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Q3(c)

Differentiate between pedigree and genealogical analyses. Discuss the history and application of these methods in anthropological studies

UPSC Civil Services Mains 2025 · Anthropology GS 1 · 15 marks · Human Genetics

9.1 Human Genetics: Methods and Application: Methods for study of genetic principles in man-family study (pedigree analysis, twin study, foster child, co-twin method, cytogenetic method, chromosomal and karyo-type analysis), biochemical methods, immunological methods, D.N.A. technology and recombinant technologies.

Core demand of the question

- Differentiate pedigree analysis from genealogical analysis
- Discuss the history of each method in anthropology and adjacent fields
- Discuss applications in kinship, genetics and medical anthropology
- Show why the two methods are not the same

Revision summary

- **Genealogy is Rivers' 1910 method:** social ties, kin terms, marriage and rights. Fictive kin count.

Pedigree is a genetic diagram of biological parentage and affected status, used to infer Mendelian inheritance.

The two words are not synonyms.

History runs from Cambridge field kinship on one side to clinical and then medical genetics on the other.

Uses include kinship systems, consanguinity, counselling, and careful overlay with consent.

Alliance theory criticised genealogy-as-enough. It did not erase the method.

Introduction

Genealogy and pedigree both draw links between persons across generations, but they are not the same tool. Genealogy in social anthropology maps socially recognised ties. Pedigree in genetics maps biological descent and trait transmission. Mixing the two words hides a real difference in what is being mapped.

Body

The distinction

Genealogical analysis is **W. H. R. Rivers'** field method (1910). The ethnographer elicits who is called what, who marries whom, and who inherits. The object is the **social** system: descent, alliance, residence and rights. Fictive kin, adoption and term-use belong on the chart because they are socially real.

Pedigree analysis is a biomedical diagram of biological parentage. Standard symbols - squares, circles, shading for affected status - help infer Mendelian modes such as autosomal dominant, recessive, X-linked or mitochondrial. The object is the path of a genotype, not the kinship vocabulary.

A mother's brother on a genealogy is a jural person. On a pedigree he is a node who may or may not carry an allele. You can overlay the two in the field. You must not collapse them.

History

Rivers developed genealogy after the Torres Strait expedition to make kinship comparable and to escape impressionistic tribal sketches. The method organised African, Indian and Pacific ethnography. **Lewis Henry Morgan** had already collected kin terms, but Rivers turned relatedness into a systematic interview.

Pedigree thinking is older in **Francis Galton's** family studies and in clinical medicine. It later became the everyday tool of medical genetics. Anthropology's biological wing took pedigrees into population genetics and **genetic counselling**. The social wing kept Rivers' charts even while alliance theory criticised descent-chart fetishism. Needham's Purum work is part of that later caution: a genealogy is not the whole kinship system.

Applications

- **Social anthropology:** Reconstruct lineage politics, marriage rules and inheritance disputes. Check whether practice matches the stated rule.
- **Biological and medical anthropology:** Recessive disease clustering, consanguinity and genetic load, and counselling. South Indian uncle-niece or cousin marriage, or disease clusters in small endogamous groups, are standard applications. Pedigrees are how Mendelian traits in humans are demonstrated.
- **A contemporary complication:** Direct-to-consumer DNA tests and disputed paternity can contradict both stated genealogy and assumed biological parentage.
- **Ethics:** Collecting pedigrees in a small community can stigmatise. Informed consent and anonymisation are part of the method now.

Flow diagram

Genealogy -> Social kinship / Rivers
Pedigree -> Mendelian genetics
Genealogy -> Alliance, descent, terms
Pedigree -> Disease and counselling

Conclusion

Genealogy asks how relatedness is organised as a social fact. Pedigree asks how a trait travels as a biological fact. Anthropology uses both, on different questions. The difference comes first; the applications follow from it.

Facts & figures

W. H. R. Rivers

The genealogical method of anthropological inquiry (1910): systematic elicitation of kin ties as a field method.

Pedigree symbols

Standard medical-genetic notation for male and female, affected and unaffected, and consanguineous union, used to infer inheritance patterns.

Genetic counselling

Uses pedigrees to estimate recurrence risk. Anthropological application appears when consanguinity and community structure shape that risk.

Fictive kinship

Socially recognised ties that belong on a genealogy and usually do not belong on a biological pedigree.

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