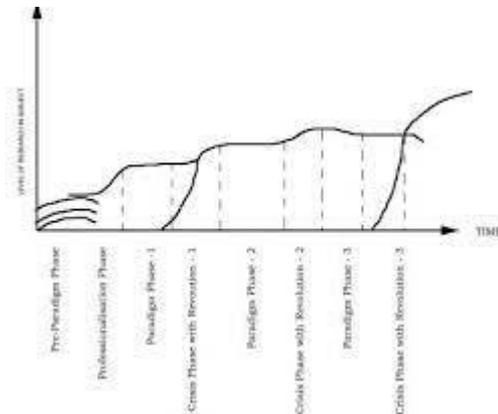


GEOGRAPHY

MODULE 1 - PART 3 (video: 8 & 10)

PARADIGM SHIFT - THOMAS KUHN



Pre paradigm phase
Professionalisation
Paradigm phase 1
Crisis phase with revolution
Paradigm phase 2
Crisis phase with revolution
Paradigm phase 3

- ✚ A shift in the ideological concept of a period.
- ✚ Any model, idea, concept, technique and method that is capable of generating scholarly concern in a particular time period may be called a paradigm.
- ✚ Paradigm from **Latin word – ‘paradigma’** means – pattern, example.
- ✚ In **Greek ‘Paradeigma’** means – pattern, model, example, sample.
- ✚ *“The Structure of Scientific Revolutions”* – Thomas Kuhn – 1962.
- ✚ He adopted the word paradigm to refer – to the set of concepts and practices that define a scientific discipline at any particular period of time.
- ✚ Kuhn postulated a theory about the growth and development of science & defines, paradigm **“as the constellation of beliefs, values, techniques and methods shared by the members of a given community”** Or: **“universally recognized scientific achievements** that, for a given time, provide model problems and solutions for a community of practitioners”.
- ✚ E.g.: geocentric to heliocentric, Geography transformed from descriptive to model making stage.
- ✚ According to Kuhn, 5 stages in the development of discipline:

Pre-paradigm phase- Professionalization- Paradigm phase 1- Crises phase with Revolution- Paradigm phase 2.

- ✚ Development of paradigm in Geography (Henriksen 1973)

Paradigm A – Normal Science – Anomalies – Crises – Revolution - Paradigm B

First phase – Pre paradigm phase: the phase before a set of theories and ideas are accepted by the scholars & theorists. There is a sudden upheaval & abrupt rise followed by smooth & slow progress. Marked by the conflicts among several distinct schools which grow individual scientists. Indiscriminate collection of data over a very wide field and by a low level of specialization. Abrupt growth on knowledge is not visible.

Professionalization: professional understanding of theories & methodologies in particular study. There is a slight variation when it comes to professionalism, it takes places when one of the conflicting schools of thought begins to dominate the others and thus a clear answer to the questions raised is given. A particular school of thought may become dominant.

Paradigm phase 1: most of the scholars believe in same set of ideas or themes. this phase characterised by a dominating school of thought which has often quite a short space of time, supplanted others. Scholars think in a same way, a rigidity form. Growth is not visible; a stagnancy can be seen. E.g., Geocentric thought, Earth as a flat disc, etc.

Crises phase with Revolution: There is a decline in thought process due to stagnation. Formation new set of theories and ideas. Slow growth of another paradigm.

Paradigm phase 2: scholars believe in the advent of new theories. E.g., Heliocentric thought, Earth in spherical shape, etc.
The process continues.

Other Scholars who contributed to the term & concept of paradigm were:

Peter Hagget 1983	Paradigm as a kind of “ <u>super model</u> ”.
Masterman 1970	Put three main paradigm types: <u>Metaphysical paradigm</u> - represents the total global view of science. <u>Sociological paradigm</u> - based on universally recognised scientific achievements. <u>The artifact or construct paradigm</u> - creation of human being.
R J Johnston	6 geographical paradigms – “ <u>Disciplinary notices</u> ” Exploration- environmental determinism- Regionalism- spatial science- behaviouralism- radical/structural.
Harvey & Holly	“ <u>Exemplars</u> ” 5 geographical literatures as paradigmatic. 1. Ratzel’s – Anthropogeographie 2. Vidal Blache’s – Tableau 3. Sauer’s – Morphology 4. Hartshorne – Nature of Geography 5. Scharfer’s – Exceptionalism – scientific law-making approach

Handa, M.L.1986 - Introduced the idea of “social paradigm” in the context of social sciences.

David Harvey 1970- The word paradigm familiar in the field geography with

AREAL DIFFERENTIATION

- ✚ Areal differentiation is one of the perspectives of human geography; in which importance is given to the **uniqueness of geographical area**, rather than the standard model creation.
- ✚ The term was coined and first used by Hartshorne in his work '*The Nature of Geography*' 1939.
- ✚ The study of the areal variation of human and physical phenomenon as they relate to the spatially proximate and causally linked phenomenon is known as areal differentiation.
- ✚ (Spatially proximate- places or areas should be proximity or close enough to easily undergo their comparison. E.g.: agricultural zones such as wheat zone, rice zone, cotton zone, sugar zone can't be compared with the industrial zones.)

Methodology of aerial differentiation:

3 steps:

1. The basic tool of areal differentiation is **regionalization for which qualitative and quantitative methods have been applied**.
Use of qualitative and quantitative aspects for regionalization.
E.g.: to study climatic regions in India- qualitative and quantitative methods are to be mentioned- such as amount of rainfall, temperature, etc. and calculations for their generalizations.
2. **Regional synthesis to understand the integrative nature of elements of phenomenon to find causal links**. Interlinked with cause.
E.g.: less population in western Rajasthan due to high temperature and low rainfall.
3. Study coherent picture of the regions by having a comparison with the near proximate. **Comparison between two regions**.
E.g.: rainfall in the western ghats and Meghalaya (north east) can be compared.

Criticism:

- ✚ Areal differentiation attempts to have **demarcation of boundaries that can't be static**, rather they are often dynamic and acts as transitional zones.
- ✚ Problem – **fixation of exact boundaries** in Areal differentiation.
- ✚ E.g., climatic zones have boundaries that can't be fixed.
- ✚ Focus on regional totality and not on individual elements.
- ✚ More descriptive.
- ✚ Study on Areal differentiation by individual elements is impossible.

QUANTITATIVE REVOLUTION

- ✚ The application of statistical and mathematical techniques, theorems and proofs in understanding geographical system is known as Quantitative revolution.
- ✚ In geography, quantitative revolution happened in 1950s and 1960s.
- ✚ Early studies by quantitative techniques in Geography started with climatic studies.
- ✚ Bunge – “geography as discovery of predictive patterns during quantitative revolution period.”
- ✚ Burton – introduced the quantitative revolution in geography.
- ✚ Mathematical techniques and statistical tools were introduced into geography.

Main objectives:

1. To change the **descriptive character to the subject** (geography) – first phase geography was explanatory and now more descriptive were focused.
2. To explain & interpret **the spatial patterns of geographical phenomena in a rational objective and cogent manner**
3. To use mathematical language ‘Af’ in the Wladimir Koeppen’s climatic classification stands for ‘Tropical rain forests.

Merits:

1. These techniques **help in the estimation, interpretation** (hypothesis testing), simulation of data which are necessary for forecasting.
2. Help in **describing, analysing, simplifying a geographical system, locational theories** of industries, agricultural land using intensities, stages of development of land forms, etc- we can easily understand & predict them.
3. All **techniques are based on empirical observations**.
4. Allow **formulation of structured ideas & theories**.
5. Agriculture geography & urban geography introduced many modern theories based on quantitative techniques & tools.
6. Gravity model in transport geography.

Criticisms:

1. It can’t be applied to the study of certain phenomena for e.g.: when the purpose is to uncover the complex gendered socio spatial construction of identities.
2. Positivism and quantitative revolution are interlinked.
3. Quantitative techniques are geometry related. It’s **not an acceptable language in geography** since geography focus on Man- environment relation.
4. **Quantitative techniques are based on empirical data & normative questions are excluded- beliefs, attitude, fears, etc.**
5. Focus **on locational analysis** so the main weakness is that, it promotes capitalism (In a capitalist world, human resource values cannot be considered).
6. Quantitative models mostly decision makers of human are considered as passive makers. **Human doesn’t have an active role.**

SYSTEM APPROACH

- ✚ The system derived from - a Greek word ‘*systema*’ that refer - **normal rules and laws governing its structure and behaviours.**
- ✚ System is termed as **unified whole (working body)** which consist of interdependently functioning elements. Or **An approach to find out the causes & function of the geographical phenomenon, by studying the interlinked components as a whole.**
- ✚ Element – is very basic part of a unified whole. Functioning elements together form a system. E.g., Human body, ecosystem, administrative system.
- ✚ In geography, system approach came from **positive ideology & also a part of quantitative revolution in geography.**
- ✚ Promoted by **R J Chorley, Leopold, Landbein, Wolderberg and Berry.**
- ✚ Term introduced by: Grove Karl Gilbert -1877.
- ✚ **R J Chorley – first geographer who brought this approach to geography – ‘Geomorphology & General System Theory’**
- ✚ **Berry** applied concepts of organisation and information in the study of an individual city as a system and its functioning within a spatial system of cities.
- ✚ **Wolderberg and Berry-** system approach to explain theories related to urban geography & geomorphology.
- ✚ Human geographers apply the system approach- to study pattern of human migration, the dissemination of knowledge, ideas and information.
- ✚ Physical geographers used this systematic approach in understanding- natural set up in which physical system operate.
- ✚ Input – system – output. - working process.
- ✚ **System approach is used in geography for: land – use planning, natural resource management, water shed management, regional planning. System approach is used in advanced level.**

In system approach, elements & the interlinking properties & functions between these elements are to be learnt.

SYSTEM ANALYSIS

- ✚ **Methods under the system approach is mentioned as system analysis.**
- ✚ Elements based on system analysis are – five – **BCECC**

Basic elements	Input output-processors-control-feedback-environment-boundaries and interfaces.
Components of a system	Set of elements, set of functioning links, set of links/relationships between system & external environment.
Essential features	The environment-the behaviour-the state-organisation & information.

<p>Common relationships</p>	<p><u>Cause & effect relationship</u>: e.g., rainfall may cause soil erosion. But soil erosion does not have impact on rainfall. A one-way relation.</p> <p><u>Parallel relationship</u>: e.g., Rainfall & temperature effect vegetation & vegetation, in turn directly / indirectly affects the amount of rainfall by local temperature. Rainfall, temperature & vegetation has a parallel relation.</p> <p><u>Feedback relationship</u>: influence of climate in a society. Climate & social relationship. Their changes.</p> <p><u>Simple & complex relationships</u>.</p>
<p>Classification of systems.</p>	<p><u>Homeostatic System</u>: In geography, cycle of erosion- a homeostatic system in which, if any element like amount of water, slope, suspended particles, etc changes the entire system gets affected but with certain changes, cycle again maintains steady state. All elements change the entire system, but certainly the cycle remain static.</p> <p><u>Adaptive System</u>: Socio economic system are becoming adaptive to climate change.</p> <p><u>Dynamic System</u>: Vicious cycle of poverty by cumulative causation as economic growth model.</p> <p><u>Controlled System</u>: Economic backward region can be developed by pushing huge investment in infra structures hence creating employments opportunities for local people.</p>

Criticism:

- ✚ Overemphasis on positive & quantitative revolutions.
- ✚ Avoiding normative values (beliefs, attitudes, hopes, fears, desires).
- ✚ Costly & time consuming.

SCHOLARS AND THEIR WORKS

SCHOLARS	WORKS	THEME
Eratosthenes	<i>Catasterismi</i> <i>Geographica</i>	About constellation Coined the word ‘geography’ & ‘ecumens’: inhabitant land (2 opinions: a text & a new term was introduced)
Hecataeus	<i>Ges – Periods</i> <i>Genealogies</i>	two parts: 1. Geographical information about Europe. 2. dealing with Libya.
Plato	<i>Timaos</i>	distinct between space & matter.
Hippocrates	<i>On air, water, & place</i>	
Ratzel	<i>Anthropogeographie</i> <i>Geographia Politicus</i>	
Semple	<i>Geography of America</i>	Influence of geographic environment
Hartshorne	<i>Nature of Geography</i>	
Strabo	<i>Geography</i> <i>Historica memorise</i>	17 vol
Ptolemy	<i>Guide to Geography</i> <i>Almagest</i> <i>The Optica</i> <i>Hypothesis ton Planomenon</i>	-8 vol, related to planetary hypothesis
Varenus	<i>Geographia Generalis</i>	
Immanuel Kant	<i>The critic of pure reason,</i> <i>Anthropology from pragmatic point of view,</i> <i>The critic of Judgement,</i> <i>Theory of Heaven</i>	
Humbolt	<i>Cosmos,</i>	

	<i>Relation Historique</i>	
Jules Michelet	<i>Tableau de la France</i>	
Oscar Peschel	<i>History of Geography</i>	
Vidal de La Blanche	<i>Annals de geographie</i>	
	<i>Human Geography</i>	
Halford J. Mackinder	<i>Britain and the British Seas</i>	

