

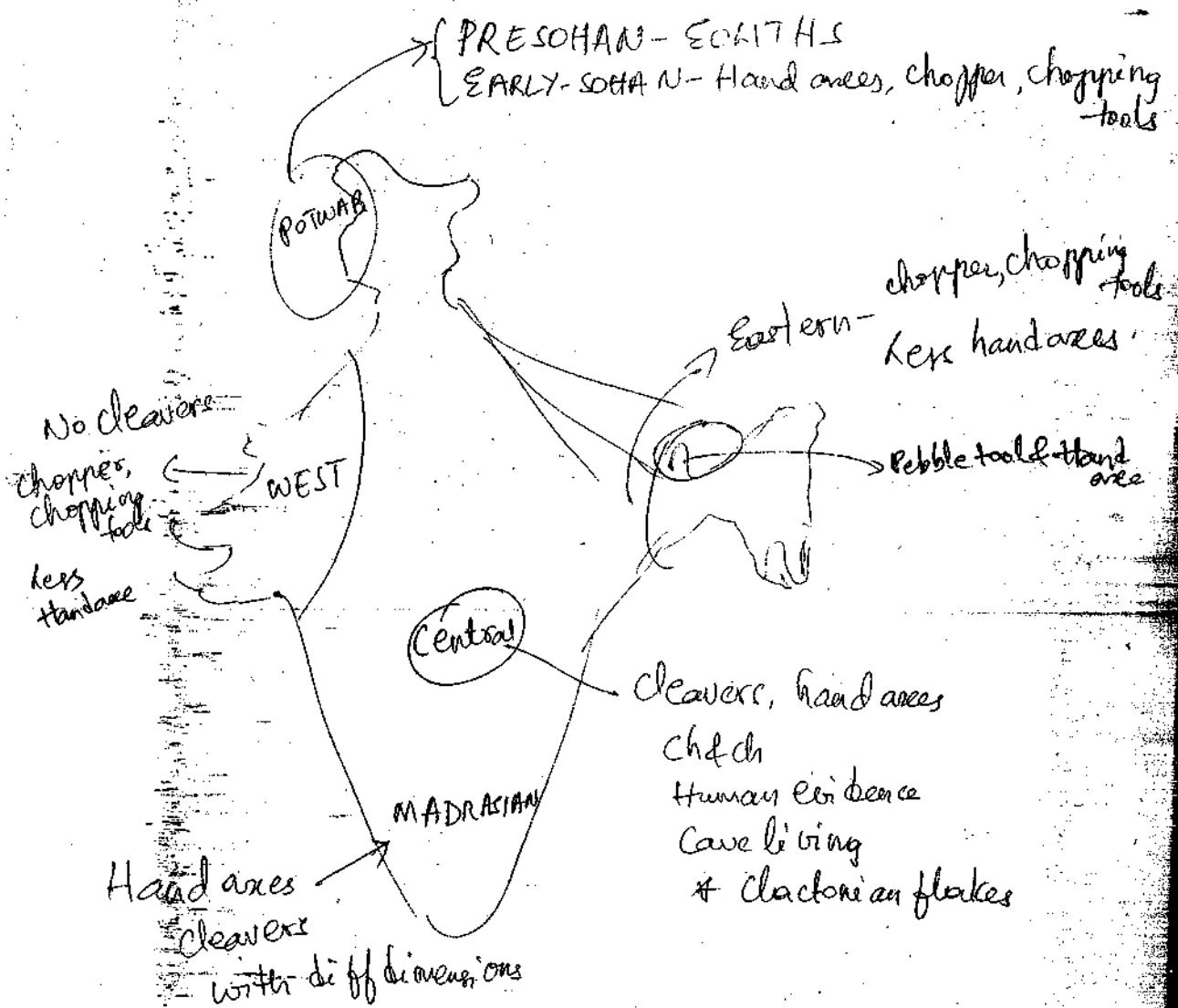
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LOWER PALEOITHIC SITES IN INDIA



DIA

28-2-12

Mesolithic Culture

(India - 10000 - 4000 BC)

Gordon Childe studied Mesolithic - but more of continuation
to Neolithic revolution

Mesolithic age in India saw the emergence of new tools produced by pressure flaking. The 1st discoveries of Microliths in India were by Carlyle in 1867 in Vindhyan ranges.

He discovered rock shelters inhabited by the early Homo Sapiens. It was followed by the work of Cockburn & Carnac who extended the study of Microliths in Vindhya.

Todd Hunter & Gordon analysed the Microlith industry discovered in Northern plains. The 1st scientific & systematic study of Microliths was initiated by H.D. Sankalia in Gujarat & Rajasthan. The 1st site excavated by him was Langhnaj in Gujarat.

Earlier Mesolithic sites of India

- ① Langhnaj - Gujarat
- ② Bhimbhetka, Adamgarh - MP
- ③ Sarai Nahar Rai - UP
- ④ Bagor - Rajasthan
- ⑤ Cauvery river Valley - TN
- ⑥ Birbhanpur - WB

- ① Mirzapur-UP - R K Verma
- ② Chambal region - Joshi & Khare
- ③ Bidar region - KTK - H D Sankalia (1960s)
- ④ Rajasthan - V N Mishra

^(Absence of pottery)

Langhnay → It provided evidence of Bone tools made of ^{shoulder blade} ~~of~~ ^{of} ~~Thinoceros~~. It's a strong evidence of Non-lithic tools in India. Ivory was rarely found.

- ⑤ Microliths of different (i) geometric shapes such as Lunates, Trapezoids, Scrapers, & Rectangular tools were found. (ii) Non-Geo were also found.

- ⑥ The tools were majorly made of Quartzite, Cetre, & Agate.

- ⑦ Clear indications of Burial practices were found. Humans were buried with their head towards west & their forearms diagonally placed across their abdomen. This indicates emergence of rituals. Along with the human fossils, Grave tools made of lithic & non-lithic objects were found.

Inter - around 2000 BC

⑧ Cuts on foreheads of skulls - cannibalism.

⑨ points 5(a), 1, 6 in BT-Pg-11

Bhimbheta

- ⑩ A place of continuing cultural evolution right from Palaeolithic, it gave evidence of rock paintings in the Mesolithic period. It raises a question on the time period of the site.

Acc to H D Sankalia, Rock painting at Bhimbhetka is a continuation from Upper Palaeolithic & it establishes evolution of the

some people in that region.

- ② Bhimbetka presented hunting implements such as spears
- ③ There was evidence of cave living with wind breaks installed at the mouth of the caves. (made of animal hides)
- ④ Microliths - Geometric triangles trapezes

→ Adamgarh

Explained by H D Sankalia

has the evidence of Domestication of mammals
(this is generally seen as a feature of Neolithic age & hence Adamgarh raises a question of being a Mesolithic site)

- ① There was evidence of domestication of 6 mammals including cow, buffalo, sheep, dog, goat & cat
- ② There was evidence of fishing through harpoons & points.

→ Sarai Nihars Rai - UP

There was evidence of Inter group rivalry (or) warfare. It could be proved by the human skeletal remains & the mass graves.

→ South India In South India, there was an absence of Geometric elements among microliths. Instead, micro blades, non-geometric microliths & cores were predominantly found.

Quartz was the common material of flint and bone were rarely found.

Similar to Adamgarh, cave (in very region) gave evidence of Domestication of animals.

Microlith industry of India has a powerful characteristic of maintaining perfect symmetry of tools (except perhaps in the Coaver region).

At many Microlith sites in India, Crede (knives) & Hand axes were found. The use of these primitive tools in an advanced tools of Microliths was questioned.

Some thinkers opine that it refers to co-existence of 2 peoples at different levels of technological development.

Neo-lithic Culture

- wheel came at end of neolithic
- pottery need not be made from wheel
- Going back from Non-lithic to lithics (completely dependent on stone)
- cultivation was revolutionary but at places of stone
- Gordon Childe says "Man was in a position of scarcity of food."

Time of arrival

West Asia - 7000 BC

India - 3000 BC

Europe - 2500 BC

Archaeologists involved

- Gordon Childe
- Morgan
- Khuzanchi
- Hanson
- Taylor
- James Frazer
- Robert Brucefoot
- H D Sankalia
- Krishnaswamy
- R K Sharma
- Rami Reddy
- Bhattacharya

} India

At a Global level, Neolithic cultural studies

emerged in the period of New Evolutionary -

thought championed by Gordon Childe.

Earlier to him, Henry Morgan, conducted few library studies, on the emergence of Neolithic.

Acc. to Childe, Neolithic witnessed a

transformation from food collecting economy

From hunting & gathering stage, it moved from Micro lith industry to Agricultural & Domestication of animals based economy.

Origin of Agriculture brought a change in the social aspect of humans. It paved a way for the emergence of civilizations in later times.

Childe also admits that though Neolithic age can be called a revolution, the changes there in were not sudden (or) catastrophic. Acc to him, Neolithic was called a revolution because it introduced wide ranging changes in different spheres of human (As are discussed in the salient features in Neolithic).

Technological, social & economic spheres experienced major changes. Some of them such as Domestication of animals emerged even earlier to Neolithic.

Salient features of Neolithic

① Humans shifted to food production & adopted a near settled life. To begin with, it was a shifting type of agriculture, but Neolithic produced evidence of sedentary living in villages.

Man adopted domestication of plant & animals and manufactured different kinds of pottery. —

— Greyware, redware, black & red ware - based on the soil (or) material available at the habitations.

Among different live stock, cattle became a dominant one in domestication for its milk & meat.

In West Asia & India, Ox was also domesticated for use as beast of burden.

Social system in Neolithic

As humans started living in settled habitations, in Gordon Childe's opinion there could have been the need of a political system.

Acc to him, it was the period of emergence of chiefs & chiefdoms. and hence he is hinting at origin of inequalities in the society. The economic inequality at such an early time was referred to as "Primitive Communism" (by Henry Morgan) in his book "Primitive Culture".

Acc to Morgan, the private property in Neolithic was restricted to ownership of tools & Agricultural produce.

Tool typology & technology

* 3 diff industries

① Pecked & Grounded stone industry

 - edged tools
 - unedged "
 - pointed "
 - rubbing "

② Blade & microblade industry

③ Bone tool industry

(a) Use of copper
(b) Dervid of wood

① Pecked & Grounded stone industry

It refers to the stone tools, made of Igneous rocks like with occasional use of metamorphic rocks.

Gordon Childe categorised this industry into 4 major sub groups based on shapes & purpose of tools.

Edged tools they include Celts, Choppers, hammers, tools & chisels.

Celts figure



Unedged tools include hammers, grooved hammers, ring stones (or) Nice heads.

Pointed tools include Borers & points.

Needles both eyed & uneyed can be placed under pointed tools.



Rubbing tools → They were used to sharpen the edged tools. There was also an evidence of Pounders & Grinding tools to process the food grains.

(2) Blade & Micro lith industry

Its presence indicates continuation from Middle & Upper Palaeolithic. But interestingly, blades in the Neolithic were devoid of secondary work i.e., they were not retouched & hence their utility is questioned.

Geometric micro liths made of jaspers, agate & quartz were found across the world.

③ Bone tool industry

Acc. to Gordon Childe, man moved away from Non-lithic tool culture to over dependence on - Lithic materials & hence there was little evidence of blades, points & axe-heads made of bone (or) Ivory.

Though it is unanimously agreed that Neo-lithic was devoid of wheel, Indian sites such as Maski provided evidence of wheel. Most of the pottery of Neolithic was hand made.

Indian Neo-lithic sites

- Northern sites - Kashmir - Gokhral, Buzzrahom, Martand.
- In Gangetic Valley - Chirand
- Southern sites - Tamil Nadu, AP, KTK.
- Eastern sites - Odisha, WB, Arunachal.

Northern sites

Buzzrahom can be considered as the representative of Neolithic in North India. It was first discovered in 1935 as an Indus site i.e., Copper-Brass site by De Terra & Patterson.

Its association with Neolithic was first established by ^{Kherzandy} during 1960's

The tools of Northern Neolithic-

① Chaff-Axes-Adzes

② Pounder

③ Axe head / ring stone

④ Black & red ware

⑤ Pit dwelling, thatched stone houses

⑥ Rice husk

⑦ Charred animal bones

⑧ Wheat

⑨ Snake worship.

H D Sankalia found evidence of kil brick making.
Though the later finds referred to thatched stone houses.

Rice husk was found at all the Northern Indian sites.

Ritual aspects + consumption of animal food can be established with charred animal bones.

Cultivation of wheat was found at Buzuram.

H D Sankalia found the evidence of snake worship from the Terracotta figurines of snakes found extensively across the entire northern region.

13-12

GA - Nadeem Husnaeh.

Page 207 → IVC

223 → Food Material culture & Technology

124 → chapter-11 → Meanings of words

South Indian Neolithic evidences

Unlike several sites of North India, South India produced evidence of wheeled pottery in the Neolithic times. The initial explorations in South India were by Hanson & Taylor in Raichur district. Later James Fraser explored Bellary region in 1870s. Proper codification of Neolithic & earlier traditions in the region of Mysore state was done by Robert Bruce foot.

Extensive study of south Indian Neolith was by H D Sankalia, who excavated several tools of stone & bone such as Borers, Chisels, Adzes, points & harpoons. Polished Handaxes with the shapes & sizes of those belonging to Lower Palaeolithic were also found raising questions of their need in an advanced age. Sankalia found at Maski, wheeled pottery.

Aspect of religion, and worship of animal life forms was established by Terra Cotta figurines of humped bull. In Bellary district, evidence of food grain cultivation & its processing was established by torrided grains & pounding stones. Cattle rearing, sedentary living, village living could be proved by finders.

Human Graves consisted of the fossils of domesticated animals.

Village living could be proved by Huts with thatched floor & roof.

Eastern Region

Majorly studied by Krishna Sircar, who categorised the region into.

- ① Assam
- ② Bihar, Bengal & Orissa

The most significant sites

Nancor, Haraipur in West Bengal

Khasi, Garo, Jaintia - Assam Region

In the eastern sector, Assam region produced sophisticated tools compared to rest of India. 3 distinct types of Axes & Grooved Hammer Axe were found.

Splayed axe



Tanged axe



Rounded axe



Grooved axe



After Krishna Seemay, Rami Reddy presented a classification of Assam Region into 6 cultural zones based on their geographical location. But characteristic of tools across all these culture zones was almost similar.

This region also produced innumerable hand made pottery along with stone tools, & mud walled houses.

With regard to the human fossil evidences, Neolithic was the first phase in India to present enough number of evidences. It is also possible to establish the racial features of peoples of the time.

Neolithic was marked by Scythian racial & Austric racial stocks in Northern & Western India & Scytho Dravidian & Dravidian in South India. This also indicates inter-racial contacts & emergence of Admixed races.

The rivalry b/w these racial stocks was established by both material evidences & fractured and damaged bones of the skulls of humans. The artifacts in this connection include Basalt Battle axes found in a large number in Western Region.

Acc. to Rami Reddy & Bhattacharya, though this period could be called a revolution in terms of Gordon Childe, it had a major limitation of over dependence on stone tool technology.

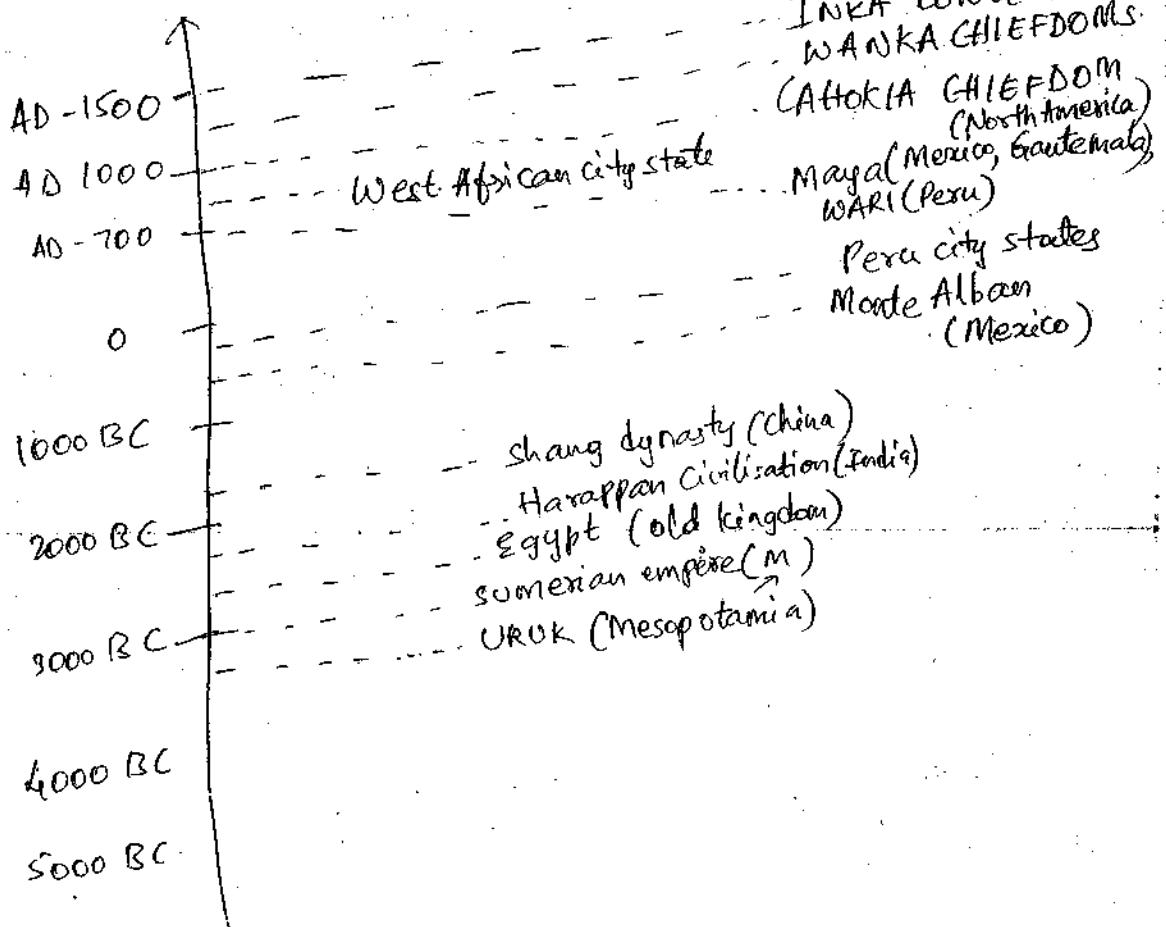
close to certain their habitations were restricted to the hill slopes. It resulted in less food products. Acc. to Bhattacharya, Neolithic could be the 1st phase where in the humans must have experienced major food shortages.

Acc. to Rani Reddy, this was a backward looking phase as for reasons unexplained, Man moved away from Non-lithic tools. Nevertheless in the times to come, Man invented wheel & started to specialise in script along with the specialisation in diff professions, paving a way for the development of civilisation.

IVC

OLD WORLD

NEW WORLD



features Civilisation originates from More food production i.e.,

① Irrigation based Agriculture
by better technology

② Large scale food production

- Storage facilities
- Most of civilisation - Urban \rightarrow specialised centres
rural \rightarrow supplied food excess to urban

In Indian case - Chalcolithic

③ High density pop

④ City living

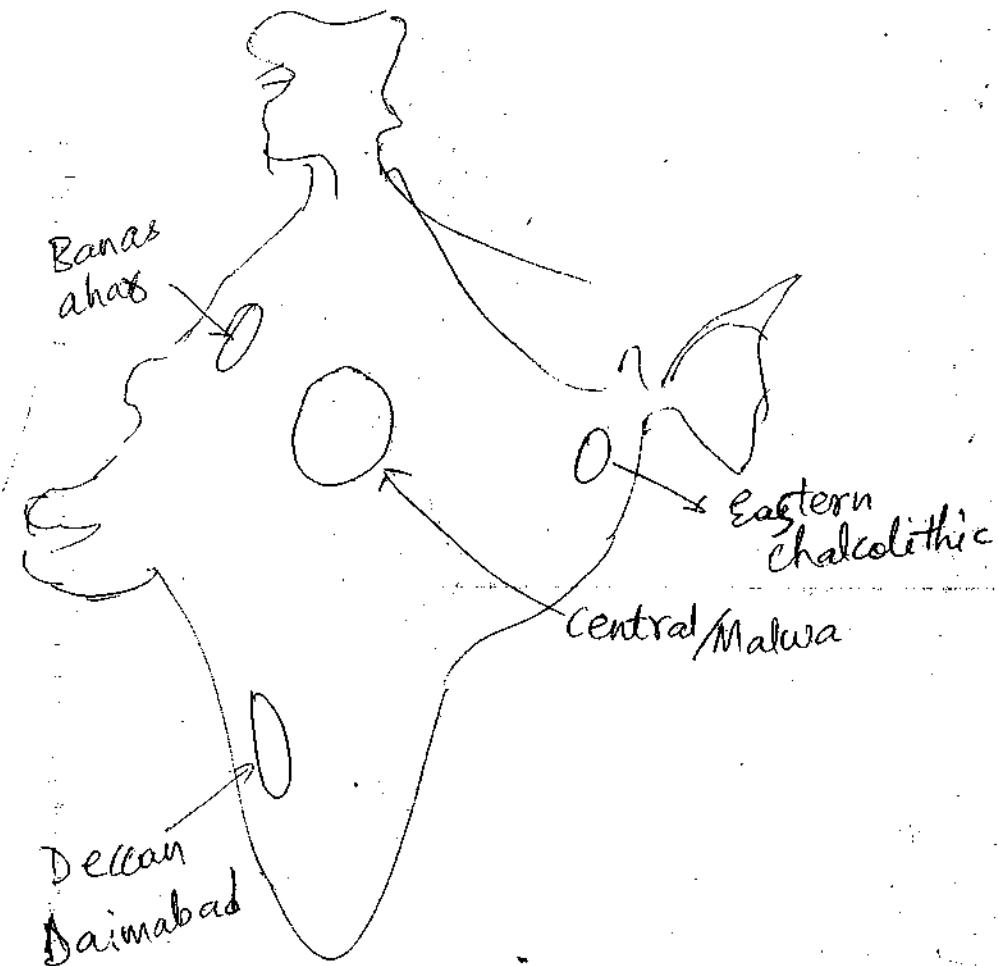
⑤ Specialisation

⑥ Writing

⑦ Emergence of chiefdoms

Chalcolithic Cultures in India

(Post 1800 BC)
(1750 - 1000 BC)



Diff b/w Chalcolithic & IVC (or) Copper Bronze Age in India

(B age → urban culture)

- were more localised
- coexisted with Harappan culture
- Bhattakarya - they were feeder for Harappa

0 BC
00 BC

Features

- Rural culture
- Coexisted with Copper-Bronze age
- Heterogeneous & localised
- Varieties of food grains cultivated
- Less longevity - high MR → (from Deer Pot Burials in Daimabad)
- Social inequalities
- Similarity in usage of ceramics
- Abundance of microliths & limited use of copper.

Bhattacharya focused on →
~~theory~~ Neolithic-Chalcolithic - Munir pg-36

Chalcolithic cultures in India traditionally include Non-urban, non-Harappan cultures characterised by copper & stone.

Based on the recent evidences, they existed alongside the Copper-Bronze (or) Indus Valley civilisation. The earliest evidences of Chalcolithic can be traced back even upto 2100 BC. But majority of the sites refers to a time period b/w 750 BC & 1000 BC.

General Features of Chalcolithic based on the references of Bhattacharya

Harappan culture is generally followed by chalcolithic cultures.

① It marked a movement from Urban

civilisations to rural traditions.

② There was a shift from sophisticated Copper & Bronze culture to a less sophisticated Copper & stone culture.

③ Unlike the Copper-Bronze tradition, it witnessed the emergence of full fledged villages with a political system of chiefs & chiefdoms.

Age in India

(4) Though Chalcolithic age could be witnessed throughout the subcontinent, it has more localised variety (with few common features to establish their link with Chalcolithic, apart from their belonging to a common time period)

Acc-to

(5) James Carlyle Chalcolithic in India produced variety of food grains when compared to Neolithic & Copper Bronze age.

Evidence of huge varieties of pulses came from North West & Central India.

(6) Acc-to R.K. Sharma's des coveries of 1977 despite of huge volumes of food production, there was less longevity & high IMR. He found evidences from pot burials in Northern Deccan & Malwa Chalcolithic.

(7) social inequalities were marked, evident from child burials from Western Malwa.

Chandoli & Nevasa in Maharashtra provided grave evidences establishing social inequalities.

The grave objects varied from pottery of the day to precious beads & ornaments.

(8) Acc-to Bhattacharya, a common aspect of all the Chalcolithic regions was use of ceramics.

There were of course differences in the material used & motifs made on the ceramic objects.

(9) The other similarity was limited use of copper & abundant use of microliths with lithic blades being used prominently.

Except for alluvial plains & thickly forested areas, CC have been discovered almost all over India

Bhattacharya categorised Chalcolithic in India into 4 major categories &

- ① Banas Ahar culture
- ② Central (or) Malwa region
- ③ Eastern Region
- ④ Daimabad culture.

6 categories

- ① Ahar-Banas Chalco-cult
- ② MP - CC
- ③ Northern Deccan - CC
- ④ Neolithic-chalcolithic Deccan
- ⑤ Gangetic doab - CC
- ⑥ Eastern CC

Ranas

- South & South east Rajasthan

- 2 periods

① Copper Age - stage of animal husbandry and fishing

② Iron Age - cultivation of millets & rice.

① Copper Age of Banas Ahar was associated with Animal husbandry & fishing. Evidence of animal husbandry came from the fossils of cattle, buffalo, sheep, goat, pig & dog. (No cat).

Evidence of fishing was through the first usage of Net.

In South east Rajasthan, hunting in addition to fishing provided food subsistence.

Turtles & Deer were majorly hunted.

② The 2nd period, Iron age,

The nomenclature of Iron age was used to denote the first evidence of Iron smelting, though its large scale use cannot be established.

Cultivation of millets & long grained rice can be proved in the entire Ranas Ahar region.

The 2 periods of Banas Ahar had a commonality in terms of ceramics. Both of them produced

① Brown & Red ware with interior painted white.

According to R K Sharma, both of them had evidence of Silver vessels & community Chulhas.

This may indicate joint family living or
② occasional community cooking because, in addition to the common Chulhas, every household presented a small Harth (or) Cooking place.

③ The studies by R K Sharma in the Ahar region referred to rectangular houses with thatched floors of black clay.

Central/Malwa Culture

① Kayatha - 2000 BC - 1800 BC

② Malwa - 1600 BC - 1300 BC

Central (or) Malwa culture can be seen as a combination of a large number of local cultures. Some of them spreading across very small regions & were restricted to small regions.

Among all of them, Kayatha provided for many Archaeological sites followed by Malwa.

Kayatha Culture

① Referred to the region of Kalisind river bank. Evidences were also found in Chambal river basin.

② This is the only Chalcolithic region producing the 3 types of earthenware i.e., Brown & Red Ware,

Brown Ware & Grey Ware

- ③ All the ceramics possessed linear diagrams indicating hunting, animal motifs & children.
- ④ This region has more pre-dominance of copper than any other Chalcolithic region of India.
Evidence is from some sites with huge pots (or) urns having several copper objects including those of ornaments.
- ⑤ In addition to copper, Kavatha zone had developed blade industry. Lunates, parallel sided blades & small knives were found.
- ⑥ Organised village living can be established from a large number of houses at a single place built with mud & thatched with bamboo.
- ⑦ It did not provide any burial evidences making it difficult to study the racial features and social inequalities therein.

Malwa Culture

- ① In terms of time period, it was later to Kavatha, but in terms of metal use, it was less advanced to Kavatha because there was a predominant stone-blade industry & less evidence of copper use.
- ② A single type of ceramic (or) pottery was found that was Brown & Red Ware with motifs similar to the ones found on the walls of houses.
- ③ There were evidences of graves with grave tools of clay & chalcedony. Some of them produced insectous beads.

The graves at Lothal can help establish social inequalities because copper & bead ornaments were restricted to few large & palacious graves. Child mortality could be associated with lower economic strata.

④ Village settlements could be studied from Northern Maharashtra.

These sites possessed similarities of Daimabad culture (०८) Northern Deccan Culture (०९) Torwe Culture.

Northern Deccan Region

Krishna Murthy studied Northern Deccan in 2 phases with a difference in use of copper & pot type of pottery.

Northern Deccan Chalcolithic produced the largest aerial coverage & variety of copper tools in India. The 1st phase in this zone produced more ceramics of Grey & Black ware along with polished stone axes. Whereas the 2nd phase had sophisticated blade industry & copper tools.

Its advancement can be seen in fine paintings, & motifs.

Torwe Culture was excavated in the Northern Maharashtra region as well. But was not placed in the Deccan Chalcolithic as it differed with more advanced characteristics of Deccan region such as

① The people of Deccan cultivated Barley, rice, wheat, maize & several other pulse varieties.

The first evidence of artificial irrigation in India was evident from the channels linking

river with the fields was found in Northern Deccan

- ② In terms of tool technology, rectangular axes of copper & microliths were found.
- ③ Evidence of cloth, linen & silk were found from Nevasa & Chandoli (which are placed in Northern Deccan chalcolithic. In the earlier lithic ages, they were placed in Central region)
- ④ Animal domestication, was to supplement meat to the food grains.
- ⑤ Storage of food was in huge jars and rounded bowls of earthenware
- ⑥ Houses had a similarity with the Central region. They were thatched with clay & occasionally topped with a tiled ceiling.
- ⑦ The burial evidences indicate the death of individuals at diff. ages starting from infancy to the old age.
The reasons of this spectrum are still to be concluded.

Eastern Chalcolithic

→ Bihar, Bengal, Orissa

→ Chirand^(Bihar) can be as the representative of

- ① Eastern chalcolithic.

It is located at the confluence of the Ganges & Ghaghara Rivers.

It produced huge evidence of ceramics of hand made Greyware and wheel made red ware & Brown and red Ware (In terms of pottery it can be compared to -

Kayatha culture. (But Kayatha can be seen as an advancement in terms of sophistication of use of wheel.)

Eastern region produced less evidence of wheeled pottery.

The ceramics were both utility based & decorative.

Diff. varieties of wares for decoration were found.

(2) Terra cotta figurines of serpents were studied by Krishnamurthy. It can be linked to Naga cult.

(4) Bhattacharya studied the types of dwellings in the eastern sector. Acc. to him, the initial people of eastern Chalcolithic were pit-dwellers who thatched their top. They later moved to over-ground living. Some of them even constructed houses in the branches of trees.

Chalcolithic cultures were considered to have merged with the pre-Vedic times of Rural & tribal populations. This happened with the increasing use of metals particularly Iron. Use of Iron was instrumental in cutting down vegetation, increasing agriculture with ploughing & in the establishment of states. The latter could be possible with the use of Iron weapons.

With the technique of Iron smelting becoming widespread, it was considered cheaper compared to copper & bronze and could be applied for diverse uses by all sections of populations.

and hence paved a way for advancement of technologies.

(Raj) Banas - 2100-1500 BC
(MP) Malwa - 1900-1200 BC
(MH) Torue - 1600-700 BC

- Daimabad is famous for discovery of bronze goods influenced by Harappan culture
- In West India & West MP; end of C phase is due to ↓ in rainfall
- 1st to use painted pottery
- ✓ - Founded 1st large villages in Peninsular India
- Didn't practice cultivation
- In South India, Neolithic imperceptibly faded in C and so these are called N-C
- ✓ - Copper Hoard Culture - Many copper hoards found at many places
 - Copper hoards found with ochre coloured pottery

(Neolithic-Chalcolithic - Muni - Pg-36)

① C settlements in South came into being when final phase of Neolithic. Thus, N mixed with C → so Santalids call's 'C' in SI as N-C.

② SI C transformed into Megalithic culture using Iron.

③ Tech:- Stone blade industry flourished

- Brahmagiri - Copper tools
- Hallur - Bronze tools, swords
- 3 types of earthenware
 - ↳ Black/red/purple painted P
 - ↳ Coarse surfaced P
 - ↳ wheel made P

④ Economy - Pastoralism

- ↳ Cultivation of millets

⑤ Social classes - chiefs - Rectangle houses
commoners - round huts

⑥ Religion - Belief in after life
- Burials in E-W direction

⑦ Arts - Copper bangles; Bead necklaces,
Hand woven cloth.

2-8-12

Megaliths

Grave stones

→ Practice of erecting stones to identify
as Graver is a ritual aspect.

Initially

Slowly they were commemorative

Slowly they became Monuments of Importance.

→ Baker- tribe in Mexico → Graves are palatial
constructed in batches and
families buried together
→ Spent huge amounts of time / wealth in construction
of graves.

→ (Akbar constructed Sikandra - his own grave)

Bust

Medieval

Ishqiahan grave - 2nd best → Sagarum -

Iltenich grave - smaller in size - but more intricate designs.

→ Living Megalith - Mostly in North. Baker

Types

- Menhir

- Cairn circle

- Rock cut caves

- Dolmen → in south India

- Cist

- On Harvest, Graves are offered food,
- Also, poorer sections of kingroup are invited.
- Death is celebrated more than birth.

fossil evidence ^{found} only in burying (not incinerating)

→ Burrying is most ancient form of dealing with Dead.

3

I - Megalithic Cultures

South Indian Megalith

Living megalith

II - Iron Age

Megalithic Cultures in India (1000 BC)

① Megaliths, otherwise referred to as Grave stones are associated with Iron Age in ^(esp. South India) India.

Whereas in Europe, they are mostly linked to Neolithic cultures.

The term Megalith was first defined by Wheeler as "The monuments that are built of rough, large, undressed blocks of stone usually though not invariably of sedimentary character. They are linked to barrows that fulfill funerary and commemorative religious functions."

Megaliths initially might have started (A/c to Gordon Childe) as Grave stones. But later got transformed into Monumentaries.

② They primarily reflect

① Material culture of the times

② Belief system

③ Availability of different types of stones indicating geological features of the time

④ Art & craft

The tradition of megaliths in India -

as was studied from the Iron age is referred to as south Indian Megaliths.

In several places of North & NE India,

Some of the ancient practices of barrow & megalith are still under use. They are

(ii) referred to as Living Megaliths.

J1

Brantlie discovered the 1st evidence of Megalithic in India in 1818. His 1st studies were in AP, followed by KTK and Kerala.

Babington in 1823 found tens of megaliths in Kerala. It was followed by the works of Krishnaswamy & Meadowes Taylor. Their work was mostly related to living Megaliths. All these archaeologists focused at the life styles of Early man, rituals, physical features, technologies & belief systems.

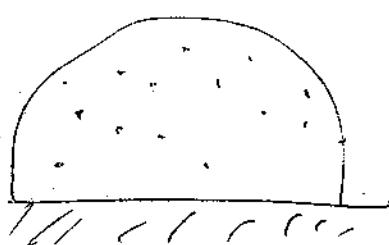
- (b) Acc. to Brantlie, 16 types of burial practices were generally found in Indian subcontinent
- other types of megaliths
- ① Menhir — ex: Maski, Gulbarga
 - ② Cairn circle — ex: Badagas in Nilgiris still do this
 - ③ Dolmen — ex: Anantapur, Chittoor - AP
 - ④ Cist — ex: WB, UP

Rock cut caves to house the coffins was sparingly used. It was more to do with the burials of royalties.

① Menhir (1000 BC to 300 BC)

It's the most prominent type of Megalith in which a large unprocessed stone preferably of a dome shape is affixed into the ground to indicate presence of the grave.

- Erected for chiefs of clans, elite who died in cattle lifting
- Denote economic power & social status of dead person



- Other than above 4, some other types of megalithic graves are:-

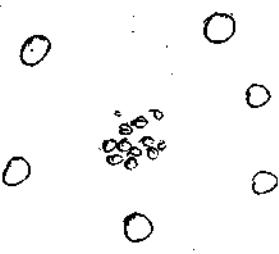
- ① Umbrella stone
- ② Rock cut caves
- ③ Head & hood stone

18

Branfil found the 1st evidence of Menhir at
Maski followed by Gulbarga.

② Cairn circle

It represents the heap of stone (or) rubble placed over the actual grave encircled by small pillar like stones as if providing protection to the grave.



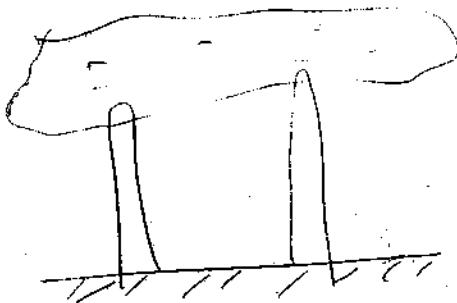
Recent evidences

Chengalpur - TN
Nayakund ~~Nayakund~~ - MH
Borsegoan - MH

Evidences from TN presented diff grave tools referring to the economic & social status of the dead individuals.

Among the tribes of the Nilgiris such as the Badagas, the practice of cairn circle is still found.

③ Dolmen



Dolmens as studied by James Cordley in KTK referred to the graves constructed with 2 pillar like stones vertically plugged into the ground of one (or) 2 slabs placed horizontally over them.

Brooks & Taylor found evidences from Anantapur in AP & Balnagar in KTK.

The most recent evidence of 1960, was from Madanapalle - Chittoor district.

(4) Cist

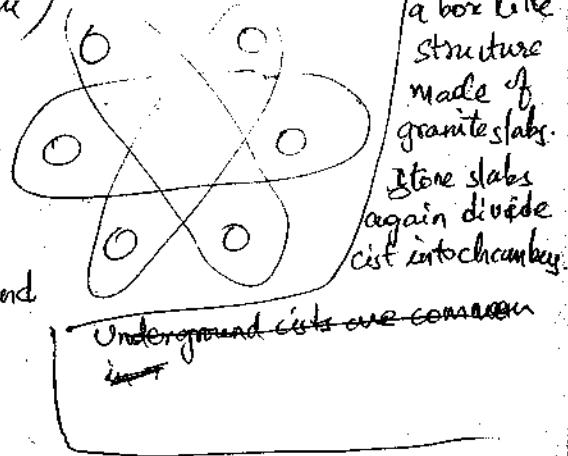
Sedentary Geographical region

Cist is an arrangement with small stones encircling.

the graves, & covered with slabs in diff directions.

Several such graves were found in Mithenapur - WB

Mirzapur & Banda - UP



Apart from these in Southern India, & in the western region of the Deccan, Rock cut caves are found where in the bodies are buried in the walls of the caves with the opening left thatched.

The royal families in Rajasthan have this typical South Indian Megalithic features

Meadows Taylor & Broek, based on studies from Hallur, Maski, Anantapur & Mirzapur, found

(5)

Megaliths useful in understanding the following aspects of early humans

- ① Habitats
- ② Art & craft
- ③ Technological level
- ④ Belief system

Habitations :- Megalithic people of South India, generally occupied the areas near to Perennial waters and raw materials such as sandstone & granite. More than 80% of Megalith evidences of South India were of Iron Age. They coexisted with artificial irrigation based agriculture. The grave tools reflect the riches held by them.

But their houses were simple, made of bamboo with thatched roofs.

Belief system: The practise in the Baker tribe of Mexico, refers to the elaborate rituals associated with Megaliths. Their graves are monumental, palaces & labyrinths. The dead are treated with offerings on a regular basis & on festivals.

Art & Craft

Megalithic people were experts in making diff types of ornaments of beads, jasper, terracotta, shell & glass. They worked on metals such as Iron, copper & Gold.

Paintings & motifs of the time depicted fertility cults & hunting seals.
In Marsiki, the grave art also presented troops of dancing girls.

Technology

Megaliths in India were confirmed to have belonged to Iron Age due to the advanced tools found in the grave. They include flat axes, chisels, knives & scrapers.

Sites in Maharashtra produced Iron arrow heads & tridents. Megalithic people specialised in carpentry, weaponry, pottery & jewellery making. Evidences of pottery include Black & red ware and Black ware with highly refined production on wheels.

Megalithic pottery invariably was painted white in the interior. Nevada produced evidence of hand made pottery placed in the graves. At Hallur, there was evidence of

earthen pitchers on the ground was used to bury the young ones.

Megaliths Outside South India

The burial practices of the nature of megaliths from East & NE India refers to living Megalith. Empirical studies in this regard are from Chhattisgarh, Bihar, Jharkhand, Eastern UP, Assam, Nagaland, Meghalaya & Manipur.

They show various features of early Megalithic practices, some of them being similar to the practices among the Koyas & Gadabas of AP.

In the North East, Khasis, Garos, & Naga tribes are still practising that.

- Ex:- ① The custom of erecting Menhirs (or) arranging stones in the honour of the dead is seen among the Gonds in Chhattisgarh
- ② Dolmens are erected among the Gadabas of Orissa
- ③ Cists & Menhires are found among the Ray Gonds, Savaras, & Koyas in AP and Central India
- ④ Khasis though practice many forms of Megalith, Generally prefer Dolmens.
- ⑤ Mundas of Jharkhand erect stones comparable to Menhires.

Evolution of Megalithic burials

5 stages

- ① Megalithic Cairn Circles
- ② Cairn circles with tall menhirs
- ③ Tall menhirs with Tamil Brahmi inscriptions
- ④ short menhirs " " "
- ⑤ Culmination of shortened menhirs into herostones

Iron Age

(Very recent - few thousand years ago)

- settled living
- established settlements
- Cities, surpluses
- centralised political system
- Iron - most powerful of weapons
- States originated

Time period

- Greece - 12th c BC (Egypt, Mesopotamia)
- India - 11th c BC
- N. Europe - 9th c BC

Evidences of Iron Smelting

- Gangetic Valley - 1600 BC (First to discover Iron smelting)
- Egypt - 1250 BC
- Middle East - 1200 BC

Individuals

Important discoveries

The formal Iron age, the process of setting in Iron smelting & the studies of weaponry of Iron were taken up Rakesh Tiwari. The currently accepted dates of onset of Iron smelting were based on his studies.

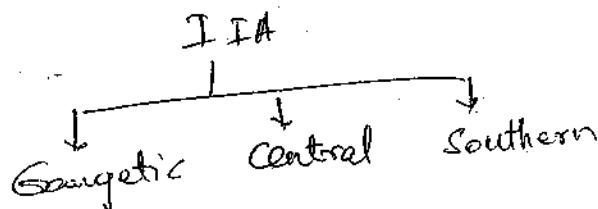
Clayton Cramor studied the origin of use of Iron. Acc. to him, it could be due to accidental smelting.

Carlyle Smith & Westine tried to prove Cramor otherwise.

After that, iron metallurgy resulted from the unintentional efforts of man for an alternative method, (Search) as copper was difficult to process & had limited utility as a strong metal for weapon.

Rakesh Tiwari categorised Indian Iron Age into (1970-80s)

3



Gangetic

explored by Tiwari in 2005. He studied the Iron smelting centres & dated them to 1800 BC. Earlier to him, a Harappan site of Pirak was considered to be the earliest in terms of smelting of Iron. Nevertheless, diff parts of Gangetic region could be traced b/w 1300 BC & 900 BC for use of smelted Iron.

Acc. to Tiwari, Gangetic Iron Age, had the following cultural characteristics

- ① Mud brickled houses (a feature of Pre historic times)
- ② Pottery made of Red clay with intricate bands on them. Such a pottery was hand made. Evidence could be found from the finger imprints on the pottery
- ③ Terra cotta figurines found in large numbers included horses, men, serpents, & camels.
- ④ Barley & rice cultivation that was for the 1st time found in Gangetic region.
- ⑤ The practice of erecting gawee in a single

Complex was found in Iron Age at Takshashila
of several other ancient gangetic cities

- (6) Most of the sites produced painted grey ware.
The pottery of the kind was thin when compared
to earlier ages. It could probably be due to
use of much stronger red clay & burning of
ceramic vessels at high temperatures in the
furnaces to about 800°C .

- (7) Some of the symbols of religious significance
such as Swastika found a presence.

Central India

Acc to Carley, Saurashtra, Malwa & Northern
Maharashtra can be placed under Central Iron
Age belonging to 1500 BC - 1200 BC.
It presented very limited sites with some
of the features from Northern Region.

Acc to Piggani, Iron Age formally didn't
exist in Central India. This region lacked any
personality of itself but the Iron age -
characteristics were the result of invasions
of Northerners who must have stayed for
a brief period of time in this region.

In Saurashtra, there was evidence of
2 distinct racial stocks with huge evidences
of copper tools co-existing with a few
numbers of Iron weapons. This could form
the basis of idea.

Southern India

In S., diff places south of the Vindhya's saw the arrival of Iron Age at diff points of time.

For ex. Heller region of KTK saw Iron Age in the early 2nd century BC. while majority of dozen sites saw the Iron Age b/w 800 to 500 BC.

These facts could be confirmed from the absolute dating of Grave tools & Burials.

Due to the huge volume of Burials, Iron Age in South India can also be called Megalithic culture. Some of the interesting aspects in this regard include:

① Evidence of large urns with collected bones of previously incinerated bodies found with Iron Objects.

Tiwari considers it a link with warfare (or) may be the beginning of the ritual of collecting the Incinerated remains of the dead individual.

② The practice of Cists which is a unique feature of South India

③ Certain sites in the deep South produced - Sarcophagy (mummification) (High importance in Egyptian) which was related to the aspect of mummifying the dead in the coffins was seen among the affluent & the royal families.

Acc to Tiwari, the practice of Sarcophagy was mostly found in the sedimentary regions.

In the region of Ajanta, such evidences were found along with black & red ware pottery which is not a local version. It indicates long distance trade.

General A - Neolithic Age

Iron Age in Africa

" " in Europe

Apr 10/2016 - Iron Age - Rock paintings found in TN.

25-5-12

Chapter 3 Economic Anthropology

(Ember)

Social Anthropologists study the cultures of contemporary primitive communities — Piddington

objected by Malinowski — coz its focus is narrow — keep aside primitive communities

Social Anthro is that part of Cultural Anthro which devotes its primary attention to the study of Social structure and religion rather than material aspects of culture

— S C Dube

based on American school
(coz in India social & cultural is not differentiated)

D N Majumdar questions — religion doesn't it exclude material aspects which are closely linked to man. (Ex. coconut breaking)

It is a comparative study of human societies
Ideally it includes all societies primitive, civilised & historic

— M N Srinivas

Culture ^{defined} Malinowski
S B Taylor

Society — closely knit people with similar culture
— one defining society based on cultural aspects.

concerned with culture per se, whether it belongs to productive men of stone age (or) European City - dwellers today
— Beale & Haiger
(This is a bit biased def.)

Ember Categories

- ① Ethnology
- ② Familial Anthropology — study of social structures, institutions
Ex- families, kinship, marriage
- ③ Economics //
- ④ Political //
- ⑤ Semiology & Linguistics
- ⑥ Thought & art

* Every study is done across Time & Space

Economic Anthropology

- Piddington — Contemporarian of Taylor — hence some similarity.
- study of diff. kinds of economic life & its evolution
 - It aims (by Ralph Piddington)
 - ① To gather information about economic human nature
 - ② To study the processes & results of economic contracts.
 - ③ To study primitive society & economic institutions in their most elementary form

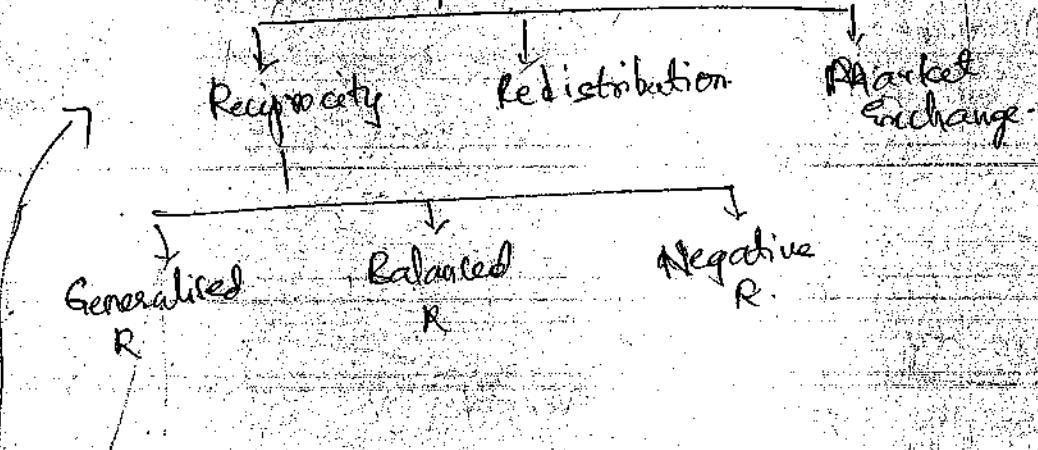
Milimowski was student of Piddington

Modes of Exchange

15

Types of Exchange

(Karl Polanyi's Categorisation)



Exchange → refers to the practice of giving & receiving valued objects & services

Discussion started with Piddington & grew with

Malinowski

Too biocentrics → is economics everything in

Herman societies?

HUMAN SOCIETIES
Question → Is modern Economics sufficient
to define

Karl Polanyi gave Categorisation above.

~~Def of Exchange~~

TP defined exchange as a mechanism of patterning trade in resources, goods, ideas & services.

He especially refers to economic exchange which is a universal aspect of human facilitation.

of maintaining a society & creating
structure in a society.

(for all practical purposes, exchange is economic)

Ex: Female exchange if considered exchange then female is commodified.

Institution

Marriage was closely related to Economic Exchange,

but what exchanged ^{under} went change

Ex: Initially ^{only} Services then ^{later} Money was involved

Reciprocity

It's the exchange of Goods & Services without the involvement of money.

(But on certain occasions it might involve money)

① Generalised Reciprocity :-

A → B

(one way)

refers to exchange of Goods & Services without any apparent expectation of a return

Ex: Parental care in all societies

② Lorna Marshall → !Kung Bushmen

Study of Distribution of hunt among

(every family gets some share of hunt)

③ !Kung of Kalahari desert

↓ - They share less when there is scarcity

(Mastered preserving meat)

so they don't share when less

only share when more

thought initially it's ① environment

② Technological

③ Cultural → Personality trait

Unexplainable reasons
why people don't share

Some people share
some don't

(4) Yana Mamo of Brazil
 ↓ share perishable goods
 (Horticulturalists)

(5) Eskimos/ Inuits → don't share
 ↓ but they aren't homogeneous group
 one group of Netsilik Inuits who share
 when food is available more
 Thus linked to G. I. Areas

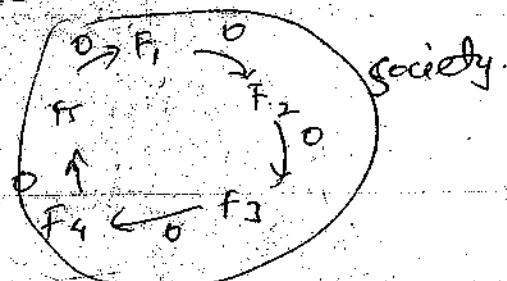
Hence we can't draw a clear cut line whether
 Environment (or) Technology decides exchange

Karen Strømmer → studied Generalised R' in
 the context of female exchange

studied western French societies

Immediate
 exchange is not expected
 but you will get something
 from somewhere

↓ was criticised for making female commodified



Polyanyi says - Generalised R takes place b/w kinmen
 closest

scarcity

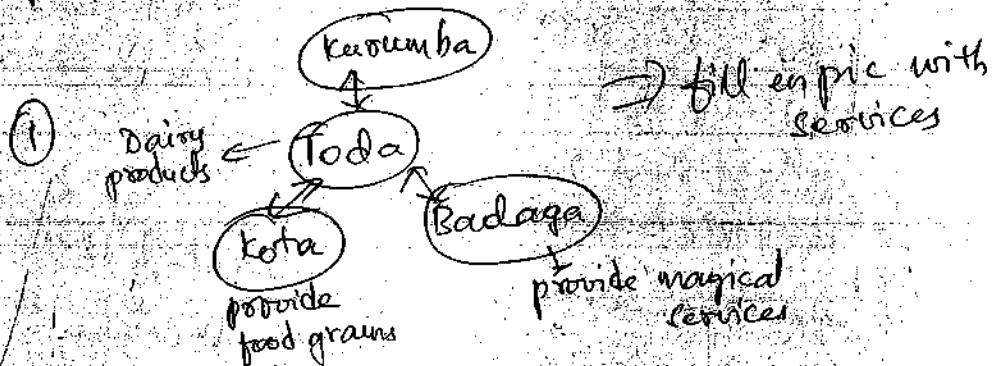
solality
 trait
 people share

b) Balanced R

A \leftrightarrow B

refers to exchange of Goods & services of nearly same value (or) an agreement is made with respect to the time period of return.

Ex:-



① Kula ring exchange - Trobrianders

↳ fixing of Time frame is clearly seen here

② Iroquois Indians

↳ sharing Deer skin with neighbouring Europeans in return of Iron tools implements

In such cases, there emerged concept of Limited purpose money. (Our currency is All purpose money)

Ex:- Andaman

Islanders

→ Blankets is

↳ exchanged for wheat

but can't get Iron (or) buffalo for blanket

↳ King Bushmen → Inspite of GR, there is BR

↳ donkeys are LPM.

BR - happens btw Distant kinsmen & friends

BR was also studied by Ember among

Enemy Groups

When one is transacting with it is most often Negative Reciprocity.

(C)



Ember → Ex: Bargaining in Market
Though there is no enemy group,
when money comes in
practiced in

both BR, NR

Silent bazaar → btw enemy groups

Ex: found among Semang & Selae enemy tribes
of Indonesia

② Veddas of Sri Lanka

↓ (similarities with Indians)

Marriage

Hunting group - need Iron implements

have established village systems
But Blacksmiths are considered inferior in

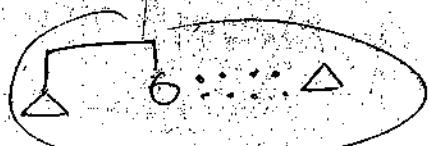
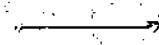
Social status.) are considered undesirable.

Veddas Vs

Late Dark
Economically advanced

are also known for

studied by Malinowski



all 3 have to be
suicide

Kinship
behaviour
(Avoidance)

Avoidance b/w Brother & sister.

Brothers are brought up in diff environments to
prevent incest taboo.

This was quoted by Freud.

Westermarck doesn't agree with this possible take.
says Familiarity doesn't breed contempt.

C) Negative R

refers to exchange of resources (or) Goods b/w individuals
coming from far or Groups (or) enemy groups.

They always try to maximise the benefit.

Aspects such as slavery, theft, Bargaining are
considered examples of this exchange.

Ex: Marudja - A tribe in Australian aborigines

live in desert so water is scarce

↓ Non rivalry exchange for women.

- has a system of moiety (tribe divided into 2 halves)
and these 2 moieties are (Ex - Toda)
antagonistic

② Nuer, Dinka → South Sudanese tribes.

(powerful in Darfur)

practise Negative Reciprocity.

③ Semang & Sakai

④ Navajo Red Indians

animosity with Iroquois Indians

Redistribution

exists at chief's levels

All socio-

refers to the accumulation of wealth for future distribution. It is considered to be important for maintaining one's own political supremacy

Ex:- (Pot-latch)

① Tsembaga pigfeasts

② Pigfeasts among Eding societies of Indonesia

③ Trobriand islanders distribution of Yam

④ Majumdar → gives examples of Joint family for redistribution in Indian societies

⑤ Bembyaro tribe - Uganda

have a chieftain where the chief accumulates wealth in the form of food grains, clothes, fur, blankets, housebuilding material to be distributed to the needy.

⑥ Kwakiutl - pot-latch (study)

Chief give away his riches

pot-latch among → studied by Franz Boas

Market Exchange

In Economic Alogy, Evolutionary approach is followed
in studying Markets → changed products

(Similar to paper-2 Markets -

but examples of International cases to be mentioned
in paper)

Market - studied by D N MacCurda

→ Phases →

compared with Yanomos of Brazil :

originally used to add miles to the

Peripherial Mkt → once in a while markets.

exchange of bananas for corn → main crop

But later currency was used.

Same he compares with Indian tribes

Thus Market changed from (i) clear kinship based
to Non-kinship based

(ii) Utility to Non-Utility based.

(iii) Non-profit to Profit based.

(Book-Social Alogy)

Paul Bohannan - 5 basic types of economy

① H & G

② Herding

③ Horticulture

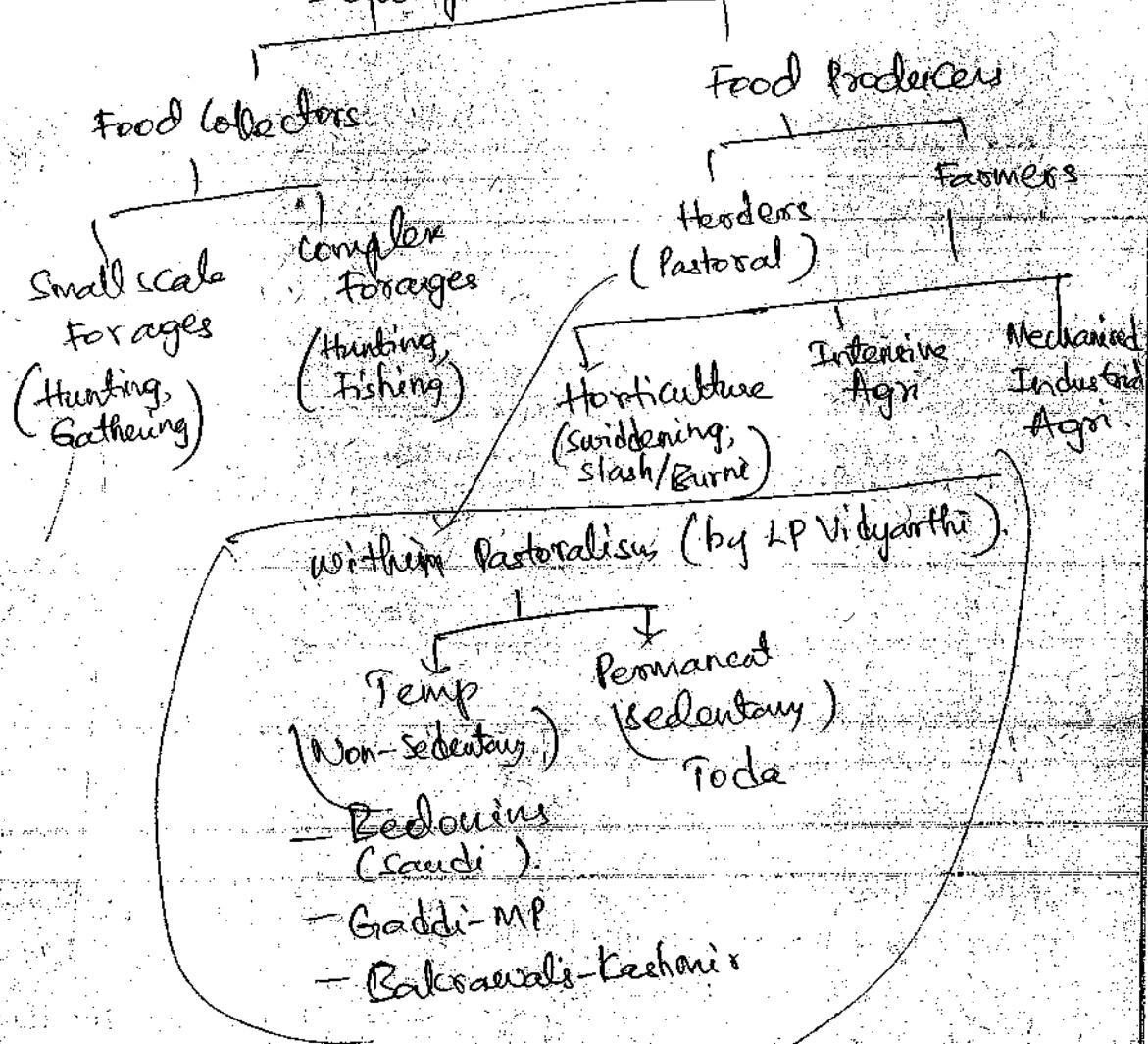
④ Agriculture

⑤ Factory Industrialisation

Subsistence Strategies

followed

mentioned
1 paper)



Categorisation of PB is water tight

- Ecosystem
- Examples
- Division of labor
- Technology
- Property ownership
- Demography
- Modes of exchange

Sorber gives examples in these points.

(both Indian & Foreign tribes to be added)

Division of labor — sex — female role also changes based on type of economic subsistence.
 (Sorber gave a chart)

E.P. Vidyarthi

Ex:- Fishing - Pointers, Nets, material items

Property ownership

When moving from subsistence to Industrial in between - Horticulture - then started private ownership

Ex:- Bushmen lives in Bands-

thus resources are divided.

Though yet there is a

earlier it was community ownership

Demography

HG

→ Industrial

Avg Density change

Habitations → change from

Land size is not fixed

Ex:- More food - Land size increases

Modes of Exchange → Rec, Red, M.E. 3 terms to be used

Ex:- HG -

Redistribution - only when moves from Band to chiefdom

— So till we go to pastoralists, there is no Redistribution²⁰

- Within Markets - Agri Markets - Industrial Markets

(One question from one type of subsistence)
whatever might be the type it is not pure

John Dalton
marketeless societies
societies with peripheral markets
Market societies

All to 4, market originates when economy has developed to such an extent that food items in surplus; Craft & labour specialists offer what laymen cannot produce

marketeless societies
↳ sprung [tribe]
↳ Special purpose money

↳ Peripheral markets ↳ shandys
↳ Trobriand

- Tribal mkt in India (shandys)
- Markets in Trobriand islands
- Markets in Rossel island
- have market places not markets
They are just gathering places where peoples renew their friendship interact, gossip

Market societies

- ↳ have real markets
- ↳ Money is used
- ↳ Trade is based on market principles demand & supply
- All trade is market trade

Tribal Markets in India
are studied by
Sachidanda,
LP Vidyarthi,
Martin Orton

Trade in simple societies
↳ Gift trade
↳ Administration Trade
↳ Market Trade

Gift Trade - links the partners in relationship of reciprocity
- Gifts have to be repaid in near future
- Creates obligation to return

Admin Trade
- More or less formal
- Carried out by treaty
- Trade runs through govt controlled channels

Market Trade - Demand & Supply

Case study

Vidyarthi's study on
Ocean markets -
(core area, peripheries)

Indian Markets diff types

- Bazaar
- Heat
- Pathia
- Shandy

Band to

Globalisation & Indigenous economic systems

I.E.S - refers to SS of simple societies
- not contaminated

Ex: Foraging, food collecting, Pastoral

→ Case studies in these categories to be given.

→ Regions of Tribes are rich in resources. Hence outsiders are interested at any cost
→ Physical elimination
→ Genocide
→ Pushing them to distant lands

General impact

- ① → Genocide → killing large people on basis of race
- ② → Ethnocide → Devastating cultural elements → forcing people to leave optional cultural aspects
- ③ → Forced shift in occupation.
- ④ → Displacement onto highly marginal lands

Paul Kluckhohn gave general impact of Globalisation on Simple societies

Ex: East coast of China - Highly Industrialised
Traditional people's food habits altered heavily
This is an instance of Ethnocide

(or)
Forcing Ethnocide could be willing (or) forcible

2 kinds

Realised
that one belief
system is
not corr.
has something
wrong

Somebody is living

Bidyaarthi calls
this also
forced
but Paul says
it is willing

Forced shift →

Ex: Western China

Displacement into highly marginal lands

Ex: Ngangpi hills

Jaxawas region

Impact this is the first impact

On foraging societies

(San is a ^{sub}tribe)
can is a group
can is not a moiety

① San of Kalahari -

- cultivation of maize, melons, tobacco
- SWAPO
- Snatching of hunting territories
- Monetisation
- Reciprocity disappeared
- Demographic changes - sedentary living, concentration of population - epidemics
- Alcoholism

- With Europeans entering Western Kalahari, Major change happened in occupation

② forced cultivation - especially tobacco

Hunger killed lot of people

- SWAPO - organisation in Namibia (West Africa)

(South West African
People's Organisation)

is a rebel group (emerged Guerrilla group)

Govt
Namibia

Indigenous people SWAPO works for their rights

Europeans

Govt

Borders in Africa were drawn by Europeans without acceptance of natives.

Ex: Namibia - border goes into a tribal region

Govt is not representative of all tribal group

(gave weapons to natives
as Govt wasn't supporting)

- New diseases - Malaria epidemic

M BUT J PYGMIES

(African ^{sub} tribe)

- Increased nutritional problems
- Displacement
- Genocide
- Arrival of MNCs for mines
- Environmental pollution - deforestation, water bodies, deculturation

region rich in Aluminum

- Chad is the region

- Tall pygmies - 7 ft

- Protested - Hence Genocide

- Depend on Tuber - major food

Mining activity - direct attack on nutrition

- They have seasonal belts of tubers

- At same time, water bodies got contaminated

(Impact of Globalisation on Dalits in India)
(MNCs)

(National Social Development Forum)

After 1990s - Land shifted from Dalits to MNCs.

to natives

- Govt of Chad earlier had pgs like India for land distribution⁴
- But with MNCs coming, this got diverted

Horticultural & Pastoral societies

① Imaginaries Indians

- Fur trade (Antelope hunting)
- Intensive hunting by European traders
- Forced out of traditional habitats

② Yanomamo

- Construction activity (in banana fields captured)
- Exposure to influenza, dysentery, measles

③ Bedouins - Donald Cole

- Oil trade - entry into Saudi National Guard (as drivers)
- Relatively peaceful transition
- Herdsman dealing with donkeys & camels - the COZ they know routes in deserts

④ Nuer, Maasai, Dinka

- Recruited in SPLA (Sudanese Liberation Army)
- Items of reciprocity changed from cows to weapons

SPLA - Guerrilla Org brought independence to South Sudan

Western & Southern Sudan

- Dominant tribes of East Sudan formed Govt with Europeans for oil - South people was neglected
- Hunger, land grabbing made them to revolt

- Moderate West & South Sudan tribes brought independence to mainstream South Sudan populations
- McLeais became traders in weapons

Revivalist Movements

- Ghost Dance Movement - Nevada, California -
 - ↳ Led by Wovoka
- Peyote cult - Oklahoma
- Hawaiian Renaissance

1980s → Lands captured for big industries, mining

Brian Fagan

Clash of Cultures

- Depopulation - coz of new diseases
- Deculturation
- Fragmented social community
- Increased warfare
- Alcoholism

Degraded environments

dependence

2.3 Marriage Regulations

Marriage

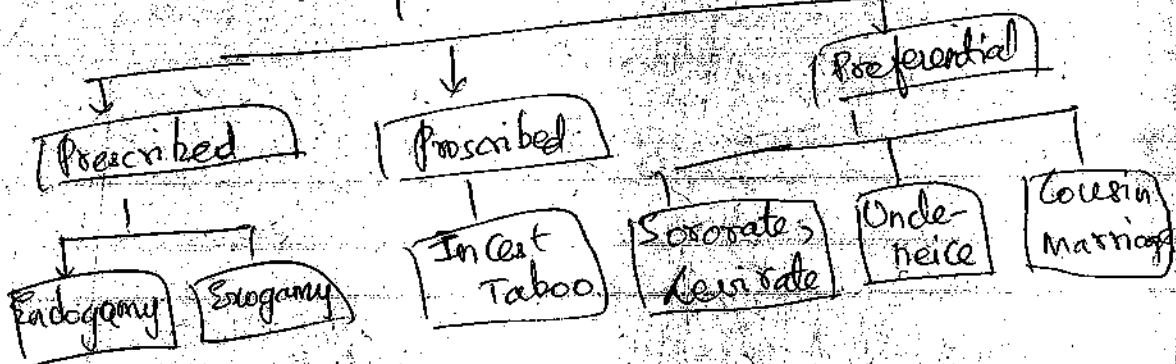
Madan & Madan -
Introduction to
social Alogy

Social polygyny

$$\Delta = \{ \text{O O O} \}$$

Ember gives reasons of diff types of marriage

Regulations / rules of marriage - by Needham



Diff b/w 3 - what is the reward / punishment given for choosing / not choosing

Ex: Proscriptive - serious (violations) punishments
sometimes death

Smallest possible interaction group - nuclear family

Biggest " " " varies from society to society

Proscriptive Next highest punishment for violation of rules.

Preferential

If choosing from here - then rewarded / appreciated
" not " " " - then not reward / punished.

Sororate

$\Delta = \text{♂ } \circ$ — women's sister is a potential co-wife.

Levirate

$\circ = \Delta \square$ Can be younger (or) elder brother of husband

found in Bride-price societies

Uncle-niece marriage

$\Delta = \circ$

Cross generational marriage

$\circ = \Delta =$

Cousin marriages

$\Delta = \circ$

4 types

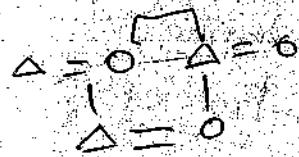
① Patrilateral parallel cousin — children of 2 brothers get married



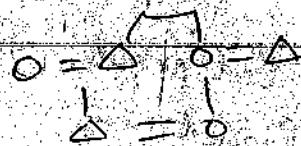
② Matrilateral II cousin



③ Matrilateral Cross cousin



④ Patrilateral cross cousin



28-5-12

~~Ques~~ (*) Understand reasons why particular endogamy (ex) exogamy is practised?

Prescriptive

↓
wrote up
- incest taboo

34

Endogamy

Categories

- Religious endogamy
- Regional "
- Tribe "
- Village "
- Minority "
- Caste endogamy - Maesi, Tutsi-Twa

→ Madan & Majumdar's book

Endogamy refers to the rules under which an individual has to choose his/her mate from within his/her culturally defined group.

Types

Ex: sects within Religion

Ex: endogamy Muslim - Shafei, Sunni

Sikh

① Religious

Also sect-based endogamy inside Religion

② Regional E

→ linked to caste Endogamy

Ex: Naga (or) Hill Plains versions of Naga

③ Caste E

Tutsi - Caste

AT Twa

Maesi

Nearly similar to

Hindu Caste

Ex: hierarchy, communalism

Caste & Regional E

Major diff is there in diff food habits, Rituals

④ Village E

→ Arunachal Pradesh & Assam

Reason is that no need to understand But in mainland India - Village exogamy is followed in many tribes

(Study by Madan Majumdar in Lucknow in
Rampura village (100 families)
Village economy is present

Hence it is linked to 500 villages lot of Marriage
Tribal E
In general tribals ~~are~~ are endogamous
except when they have emergencies (food, etc)

Moiety e

Ex- Todas, Khasas, Bhile

Folio

Ujale Maile
(Purer) (Distiller)

Moieties are arranged in hierarchical manner.

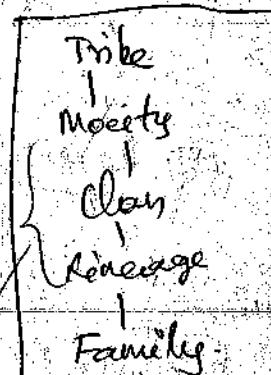
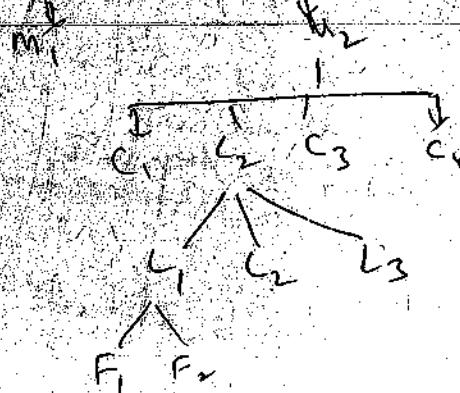
- higher Moiety can marry lower Moiety (female)
(Ugale) ^{Male} (Maile)
 - Not Vice-Versa

Rhile - (Trikke - Carte Continuum)

→ got sanctified - adopted caste structures

Hence the Moieties had further divisions.

Tybe



→ A tribe needn't have M, C, L, but will definitely have families -

A General feature is if there is clan - then no need of lineage. But lineage would ease the task of linking to humans. But this is possible only in presence of records / evidences. If no evidences then have a story to link it to clan directly.

Categories

Reasons

Reasons for Endogamy

- ① Fear of strangers
- ② Cultural differences -
- ③ Purity aspect -

ex- Caste endogamy

- Brile

- Trobriand Islanders - Moiety one superior
other less
superior

(Dog & Pig)

- ④ To keep wealth intact

Ex: Royal families of Inca kingdom

Todas - Fraternal polyandry
(Adelphic)

↓
endogamy within Moiety
(Ex: Kosra endogamy)

- ⑤ Fear of Witchcraft & Sorcery by neighbours

→ Restricted Exogamy - Ex: India

→ Un Restricted Exogamy - Ex: USA

Exogamy

Categories

- clan

- Lineage

- Village

- Phratry - intermittent to Moiety & Clan

Ex: Naga tribe

→ Tiger phratry -

within 1, several clans

→ These clans link themselves with one part of tiger (or) the other

In Gondu - trace origins to Teak plant (Joint forest Mgmt)

But Nagas - ~~Ferguson~~ - In general, don't hunt tiger

... on one occasion, tiger is butchered.

Village

Ex- Raniura

Reasons for exogamy:

- By Band societies - E B Tylor

For Food security
to maintain peace with other bands

- Variety in life - Herbert Risley

→ Familiarity breeds ^{Avoidance} contempt - Westermarck

→ Food shortages - Audrey Richards
^{band infidelity} ⇒ getting woman from outside

→ Food shortages - Audrey Richards

Cousin Marriages

- Patrilateral Cross Cousin

- Matrilateral Cross Cousin

- Patrilateral parallel cousin

- Matrilateral parallel cousin

examples

- Trobrianders

→ Plantation farmers
in Brazil

- Bedouins

both cross & parallel
but prefer
Patril marriage

- Bantus prefer
Cross cousin
marriages

peculiar
case of Bantu - A veen cu local

Avuncu potestal

→ Mother's brother decides
on issues

(*) - Avuncu lineal

proper

→ (origin traced to
maternal circle)
for property but
not biological only

Hegel - tribe in South America
 Tracing of Material aspects - Father
 Tracing of Ritual aspects - Mother

Ancunclehood - If uncle doesn't have sister she
 doesn't have son, then lineage stops.
 Hence struggle b/w uncle & his own son for
 property given to sister's son.

Bantus → Pastoral
 Hence brother-sister relation not conducive.
 coz of power struggle.
 Hence the children are soon as they are born are
 shifted to uncle's house to avoid rivalry.

Extreme endogamy leads to PTT & mentally challenged people
 in Assam Tea plantations
 - Shristi NGO works for

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INSTABILITY IN MARRIAGE (DIVORCE)

→ Some societies divorce is easy & some difficult.

Rights over wife

→ Domestic & Economic

→ Sexual

→ Rights over the women's children.

Divorce in different societies

✓ Band Societies

Ex Ju/hoansi

Kung San

Inuit

✓ Tribal Societies

Evans Pritchard - Bride wealth

Roger Keeling - matrilineal societies

Ex Trobriand

Zuni

Marital instability was studied by John Beatty in her work "Grocery MI in Industrial societies".

Acc to her, Instability in marriage depends on different factors such as Authority,

Rights, locality, Polygyny, Bride price etc.

If transfer of diff rights such as Economic, Domestic, sexual & rights over her offspring are incompletely transferred to the male, then instability occurs.

John Beatty analysed MI in Polygynous societies. Polygyny is a factor responsible for ~~Gen~~ Jealousy. Among the Bantus, Polygyny is opted due to Barrenness (or)

(DIVORCE)

Infertility - This feature is responsible for Jealousy resulting in Divorce.

Marital Instability leads to different instances of separation such as emotional unattachedness, physical distance & sexual distance resulting in a big way to the possibility of dissolution of marriage.

Many Unstable marriages are forced to continue due to the external reasons.

Beatty analyzed the instability among Band societies, Tribe-level societies, Agricultural communities & Modern Industrial states. In all of them she found a combination of the easy & difficult annulments of the Marital relation.

① Band societies

In most cases, Divorce is easily accomplished.
Ex-1 Among the ! Kung !an, divorcee are frequently initiated by wives on simple matters related to compatibility.

The San do not have rigid rules and complex kinship relations forcing the incompatible couple ex-marriage. Hence, instances of divorced couple living next to each other with new spouses is common.

Ex-2 Among the Inuit, divorcee are frequent & easy due to lack of strict rules of marriage or post-marital residence.

Ex-3 - Tu / hanti - Central African tribe facilitates easy separation for incompatibility.

④ Inegal Societies

Evans Pritchard studied diff reasons & conditions for divorce for tribes.

He studied Nuer of Sudan & produced a detailed Monograph.

Nuer is a patrilineal society where divorce is linked to Bride wealth.

"Greater is the Bride wealth, more complete is the transfer of rights over women to the husband - Lesser is the Bride wealth, more unstable the marriage is!"

How

Locality rules decides Instability

Patrilocality -

Matrilocality -

Trobriand Islanders both exist

Melanowski sees Patrilocal \rightarrow more stable than Matrilocal

Roger Keesing - studied matrilineal societies in Latin America, Africa & Oceania.

Acc to him, Divorce are more frequent in Matrilineal societies than in Patrilineal.

In Hopi & Zuni societies (Matrilineal), a woman has only to put the husband's luggage outside the door of the house to secure divorce.

~~easy divorce~~ Different types of societies have diff levels
of ease (or) difficulty in dissolving marriage.

In Khasi, Divorce is a public ceremony permitted for Adultery, Barrenness, & Incompatibility. It is allowed on mutual consent, with the desiring party paying compensation.

Leehia tribe

If the husband demands a divorce, he shall pay complete bride price & seek a divorce.

But if a wife demands (or) if he is involved in Adultery, she should pay back the bride price.

Gond & Kharia

Among, \downarrow divorce is allowed for Laziness & Sterility.

Mahalis

Among \downarrow divorce is allowed for incompatibility but village Panchayat takes the final decision.

Ho

Among \downarrow , divorce is allowed for Infertility & Barrenness.

In case of Adultery of the husband, wife can obtain divorce without paying back the bride price & making husband pay for the trial bride price.

Kosrae

Dissatisfied the husband can ask his wife to leave, refusing to maintain her.

She can remarry within the husband's lineage. Divorced women are sought after in Kosrae.

(Majumdar says - Kosrae have elaborate marriage rituals - if female is divorced - then she has to perform extra rituals & have more powers)
Divorced men are looked down

In certain communities, such as Mundurukas, divorce is obtained easily by both men & women allowing them for having multiple mates simultaneously (or) in succession.

Difficult Divorce

According to John Reilly, when societies move into agricultural mode of economic subsistence with solidified gender stratification, along with established religiously ordained doctrines, annulment of marriage becomes difficult. For Ex:- In the mainstream Hindu society, marriage was traditionally considered a sacrament valid for a lifetime.

Sometimes, culture contact brought in possibility of divorce. Sanskritisation of tribes infused difficulty in marriage annulment.

Ex:- Among Bihis → sanskritisation led to controls imposed on divorce.

On the other hand, among the Lakshadweep Islanders, Islamisation led to easy divorces.

③ Agricultural societies

For most part, divorce was rare in agricultural societies coz families were generally extended, there was a need for cooperative agriculture & the role of female was considered ^{status} to be highly inferior. In such a case, divorce would lead to destruction of women in an already unequal society. It is seen in

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The traditional village India - where marriage ^{is}
is considered sacred and legal divorce is not
permitted.

- A) In Industrial societies, the new legal
systems facilitated easy divorce. Little social
stigma is now attached to divorce.

Why increase in divorce

- Nicky Hart - "When Marriage Ends"

① Functional view

② Marxist view

- Talcott Parsons

- Randolph Fletcher

- Good enough, Edmund Leach

In the recent past, literature related to defunctioning of marriage & functions of divorce have been published in huge quantities. This is in response to increase in % & numbers of divorces, especially in Industrial societies.

Acc to Nicky Hart (^{book} "When Marriage Ends") the increasing rate of divorce is due to:

① Dissatisfaction in the marital relations.

Once the romantic love ends, the actual situation leads to conflicts.

② Financially independent women prefer to break a bad marriage

(3) A shift from joint family & family from being a unit of production to individualistic decision making increased divorces

(4) The change in value system & emerging multi-culturalism, alternatives to the institution of marriage to perform the functions facilitated easy & widespread divorce

Acc to Goodenough & Edmund Leach, this picture doesn't establish disinterest among societies towards marriage.

Acc to them, most often the divorced couple would resort to re-marriage. It indicates that there are growingly higher expectations & stronger attachment of individual towards the institution of marriage.

Reasons for Marriage instability / Divorce in simple societies

- ① Adultery / Infidelity - Ex: Muria Gond, Sawara
- ② Sexual Impotency - Ex: Baiga, Gond, Santhal, Oraon, Bhil
- ③ Quarrelsome spouse - Ex: Muria Gond
- ④ Stinginess, laziness, violent temper
- ⑤ Mistreatment (or) cruelty of husband Ex: Sawara, Koya

3 imp solutions to solve problem of Marriage Instability given by Murdock and William Stephen

- ① Annulment & informal separation
- ② Divorce & separate living
- ③ Divorce & Remarriage - Ex: Muria Gond, Bhil, Oraon, Santhal

Divorce may be defined as institutionalised method of dissolution of marriage.

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Kinship

40

- Kinship terminology systems
- Descent - types

Political Allegy

- Social Control
- Dispute settlement
- Evolution of political system

Def by Peter Murdock

→ Socially recognised relationship b/w individuals
within a family (or) within a group established
by Marriage (or) Descent

Descent

- Socially recognised link b/w a person and his/her ancestors
- Determines the flow of rights, property & lineage from one generation to another

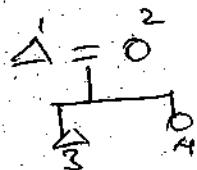
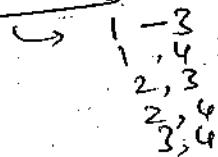
Rules & types of descent

(*) Terms used also determine the behaviour with kinsmen

Within Nuclear Family

+ 2 types of terms

Concanguinal ties



Affinal kins

- 1, 2
So, it is Marriage first, family next, (in between also we find kinship)

Troglodytes studied by L H Morgan (with first to use questionnaire)

interested in kinship terms

are imp coz of 2 reasons

① to show how imp they are!

② who is a male is decided by the terms!

Primary kin → Blood related (or) by marriage

Secondary kin → Primary kin's Primary kin

Tertiary kin → Primary kin of Secondary kin (or)
Secondary kin of Primary kin.

PK - Ex: Husband, wife, brother, sister, Father, mother

SK - Ex: Uncle, aunt, niece, sister-in-law,
Father's brother (Mother's brother)

TK - Ex: Uncle's wife,
Mother's

~~Misnomer~~

Grouping / Clumping

① → using same terms which are used for
our father, mother to show same respect

② Clumping can also happen (when respect is
not shown) → to show unimportance
Ex: Uncle, Rhaiyya

⑤ Rivers uses a 3rd type - family system of terms - referring
to members of a single type biological family individually

⑥ No place in world where either pure descriptive (or) pure classificatory
system of nomenclature is used

⑦ Some popular systems are Hawaiian, Eskimo, Troglodytes, Crow, Omaha

Ex

to use
etymonies)

Kinship terminologies + (pg-47 - Chart)

① Kinship terms refer to the culturally defined terms used to address one kinsmen. These labels designate the individual's position in the kin group.

The 1st breakthrough in the study of Kinship terminology systems occurred with

② Refer Morgan's study of Iroquois Indians.
He categorised Kinship terms into

(a) Classificatory terms

(b) Descriptive terms

③ He tried examining aspects such as

a) closeness in the kin relationships, link

b) birth locality rules & Kinship terms

determining

④ Role of Kinship terms in predeciding
a potential mate

⑤ Importance (a) cent importance attributed
to a kinsmen

Among the Iroquois, he observed
"Lumping (a) bunching" several kinsmen
under one head (a) Kinship term.

He referred to such terms as Classificatory
terms.

On the other hand, usage of elaborate
⑥ distinct terms to address kinsmen is
referred to as descriptive terms.

Most often descriptive terms indicate
importance given to the kinsmen.

Ex:- Such a system was found in the
Sudanese society, where every individual

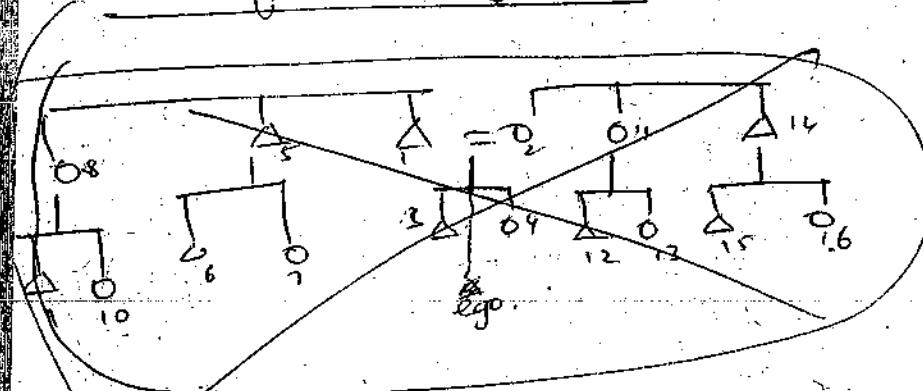
kinsman was addressed by distinct terms &
each one of them has a prescribed function to
be performed in the society & has specific role

towards the other kinmen. In certain kinship terminology systems, such as the Iroquois, Mary McDowell noticed usage of the terms in the nuclear family to the other kinmen (in the classificatory terms). This shows importance given to the kinmen outside the nuclear family.

- ④ In the later times, Anthropologists studied kinship terminology systems to understand the changing importance of kinmen in the society.
- ⑤ For Malinowski, kinship terms & their study are a futile exercise. For him, the role played by the kinmen is what matters & not the term used to address that.

Kinship Terminology Systems

Iroquois system

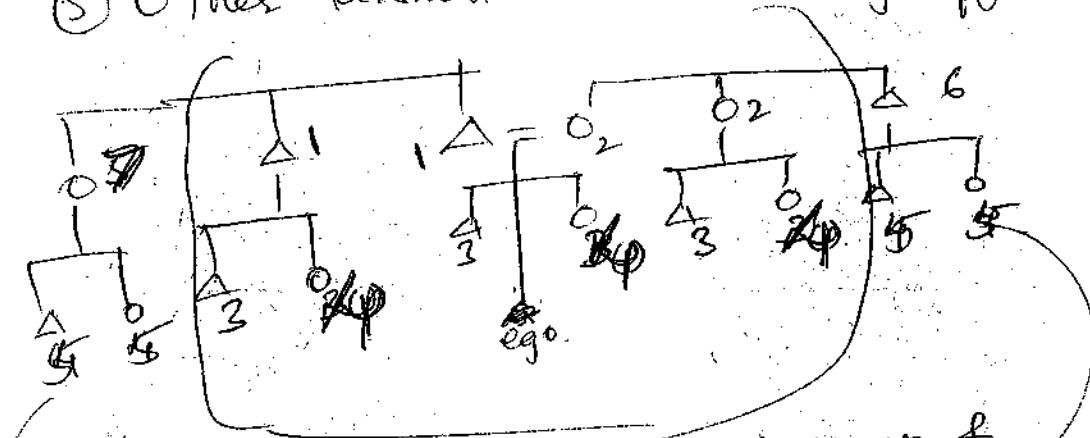


- ① Father & Father's brother have the same term
- ② Mother & Mother's sisters have " "
- ③ One's own siblings & parallel cousins have a same term with gender specificity
- ④ Cross cousins called by same terms with no gender difference
- ⑤ Generally found in unilineal descent groups - esp. matrilineal

kinship
genealogies
terms
kinship
rules
fraternal

sts
to understand
the
heir
ways
it matters
etc.

⑤ Other kinmen are called by diff. terms

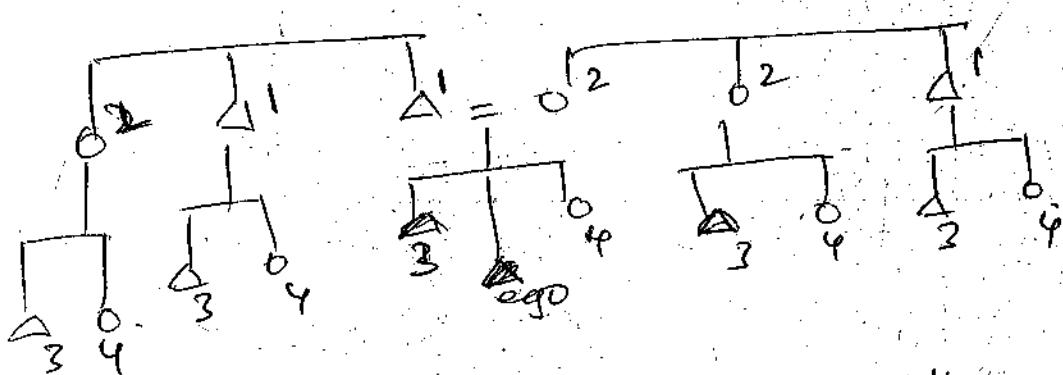


This shows that X is a closed group & extended family

- outsiders form a potential mate to inner group

Hawaiian kinship terminology

- ① Individuals in the parental generation are called by the same term with gender difference
- ② Individuals in each generation are called by same term with gender difference



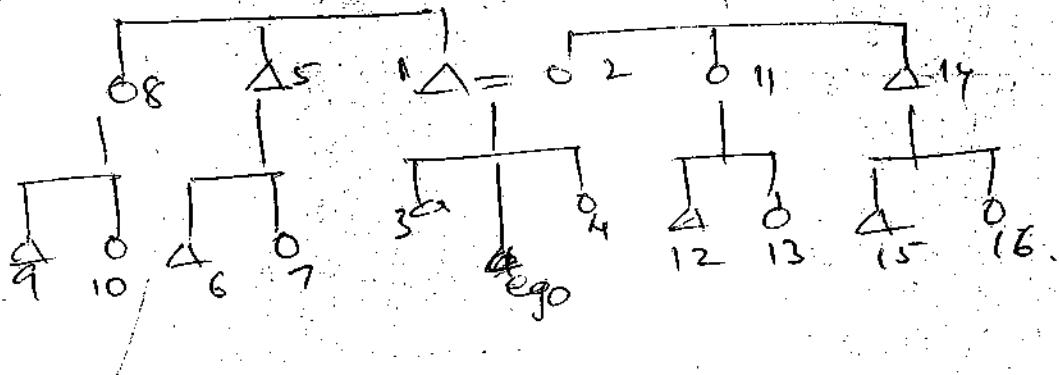
Hawaiian are very well knit societies

- they live in bands (exception core band size depends on food scarcity)

- All the group stays together irrespective of availability of food
- Marital links not possible

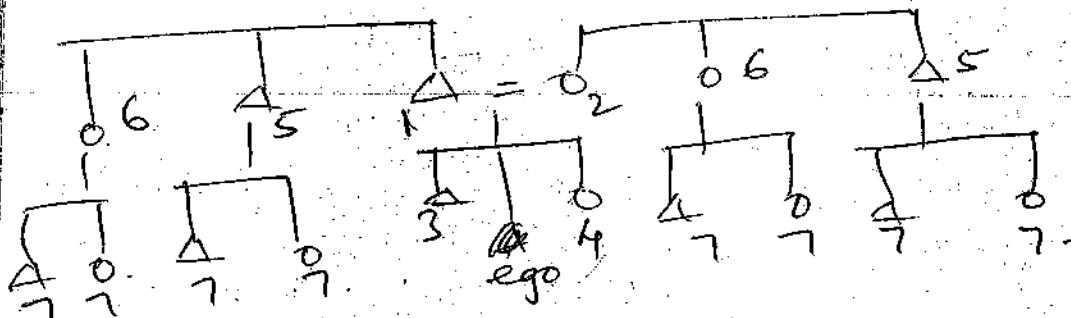
Sudanese society

- ① Each individual has got his/her specific descriptive term.



Eskimo system

- ① Individuals in nuclear family have distinct terms
- ② Individuals in parental generation other than ones own parents have similar kinship terms with gender difference
- ③ within ones own generation, other than ones own siblings, all other kinsmen ~~less~~ are addressed by the same term without sexual difference



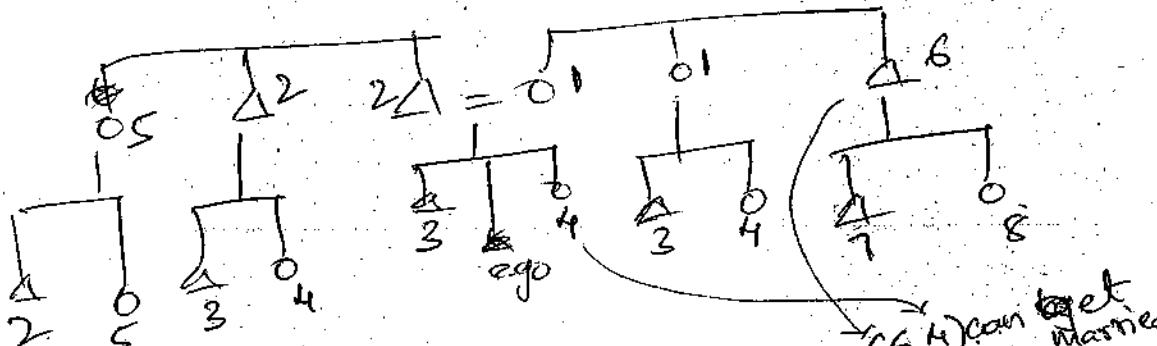
specific

(*) Crows Indians

- ① Mother & Mother's sister have the same term
- ② Father, Father's brother, Father's sister's son have the same term
- ③ One own siblings and parallel cocaine have the same term with gender difference
- ④ Father's sister and Father's sister's daughter have the same term.
- ⑤ Other kinsmen have diff terms with gender difference

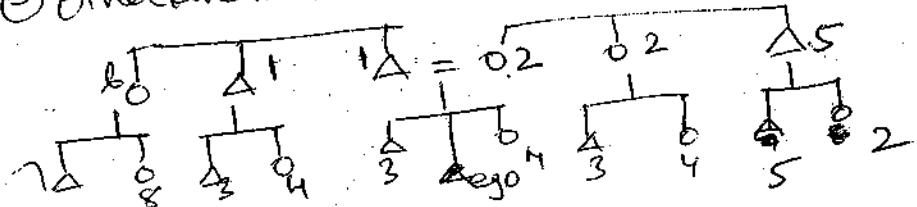
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- Complex system
 - there are cross-generational marriages
 - Cocaine on maternal side are potential mates
- OMAHA → has mirror lineage of Crows

- ① Father & Father's brother have the same term
- ② Mother, Mother's sister, Mother's brother's daughter have same term
- ③ One own siblings & parallel cocaine have same term with gender difference
- ④ Mother's Brother & Mother's Brother's ~~son~~ daughter have the same term
- ⑤ Otherkins have diff terms with gender difference



Omaha → needn't father's side preferred for mate

Descent

- Patrilateral descent
- Matrilateral descent

Patriliney Patriarchy Patrilocal

Matriliney is not a mirror image of Patriliney

Ex:- Nayars.

(Matriliney but
not matrarchy
as wife decides)

Rules & types of Descent

These are the rules that connect an individual with particular sets of kin because of known (or) presumed common ancestry

① Unilineal descent

- ⓐ Patrilineal "
- ⓑ Matrilineal "

② Double descent

③ Ambilineal "

④ Parallel "

Unilineal descent

(Tracing descent through either Paternal
(or) Maternal line.)

These are the rules that direct an individual to trace descent through any one line of
Parentage, i.e., it can either be patrilineal
(or) Matrilineal descent.

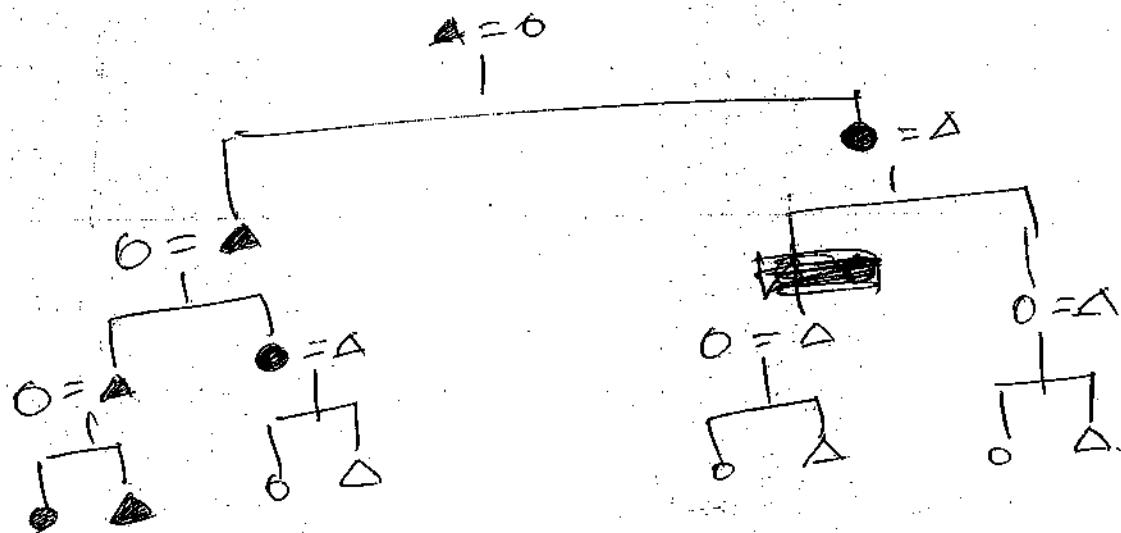
+ males

(A) Patrilineal descent

(or) Agnetic/Male descent

In this, an individual traces descent through male line. It is only the sons who can transfer their rights & obligations to the next generation.

Though daughters trace their origin to their father, their children's identity is guided by their husband's family line.



- Ex:
- Hindu Society
 - Islamic societies
 - Tiko-pela - West Pacific - Raymond Firth
 - Mossi - West Africa by Hammond
 - Classical Romans
 - The Chinese - (Mainstream)
 - Yanamamo
 - Nuer - Pritchard
 - Luo - Kenya
 - Lambada
 - Chenchu
 - Yerwadi
- ↓
(studied criteria)
of Race &
Race Boundaries

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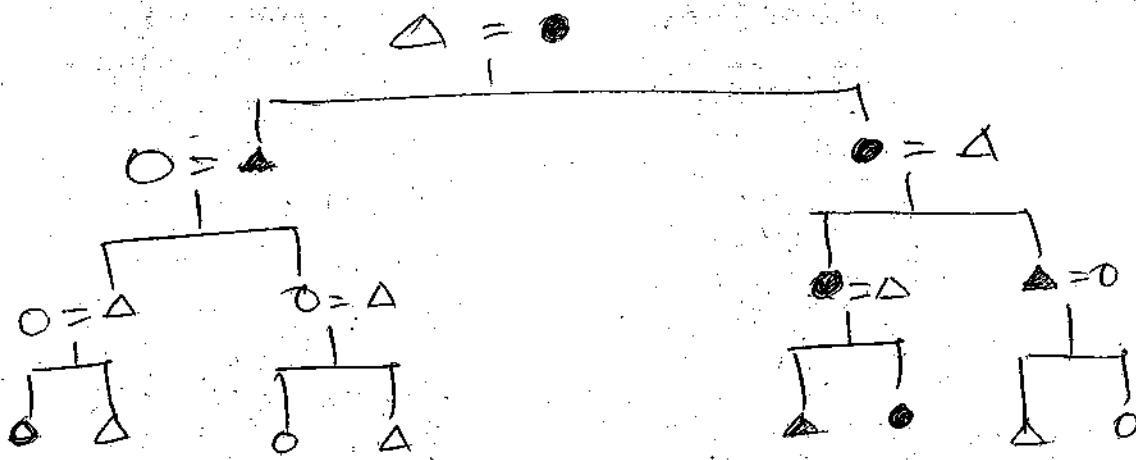
Most often Patriarchy goes with Patriarchy & Patrilocality.

⑥ Matrikinical descent

An individual traces descent/origin through female line.

Male members of each generation are identified through their mother's family members.

Though descent passes through maternal line & women may have considerable powers they do not hold exclusive authority in the descent group. Instead they share authority with their brothers.



Acc. to Raymond Firth, matrilineal descent is usually found in the horticultural societies with more contribution from women to the economy. Such societies have weak marital links & strong brother-sister links.

Divorce rates are high with frequent remarriages.

Sr's Ashanti - Ghana - by forces

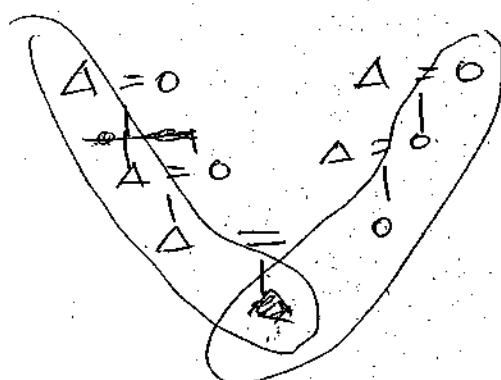
- Khasi
- Nayar - Kathakalee Gough
- Navajo Red Indians
- Tzotzil - Malenovski
- Trunk - Goodenough
- Rantu
- Akan - Ghana
- Australian Aborigines

Matrilined
Patrilocal

R.C. Brown
studied
power
structures

Double descent

An individual traces descent from both
paternal & maternal lines simultaneously.



An individual inherits some of the cultural traits from maternal line & certain others from paternal line.

Sr's Yako tribe of Nigeria (Pastoral) studied
① by Daryll Forde

② Vendas - Western Africa

In these 2 tribes, title goes through
the maternal line & productive resources
through Patriline.

③ Heredity of Africa

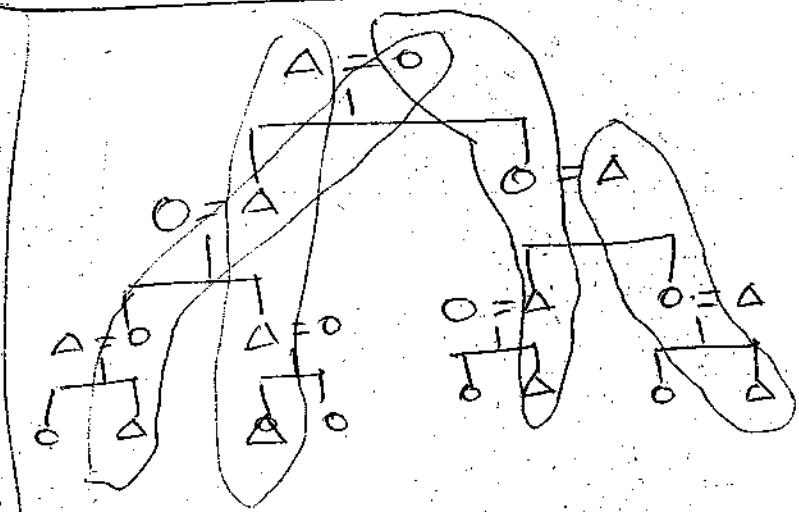
- Material property passes through Matriline & religious functions through patriline.

④ Ashanti of Ghana is generally matrilineal but spiritual principles such as NTORO; RYONS pass through paternal line.

(It is said that in modern societies, double descent is followed)

This system easily changes into Ambilineal descent.

③ Ambilineal descent

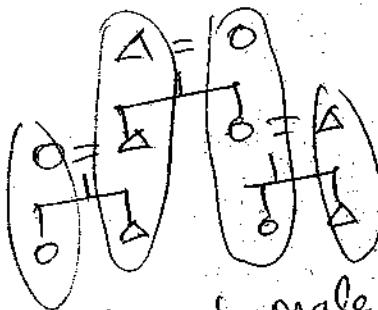


mostly famous in Bandlevel societies
(You go where there is food ☺)

Ex:-

- ① Samoans
- ② Kwakiutl
- ③ Hindu society in the absence of male child.

④ Parallel Descent



Males trace through male
Females trace through female

Ex: Saha - Spain - studied by Santa Marta
Dimasa - Arunachal studied by DN Majumdar

Locality

Patrilineal descent - Patri-local
Matrilineal " " - Matrilocal (exception trobriandes)
Matrilineal " " - Patri-local

Double descent - Ashanti - Patri-local.
Vendas - Matrilocal.

Thus (Predominance of Patri-local in case
of Double descent)

Ambilineal descent - Either Patri-local (or) Matrilineal

Generally, wherever one is located,

the same is descent

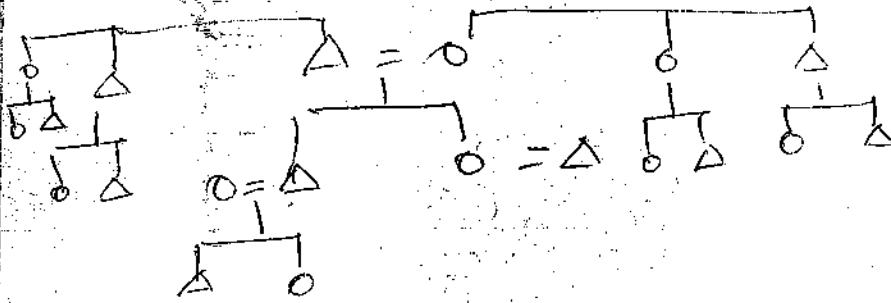
Ex: If Patri-local then Patri-

Parallel descent - Business communities
where women are at a
higher level -

Ex: Saha, Dimasa

Locality is not specific.

Kinship



Kinred

Refers to those kinsmen with whom an individual establishes a close link irrespective of Descent.

→ No 2 individuals can have the same kinred except those of siblings.

Locality rules / Residential rules

The rules indicating the pattern of residence i.e., the place where the newly wed couple are to live.

Ember-statistical info

~~Patrilocal~~ - 67%

Matri - 12%

Bi-local - 7%

Average - 4%

Neolocality - 5%

(*)

By

Term & refer

Patrilocality — Couple stays with/mear husband's parents

Ex: - Tiv
 - Nupe (top of Nigeria)
 - Most Indian tribes
 - Pueblo Viejo or South America

(*) Matrilocality

→ Navajo (Indians)

→ Khasi

→ Miskito (Arabia)

Avunculocality

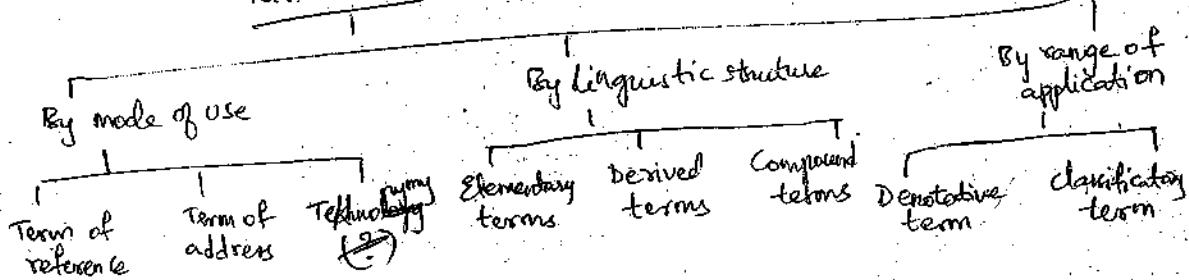
- Agni (West Africa)

- Losap Islands (Oceania region)

→ Corolline Islands

Murdock's classification

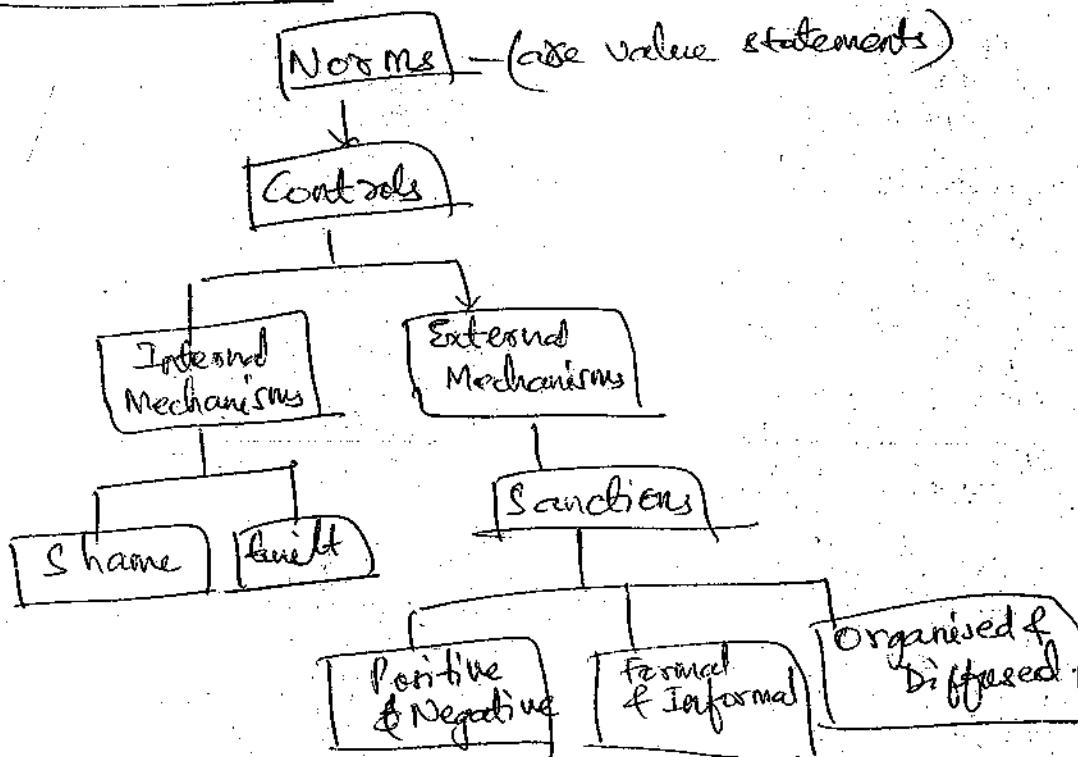
kin terms



Chapter 3 Political Anthropology

- Social Control (Studies evolution of political systems)
- Law & Justice in Simple Societies (Dispute Settlement) " "
- Evolution of Political Systems

Social Control



" Simple societies are lawless societies
 " " " are more violent than peaceful "

The above was one of arguments:

(Bill & Hoega - book focused on Dispute settlement)

Important studies

- Ancient Society - Henry Maine 1861 (Evolutionist)
- Law of Primitive Man - Hobel and Esprit Des Lois 1952

46

Dispute settlement Indian examples are found in
Madan & Nagamdır - Intro to Social Anthropology

Question was do simple societies have law

Dispute settlement

Admin of Law & Justice in Simple societies

Peaceful resolution

- Avoidance
- Community Action
- Negotiation & Mediation
- Apology
- Oath fooded
- Adjudication

Violent resolution

- Individual Violence
- Feuding
- Raiding
- Large scale confrontation

Avoidance → Best way to resolve conflict

Ex: Icharis - If marriage within clan - then punishment
is extermination.
Excommunication

Community Action

→ Punishment could be violent but entire
community decides.

Ex: Nigeria - female conceives before marriage,
entire community comes up and
decides punishment (Peltig of stones,
Penal feast)

Polynesia - Penal feasts are popular.
As long as feast is on, the convict
should ask for apology.

Apology

Negotiation

Mediation → In case both can't communicate with each other
Adjudication } difference is → 3rd person tries to convey
 } 3rd person acts like Judge

Melanesian Societies — Big Man does the role of
Mediator & Adjudicator

Ember gave example of "2 groups - a murder happened
Go run and take asylum in Big Man's house."

Oath & Ordeal

undergoing certain severe process of taking Oath
Majoranda → to → You have to prove that u havn't done the crime
Ex:- Touch red hot iron

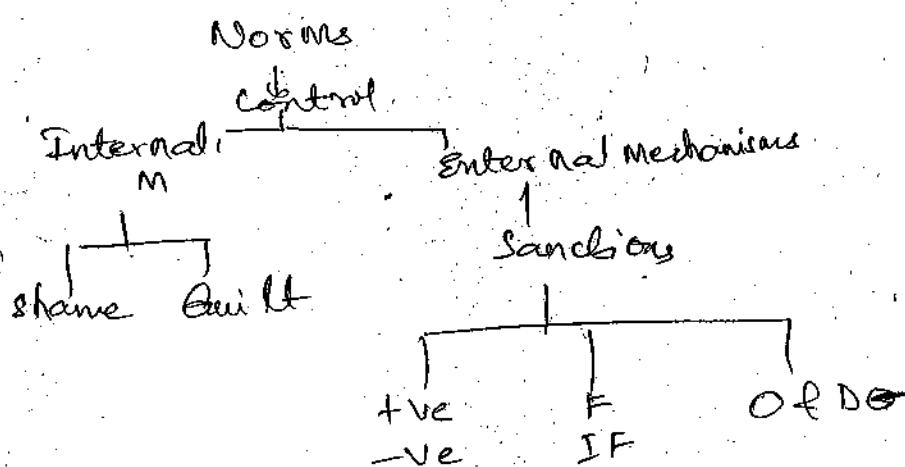
30-5-12

Social Control

- ✓ The term SC was 1st defined by Henry Maine in his book "Ancient Society" in which he tried to trace the origin & evolution of political institutions & systems of law. it operates as a stable
McIver's way in which entire social order continues to maintain itself as a changing equilibrium.
- ✓ The term refers to the socio-cultural mechanisms that seek to maintain order in the society by regulating individuals. Every society develops cultural needs to encourage conformity to the norms & order of the society.

These controlling mechanisms that are predominantly moral code for the members of the society, are termed as Social Control.

Paul Bohannan in his work 'Social Abrog' categorised the social control mechanisms as under:



Regulations of individual behaviour through
Social control under internal & external
mechanisms was the core of the works
of Paul Bohannan & Morgan Hoebel "The Law of
Primitive Man"

The internal mechanisms are inbuilt in
the individual such as Guilt & shame

Guilt according to Bohannan is linked
to the belief system & fear of supernatural.
When these mechanisms fail, external control
mechanisms come into picture.

Forte, Raymond Firth & Bohannan categorised
External control mechanisms into Positive &
Negative sanctions; formal & informal sanctions;
Organised & diffused sanctions.

- (a) +ve sanctions refer to rewards ^(or) appreciation
like Public awards, professional degrees etc.
- (b) -ve sanctions are punishments ^(or) awarded
for inappropriate behaviour.
Ex:- Restricted access to goods & services,
Gossip, Ridicule, Too very polite
treatment, Ex-communication etc.
- (c) formal sanctions refer to mandatory legal
statutes. It is generally believed that codified
laws is a feature of literate societies
civilizations & societies at the level of state
but exceptions do exist.

Ex:- Ashanti of Ghana, through a preliterate society, practicing food collecting economic subsistence, has a highly complex codified law from which the punishments (or) sanctions for every trivial & major offence in the society emerge.

⑥ Informal sanctions are imposed by social pressure & indirectly due to the legal sanctions by the society. They can be called Conventions. Gossip & ridicule come under informal sanctions.

⑦ Diffused sanctions refer to decision making by the society for approval (or) disapproval of an act (or) behaviour.

In diffused sanctions, the entire community take part.

For Ex:- Among the Nyakasa of Nigeria -
in case of the practise of witch craft, the expected individual is pelted to death by community decision.

On the other hand, the Organised

⑧ (or) centralised sanctions include positive & negative awards ~~by~~ the highest authority.

Organised sanctions though are a major feature of ^{state} societies, they are also found among the chieftains practising pastoralism & potlatches. Hence acc. to Senber, no single society can be put under a clear cut -

Categorisation of modes of social control.

Though broad generalisations can be brought about with regard to increasing

Complexity of sanctions as the societies advance from Band to state level.

All the societies have different combination of all the major social control mechanisms discussed above.

Hence even in the so called the most modern societies, Informal Diffused sanctions along with Internal social Control mechanisms exist.

defined as a social norm whose violation beyond permissible limits evokes a formal procedural response

Law & Justice in simple societies

(05)

Dispute settlement mechanisms

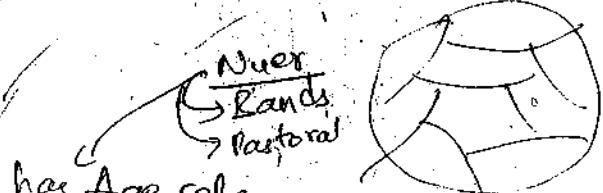
- 1 Henry Maine defined law as "binding rule" created through a custom (or) enactment.
The law tries to achieve a reasonable behaviour by the individual both in the simple & the complex societies.
- 2 Early Anthropologists believed that simple Societies are "lawless societies". Hence, initially, while tracing the evolution of Law & Justice & Political Organizations, they categorised societies into those with existence of law & those that are lawless.
- 3 In the early 20th century, there established a broad consensus among the social Anthropologists that both simple & complex societies do possess a law with the only reference that simple societies are devoid of a set of written laws.

See advance
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comes
2 most
of sanctions
mechanisms
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ons.,
ie with
lets.
blished
logists
possess
simple
then laws

Laws in simple societies is characterised

by
① Kinship being the predominant institution
rather than any other territorial organisation

Ex:- The role of
individual in
the band
Organisations
of Nuer of
Sedan
establishes
the strength
of kinship



Nuer
Bands
Pastoral
has Age sets
every group has
functions to society

Ex:- Elder group decides on conflicts.
Young " does manual labour

Ember says "if some band people move to other
band - a situation conflict arises - then these old
join the existing old"

Nuer - has Band Exogamy
→ have strong kinship ties (though they are
not band level
societies.)

② Most problems
are settled by public opinion

(or) community action.

Ex:- Song duel (method of community decision making
in case of Eskimos)

Su:- You want to preserve the
hunt (fish); some one
stole the
You go to community to
solve the problem.

The early thinkers opined that law in
simple societies is largely criminal in nature.

✓ It was refuted by Lowie through his
study of Kwakiutl society.

He identified that both civil &
criminal modes of dispute settlement exists
in simple societies. Nevertheless, the justice
in them is faster than the complex societies.

Kowley categorised the Dispute settlement mechanisms as under. (Intro - pg - 54 left side)

① Peaceful or Non violent resolution ② Violent resolution

- Avoidance
 - Community Action
 - Negotiation & Mediation
 - Apology
 - Oath & Ordeal
 - Adjudication
 - Divination
 - Conditional Curse - *"If what I say is not true then may the supernatural destroy me."*
- f Individual
- Feuding
- Large scale Confrontation

② Non-violent resolution mechanisms

① Avoidance

In this an individual's behaviour is corrected by imposing restrictions on contact with other members.

In societies at band level, this is a bigger punishment than any physical torture as the individuals depend on others for fulfilling their needs.

✓ Among the ! Kung Bushmen, an individual who doesn't share his hunt with the kinsmen is considered to be inferior to the big & ~~the~~ he is ridiculed & avoided.

Khasis → Ex-communication

✓ Kharia →

② Community action

In Band level & pastoral societies, entire community participates in decision making through voice vote.

Offences from simple to highly complex are resolved in the shortest period of time through community decision.

Malinowski's study of Maidee, refers to the instance of punishing a witchcraft practitioner. Societies in Africa such as Nuer, Dinka, Bedouine of Saudi Arabia use community action to deal with cases of adultery & premarital sex.

③ Negotiation & Mediation

In this the parties involved in the dispute settle the dispute through discussion. Sometimes a mediator such as Big Man or Leopard skin chief of Nuer of Sudan mediate.

The cases of murder & theft are handled by these pompous chiefs.

④ Apology

A Community Apology based on the willingness of the guilty to show obedience & ask for apology can be seen in Fiji & Inuit societies.

A person involved in offence offers a ceremony of Apology called "I SORO" (I surrender) in which he bows down, remaining silent throughout the ceremony till his apology is accepted.

In Polynesian societies, Penal feasts are a result of community decision & an example of apology.

⑤ Oath & Ordeal

Oath refers to invoking supernatural to stand witness to a particular act. This mechanism regulates the individual behaviour so long as the belief & fear of supernatural exists.

For ex:- D N Majumdar's study among the Maler refers to invoking their Gosains in case of theft. Similarly among the Ho, oath is taken in the name of 'Sing Bonga'.

Ordeal refers to the individual undergoing painful tests in order to establish his innocence.

Among the Ho, Maler & Birhor, the accused has to lick rock salt, ~~or~~ on fire to prove innocence.

Instances of placing hand in boiling water or oil to disprove guilt exists among the Tanala of Madagascar.

Acc. to John Robert, the use of Oath & Ordeal is seen in relatively complex societies where political officials lack sufficient power to regulate law & order. But as societies move (in terms of James Frazer) from Magic-to-Religion to Science, these practices exist more as ~~the~~ Relics of the past.

② Adjudication

Justice dispensing mechanism in this case is through a 3rd party involving in Negotiation & prescribing punishment (or) action.

Ex:- Ashanti of Ghana,
Leopard skin chief of Nuer

In the Ashanti, though a simple society there exists a military force, the chief of which gives judgements based on the elaborate codified laws.

~~③~~ Violent means of Resolution

It is generally believed that violent resolution is the feature of simple societies though it is not unique to them.

Most of the simple societies consider

① Individual violence is an appropriate way of resolving dispute on certain occasions.

Life for Life, Head for Head is accepted in this sense.

But repeated violence resulting in series of multiple killings is considered to be an offence. This is seen among the Nagas & Melanesians.

② Feuding → refers to recurrence of hostilities b/w Group(s) families motivated by a desire to take revenge against a murder. It might include injury, insult (or) a ^{counter} ~~retaliate~~ murder.

Study by Nicholas Gustav among the Inuits refers to the series of murders

reported to key a husband to retaliate against his wife's lover. This instance led to several decades of feuding.

② Large scale confrontation

Usually, such a resolution of dispute is practised among societies with high complexity such as Agricultural & Industrial societies with a standing army.

Ex:- Horticultural tribes of New Guinea plan

large scale wars to capture pasture land from the neighbours.

The state societies possess the qualification of having a standing army for such a resolution.

Hence Ember concludes that various methods of dispute settlement are linked to technological level of the society, complexity & the importance given to the kinsmen.

(c) modes of dispute resolution are culture specific

both
are
same

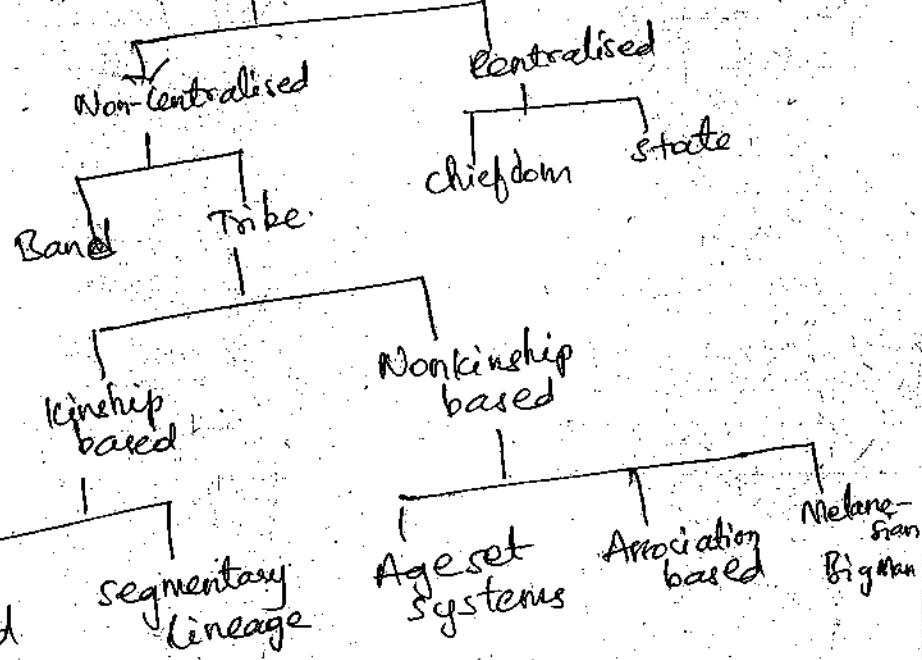
Evolution of Political Systems

(Types of Political organisation)

Political system is the one that governs

Elman service categorisation
(evolved from Diffused to Centralised)

Types of Political Orgs



state & non-state less → Band, Tribe, chiefdom, stateless

Centralised / Non-centralised
both are same
cephalous (non-cephalous)

Meaning of State

Most imp feature of state — an entity ^{that} has a standing army
specific org to take care ^(b) _{force} of diff functions.

(In Band level → Big Man does everything so there is no specificity of function)

- specialisation is feature of state
- Imp. feature of state for Alogy — standing army
 - Chiefdom — whenever there is a crisis, people come together

Political Org (or) Political system refer to the means by which a society maintains order internally & manages affairs with other societies externally.

It is a system of social relation that provides for coordination & regulation of individual behaviour.

The early Alogists such as Henry Maine, Bastian & Bachofen believed that the societies moved from stateless to state. According to Elwan Service, they moved from Acephalous to Cephalous with the change in Technology.

Elwan Service was both an economic & political Alogist & hence he studied evolution of political systems along with the notions

of profit, emergence of General purpose money, & the concept of individual (or) private property. For him, the need of institutionalised political systems emerged from the requirement of solving disputes related to money & resource.

① Band level societies

Band is a political org. Its a group of nearest kinsmen who are continuously on a move.

It was the earliest & simplest form of political system generally found in the food collecting economies such as hunter gatherers.

- Leaders in Band level societies are informal & non-permanent
- Leadership is not hereditary
- They are chosen based on their ability to successfully guide the hunting expeditions
- Their skill of food collection, communicating & predicting on the availability of basic resources decides their continuation as a leader
- Among the Inuit, the elderly man who can decide is chosen as a leader. He is called I SUMAITOQ (a man with skill, a thinking man)

- In political systems
- who is leader
 - ↳ gender
 - ↳ Age
 - ↳ social strata
 - ↳ Is the leader individual (or) group
 - ↳ selection (or) election
 - ↳ what powers/ authority he/ they possess
 - ↳ Dispute settlement
 - ↳ Resource allocation
 - ↳ Power to reward (or) influence people
 - Reverse dominance
 - ↳ by Christopher Boehm
 - ↳ Bushmen - community

- Leaders in the Band Society have no political authorities, as the society is unstratified.

Acc. to Christopher Boehm, Band Societies are marked by reverse dominance i.e., leaders controlled by the led.

The people use ridicule, criticism, dis-obedience, strong disapproval & outright rejection to control the leaders.

The leaders in bands in terms of the I Kung bushmen have no powers but are endowed with heavy responsibilities.

Acc. to the I Kung "All one gets is the blame if things go wrong". Hence leadership is accepted with selectance & hesitation with

With respect to conflict resolution, the band societies have not many conflicts due to des (or) no private property & profit motive. & hence leadership there is ceremonial

→ studies of Eskimos.

(by Roy Rappoport)

→ " Western Shoshone

(USA)

→ R.C. Brown's study of Bands from structural perspective among Andaman Islanders & Australian aborigines

(Hordle - is the band)
(used by Brown)

② Tribe level societies

Tribes involve a decentralised political system similar to the band societies. The authority is informal & Non-permanent, distributed among individuals, groups (or) associations. But they are at a higher complexity than Band level societies.

Elman Service identified

- ① Kinship based solidarities &
- ② Non kinship based political Orgs.

Kinship based solidarities

are categorised into

- clan based political systems &
- Segmentary lineage-

clan based political systems

(ONLY BT)

In many tribal societies, clans do exist, tracing the origins of individuals to a remote ancestor who can be an animate (or) inanimate being. Within each clan, the elders form the ruling council to maintain law & order and to solve disputes.

The clan elders decide issues from choosing mates for marriage to economic, civil & criminal disputes

In some cases clans are organised in a stratified manner.

For Ex:- Among the Winnie Bago Red Indians there exist 12 clans organised in a hierarchy

- Each clan has specific political functions.

Dispute resolution involving members of diff clans is the function of the highest clan.

Lineage based political system

(ONLY BT)

found in the Tiv of Nigeria

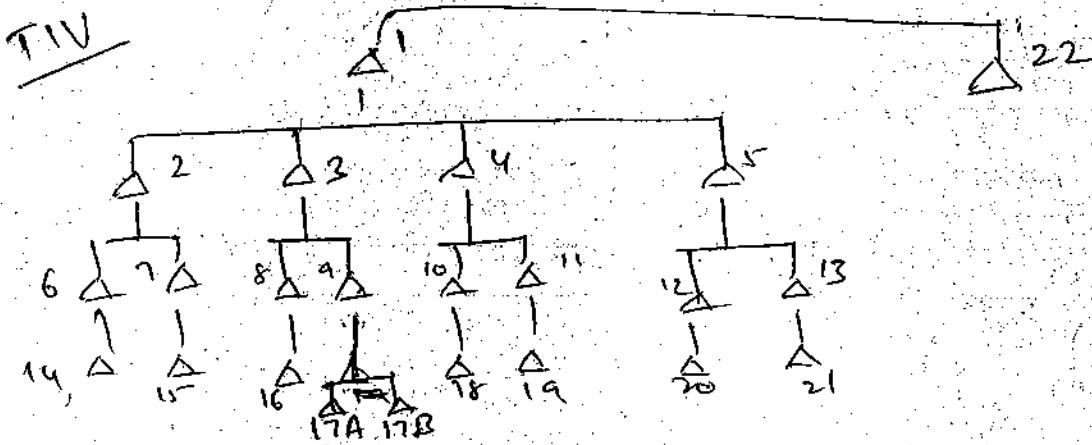
Nuer & Dinka of Sudan

These societies are patrilineal & identify themselves with particular territories of their tribal areas.

They have the system of segmentary lineages which means "An individual sides with his nearest kinsmen in the event of conflict".

(Picture given in Ember)

page 2120



If dispute btw 20 & 21 → 12 with 20
12 " 21

conflict btw 17A, 17B → Only 9 with can't take sides

conflict 18, 21 → 18 → 4, 10, 11, 19
21 → 5, 12, 13, 20

Conflict btw 21, 22 → then entire group of 1 & 22 will fight

A

Y. BT)

Non-lineage based political system

3 categories

- Age set systems
- Association based
- Melanesian Big Man

within Age set system categories

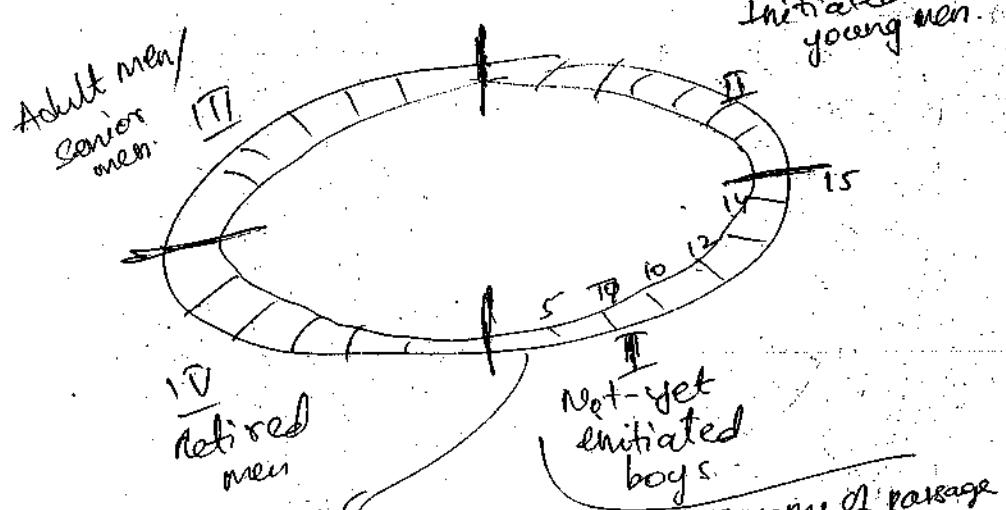
① Age grade ② Age sets

Ex:- Karimojong, Shavante

Age grade - loose Categorisation based on age.

Ex:- Cenae - children, Adults

Age sets → Complex one
 → group of individuals at similar age &
 they move from one stage of their
 society to other stage together



At each stage, there is ceremony of passage
 from one to other

→ Entire group doesn't go into other stage, but a
 subset of people who are initiated

Age set → refers to the group of people falling in
 the same age group, belonging to the same sex
 moving from one stage of life to the other
 together by undergoing the rites of passage

Ex:- Karimojong -

Shavante -

Tiv of Nigeria

Among the Karimojong, men are categorised into 6 major group called agesets

- ① Not yet initiated boys
- ② Junior generation set
- ③ Senior " "
- ④ Retired men

Karimojong have specific functions assigned to each of the sets. Within each set there are a large no. of subsets with men falling in the age group of 5 yrs each.

Every such group has defined functions, unaltered even if an individual is geographically away from his own clan territory.

→ (They are also a war group - they maintain standing army.)

Association based

(Gender based)

① Unisex groups →

They are established based on gender
They can be Men organisations (or) female associations

Mae-enga have women groups

→ (West Africa)

Poro & Sande → members

Ijaw

(Most often in Africa - we find men groups)

Mae-enga is a peculiar case

Gonde, Nagas have Youth dormitories with specific gender

But Icharis have no gender specific

④ Elder girls try young boys 😊

(one is a member of women group - if not married -
After divorce, then again a member)

The Unisex associations are based on several qualifications of members.

In the New Guinea - Poro & Sande groups separately exist for men & women. They aim at training men & women in their respective roles in the society.

Ijaw society of Nigeria - has diff types of female organisations. Those related to married women assist women in settling disputes with their mothers-in-law. In recent past these associations successfully floated self-help groups (SHGs) with the assistance of World Bank.

This shows how the traditional groups can be used in the modern times, in the process of development.

1-6-12

② Military based Org.

They are found among societies with diff levels of threat from external sources either to their resources, region or women.

At the tribe level, the warfare is restricted to occasional or temporary arrangements.

Youth dormitories & specialised military based orgs fulfill the task of providing martial assistance.

For Ex - Among the Cheyenne Red Indians, the young men are trained in warfare.

Also among Lakota of West Africa, Military Associations were established to provide security to the tribe from the incoming threat of Europeans.

During World Wars 1 & 2, these associations proved to be of immense help. Even in contemporary

Ghana, the Lakota military associations are revered and are sought assistance in training in Guerrilla warfare by the regular army.

Lakota Military associations were also used by USA in Vietnam & Korean war.

But after 2000, several of these associations were either dissolved or were merged into regular army due to financial & other difficulties in maintaining themselves.

③ Big Man in Melanesia

This is an informal office. But in tribal societies, he has a significant role to play in dispute resolution. He acts both as a mediator & an adjudicator.

In Kapauku of New Guinea, which is a pastoral society, Big Man is a rich ruler. He administers justice by gaining power through a series of Potlatch operations.

Piggery is the mainstay of Kapauku & hence, similar to the Tsembagaens, the chief Big Man organises pigfeasts.

Acc to Elman Service, Big Man of Melanesia possess similarities with leaders in the chiefdoms, with the major diff that he is not involved in warfare & military functions though on an adhoc basis. Similarly, though potlatches exist, as in the case of chiefdoms, their frequency of occurrence is much less and there is very less concentration of wealth in the Big Man when compared to the chiefdoms in Agricultural & pastoral societies.

Nevertheless, thinkers such as Ember and Marshal-Lathkins, prefer to place the Big Man under

Chiefdoms, as the differences are merely quantitative.

Centralised / Cephalic political systems

They are differentiated from Non-Centralised PS based on the relative concentration of power at the top. Such political systems originate with increase in technology, usually coupled with Redistribution mechanism.

Elman Service categorised Centralised PS into

- ① Chiefdoms
- ② State societies

Chiefdom

① has formal political structures which integrate more than one subunits. These subunits provide military help in times of conflicts

② Chiefdoms are a feature of stratified societies practising either intensive Agriculture or Early stages pastoralism (Hunting-fishing societies also)

③ Chiefdom can be governed by either an individual chief (or) a council. Even in the council, chief possess the highest authority, prestige & rank.

The chief's authority is pompously exhibited with tools such as a distinguishable head gear, body tattoos, other attire & a distinguishable house. For ex:- in Polynesia & Melanesia, body tattooing indicates the social & political status of an individual.

The extent of tattooing on the body itself is an indication of an individual's clan, position in the council & regular military (or) other functions performed by the individual.

Among the Polynesians, as the chiefship is not hereditary & is based on the capability of the person, body tattooing is temporary.

Whereas for positions such as hereditary priests, the tattoos are permanent; but such tattoos are administered only after the council subjects the individual to several tests to become a priest (or) a medicine man.

Chief in the chiefdoms have a higher concentration of wealth & is involved in redistribution of the resources as a part of his functions. Such a redistribution is either ceremonial (or) a direct one.

For ex:- among the Hawaiian tribes, the chief's position is hereditary & hence the wealth of the father automatically reaches the son, but the contender has to prove his abilities by passing "the power tests".

- In majority of the chiefdoms, chiefship is not hereditary. Lévi calls it primitive democracy.

Ex:- Tahiti, Hawaii, Tsembaga, Polynesia, Melanesia

Efficiency tests - Luva Paula of Brazil

(studied by Hawaian)

They have tests for everything
Ex:- Marriage, Medicine man

(f) A
feud
(or)

to

SC

② State societies

Chiefdoms are differentiated from the states primarily in the aspect of a standing army. Acc. to Eluan service, with concentration of wealth & resources, a specialised set of people to take care of security becomes inevitable. It is here that the chiefdom takes the form of a state.

Eluan service provided the following characteristics of a state:

- ④ It should possess the basic feature of a territory, people to rule, distinguished culture, specialised body of rulers & a standing army.
- ⑤ States have autonomous political units which are Democratic, Autocratic, dictatorial (otherwise).
- ⑥ The authority is concentrated accordingly in an individual or group of individuals.
- ⑦ States consist of many communities within a defined territory & hence acc. to Ember, a state at least in modern sense, needn't necessarily be an entity of homogeneous culture.
- ⑧ States acc. to Service, need additional funds to run the specialised body called army & hence are bestowed with the power to collect taxes.
- ⑨ As Specialisation in every form is the characteristic feature of a state, it is run based on a formal law (or) a decree.

As a formal authority, state has the monopoly to use its political & martial power.

The above features though majorly refers to the mainstream societies, even among

* so called simple & tribal societies, entities such as states (&) several characteristics of state do exist. The most studied among the Ashanti of Ghana

- Horticultural society having chiefdoms but has codified & written law

In India, tribal societies such as the Birhor also are known for having a codified legal system though unwritten.

It is generally opined by Anthropologists that state societies are a feature of non-tribal societies & so far are the most evolved type of political system.

In contemporary times, many of the stateless societies are either wiped off (or) are forced into the state societies. This led to varying forms of response in different parts of world.

CP Vidyarthi calls it "Tribal struggle for their identity". His study among the Birhor refers to the peaceful acceptance of the mainstream political systems.

But among Bhils, Santhals & Adivasis, violent rebellions resulted. Specialised studies were conducted in India & across the world to know the differential attempts by the tribal communities to establish their identity.

^{other}
Features of state societies
* Standing army

Formal law to maintain social order

Kinship becomes unimportant

Market exchange

Increased stratification

Ex - Ashanti, Nupe of Nigeria

Ghana
↓
written laws
No written laws

Q.4) Functions of Family

Basic features of family - "Living together" - common kitchen
- pooling up resources

George Peter Murdock

"A social group characterised by common residence, economic cooperation & reproduction. It includes both sexes, at least two of whom maintain a socially approved sexual relationship & one (or) more children born (or) adopted."

Functionalists

The functionalist orientation in the study of family emerged in the early 20th century. Family was seen as a multi-functional unit, considered by Peter Murdock as "a universal & inevitable institution"

① Lundberg (gave basic functions of family)

- Regulation of sexual behaviour & reproduction
- Care & training of children
- Cooperation & division of labour
- Primary group satisfactions → (family is institution providing for basic economic utilities)

Ogburn & Nimkoff

- Affectional
- Economic
- Recreational
- Protective
- Religious
- Educational

(3) READ

- Race perpetuation
- Socialisation
- Regulation & satisfaction of sex needs
- Economic functions

(4) Talcott Parsons → (criticised for looking only at American society)

- not spoke about economic functions (or) race perpetuation
- Primary socialisation of children
 - ① Internalisation of culture
 - ② Structuring of personality
 - Stabilisation of personality by marital ties and emotional security between the couple

George Peter Murdock

4 basic functions

① Sexual functions

Exceptions - Nayar, Banado → (New Guinea)

② Economic functions

Exceptions - Nayar, kibbutz

③ Reproductive functions

Exceptions - Azande → (Boy-Boy, Girl-Girl marriage)

④ Educational functions

Exceptions - HQ - (kille?)

Youth dormitories

Emotional, security functions are not included by Murdock
(sick, old)

Murdock recognises that family as a unit of production has undergone change

Dysfunctionalists

① Vogel, Norman Bell

(- "child becomes emotional scapegoat"
for them family is an entity of conflicts)

② Edmund Leach

Nuclear family isolates from kin & wider society
→ it makes children highly self-centred

③ LAING

(A group of Nexus)

- Teaches Obedience

④ David Cooper → (was an abused child)

(child is destroyed by family)
(freedom is taken away)

⑤ Margaret Barston → a communist

Exploitative as it does not pay women for domestic labour.

⑥ Marxists & Feminists

Family provides basic commodity of Capitalism -
Yet - family is not paid for its production & upbringing?

In spite of a large no. of defunctional studies,
family is still considered to be a unit of socialisation,
though not everything is happy with it. It is considered
to be a large success, as a stabilising force of
the society.

2-6

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it studies
realization
is considered
part of

2-6-12

Linguistic Alogy

(Theories of origin - in Ember)
(Comical ones)

- One of branches of social Alogy
- Scope of A
- Theories of origin of language
- Social content of language etc
- Verbal & Non-Verbal Communication

Branches:-

- Historical / Comparative linguistics
- Structural Linguistics / Structure of L, theoretical linguistics
- Socio-linguistics
- Ethno semantics
- Psycho linguistics

People who were Linguistic Alogists were Linguists earlier.

Taylor was a Linguist for a large part of time.

Linguist language → origin, development
Linguistics structure → structure, Grammar have studied in Linguistics
some letters dropped, some added, pronunciation changes

Ling Alogy → Here we Compare to see

- ① If they originated at same time
Ex:- Recent one: Dravidian script Vs Harappan script.

- ② Study of structure
- ③ Socio
- ④ Ethno-semantics - study of meaning of word in particular cultural situation
- ⑤ Psycho-L → identifying diseases, psychological language problems

language → structured form of arrangement

features

- ① Unique to humans
- ② Arbitrary
- ③ Learned
- ④ Duality
- ⑤ Displacement
- ⑥ Creativity/productivity
- ⑦ Patterned

→ Grammar
alphabets

(Animals language can't be considered to be in a technical sense coz no structure, Grammar, etc..)

Note & Queries

Definition: It refers to a system of symbols with standard meanings through which the members of a society communicate with one another.

Uniqueness to humans → symbols can be expressed in statements.

Learned → ^{one} Generation to other teachers

Duality → Complete statements, link statements

Origin of language

Theories

① Divine theory

② Natural sound (or) Bow-Wow Theory

The study of origin of language was taken up on diff platforms at different points of emergence of the discipline.

Evolutionists tried linking it with specific points of emergence in history. In the later times, structural study of language focused at analysing the Grammar & meaning of terms similarities in symbol(s) alphabets to understand the origins of languages from specific primary language.

Such an effort can help studying the origins of only written languages. Based on the existing

64

records of writing, one can only trace the historical past upto above 4,000 to 5,000 yrs. But the fossil studies indicate the possibility of existence of verbal communication much earlier to these times. This leaves a possibility of gleaning & building stories on the emergence of language.

① Divine Origin theory

It attributes origin of language to divine source. Judio Christians believe that the 'original language' was used by Adam while communicating with the God.

Egyptians believe in the God called 'Toth' & Babylonians in the God 'Nabu', Hindus in the 'Mother Saraswati', as the givers of language.

These thoughts can neither be supported nor be discarded.

② Natural sound (or) Bow-Wow Theory

It refers to the human habit of imitating natural sounds at the beginning of human language.

EB Tylor, referred to certain forms such as cracking, mung, crashing which are naturally taken into several human languages. But, actually, such words are in limited numbers & entire language cannot be the result of adopting natural sounds.

Jean Jacques Rousseau & Darwin had written about Bow-Wow Theory (used as expression for first time) (origin) (> child psychologist.)

① Gestural Language Theory - Hawes

Acc to ↓, it is initially gestures & signs that were the first ones to originate in communication which later formed part of verbal communication.

Hawes wrote on the importance of gestures despite of well-developed vocal languages.

Acc to Rousseau, Gestures only try add up to the vocal language, but it doesn't explain the need & the point in time & the way gestural language shifted to vocal language.

② Functional Theory

Acc to Functionalists, language exists as a means of communication & to coordinate the commonly held tasks by a group of individuals.

Accordingly, in the human evolutionary chain, Neanderthals & Homo erectus who were involved in hunting big game must have used some kind of rudimentary language. It could also be a sign language.

(had interlocking canines
only from Autologophorus - could talk)

During the 21st century, Alogy shifted in the way of studying language. Theories of origin of language are no more valid. There is at the most an effort to establish historical links of the existing (or) disappeared languages based on the similarities in sounds or in alphabets.

Biologicalologists such as George Simpson believed that language forms a part of biological heritage of mankind. Similarly, in the book "The descent of man", Charles Darwin held that development of mind, complex thought process during the hominid evolution must have helped in development of language. Biological features such as the development of small & flexible tongue, nasal cavity as resonator, mouth cavity, reducing size of teeth, giving additional space in the mouth chamber, flexibility in mandible, erect posture resulting in enlargement of pharynx are the biological features that must have helped humans in developing language in a systematic & scientific manner.

Paul Broca studied the development of mind & found that a specific region in the frontal lobe of the brain is responsible for verbal expressions. In the left cerebral hemisphere, this specific region currently termed as 'the Broca's area' exists in the frontal lobe. Acc. to him, from the Australopithecus to Homo Sapiens, the size & complexity of this area increased, indicating the growing significance of language both socially & biologically.

Social context of use of language

- Ideolects
- Social class
- Age & sex
- Ethnic background
- Multilingualism
- Lingua franca
- Pidgin & creole

→ Most of researches of languages happened in English.

Ideolects → Individuals' version of language
(Dialect → Local versions of +)

Social context of language use is a major aspect of study in Socio-linguistics which is a branch of Linguistic Alogy. It is the discipline that deals with speech variations in social context. It studies speech variations on the basis of individual language use, their gender, age, ethnicity, region, class, Caste, place of residence, occupation etc.

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- 7

Kamal Misra

Book

"~~Linguistic~~ Alogical
Linguistics"

"Linguistic Alogy"

Misra
Logical
Linguistics"
istic Alogy"

Idelects

refer to variations of an individual speech variety. They emerge due to differences in voice quality, pronunciation & preferential usage of the words by the speaker. It is also important to understand that an individual's speech itself varies according to the place (or) situation (formal or informal) and according to the people he/she is interacting with.

If the Idelects of more than one person become similar ~~to~~, it leads to the emergence of a dialect. Dialect is an intelligible variation of the same language, with all dialects sharing the same script.

Social class

Kabov studied Dialectical variations b/w diff social strata of New York City & Toronto.

Social status or Socio-economic class of an individual can be identified from pronunciation.

British Linguistic Alogist Trud Gill studied English Speaking pop. & found that there is less usage of sounds of 'R' in the upper class than in the working classes & there is more usage of 'N' sounds & dropping of 'G' sounds in the lower social classes.

For Ex:- 'Talking', 'Walkin'

Similarly dropping of 'H' sounds was found among the lower classes.

For Ex:- Dropping of 'H' from 'Hello' & terms like hollow - o llow

Similarly

Age & Sex (Gender) based differences

Acc. to Trudgill, aged sex of a speaker can be linked to the distinctiveness in speech & pronunciation. Women of individuals from older generations are more formal, whereas young men use terms that reflect recent technological advancements.

John Fischer (1958) noticed more usage of 'ing' sounds (or) pronouncing the terms completely by women & senior people whereas men, especially the young men, pronounce the words incompletely. Dropping of 'G's is common with that.

John Fischer's study in the Yule society in Central America refers to women using more prestigious forms of speech than men of same social background.

Mary Hawks (1994) opines that in Central & South America (and even across many societies of the world), use of diff vocabularies for men & women is not "a matter of choice", but is prescriptive.

Chesire Kramer - Australian Linguist - opines that women are more talkative & less assertive than men.

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Multi-linguism

Ethnic Background

studies were conducted in multi-ethnic societies - USA, Australia & Canada - where same language is spoken with difference in pronunciation by different ethnic groups.

One can see the impact of one's own language of origin in speaking an alien language.

Multilingualism

refers to ability of an individual to speak more than one language. This may be the result of co-existence of people from different cultural & linguistic groups. The feature of bilingualism is considered to be most common form of multilingualism.

Ex: Canadians speaking French & English
Latinos of USA & Spanish English

Selzmann - Russian - studied the impact of multilingualism on the next generation. He ^{wrote} also studying marriages b/w individuals from distinct languages. Acc. to him, children in next gen. acquire the dominant language of the region at home.

As a part-time multilingual, Charles Ferguson coined the CONCEPT of DIGLOSSIA, which means, the members of a speech community using 2 (or) more varieties of same language for diff purposes.

Ex: ① Usage of a Classical (or) formal form

& a colloquial form → mostly used

He studied such a distinction among the

Arabic speaking pop. Literary Arabic as in the Holy Quran is coexisting with several colloquial forms of Arabic.

"② In India - Gumperz studied Khalapur village
(He studied political systems - the role played by diff religion
in village panchayats)

He studied Hindi as is used in different dialects,
depicting Diglossia. He coined the phrase 'code switching'
which refers to an individual switching from one
language to the other, sometimes ~~you~~ even using
words of diff languages in the same sentence.

PIDGIN & CREOLE

Pidgin → refers to a common language developed by
speakers of two (or) more distinct languages for some
specific purposes. Pidgins are not full fledged language.
They have limited words. Sometimes they even don't
have complete grammar.

In linguistic history, the most renowned study
of pidgins were taken up in New Guinea & Samoa ^{islands}.

In Papua New Guinea, 'Tok Pisin' emerged
as a Melanesian Pidgin language with several
words from English. It was a language used by
the foreign traders to communicate with natives.

They in American Samoa, & in Navajo Red Indians
English based Pidgin languages were used.

In New Zealand, Maori pidgins were adopted
(Patai)

by Non-Maori traders. Sometimes the pidgins
may get evolved by developing systematic grammar
& emerge as full fledged language. This was
seen during the Vietnam War. The American armed
forces devised pidgin to establish links with the
local populations, that later emerged as a full-fledge
language. Such language forms are now called
Creole.

The Vietnamese people is currently termed as
'Gulla'.

Lingua franca

refers to a commonly agreed language of communication in a multi lingual region.

For Ex:- Hindi in India

English - USA

Urdu - Pak

Swahili - Eastern Africa

Hausa - Western Africa

With the help of above situations, socio linguistics can help explain the changing trends in the language. The impact of social fabric can be better understood. The administrators can also use these contexts for better planning of programmes of either education or any such administrative instances where language & its social usage have a role to play.

5-6-12

Religion (Ember)

65

Approaches to study

① Evolutionary

Taylor
Marriott
Morgan

② Psychological, functional

Brown
Malinowski
Durkheim

Form of religion

(short questions)

Animatism
Fetishism → other name is Animism (name given by Taylor)
Naturism
totemism

Functionalities

Priest, shaman, Medicine man, Sorcerer, witch.

Mgt Sacred & Profane

Myth & Ritual

Religion

Definitions:

→ Belief in the supernatural — E B Taylor

→ Set of attitudes, beliefs, practices pertaining to supernatural power, whether that power be force, gods, ghosts (or) demons — Ember & Ember

Another

→ Def of E B Taylor

→ Belief in spiritual beings.

(Geertz cockfights in —)

Geertz → Religion is a system of symbols which attempt to establish long lasting motivation for men.

In other words, Religion is use of symbols to guide men towards particular acts.

Sapir → Religion is a culturally patterned interaction with culturally postulated supernatural beings.

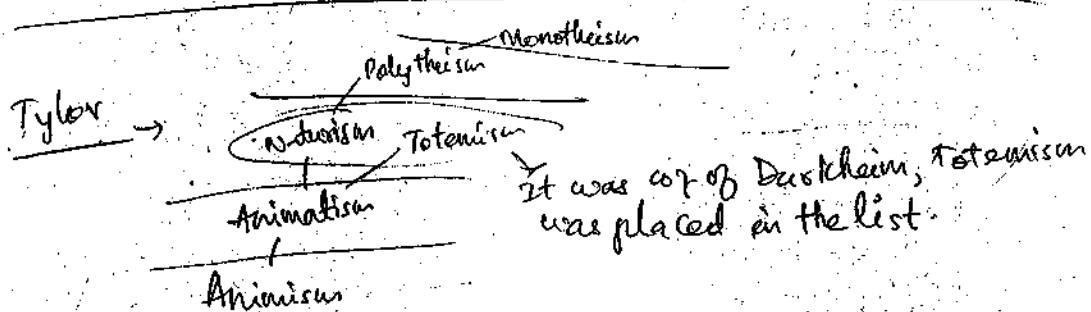
Durkheim → Religion at its most profound level means society's worship of itself.

Malinowski → Religion is a sociological phenomenon & a personal experience emerging from the need to address the fear & for regulating the individuals.

Burnham → Religion is a set of beliefs & practices so organised as to share the behaviour of an individual in an ethnically desired manner.

R C Broon → Religion is a mechanism of bringing order in the society & maintaining it.

Acc to Evans-Pritchard, Religion is culture specific, similar to any other socio-cultural phenomenon such as Institutions of marriage & family, an attempt to define religion is futile & hence Religion can be studied from its characteristics specific to the culture group.



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Evolutionary study of Religion

Basic assumptions

- Positivism
- Intellectualism
- Animism
- Manicism
- Naturism

~~The evolutionary study of religion~~
Evolutionists tried to identify the origin of belief

in supernatural forces
Subsequently identified 3 subapproaches in the evolutionary approach:

- ① Soul based approach (Animism)
- ② Magic based approach (Manicism/ Animism)
- ③ Nature & Myth based approach (Naturism)

In the functional approach, D.N. Majumdar considers

- ① Durkheim (Totemism)
- ② Malinowski (In the functionalistic theory of Monistic form of Utilitarianism)
- ③ R.C. Brown (studying Religion as a part of social structure)

~~Atta~~
① In the soul based explanations, Tylor proposed

Animism as the first form of Religion. It refers to the belief in soul (or) Anima. Tylor was the 1st social scientist to have proposed a theory of origin of Religion. He employed the method of Rethinking, presuming that primitive man

was "a thinking man" & an "intellectual". He proposed a logical flow of events depicting the emergence of religion & its spread to different parts of the world.

Step-1 Primitive Man's Effort to reason out the diff. b/w life & sleep & death

- ② He concluded that man had 2 souls, free & body soul.
- Soul's power is demonstrated by the fact that as long as it exists in the body, life exists.
- ③ Dead Men appearing in the dreams confirm that souls have power even without bodies.
- ④ Worship of the souls & the power within gave rise to Animism.

According to Tylor, it was followed by the other forms of religion such as Naturalism, Polytheism & Monotheism.

The theory of Tylor was criticised on the grounds that

- ① It is speculative
 - ② It considers primitive man to be a rational man.
 - ③ The linear evolution from Animism to Monotheism is not exactly followed.
- According to Shaprio, at every level (or) in any form of religion, belief in souls (or) animism exists & hence one cannot consider these different forms as successively placed forms. (or) emerged from
- ④ Malinowski considers Tylorian theory to be Ethnocentric because it placed Monotheism of Britain as the highest form of religion & it doesn't explain the reasons for co-existence of Monotheism & Polytheism. At the same time

Total
entire
group

It also fails to explain the phenomenon of emergence of 'New Gods' adding to the existing Pantheon.

Animatism

R.R. Marett → "Primitive Religion" Book

- Belief in impersonal, supernatural forces

Naturism

- Max Muller

- Durkheim

- Worship of forces of nature
Within India studied by D.N. Majumdar & Madaan
who composed Magic & Religion

Naturism according to Max Muller emerged due to various reasons. One of them being the belief that a specific animate or inanimate being played a role in the emergence of a particular group of people (or) a specific form in Nature was involved in protecting a group of people.

In the former case, a group of people trace their origin to a specific animate or inanimate being. In the latter case, people of a clan link themselves with an animate or inanimate object based on a mythological story establishing some kind of a link b/w the people & the clan object.

Naturism of the latter form gave rise to Totemism. As studied by Durkheim, Totemism exists in the societies having the unilinear group of clan.

(Durkheim studied totem symbols of Ashanti.)
There is a worship of Eagle in
There were totem pillars in Ashanti)

(Many religions - hold up tree totem
→ sacred symbol)

Durkheim - Ashanti - he studied totems which had stratification
Only few can touch totems

Durkheim's study of totems didn't get restricted to the belief in the sacredness of symbols such as Totem. He extended it to understanding social stratification that was evident in the way the different groups of people, in societies like Ashanti, were associated with totems.

(Social Anthropology - Madan & Majumdar)

Functionalistic study

- Herbert Spencer (much earlier to Malinowski)

- Alexis de Tocqueville → 1st Anthropologist to use word function
study in Siberia
→ religion among Eskimos

- Malinowski

- R C Brown

- Gustel de Coulange

- Emile Durkheim - 'Elementary forms of Religious life'

Religion was studied using Monistic form of Utilitarianism.

Malinowski Vs R C Brown

↑ Religion is to satisfy individual's needs

For him survival of society is important & for this individual has to sacrifice.

I studied Tarderac Islanders, including life - some have to be sacrificed if for ex: they want to have good food.

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- Religion gives comfort in inevitable times of stress — Malinowski
- Religion gives people a framework of values — Fromm
(psychologicalologist)
- It provides transcendental understanding of the world — Maslow
- It helps resolve inner conflict — Carl Jung

Detailed studies of functionalistic orientation of Religion were put forth by Malinowski & R C Brown. Evolutionary theories try to identify the aspect of "how" in the origin of religions. But they fail to explain the aspect of "why".

The functionalists believed that Religion was the creation of man in response to certain needs (or) situations. It is here that functionalistic theories explain "why" of religion.

Acc. to Malinowski "Religion had its origin in a need to find comfort from the stresses arising out of anxiety & uncertainty."

In his study of Trobriand Islanders, he saw the relevance of Magico-Religious practices associated with fishing expeditions. Expeditions of High seas were considered to be highly

dangerous & hence trobrianders resorted to elaborate magico-religious rituals, i.e., the more the fear is, the stronger the belief in supernatural. For Malinowski, the explanations are individual centric coz in his view, all the social institutions including religion have the

Ultimate function of fulfilling individual needs.

Acc. to Bauman, Religion is not a mere instrument of fulfilling individual needs. Its function is to bring order in the society. For this, sometimes individuals' needs, comforts & profits have to be put at stake. Acc. to him, religion has a function of providing code of conduct to the individuals to avoid any chaos. Providing code of conduct can be a function of any other institution such as law, political system, family etc.

But adherence to the norms is better ensured through the fear of supernatural & hence religion has more relevance.

Durkheim's study of religion is another variant of functionalistic approach. He originally contributed to the studies of totemism, existence of clan, worship of totem symbols were explained from functionalistic perspective. For example: clans which have a direct bearing on totemism have a function of promoting social solidarity. Totem symbols can bring together people at a higher emotional level.

Acc. to Carl Jung, understanding religion from the perspective of belief in supernatural is an approach of yester years. Currently religion has more non-supernatural attachment than super-natural ones & hence in the current times of socio-political situation, religion has to be studied from functionalistic view taking into account the current world order.

Myth & Ritual

Rituals → Max Gluckman, Roy Rappoport, Edmund Leach,
M N Srinivas, G S Ghurge

M & R attracted attention of Anthropologists - both of them
become imp when studying societies.
Myths → to maintain status quo.
Dualistic form of Utilitarianism — ~~Malinowski~~ Malan Y clan.

Definitions :-

The study of these existed in Alogical thought
from the evolutionary school to the modern schools
of symbolism & cultural materialism. Myths represent
an attempt by the society to understand & explain
life & nature (Acc. to Franz Boas). They reveal
the way people perceive different aspects of life
& society. Acc. to Malinowski, they ~~will be in~~ reveal +
the psychological state of people i.e., rational or
irrational.

Acc. to Notes & Quaries, Myths are
generally untrue stories, culture specific,
providing reasons for the status quo. They may
be contradictory to original mythistory & hence
some Anthropologists consider them to be mental
aberrations of a primitive man. Acc. to Durkheim,
myths along with magic & religion play an
important role in understanding the society.

Thinkers like Levi's Strauss, Mary Douglas,
used the approaches of structuralism & symbolism
in studying myths. But according to Functionalists,

- ① Myths have a function of legitimizing social
structure & help in preparing a charter.

- ② They provide justification for the expected behaviour of an individual in a society
- ③ They exhibit a social power to bring solidarity

In contemporary Anthropology, Myths of different societies such as simple, agricultural & industrial societies are being studied to understand (good) role of science & rationalism in dealing with myths.

L.H. Morgan had considered magic as an irrational science & according to him, myths are a part of irrationality, but several myths exist along side scientific temper & hence Marvin Harris considers studying myths an important exercise even in contemporary Anthropology.

(for list of myths, read the revise notes --)

(Ex:- Ramayana,
Don't write it as a myth → opt for smaller myths)

Ex:- Purusha Suktam, Kamadhenu,
Myths from diff. religions have to be quoted.

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Literals

→ Marc Gockelmann, Roy Rappaport, Edmund Leach,
M N Srinivas, G S Gopinath

(gave list of
features of Ritual)

characteristics of rituals

by Leach

- Manipulation of tangible
- For attaining salvation/satisfying supernatural
- to fulfill one's will
- Maintain social cohesion
- Time bound
- Symbolic
- To keep in constant touch with Supreme Reality
- For performer's satisfaction
- Culture Specific

→ Rituals keep individual close to Supernaturals

Study of Rituals in mainstream Anthropology had begun under the structural school. Under the evolutionary thinkers, rituals were studied as a part of studies of Religion & Magic. But over a period of time, rituals in several other spheres such as the political, economic & in general secular sphere were began to be studied.

Rituals refer to culture specific, rhythmic procedures with a succession of act to be repeated without any variation. They can be individual specific (or) performed by a group in a community.

Edmund Leach considers Rituals to be culture specific depending on local belief system. On occasions, they can be painful, sometimes even involving human sacrifices. Irrespective of the level of toughness, rituals form a universal feature of all

the societies & people

Edmund Leach & Ray Rappaport conducted studies of rituals in contemporary tribal societies.

In India, Dr. M.N. Srinivas (among the Coorgs) & Ghurye (among tribes across the country) provided an extensive coverage of rituals within India. They had put forth the following basic elements.

- ① Rituals offering often involve manipulation of tangible sacred objects & the action of performing ritual is considered meaningful & desirable within the frame of reference of a supernatural order. They are performed to persuade supernatural to respond in a particular manner.
- ② Socially, Rituals provide opportunity to people to enjoy social festivals & ceremonies.
- ③ Acc. to Durkheim, Rituals are not for entertainment but they are part of a serious interaction with the supernatural.
- ④ Rituals are time bound i.e., they have to be observed on particular occasions.
- ⑤ Rituals are symbolic in nature i.e., the apparent meaning is culture specific.
- ⑥ Acc. to Malinowski, performance of rituals keeps man in constant touch with the supernatural & hence brings discipline & order in the individual's behaviour.
- ⑦ Acc. to D.N. Majumdar, rituals are performed in the context of surrounding culture.

For ex:- offerings to the gods, among the Gonds, include coconut & tree leaves of specific kinds while among kashmiri brahmins, meat is offered to the gods.

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(8) Acc to R C Brown, Rituals refer to the rites of passage of an individual from one stage of life to the other. Hence they signify an individual's changing social status.

Contemporary Dystopianists see no function in the performance of rituals. This is unlike Malinowski & Durkheim. The functionalists of 20th & 21st centuries bring out the following functions -

① Integrating role: i.e., Rituals bring society together.

Edmund Leach in his book, "Political systems of Highland Burma" states that among the religious groups called Kachins, religious ritual is beneficial in making people meet on the occasion & sort out issues.

② They help in solving disputes & conflicts. Rituals help in mellowing down long time conflicts. For ex: Gluckman's study among the Swazi of South Africa described various rituals that led to resolving long term conflicts.

③ Acc. to Malinowski, they provide for survival of people though they are unscientific, in some cases, they provide living to few.

For Ex: Shradha Karma, Marital rituals, involve providing food & clothing to the needy. An extensive study of such rituals was taken up by Haviland, Roy Rappaport & Ember among the Tzotzil tribe of Middle America. They have extensive food distribution methods & rituals associated with funerals & festivals.

* → Acc. to Brown, rituals are significant for the psychological satisfaction rendered to the performer & building courage to face adversities in life.

Human Fossil Evidence

(1.5 & 1.6 chapters)

→ skeletal changes due to erect posture & implications

- Australopithecines

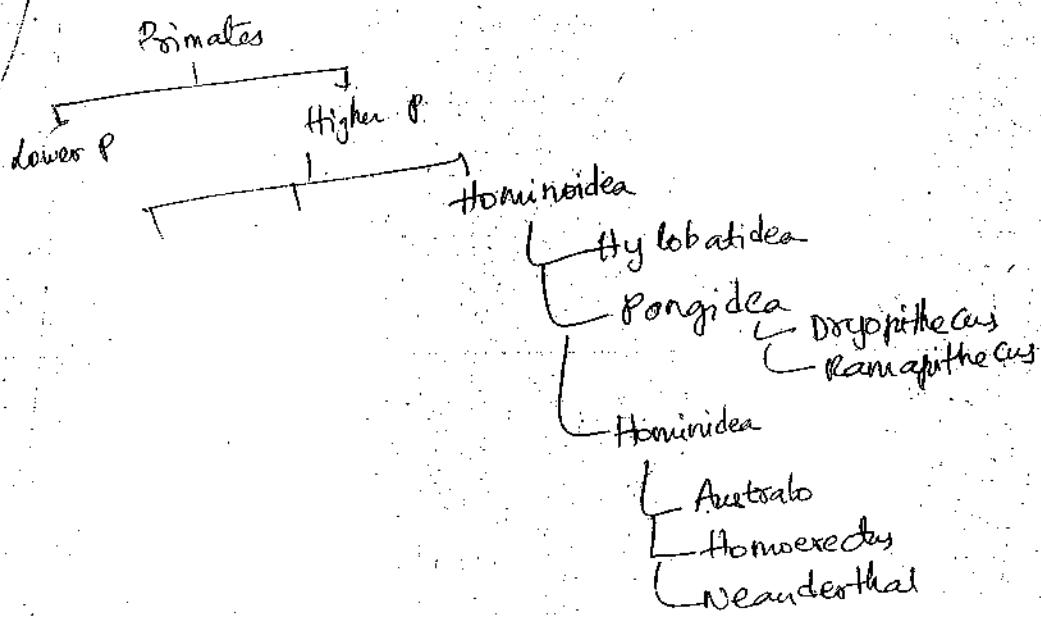
- Homo erectus

- Neanderthalensis

- Rhodesian Man

- Homo sapiens -

(Cro Magnon, Grimaldi, Chancelade)



1/ 3 kinds of questions asked in exam

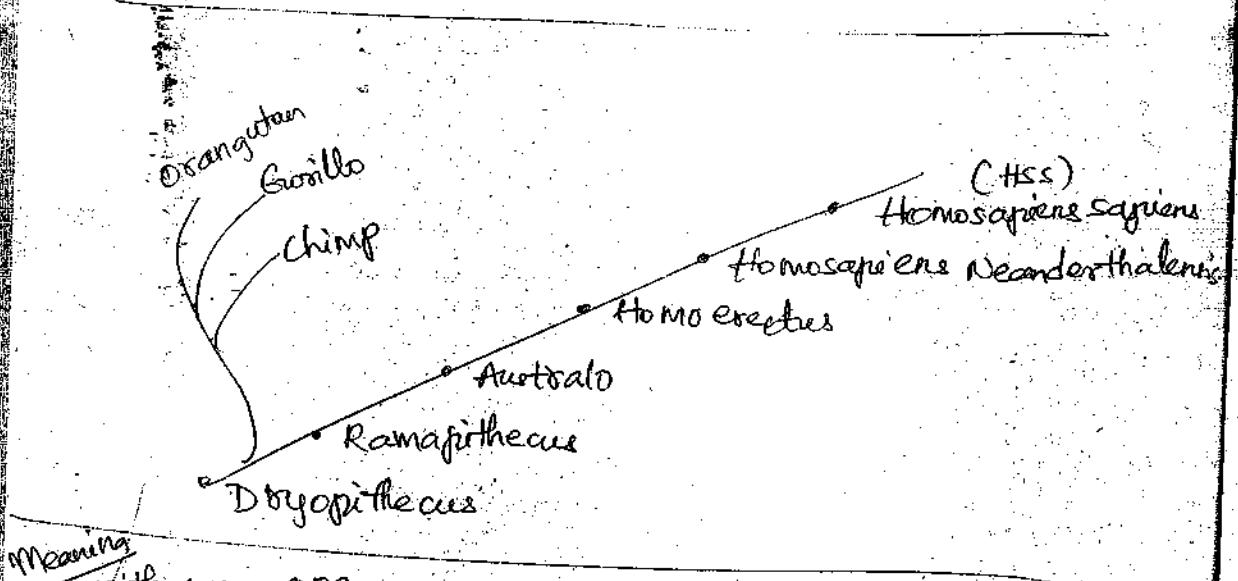
① Phylogenetic status of particular species

② Geographical location

③ Physical features

④ Issues involved → ex. Neanderthal controversy
answer to be supplemented with Discoveries around the world

To ~~see~~ evidences in the study of evolution of man



pithecius - ape
Australia → land of south → Australopithecus - southern type
 discovered in Southern Africa

Genus - Homo → (within genus, there are several species)

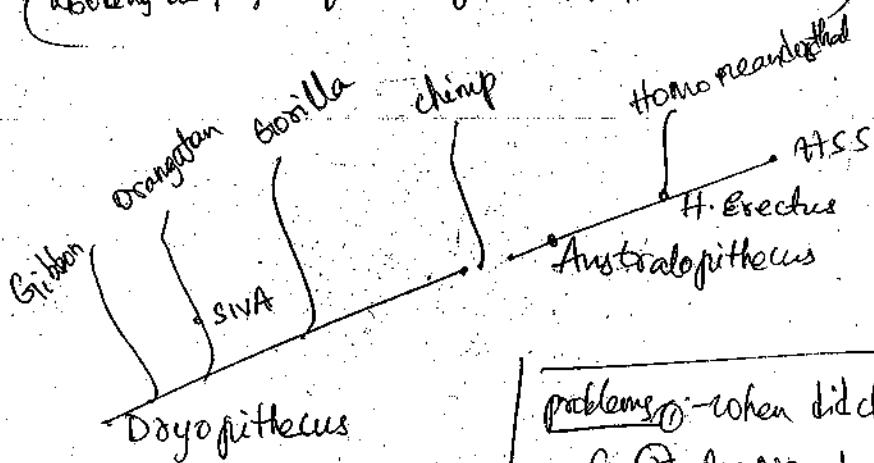
↓ HSS
 Homo erectus, Homo sapiens, Neanderthalensis

Ramapithecus - 14 million yrs ago.

Australopithecus - 5 million yrs ago.

{ which dating technique to be used
 - Potassium-Argon
 - Uranium

(looking at physical features & genetics - people weren't sure)



Currently research is going on

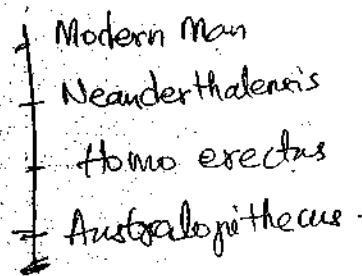
- problems:
- ① When did chimp go off?
 - ② Are Neanderthal Erectus contemporaries?
 - ③ Is Dryopithecus an ancestor?
 - ④ Did Erectus give rise to Sapiens?

{ less than 1 mya

↳ Man

Evolutionary Stages of Australopithecus

① Linear Evolution (Pre-1979)

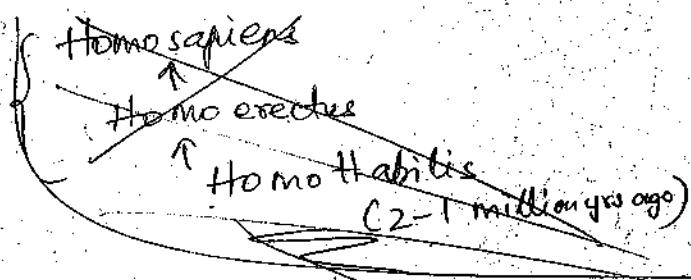


② Branch theory (1979-88) (Johanson-White model)

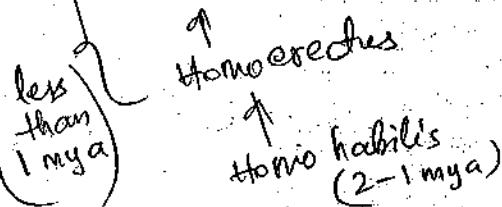
② Butcher Jonush put together all evidences which were named differently & then categorised everything under similar ones.

Australopithecines → all categories under Australo to be discussed.

Branch theory



Homo sapiens



A. boisei
1.8-1 mya

A. zobutus
2-1 mya

A. afarensis
3 mya

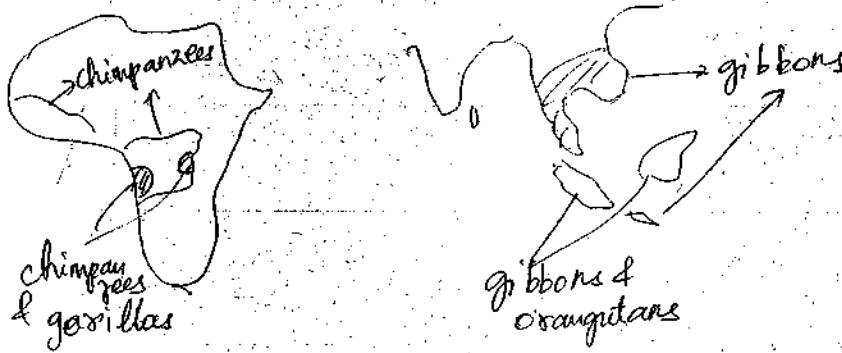
A. afarensis
(3 mya)

go off
Erectus
Contemporary
Ceratops
Homo sapiens

A. boisei, *A. robustus* refer to big features — 9 ft

A. africanus, *A. afarensis* — 3 ft - (Gracile Variety)

Map of Apes



Bipedalism - changes

- cranial
- postcranial

cranial changes

- Decrease in prognathism
- Foramen magnum located more forward & downward
 - Increase in brain size
 - Change in dentition

Bip
of
hind

The
leg
is
post
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Emergence of Bipedalism & Erect posture

Bipedalism is a characteristic feature of Man.

Although apes & monkeys walk bipedally, they do so, occasionally. The changes in locomotion towards bipedalism are reflected in the skeleton structure. Bipedalism is associated with changes in the following skull features -

- ① Decrease in Prognathism
- ② Forward location of foramen magnum being more forward & downward.

Pictures → page-4 → Foramen magnum,
Vertebral column

- ③ Increase in brain size
- ④ Changes in dentition i.e., from parallel dentition to parabolic dentition

Bipedalism is associated with differential use of limbs.

Apes & monkeys used their hind limbs for holding the objects.



The Femur, among the apes is smaller & doesn't support body weight whereas in humans, femur is longer & supports weight. Evidence of erect posture as is seen among humans is in the presence of 'Linea aspera' at the back of the femur.

(Groove at back of femur → result of muscular attachment to bone.)

The feet among the humans have arches that provide flexibility & stability.

PIC

Feet among the gorilla & chimpanzee possess opposable hallux (or) big toe, providing ability to hold objects. This ability reduces in man, giving rise to "ability to withstand the weight".

With regard to origin of bipedalism, there is a difference of opinion. Evidence of bipedalism can be studied through the post cranial features. In Australopithecus Ramidus of 4.6 million yrs ago, the erect posture was seen for the first time. The linea aspera of Ramidus was feebly developed & hence it was concluded that australopithecines didn't have a perfect erect posture instead it had an energetically-taxing bipedalism.

The shape of spinal cord was another feature to prove existence of erect posture. The 'S' shaped curve in the spinal cord, termed as the lumbar curve for the first time occurred in hominoids who had a perfect erect posture.

Archaeologists also studied a link between bipedalism & tool making. Acc to few, tool making resulted in bipedalism i.e., when the early hominids in order to hold objects were trying to stand erect, the changes related to lower limbs & spinal cord took place. In the process of attempting to make tools, the hand skeleton got modified. As the skull stood on the rest of the body over a period of time, the facial snout disappeared (Oris) (Or magnum).

making human face a straight one. In addition to it, the 2 other cranial changes i.e., size of the brain & dentition got altered. With regard to the brain, paleontologists opine that humans witnessed a major shift in the size & complexity of brain only from 3 million yrs ago. From 3 million yrs till date the size of brain increased 3 fold. (Australo)

The 1st human like brain was seen among *Homo habilis* which occurred b/w *Australopithecus* & *Homo erectus*. Erectus had an average brain size of 1000 cc. Modern man averages to 1350 cc. The change in brain was both relative & absolute. Increased brain size led to increased articulation, ability to produce tools, & change in social behaviour such as evolution of language.

With regard to change in dentition face, the 1st major human like dentition was seen among *Australopithecines*. Australo had parabolic dentition without interlocking canines. Australo had relatively larger teeth in more numbers.

Australo's skull gives evidence of massive chewing muscles with extremely large molars. It was due to consuming highly coarse & fibrous vegetable diet. As it approached *Homo*, the dentition produced both in size & number. In an attempt to study human evolution through fossil studies,ologists concentrate on these cranial & post cranial features.

8-6-12

phylogenetic map

Humans are placed in a group, based on physical feature

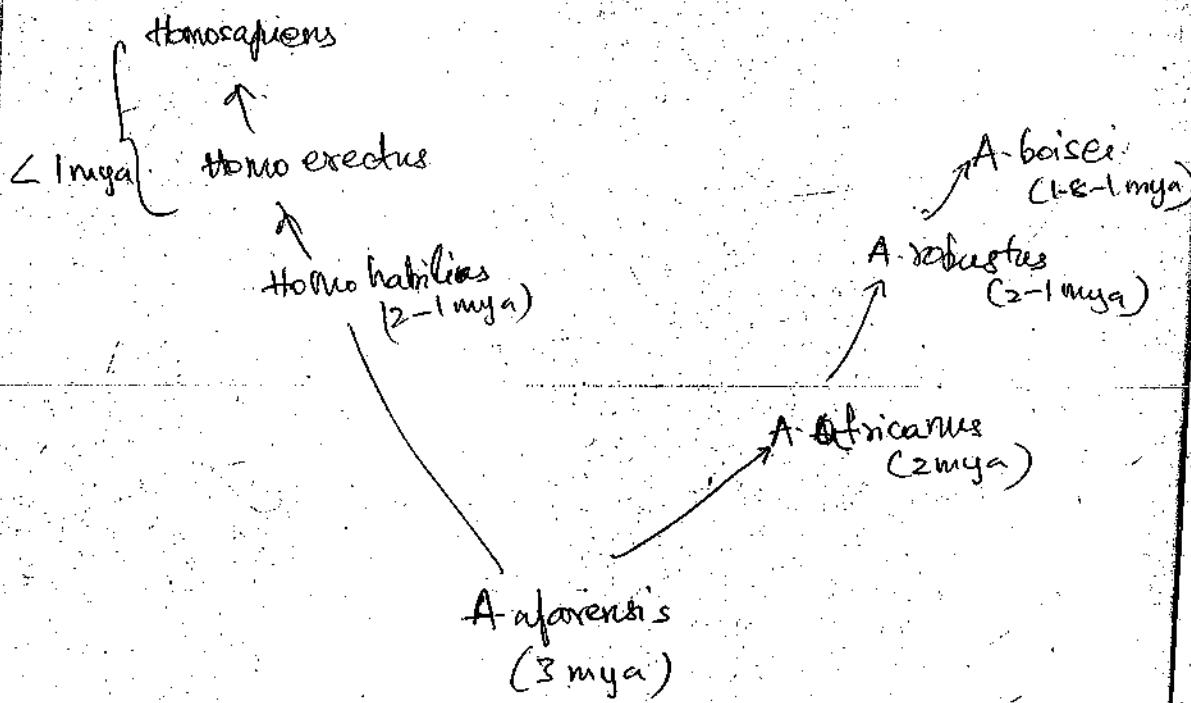
Australopithecus

Evolutionary status of

① linear evolution (PRE-1979)

- Modern Man
- Neanderthalensis
- Homo erectus
- Australopithecus

② 2-branch theory (1979-88)
(SOFTONSON-BHTE MODEL)

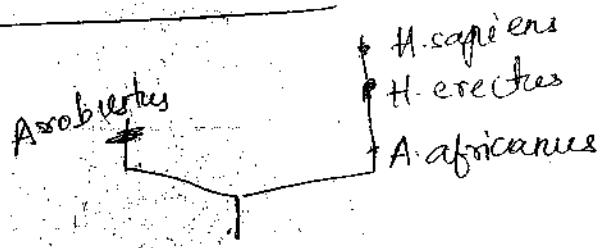


habilis → man who made tools
* was responsible for eliminating Australo

old features

Other 2-branch theories

X



A. afarensis

The Gracile variety of Australopithecus gave rise to Homo erectus & robustus Variety got extinct.

Archaeologist found that Robustus was Vegetarian based on dentition & cheek muscles.

X
(i)

Habilis-based theories

A. boisei

A. robustus

A. afarensis

H. sapiens
H. erectus
H. habilis
A. africanus

(X)
(D)

A. boisei

A. robustus

A. africanus

A. afarensis

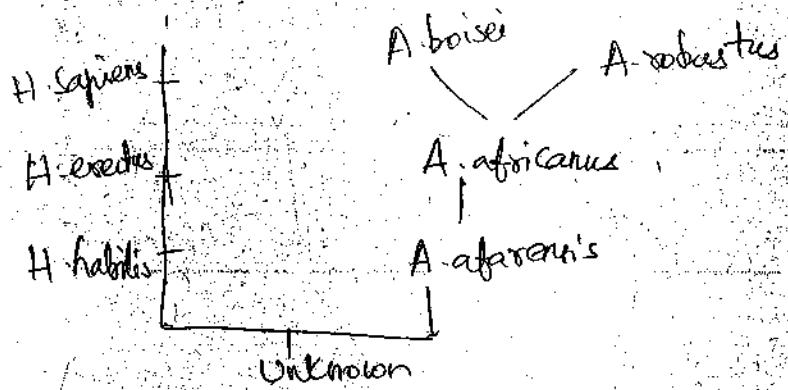
H. habilis

H. sapiens

H. erectus

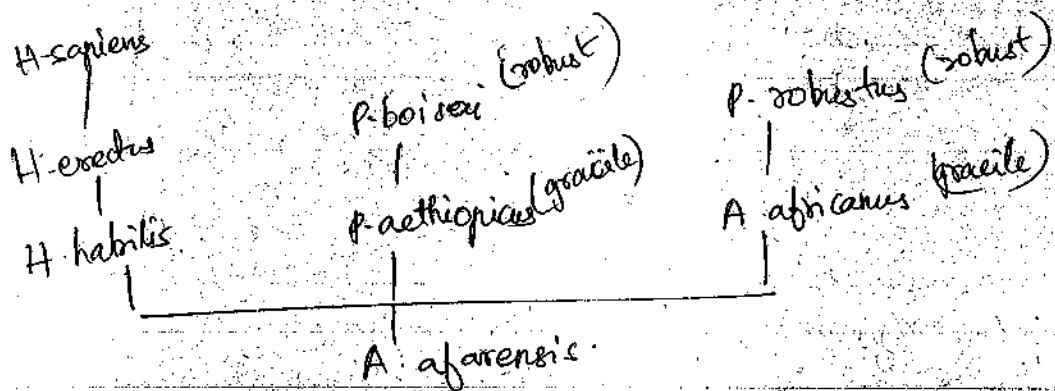
Gracile variety of africanus gave rise to Homo line & robust line.

(3)



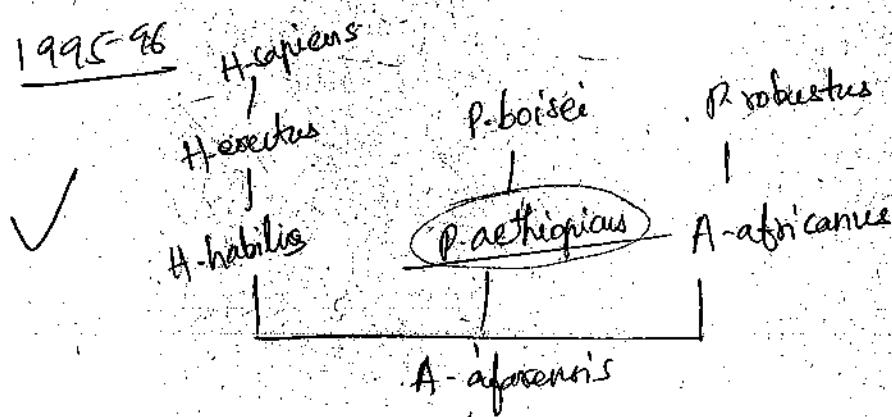
Gracile variety gave rise to 2 robustus like fellows.

3 - Branch theory (Alan Walker) - Poe 1990



P - Paranthropus, aethiopicus - discovered in Ethiopia

1995-96



A. ramidus / A. anamensis

(Currently both are considered different, but in this theory they are same.)

(Pezanthro- is only robust variety of Australo.)

Australopithecines - all species under Australo.
Plesianthropus → ^{sub-}

Australopithecus / Australopithecine / Plesianthropus

If this is asked, then talk about one fellow who is representative)

If this is asked, talk about all sub-species

Questions

- ① Taung fossil A. africanus
- ② Lucy fossil / A. afarensis
- ③ South African Australopithecus
- ④ Discuss physical features & phylogenetic status of Australopithecus
- ⑤ Geographical distribution of Australopithecus

Australopithecus (or) Southern Apes Man

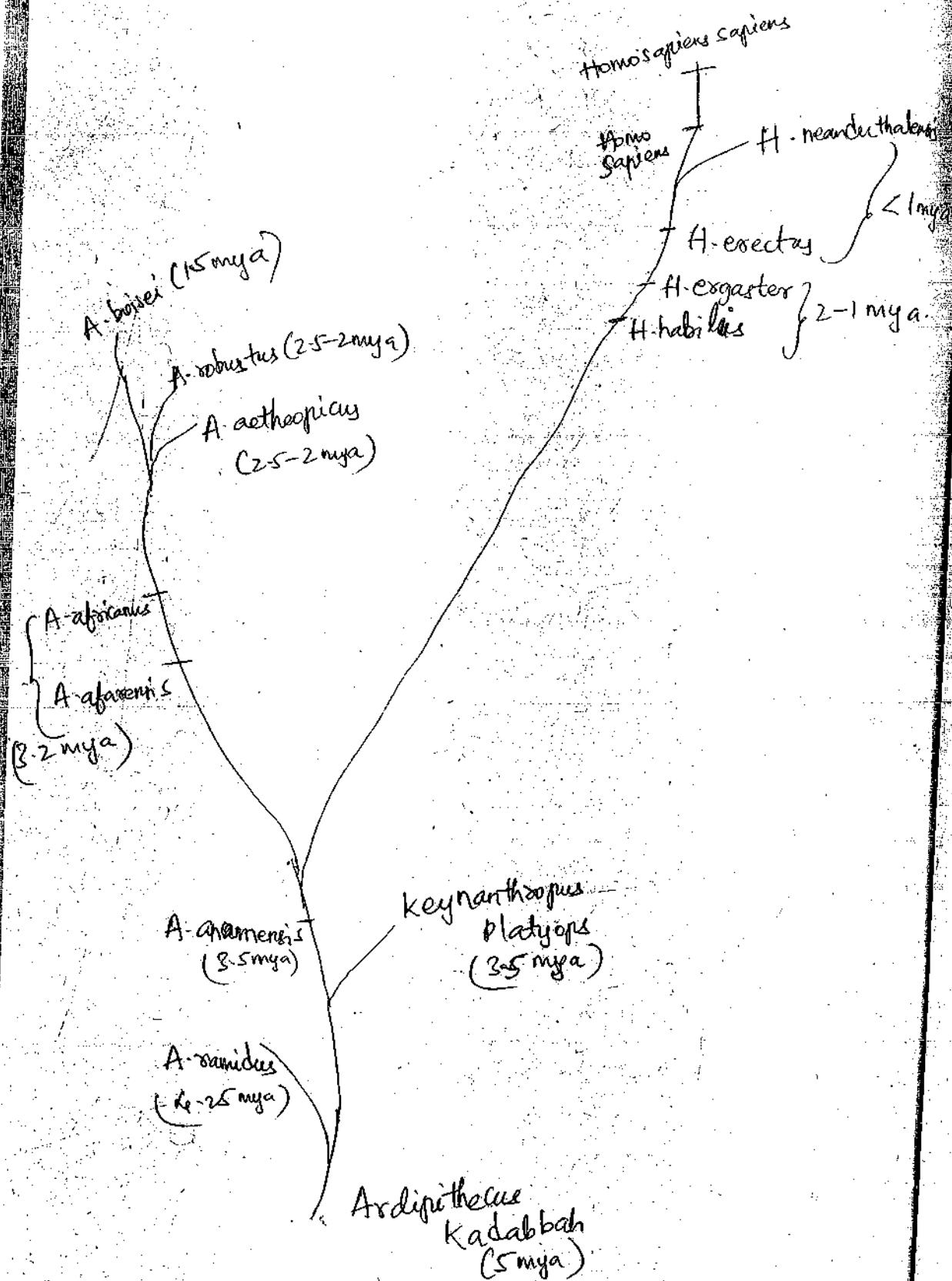
Fossils were found in large numbers in Africa & in lesser density outside Africa i.e., in China & Java.

- It's a small brained biped, with several species within the genus.
- The oldest fossil was dated back to 5.5 million yrs ago.
- Most of the physical features of Australo are associated with Savanna grasslands & some with sparse forests.
- The problem faced by Australo to the researchers was the large number of fossil evidences with minute differences.
- The involvement of a large number of researchers also posed a problem, as the same species was named differently creating confusion.
- ~~Richard Foaash~~ - Beertner Faureh studied various species of Australo & categorised them into Gracile & robust varieties. He also undertook Geographical distribution study of Australo, categorising them into South African & East African Australo.

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Region	Site	Name
South Africa	Taung*	<i>Australopithecus africanus</i>
	Kromdraai	<i>Paranthropus robustus</i>
	Makapansgat*	<i>A. prometheus</i>
	Sterkfontein*	<i>Plesianthropus transvaalensis</i>
	Swartkrans	<i>Paranthropus crassidens</i>
	Swartkrans	<i>Telanthropus capensis</i>
East Africa	Olduvai (Leakey)	<i>Zinjanthropus boisei</i> (robust varieties)
	Olduvai	<i>Homo habilis</i>
	Omo	<i>Robustus Africanus</i>
	Hadar (Lucy)	<i>A. afarensis</i>
	Laetoli	<i>A. afarensis?</i>
West Africa	Chad	<i>Australopithecus</i>
	Dongstone	<i>Australopithecus</i>
	Djetis	<i>Meganthropus paleo-javanicus</i>

Scapin in 2005 gave latest map

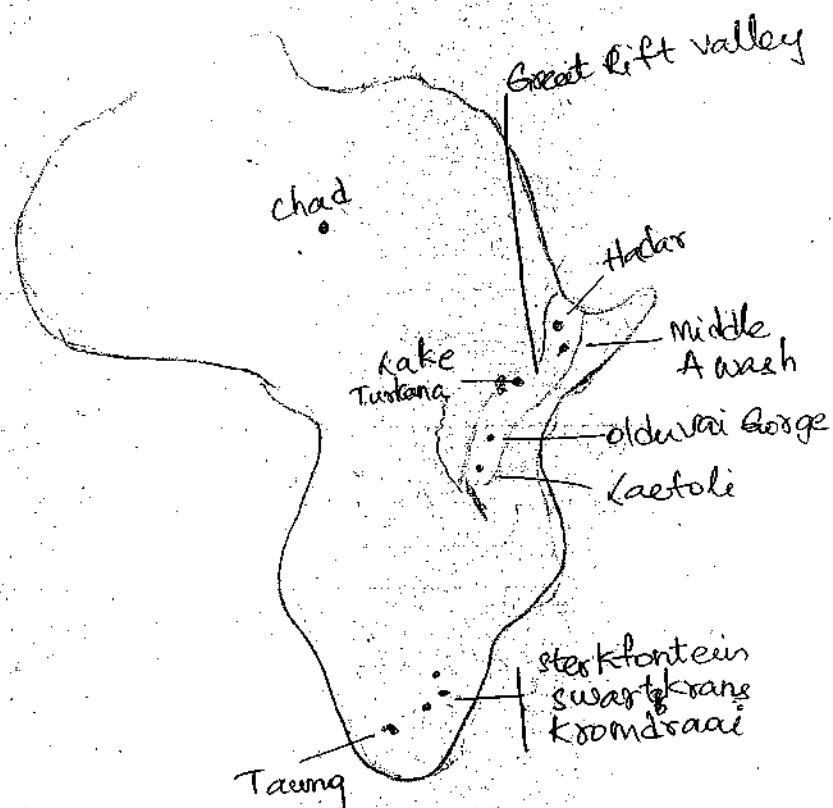


H. ergaster - ~~black~~ only Europeans gave this classification.⁸³
A. aethiopicus - Gracile variety.

Australopithecines in Africa

under 1 million years
< 1 mya

2-1 mya



Kaetole - fossilised foot prints found

Raymond Dart - 1st time found evidence of Taung child

Australopithecus was objected for 2 reasons

- ① Looking at child fossil we can't confirm
- ② 2nd fossil was old man - difficult to walk was the story they gave

Robert Broom → associated with Hadar.

Classification based on Geographical location

- ① South African Australopithecus f Taung fossil,
A-Africanus
- ② East Africa — Olduvai (Leakey fossil)
- Omo - both robust & gracile
- Hadar - Leicy fossil - afaensis
- Koobi - foot prints

(Lucy was the 1st fossil - full fossil (with all bones intact) ^{take found})

Australopithecus aethiopicus - found in Black powder

"Black skull"
so a question raised - Did religion exist for?

A) Recent Discoveries

- 2006 - Tim White - Australopithecus Anamensis -
says are descendants of Ardipithecus ramidus & ancestors
of Australopithecus afaensis
- 2016 - Lee Berger - New Australo species that lived
1.95 to 1.78 m years ago
- Name - Australopithecus sediba (sediba means
fountain in the seotho language of South Africa)
Berger suggested that this descended from
Australopithecus africanus & could be one of
last links in evolutionary line b/w Australopithecus
of one genus - Homo.
- Chronicle (June - 2013) page - 67

- ① T
- ② I
- ③ C
- ④ F

Classification of Australopithecus based on geographical location

84

Beattie Jonash categorised them into

- ① South African Australopithecus
- ② East African "

South African Australopithecus

It is generally represented by Australopithecus africanus; first found as the Taung fossil.

Taung fossil

discovered by Raymond Dart in 1924.

He named it as Australopithecus africanus.

It was a juvenile fossil of 5 to 6 yrs child.

The skull provides several hominid features.

ancestor

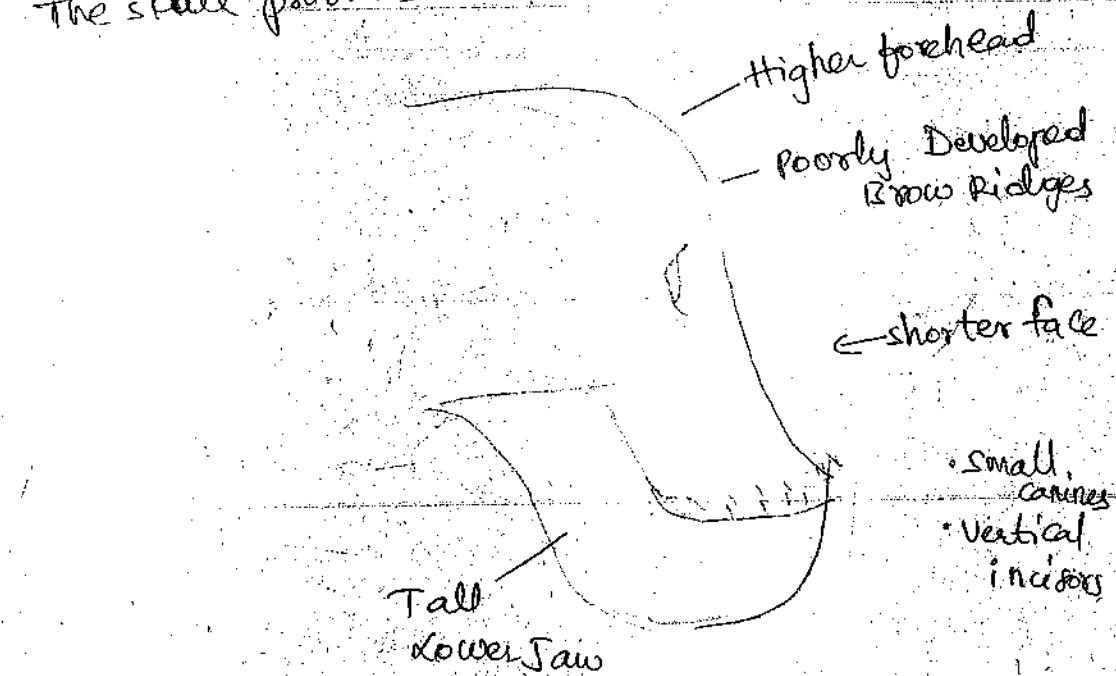
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Africa)

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dolothecies



- ① Teeth including canines were smaller than the apes
- ② No interlocking canines & canines were not bigger than the other teeth
- ③ Dental arcade was parabolic like the humans
- ④ Foramen Magnum was located underneath the skull pointing downwards indicating erect posture

With Bipedalism

- Based on these similarities with Homo, Raymond Dart considered Australopithecus to be most primitive of man's ancestors.
- But placing Africanus in the phylogenetic map of man took a long time because
 - ① It was a juvenile fossil & was criticised to be considered as a missing link.
 - ② The confusion created by Piltdown controversy which led to the belief that cranial features evolved first, followed by bipedalism.

But in 1950, fluorine analysis disproved Piltdown discovery & Taung was placed in the human evolutionary chain.

In 1930s, Robert Broom excavated fossils at Sterkfontein; which were similar to Taung fossil & hence kept under the category of Australopithecus africanus.

The other places in South Africa where africanus was found include Makapansgat & Swartkrans.

Swartkrans produced both Broom & Robert varieties.

Robert variety initially called Paranthropus was first discovered at Kromdraai & Swartkrans.

In 1950, Robinson synthesised all the available species using Beertene Sonnens approach, classified them into 2 genera.

① Australo

Australopithecus

- (1) This was small & gracile
- (2) It was ancestor of Homo
- (3) It was an Omnivore
- (4) Probably, a tool user (or) maker

Paranthropus

- (1) Larger & robust
- (2) It got extinct without an offspring in Homo
- (3) A herbivore

Initially, it was believed that Gracile variety was a hunter. The later studies questioned the hunting ability of Gracile variety. On the other hand, Robustes had the possibility of becoming a hunter but his dental features do not approve of his hunting. Hence among the Gracile & robust varieties, the aspect of hunting remained inconclusive.

East African Australopithecus

Unlike southern Africa, East African Australopithecus was found in river valleys, lakes & flood plains. It was easy to date these fossils compared to - Southern fossils due to their location in Volcanic regions.

- (1) Potassium Argon & Uranium dating could be easily applied due to volcanism
- (2) At several places there were sedimentary layers, proving it easy to date

Imp. sites of East Africa

Olduvai - located in Tanzania
- discovered by Leakey (couple) - 1959.

The fossil material contained a complete cranium without the lower jaw. It was initially called *Zinanthropus boisei* by Louis Leakey. It was later named *Paranthropus boisei* & currently *Australopithecus boisei*.

In 1964, the same site provided evidence of Homo Habilis. Acc. to Robinson, *Arenanthropus boisei* f. *Homo habilis* were similar to Gracile & robust forms of Australo.

Omo → located in Lake Turkana

- It has the evidence of both Gracile & robust varieties

- Discovered in 1960s by Clarke Howell & was studied by the Leakeys in 1970s

Hadar - Ethiopia

- discovered in 1973

- There was a large specimen of a gracile variety

- It was a near complete female fossil hence named "Lucy" fossil

- Hadar also provided the later evidences of Robust varieties

Kaetoli - Tanzania

- presented a huge number of footprints of diff species including bipedal individuals & were preserved in volcanic ash.

- They were dated back to 3.7 million yrs ago.

- The footprints were devoid of the foot arches of human kind & hence it was concluded that Australo is not an immediate ancestor of Homo & one has to establish the link through building intermediate links i.e., through *Homoeoerectus* (or) through *Homo habilis*.

discovered after superin gave his classification - 2005

→ fossil finds +
→ other materials

11-6-12

ence of
homo boisei
Robust

- Fossil finds + other material evidences (stone, bone)
- Time period
- Imp. discoveries & people involved
- physical features
- Controversies if any

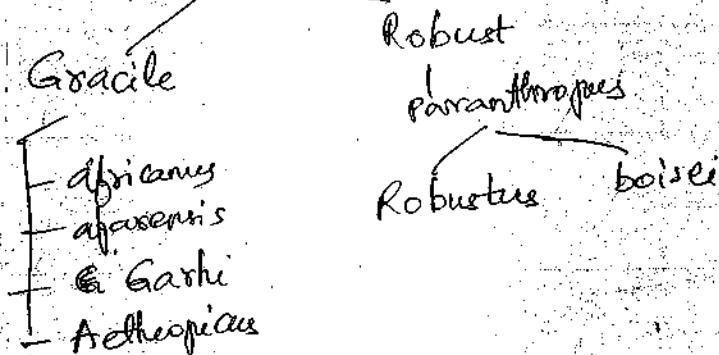
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Variety
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Australopithecines



Aethiopicus
garhi
A. propinquus

} discovered after 2005

Classification based on body size

Australopithecine (gracile)

- *A. africanus*
- *A. afarensis*
- *A. ramidus*
- *A. anamensis*

Paranthropus (robust)

- *P. aethiopicus*
- *P. robustus*
- *P. boisei*

discovered
after
scoping
gave
his
classification
2005

Bonner Jaenneh had provided the 1st categorisation of Australopithecines based on the geographical location of the fossils & physical features. Based on body size, they were categorised into Gracile & Robust Australopithecus.

Right from late 1800s to 2010, there were a large number of Australopithecus discoveries that possessed smaller differences from one another.

Gracile Australopithecus

A. Africanus → also called Taung fossil. It was the first ever declared Australopithecus. Gracile fossil discovered by Raymond Dart.

~~feature~~ → High forehead

In the subsequent years, after the discovery of Taung fossil, a large number of Africanus fossils were found with post cranial evidences.

① Important locations -

- Taung

- Makapansgat

- Sterkfontein

studied by Raymond Dart, Robert Broom & Robinson respectively.

② Body weight - 30 to 60 kg

③ Height - 3 1/2 to 4.75 ft.

④ Cranial capacity - 450 cc.

⑤ Time period - 3 million yrs ago - 2 mya

⑥ Evolutionary status.

It is the probable ancestor of humans.

Initially, it was thought to be the oldest hominid but later Australopithecus afarensis was found with much older timeline.

A. Afarensis

This is also called East African Australopithecus studied by Johanson, White, Copperson in 1978. Tim White in 1990s, found afarensis fossils in Tanzania.

Features

Most of physical features of afarensis are based on the fossil finds of Hadar that date back to 3 mya. Later Makapane gat & Afar produced evidences. At Laetoli, Australopithecus foot prints of 3.7 mya were studied by Jaanush.

Time period - 3 to 5 mya.

Body weight - 25 to 50 kg

Cranial capacity - 400 to 500 cc

There was well developed facial prognathism & the presence of Diastema (socket into which interlocking canines sit)

Due to which, the link with humans to afarensis is much longer than africanus.

- ① The forelimbs are less adapted to brachiation, when compared to apes. But the hand grip is less sophisticated than humans.
- ② The forelimbs are longer than the hind limbs.

Based on this, afarensis is considered to be much farther from modern man when compared to africanus.

- ③ The foot structure indicated longer toes with the absence of foot arches, inspite of possessing similarities in the hipbone, knee & ankle bones. This suggests difficult bipedalism.

H. Ramidus

The first discovery was in 1994 by white & Suwa. It was dated to late Miocene (older than *africanus*)

In 1995, Craig Stanford found *ramidus* fossils in the woodlands of East Africa. Acc. to him, *ramidus* preferred tree living for food & shelter. Hence it is difficult to confirm bipedalism.

But as far as physical features are considered, it is more close to chimpanzee than to the *hominine*, because of which it is considered to be older than *africanus*.

Recently, a new species called *Ardipithecus kadappae* was found to be more ancient than *Ramidus*.

A. aethiopicus

It is also called 'Black skull' as it was found in Magnesium deposits in the Turkana region.

Magnesium in the deposits must have been responsible for fossil tanning. It was discovered by Allen Walker.

- ① The fossils indicate that it had a jaw & skull similar to *africanus*.
- ② The features such as Sagittal crest & dental prognathism were found similar to *robustus* (high amount of prognathism & sagittal crest are the features of *robustus*)



Due to this feature, *Aethopithecus* is placed near to *Australopithecus robustus*.

A. Garhi

It was discovered in 1929 in Lake Turkana & is still under study for confirming its location in Australopithecine.

Robust varieties

Initially called *Pithecanthropus Robustus*. It is considered to have 2 species - *robustus* &

- *Boisei*

Robustus sites were found at Omo, ~~Obiro~~, Komdrof

Savary Krans

Edmund Leakey studied this variety in detail.

Time period → 2 to 1.5 mya

Height → 3 ft. 9 inches - 3 ft. 11 inches

Body Weight → 60 to 80 kg

Cranial Capacity → 530 cc

Dentition → Large & strong with molars indicating harsh vegetarian diet.

Cranium → Large & flat in the front with pronounced supra orbital ridges.

It is seen as the result of chewing hard woods. In addition for reasons unexplained it possesses sagittal crest.

A. boisei, Zinjanthropus boisei (or) Pithecanthropus boisei

Imp-sites → Olduvai & Penin in Tanzania

First discovery → by Leakey in Omo (East Africa)

Time period → 1.8 to 1 mya

Stature → Diff fossils presented varying stature from 6ft to 9ft & hence dentition is larger than robustes & it is called "Nut cracker man".

Similar to Robustes, it is also found to be herbivore. It was the 1st fossil in Alogical History to be dated using Absolute Dating methods.

About the journey of Australopithecines, there are different beliefs. For some, Gracile was the 1st to be extinct as it needed more inputs from nature due its being largely vegetative. The Herbivores could withstand the change in the climate to a lesser extent.

But the current thinkers such as Simber opine that Robust varieties were early to extinction than the Gracile varieties because change in the faunal system & disappearance of fauna varieties affected have a greater impact on the dependant life forms than herbivorous varieties.

Currently it is believed that Australopithecus is definitely an ancestor of human, though the arguments remain regarding which species triggered this shift towards human line.

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→ IN
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&
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① LI

Cultural aspects

- Tool technology - 'osteodontokeratic' culture
- Housing
- Language

Mgmt from stone based tools to Non-lithic tools
 Broad spectrum consumption - ~~most~~ smaller
 Neolithic tool typology

Homo erectus

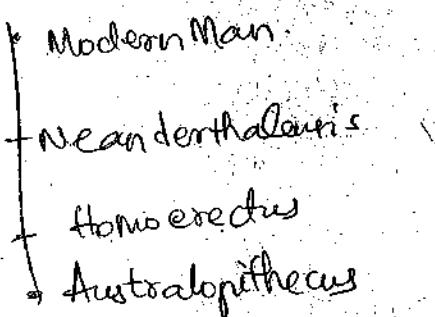
Phylog.

First discoveries of Erectus

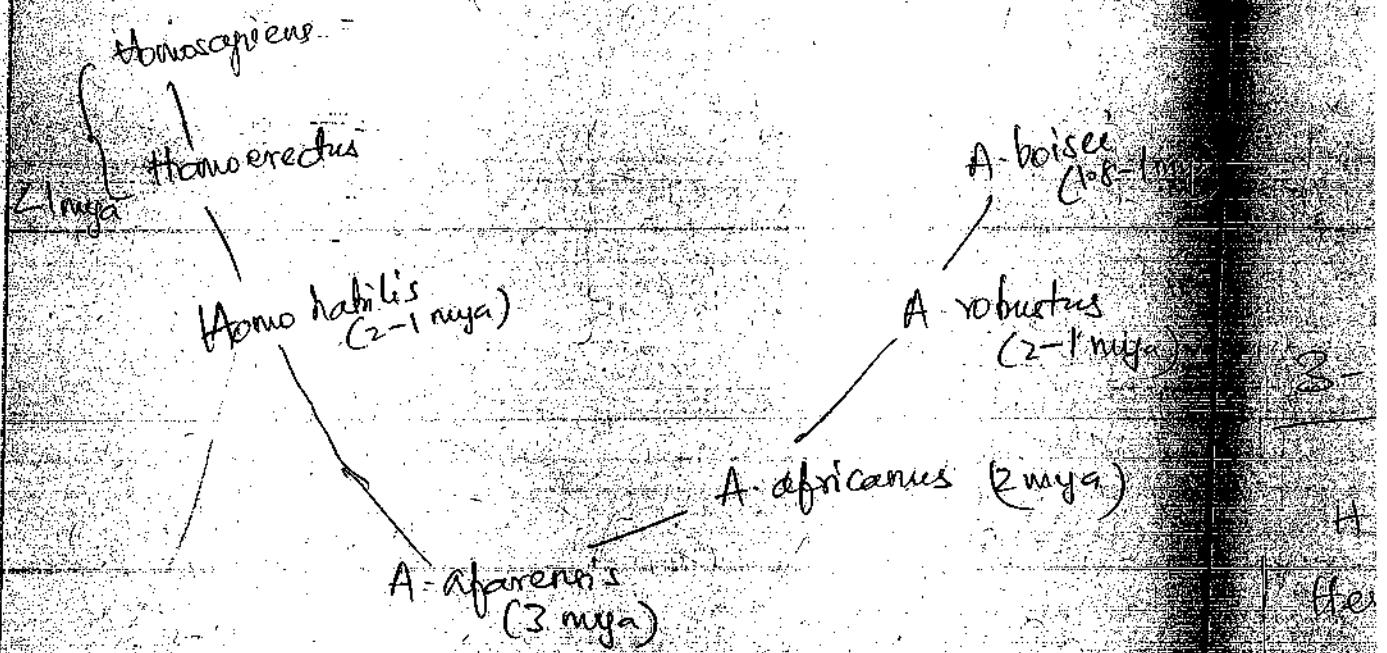
- were during 1890's
- Initially found in Asia, followed by Europe.
- African discoveries were late to come ⁱⁿ 1960's
- As per the number of early evidences of Hominids, Homo erectus produced largest number of evidences.
- It is spread across almost the entire world.
- Similar to Australo, in the early times, Erectus was named differently such as Sinanthropus, Paranthropus & Aethanthropus.
- All of them were finally put under Homo erectus.

Phylogenetic studies

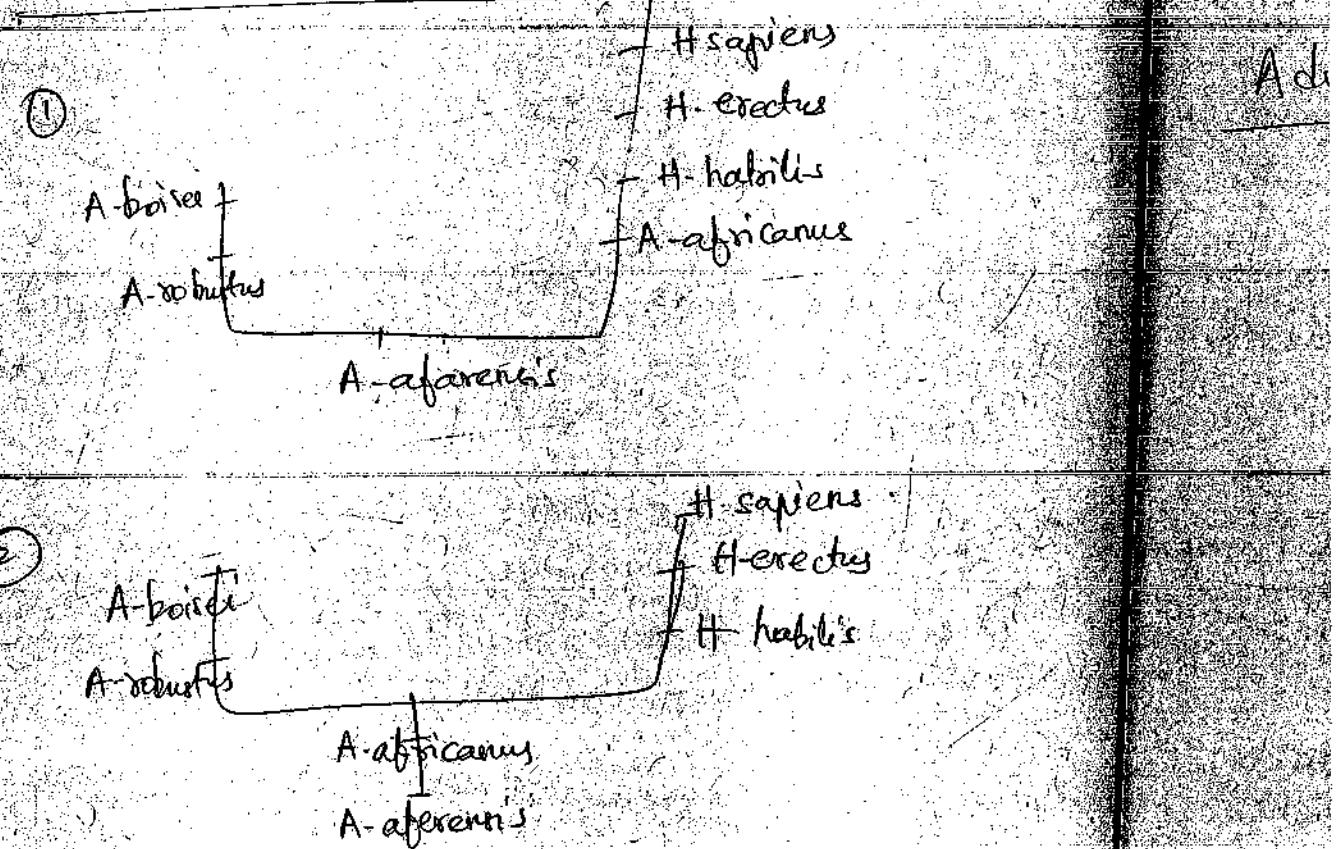
① Linear evolution



Two branch theory (Johanson-White model)



Habilis based models



odel

(3)

H. Sapiens

H. erectus

H. habilis

A. boisei

A. robustus

A. africanus

A. afarensis

und sicher

utrus
2-1 mya
- mya)

3-branch theory (Alan Walker) - see 1990

H. Sapiens

H. erectus

H. habilis

D. boisei

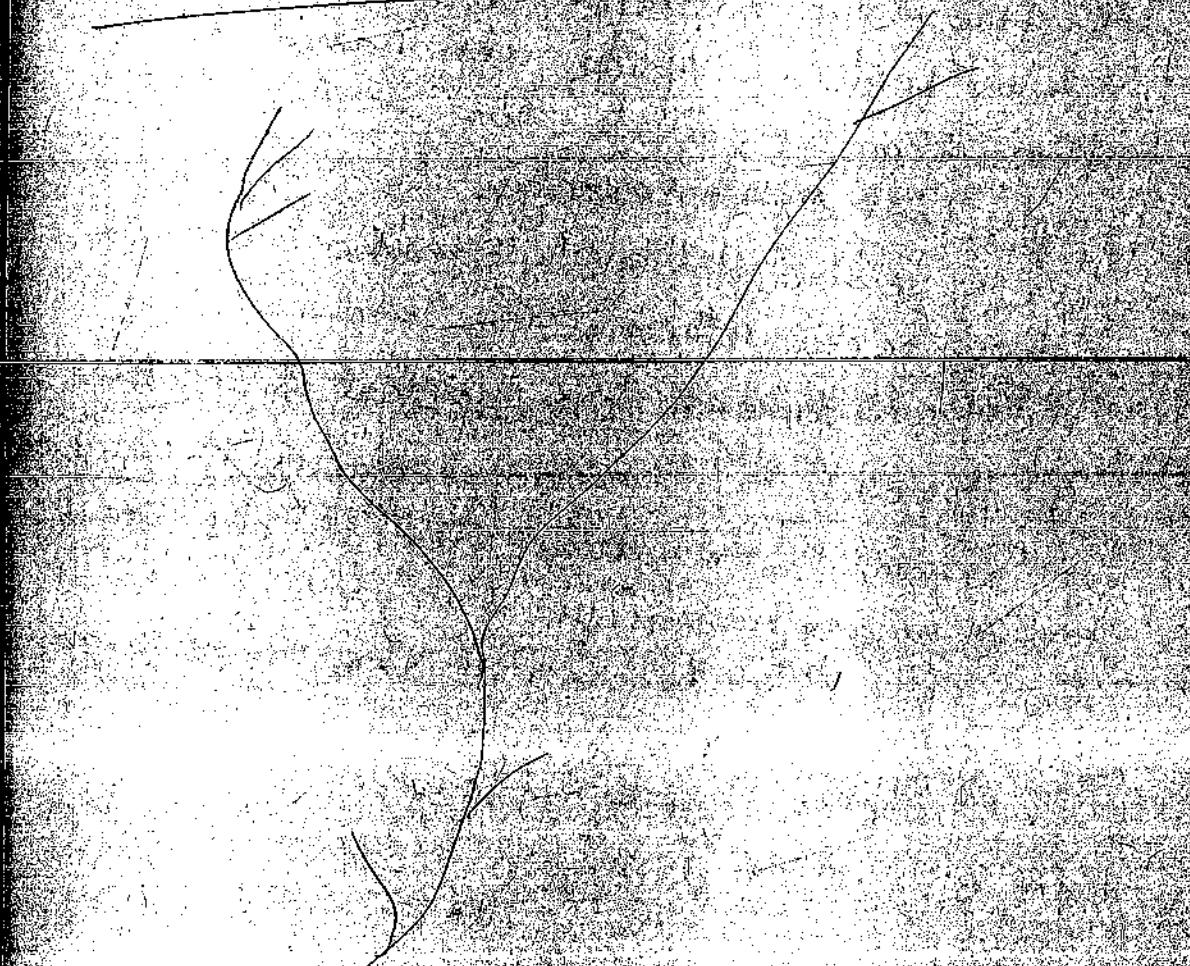
P. aethiopicus

A. robustus

A. africanus

A. afarensis

Advanced model including Ergaster



Time

→ *Homo erectus javanicus* - Asia - 1.8 mya

→ S. Africa - 1.8 mya → (after this no evidence in S. Africa)

→ E. Africa - 1.26 mya May be erectus may have been
but extremely
different
above

Australo in entire world was simultaneously moved to
Erectus.

Initially it might be that Australo originated in
Africa & then moved to diff parts of world

Solution - This suggests Parallel evolution
but what are factors - ? still not known

South African *Homo erectus* was supposed to have
migrated to East Africa which is evident from
the time period of the fossils.

Erectus fossils in Africa were named as
Homo ergaster, while those in Asia are
simply called *Homo erectus*.

With regard to the phylogenetic status of
Homo erectus, there are 2 arguments

(1) *Homo ergaster* is a variant of *erectus*

(2) *Homo erectus* is a subspecies of *Homo*
with regard to the latter view, the position of
Homo neanderthalensis posed a problem.

Most often people believe that *Homo erectus* was
an ancestor of both Neanderthals & *sapiens*

But whether Neanderthal was intermediate to
them (or) was the result of a separate line of
evolution from *erectus* is yet to finalised

Imp. sites (Ember - Map of Erectus finds) 11

Africa

- Koobi Fora - Kenya
- Texline - Algeria
- Swartkrans - S Africa
- Olduvai - Ethiopia
- Nariokotome - Kenya
- Rabat - Morocco

Most of the erectus sites were studied in 1950s & 60s. They possessed 2 important features

(1) Cranial capacity - 800 - 900 cc. That is almost

double the cranial capacity of Australo

- (2) Existence of prominent brow ridges
- (3) Prognathism of face is much lesser than Australo
- (4) The Avg. stature of erectus is much higher than *Homo sapiens*.
- (5) Some of the adolescent fossils found at Nariokotome were found to be 5.11" tall hence erectus is considered intermediate to Australo & Humans in several forms.

Asia

- Trinil-en-Java was the first excavation discovered by Eugène Dubois.
- The Asian Variety in the early 1900s was named *Pithecanthropus erectus*.
- Its Cranial capacity - 850 cc
- Long femur compared to humans.
- In 1950s, more erectus discoveries were found at ~~Van Koenigswald~~, studied by ~~Bauer~~ Javanicus
- Choukoutien (China) → *Sinanthropus pekinensis*
~~Peiping~~ (China) → studied by Weidenreich
- Lantian (China) → Located in Shaanxi Province
 → Homo erectus pekinensis was found
- India - Hathnora - *Homo erectus narmadensis*
 studied by ^{H.P.} Sankalia

→ Europe

- Heidelberg → ~~Mauer~~ (exact location of find
 → Mauer) only lower jaw was found
 (other they found skulls similar to lower jaw
 from that built up story)

(Heidelberg jaws (or) Mauer's Jaw)

Mauer's jaw was found in Germany which was later found to be *Homo erectus Heidelbergensis*

13-6-12

42

Embers Map: (Africa, Asia) (List of sites already learnt)

Cultural elements of Homo erectus

① Migration

Disappearance of erectus of South Africa by 1.8 mya and re-appearance in East Africa b/w 1.6 & 1 mya indicates migration of Homo erectus. Reasons for such a migration couldn't be established. Nevertheless, migration to new territory demanded cultural evolution so that they got adapted to new environments. It can be explained by advanced tool typologies & relatively sophisticated tool setting evident at East African sites.

As far as human fossil evidences are concerned, Homo erectus of South Africa were no different from East African variety in physical features. Hence,

Raymond Dart concludes that Homo erectus adaptation is more cultural than biological.

② Tool Typologies

- ① → Nature of tools
- ② → Types of tools
 - Syntypes

③ Evidence of hunting - Big game, Group hunting, Use of fire, frightening from Spain & Charcotian

④ Evidence of habitation

4200 Home sites
Work sites - found big rubble (Health)

Location → river valleys - Pebble tools.

⑤ Use of fire → fringe site → location

- ↳ frightening
- ↳ cooking
- ↳ social gathering

(t) Necroliterature & Religion

- Burial practices - humans buried Examples.

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(3) Physical features

In both cranial & post cranial features, *H. erectus* demonstrated advanced features than *Australopithecus*. But it was less evolved than *Homosapiens*.

There was an evidence of advanced features within *Homo erectus* within Asian (e.g.) Chinese species of *Homo erectus*.

Laymon Dart's study reflected both advanced & primitive features in *erectus* (advanced refer to human like features, primitive refers to ape features).

(a) Skull features

① Cranial capacity averaged to 1000 cc i.e.,

more than Australo, less than *Homosapiens*.

② There was an evidence of Pentagonal keel i.e.,

from frontal view, cranium presented a pentagonal structure. There was at the back of the skull a ridge like bony structure at the bottom of the skull.

③ There was the evidence of supra orbital taurus which is a ridge of bone running horizontal along the orbits below the forehead.

The skull is more rounded than *Australopithecus* but less than *Homosapiens*. Higher cranial capacity might have been facilitating origin of language,

thinking & communication (study of his big game hunting provides a clue of a need for establishing some form of language)

(b) Facial features

① It had less prognathism than Australo.

② Nose was more prominent & projecting than Australo.

③ Dental arcade was more parabolic approaching humans.

④ Evidence of taurodontism refers to enlarged pulp cavity & bulb like teeth.

(C) Post Cranial features

- ① Foramen magnum is placed in a position similar to humans.
- ② The S-shaped curve in the spinal cord is clearly evident in human form.
- ③ Pelvis becomes broader indicating birth of large brained individuals. It is a feature similar to humans.
- ④ Evidence of linea aspera on the femur indicates a perfect erect posture.
- ⑤ Acc. to PilBral, the female hominid has no marked differences than the male. But pelvic structure provides a clear indication.
Pelvis structure provided a clue for evolution from Australs to erectus.

As the Homo line progressed, cranial capacity further increased. In terms of physical features, more than any other aspect the cranial features & hence the facial elements had prominently changed.

Future of Anthropology

- Concept in 21st century is Cultural Relativism
- Due to Globalisation, → clash of cultures → many vanishing
- A' is also facing challenges from G.
Future of A' can be enhanced by giving primacy to interpretative understanding of society & culture, policies, borders, social justice etc..
- Planned cities, Green cities offer Anthropologists a unique opportunity in influencing the future of culture, its diversity.
Ex: Masdar in Abu Dhabi - (reduced carbon emissions).
- Since 1980s, emphasis in socio-cultural A' has been on a range of issues - Globalisation, Diasporas, trans-national processes, etc..
- Migration, Political collapses, social reorganisation are imp areas of research now & in future.
- Ethnography - There is a changing relationship b/w observer & observed
Coz of new tech Participant observation.

- New technologies - Internet, video-conferencing - have revolutionised access to info across remote places of the world.
- Abog is better able to generate employment for its graduates.
- Fieldwork -
 - set up an International electronic register of field workers so that Abogist can share their works & become virtual correspondents.
- Tenets
 - draw attention by both administrators & teachers of A'
 - Courses are old fashioned & don't reflect contemporary problems.
 - Colonial hangovers -

or evolution

capacity
stressed,
structures
changed

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xpeditive
xjustice etc.
unity in

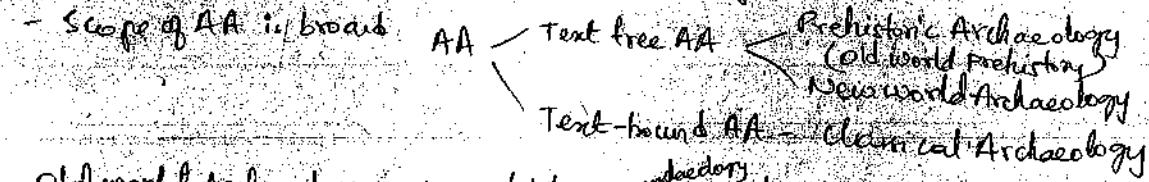
a range
s, etc --

imp areas

& observed

Scope of Archaeological Alogy

- AA is concerned with (i) systematic retrieval & analysis of the physical remains including skeletal form & cultural remains left
- (ii) Reconstruction of envt, culture & society



- Old world Archaeology (i) prehistoric A^{ndeas} describes, analyses & interprets origins, spread & dev of cultures prior to innovation of writing
- Paleo A deals with Paleo Ecology & Paleo Ethnography

Paleo Ecology - study of prehistoric envt & relation with human pops.

Paleo Ethnography - study of prehistoric cultures i.e., reconstructing the culture in terms of technology, economic activities, social life, rituals etc.
PE divides cultural dev of pre-historic pops in 3 stages - P, M, N.

New World Archaeology - deals with past cultures of pops that lived in America. ex:- Red Indians (Aztec), Incas, Aztecs etc.

Classical Archaeology - deals with reconstruction of ways of life of ancient literate civilisation. Initially it described Greek, Roman, Mesopotamian civilisations. Later of India, China, Thailand etc.

Emphasis of AA is on evolutionary perspective, General systems approach and dependence on logico-deductive reasoning

EP - stresses upon great role played by tech & economy in generating progress & consequently evolution of culture

GSP - emphasis on interrelations of envt, ecology, local & regional pops

LDR - utilises present primitive cultures to understand the extinct cultures

Paper-1
Section-II

→ B. M. Dose → physical Anthrology
→ (9.6) Genetic markers

→ P. Nath.

→ Shukla & Rastogi - Physical A & Human Genetics

→ Orient Longman Books -

Applied Anthropology

= Applied physical A + Applied Social A.

Applied physical A

→ Kinaanthropometry

→ Apps in Defence

→ Forensic A

→ Paternity Diagnosis

→ Genetic Counselling

→ Eugenics

→ Sexogenetics & Cytogenetics

Page-2 → functions of forensic Alogy

— theft

— death

— Paternity

Fingerprints
Skeletal
Dental
DNA

→ Various kinds of dead are studied

→ Examination of fingerprints, dental - then DNA studies

page-12 → types of marks, prints at the scene.
Visible prints, Plastic prints, Latent prints.

page-14 → development of latent prints

page-16 → chemicals used

page-19 → Dermatoglyphic studies

page-22

page-26 → Indian studies - Value of fingerprints.

pg-28 → Importance of fingerprints.

pg-35 → Distinctions b/w male & female
(Tables have to be read)

① USA - India → recent agreements to give back
 ② Terrible cases | WW-II veterans bodies in
 North East India

pg -40 - Determination of age-based syndromes
(Don't memorise all skeletal features)

pg - 49 → Determination of age from single tool.

pg 54 - Reconstruction of stature - mathematical formulae
(not given so far - so expect them in exam)

pg-57 - Time period wise reconstruction

pg-60 - facial reconstruction

pg - 62 - Dental abnormalities

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Kinanthropometry (Sports)

(One in Apps of Physical A)

Def by Bill Ross (in 1970)

"study of human size, shape, proportion, composition, maturation in order to help understand growth performance"

(Application of Anthropometry to Sports.)

* Dr. Sachidanandan → trained Munda tribes for archery Olympics
only person

K tries to solve problems

- ④ Based on physical features - suggest suitable sport
- ② Based on individual capability - prepare your own implements.
- ③ try understand opponents ph capabilities

Australia } applying
China } 2 countries studying Anthropometry to sport
} allocating sports to children

Reasons for Biological study of sport

- ① Media coverage
- ② Financial expenditures / gains
- ③ Number of participants involved
- ④ Fitness revolution of 70s & 80s

History of Biological study of sport

① Calhoun - emergence of sports A.

→ Change from 'fun to business'

→ Exploitation & violence in sports

→ Problematic issues of health, gender

(he talk about drugs in sports)

(2) Sander - 1960's - period of re-evaluation of sports

- Sport as a means of expressing social systems w.r.t race, power, social inequity
- Impact of sport on culture.

(3) Blanchard's analysis

- Work & leisure

- Sport as a Game

- Relation b/w Sport & Ritual

- Sport as a conflict

studied Japan & China's sports persons

Rituals for sports such as →

→ favourite of Indian sports - kabaddi

Theoretical Models of Study of Sports Anthropology

Explanatory Models

→ Evolutionism

→ Cultural Materialism

→ Functionalism

→ Structural Functionalism

Bachofen studied evolution of specific sports at time when anthropometry wasn't there

Martin Harris - cricket

Hockey
baseball

studied people's temperament while participating, watching sports

Nob psychology
exp - Wimbledon

Durkheim studied sports

in building social relations

are contemporary studies.

Edmund Beach - part-time kinanthropologist

(Contemporary of R.C. Brown)

studied sports from point of symbolism.

sports
systems

Interpretative Models

- Symbolic Anthropology → sports specific symbols
 - Ethnoscience → New Ethnography Applications
analysis of Ethic & Ethnic
psychology understanding
 - Experimental Ethnography
 - Archaeological Study - Blanchard - Buzkashi
- ↳ Simulation to Video Games
→ trying to improve skills by simulation

* especially Greek studies

Blanchard is known for studying
Buzkashi → 1980s he released documentary
one of wonders of world

(2) studied Colosseum

place in Afghanistan - children tied to camels
this year practise changed - now adults are riding
camels.

Scope & Applications

- Interplay of Heredity & Environment
- Analysis of Relation b/w physique & sports
- Redesigning of Sports Articles

The classical kinanthropometry majorly focused on
understanding the interplay of Heredity & environment
& designing sports equipment suitable to individual's
physique.

(1) Heredity & environment

Acc. to Shukla, kinanthropometry aims at selecting
the fit genotypes that are possessing a set of qualities
for a sport & mould him to the sport by external
interventions. This helps attaining fullest potentials
needed for the sport.

Changays of Relation b/w physique & sports

The physique of an individual is an expression of interaction of environment & modification subject to the genetic makeup.

The sub-discipline works on the principle that the physique of an individual undergoes transformation with age & every sport requires a particular physique. Based on this, Kinaanthropometry suggests sports to the individuals at appropriate age.

For ex:- a light boned individual with longer lower limbs can make a sprinter.

Kinaanthropometry helps in identifying talent.

For ex:- several Australian Universities & schools have been using skeletal features to suggest sports to individuals.

Kobersch has classified athletes into 3 categories on the basis of physique

① Slender type

They are best runners & jumpers

② Medium type

They found best boxers, ball players & swimmers.

③ Massive type

They make best wrestlers & weightlifters

Morehouse & Rouch in 1964 formulated a scheme which may help an individual select an appropriate sport. This led to further studies in Anthropometric investigations in various sports.

For ex:- ① A study of Height of sprinters, jumpers & long distance runners

- ① Runners have greater length of lower limbs than the trunk.
 → the fat & weight of legs should be minimum to maintain slenderness.
- ② (b) the jumpers should have long lower extremities as the greater trunk volume leads to a dragging force while jumping.
- Acc to Heron, too much of fat deposition in intermediate breaks does damage to the sports persons. When an individual attempts to reduce fat levels subsequently, it may have negative consequences such as reduced bone density.

- ③ Weight lifters studied by Tanner.
- Taller individuals have a disadvantage in weight lifting as they have to lift weight to a greater height.

Small statured individuals with limb height less than the trunk height are best suited.

- ④ Swimmers - studied by Carter & Yuhasz.
- Acc to them, moderate amount of fat is needed for swimmers as it provides extra insulation & buoyancy.

- ⑤ Gymnasts - studied by Parizkova
- Significant reduction in fat layer is observed among successful gymnasts. The observed reversibility of body to achieve the previous characteristics. Hence suggested regular work outs especially suited for gymnasts.

- ⑥ Cricket, Badminton, tennis, football by Parizkova
- They need more use of either lower limbs (or) upper limbs (or) both. Among football players, the anthropometric features such as femur, size of foot arches are considered crucial.

15B

Cricket & Hockey etc involve more of hand than feet. Therefore humerus and radius bones, movement of wrist, length of fingers are also crucial. Apart from these, certain general features such as the capacity of lungs & chest expansion also are mechanisms used in Kinaanthropometry.

Redesigning of Sports Articles

Most of the international sports organisations prescribe an average range (or) certain internationally recognised sizes of various sports articles.

It posed a threat to indigenous ethnic groups and hence Dr. Lachindra Narayan redesigned hockey sticks of National standards to suit the juniors among tribal groups of North East of Chittagong.

Among the Munda & Sania Baharias, traditional archers were unable to compete and participate due to short stature. Hence Dr. Narayan redesigned archery equipment for their stature.

These are some of the currently used applications of Anthropology in sports. With increasing awareness of benefits in sports as a career, the demand for Kinaanthropometric studies is bound to increase in the future.

① Ques

②

③

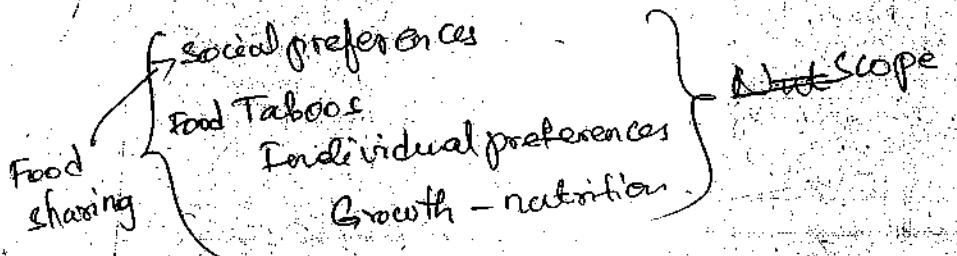
15-B-12

Nutritional A

- currently one chair introduced in National Institute for Nutrition
as a part of ICDs

Def

- ① It pertains to studies in which nutrients and nutritional status of an individual (or) a community are the core concerns.
- ② Growth & genetic aspect of nutrition in relation to ecological & social history of populations



content (Handout introduction)

- food intake, nutrition & health
- population

① How is food a social factor?

② taboo

Ex: preference for Non-veg/Veg

- Teetotalism

- Potato - taboo - (Coastal Red Indians)

- Salt directly in food - taboo (Iroquois)

60% of which high Iodine deficiency

③ Sharing & Scarcity

examine aspect of sharing from perspective of industrial societies ($H/G \rightarrow$ Industrial)

Ex: Chenchue, Bushmen, Eskimos, Yanomamo

How famines, scarcity became commonality

→ have more occurrence of famines

(2) adaptation → How they adapted to nutritional stress
Hunting Gathering → Industrial
store share samples,
govt intervention

(3) Nutritional disorder

social factors

(C) Upbringing

- External food to child
- Gender based bias

Studies & efforts

- Preserving traditional knowledge
- To study changing food habits

Case studies (Recent)

- ① ! Keng bushmen of the Kalahari desert, Botswana
by R.B. Lee (mid 1980s, not later)
- He documented the impressive success of this culture
 - The diet was typified as "as much meat as they can get & as much vegetable/plant food as they need"
- Drastic changes in nutritional status of the Keng San took place from this time until 1986
- Shift to maize as a staple diet
- From 1969 to 1981, authors documented high rates of anaemia, secondary to iron & folate deficiencies; parasitism & alcoholism were rampant

From 1980s, overstocks of maize gave rise to several health disorders.

② Nuu-chah-nulth of British Columbia

(fishing hunting gathering)

→ traditional → food system

→ based on clan system

→ Results showed many fewer of the traditional species used in the 1980s compared with those reported by ethnographers in the 1960s. (loss of ecosystem)

① change ecosystem

studied by Darkheim

Fauna are conserved here coz they are not consumed.

③ they were pushed away from coast to hills

by Europeans

Big steamers, trawlers never denied them fishing

Botswana
ster)

his culture
it as they
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abit 1984

high
isolate
were rampant

Defence Applications

- compilation of
 - ① War - Understanding
 - ② Ergonomics

Importance, came & coz of increasing defense trade.

Ex - Japan supplying aircrafts to Afghan

→ Len height

6 ft tall

so defense apps had to modified.

→ Dress for high altitude, underwater defense, helmets for pilots

National character studies

+ve, -ve, Neutral

I (now)

during

World War

- ③ Culture relations made easy

Why many deaths in Iraq, coz of US Americans?

Sign language → If we show our hand (palm out),
we mean stop
→ but Iraqis feel come.

So, when you go on war, u should know the
sign languages.

Using Anthropometric Data for 3 aspects

- ① Design for the extreme (avg averages don't work)
- ② Design for an adjustable range (this is done by Anthropometry)
- ③ Design for Avg:

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Defense A' is seen as an extension
of defense A, but
it is a development →
by incorporating
social, cultural
aspects - understanding

Defense A (or) Defense Anthropometry (B.M.Das)

It refers to the application of Anthropometric data for defense purposes. In terms of scope of study defense Anthropology is much wider when compared to defense Anthropometry. The former is a combination of physical & social Alogical studies. Whereas the latter, deals only with Anthropometric data and hence it can be used in defence applications.

In the current times, trade in defence equipment, cross border direct warfare, deployment of distant armed forces in conflict zones has called for applications of defence Anthropology. Use of Anthropologists in defence can be dated back to early 1940s, when American administrative Academy invited Anthropologists to be a part of an effort to understand the enemy. It was the time of Psychological Anthropology especially in USA and hence the focus was on National - Character studies, Developing Etiquette guides for better communication with the enemy battalions.

Use of Anthropologists for establishing political supremacy (or) gaining upper hand in defense was criticised by people like Max Gluckman, who rejected the offer of the academy. But thinkers like R B Lee opine that Anthropologists can -

use their knowledge in establishing positive relations b/w nations. One need not be judgemental & partisan in doing so. Acc to Gluckman, this is empirically difficult for a practising Anthropologist. He demonstrated it, with the example of involving Anthropologists to deal with the conflict b/w South Africa & Namibia.

South Africa had formally deducted Anthropologists into army. But the Anthropological knowledge was misused to take benefit of the vulnerable groups. Nevertheless, govt of South Africa mentions that Anthropologists here are used for knowing the enemy, his culture, their viewpoints & preferences, especially of the people caught in the war zones.

(Case study → Rauti Social Organisation (women) who
incite men sexually before warfare)
Direct contact with Rauti women - Avoided
Social contact - forbidden
trying to understand ~~the~~ rebel groups of other racial
stocks within one own country

Recently

- Post Afghanistan & Iraq
- Anthropologists & Archaeologists in Dept of Defense (USA)
(now on a regular basis)
- Human Terrain Teams - USA
 - ↳ like spies who interact with local people in order to know inside out - get ground level info
- Montgomery McFate's comments
 - ↳ is against all these
 - ↳ A should be used for benefit of downtrodden but now it is used by most powerful to eliminate their opponents.

Design

→ ~~Work place design~~

Traditional Apps of Defense A

The 1st application of Anthropometric knowledge in defense can be traced back to late 1920s, when the Aeropilot, Gutfeld defined Anthropometry as a branch of physical A concerned with measurements of human body.

In 1928, the publication of an article "Anthropometry" by Martin referred to the possibility of regular use of Anthropometric knowledge in defense & Hence currently defense Anthropometry aims at designing equipments in perfect combination to the individuals using them.

Some of the areas considered in this regard are

① Work place design

- It includes designing of ~~spa place~~ space where individuals are occupied. Seating arrangements, place of relaxation, designing defense equipment (as) parts thereof to suit body measurement. Automobiles, aircrafts, kernels, cockpits, dimensions of doors, location of switches have to be worked out "not based on averages but based on workable average ranges".

② Clothing & personal equipment such as pressure suits used for individuals from airforce, & accessories such as helmets, gloves, instruments such as guns should be designed according to the physical features of the individual.

Currently, with the increase in the trade of shooting equipment, the physical standards of the individuals importing them, their shoulder strength, the position of eye are

also being taken into account.

(3) Designing of cockpits

The 1st application of Anthropometric data in the designing of aircrafts is specific to the cockpit was done by Russians in their sale of aircrafts to India. The height of the cockpit, position of seats, have to be according to the individuals using them.

- (4) Russia also became the 1st nation to design flight gears, including helmet gloves, oxygen masks to suit the body dimensions of the buyer. They categorised into a number of workable ranges. In case of helmets, the tall dimensions & contours are taken into account & helmets are produced in 2 broad ranges i.e., large, medium & small.

- (5) In producing Oxygen masks, face forms are categorised. Gender differences, age of the individual are also taken into account.

Dr. Harry, an American air force doctor had successfully suggested these ranges. He was also the 1st one to design Pressure suit for American defense forces.

(6) Ejectable seat configuration

There had been evolution of the shape, weight & attachments of pilot's seat from the 1st world war till now. The initial aircrafts, did little work on managing centre of gravity of the pilot, in case of a forced ejection.

Due to a simple bucket shaped & uncomfortable sitting posture, along with not managing Centre of gravity, within the body of the individual,

9

fatalities & casualties were very common & hence, over a period of time, the pilot's seat is being carefully configured.

Similarly the weight & size of guns & other equipment are being designed according to the individual's carrying capacity. It is here that the anthropometric knowledge is applied to defense gains & comfort of the individual.

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Eugenics

"Systematic elimination of undesirables to improve the humanity"

Darwin spoke first of words "desirable undesirable"

→ preserve positive, desirable genes
& discourage -ve, undesirable

↓
traits
= most often undesirable genetic traits

Focus of 'A' in Eugenics is to understand what is "Undesirable"

→ Hayflick's limit → life of cell)

was decided based on 'beauty' based on at that time.

Eugenics

→ term coined by Francis Galton (Contemporary of Darwin)
(Darwin applied the word.)

The study of agencies under social control which may improve the racial qualities of future generations both physically & mentally, with application of principles of genetics — Galton's definition.

Galton was criticised for Eugenics → to contribute to racism & elitism

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- (2) Att
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Need of Eugenics

In the earliest writings of Galton, the need for applying the knowledge of genetics to improve the human race, was seen from both the +ve & -ve perspectives. Eugenics in one sense is seen as an application of environment & heredity. They both play a role in resulting in certain characteristics of all living beings i.e., even in the best of environment, defective hereditary traits cannot result in the characteristics & hence, for Galton, eugenics measures were essential for betterment of human race.

Over a period of time, voices against this view started emerging. Currently it is proved that despite of eliminating bad genes, there is a possibility of occurrence of diseases based on non-genetic factors & hence this school argues that Eugenics doesn't focus at curing diseases, but works through eliminating genes.

Eugenic Measures / methods

Eugenics includes methods which improve inherited qualities of a species. They are categorized into

Positive Eugenics

- ① Assortative mating
- ② Artificial insemination
- ③ Cloning
- ④ Genetic Counseling
- ⑤ Removal of Social Hindrance
- ⑥ Consanguineous marriage

Negative Eugenics

- ① Regulation of Marriage
- ② Sterilisation
- ③ Termination of Pregnancy
- ④ Controlled Immigration
- ⑤ Consanguineous marriage

Assortative mating

for

Positive Eugenics

(3)

If includes enhancement of desirable traits (but what is desirable & who should decide the desirable are the issues currently argued)

(1) Assortative Mating

It is seen as both a +ve & -ve measure.
As it applies preventing breeding of certain types of people & encouraging it with certain others.

In the ancient societies of Greek, in the absence of modern genetics, assortative mating was practised based on the belief of preserving purity of blood in the royal families.

In the modern times, Nazis at the time of beginnings of knowledge of genetics tried compelling their people to conform to genetic knowledge for producing superior race. In this context, they considered themselves to be superior & hence accepting females from outside their groups was thoroughly banned. In the current times, assortative mating is more applied in a negative sense in Negative Eugenics. It regulates, mating among the closest kins to avoid the possible occurrence of inherited abnormalities (or) genetic disorders.

Artificial insemination

For the 1st time discussed by H.S. Muller under which the germplasm of outstanding individuals was attempted to be preserved.

In the current times, it is mostly reported to in Japan, for men involved in dangerous jobs related to radiation. Their germplasm is preserved for

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future artificial insemination.

(3) Aspect Cloning

The issues related to

- (a) desirable traits,
- (b) ethics involved
- (c) Interplay of environment & hereditary interaction are the areas of discussion in Alogy.

Most of Alogists are pro-lifers who are against using stem cells from foetuses.

(4) Genetic counselling

→ It refers to advising the couple with regard to child birth & the possible deleterious characteristics of the to be born children.
→ Educating on dangers of hereditary diseases
→ Predicting on probability of producing defective genes (diabetes, hemophilia, color blindness etc.)
→ Predicting chromosomal abnormalities in fetus through amniocentesis.

Sir Chrusti - Tata → does genetic counselling to people in tea estates.

(5) Removal of social hindrance

The Eugenics also aims at removing the stigma & social hindrance in choosing a mate based on religion, caste & race. In fact it encourages such marriages for improvement of genetic stock. On the same lines, consanguineous marriages though are discouraged in general, such marriages between individuals with intellect are promoted & supported for reasons of improving quality of Germplasm.

Negative Eugenics

① Regulation of Marriage

It is to execute the objective of Eugenics i.e., elimination of deleterious and undesirable genes.

The marriage laws of some countries do not allow the feeble minded, the idiots, narcotics & persons with hereditary diseases to marry, excluding them from reproduction.

② Sterilisation

It is considered the best method to deprive the defective individuals from producing offspring.

It doesn't involve any kind of interference with the social ties of marrying. But the issue is whether it has to be a voluntary sterilisation (or) involuntary. Across the world, it was the state of Indiana (USA) that was the first to pass a legislation permitting involuntary sterilisation in 1907.

In case of voluntary sterilisation, certain govt's such as New Zealand, state of Indiana, California, Queensland had conducted experiments among the people who chose to be voluntarily sterilised. The experiments proved that, it can result in reduced frequency of deleterious genes.

③ Termination of Pregnancy

It is to avoid birth of seriously defective child. This has been accepted for the 1st time in England.

④ Controlled immigration

Educally in the developed nations, govt take precautions of not allowing individuals with disease, feeble minded & persons with hereditary defects for immigration.

⑤ Consanguineous marriages

It is generally believed that consanguineous matings increase the threat of expression of defective genes that were otherwise recessive. Studies in the Royal family of UK proved it right with regard to Haemophilia & diabetes. The clear in breeding resulted in high frequency of Haemophilia. For instance, by early 1800s & 2000, the percentage of people per generation affected by Haemophilia increased from 40% to 72%.

Issues with Eugenics

① High IQ - link with economics

② Disgenic effect - loss of genes - tv

③ Reduction in variability

④ Racism

⑤ elitism

In the eugenics, people of high IQ are considered to be desirable. Case studies indicate that IQ of an individual is related to his occupation. For ex - IQ of professors is more than IQ of clerks who have more IQ than skilled labourers who further have a higher IQ than unskilled ones.

Few have concluded that such IQ levels are reflected even in their children & hence in

(5)

Five arguments can be made that intellectuals beget more children, but in practise there are less children, in the families of intellectuals & the elites.

Nevertheless, such arguments have their own limitations

- (2) In an effort to preserve what is desirable & promote the desirable, the society might end up prioritizing mating b/w specific groups. It might result in degenerative effects i.e., weeding out of some of the genes that are considered undesirable but they might as well have +ve elements.
- (3) Preference for certain genes (or) traits will remove in a +ve sense, genetic abnormalities. But it reduces the possibility of variability. sometimes, certain mild metabolic defects can prove beneficial in a long run. For ex:- the interplay of sickle cell anaemia & malaria

It is medically proved that sickle cell anaemia can improve resistance against malaria

(4) Promotion of racism

Right from the inception of Eugenic thought, it was criticised of a racist ideology. The application of Eugenics is easy for people with power. They decide that others are inferior. On occasions such as Nazism, the people in power they resort to physical elimination of the so called inferior. Currently, it is argued that political inferiority doesn't reflect genetic inferiority.

③ Concept of Elitism

Eugenics may result in biological elite who for their own purposes manipulate the conception of other individuals. This is giving rise to several questions in eugenics such as which traits are considered to be beneficial.

④ Who would decide beneficial traits?

⑤ Who can have access to the info on human genome mapping?

Hence Eugenics is seen not simply as a concept in biology but has socio-economic and political ramifications.

⑥ Concept of Genetics - D M Das - Comments / Advice

16-6-12

9.5 Race & Racism

B. M. Das → Dermatoglyphics
B. M. Das → Race Crossing → formation of new races

Discussion stands with { Gorimandi Channellale Gronoghan
& interaction b/w 3 is race crossing

Race → Definition

- Racism
- Major Races of world

→ Race criteria - (30/15/20)

(Majorly short questions from this chapter)

④ Samuel Morton vs Stephen Jay Gould
The Mismeasure of Man

Argument wether Race is valid or not in articles of

→ Racial classification backed by Nazis initially.
→ on basis of physical measures wasn't accepted by New era Anthropologists

Samuel Morton →

Contemporary Anthropology perceived the concept of Race in all together a different platform. In recent times, the article of Samuel Morton 'The Mismeasure of Man' (2007)

rendered a blow to the entire sub discipline of racial studies in Anthropology. In this context, Stephen Jay Gould opined that concept of race is definitely a misleading one, as it results in an obnoxious feature of Racism.

and this is the very reason why A has to study the concept. Acc to him, the discipline always stood for the rights & welfare of the disadvantaged & hence, the groups of individuals exposed to this problem of racism shall not be kept aside for the discipline. He quotes refers to

Franz Boas, who had written & taught the aspects of race in order to fight it in the empirical situation.

Def. of Race

D.N. Majumdar

Race is a group of people who by their possession of number of common physical traits can be distinguished from others even if the members of this biological group are widely scattered.

Haldane - 'The New Path in Genetics'

A race is nothing homogenous but a collection of various individuals who have something in common which can only be accurately described in terms of measurable statistical methods.

Hooton

A race is a group of individuals characterised by combination of common morphological and metric features that are principally non-adaptive, which have derived from a common ancestor.

L.N. Dorn & Dobzhansky

Race can be defined as populations which differ in frequency of some gene (or genes).

(Defs show how discipline was evolving / focus was shifting
During Majumdar's time he generalised; later measurable statistics were preferred - then by Hooton's time - people were differentiated based on morphology, metric & non-metric
(Ex. skin colour)

by the time of Dorn & Dobzhansky, it was inherited features

Hooton - first criticised skin colour as measurable feature

Race as a biological & social concept

Biologically race is a breeding population that is distinguished from other breeding pops of the same species.

Paleoanthropologists believe that Archai Homo sapiens i.e., Grimaldi, Chancelade & Cromagnon gave rise to 3 distinct racial elements.

Neo Anthropology conceives that understanding race biologically has limited applicability due to

- ① it neglects the fact that human race is capable of breeding irrespective of the variations in physical features

② Grouping of people according to physical similarities has nothing more than an academic interest.

In contemporary if there is a broad consensus that it is racism, which has to be studied for helping societies fight it & eliminate it (Racism refers to the belief that some races are inferior to the others)

The studies such as L N Dorn's study of Negritos proved that the conventional criteria of race differentiation b/w Negrito & Caucasoids failed to notice several similarities such as Avg of IgA levels, ability to fight diseases etc. The recent Human Genome project noticed that

the tribal communities of Africa under the category of Negrito were more close in features such as blood groups, levels of body fat & growth patterns of children to Caucasoids than to the other black sub-racial groups. & hence it is now concluded that the traditional criteria of race which is purely biological in nature cannot be as criteria of socio-political stratification of populations.

Acc. to Majumdar & Franz Boas, Racism is the result of certain intelligent & shrewd political groups with ambitions to prove themselves high, using a trivial & flimsy concept of Race & giving it a huge colour of social stratification. Hence in the discipline of 'A', the social concept of Racism can be fought only by demeaning (or) reducing the importance of Race & Race-criteria. In this sense, Race is both a biological & social concept.

Race & Racism

Racism is perceived as belief that certain racial are inferior to some other races. Historically the study of Race in 'A' identified certain criteria; based on which superiority of few races is justified.

① Purity & superiority of blood

② Endogamy & even incestuous marriages were practised based on the belief of purity of blood.

For ex:- Royal societies of Egypt, Hawaii & Inca, latest studies on blood groups among American Indian tribes indicated that a large percentage of them have blood group O, but among the migrant American population (main stream America), no clear blood group frequencies are found, similarly the structure of haemoglobin among diff. pop. indicated that environment plays a role in haemoglobin structure. Based on these, it was concluded that purity of blood, cannot assure superiority of race & this is no biological reason to make it a race criteria.

Nevertheless, in the contemporary Racial & Serogenetic studies, Comparisons of blood groups of other blood picture studies are encouraged to check the possibility of frequencies of occurrence of certain diseases & hence currently blood group studies in the discipline are more to do with epidemiology.

(2) Skin color:

Generally, lighter skin colours are considered to be superior which lead to emotional aspects in racism & also increase in prejudices.

Studies proved that skin colour, hair colour, texture, blood group, intelligence etc., are not in correlation. Factors such as sunlight, temperature, gene, genetic variations, can alter skin colour.

(3) Races & behavioural pattern

For the 1st time examined by Rushton in his work 'Race evolution & behaviour'. He analysed the behaviour of individual in response to adaptation to environment. Acc to him Rushton studied the aspect of child birth, number of children, & preferences for large (or) small number of children among diff races.

Acc to him, temperate regions, encourage to have more children due to less care they need in those climates, whereas in colder climates as children require meticulous care, individuals are selected in having less number of children. Such an approach was criticised as preference for children cannot be a specific character of race & that Rushton tried to generalise from his sample survey. Similarly, the aspects such as bravery, were later examined across different racial stocks.

(4) Race & Intelligence

Nazism traced the superiority of Aryans by the twin factors of General physical appearance & the intellect. Acc to them, individuals of Caucasoid race have higher IQs. Field studies proved it otherwise.

One cannot draw generalisations specific to the races, especially related to IQ levels.

The Linguistic Alogist Broca, found through the laboratory studies that weight of frontal lobe which is the reflection of intelligence is non uniform in any racial stock.

⑤ Race & cultural superiority

Protagonists of Racism, consider that certain races have advanced cultural traits. They differentiated cultures into Western & Non-Western, Tribal & Non-Tribal. This resulted in heightened tensions among the ethnic groups and hence contemporary Alogy considers race to be not more than a tool to exhibit one's own supremacy over the others.

- (1) Head
- (2) Head
- (3) Face
- (4) Prognathism
- (5) Nose
- (6) Eye
- (7) Eye color
- (8) Hair
- (9) Hair
- (10) Body
- (11) Lips
- (12) Skin
- (13) Stature

Major Races of the World

A large no. of racial classifications were proposed based on diff criteria. Most popular among them was the three fold classification given by Wiener based on primarily blood group studies.

The other criteria such as stature, cephalic index, nose form, etc., were added in the other categorisation. The mostly accepted 3 fold classification is

- ① Caucasoids
- ② Mongoloids
- ③ Negroids

This was the classification of 1930s.

In 1940s, a 4th category was added called

- ④ Australoids
- ⑤ Archaic Caucasoids

Feature	Caucasoid	Mongoloid	Negroid
① Head form	Long to broad	Broad	Long
② Head height	Median to high	Median	Low to Median
③ Face	Narrow to medium broad	Medium to very broad	Median to narrow
④ Prognathism	Absent	Rare	Marked
⑤ Nose	Leptocephine	Mesorrhine	Platycephaline
⑥ Eyes	- -	Epicantic fold	-
⑦ Eye color	Light blue to dark brown	Brown to brown black	Dark brown to black
⑧ Hair	Straight to wavy	Straight	Wavy woolly
⑨ Hair color	Light brown to dark brown	Dark brown	Dark brown to black
⑩ Body hair	Median to heavy	Sparse	Slight
⑪ Lips	Thin to medium	Medium	Thick
⑫ Skin color	Reddish white to light brown	Light yellow to yellow brown	Brown to black
⑬ Stature	Medium to tall	Medium	Very short to tall

Geographical distribution of world races

Caucasoid - 12 Sub races

- ① Mediterranean - Portugal, Spain, France, Italy, Greece, Turkey, Arabia, Iran, Afghan, Pakistan, India, North Africa
- ② Nordic - Scandinavia, Baltic, North Germany, North France, Belgium, USA
- ③ Alpine - Central Europe, North Italy, Norway
- ④ Eastern Baltic - Poland, Finland, Russia
- ⑤ Armenoid - Turkey, Syria, Palestine, Iran, Iraq
- ⑥ Keltic - Scotland, Wales
- ⑦ Kapp/Sami - Sweden, Finland, Norway
- ⑧ Ainu - Japan
- ⑨ Dinaric - Australia, Alps
- ⑩ Brahminian - Deccan Plateau
- ⑪ Polymerica - Polynesian Islands
- ⑫ Veddooid/Pre-Brahminian - Sri Lanka, Andaman Islands

Negroid → (name comes from the tribe Negro)

① African Negro

- ① True Negro
- ② Bantus
- ③ Bushmen Hottentot
- ④ Negrito

② Oceanic Negro - inhabiting North Africa - Nile basin & North West Coast of Africa.

Negroide are all the populations possessing certain significant physical features of Negro populations of Africa. Among the Negroide, Bantus & Bushmen Hottentots which are minor tribes in Africa are recognised specially because of their specific characters.

Mongoloid

① Classic Mongoloid - Siberia, North China, Mongolia, Tibet

② Eskimoid / Arctic - Arctic coast of North America, Greenland, Alaska

③ Indonesian Malaya - Indonesia

④ American Indians / Amerindia - Entire America

Australoid

① Australian Aborigines

② Pre Dravidian / Vedoid - South & Central India, Sri Lanka.

It is currently believed that there are no true races because, right from the earliest emergence of *Homo sapiens sapiens*, migration & intermixing of populations was a continuous process.

Nevertheless, a classification based on scientific & authentic criteria was resorted to, in order to extend it to classification of culture groups.

There is a near unanimity among the Anthropologists related to 3 rules, which can help understand the differences in several racial elements.

① Galton's rule

- Within the same species there is a tendency to find more heavily pigmented populations towards the equator & lighter populations away from it

② Allen's rule

Members of same group living near the equator tend to have more protuberant body parts and longer limbs than individuals located farther from equator.

③ Bergmann's rule

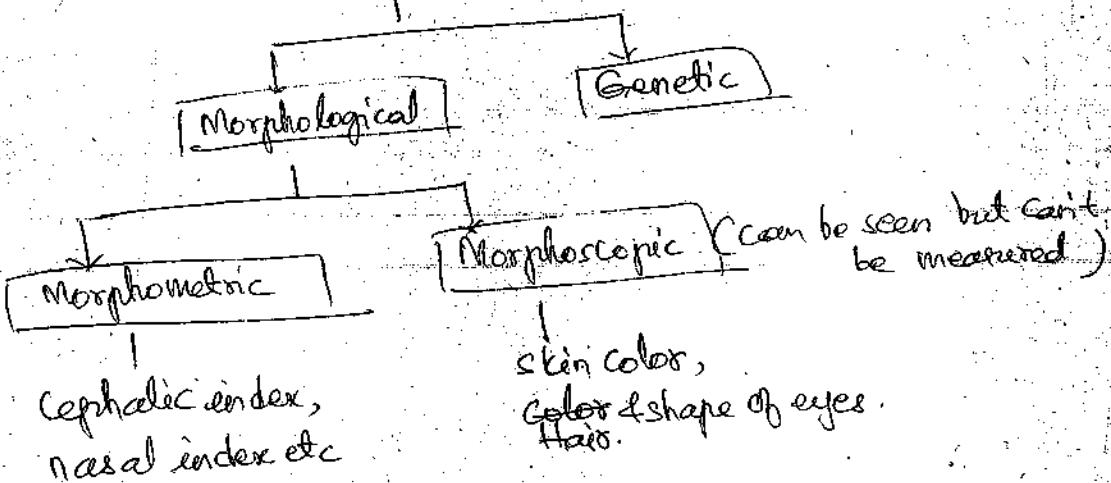
Within same species, individuals (or) subspecies with less body bulk tend to be found near the equator, while more bulky ones found farther from equator.

Base of Racial classification

Acc. to Earber, any criteria based on which populations can be classified must be

- ① Non-adaptive & least influenced by environment
- ② Genetic in Nature
- ③ Feasible to apply statistical analysis to avoid discrepancies in observation.
- ④ It has to be present among larger number of individuals.

I Bases of Racial Classification



Morphoscopic features

- Skin colour
- Hair
- Eyes

Morphometric features

- Cephalic/cranial index
- Nasal index
- Stature
- Dermatoglyphics
- Blood groups

(Eyes, lungs etc - Non adaptive to environment
Nasal etc...)

9.7 Ecological A (Handout AN-31)

① Evolution of Ecological A → given in ↴ (3 pages)

② How Individual / Group adapts to

ⓐ High temp/^{hot} desert climate

ⓑ

① Int
③ G

Concept of Ecological A (or) Cultural Ecology

(Incorporate case studies below)

① Julian Steward's concept of Cultural Ecology

- Study of Tshoshonean people - Great Basin area of USA

② Roy Rappaport's study of Tsembaga

③ Sacred Coco Complex - Marvin Harris.

Hig

High altitude Adaptation

Meaning of term

(Every case - look at 2 adjustments)

Adaptation / Adaptability →

① Internal & External
Physical & Cultural

It's an adjustment process that had set in from the emergence of Homo to Homo sapiens sapiens.

Ex: High altitude adaptation

Railway line - Chinese high altitude - (hence)

① → automatic adjustments of pressure in trains

② High altitude Defense in India - Unique

(Chile also has h. but not very low temp)

③ High altitude training institute - Min of Defense / Home affairs

Quoted this
in Defense Alogy
also

Many soldiers face loss of limbs - numbers

per month - 15 people facing problems

this is not revealed outside

Neanderthal was restricting itself to colder, but Homo sapiens went out to explore; thus it adapted more.

had to keep itself warm by
① living in caves

② gather small game hunting (big game wasn't available)

over dependence

on living in caves

③ fire

Homo sapiens used external mechanisms - skins, hides

① Internal ② External

③ Genetic adaptation

In human genome, search is on for 2 genes

① Cold temp adaptation

② High temp adaptation

So far, a gene identified - adapted to extremely cold temps.

But warm temp - not confirmed

but some said - no genetic adaptations to high temp.
so a controversy.

High altitude Adaptation

Tests conducted among people

① Living in high altitude since generations

② Migrated since some years & adapted

③ Recently migrated

test revealed

~~③ Physiological adaptation~~

- Increased rate of breathing

- Increased in RBC &

- " " lung size

spines

- In Ecological Alogy, study of adaptation to different climatic conditions, has been the subject matter in
- ① ability of adaptation of Robert of Gracile Australopithecus
 - ② Homo Neanderthalensis & Homo Sapiens
 - ③ Cultural adaptation of Modern Man
 - ④ Homo sapiens sapiens

Modern Man is considered to be having special mechanisms of adaptations such as

- ① The vast learned information which can be passed from generation to generation without genetic encoding
- ② Constantly expanding Ecological base of population & knowledge of adaptation.
- ③ Modern technologies & paraphernalia enhancing ability of cultural adaptation.

Although modern technology permits adaptation to greatly varied ecosystems, the capability has been limited by environmental forces i-e, at the time of initiation, man must have established his capability of altering the nature (or) his ability to get adjusted to the changing environment but as is evident, in the process of faster climate change man's capabilities are limited & it is not the environment that is vulnerable, but it is Homo sapiens sapiens that is living in vulnerable conditions.

Ecological A tries to examine some such vulnerabilities.

① Adaptation to higher altitudes

Early studies of high altitude adaptation were by Europeans initiated with sinister motives i.e. for getting a hold on minerals in the Highlands of Southern America.

Case Studies

- ① Cynthia Beall - Tibetan & Andean pattern of high altitude adaptation hypoxia
- ② East African Highlanders - Cynthia Beall
- ③ Health status of Tibetan Refugees in India
Vikas Tripathy, Kanku Charan Satapathy
Cruz-Coke (1978)
- ④ On going project - disciples of Dalai Lama provided refuge in different parts of the country by Lorna Grindle Moore and Judith Regensteiner
- ⑤ Hillary Mayell on Nat geo
- ⑥ Aldenderfer - 'Migration & cultural adaptation by early man' - Documentary

Increase in terrestrial altitude results in a number of changes in the physical environment such as (i) Reducing water vapour pressure (ii) Reduction in air temperature that were studied by Ecological Biologists on the altitude of Ethiopia, Southern America & Tibet. They indicated that in response to high altitudes, the biological adaptation takes a form

It is seen among the people among the lowland on their arrival to high altitudes

② Genetic/natural adaptation

It is found in people inhabiting high altitudes

Physiological adaptation (A) Acclimatization

Various changes ^{witnessed} include

① Increased rate of breathing

- With the increase in altitude, the oxygen supply reduces & the rate of breathing increases by a huge percentage, in order to provide sufficient oxygen to the body.

Recent studies in the Tibetan region studies conducted by Vikas Tripathy found that an average of 65% increase in the rate of breathing was found ^{among} ~~from~~ the people of plains to Tibet.

② Increase in RBC & Haemoglobin

- It's a slow process which takes several weeks. It depends on the release of Erythropoietin in order to increase the number of RBCs. The total blood flow increases by 20% to 30% to ensure the survival of the individual.

③ Increase in the lung ~~size~~ surface

It ensures more oxygen diffusion to the body brought by increase of lung volume due to increased breathing & expanded blood capillaries

~~Study~~: Study of Weiner of Mongoloid racial stock in China & Tibet established that the natives of high altitudes have broader chests, high lung volume,

shorter limbs to adapt to less oxygen supply in
the environment

(4) Increase in blood supply to tissues

The increased blood flow is seen as second most important physiological change after increase in lung size. If this adaptation doesn't take place, it would result in chronic mountain sickness resulting in reduced efficiency of heart & lungs.

(5) Cellular Acclimatization

(6) Shift of Oxygen-dissociation curve to right

3. ~~Genetic Adaptation~~

It's a permanent feature witnessed in people of high altitudes. Studies were conducted on Andean natives of Peru who inhabit at more than 6000 mts from the sea level. They are seen to be more adapted than the plainmen who migrated for about 10 yrs. The genetic features observed among the locals include

① Larger chest size providing increased ventilatory capacity.

For ex:- among the Sherpas of Nepal

② Reduced body size & body mass that can be supported by less oxygen supply.

③ Size & weight of babies at birth. - they are invariably smaller irrespective of nutrition and antenatal care of pregnant mother.

④ Size of heart, particularly on the right side is larger giving rise to more blood flow needed for oxygenation.

⑤ Some physical attributes, such as shape of nose, skin colour etc are adaptive. Nose - is short, to reduce nasal passage & nostrils are directed upward to facilitate easier air absorption.

⑥ Capability of haemoglobin - to extract oxygen from the ^{city} atmosphere is higher among the natives.

(P.T.O.)

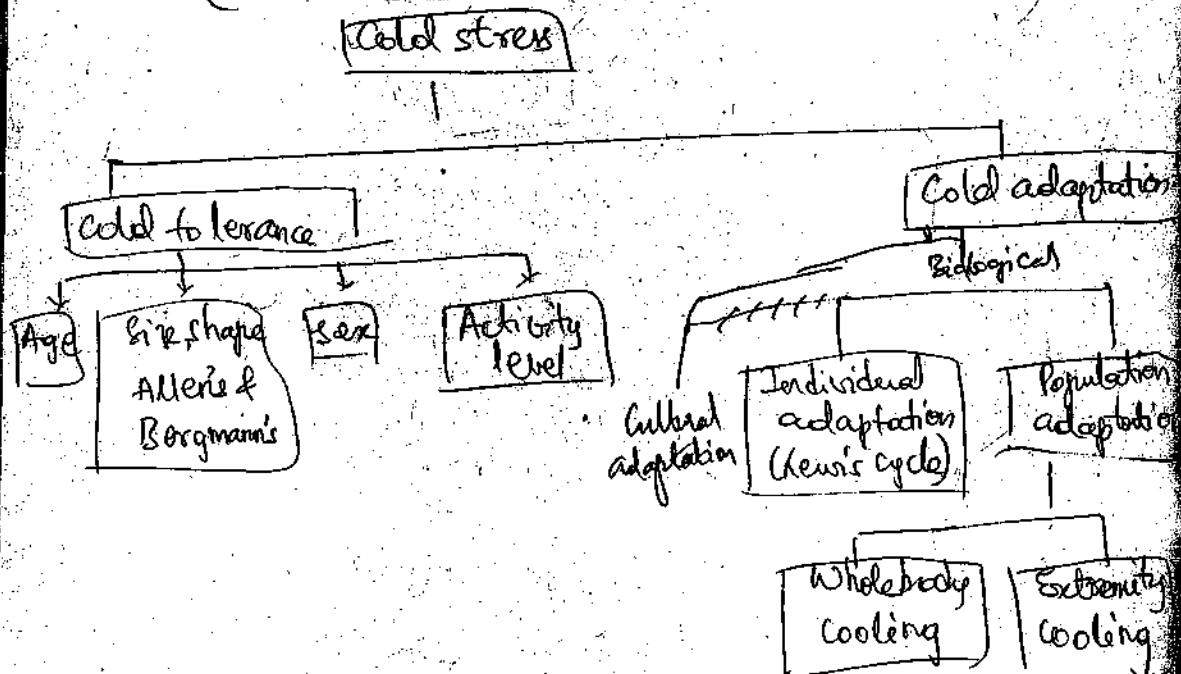
(1) Study conducted by Cynthia Beall in Tibet on Unaccustomed population, Accustomed population & the Native population in the context of working capability resulted in the efficiency levels of 58 to 60 to 85, establishing that Natives are physically & genetically better adapted to high altitude living.

Cold stress / Cold temp adaptation

① Man because of tropical origin shows poor adaptations against cold stress and relies more on cultural adaptations than biological adaptations.

In all the racial stocks, it is found that humans are better adapted to high temperatures (with cultural support). But in general, along with most of the primates, are least resistant to extremely cold temperatures.

② Ecological Anthropologists studied the cold tolerance levels among individuals based on criteria of gender & age & adaptation at the individual level (based on Lewis cycle) & population level.



Tibet
speciation
skiing
of
are
habitat

{ Tropical
poor clothing
etc
stars and
natural
biological

humans
ethnical
the
old

(ence)
ce of
ideal

adaptation

cat

Population
adaptation

Extremity
cooling

Age → Infants are more susceptible to cold primarily due to small adipose tissue and lesser body mass. Studies were conducted in Persia among infants, children & adults in handling cold.

Body Mass → Greater the body mass, less is the surface area per unit mass & hence less will be the loss of heat to the atmosphere.

Bergmann's & Allen's laws explain the adaptation to cold temperatures based on body mass & the length of extremities.

Gender → Women are shorter & smaller than men and hence with greater surface area per unit mass they are less tolerant to cold temperatures than the men. But if the volume of adipose tissue is higher, it can provide additional tolerance.

Activity level → the physical activity generates body heat. Studies were conducted by Konz, which revealed that exposure of inactive nude individuals to 5°C can lead to unconsciousness in 2 hrs, while active individuals can tolerate upto 10 hrs.

(Lewis cycle - Whole body cooling - Extremity cooling)
read from BM Das

Lewis cycle - Alternating expansions & contractions in blood vessels.
longer is \rightarrow longer is warmth - more resistance in cold climate.

Some races have resistor ability to bear cold all body except extremities but Inuits have less of body cooling & more extremity cooling

Cold adaptation (I - Individual adaptation)

Human genome project & earlier physical biological studies tried identifying the genes responsible for cold adaptation. They are studied under

① Lewis cycle (Individual adaptation)

When extremities are exposed to freezing temperatures, strong responses emerge from the blood vessels. The Lewis cycle which refers to constriction & dilation of blood vessels sets in to maintain warmth in the body. The length of cycle varies from individual to individual.

For less resistant individuals, the cycle is shorter and it may lead to frost bite & tissue damage.

For ex:- Soldiers staying for long hours in the trenches during World War I experienced damage of foot skin tissue that was later named as Trench foot disease.

Similarly, Armed Forces garrisoning high altitude of India-China border experience frost bite.

Population adaptation

studied based on whole body cooling & extremity cooling. There are clearly established genetic differences among diff racial groups in this regard.

① Population differences in Whole body cooling

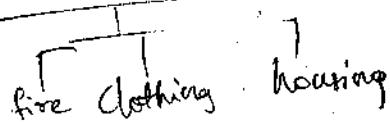
Among the communities inhabiting colder regions studied in Africa, savanna populations exhibited highest genetic adaptation, followed by Europeans, Australian Aborigines & Inuits in the reducing order.

② Extremity cooling

It is generally seen to be reverse to the whole body cooling. Highest tolerance is found among the Inuits, followed by Europeans & Africans.

Adaptation against Extremity cooling refers to maintenance of high skin temperature to combat frost bite.

Cultural adaptation



When genetic mechanisms fail, cultural adaptation becomes eminent. The 3 mechanisms generally adopted are fire, clothing & housing.

① Many human populations, survived freezing temperatures without clothing but by the use of fire. For ex: American Indians of Terra de Feugo.

Maintaining fire in extreme cold conditions was mastered by American Indians living in Central American caves.

② Clothing → which has revolutionised adaptation to cold temperatures. It has local specificity.

For ex: Inuits have unique clothing made of fur, for the entire body, but use simple leaves for their extremities. (or) even leave them open as they are more adapted to extremely cold temperatures.

In any kind of cold climates, physical activity is no substitute to various means of warming.

③ Housing → The traditional houses of Igloos and the modern European houses with double walls are considered to be the best examples of cultural adaptation.

The following case studies refer to genetic & cultural adaptation to cold.

Case studies

- ① Hammel - Comparative thermal patterns in man
(cultural adaptation)
- ② Alacaluf Indians of Tierra del Fuego, Arctic
(extreme cooling)
- ③ Aborigines of North Coast of Australia
- ④ Carlson - Bushmen, Quechua Indians of Andes,
Circassians in Sub-Arctic
- ⑤ Lapps by Hammel
- ⑥ Peruvian Indians
- ⑦ Aborigines of Central Australia - Scholarship
- ⑧ Kone

Heat Adaptation → (Book = BM Dose & Nath.)

- Thermal gradient } Two ways } If internal temp increases, then
Sweating } thermal gradient increases

Carl Bergmann → def.

has limited utility

→ is good

- Hot & dry desert areas - sweating best
- Hot & wet climates - " not best

Factors affecting sweating

- Low vapour pressure deserts - (sweating efficient)
- High " " "
- Rate of sweating
- Weight
- Population differences
+ Cultural adaptation to heat

Location examples in B.M Das & Nath

Eg: Mediterranean, Arab nation

↓
Low vapour pressure High vapour pressure

Other factors like age, sex have to be considered

Case studies - Heat adaptation

- ① Joel Hanna
- ② Daniel Brown

gave comparison of Sahara, Kalahari & Arabian deserts
& how people are used to stay

Sx: Citrus fruits, etc - are used coz of no water is available (remember Bushmen video)

Human growth & development

- stages of growth
- factors affecting growth & development → (Booklet)
- Aging & Senescence-theories → (very imp. for question)
- Human physique & somatypes

Origins of Growth studies

- ① Franz Boas, study of changes in body form among children of immigrants in New York (Japanese immigrants)
- ② Boas' primary interest - in symbolic & material culture & in language - was study of processes of change
- ③ he determined whether bodily forms are also subject to processes of change
- ④ studied 17,821 people divided into several ethno-national groups
- ⑤ Boas found that avg measures of cranial size of immigrants were significantly different from members of these groups who were born in US.
- ⑥ he discovered that avg cranial size of children born within 10 yrs of mother's arrival were significantly diff from those born more than 10 yrs arrival.
He didn't deny that physical features such as height (or) cranial size were inherited.
however, he argued that environment has an influence on these features which is experienced through change over time. This work was central to his influential argument that differences b/w races were not immutable.

(It is here that people criticized Boas)

This idea of Boas was criticised by his contemporary physical Anthropologist, on the pretext that individual's birth place hardly matters in deciding his physical features. Though, long term stay of a parent in new environment may bring mutations that can be passed on to the child. Change of place may bring along nutritional shift that can have a major impact on individual's physique & personality.

Definition

Growth → Net ^{increase} in size (or) mass of tissue due to multiplication of cells

Development - Expansion of cells related to maturation indicating acquisition of a variety of skills for optimal functioning of an individual.

Periods of Growth

Prenatal period

Ovum (0-14 days)

Embryo 14 days - 9 weeks

Fetus - 9 weeks - birth

Post Natal Period

New born - first 6 weeks after birth

Infancy - 1 to 3 yrs

Toddler - 1 to 3 yrs

Preschool child - 3 to 6 yrs

School age - 6 to 12 yrs (boys), 6 to 10 yrs (girls)

Adolescence

Prepuberty - 10-12 yrs (girls), 13-16 yrs (boys)

Pubescent - 12-14 (girls), 14-16 (boys)

Post pubescent - 14-18 (girls), 16-20 (boys)

Childhood - 0-10 yrs

Puberty - 10-16 yrs

Senescence - > 60 yrs

Human Growth Curves

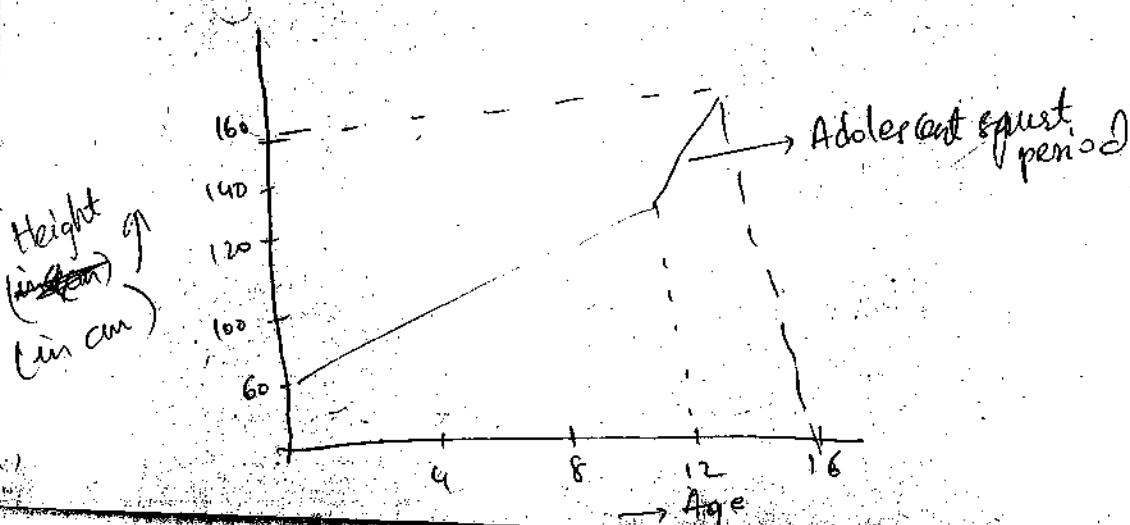
They represent the study of biological growth of humans as a mechanism of evolution. They represent the general growth pattern & growth specific to certain organs such as brain & reproductive organs. They show that the changes are accelerated at specific points of time as individual grows & sometimes remain dormant. One of the periods of highly accelerated growth in the individual is that of adolescence which is termed as Adolescent spurt.

In Biological researches, Physical Aesthetics focused at

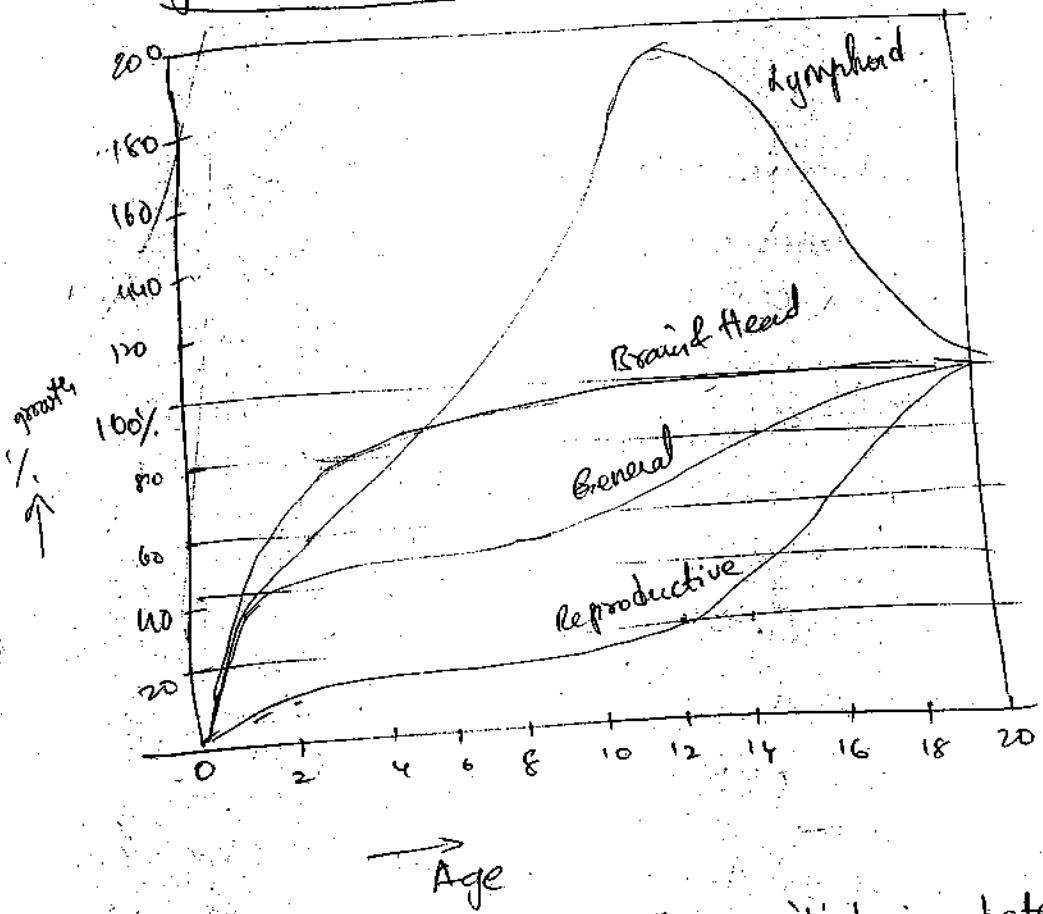
- ① Height attainment curve
- ② General body growth
- ③ Brain size
- ④ Lymphatic system growth. (Circulatory system)

Height attainment curve

Studies on Indo-European racial stock in India, indicate that an individual attains the maximum height by 16th year.



In all the racial stocks, though there exist difference in race height, an individual can attain the height at birth, the growth curve almost remains the same. Several features in the body matching their growth pattern with the height attainment curve & hence the general growth curve looks similar to height attainment curve.



The general body growth is rapid during fetal life & during first one (or) 2 yrs of post natal period & thirdly during puberty.

In the intervening periods of mid childhood, the growth velocity is relatively slowed down. After adulthood, body growth nearly ceases except for replacement of wornout cells by new ones.

Brain size

It enlarges rapidly during later months of fetal life & early months of post natal life. At birth, the brain size is nearly 60% of expected adult brain size. It reaches above 90% by 20th year of the individual.

Growth of reproductive organs

They remain dormant during childhood but become conspicuous in pubescence. The growth related to adolescence can also be witnessed in lymphoid growth. In the mid childhood (6-12 yrs) the formation of lymphatic (or) circulatory system happens at high % growth. It reaches maximum growth by the time adolescence sets in. This facilitates functioning of sex hormones necessary for reproductive organ growth.

Adipose tissue (or) Sub-cutaneous fat

It refers to the fat layer under the 3rd layer of the skin, which begins to be laid down in the foetus after 34th week & continues till birth. The periods of growth of sub-cutaneous fat are majorly btw 9th foetal month & birth of the baby & in the time of adolescence. There is difference of opinion with regard to the genesis of new fat cells. Acc. to one opinion, all the adipose cells an individual shall have throughout his life are actually laid down in the foetal stage itself, but it is only that they develop & become functional at the right time.

The second opinion supports the birth of these cells at different points of time.²⁸

These growth curves have differences based on the characteristics of diff species. Sometimes - within the same species, based on the racial stocks (or) genetic make up, the growth velocity and attainment of diff stages might vary.

For Ex:- Among Bushmen Hottentots, children attain adolescence atleast 3 yrs earlier to the European origin persons. But the growth curves focus at the averages of the community under study. They are being used extensively in the current statistical evaluation, by institutions such as WHO & Census of India.

Human somatypes

Somatype - physical appearance finally exhibited.

- Both Morphological characteristics
- Behavioural "

Human somatotypic studies refer to the study of the personality of an individual based on the physical constitution. In fact, the constitution of an individual is defined as certain sets of morphological & behavioural characteristics.

In the early Anthropological studies of late 18th & early 19th century, studies of human constitution were based on ^{study of} non-genetic aspects because of the lack of awareness of genetics.

Though initially they focused at both behavioural & morphological aspects, it is later understood that behavioural aspects are a reflection of enculturation & Morphological features provide a better method of classifying people based on constitution.

Human somatotypic studies are (or) categorising humans based on body physical constitution find application in

- ① Sports Alogy
- ② Studying the relation b/w several diseases & body physique
- ③ Racial classification.

Such classifications based on somatypes emerged from colonial interest of categorising world populations; that is to say though the attempt started on an ethnocentric note, over a period of time, it found positive utility.

Morphological classification of human constitution

① Sheldon's classification

② Violas classification

Sheldon → ① Endomorphy ② mesomorphy, ③ Ectomorphy

Violas → ① Lipocephaly / Congitotype

② Brachy-type

③ Norma type

④ Mixed type

③ Koetschmer's classification

on the basis of visual observations of
body measurements.

④ Pende → psychic studies, physiological &
neuro-endocrinological traits.

(was failure)

Among all these, Sheldon mostly studied
Violas accepted.

Sheldon's classification

It was based on laboratory & field studies
wherein he used the pictures & body measurements
of about 400 men from the universities in California.

This classification faced a criticism that it
doesn't reflect the physique classification of female
& he neither referred to cross-racial features (or)

Comparisons-

Endomorph

- A pear shaped body
- A rounded head
- Wide hips & shoulders
- Wider front to back rather than side to side.
- A lot of fat on the body, upper arms & thighs
- Very short arms & legs and a large amount of mass in their trunk which hampers their ability to compete in sports requiring high levels of agility and perform in sports requiring aerobic activities.

Sports benefits → Nevertheless, sports such as rugby where bulk is useful but the bulk shall be moved powerfully.

- ① They tend to have a large lung capacity suited to sports such as rowing.
- ② They can increase muscle mass more easily than Ectomorphs & hence can be an asset in sports like Rugby.

Mesomorph

- A wedge shaped body
- Cubical head
- Wide & broad shoulders
- Muscled arms & legs
- Narrow hips
- Narrow from front to back rather than side to side.
- Minimum body fat
- An athletic body having strength, speed & agility,

Sports benefits

- ① They are suitable for sports which require high cardiovascular strength.



I can sustain low body fat levels for a long time
with resistance training. They can easily gain
weight & hence can conveniently incorporate
rest periods in sports sessions.

Ectomorph

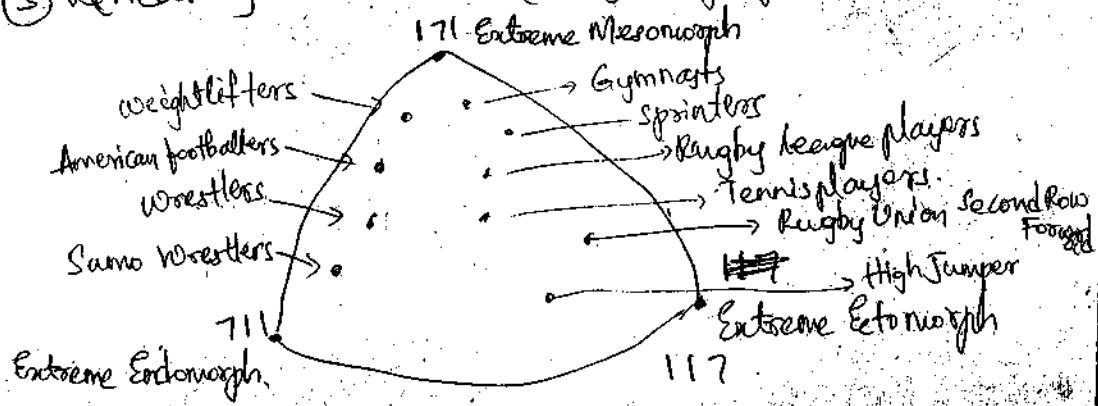
- High forehead
- Receding hairline
- Narrow & drooped shoulders
- Narrow hips
- Narrow chest & abdomen
- thin arms & legs
- Little muscle & fat
- They have lesser strength & hence unsuitable for sports which have a chance of producing injuries.



Sports benefits

Due to light frame, they are suitable for aerobic activities such as Gymnastics, as they are better at thermoregulation, sports related to such capability can be better performed (such as deep sea diving).

- Sheldon produced a scale recommending sports to the individuals based on 3 features (scale of 1 to 7)
- ① Upper limb structure & tendency of fat deposition.
 - ② Head form, muscle formation & bone legs.
 - ③ Linearity in limbs (length & proportion of limbs).



Holst's system

- Classification based on length of limbs, circumference of the body & length of trunk.
- It was introduced in early 19th century, though it is out of use at present.
- 10 aspects related to morphology are considered which are reduced to 4 indices.

① Leptotype / Longitype

Individuals of this category possess long limbs relative to their trunk size. They have larger thoracic region than abdomen.

The body circumference is largest at the abdomen.

② Brachytype

They have longer trunk than limbs, length of abdomen more than thoracic length.

③ Normotype

In measurements, falls b/w the first 2 categories.
They have trunk & limbs in equal proportions.

④ Mixed type

Refers to the individuals who didn't exhibit the following 4 indices in any rational proportion i.e., length wise variation, circumference wise variation, proportionate study of circumference & length, correlation b/w head & body.

Kroeschmidt system

31

It is an extension of Scheloen's classification by incorporating racial averaging & additional visual observations such as eye form, nose form etc. The categories of endomorph, mesomorph & ectomorph are referred to as aesthetic.

- ① Aesthetic
- ② Athletic
- ③ Pyknic respectively.

This classification is being used currently in choosing (or) recommending specific sports to the individuals of respective categories.

Pre-natal }
Post-natal } - P. Nath.
Adolescence }

Senescence

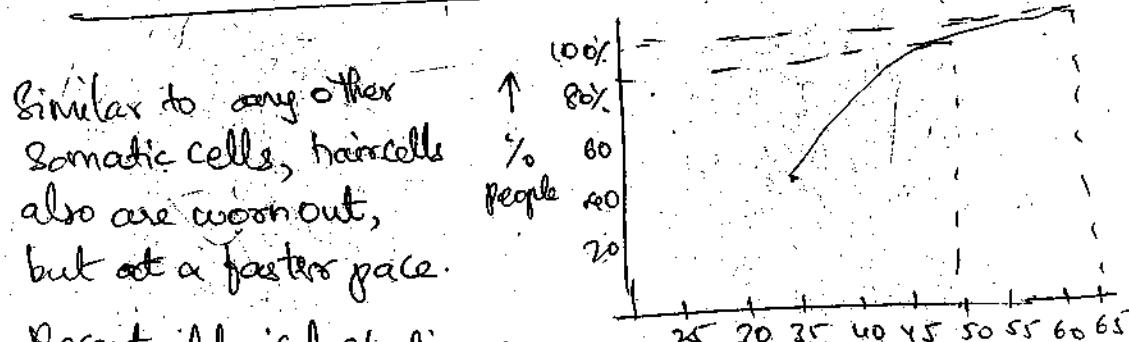
- Diff b/w Ageing & Senescence
right from birth of cell- ageing starts.
- Rate of Graying
- Skin elasticity- study of collagen
- General loss of strength
- Hand grip
- Blood pressure
- Hearing, visual activity, Mental reactions

Senescence

The stage of human growth an individual enters in after the stage of Aging & Maturation. It is generally referred to as the period after 60 yrs. Many of the features associated with senescence start appearing in the late 30's, subject to nutritional levels, genetic makeup, and the nature of work an individual takes up & hence, more than the chronological age, biological age is given importance.

After an individual attains 60 years age, he attains stability in diff systems of the body. The skeletal system shows some changes with drastic reduction of number of stem cells released. In majority of individuals, the indication of senescence starts with greying of hair. Other features associated with it are skin elasticity, general loss of strength ~~at~~, hand grip, blood pressure, deterioration of hearing, visual activity & mental reactions.

① Rate of Hair Greying



Recent biological studies on the process of ageing & the way traditional societies handle the instances are conducted by Sahai among Andaman Islanders, Gonds wherein traditional nutritional methods delay the process of hair greying.

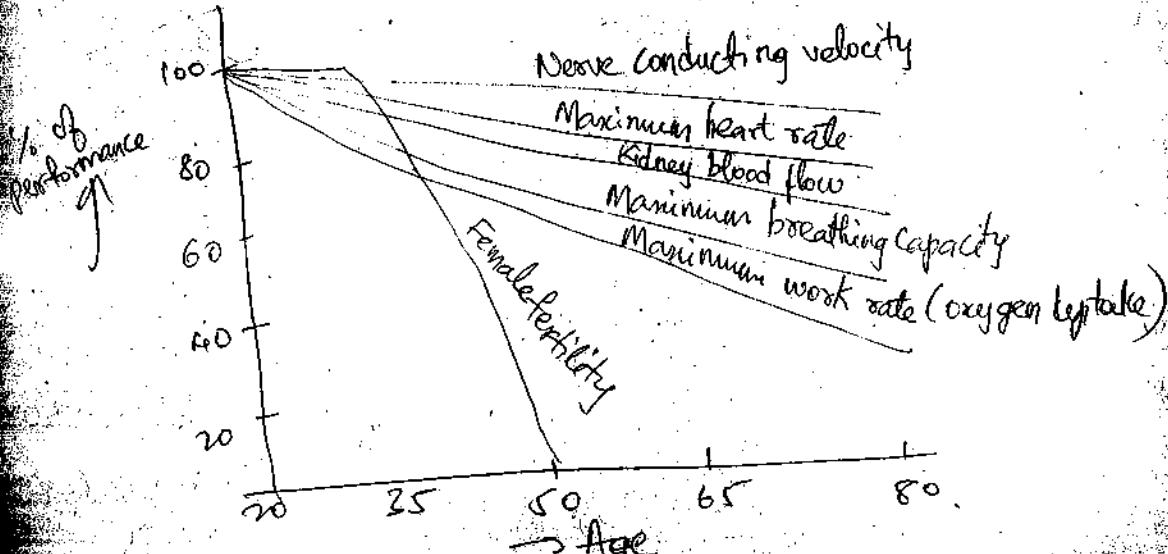
% of performance

2) Skin elasticity

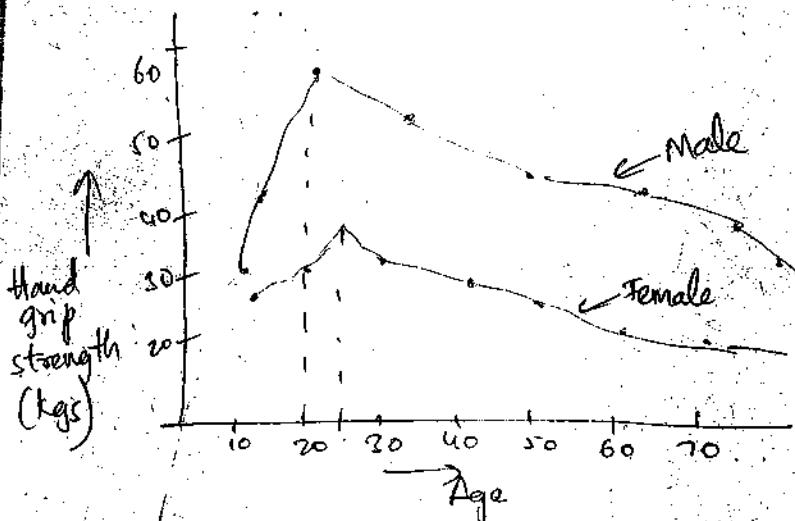
Quality of skin is seen as a measure of youthfulness. More marked changes are seen among the females than the males, despite of longer life span of women. It is due to the faster decay of collagen molecules, in the proteins of the skin (the collagen is an extra cellular substance which forms a boundary b/w cell & the environment & hence with age and with lack of care, the possibility of wrinkles in the facial skin is hence an indication of aging).

Socio-cultural biological studies were conducted by Thompson & Gluckman (2001) to analyse the perception of beauty & age.

According to them, Japanese society gives a higher value to age & aged individuals & hence beauty among Japanese is more to do with knowledge than the physical looks. This is drastically different from mainstream American society where clinical methods & several other artificial mechanisms are reported to by the individuals to stay & look young (same can be quoted in National Character studies as example).



Changes in hand grip strength



In addition to a fall in the hand grip strength, senescence witnesses marked imbalances in the blood pressure & fall in other activities such as hearing & visual activities. Though these are indeed after 40, they are more pronounced after 60s.

① Almost every system registers a negative change. The measurable age changes are not difficult to find, but correlation b/w these changes is difficult to establish.

Senescence witnesses a fall in the efficiency in correcting the disturbances that emerge in the body. For ex:- when the Glucose levels in the body fall below normal, they can be brought back by administering insulin.

Among Senescents, response to insulin is slow and less than adolescents.

The correlation b/w changes in the systems & occurrence of death is another issue of discussion in the discipline. Aspects such as skin elasticity & greying of hair have no link with mortality.

But change in the neural system, cardio-vascular systems increase the probability of death.

It is because of observed functional decline³³
detrimental changes getting accumulated and
reflecting in the form of reaching mortality.

Theories of Ageing/Senescence

Cellular theories

- Hayflick limit
- free radical reactions
- Error theories

Extra cellular/ pacemaker theory

- Collagen theory
- Immunological theory
- Brain as a pacemaker theory

Cellular theories

① Hayflick limit (Genetic blueprint theory)

refers to the number of divisions a cell can undergo. The larger the no. of divisions, the longer would be the life & slow will be the ageing process i.e., the new cells replacing worn out cells provide life to the tissues.

At the foetal stage of humans, Hayflick limit is 50. At birth it comes down to 20-30. Hayflick limit operates on the principle that its range (or) number of a cell does not change with transplantation. Hence senescence of surrounding tissue will not be able to effect the transplanted cell.

② Free radical reactions

Free radicals such as nascent oxygen, sodium phosphorous can cause a damage to the cells by activating the enzymes related to ~~enzymes~~ ageing in the body.

among all the other free radicals, an exposure to nascent oxygen (that can be through exposure to chemicals, drugs, volcanic environment) can induce the pigments (or) age proteins such as lipofuscin hastening the process of ageing of the cell, reducing the life of it.

Studies were conducted by James Smith & Lester Packer in Japan on the individuals exposed to volcanic activity. Their experiments were on free radicals of Carbon, Nitrogen & Magnesium. They focused at the functioning of liver cells & spleen cells. Due to nascent magnesium exposure drastic fall of life of liver & spleen cells was witnessed. Medical intervention in such cases, according to them would be difficult because, the symptoms indicate general liver malfunctioning & unless microscopic analysis are done, the changing cellular functions & divisions cannot be noticed.

Error theories

They refer to the intracellular changes occurring due to accidental (or) chance mutations taking place in DNA/RNA. At the DNA level, the mutation (or) errors in DNA, vary from individual to individual. Many of the point mutations are automatically corrected through various mechanisms in the body.

But the response to mutations varies from individual to individual. In cases where such mutations are not corrected by body system & get accumulated, the process of senescence sets in the cells. Studies were conducted by Ronald Hart among apes, mouse & men which indicated that humans & chimpanzees are 5 times better equipped to

reverse the somatic cell mutations.

Collagen theory

- proposed by M.S. Kanengi
- this theory studies the ability of collagen to safeguard the cells from external environment.
- Collagen is made of the chains of oxygen, nitrogen, carbon & iron.

The chemical changes in the chains induce changes in the ability of collagen to respond to environment. Hence setting it, the process of senescence

Immunological theory

Though senescence & ageing have no direct correlation with dying, immunity which gets affected with aging definitely has a bearing on death. It all depends on the ability of lymphocytes that form the first defense mechanism of the body. Any biochemical change (or) genetic change related to lymphocyte affects immunity. For instance, the bone marrow lymphocytes, their falling in number affects the overall ability of the immune system. Among lymphocytes, T-lymphocytes are considered to be the most important in maintaining immunity.

Exposure to radiation, Sulphur drugs, can trigger a change in the T-cells.

If such an aspect occurs in an individual, immune system will deteriorate irrespective of age.

In the absence of any such external influence, the decay of lymphocytes with age has no clear pattern. In a decent study by Ro~~o~~, he tried to link it with Hayflick's limit.

Brain as a pace maker theory

This theory is more to do with the psychological aspects.

Fench & Merites conducted laboratory & field tests by exposing individuals to drugs that may stimulate responses in the brain, which in turn induces hormonal activity, disturbing the individual's psychological stability. Certain drugs that activates / de-activates pituitary hormones can influence the individual's psychological state.

Ro~~o~~'s study proved that a placebo effect induced by drugs can improve immunity in the individual. Applying this aging & senescence

Ro~~o~~ opines that in some of the individuals in Senescence stage, immunity system has weariness on the fear (or) confidence levels of individual through counselling, care & several other psychological means the individual immunity system of an individual can be improved.

Bernard Stehler identified that a combination of Hayflick's theory, free radical reactions & accumulated DNA changes decide the ageing process, which in turn have an impact on immunity levels of an individual.

As a contributor to Human genome project, he expressed a possibility of genetic switches of ageing. If one can identify the gene, that can induce the aging process and if one can find out the genetic engineering mechanism of switching on (or) off of this genetic switch, the mankind can have a control over the aging & senescence process.

Currently, in the absence of such knowledge, the focus of individuals, communities & govt's shall be on mechanisms to improve immunity of the individuals in above 60 age group. Within ~~increasing~~ life expectancies & possibilities of more number of aged individuals, facing old aged diseases, external interventions through nutrition, medical care & psychological care can only help tide over the situation.

Handout

AN-18-31 - Biological & socio-economic theories of population

AN-26-25 - topic-4 - size, growth rate & distribution of pop - recent census

11.2 → Demographic theories - biological, social & cultural.
(Refer to material, below mentioned to be added up)

Biological

Social & Economic

- ① Karl Marx - Surplus production theory
 - ② Henry George - Social maladjustment theory
 - ③ Dumont - Social Capitality Theory
 - ④ Fetter - Voluntarism
- } (in Handout)

- ⑤ Nitti - Principle of Individuality

- ⑥ / based on Industrialisation, Urbanisation, Westernisation
- ⑦ It contains freedom of women & individuality
- ⑧ Role of Education in questioning status quo.
- ⑨ goes along with Women liberation movements.

- ⑩ Brento - Theory of Increasing Prosperity

studied Russian Society which had exposure with
Western European pop.

- place of survey - Western Siberia.

(elite, prosperous people have less children)

- Opposed by Herbert Spencer

says that this is not a rule in all cases

Ex: Agric families of Western Canada

large no. of children.

- ⑪ Ørgen Steenberg - (Theory of Rationalism)

(a communist)

→ considered to be less rational

According to him → Rationalism has to do with rights over resources

① → More rational society if rights are given to people at lower levels in society

② from here it is linked to prosperity

③ this decides in rights over no. of children

(i.e., less no. of children)

(8) Cass Saunders (Optimum Theory)

- Nature itself will optimise irrespective of whatever one does
- will choose how much it can sustain
- and finally the numbers will remain the same
- (Sadler's criticism)

(9) Leibenstein (Population & Economic Growth theory)

- * in a replication of Saunders
- Any economy will have an optimising point of meeting the needs of population beyond which instability creeps in, it is difficult to remove instability & hence govt & people should plan.

with

Biological

- ① Sadler's (Density & fecundity principle)
- ② Thomas Doubleday (Diet theory)
- ③ Pearl & Reed (Logistic curve theory)
- ④ Comisado Gini (Theory of Biological stages)
- ⑤ Herbert Spencer (Analysis of Fertility function)
- ⑥ Jouse de Castro (Theory of Protein Consumption)

For all the theories

- Article (or) book where theory was proposed
- Basic premise of theory
- Critical appraisal

Mortality

5 ways of calculating

measures

- ① Crude Death Rate
- ② Age-specific DR
- ③ IMR
- ④ Cause specific DR
- ⑤ Life Expectancy at Birth

① CDR = $\frac{\text{No. of deaths in a calendar year in a specific geographical area}}{\text{Mid year population of the area}} \times 1000.$

② ASDR = $\frac{\text{No. of deaths in calendar year in specific age group in geo area}}{\text{Mid year pop of that age group}} \times 1000.$

③ IMR = $\frac{\text{No. of deaths of infants during calendar year}}{\text{Total live births in calendar year}} \times 1000$

④ CS DR = $\frac{\text{No. of deaths in a calendar year}}{\text{Total population}} \times 1000$

Under 5 MR = $\frac{\text{Death of children 0-4 yrs old in calendar year}}{\text{Total live births in that year}} \times 1000$

Causes of mortality (in)

- ① General pop
- ② Children
- ③ Mothers

General POP

WHO-specified

- ④ Infections, parasitic, respiratory diseases
 - ⑤ Disease of circulatory system
 - ⑥ Causes Related to Sanitary conditions
 - ⑦ Violence
 - ⑧ Others (accidents, unintentional, deaths)
- ① is falling in dev. countries
 ④, ⑤ increasing

Environment influence on mortality

(1) Residence

- ① Rural - lack of medical facilities, ignorance, superstitions
- ② Urban - (congested living)

(2) Marital status

(3) Occupation & (hazardous occupation)

(4) Cleanliness

Child mortality

- Lack of medical facilities
- Low nutrition levels
- Poverty, negligence of children
- Communicable diseases
- Poor sanitation, ventilation, hygiene, crowded houses

Maternal deaths

22

- Female literacy
- Orthodoxy
- Negligence of women
- Less interval btw 2 children
- Malnutrition of pregnant women & recent mothers
- Child marriages.

(Give examples.)

I

Explain

①

ii

②

iii

③

iv

5

ab

b

22-6-12

Q.1- Human GeneticsMethod of Studying

→ In A', Genetics study was taken up for 2 purposes.

Earlier studies

- Ixaglio's studies had basis of Pedigree analysis
- ↳ to study disease occurrence
- Then came Franz Boas, to study features (facial etc.)
- ↳ tried understanding interplay of heredity & environment

Purpose of studying Human Genetics & the Methods adopted

- ① To study the inherited traits, such as

Inheritance of disease,

It was done mainly by Pedigree studies
in the conventional studies & then taken up by DNA studies

- ② To understand sudden occurrence of certain diseases i.e. through the study of mutations.

(began with study of Victorian Royal families,
(Czar families - Haemophilia - Doren disease))

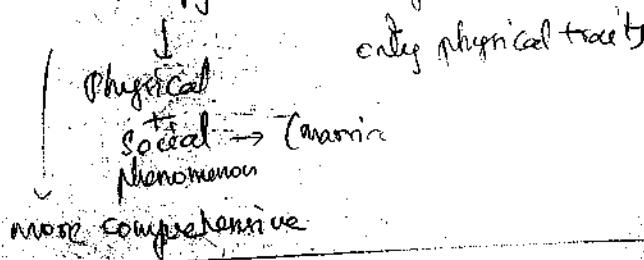
- ③ study of interplay of Genetics & Env't influencing traits of individuals.

It was done by Twin studies &

Foster Child Studies

- ④ Diseases (or) abnormalities by chromosomal aberrations. (This is latest kind).
 This is done by cytogenetic studies &
 by Chromosomal Karyotype

Genealogy vs Pedigree



Pedigree analysis

Name of study	Area of study
① Jukes of NY.	Beggars
② Zoro family of Swiss	Beggars
③ Bach family	Musicians
④ Kallista of USA	Fishing
⑤ Queen Victoria	Haemophilia → physical related

they chose lineage of Beggars to find out disorders in them and how well adopted are they to changing envt
 Ex: Zoro family - more resistant to Malaria.

In the above studies, the focus of pedigree analysis was on finding the health, immunity & resistance related aspects among the specific lineages. The lineage of Queen Victoria was studied with the presentation of checking the inheritance of Haemophilia. It was found to be a result of high levels of inbreeding. Among the Zoro family, the interest of physicalologists was on checking low levels of mortality with the high incidence of malaria cases.

Pedigree analysis in A was based on the studies of & encouragement given to family studies by the biologist Dalton, who defined Pedigree Analysis as a method of genetic studies of man.

which studies inheritance of traits that show regular transmission from generation to generation in a family.

The focus of Dalton were the transmission of

- ① Autosomal Dominant features
- ② " Recessive features
- ③ ~~X~~ X-linked features

(Handout - picture.)

A. Dominant
One of the features
Occurrence of tuberculosis in Gair family.

- According to Dalton, the Autosomal dominant features are
- ① not influenced by Gender
 - ② They express themselves in every generation.
 - ③ 50% of offspring stand a chance of acquiring these characteristics.

The offspring unaffected by the gene cannot transmit to the next generation.

If in such a case, if the feature appears in the subsequent generations, it may be due to genetic mutation & not due to inheritance. Because, the Autosomal dominant inheritance works on the principle that if the genetic feature affects a gene, it will definitely express itself.

A. Recessive

In the A. Recessive studies, studies were focused at aspects such as colour blindness & haemophilia.

Most often, female function as carriers. If these genes are present among the males, they definitely express the trait.

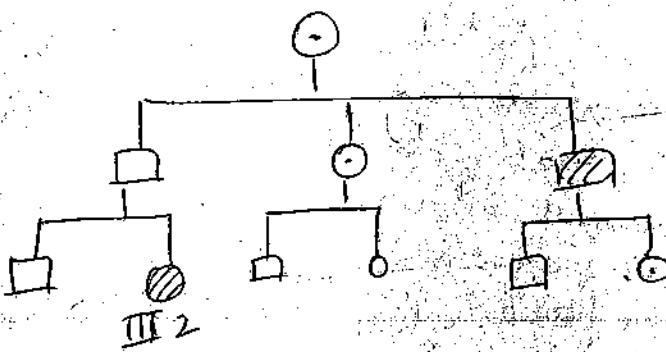
In the chart, in the 3rd Generation, II-2

is a carrier, though in the 2nd Generation,

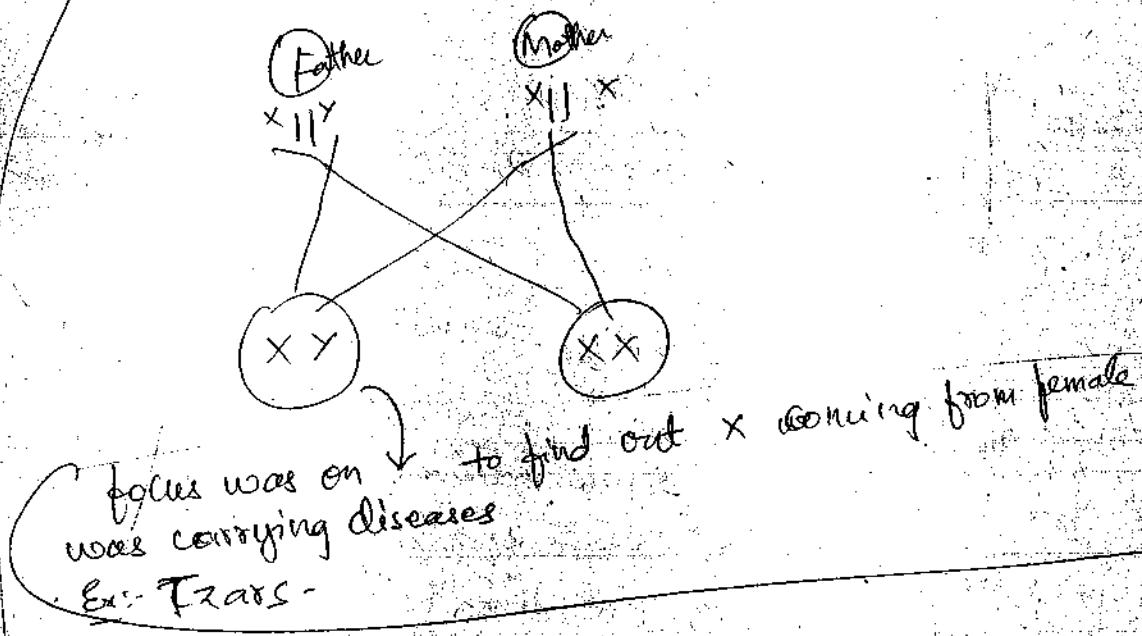
the male member doesn't seem to be either affected (or) is a carrier. Such a case in the current genetic studies is considered to be an incomplete study because, in Autosomal recessive case, atleast one of the parents shall possess the trait. The below picture was generated in drawing pedigree of colour blindness among the migrant Victorian people from UK to USA. It was seen as a pedigree drawn with incomplete information.

For completeness, it is necessary to draw清澈 chromosomal karyotyping studies (such karyotypes were produced in the later years) to check the occurrence of colour blindness among the migrants.

Such studies signify the limited utility of pedigree studies because pedigrees are mostly generated by the doctors (or) physicalologists through interviews conducted ~~occupations~~ of the patient.



X-chromosomal linked inheritance

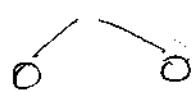


~~linked~~
worked on the principle that the male gets the X chromosome only from his mother & never from his father & doesn't transmit the ~~X~~ X chromosome to his sons - whereas a woman gets an X-chromosome from father & another from the mother.

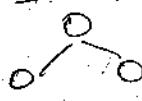
The study of X-linked diseases & X-linked features were based on Haemophilia, skin colours, Idiocy, polydactily (more no. of ---). Among these studies of Idiocy were conducted among the Californian-western Red Indian societies, wherein more no. of females were affected by it. Initially it was thought that it was the result of late marriages in the community. Studies by Chicago university proved that it was an X-linked disease. In the recent times, Biotechnological studies, cell culturing & karyotypic studies proved this finding.

Twin studies

Dizygotic twins



Monzygotic (single zygote)



Curiosity was → how twins have diff features if brought up together
in same environment

- immunity
- IQ levels
- behaviour

To begin with, the importance of studying twins for behavioural & genetic studies were indicated by Francis Galton. There was a focus on the concept of "Nature & Nurture". The distinction b/w Monozygotic & Dizygotic twins was discovered by Dareste, which was followed by studies by Pael on the assessment of Genetic & behavioural characteristics of twins. Presently, twin studies is extensively used to understand the role of genetics & environment on characteristics such as longevity, intelligence, general health & personality.

Galton defined twins "as a phenomenon in which 2 young ones are produced at a time".

He recognised

① Identical (oo) Monozygotic twins.

④ Fraternal (oo) Dizygotic twins.

• The former arises from a single zygote that may split into two at the early time of cell division which might develop into two genetically identical individuals.

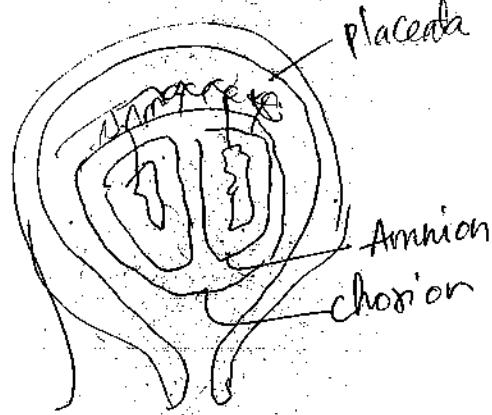
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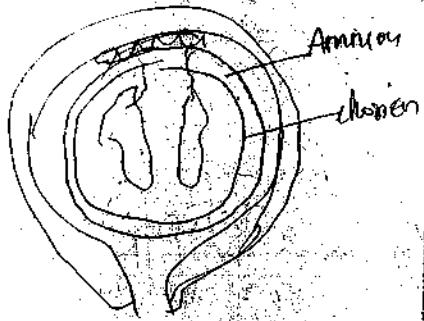
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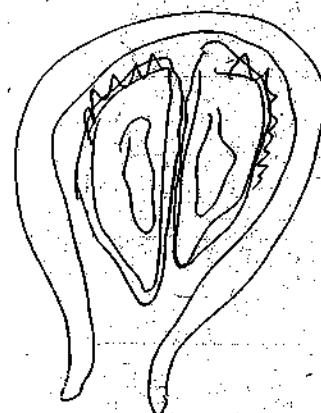
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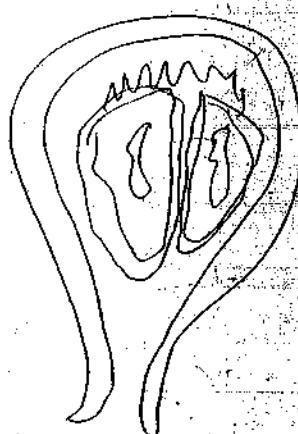
MZ with separate Amniotic membrane,
same chorion & placenta



MZ with same
Amniotic chorion,
placenta.



MZ/DZ with separate
Amniotic placenta,
chorion



MZ/DZ with same placenta
separate amniotic, chorion

Though there has been emphasis of studying the selection btw genetic inheritance & environmental aspects, another stream of interest is on Siamese twin. i.e., those who are born with fused bodies (or) limbs. Otherwise called Conjoined twin, currently there exist techniques to separate them. Nevertheless, their behavioural traits & significant inheritance aspects have been of interest in contemporary twin studies.

With regard to the frequency of occurrence of the twins, it is found that from population to population, there is a difference in frequency.

Factors such as Maternal age, follicle stimulating hormone, ~~etc~~ mainly influence the frequency.

For Ex:- Studies on Native Americans in particular & the American population in general proved that with increasing maternal age, the frequency of occurrence of dizygotic twins increases.

Whereas, no such correlation could be established with monozygotic twins & maternal age.

② If an individual has high levels of stimulating hormone, there is more tendency of dizygotic twins. In some cases, multiple births result from multiple zygotes. Such a feature is found to have a genetic basis.

For Ex:- In zero families of California birth of multiple children, is found across many generations of women in general were found to have abnormally high follicle stimulating hormone.

Study of African Negro's in 1960s also demonstrated the influence of genetic traits in the occurrence of twin births.

In the nature-nurture studies of twins, the focus was to find, which are the genetically determined traits. If monozygotic twins are brought up in diff environments, they would present diff physiological & psychological features.

If they are brought up together, the ^{immunological} ~~immunological~~ ^{psychological} ~~psychological~~ ^{physical} ~~physical~~ traits could be the same.

In the case of Dizygotes, if they are brought up in diff environments & if they exhibit similar such characters, it is found to be the result of genetics. Currently, Queensland University

is involved in studying lower disorders, congenital heart malfunctioning among diff types of twins. There is also a focus on behavioural traits of separated Siamese twins.

Foster child method

Any Behavioural study in 't' comes from Chicago school.
Even → comes from it.

- ① If Adopting children from same place, sending to diff places families
- ② 2 individuals from same families - put up in diff places

~~Adopt~~
Refers to Adoptive Child method

- It is taken up complementary to twin studies.
- It is used in the study of influence of Nature-Nurture especially on Mental traits.

- These studies are experimental studies wherein a group of children are randomly divided into several groups, each of them being placed in adoptive homes of different environments.
Env't here refers to difference in schooling, nutrition, parental care etc...

For this method,

- ① adopted & owned children of a couple can be compared for nature-nurture influence
- ② children of orphans who have different biological parents but are being brought up in the same env't are studied.

These studies indicate that if children of diff parentage exhibit similar features, it is more to do with environment.

Experiments such as Chicago studies are an example of Foster studies. Studies on Foster children in 1960s in different adoptive homes in USA revealed that the mean IQ levels of adopted children could be related to the IQ levels of biological children of the adoptive homes i.e., if the children were placed in good environs, there was a possibility of improving their intellectual quality.

Criticism also exist that mere environment cannot result in higher intelligence of the child though definitely envt plays a role in deciding the intelligence levels.

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Karyotype

→ ~~Cell treated~~

→ You can tell

- Correct no. of chromosomes

- Correct size & shape of chromosomes

- Gender.

Cytogenetics

Visual study of chromosomes at microscopic level

within
there is

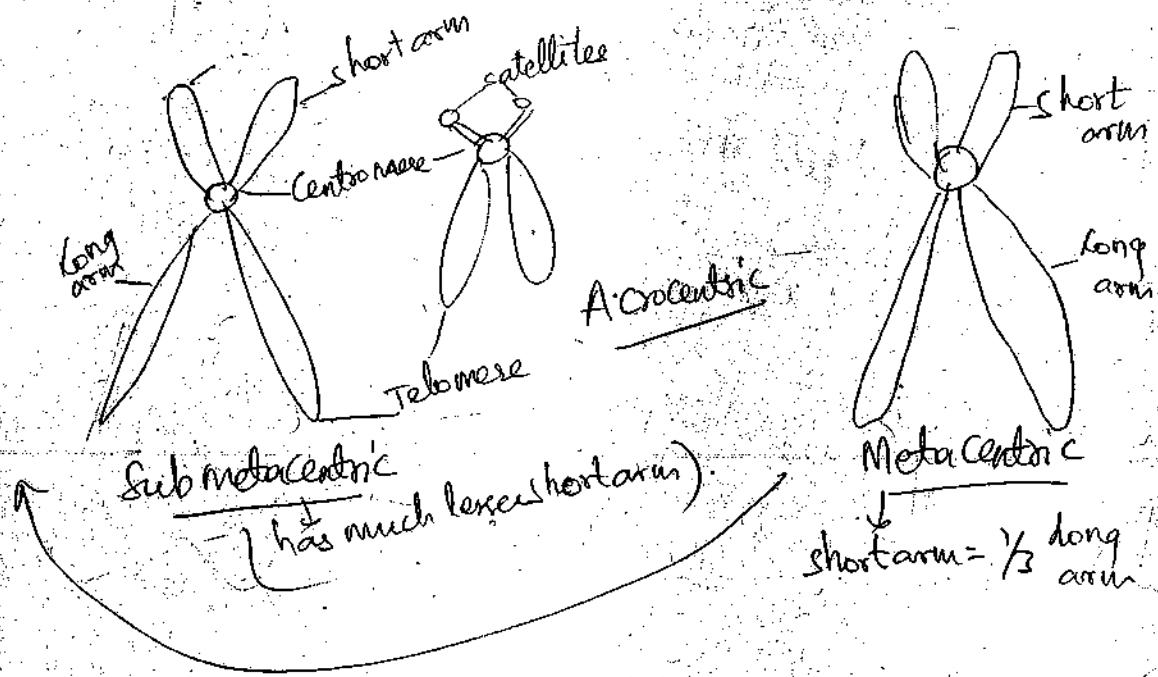
Karyotype

- chromosome complement

- also applied to picture of chromosomes

Idiogram

- stylised form of karyotype (a cell's multiplied) to study



Chromosomes

- 22 autosomes & sex chromosome in pairs
- Classified acc to
 - length
 - position of centromere
 - presence or absence of satellites
- Chromosomes divided into groups labelled A-G
- A 1-3
- B 4-5
- C 6-12 + X
- D 13-15
- E 16-18
- F 19-20
- G 21-22 + Y

Karyotyping

Staining methods to identify

G-banding

→ Most common method used

→ Metaphase spreads

Types of chromosome abnormalities

44

(1) Numerical

- Aneuploidy (monosomy, trisomy, tetrasomy)
- Polyploidy (+5ploidy, tetraploidy)

in humans

+ in insects

(2) Structural

Translocations

Inversions

Insertions

Deletions

Rings

Isochromosomes

ESAC

See -

Dowen syndrome

47, XX, +21 (00) 47, XY, +21

Incidence at birth - ?

Edwards syndrome - trisomy 18

47, XX, +18 (00) 47, XY, +18

Incidence at birth - 1/5,000

Patau syndrome - trisomy 13

47, XX, +13 (00) 47, XY, +13

Incidence at birth - 1/5,000

A-6

ESAC

25-6-

Extra Structurally Abnormal Chromosome

- Abnormal chromosome in addition to 46
- Small & difficult to identify
- Sometimes called marker chromosomes
- Difficult to work out effect on person
- May be benign or cause serious mental handicap

Ex's

→ th

→ Mu

22-6-12

Handout

→ AN-18-31 - Page-62 - Concepts of Evolutionary Biology

(Never asked - but read).

- 3 rules - basics etc.

(*) Adaptive radiation

Page-64 → Genetic markers

pg-65 → Transferrin - blood serum - protein

Ex: Veddas, American Indians

How levels of varied in specific pops.

→ Mu

pg-64 → Haemoglobin levels - studies

(*) pg-66 → Fat levels (*)



(Pe)

→ Each Ch

→ One

→ One fe

→ 1 gene

→ A1

(Di)

25-6-12

Genetics

Ex: Heterozygote + Heterozygote = Definite Diabetic
Diabetic Diabetic

→ Homozygous twins ~~are~~ are same

→ Mutation can be caused by any substance - Mutants

Ex: Mustard gas, Nicotine, Asbestos, UV radiation etc

Mutation at a loco level is OK, but

Mendel's laws of Inheritance

is based on a fact called "like begets like"

"Every species produces its own kind"

- they thought it is due to characters.

Every individual is made up of "seen characters"

Ex: Height,

→ Mendel worked on Pea plant and his postulates are

① Law of dominance

Every character in the body is governed by a pair

② Phenotypic characteristics - which can be apparently seen

③ Genotypic " - can't be seen

Pedigree → Purity of breed is expressed (Mules can't breed)

→ Each Character is known as allele

→ One colour has 2 alleles

Ex: Red flowers - R
white flowers - r

→ One feature is dominant, the other is recessive

→ 1 gene expressing different forms - Multiple alleles

→ A B → blood group → Co-dominant

(DNA fingerprinting)

→ Fluorescent microscope →

(2) Law of Segregation →

During crosses, characters do not remain same, they are segregated.

(3) Law of independent assortment

Two diff characters can't influence each other

Ex: Tall - $T T$, $t t$

Colour Red - RR , $r r$.

DNA → is a nucleic acid
→ There are 2 types of DNA → in Nucleus

→ There are 2 types of RNA → in Cytoplasm

→ DNA has the ability to self replicate

→ Protein synthesis is main function of DNA

Hair & skin - Keratin
Bone
Cartilage
Haemoglobin
tooth enamel

→ DNA is a double helical structure

→ There are Base Pairs

→ Ex. G, C are attached to strands in

can be attached with single, double, triple bonds

Bases → A C T G
(Adenine)

→ Base pair sequence is different in diff animals/plants

Any change in it will result in non-function

Humulin → is a recombinant insulin

→ E. coli → some part of human DNA is attached to this bacteria

↓ rounded gene → Human insulin gene is placed ~~in~~ ⁱⁿ Human

This is called Re-combinant technology

→ DNA replica

Ex: Experiments done with pigs

exclusively used in ~~on~~ bacteria

Steps in a DNA Recombinant technology

- ① Identification of a ~~desire~~ derived gene / DNA (fragments)
- ② derived gene should be cut. (by biological scissor, which are enzyme)

chemical substance - Restriction endonucleases

Nature of this enzyme is to break DNA

(this is used by bacteria to kill virus)

- 560 types of Restriction Endonucleases are identified

→ Enzyme to Glue is produced by bacteria - Ligases

After Glueing, DNA is called Recombinant DNA

This created a new hope for hereditary diseases

Treatment can be done at 2 levels

① Individual level

② Generation level

Any individual which is subject to change is

Transgenic individual (Transgenesis)

Transgenic individual (Transgenesis)

Ex: Andy Ape, Bt. cotton, Pigs, fat rat,

Majority of seedless grapes

→ Parthenogenetic fruit → No pollination, no seeds

male plant

Study →

- Earlier was an enquiring about family - their traits
- Leucoderma → *
- Diabetic person - only with diabetes - ✗
- How far 2 unrelated links on gene should influence are done in Genetic counselling

Lethal & sub-lethal

Lethal → always mutated

RB - Haemoglobin

If it becomes sickle celled - it would be fatal.

This gene if it is recessive

- No one is born with sickle cell but becomes later this is sub-lethal.

Chromosomal aberrations/mutations

Genes on chromosomes change in number & positions

This position includes Re-arrangement.

These are of following types

① changes involved in the number of genes on loci [A gene is placed on locus]

② changes involving arrangement of the gene.

[If chromo genes jump in same chromosome then it might not be lethal, but if they jump to other chromosome then it might be lethal]

Deletion

Loss of genes

↓

This condition is mostly due to anti-drugs, chemicals, radiation

Occur at any time of cell division

Duplication

→ Repeat

→ happens in deleted parts.

characters either get repeated (or) suppressed

→ Usually happen usually in a stage of Meiosis in Crossing over phenomenon.

② Translocation Inversion

Translocation occurs only in crossing over & linkage.

Chromosomal rearrangement block of genes from one linked group to another. This can cause change in the morphology, may lead to change in the chromosomal number, thus inducing genetic polymorphism, which has significant role in the formation of new species.

Inversion → No. of genes in chromosomes is changed, but sequence remains the same. The genes are altered by rotation by 180° . This also helps in origin of new species & Inversion is a proof of crossing over.

Ex: Haemoglobin, Sickle cell of Haemoglobin, Blood grouping & colour of the eye - Black, Brown Blue, which is due to pigmentation (in Cornea or Iris?)

Genetic polymorphism is directly associated with selection & existence of ≥ 2 more forms of mendelian trait in a pop whose frequency is not less than 1 to 2%.

Usually it is measured by the production of offspring.

Rare genetic variants are not considered.

Under certain conditions, some forms are selected, others are rejected.

Hardy-Weinberg's law

→ The entire ^(human) population are manifesting an infinite range of genetic variability, which is subjected to mathematical & statistical analysis for the first time.

→ Known phenotypes can lead us to know related genotypes from which the frequencies of alleles in a given population & it is ~~not~~ ascertained on the basis of Hardy-Weinberg's law.

In a random mating of pops, if the frequency of pair of alleles determining a particular trait is represented by P & Q (for example), the law says $P + Q = 1$. Accordingly, 3 phenotypes are expected to occur, $P^2 + 2PQ + Q^2$.

Further, these frequencies will tend to remain constant from generation to generation of a large breeding population.

Factors like Natural selection, Mutation etc do not disturb this equilibrium.

Significance of Law

Law is applied in population studies which have been recently extended for a detailed analysis of Dermal Ridge pattern on palms, fingers, thumbs, sole of the feet.

The above features inherited in a polygenic manner and have shown characteristic variations in the number of chromosomal aberrations.

→ In Inbreeding, changes in the gene frequency are frequently noticed. It refers to ~~to~~ Mating of 2 closely related parents.

Mating btw cousins of close relations & in inbreeding the ^(Hybrid vigour is lost) brds are eliminated, replacing of course by pure breeds (or homozygous type).

Consanguineous Marriage

These are the marriages btw closely related individuals who have come from a common ancestor of several generations back.

Ex - Marriages btw Father, Daughter; Mother-Son.

Modern word defines them as Immoral.

Small % available in UK, USA

Strict human cultural prohibition as seen in almost all communities.

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offspring of 1st cousins of brothers and sisters are still encouraged in Middle East & Indian subcontinent if such a relation is near to consanguineous marriages.

→ Inheritance of a defective gene among such people

based on 3 types:

→ Dominant, Co-dominant, Recessive genes.

Ex:- Dgenes - Brachydactyly - Short fingers is mostly dominant due to ^{Dominant} autosomal mutation.

Recessive → A recessive autosomal gene on chromosome is not expressed.

About 600 human traits are known so far have an autosomal recessive.

Ex:- Albinism, 6 fingered condition, Dwarfishism, some common Recessive genes causing different disorders in 1st cousin marriages is -

Alkaptonuria - 15%.

Cystic fibrosis

→ In practical terms, a cousin marriage in a traditional inbred community is less likely to result children manifesting recessive disease, while it is not dominant case.

→ Genetic imprinting

It is defined as the passage of genetic imprint from male & female parents, the autosomes & X-chromosomes are stamped separately - so that they bear the marking from which of the parents they are. Much of the autosomes of 2 parents are similar in genetic constitution, but behaviourally they differ in expression.

The following are the characteristics of genome imprinting

① Imprinted genomes express variously

Ex:- Autosomal gene expression

(e) genomic imprinting

(3) Gene imprinting (this is species specific)

Ex: Insulin growth factor is expressed in Mice
but not in human beings.

Gene imprinting is implicated in many diseases like

- it is employed in embryonic tumours
- also for various syndromes
- Gene imprinting is not a rule; sometimes it never happens

(Single child is a phenomenon of evolved primate)

Genetic load

Ex: In tomato - ripening is fast
to postpone ↓, a gene was introduced,
along with promoter gene.

Malaria → parasite attacks haemoglobin in RBC & destroys it

Gene frequency in Erythrocyte - 99%

Differently - 1%
formed
(like sickle cell)

Manipur - Nagaland

- Manipur - pop - 2-7 million - 3 major groups - Kuki, Naga, Meitei.
- Meiteis - settled in 4 valley districts
- Meiteis - want territorial integrity of state
- Kukis want Kukiland, Nagas want greater Nagaland
- Identity is a major point of conflict b/w K & N
- Land is another
- 1992-1997 - ethnic violence b/w K & N - 1000 people died.
- conflict started during British colonial admin.
- Kukiland to be carved out of 5 hill districts of Manipur
- This demand directly challenges demand of ~~NSCN~~
- Greater (or) southern Nagaland by NSCN-IM.
- Kukis want (i) Nagas to apologise for 1990's crimes &
- (ii) Govt. to compensate & rehabilitate

Eastern Nagaland

- 4 districts (east) of Nagaland - are demanding separate state.
- 6 tribes of this region (45% of pop) were neglected.
- Konjaks, Phoms, Changs, Khamtiungans, Yimchungs,
- Sompans

Bodo land struggle

"Divide Assam - fifty fifty" from 1987-1992 culminated in signing 1st Bodo Accord - Feb-1992 - and creation of Bodoland Autonomous Council

- Movement revived by student body in 1996 alleging that accord wasn't implemented
- 2nd Bodo Accord signed ^{in 2003} among Centre, Assam govt & erstwhile militant outfit Bodoland Liberation Tigers (BLT) -
- ↳ Bodoland Territorial council was set up

Art-371A (16 pt Agreement)

- 1960 Agreement laid basis for creation of Nagaland in Dec 1963.
- Art-371A incorporated as partial fulfillment of this agreement which contained negotiated sovereignty of Nagas ...
- Now Petroleum Min asked Naga Legislative Assembly to withdraw the Nagaland Petroleum & Natural gas regulation-2012 framed under 371A
- NLA rejected request & pressed for implementing unfulfilled clauses of

Assam's demands

- Untenable, impractical coz many ethnic provinces overlap
- Assam & neighbour states issues not resolved.
- Urgent need for admin systems that can help meet regional, dev. al, identity aspirations
- In addition to 3 Autonomous Dist Councils, there are 6 notified tribal autonomous councils where territory is not specified
- Here there is dual authority - simultaneous existence of PRIs
- Experience in Tripura over past decade shown that implementation of appropriate autonomy packages could prove effective.

New states demand in NE

- Assam — Bodoland → by Koch Rajbanghis
- Kamrup (15 Assam dist + 6 North Bengal)
- Karbi Anglong + Dima Hasao hill districts
- Dimasaland - Dima Hasao district & parts of Karbi Anglong & Dimaque in Nagaland state.

Did the autonomy experiment in NE fail?

- Leaders of Bodo, Karbi, Dimasa say that 6th schedule experiment failed to fulfill people's aspirations as state govt didn't devolve powers to the councils.
- People never got opportunity to enjoy self governance
- The BTC, K AAC, DHADC are single tiered & outside PRI system
- The Adhoc village councils are not elected
- In Tripura - nominated VCs were replaced with elected councils in 2006 in all 527 village committees under TTAC.

- Nearly 9 yrs after BTC formed, The Bodoland Village Council Bill 2012 provides for directly elected council - passed on July 18-2012. The Bill awaits Assam Governor's assent.

- Peace agreement signed by Assam govt with militant outfit United People's Democratic Solidarity (UPDS) of Karbi Anglong district on Aug 25-2011 provides for setting up village councils under K AAC
- MoU with both factions of erstwhile militant outfit Dimapurka Daogaon of Dima Hasao hill dist on Oct 6-2012 also ↗

Problems

- PES
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BodoLand issues

6 ethnic groups are refused ST status by central govt
ruled Assam for 6 centuries before British advent

- ① Tai Ahoms
- ② Moranis
- ③ Mrookas
- ④ Koch Rajbangshis (fall under OBC category)
- ⑤ Sutiyas
- ⑥ Tea plantation groups

PESA - 1996 Issues

Lip Singh Phuria Committee apptd in 1996 to work out details as to how structures similar to PR I can take shape in Tribal Areas & Scheduled Areas

recommended 3 tier structure of self-governance in tribes

① Gram Sabha - Every habitation community to have GS which will exercise command over natural resources, resolve disputes & manage institutions under it like schools & cooperatives

② Gram Panchayat - Elected body of reps of each Gram Sabha, also functions as appellate authority for unresolved disputes at lower level

③ A block or taluk level body as next higher level

Provisions under PESA include

- ① GS to protect traditions, beliefs, culture of tribes
- ② .. to resolve local disputes
- ③ .. permission required in case of land acquisition
- ④ .. has rights over MFP, manage common properties
- ⑤ .. has rights to control distillation, prohibition of liquor etc.

Problems

- PESA can be only as effective as PR I, which in turn depends on capability of elected reps to deliver

- PESA Gram Sabhas in reality remain subordinate to Gram Panchayats

- Low level of awareness & education among tribals (to raise voice)

- PESA applicable to only scheduled areas - Tribals outside these not covered

- Panchayats not given adequate fiscal responsibilities to collect taxes

- Reforms of SFCs partially accepted

- State Election Commissions don't have same freedom across all states

- state legislature, forest dept. subjugate Gram Sabhas' role
- PESA is reduced to paper tiger.
- Govt. officials' attitude to tribes - Inferior species - & hence former to decide what is good for them.
- State govt laws negate PESA & cleverly deviate
 - Ex: PESA is only for rural ; state govt's give speedy clearances to mining & industries in tribal areas : They upgrade rural panchayat to in schedule areas to urban panchayat to bypass PESA which mandates village council's approval for such projects

IRMA's study on PESA

- ① Govt apathy to ↓ has given impetus to Naxalite activities
- ② state govt's diluted powers of PESA
 - Ex: MP, Chhattisgarh - enacted laws providing bulk of powers to Gram Panchayat not Gram Sabha.

- ③ Non-violent resistance of tribes-branded as Maoist threat and handled wrongly

- ④ Governor ^{is given} has limited powers by PESA to protect tribal interest
 - Not a single governor responded to ~~char~~ petitions on land, excess mining (or) police excesses
- ⑤ Widespread transfer of land by non-tribal through fraud & force.

Remedies

- ① Min of PRD & Min of TA - should coordinate (as of now they virtually function in isolation)
- ② Letter & spirit of 'Samata Judgement' should be enforced in all acquisition of land for pvt companies
- ③ Land for land - fundamental for tribal land acquisition
- ④ lesson from NREGA social audit rules of AP.
- ⑤ Grievance Redressal M to be stronger
- ⑥ Punitive mechanism for violation of norms
- ⑦ Activate Gram Sabhas in Mission Mode

~~E~~

- ⑧ Mandate SEC to delimit villages
- ⑨ Incorporate def. of MFL as in FRA 2006. ; MFP brought by G.S
- ⑩ G.S, particularly women, decisions in liquor sale, mfdg
- ⑪ Awareness - Use NGOs, civil society (+ Red Corridors especially)

Fundamental spirit of PESA is to devolve power & authority to GS, GP
not just del rather than delegation

State govt to endow powers & authority to make GS & GP function
as institutions of local self Gov. specifically on matters of

- (1) Sale & Consumption of intoxicant
- (ii) Ownership of MFP
- (iii) Land alienation
- (iv) Managing village markets
- (v) Control over money lending

- PESA also empowers GS to approve plans, progs for socio-economic dev,
(i) identify beneficiaries under poverty alleviation
(ii) certify utilisation of funds by GPs.

Innerline Permit - (Polity notes - pg-18)

Leakage of Funds in North East - DONER - (CSC - Dec 2013) pg-8

- Semia Nagas / Semi Nagas force insurgents to flee
- camp Mukalim - in Ziro keboto district of Nagaland
- Militants of Nationalist Socialist Council of Nagaland (Isaac-Muich) fled the camp
- NSCN (IM) - cadre is from Tangkhul sub tribe based in Manipur
- Semia Nagas competing since long, for power & influence with the Tangkhul Nagas
- Public opinion in Nagaland turning against insurgents
- Protests against NSCN (IM)'s parallel taxation structure, which is used to fund insurgents, also gathered momentum in 2013

- Jan-6 - Betwa Orya tribes denied ST certificates - despite Government's Apithig Courts orders
(from Srikakulam district)

- Jan-7 - Karbi-Anglong clashes - 3000+ homes lost
- clashes b/w ethnic insurgent Karbi People's Liberation Tigers (KPLT) and Rengma Naga Hills Protection Force (RNHPF)

- KPLT is a breakaway faction of KNU LF - which demanded separate state comprising 2 hill districts - KA & Dima Hasao
- KNU LF itself is a breakaway faction of United People's Democratic Solidarity
- RNHPF formed in 2012 for protection of Rengma Nagas from KPLT attacks
- RNHPF demands creation of regional council for Rengma Nagas of Kamtapur/

Jan-8 - Odisha (Jharkhand) forest rights & coal mining by Tata Steel APNRL

Jan-9 - Ardipithecus Ramidus (Ardi) skull - 4.4 mya - reveals pattern of similarity that links it to Australopithecines & modern humans but not apes.

Jan-11 - Posco cleared by Ehot Min (Forest clearance is still in NGT)

Jan-14 - Min of RD - additional 50 days employment under MNREGA for ST households, who have received land rights under FRA-2006.
- FRA beneficiaries already automatically included for assistance under IAY
- In most affected states - Convergence b/w MNREGA, NREGA

Jan-20 - Gujrala Gond manuscripts to reveal Gondwana history -
(Gond Chandroprav Gond kings fought against British)

Assam Scourge

Jan-30 - Songbijit faction of National Democratic Front of Bodoland on a killing spree in Bodoland Territorial Area Districts in Assam
- This is clearly a plan to drive wedge b/w Bodos & non-Bodos
- July-2012 - turmoil in lower Assam - 96 killed
- Rangjan Daikary faction of NDFB signed ceasefire agreement with Central & state govt's in Nov-2013 ; Songbijit refused to join the pSCCs
- ~~is~~ remains in Myanmar, believed to be in league with ULFA (I) & NSCN (K). The prospect of these three teaming up with Tamangpur Liberation Organisation poses a new challenge.

Feb-3 - AP enacted a law! AP SC sub plan & TSP Act 2013
- Similar law enacted by Karnataka
- However, these Acts are at variance with provisions of PESA, coz the latter empowers Gram Sabha to oversee local plans & resources ; but ITDP is a bureaucracy-driven program, not one of self governance.

- Adivasi mass orgs were not strong enough to get the provisions of PESA implemented.

- Despite its lack of implementation, PESA does provide a greater space for legal & mass action to press for increased Adivasi autonomy especially after the Samanta & Niyangin judgements (PESA is one of reference points for leaders of Shiroi indigenous people movement in Mexico)

Feb-11

Mar-21

Mar-26

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Apr-11

Apr-13

Apr-17

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- ~~85%~~ of tribes pop are in Central India
- 11% - North East ; 4% - South India
- KTK AP - 7% of Pop are tribes
- Notified tribes - Odisha-64 AP-33 Kerala-35
KTK-69 TN-36

Feb 11 - Workers in Assam tea plantations live in bad conditions
 - Many are tribes - migrated from Central India
 - Tata group + IFC → Amalgamated - control plantations
 - Company's openly violates Plantations Labour Act

Mar-24 / Rising unemployment in Manipur
 - 7 lakh educated youth unemployed - Total pop ~~of~~ - 27 lakh.
 - Such people are pulled towards armed ^{group} _(Maoists) ^{in Jharkhand)} _{movement}

Mar-28 - Rakhigash - biggest Harappan site
 - Till now, Mehengarh is the biggest H' civilisation site
 - Now experts feel that H' began in Ghaggar basin in Jharkhand
 and then slowly moved to Indus valley

Apr-11 - Rock arts found in T.N. village
 (belong to Iron Age)

Apr-13 - Poor Telecom connectivity in Assam - Militants using global SIM cards
 - DoT USOF fail to implement Union Home Min project to put towers in North East & Naxal affected states

Apr-17 - Hypoxia at high altitude linked to insulin resistance
 (study on Mt. Everest)

Mar-Chronicl - Online shopping
Portals for tribal products - by Min of Tribal Affairs
 TRIFED aims to provide branding, source certification & developing standards for products

Apr-22 - Jharkhand - Tribes divided by religion
 - Santhal (15) Christian tribes
 - 1845, German Protestants came first ; followed by Catholics
 - Rift b/w Christian, non-Christian tribes visible in 1947-48
 - Jan Sangh, RSS made amroads in Chotanagpur in 1960s.

Communalism in Meghalaya

- late 1970s, Khan Students Union - attack on Bengalis in Shillong
- Next was Nepali settlers & Biharis.
- H NLC - is a militant org which attacks "outsiders".

May-2 - Gorakhpur found at Rathigarhi in Haryana.

May-16 - Bihar is the 1st state to enact legislation to promote organic farming.

→ However it's pushing hard to eradicate jhum under New Land Use Policy (NLUP).

May-18 - Kokrajhar has elects non-Bodo for first time
(He is former commander of insurgent ULFA)

→ consists of areas under BTAD

- GJM ^{busted} candidate's win boost to Gorkhaland demand

Jul-3 - Ecuadorian indigenous people protest against water policy - that gives state exclusive control over water resources & de facto ends indigenous councils' administration.

Jul-6 - National Green Tribunal directs MP govt to resolve rehabilitation issues of Mahevaranam displaced persons.

Oct-17 - Anthropocene

term first used by Paul Crutzen - a Dutch chemist & Nobel laureate ^{in 2000}

Jan-3 - Xaxa report on Schedule I - (Polity notes - pg - 35) ^{suggestion}

- Problem with submission of reports by Governor
- TAC deliberations - tokenistic
- TAC composition - Bcads + Ministers - instead of tribal reps
- Committee recommends Governor's cell to be set up in all Schedule I states to assist the Governor.