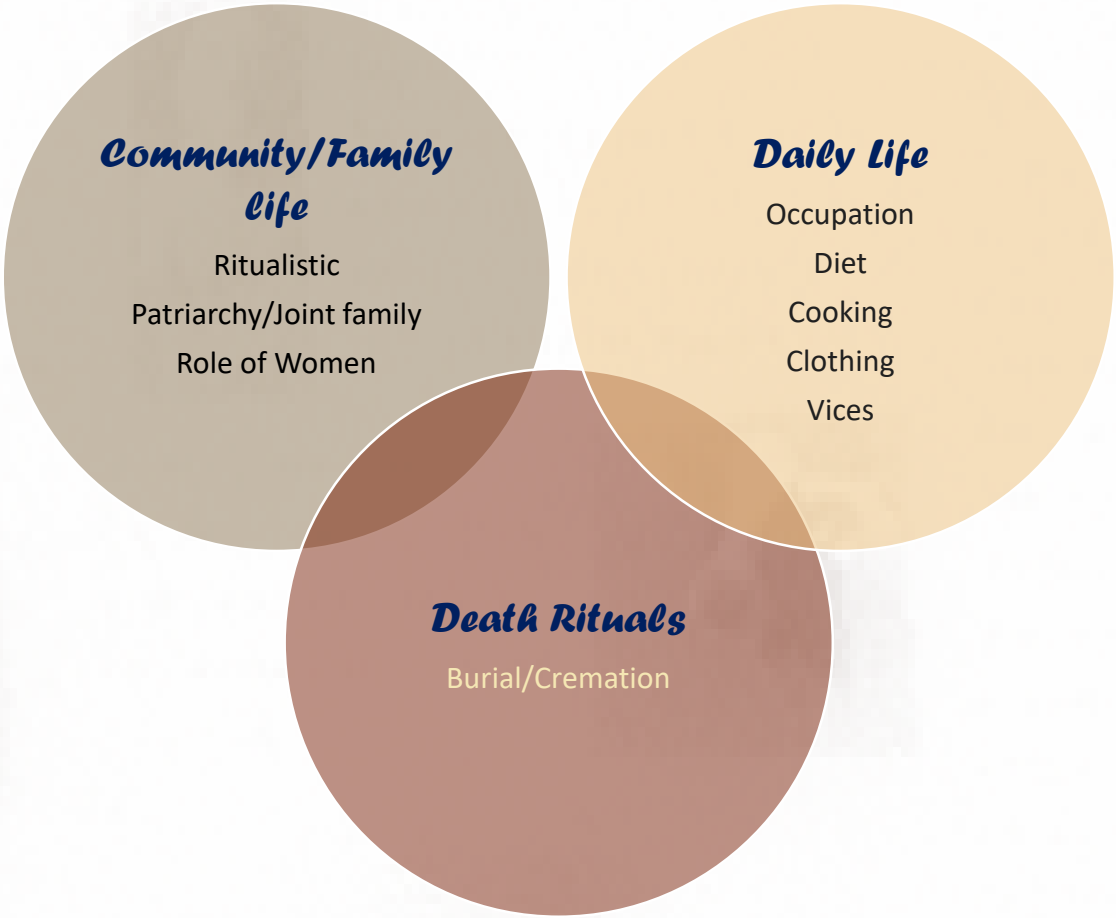
- Non-urban, agrarian, pastoral
- Clan centric
- Community centric
- Non-territorial
- Non-sedentary
- Rudimentary local economy
- Folk assembly for admin & judicial functions

- Semi-urban / urban
- Composite of clans
- Territorial states
- Sedentary
- Admin and taxation system
- Order of Law
- Rapidly developing trade/economy

Life in the Vedic period

- Every aspect of vedic life was governed by a code of belief
- This was based on a belief in the eternal truth as the essence of the universe revealed to humankind through the Vedas
- Thus the Vedas are also eternal

Life in the vedic Period



Summary

- Climatic and geological conditions enabled development and adaptation of agricultural-pastoral societies all over the subcontinent
- Deurbanization of the Harappan civilization coincides with an increase in late gangetic plain cultures as per archaeological evidence
- Contemporary studies indicate a genetically complex population defined by multiple events over time
- Vedic culture is a way of life and the spiritual code of belief in its texts a valuable guide to understanding the vedic ethos
- Saraswati River valley uniquely shows multiple strata of development and is currently in an exciting phase of discovery

Thank You

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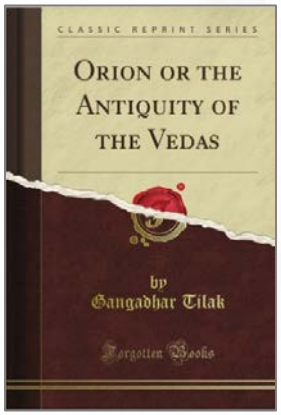
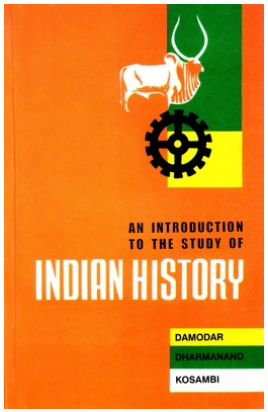
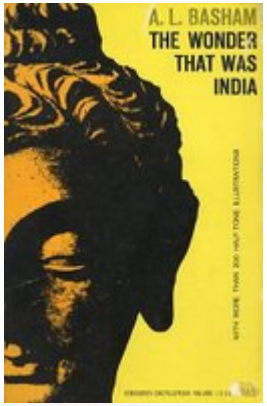
Resources

Books







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http://asi.nic.in/
http://archaeologyonline.net/

APPENDIX

- Table 1 Rigvedic Rivers
- Table 2 Biodiversity in the Vedic Period
- Table 3 Important Archaeological sites
- Table 4 States In Mahabharata
- Table 5 Clans of Rigveda

Table 1-Rig vedic Rivers

	Rig vedic River	Present Day River	Mention
Saraswati and tributaries	Saraswati	Gaggar-Hakra	All except book 4 Important 6,3,7
	Drishadvati		With Apaya 3.23.4
Eastern Rivers	Yamuna	Yamuna	5.52.17,7.18.19
	Asmavati	Assan	10.53.8
	Ganga	Jahnavi	6.45.31,1.116.9

Table 2-Biodiversity in Vedic Period

Text	Vegetation	Mention	Animals/Crops
Rig veda	Pipal (FicusReligiosa) 1.135.8	1.135.8	Cattle Gaura/Gayal, Sheep,Horse,goat, dog-draught animal
	Karanja (Indian beech)	10.48.8,1.53.8	Crops-Yava
	Shalmali(Silk Cotton)	7.50.3,10.85.20	
	Palasha,Parna (flame of the forest)	10.97.5	
	Kimshuka (Flame of the forest)	10.85.20	

Table 3-Important ArchaeologicalSites

Site		Importance		
East Gangetic Limited Cu Early Iron culture Meso-Iron age Late crop rotation than middle gangetic plain Black-red ware pottery				
Lahuradeva		First rice cultivation Iron found	6400 bc 1200 bc	
Malhar		Iron depoits	1800 bc	
Jhusi		Continuous Mesolithic-	7477-6196bc (earliest date)	

Table 4-States In Mahabharata

Present state /country	State in Mahabharata
Uttar Pradesh	Hastinapur, Varnavati(meerut),North Panchala(Ahichatra),South Panchala(Kausumbi),Kuru(east and west),Vrindavan(Mathura),Kashi
Bihar	Magadha,Angadesh,Ekachakra Nagari
Haryana	Kurushetra(banganga)
Punjab	Sindhudesh,Ujjanak
Afghanistan	Gandhar,Takshashila
Jammu and Kashmir	Kekaya Pradesh,Madra(other side of Himalayas)
Rajasthan	Matsyadesh
Gujarat	Dwarka,Prabas,Patan, Vardayini Dham,
Madhya Pradesh	Ujjaini , Chedi
Assam	Pragjyotishpur, Kamakhya, Manipur

Table 5-Clans Of Rigveda

Clan	Reference(Prominent in)	Location
Anu	Books 1,5,7,8 With Druhyus(7.18.13)	Banks of Parusni
Druhyus(later Gandhravas)	Books 1,4,46,7,8,9,10 With Anu	Vitasta,Asikni
Puru	7(7.18),6.46.7-8 Favourably in book 5	Saraswati
Turvasa	Books 1,8,9,10 With Yadu	Southeast of Saraswati
Yadu	Books1,4,5,6,8,9,10 With Turvasa(1.36.18,1.54.6,1.174.9,4.30.17,5.31.18,6.45.1)	Yamuna
Aja	7.18.19	North bank of Yamuna

ANI %

Table 2 | Detection and quantification of population mixture along the Indian Cline

Indian Cline group	Samples	*Z*-score from 3 Population Test for mixture	ANI ancestry (% ±1 s.e.)
Mala	3	−2.5	38.8 ± 1.2
Madiga	4	−2.7	40.6 ± 1.2
Chenchu	6	31.3 (n.s.)	40.7 ± 1.3
Bhil	7	−10.6	42.9 ± 1.1
Satnami	3	−5.6	43.0 ± 1.3
Kurumba	6	−12.6	43.2 ± 1.1
Kamsali	3	−6.5	44.5 ± 1.3
Vysya	5	5.4 (n.s.)	46.2 ± 1.2
Lodi	5	−8.9	49.9 ± 1.1
Naidu	4	−3.3	50.1 ± 1.2
Tharu	5	−20.6	51.0 ± 1.2
Velama	4	−3.2	54.7 ± 1.3
Srivastava	2	−7.5	56.4 ± 1.5
Meghawal	5	−13.3	60.3 ± 1.2
Vaish	4	−22.0	62.6 ± 1.2
Kashmiri Pandit	5	−20.6	70.6 ± 1.2
Sindhi	10	−26.3	73.7 ± 1.1
Pathan	15	−34.3	76.9 ± 1.1

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Abstract

- Climatic and geological conditions over time enabled development and adaptation of agricultural-pastoral societies all over the subcontinent
- Deurbanization of the Harappan civilization coincides with an increase in permanent communities in the gangetic plains as per archaeological evidence
- Contemporary studies of the region indicate a genetically complex population with no large modification by a singular event
- Vedic texts indicate an adherence to a spiritual code of belief in an increasingly complex societal organization