

ABHIJIT RAY AIR 50 UPSC CSE 2021

ANTHROPOLOGY PAPER 1 - 1.1 to 1.3,8,12

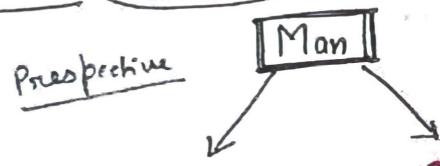
I believe these chapters should be studied at the end only when rest syllabus is studied and not at the beginning

If you have made your own notes, please do go through mine once and note down the value addition and extra things. Trust me, you will be benefited as these notes are made from extensive sources.

1.1

I.I. Meaning Scope and development of Anthropology

- Aristotle is said to have coined the term Anthropologist, meaning "who talks about himself".
- 18th century, German Idealist wrote a book titled 'Anthropology' in 1789 suggesting animal origin of man.
- Anthropology = "Anthropos" + Logos
Man Science
- Kluckhohn said it is nearest to a "total study of man".
- Science of man w/o portfolio
- In nutshell it is the study of biological and socio-cultural evolution and variation of man.



Socio-Cultural Evolution
(suggested by SPENCER)

Thus, Anthropology is the holistic and scientific study of that scientific "man" of the animal kingdom who possesses Bio-cultural dimensions.
Through the ages and all the society.
Cohesion of Biological & Cultural dimension of human being

This definition clearly entails the scope of anthropology
Subject matter being "Man" and the type of study
being with holistic evolution, thus relating to everything associated
with man and his thinking feelings

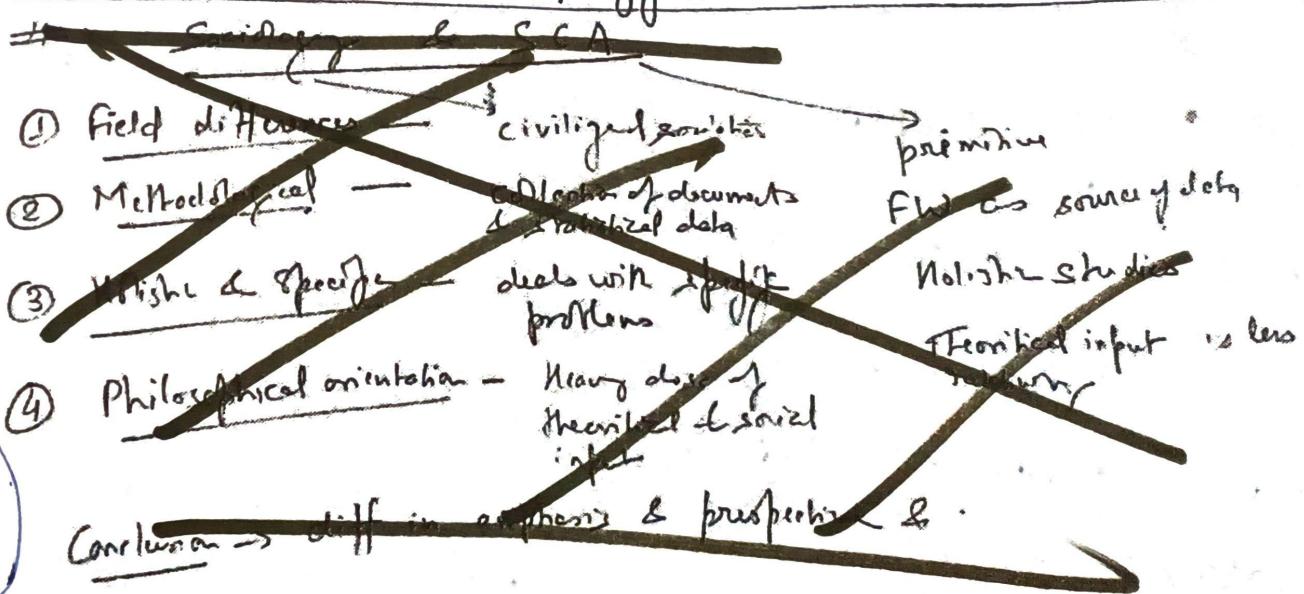
1.2, 1.3

The phrase "through the ages" describes the scope of study w.r.t time. Thus, in Anthropology, we cover pre-human, sub-human, human and their evolution from primates.

The phrase "all the society" describes that in Anthropology we study all the cultures, all the societies simple or modern, savage, barbaric, industrial, rural urban, static or static less.

Thus, due to the vast scope of anthropology it has been further subdivided into four branches -

- ① Socio-cultural — founding fathers Franz Boas, Malinowski and Radcliffe Brown
- ② Biological / Physical / Neo Physical
- ③ Prehistoric Archeology
- ④ Linguistic Anthropology



Contemporary

Historical

Scope of
anthro

Applied - quantitative case studies

Scope of anthro is based on the methods / perspectives

Humanistic and material perspective

Investigative, applied, comparative

- Physical anthro - biological env

- cultural anthro - cultural env

- postcolonial anthro - material culture of precolonial & postcolonial

- ethnology - comparative study of cultures

- evolutionary anthro - material culture

Evolutionary
cultural context,
myths, rituals etc.

(m)
- linguistic anthro
- sociocultural anthro

- epidemiological anthro

- ecological anthro

- nutritional anthro

- forensic anthro

Q.

Why Anthropology?

Ans

Anthropology is the holistic and comparative study of "man" and his biological & cultural evolution & variations through the ages and all the society. Being an holistic study it has played a vital role in understanding

1.

Human Differences:

(i) Myths of Ethnocentrism

(ii) Myth of superiority of Western Cultures.

(iii) Blown concept of "Race".

(iv) Myth that pre-industrial societies are savage & barbarous.

2.

Understanding ourselves

All behaviour is learned and not inherited.

3.

Applied & Action

Anthropology

Applied Anthropology: "Organized interaction b/w professional anthropologists and policy makers or private bodies".

- The anthropologists utilize their knowledge and expertise in understanding heterogeneous or multi-faceted state to deduce the applicability and acceptability of various developmental policies.

- Thus, the acquired knowledge is used by "others" for their selfish motives.

e.g. Politicians for Votes
Missionaries for conversions

page
10

dict - "The purpose of - - -"

Action Anthropology: In AA the anthropologist or involves himself in planning, administering, advising and execution of various developmental policies.

— Coined by Sol Tax in 1957 (American A).

— Thus, he uses his knowledge to become an agent of change for the associated community

— The motive is selfless development of Community.

M

Structure

- ① Introduction \rightarrow Bantuan Tribes.
- ② Myths \rightarrow Race
— Ourselves \rightarrow Superiority
— Others \rightarrow Inferiority
- Applied to Action Anthropology

Sol Tax 1957
Principle

UNESCO post WWII studied Race — Ashley Montagu

- "UNESCO Statement on Race"
- ① Two races do not exterminate human beings
 - ② No harmful effects of interracial marriages.
 - ③ Races do not differ significantly w.r.t. their capacities & capabilities

Ashley Montagu \rightarrow "Race: Man's most Dangerous Myth."

LPU - social doctor + engineer

DO, FWI, CR, SO, holistic

2

Relationship with other disciplines:

For all questions, structure will be as follows—

- Introduction
 - Similarity
 - Interdependency
 - Differences
 - Conclusion
- Subject matter "man" + Methods/Techniques
- Cultural
- EXPLAIN BY AN EXAMPLE

~~Common to all~~
Introduction: Definition of both comparable.

Also, since, Anthropology has a vast paradigm and hence, no discipline can be compared with Anthropology in totality.

Conclusion: In today's world, international inter-disciplinary approach is followed and hence, we do not compare various disciplines but we try to bring them on a common platform so that each discipline can benefit from each other.

Thought process for similarities and differences:

- ① Subject matter "man"
- ② Methods / Techniques
- ③ Individual / Group / Community / Culture
- ④ Inclinations on type of society

Sociology → Society / Rural / Industrial / Urban

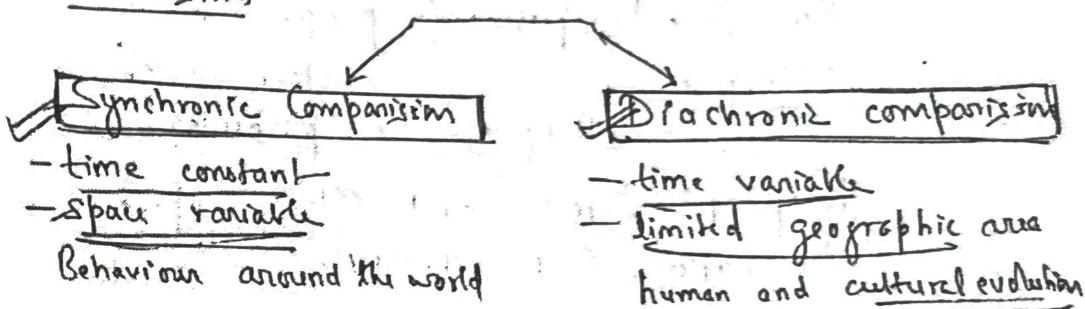
Anthro → Man / Culture / Tribes

#

Unique features of Anthropology:

1. Comparative theme: This is the major difference between anthropology and sociology. Anthropology is also called "Comparative Sociology" by some scholars. (Radcliffe Brown)

2 dimensions



3. Holistic theme: This is a characteristic feature that separates anthropology from sociology.

Sociology → focus on society and social systems

Anthropology → study together and relate about human biology, society, culture and psychology.

Thus an anthropologist is sensitive to complexity of human nature.

3

Systems and Process theme:

How elements of biological, social, cultural, environmental systems interact in the process through which these systems maintain their dynamic interrelation.

4. Case Study method: field Work — live, learn and prepare extremely detailed descriptions of a particular group while trying to study the subject objectively via techniques of Participant Observation.

5. Emic and Etic themes

Emic → Perspective of people who are being investigated.

Etic → " Western social science and anthropology in particular.

Keeping Emic and Etic separate during observation. (OBJECTIVITY)

BRANCHES OF ANTHROPOLOGY

PHYSICAL AND /OR BIOLOGICAL ANTHROPOLOGY

Physical anthropology is more accurately be termed Biological Anthropology as it deals with not only morphological but also genetic features of man and primates.

It basically deals with human evolution and variation in time and space to seek answer to :

- What were the sequence of events.
- factors and mechanism
- Nature of ongoing processes.

It includes —

- 1. Paleontology — Old extinct Primates
- 2. Neoontology — New-existing primates
- 3. Ethology — study of animal behaviour

Study of ① human physical growth and development

- ① Dermatoglyphics
- ② Genetics
- ③ Population genetics
- ④ Bio-chemical
- ⑤ Cytogenetics
- ⑥ Anatomy
- ⑦ Osteology of man and apes
- ⑧ Race Study
- ⑨ Anthropometry

(X) Forensics

(X) Serology

12

HISTORY

- 18th Century → Curiosity → Study of Races (Anthropometry / Taxonomy)
- Boosted by colonial aspirations of West.
- ✓ 1856 → Dryopithecus
- ✓ 1859 → Origin of Species
- ✓ 1864 → Neanderthal Man] → interest in biological evolution
- ✓ 1871 → Darwin → "Descent of Man" → ancestor "Ape"

Study of Primates,

Only morphology was being studied of Apes and Man
the subject was called Physical Anthropology

✓ ABO system 1900 by Landsteiner

✓ Genetics — Mendel (rediscovered in 1901)
Hans Weismann — 1908

✓ 2nd Decade — Cytology, biochemistry, cytogenetics

✓ Synthesis theory propounded in 1930

⇒ This led to shift from morphological to analytical studies of interaction of culture, genetics and behaviour.

PEDAGOGY

Dwale

Post world war II, UNESCO statement on Racism 1964
led to decline in racial studies.

NEW PHYSICAL ANTHROPOLOGY

Term given by Washburn

- What he described as 'New' has become integral and hence nothing new in it now.
- There is nothing physical in this
Hence, it would be better to call it simply Anthropology

Conclusion In the recent years, physical anthropology has advanced much further, particularly in interdisciplinary approach.

Eg. Molecular Biology can reveal genetic distance
between Homo erectus and modern man. But it can be only be authenticated by fossil evidence.

Methods : Earlier Classification / Anthropometry

Now Analytical / Laboratory testing and comparative.

Descriptive → Analytical

Application :- understand social instⁿ such as marriage via test of in-lit & out-lit.
- genetic evolution
- genetic diseases
- adaptability

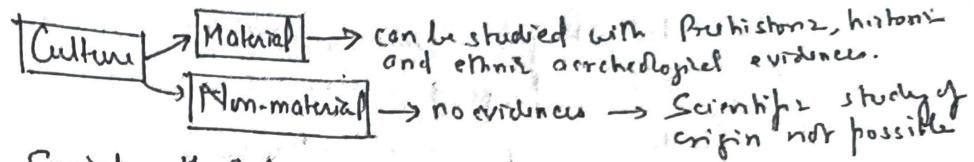
- kinanthropometry
- epidemiology
- forensic anthrop

ARRB defined socio-cultural author as the natural science of society

M

Socio-Cultural Anthropology

It studies socio-cultural evolution and variation and social life.



- Social anthropology and Ethnology separated a century ago
- According to Radcliffe Brown Ethnology is the "Study of Peoples".
- Both S.A. and ethnologists study same people for different purposes —

Ethnology → Classification of people based on similarities and differences in social and cultural features and explain distribution in the present time.

S.A. → They use the above classification to make comparisons between cultures and societies.

They study social behaviour generally in institutionalized form — Marriage, family, etc.

Customs plotted on Map → Ethnologist

Cultural drift and ethnic movement → S.A.

- Acc. to Radcliffe Brown, S.A. deals with the general theoretical study of social institutions, law, religion, political organization and economic org. etc
- SA is close to psychology, eco., pol., history, law, sociology.

Bo. -
xidence

wings

✓ Social Anthropology is often termed as sociology.

SCOPE: Acc. to Royal Anthropological Institute, the aims of social anthropology are —

1. Study of primitive culture
2. Cultural contact and appraisal for purposes
3. Reconstruction of social history.
4. Search for universally valid social laws.

Earlier only Tribal societies, but today, village studies, industrial societies, modern societies too. are being studied.

It is loosely divided into —

- 1) Legal anthropology
- 2) Economic —
- 3) Political —
- 4) Psychological —
- 5) Symbolic and Cognitive —

L
E
P
S

History: Systematic beginning.

Classical Evolutionism

Historical Particularism

Diffusionism

Functionalism

Structural Functionalism

Culture-Personality School

Macro-evolution

Symbols

1850's → descriptive, British colonial
— 1940's Non-academic / Utilitarian
(Risley) Detached
Study of Tribals

1930 → Interaction with scholars.

Post WWII → Caste studies

→ Village studies

→ Civilization GT / LT
B.C. Agarwal → Urban anthropologist
space (SITE)

Application - applied + action areas - acceptability, applicability.

1. National concourse

- resolve cultural conflict

- tribal admin.

- NMS etc.

Methods and techniques : field work, case study, analysis, etc.

Comparative, holistic theme, P.O.

Synchronic diachronic

System and process.

Deductive, Comparative, Inductive methods.

concept - come closer under discussion
eg., insect relation

M

3. PREHISTORIC ARCHAEOLOGY

It aims to reconstruct social life and material culture of prehistoric societies based on meager material evidences left behind.

HISTORY: Word 'PREHISTORY' first used by Tawney but came to practical use in 1865 after publication of Lubitsch's Prehistoric Times.

But initially it only dealt with classification and taxonomical description of fossil finds in time and space - frequency technique.

Post 1960s interest shifted to understanding the social formation and cultural processes and date and direction of cultural changes.

To reconstruct the social and cultural life of prehistoric times.

LIMITATIONS: Paucity, sparse and difficult to interpret evidences.

Method: Mainly deductive.

m

APPLICATION PA can see long range continuities. They have advantage of evidence of time and can predict & answer questions of leg and fossil. Thus they invariably aid other branches of anthropology.

~~Bruntonic Anthropologist can see long range communication and processes and thus can more easily answer questions of processes and sequence.~~

Conclusion: Recently, a new trend has emerged. Social anthropologists and archaeologists have begun to work together to gain advantage from each other's insight.

4. ANTHROPOLOGICAL LINGUISTICS

Till 1950's → Anthropological Linguistics

After 1950's → Linguistic Anthropology

defn L.A. is the study of speech and language as a socio-cultural phenomenon across space and time.

L.A. is linguistics in cultural context.

Scope: Mainly unwritten languages of non-west people

- Systematic study of evolution and variation of a language.
- Gesture language of deaf mute
- Relation of language to thought
- Origin, structure, processes involved, invention and development of writing, relation of symbols and their meaning
- Language as an instrument in the development of cultures

Branch

- History:
- Started with metaphysical writings of 17th, 18th century.
 - Tylor's "Researches into the Early History of Mankind" 1865, gave a blue print of L.A. He advocated for an empirical and scientific basis for study of language. Dell Hymen - tried defining L
 - In 19th century etd of discipline in 1960s
common focus was on -
 - 1) Origin of languages
 - 2) Historical and comparative linguistics
 - 3) Development of science of Phonetics
 - 4) Language of primitive people
 - Today, increasing role of biological and cultural factors on the study of language is felt.

- Branches:
1. Historical linguistics or Comparative linguistics concerned with origin, variation and dynamics of language in time and space.
 2. Structural linguistics: How sounds → words → sentences → speech
 3. Socio-linguistics: ^{grammar} Study of languages in social and situational contexts
 4. Ethnosemantics: Culture from the point of view of people.
 5. Psycholinguistics: Process & underlying the acquisition and use of language.

Conclusion

so new discipline but
contains elements

Comparisons:

History
Sociology
Earth Science
Biological Science
Psychology
Medical Science

Anthropology has a vast paradigm so much so that no discipline can be compared with Anthropology in its totality.

Biological Sciences	— Biological Anthropology
Social Sciences	— SCA
Earth Sciences	— Prehistory / fossil evidence
Behavioural Sciences	— Cultural / Psychological

1.

History Vs Anthropology

4

- History is the account of the time period of which written records are available and their language has been deciphered.
Account only refers to cultural aspects
 - * Before 1950's → kings, wars, victories and defeat
 - 1950 onwards → Political history
 - Today → Socio-eco-political aspects too
- In history we start in the past and continue to the present while in Anthropology we study present and peep into the past.
- It is said that History is based on facts but actually every historian picks events and fails to suit his own interpretations.

Similarly, in Anthropology too the quality of field work is very subjective and relative and majority depends on the investigators' personality.

* Till recently, history relied on secondary sources but today contemporary history writing, historians have been initiated into participant observation.

2.

Sociology and Anthropology:

- Both study culture. They are so close that many anthropologists call anthropology as comparative sociology.
- 5-6 Decades ago, there were following differences between them—

① Sociology only dealt with particular and specific aspects or problems such as — divorce, etc. While SCA dealt with the culture in a more holistic way.

② Subject matter — Sociology → Stat. Society; SCA → "Man"

all societies → stat and stableless.

Earlier, Sociology → urban and rural societies
SCA → tribal societies

Today, Sociology too study Tribal and SCA studies Urban and rural societies.

Today, SCA have contributed to understanding social tensions, nation building processes, ethnic conflicts, etc.

Field Work

Sociology → Secondary techniques
Schedules, questionnaires, interviews etc.

SCA → Participant Observation
(primary technique)

But, today all these differences are almost vanished and one finds overlapping scope, techniques and frequent borrowing of concepts between them.

3.

Psychology Vs Anthropology

Psychology is the study psyche while anthropology studies culture. Culture has a collective psyche.

Hence, both disciplines should be very close to each other but in reality they are not.

① In psychology, study of psyche is based on a particular age, gender or condition.

Eg Psychology of infants
of adults.
of murderers.

② Psychology is individualistic while anthropology is collective.

Eg Murder in court

Psychologist — What is going on in Judge's mind?

Anthropologist — Why he committed murder?

What circumstances led him to murder?
What social factors judge will ...

community

eg: why Malankar of Gujarat help conserve now ^{so psycho +} ^{authors}

- Traditionally, Anthropologists have been using techniques of psychology. 1960's Cultural - Personality School borrowed a lot from psychology.
- Recently, Social biology in Anthropology and social psychology in Psychology have brought both disciplines close.

4. Biological Sciences and Anthropology:

- Biological sciences helped to evolve Physical Anthropology into Biological Anthropology
- But anthropologists have borrowed only laboratory techniques while subject matter remained unique to Anthropology.
- Recently, many anthropological studies have been carried out by pure geneticists, molecular biologists and technologists.

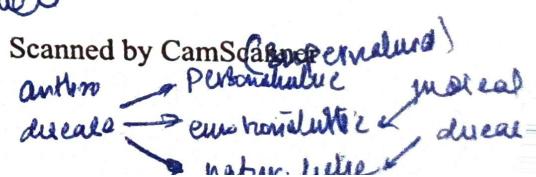
5. Medical sciences Vs Anthropology

- Epidemiological anthropology ^{Mead's psychosocial model}
- 1942, Ackenknecht → "Primitive Medicine"
- Since beliefs, values and attitudes of community strongly influence interpretation of symptoms and treatment techniques and their acceptance.
- Place of medicine in a society is determined by its social and economic structure and task assigned to diff. practitioners.

* diagnosis - rural Bengal child

* treatment - tulsi

* meaning of disease



Is anthropology a natural science or social science?
Where do you place anthropology in social sciences?

Ans

Definition → Thus vast paradigm → controversy

- Earlier it was considered as natural science because it adopted evolutionism as its approach.
- According to Malinowski anthropology stands in between natural and social sciences.
- Nadel, Radcliffe Brown and others regard anthropology as a natural science. Because
 - Anthropology is not involved in detailed description about some specific cultures
 - It mainly does comparative analysis
 - frames social laws about the origin and change in human society
- But, Kroeber, Bidney and Evans Pitkannan maintain that culture and nature are different things
According to them anthropology is close to History



Social → Methods and techniques

✓ Observation $\xrightarrow{\text{climatic}} \xleftarrow{\text{influence}}$ science

✓ Secondary source → deductive

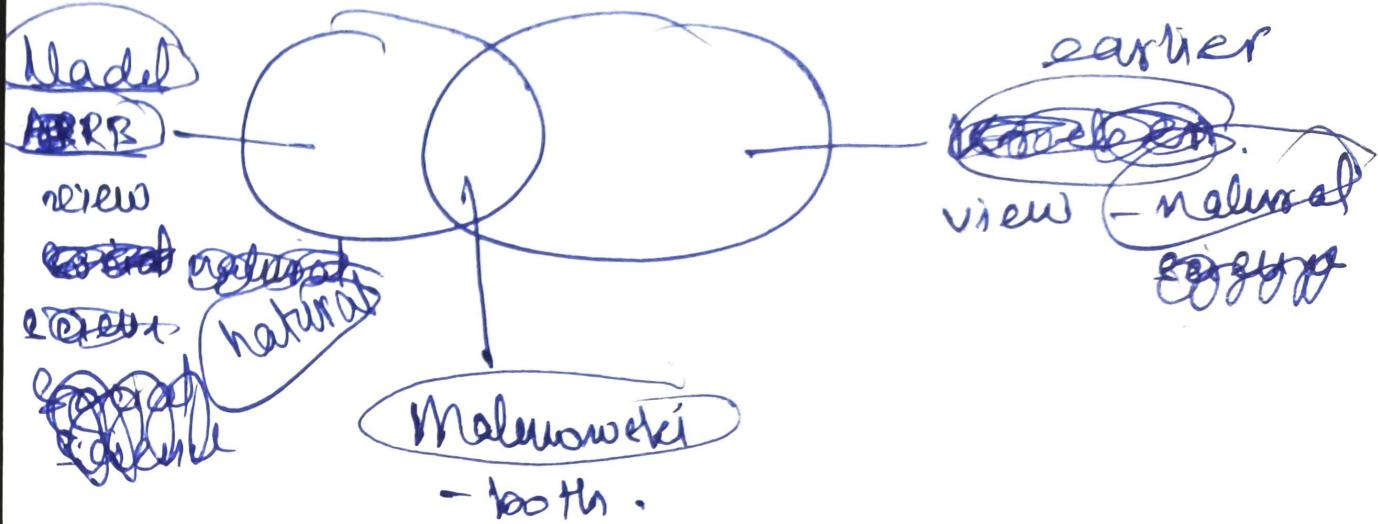
science ← Primary sources

→ Objective

→ Subjective

More scientific than soc sci

More人文的 than natural sci



Kroeber, Bidulky, Evans Pritchard - diffⁿ
authors → closer to history

Cognitive authors - closer to psychology

Laura Mader - legal author, "study up"

Gilbert Herdt - gay author.

globalization

8

Research methods in Anthropology Fieldwork tradition

- fieldwork tradition - hallmarks of anthropology: ~~control to inquiry~~ of anthropology
- classic technique is participant observation
- Bronislaw Malinowski is considered to be the most important figure in devⁿ of anthropological fieldwork trad.

1922 - "Argonauts of Western Pacific"

T. Obstrand & Stauder of New Guinea:

- elicited local's views on insect taboo.
- he rec^m P.O. as prerequisite for successful fw

early fieldwork locura

- short temp. no bonding, diff. specific
- segregated report missing at specific aspect only elicited.
- didn't learn language themselves - used interpreters

Famous example

- classical evolutionist L.H. Morgan studied Iroquois Iroquois - collected data on religion, culture, kinship org

"The League of the Iroquois".

Robert Bruce Foote

- Was a British geologist and archaeologist who conducted geological surveys of prehistoric locations in India.
- Discovered the first conclusive Paleolithic stone tool (a hand axe) in India (Pallavaram, near Madras)
- Father of Indian prehistory - went on to discover more such tools and settlements in Southern and western India.
- Discovery of that hand axe put India on the world map of prehistory.
- Foote not only discovered stone tools but also classified, catalogued and described them systematically.
 - ↳ whether tool made of quartzite, age, chaledony etc.
 - ↳ whether it belonged to Paleolithic, Mesolithic, Neolithic.
- Also first discovered microoliths in Tirunelveli.

The analogical method to study language
among full fledged use by W. H. R Rivers
in study of Tidal of Meguri. 1904

Franz Boas - systematise field survey
on Baffin Island 1883

Torres
strand

- A. R. Radcliffe Brown studied Andaman Islands from 1906.

- Raymond Firth - primitive economy of Maoris of New Zealand.

- Julian Verner Elwin studied Baigal steppes - "The Chenchus".

- Malinowski fieldwork - Conklin.

- Malinowski - took part in kula, rearing, augrip, sort of institutionalised fieldwork

Come Argonauts of the Western Pacific Benedict
Mead, DuBois

- could infringe informed consent.

- self earner may get taken

M

notions of female sexuality through their form fieldwork

Theory of linguistic determinism.

Sapir Whorf hypothesis

- interference by local elite.

So fieldwork tradition was made

anthropology a truly holistic study backed.

by data. It was started by classical

evolutionists but fully hedge only developed

under historical particularists, diffusionists

etc.

Technique, method, and methodology

Anthropological research includes collection and recording of facts, classification and organisation of facts and making logical deduction and generalisation. In this context one has to deal with 3 interrelated yet interdependent terms: technique, method & methodology.

Technique

- refers to a device or tool, a design, verbal or non verbal, used for collecting data relevant to scientific enquiry

The chief techniques employed in anthropological research are:

- data collection
- interview
- questionnaire
- case study
- genealogy

The purpose of employing technique is to collect carefully chosen, pertinent facts

so that the facts

~~validate or invalidate the hypothesis~~

- Method
- a plan or a system of action adopted to execute a given research project.
 - it has scientific character and is aimed to attain goal of the research

e.g.: in the method of participant observation, the techniques that can be used are interactional recording, photographic techniques etc

Methodology

fwd > po > photography
methodology > method > technique

- the overall strategy with principle and rules underlying the conduct of scientific enquiry, along with the logic behind them
- Abraham Kaplan in book "The Conduct of Inquiry" said methodology is logic in use
- its aim is not only consider the research method but also consider the logic behind the methods and why a particular method is more preferable over another

methodology > Method > Technique

Tools of data collection

- are different methods and instruments used in performing research operations such as making observations, recording data, techniques of data processing etc.

→ Qualitative tools

→ Quantitative tools

→ Common tools

→ Qualitative tools

→ Quantitative tools

→ Common tools

→ Qualitative tools

→ Quantitative tools

→ Common tools

→ Qualitative tools

→ Quantitative tools

- observation
- interview
- questionnaire
- schedule
- case study method
- genealogical method
- life history method
- oral history method

Observation

it of noticing the things and events as they exist and occur respectively

- it was pioneered by Franz Boas but developed by Malinowski.

Principles

- tries to come up with apperelation for subject's way of life - emic view.
- sharing to a greater or lesser degree the life of group one is observing.
- learn language

Famous observational studies

- Malinowski
- Margaret Mead
- Evans-Pritchard.

Merits

- since members are unaware of researcher's purpose, so their behaviour will be least affected - so can record natural behaviour
- able to review "b backstage culture"
- great depth due to full participations.
- rare events like sexual behaviour, family crisis etc. can't be observed by outsiders

Lumumba

- participant by becoming a member
a group narrows the range of experience
- if participant becomes important in group, we can unknowingly affect behavior of members.
- emotional involvement of observer can harm objectivity
- different observers can get different understanding of what they see.



eg: Mead vs Derek Freeman controversy

over Samoa tribe sexual behavior.

Samoan later said about exaggeration to Mead about sexual freedom.

observation

participant observation

- participate onset -

non participant

obs

Interview

Interview basically means conversation with a purpose. It is a two way process for mutual review of interaction in which both interviewer and interviewee understand each other.

Objectives

- exchange of ideas
- eliciting info pertaining to wide range of data in which interviewee may talk about past, future or present.
- interviewer aims to collect both subjective and objective data
- behavioural relatives and explanations for a particular behaviour can be understood.

Technique

- open mind + no bias
- as informal as possible (e.g. give proper introduction)
- proper rapport so that warm, respectful
- enough time to interviewee so that inhibition removed

Types of interview

basis of approach

- direct / standardised / **structured**
 - all comparable - same questions
 - questionnaire and schedule

interview

- non directive / **unstructured**
 - random questions

no of people

- group interviews
- individual interviews

function

- diagnostic
- treatment
- research

time period

- short period
- long period

Merits of interview

- help collect rare kind of data, e.g. commitment of infant, adultery
- flexibility for free flow of info.
- contradictory statements can be pointed out and possible reasons can be learnt.

be used for all segments, irrespective
of literacy due to informality, willing to talk even
those unwilling to fill questionnaire.

- observer can affect group behaviour.
no such issue in interview.

Issue with interview

- subjectivity of interviewer.
- limited by interviewee's articulation.
- in structured interview, selection of topic, length of interview can be misleading.
- Sapir Whorf hypothesis

Questionnaire and Schedule

Both schedule and questionnaire are popular methods of collecting data in research surveys. They are similar but technical differences exist.

Differences

- questionnaire sent by mail to informant
schedule is generally filled out by researcher worker.
- questionnaire data collection is cheap.
schedule - more costly as enumerators needed
- non response high in questionnaire
but schedule - researcher gets answer to all questions.
- questionnaire - not sure who replied
schedule - identity of respondent is known.
- questionnaire likely to be slow.
schedule - collected well in time.
- questionnaire only when respondents are literate.
schedule - even illiterate possible

get advantage of schedule - enumerator
an clarify question if participant can't
understand

see ~~use of schedule and questionnaire~~

19th century anthropologists - main tool
was mailed questionnaire

- use of ICT in questionnaire.

- L.H. Morgan - Troglodyte Islanders - schedules

(M)

Case Study

- fairly exhaustive study of a group is called case study.

- first done by Herbert Spencer.

Characteristics

- selected unit / situation is studied comprehensively.

- complete study of social units covering all aspects

- case study is more qualitative than quantitative.

- case study is based on assumptions of uniformity in the basic human nature.

Advantages

- develops our insight + clear insight into personality

- trace out the natural history of social unit

- represent real record of personal experience

- case study contains personality of a person as complete as possible and it constitutes the perfect type of sociological material

Cora Du Bois - "People of Above"

- Oscar Lewis
- Robert Redfield] both studied Tepoztlán village in New Mexico.
- A.R. Radcliffe Brown.

Limitations

- case studies are rarely comparable (M)
- correct sampling for case studies not possible in large society (M)
- ethnographic validity is small.
- case studies are time consuming and need tremendous expenditure.

case studies are most popular among social scientists. The limitations can be reduced when stratified analysis and case data analysis complement each other.

Genealogical method

- invented by R.R. Rivers during the Torom Strait Expedition
 - used for the first time by C.H. Morgan on Isoqueoile islanders.
 - Genealogy refers to the pedigree or systematic narration of family tree showing all manifestations of kinship linkages, kinship terms, kinship usages, succession etc.
 - ancestry is traced back several generations and large number of collaterals are known by name.
- ### Characteristics
- information is gathered through ego (usually a senior member of group who may be able to provide cultural data spread over generations)
 - genealogy includes names of all members of a family, age, sex, marital status.
 - ♂ → male ♀ → female

Stages

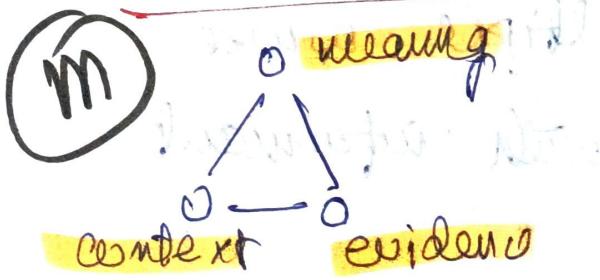
- provided light on demographic + settlement patterns of society
- foundation of structural demography in anthropogeography
- pedigree analysis to detect genetic disorders.
- better understanding of marriage, lineage ancestor, chieftainship succession etc.

Caution

- informant / ego should not feel that the info can be used against them
- phrasing of questions should be cautious
eg: asking about multiple wives.
- need good rapport with informant.

Life history

- life history focuses on situating an individual's life within its social and cultural context and considering the sharp choices that an individual makes in specific circumstances and what these choices mean for him/her and what it reveals about his/her fellow being's beliefs and attitudes.
- life history does not begin or end with recording of an individual's life but covers all possible sources of evidence through several methodologies.



- aims for triangulation of meaning, context, evidence.

Use

- Clifford Geertz - "Deep Play: Notes on the Balinese Cockfight" - explained as much as possible the reason behind

Australian aborigines use song lines as a map to navigate. M

- Franz Boas studied life history of primitive man - said org'n of human mind is practically identical among all races of men.

Principle

John

Dollard's discussed criteria for life history

M

subject even though singled out must be viewed as member of cultural group

behavior should be viewed as arising from definite social stimuli, not erratic

continuity of character due to experiences from childhood to adulthood should be traced
role of family of subject.

< used in modal personality - Abre - DuBois

Method

- understand individual life purpose from his own perspective
- info about aspirations, resources, constraints, turning points
- thick description
- number of methods can be used - individual
+ survey, life history, interviews

Oral History

1. History/tradition is an important component all cultures. In small and isolated non-literate groups, the framework of culture rests almost entirely on oral traditions. Knowledge both sacred and secular is transmitted from generation to generation by word of mouth.

e.g. folktales, folklores, mythology.

Deel

(M)

- American scholars Milman Parry and Albert Lord - extensive study on oral traditions in former Yugoslavia.

Features

- oral traditions are largely anonymous!
- oral traditions represent collective experience and wisdom.
- changes in oral tradition as culture changes and vice versa.

Limitations

- not all oral traditions lead to historical reconstruction

- data can be repetitive and even
- folktales built around certain motifs
having a global distribution, are at least reliable from the point of view of writing history. (m)

so oral traditions are an important source of knowing culture and history of simple societies where written data is not easily available.

Claude Levi Strauss - mythemes

- he said if we have to establish a relation b/w structural linguistics and structural analysis of myth, the correspondence is b/w mythemes and phonemes



mytheme - fundamental generic unit of narrative structure (typically involves a reln b/w character, event & their) from which myths are thought to be constructed.

my themes are shared with other related myths and reasonable.

eg: Greek Adonis and Egyptian Osiris

to several elements, so scholars conclude that

Secondary sources of information

Secondary data means data that has already been made available, which has been collected and analysed by someone else.

Type of secondary data

published data

e.g. govt reports, state, books, magazines.

unpublished data e.g.: diaries, letters.

Features of secondary data

- ready made.
- no trouble of construction tools
- current researcher has no control over collection/class.
- current researcher need not have been present when data gathered.

Use of secondary data

- can be used as reference purpose
- as benchmarks against which new data can be tested.
- can be the sole source of info for a research project.

(m)

Limitations of Secondary data (5)

- official statisticians can leave out ~~politically inconvenient data~~
- way things are measured may change over time. e.g. crime statistics, the definition of crime keeps updating.
- part of document may be ~~missing~~ due to age
- might not be able to verify who wrote the document.
- documents may ~~not be representative~~ of whole popn.
- accepting data already recorded w/o understanding meaning can create wrong usage.

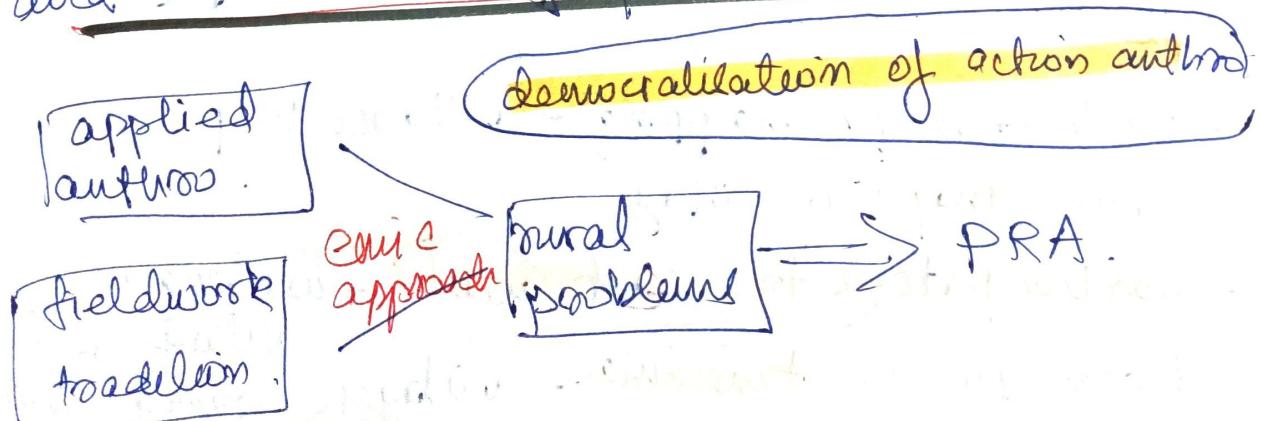
Participatory Rural Appraisal

So ~~to overcome the issue of topdown planning & implementation of rural development programmes~~, participatory rural appraisal is a way to involve the people in the determination of their own well being.

Why PRA developed

- earlier biased perceptions derived from brief rural visit by urban biased professional
- high cost of questionnaire
- PRA is contribution of authors to rural development

so PRA is a technique of initiating a process of dialogue with the rural poor and making them to participate in planning and decision making process.



- local instn + alternative to problem with little external help.

assumptions of PRA

- villagers have necessary info. with them
- such info can be offered by the villagers provided they have an opportunity to do so

use of PRA

- knowing rural poor and appreciating their perception.
- better resource management

principles of PRA

- reversal of learning from rural people
- learning rapidly and progressively using flexible method
- cross checking and progressive learning

method of PRA

- brings together fieldwork and data collection tradition in attempt to improve quality of life
- participatory mapping - village helps prepare map of village
- participatory transect walk - walking in village to get to see conditions
- technique of timeline - villagers giving timeline of changes in aspects of village

~~Participatory diagramming~~ - of various social economic and physical phenomena such as
aged received

- ranking and scoring techniques to understand about priorities, choices of villagers

Criticism of PRA

- time consuming
- instant fascism to gain popularity
- routinization - no innovations
- rushing through the process
- capture of activities by local interests

e.g. PRA used in wetland development in
Guinea Bissau



Used photographs verified by villagers,
maps made by villagers and
translators

Participatory Action Research PAR

- research with a dual use of conclusion is AR.
- PAR is when some ppl of org/ community actively participate with the researcher throughout research
- Lewinian proposition - inference are more valid & enactable if ppl in question participate in building and testing.
- Creative surprise - new ideas emerge unexpectedly



6

Sampling methods in research

- every piece of research needs sample
there are many ways to find suitable
sample. Sampling is smaller representation
of a larger population for greater
data collection convenience.

random sampling

↳ everyone in the pop'n has same
chance of getting chosen.

systematic sampling

Every nth person on list

Low risk of not being representative

Quota sampling

↳ sample fits certain quota.

↳ eg: at least 50 participants
should be unemployed.

stratified sampling

↳ sample frame will be divided
into age, gender, ethnicity etc

↳ then individuals drawn @ random

↳ from each group

→ so better representation

RSQSCS

~~cluster~~ Sampling

Chooses random samples @ various stages
of the sampling process.
eg. once at random country, then
random people etc.

Snowball Sampling

Researchers might find a few participants
and ask them to find others.

Useful when samples are difficult to
find eg: criminals.

Principles of sampling

- systematic
- clearly defined criteria
- independent samples of one another
- same sample to be used throughout
the study.

Data analysis and presentation

Data analysis

↳ quantitative
↳ qualitative

Qualitative

Qualitative analysis

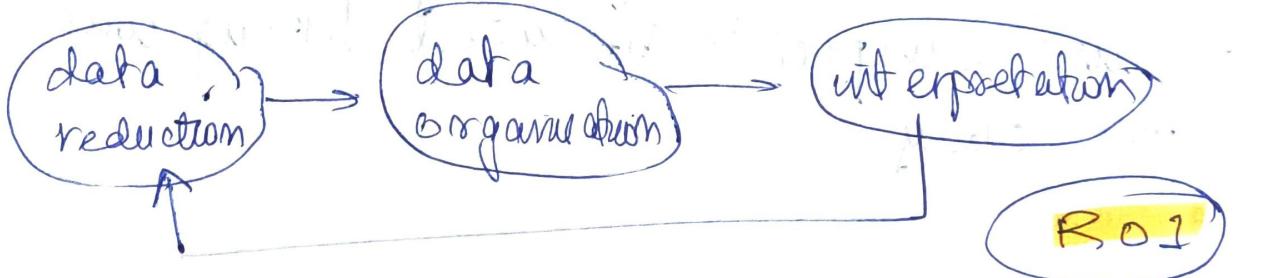
- contains minimum quantitative measurement, standardization and mathematical technique.
- searches for pattern of data and when such patterns are found, they interpret the data moving from description of empirical data to interpretation of meaning

e.g.: data from case study

data from World Ethnographic Atlas

eHRAF

M



reduction - manipulating, ~~summarizing~~ summarizing
organization - assembling data around certain themes, data points

interpretation - decision making, drawing conclusion.

e.g.: Tylor's 282 societies comparison

statistic analysis

2: Data from questionnaires

steps - data preparation + the m

counting → counting number of events

grouping → ~~and generalization~~

relating → ~~comparing different series~~

predicting → extrapolating trends

significance e.g. T-test, F-test, Z-test

compare observed data

with a claim (my posture)

Presentation of data

- frequency distribution
 - percentage
 - cumulative
- } distribution

table

- graphs → line graphs eq: distribution of marriage

→ pie chart

→ histogram

→ bar diagrams etc. payment around world



- unstructured for eg: mentioning products (factors) with importance with weightage + factors
- structured form - questionnaire

Rapid rural appraisal

1970s - need for quick surveys + fw + dev never reached targeted.

1978 - Robert Chambers & Gordon Conway dev RRA with

Intl Inst of Env and Dev (IIED)

(M)

3 streams of thought
ethnocentrism that western model is best is wrong.
hyperrealism - communication fw system and parts to interact + adapt.
rural knowledge may be superior.

- carried out by multi disciplinary team
- at least 4 days but < 3 weeks.
- info - collected in advance, direct obs, interviews

Type PRA - Topical RA
Exploratory RA - Monitoring RA

Used explore, ID, diagnose problem
design, implement programme.
to transfer tech
assist in policy making
disaster management.

Limitations lack of rapport.
rapid - so overlook issues
inaccessible areas.

- ① site selection + clearance.
- ② preliminary visit.
- ③ data collection.
- ④ data synthesis + analysis.
- ⑤ problem ID.
- ⑥ ranking opportunities + prepⁿ of Village Resources Management Plan (VRMP)
- ⑦ adopt + implement plan.
- ⑧ follow up, evaluate findings.

Ross et al defined KIN as the application of body movement to human size, shape, proportion, composition, maturation and gross function so as to understand human movement in relation to growth, exercise, performance and nutrition.

Kinekin → move
proportions → move
composition → measure

so,
greater
size

KINANTHROPOMETRY

Also called as Anthropometry of Sports. It evaluates physical structure of individuals in relation to gross motor functions. Physical — Gross motor functions

Kinanthropometry goes beyond measurement of shape, size etc. and studies aspects of maturation, nutrition and body compositions.

Introduced in 1970 by Bill Ross. Included in Olympic

Scientific Congress 1976. International Council of Sports Science and Physical Education (ICSSPE, UNESCO) founded an International Working Group on Kinanthropometry (IWGK) as Brasilia. Singh & Maitra = 1989 help in selecting

Shukla et al (1992) emphasized on greater role of genetic endowment on sports abilities. Thus kinanthropometry aims to select fit genotypes to a particular sport (fitness potential) in order to enhance quality of performance and minimize expenditure.

Morehouse and Raach classification on the basis of HT-BT index.

Height	Weight	Suitable Sports
Tall	Heavy Medium Light	Wrestler Boxing (reach + muscle) Sprinters - Jumpers
Medium	Heavy Medium Light	Throwing, discus, shot put Long distance swimming Football, Badminton, Cricket
Short	Heavy Medium Light	Weight lifting (at less distance) Gymnast Skater

Relevance:

Surajna Barma 20 yr old Heptathlete

Asian gold medalist has 12 toes → customized anthropometric

Skaters: ~~Balancing act~~ → light, short CG shoe can help

Gymnast: ~~muscles~~ + muscles → medium, short for performance.

Weight lifting: limb < Trunk, less length of lift → Heavy, short

Cricket, football, badminton: Hind and fore limbs + radio → light, medium

Swimmer: Subcutaneous layer → buoyancy → medium medium

Thrower: Muscles + Higher value of anthropometric measure → Medium Heavy

Sprinters: Sudden energy → lung capacity, leg longer, trunk strong → less resistance

Long distance runners: High Blood-Alkali level is required to keep lactic acid induced pH low.

Aerobic and Anaerobic capacity.

Advise selection (Chennai)
National centre
Religious sport events
Sachindra Narayan

Maturity level: Biological age must match their chronological age. Judged by ossification.

Role of Genes: American Journal of Human Genetics (2003)

Actin

ACTN-3

→ Short distance → protein → glucose耐受
running → muscle, helps contraction

Actin

ACTN-2

→ Long distance → protein to keep lactic acid levels low.

Redesigning of Sports Goods: Dr. Sachindra Narayan (1995)

Jharkhand → Hockey stick for kids → Jharkhand won National Games in 1995.

Saura Paharia
(Tribes of Jharkhand)

→ Archery → redesigned smaller archer instruments.

→ Anthropometric screening in India needed

Scanned by CamScanner

- Target Olympic Podium Scheme - SA I 2024-2020 games

ANTHROPOMETRY

APPLIED ANTHROPOLOGY IN DEFENSE

Defⁿ

Anthropometry is a branch of Physical Anthropology concerned with measurements of human body (T.D.) because they can significantly affect the utility of equipment, clothing and welfare.

Term

Anthropometry term coined by Adolphe Quetelet (1871), who studied popn statis. However, Martin, Lehrbuch der Anthropologie

WWII

Kras II

Physical anthropologists were utilized as experts of human anatomy in defense equipment designing during World War II.

Designing of a product require 3 sets of peoples:

- (I) Users
- (II) Anthropologists
- (III) Manufacturers

Malik 1991

Man-machine relationship is decided by 3 factors —

- (I) Efficiency
- (II) Safety
- (III) Comfort

Designs without consideration of human variations lead to poor job performance, low job satisfaction, waste of time.

Effects

Some examples:

1. Gun Turrets — It is a movable apparatus including a gunner, wearing protective clothing and equipment, a pair of machine guns and a sighting mechanism. It is designed to allow gunner all free movement because any extrusion from the aircraft adds air resistance. Hence, such areas need to be reduced to ↑ efficiency of the gunner.

3D body scanner
anthropographic device
neuroimaging

floor based

in shoe based

65

Such efforts in US ↑ efficiency & ↓ discomfort and ensured effective means of escape from an aircraft in emergency.

2. Cockpit size and seat configuration: To ensure that variation in population sizes are accommodated and cockpit fatigue is reduced.

Mock-up: full scale mock up is manufactured with every thing that a crewmen would wear — innerline, clothing, helmet mask, goggles, boots and parachute. This ↑ cost but payload is huge.

3. FLIGHT Clothing: Designers usually have their own set of standards and they may not fit all.

Eg. Flying helmets.

Anthropologists have sculptor carved wooden head form in four sizes. $10:40:40:10$ ratio of quantity of design.

Oxygen masks: Anthropologists have + face forms standard.

4. Jet engines: Jet engines mean → altitude 50000ft

↑ Pt Body swells up

Dr. J. P. Henry invented the concept of "Partial Pressure suit" of perfectly fitting non-stretch garment with air tubes.

evolutionary science — Bergman — Allens — paleoanthropology.
epidemiology — malnutrition

use — forensics — ancestral affinity, personal reconstruction
ergonomics — workspace
biometrics — access control
sports design
defense design
fashion design — footwear

design

Footwear Sizing System Pjt - CRI R-Car

5. Ejection seat: In order to control excessive rotation centre of gravity needs to be taken into account. COG of man-equipment-seat configuration is complex to determine. Flying of simulators in air also controls the COG. Thus in order to design a safe ejection seat anatomical consideration is very critical.

6. Anthropomorphic dummy: In order to study effects of G-forces, sudden acceleration or retardation and consequences of a crash on humans, a sophisticated dummy was made after considerable research of anthropological, engineering and orthopedic literature.

Basically there are three design requirements —

- (i) Work space — cockpit, gun turret, driver seat of car
- (ii) Clothing and personal equipment — fighter suit, helmet
- (iii) Components and devices — gun trigger (length), etc.

In design anthropometry, there is no average man but percentiles of normal distribution curve. If average is used, it renders at least half of population wanting.

So, percentiles are used.

Eg Door of cars, cockpits → 99 to 95%ile
(clearances)

Avg → 50% compromise
Percentile → 55 to 90% accommodated

S.
avg men
vs
percentiles

Anthropometry chapter
def

Design process

↳ Scope

→ Malik benefit

→ Men → product
↳ Plan
↳ Design

- Central Leather Research Instⁿ - Indian foot size - will help Indian footwear industry, ~~progress~~

~~R-EOMBINANT DNA and Medicine / Diseases~~

R-DNA has contributed significantly in the spheres of diagnosis, treatment and prevention of diseases.

R-DNA

↓
Diagnosis
✓
Mono-clonal antibodies
✗
DNA-probe

↓
Treatment

- 1 Gene therapy
- replacement
- augmentation
- targeting
- 2 Hormones synthesis
- Insulin
- Factor IX, VIII
- GH - somatotropin
- HGH - somatotropin

↓
Prevention

- 1 Synthetic vaccine
Polio, Rabies, Smallpox, Cholera, Typhoid,

A- Diagnosis

✓
MONO-CLONAL Antibodies: Antibodies producing lymphocyte cell + myeloma (cancer cell) = hybridoma technique immortal diagnostic tool.

- pregnancy test, presence of pathogen test
- therapeutic use → neutralize antigen.

✓
DNA probes: They contain short fragments of DNA to identify complementary sequences of DNA.

They help in diagnosis of various diseases such as

(Plasmodium)
Kala-azar (Leishmaniasis)
Malaria etc.
↓
Leishmania
Wuchereria
Plasmodium

FORENSIC ANTHROPOLOGY

G C Shaw

B

It is an applied discipline of P. Anthropology. Recognized in 1972 and its role in forensic science defined by G C Shaw (1973) — "as a person with specialized knowledge of human sexual, racial, age and individual variations to the problem of medical jurisprudence."

Scope: There are three areas in which a forensic anthropologist can operate

- ✓ Study fingerprint
- ✓ Study skeletal remains
- ✓ Study of DNA left at site

```
graph TD; A[finger print] --- B[Skeletal remains]; A --- C[DNA]
```

An Study of FINGERPRINTS: Acc. to Prof. Nath (1989)

Unique Our fingers have unique ridges which leave a print on the material we touch.

Some times they are visible and some times invisible

Latent prints → due to differential sweating leave invisible prints.

These can be seen by sprinkling salt and grey powder / chemicals Br, I, AgNO₃, etc because sweat contains moisture and NaCl

Evaluation Evaluation of these fingerprints → Ridge characteristics (75-150)

According to All India Forensic Science Congress (1973) has ruled that at least (8) ridge characters / match are essential to establish an identity

AIIFSC 1973

B. SKELETON AND TOOTH:

Human buy
no. of person first establish if the bones are of human being and one of
the same person or different persons.

→ adult
↑ future
future
→ teeth
Non-adults → sex
concrete suture
adults → skull by dentitions to a Non-adult and sex-identification could
Adult → skull not be performed on the basis of skull alone.

Next is identification of sex of the person.

If all teeth have not erupted and basisphenoid suture at the base of skull not fused, the skull belongs to a Non-adult and sex-identification could not be performed on the basis of skull alone.

- Female skull — smaller, smoother, with less developed supraorbital, mastoid process, occipital torus, cheek bones, teeth
~~Frontal and Parietal eminences~~
- Post cranial — Pelvis
 - Sub-pubic angle
 - Greater sciatic notch

Next establishing age of the person —

Tooth and bones are used to identify age.

- Bones:
1. Infants — ossification centre at lower Humerus.
 2. Children — unification of pubis and ischium.
 3. Adolescent — fusion of coracoid process with scapula.
 4. Adult — closure of epiphyseal (wrist, limbs, elbow, shoulder, carotid vertebrae) fusion of clavical bones.
 5. Senescence — 40, fusion of Xiphoid process with sternum
60, fusion of manubrium with sternum.

Tooth: five features:

1. Attrition — wearing down due to mastication
2. Periodontosis — loosening of gums
3. Secondary dentine — formed in pulp cavity)
4. Cementum apposition (around the tooth)
5. Root transparency.

$$(A_n + P_n + S_n + C_n + R_n) = \text{Determines the age.}$$

Each is given a value from a range based on age..

c. DNA fingerprinting / profiling:

As human beings we share similar genes (e.g. 97% of genes) but these genes make up only ~~98.9%~~ 1.1% of DNA. Rest 98.9% of DNA may vary. It is apparently functionless. It contains repetition of bases and their sequences.

Minisatellites are such sequences of DNA repeated thousands of times. They are HYPERVARIABLE (they differ greatly between unrelated individuals)

Related → more similar repetitions

Unrelated → less similar repetitions

Variable Tandem Number Repeat (VTNR)

Unrelated → less similar repetition → Diff sizes of VTNR.

Southern blotting → Different pattern

filter paper → Hybridization with DNA probes

If complementary not essential,

electrophoresis

DNA fingerprinting bill.

Uses of DNA profiling—

- ✓ As an evidence to prove guilt or innocence in Court
- ✓ Polymerase Chain Reaction (PCR) → even a small quantity of DNA can be magnified.

Proponents say probability of two unrelated DNA samples matching is 1 in 1,00,00,000. Hence, it can be used as evidence.

But, imagine India with population 1,20,00,00,000.
So, 1 actual culprit and 1200 possible matches
so probability that an innocent is punished is
1 in 1200.

But, if DNA is complemented with other established evidences then it can save innocent.

- ✓ It can resolve disputed parenthood case
Eg. Naina Sahni case — body completely burnt
Identity established by matching DNA of her and her parents.

Future prospect: true recognition in universities as well as in practice is still lacking.

Forensic Anthropology:

Relevance → Naina Sahni rape case
Kathua rape case
BTC victims identification

DNA profiling bill
2018

PARENTAL DETERMINATION

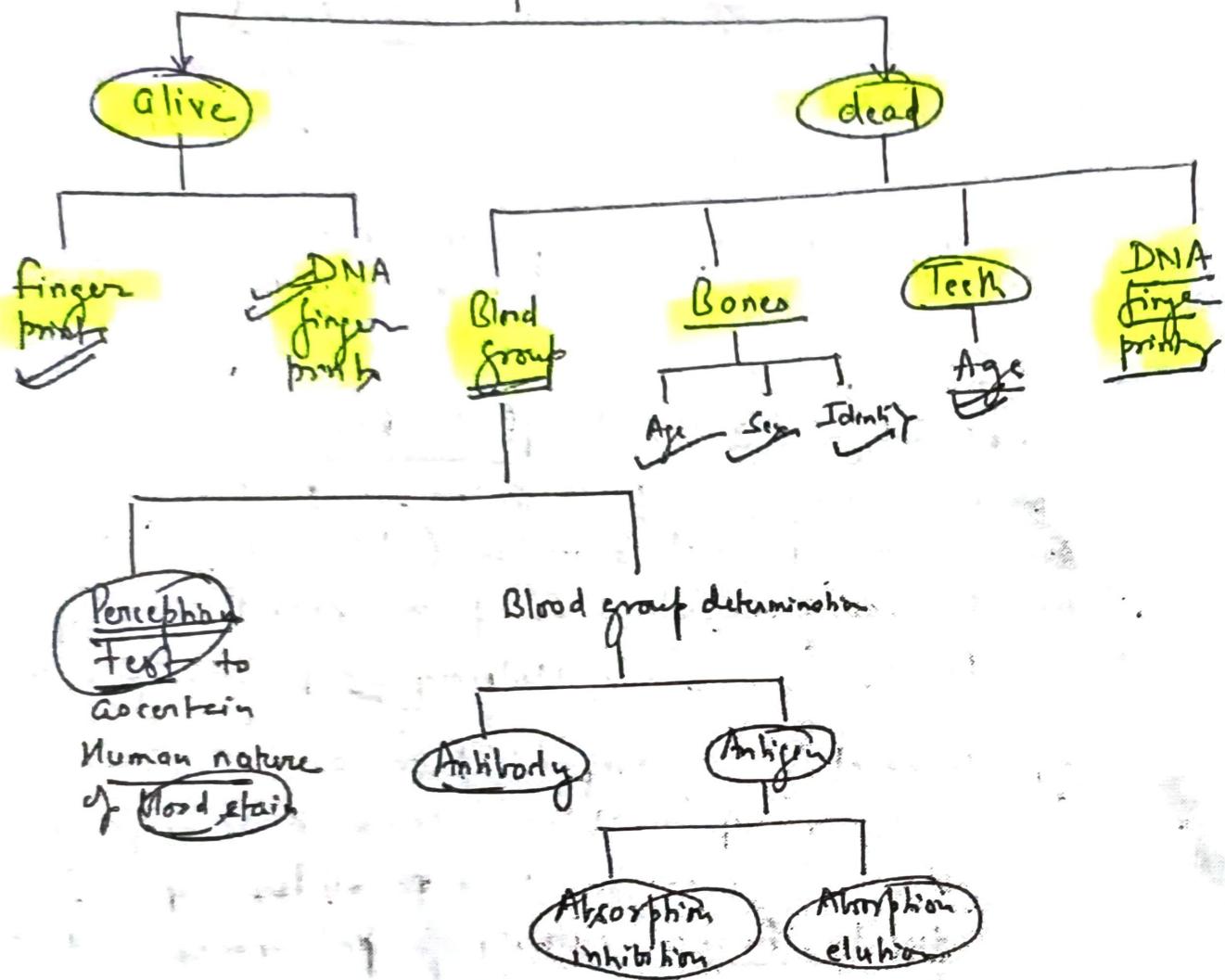
- Cases:
- Theft/exchange of new born
 - Missing reunion
 - Instances of rape
 - Extra marital affair \rightarrow Divorce \rightarrow wife pregnant

Methods: Exclusion & Inclusion

- (1) They cannot be parents
(2) They can be
- Morphological analysis - cephalic, nasal, facial index
 - Dermatoglyphic analysis - ^{three} Ridge counts - (a-b, b-c, c-d), -^{one} Martius formula, Martius index
 - Genetic analysis
 - Serological - ABO, MNS, RL
 - Biochemical - Hb, Hp, ADA
 - Immunological - Cm (IgG)
 - Non-serological - Testing, tongue rolling
 - Mendelian - ^{secretor} rare disease inheritance
 - Chromosomal
 - DNA fingerprinting

Parental Groups	Impossible Progeny
A X A	\rightarrow B, AB
A X B	\rightarrow A, AB
A X O	\rightarrow B, AB
B X O	\rightarrow A, AB
W/M: A X A, A X B, A B X A B	\rightarrow O
A X A, B X B, A X O, B X O	\rightarrow A B
O X O	\rightarrow A, B, AB

Personal identification:



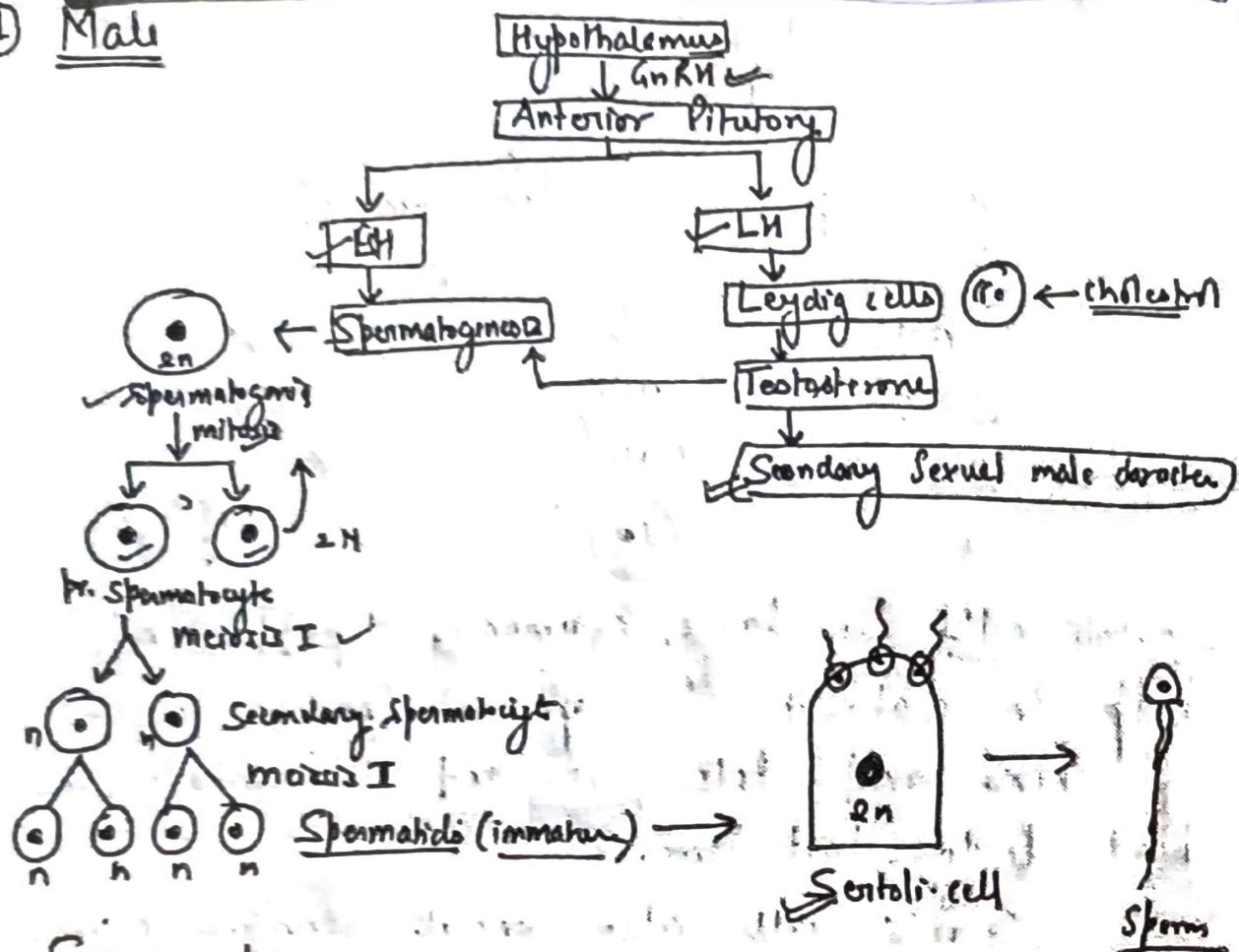
<u>Teeth</u>	Milk :	Lower incisors	5 - 7
		Upper incisors	6 - 14
		first premolar	13 - 20
		Canine	13 - 30
		2nd Premolar	18 - 38

Permanent:	Lower incisor	— 6	Years
	Upper incisor	— 8	
	first premolar	— 9	
	2nd premolar	— 10	
	Canine	— 11 - 12	
	1st & 2nd Molar	— 12 - 17	
	Third Molar	— 17 - 25	

Cytogenetics

Serogenetics and Cytogenetics of Reproduction

(1) Male

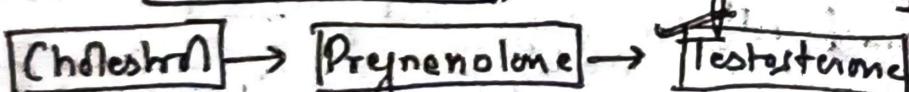


Serogenetics:

Hypothalamus releases GnRH \rightarrow Gonadotropin Releasing hormone.

It activates anterior Pituitary to release LH and FSH (Luteinizing Hormone) and Follicular Releasing Hormone.

LH activates Leydig cells in testes (gonads) to release Testosterone (C-19) made from Cholesterol.



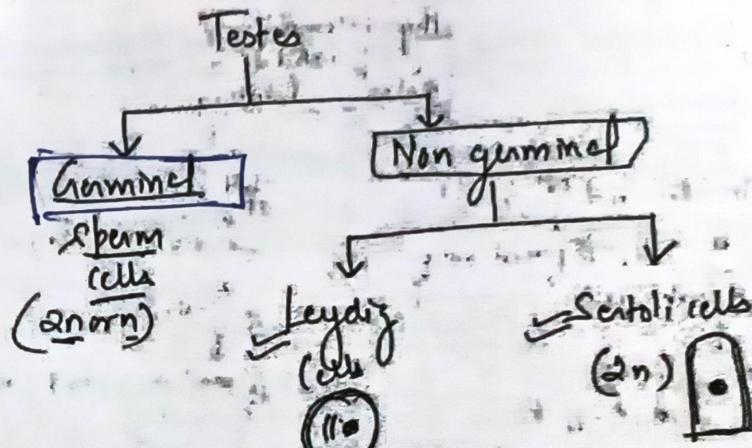
Testosterone is also made in liver.

Cytogenetics: Male has 2 testes suspended in skin. Testes have units called seminiferous tubules composed mainly of spermatogonia.

polymorphism study - study of genetic basis
~~various kinds~~ how chromosome relate to behaviour

During
cell
division
related
to
reproductive
behaviour

of germinel cells and non germinel cells



Sertoli cells are large, columnar, diploid. They help in maturatation of sperm. Spermatozoa attach to them and later grow and differentiate into head, body, tail form.

Sertoli cells also secrete Inhibin hormone which acts upon pituitary to decrease FSH levels.

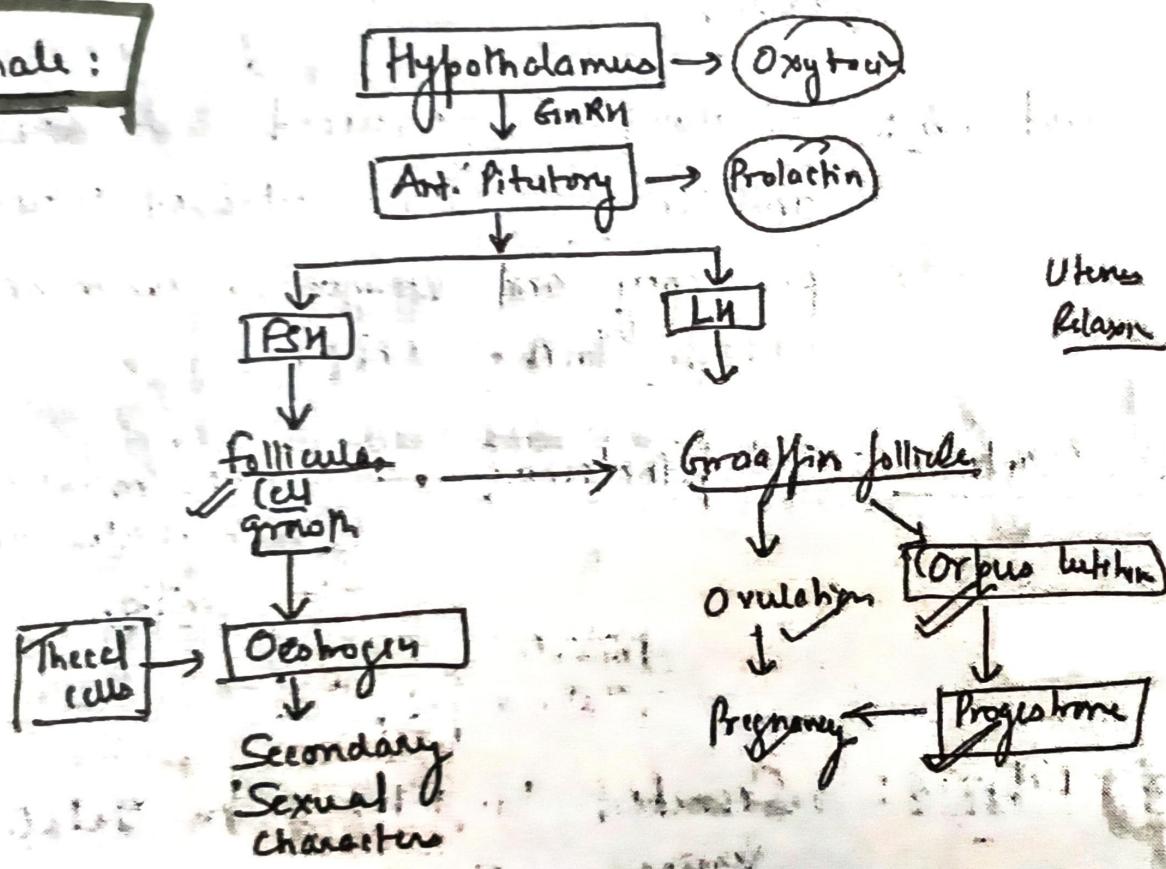
Leydig cells: They are small, round cells. They lie outside seminiferous tubules. They along with liver produce testosterone from cholesterol via pregnenolone.

Germinel cells: They are precursors of sperm cells. Spermatogenesis is diploid cells. It undergoes mitosis to produce spermatogonium and a primary spermatocyte (2n). DNA replication happens here.

Primary spermatocyte undergoes meiosis I to form 2 secondary spermatocytes. They are haploid (n). They again undergo meiosis II to form 4 spermatids (n). These are immobile.

Spermatids attach themselves on Sertoli cells and undergo maturation and differentiation.

Female:

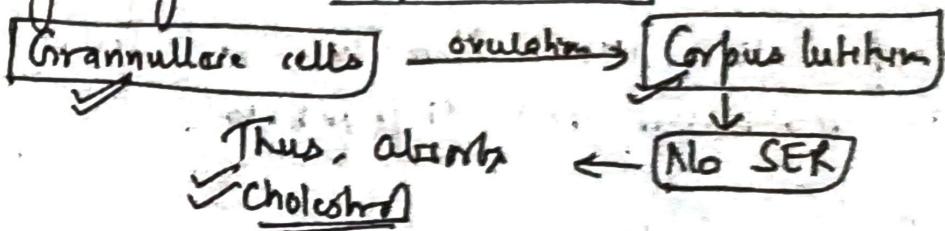


Serogenetics: Female Sex Hormone is Oestrogen and pregnancy hormone is Progesterone.

- ① Oestrogen — They are formed in
 - ② Thecal cells of ovary.
 - ④ Granulosa cells surrounding ova.
 - ③ Liver
 - ⑤ Placenta
- ③ adrenal gland
- ④ Adipose tissue

oestrogen (-18) is derived from testosterone (-19)

② Progesterone - It is produced in ovary during pregnancy in corpus luteum.



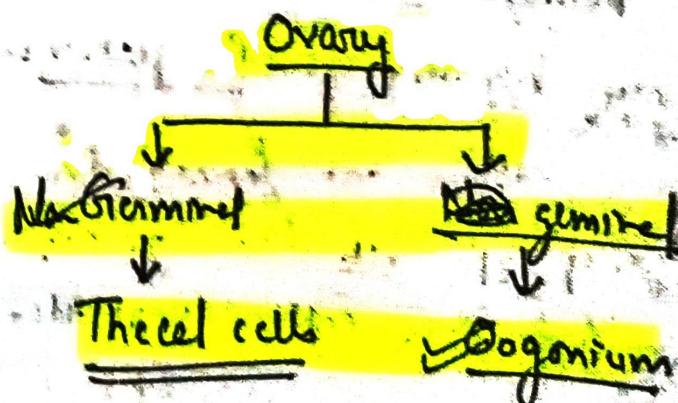
③ Prolactin: Pituitary → required for breast and milk. It is released during pregnancy and continues a few months after the birth of child.

④ Oxytocin: Hypothalamus → contracts muscles of milk follicles and ejects milk.

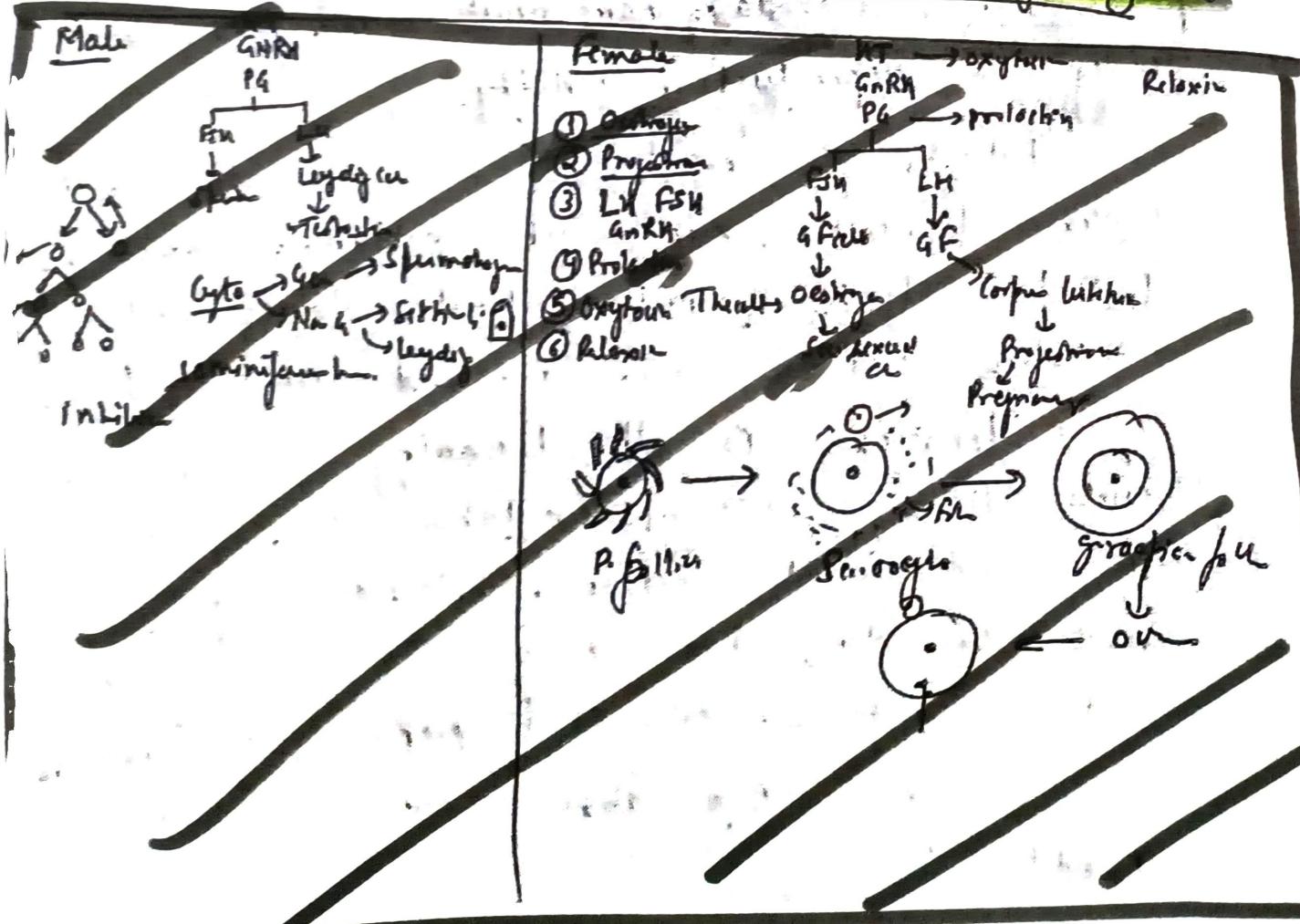
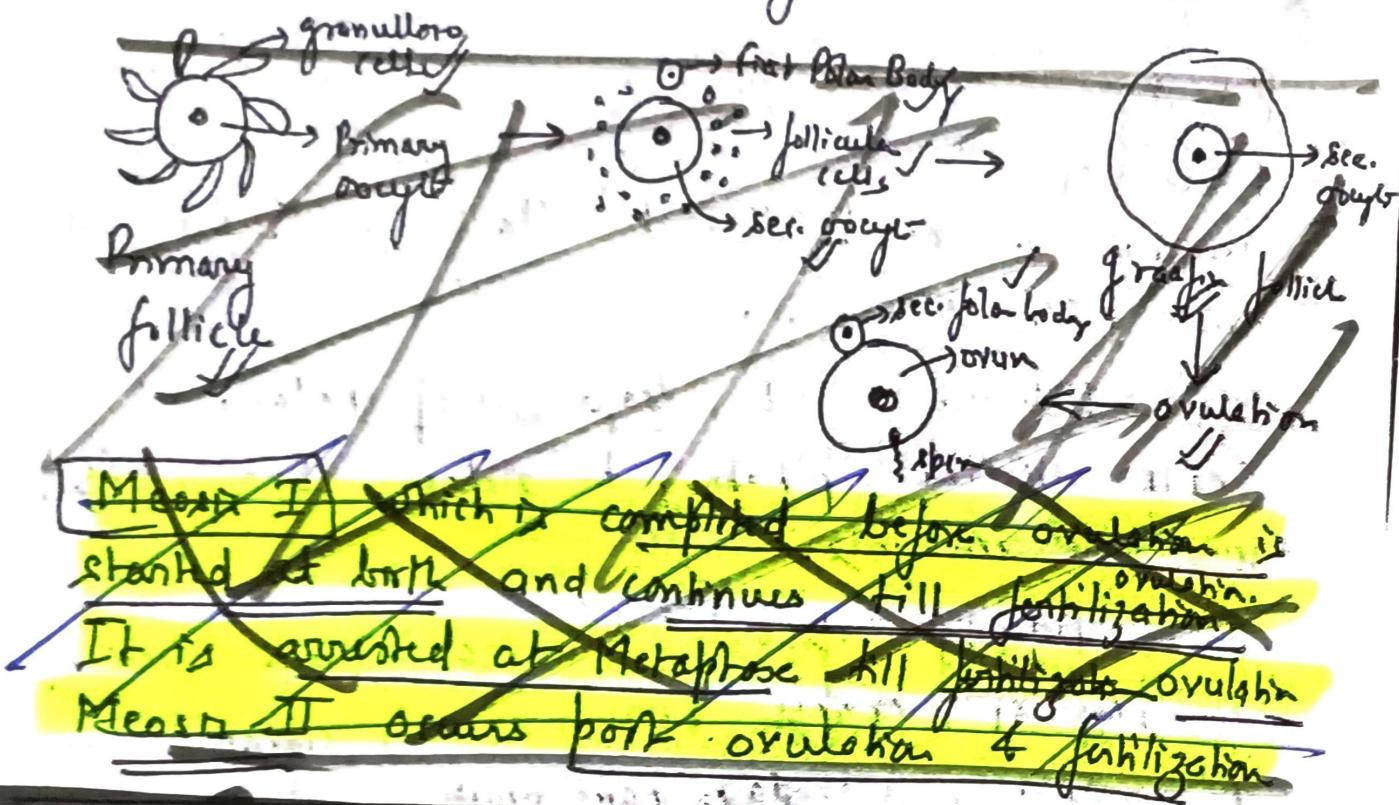
Initiates uterine pain

⑤ Relaxin: Secreted by uterus to dilate vagina.

Cytogenesis:



At birth, female has all the primordial follicles. Their number does not change.



Egg development

