



Indira Gandhi National Open University
School of Sciences

MGG - 001

INTRODUCTION TO GEOGRAPHICAL THOUGHT



**Understanding Geography
Cosmography to Chorology
The Regional Concept**

“शिक्षा मानव को बन्धनों से मुक्त करती है और आज के युग में तो यह लोकतंत्र की भावना का आधार भी है। जन्म तथा अन्य कारणों से उत्पन्न जाति एवं वर्तमान विषमताओं को दूर करते हुए मनुष्य को इन सबसे ऊपर उठाती है।”

— इन्दिरा गांधी



ignou
THE PEOPLE'S
UNIVERSITY

“Education is a liberating force, and in our age it is also a democratising force, cutting across the barriers of caste and class, smoothing out inequalities imposed by birth and other circumstances.”

— Indira Gandhi

INTRODUCTION TO GEOGRAPHICAL THOUGHT

BLOCK 1 UNDERSTANDING GEOGRAPHY

BLOCK 2 COSMOGRAPHY TO CHOROLOGY

BLOCK 3 THE REGIONAL CONCEPT

Programme Expert Committee

Prof. K. R. Dikshit (Retd.) Dept. of Geography, University of Pune, Pune, Maharashtra	Prof. K. Kumaraswamy (Retd.) Dept. of Geography, Bharathidasan University, Tiruchirappalli, Tamil Nadu	Prof. Subhakanta Mohapatra Discipline of Geography, School of Sciences, IGNOU, New Delhi
Prof. Gopal Krishan (Emeritus Professor) Dept. of Geography, Panjab University, Chandigarh	Prof. Sachidanand Sinha (Retd.) Centre for the Study of Regional Development, Jawaharlal Nehru University, New Delhi	Prof. Vijay Kumar Baraik Discipline of Geography, School of Sciences, IGNOU, New Delhi
Prof. H. S. Sharma (Retd.) Dept. of Geography, University of Rajasthan, Jaipur, Rajasthan	Prof. Nina Singh (Retd.) Department of Geography, Maharshi Dayanand University, Rohtak, Haryana	Dr. Satya Raj Discipline of Geography, School of Sciences, IGNOU, New Delhi
Prof. Harjit Singh (Retd.) Centre for the Study of Regional Development, Jawaharlal Nehru University, New Delhi	Prof. Debendra Kumar Nayak Department of Geography, North-Eastern Hill University, Shillong, Meghalaya	Dr. Koppiseti Nageswara Rao Discipline of Geography, School of Sciences, IGNOU, New Delhi
Prof. S. Padmaja (Retd.) Dept. of Geography, Osmania University, Hyderabad Telangana	Prof. M.S. Nathawat (Retd.) Professor, Discipline of Geography & Former Director, School of Sciences, IGNOU, New Delhi	Dr. Vishal Warpa Discipline of Geography, School of Sciences, IGNOU, New Delhi

Course Design Committee

Prof. M.H. Qureshi (Retd.) Centre for the Study of Regional Development, Jawaharlal Nehru University, New Delhi	Prof. Sachidanand Sinha (Retd.) Centre for the Study of Regional Development, Jawaharlal Nehru University, New Delhi	Faculty of Geography Discipline: Prof. M.S. Nathawat (Retd.) Prof. Subhakanta Mohapatra Prof. Vijay Kumar Baraik Dr. Koppiseti Nageswara Rao Dr. Vishal Warpa
--	---	--

Course Preparation Team

Course Contributors

Prof. Vijay Kumar Baraik (Unit - 1)
Discipline of Geography, School of Sciences,
IGNOU, New Delhi

Dr. Krishna Kumar (Unit - 2)
Discipline of Geography, School of Sciences,
IGNOU, New Delhi

Content Editor

Prof. Sachidanand Sinha (Retd.)
Centre for the Study of Regional Development,
Jawaharlal Nehru University, New Delhi

Course Coordinator - Prof. Vijay Kumar Baraik

Print Production

Sh. Rajiv Girdhar
A.R., MPDD, IGNOU

Sh. Hemant Parida
S.O., MPDD, IGNOU

Acknowledgement: Mr. Anil Kumar for word processing and graphics and Dr. Biplab Jamatia, SOHS, IGNOU for the photographs used in the Cover Page.

Cover design: Prof. Vijay Kumar Baraik

October, 2023

© Indira Gandhi National Open University, 2023

ISBN- 978-93-5568-920-7

All rights reserved. No part of this work may be reproduced in any form, by mimeograph or any other means, without permission in writing from the Indira Gandhi National Open University. Further information on the Indira Gandhi National Open University courses may be obtained from the University's office at Maidan Garhi, New Delhi-110 068 or the official website of IGNOU at www.ignou.ac.in.

Printed and published on behalf of Indira Gandhi National Open University, New Delhi by the Registrar, MPDD, IGNOU.

Printed at: Ankur Offset Pvt. Ltd. , A-54, Sector 63, Noida-201301 (U.P.)

INTRODUCTION TO GEOGRAPHICAL THOUGHT- COURSE

INTRODUCTION

Geography has evolved as an integrating discipline among the branches of knowledge like history. Its relevance lies in synthesising diverse features and phenomena of physical or material, social, cultural and perceptual aspects. There are several branches and sub-branches of the discipline taking subject matters from various sister disciplines related to science and social science covering the whole reality, which evokes centrality of space, place, locality and region. The field of geography has not remained interpretive only, it has contributed immensely to the understanding of contemporary human-nature interactions by taking up questions of not only what and where, but also how and why explaining the very existence of things and phenomena related to both physical and human aspects with their interrelationships, why they are as they exist. Hence, The purpose of this course is to provide introductory philosophical and methodological foundations to the students of geography; familiarise them with the major landmarks in the development of geographic thought from Cosmography to the post-modern form, and to explain the students about the regional concept and geography as spatial science.

There are three modules called 'Blocks' depending on the themes- 1. Understanding Geography, 2. Cosmography to Chorology, and 3. The Regional Concept.

Block 1: Understanding Geography is about the foundations of geography and perspectives of geography which includes the sub-themes like geography as an institutionalised discipline, geography and its place in the classification of knowledge, branches and sub-branches of geography; geography as the study of planet earth, geography as the science of distributions and geography as the science of relationships with approaches to the study of human-environment relationships- Determinism, Possibilism, Neo-Determinism and Environmentalism.

Block 2: Cosmography to Chorology deals with the themes like modern geography in the classical period covering the contributions of Kant, Humboldt and Ritter, and dichotomies or dualism in geography; and the period of integration including the contributions of Richthofen, Hettener, Ratzel, Blache, Davis, Mackinder, Barrows and Sauer explaining the changing nature of geography from cosmography to chorology.

Block 3: The Regional Concept covers the concepts including landscape and region with sub-themes like changing perspectives of landscapes, natural and cultural landscapes, landscape chronology, and formal and functional regions. It also covers geography as spatial science with sub-themes like processes in space and place (absolute, relative and relational), territoriality, globalisation and spatial interdependence, gender, space and place, and modern and post-modern geography.

It is expected that after studying this course, you will be able to build a logical image of geography as a field of study or discipline, its place in the classification of knowledge with an argument about its place in science, social science and as an integrating discipline of both science and social science. It is also expected that you will have a fairly good understanding of the philosophical development of geography from cosmography to chorology and modern and post-modern geography and its branches along with the understating of regional concepts- the indigenous concepts in geography.

In this quest, our warmest wishes are always with you. If you need assistance with this course, please contact us at vijaybaraik@ignou.ac.in.



Indira Gandhi National Open University
School of Sciences

MGG - 001

INTRODUCTION TO GEOGRAPHICAL THOUGHT

BLOCK

1

UNDERSTANDING GEOGRAPHY

Unit 1

Foundations of Geography

Unit 2

Perspectives of Geography

Glossary

MGG - 001

INTRODUCTION TO GEOGRAPHICAL THOUGHT

BLOCK 1 UNDERSTANDING GEOGRAPHY

Unit 1	Foundations of Geography	9
Unit 2	Perspectives of Geography	27

BLOCK 2 COSMOGRAPHY TO CHOROLOGY

Unit 3	Classical Period of Modern Geography	51
Unit 4	Period of Integration	63

BLOCK 3 THE REGIONAL CONCEPT

Unit 5	Landscape and Region	83
Unit 6	Geography as Spatial Science	97

CONTENTS

Block and Unit Titles	1
Credit page	2
Introduction to Geographical Thought: Course Introduction	3
Course Structure.....	5
Contents	7
Block 1: Understanding Geography.....	8
Unit 1: Foundations of Geography.....	9
1.1 Introduction.....	9
Expected Learning Outcomes.....	11
1.2 Geography as an Institutionalised Discipline.....	11
1.3 Geography and its Place in the Classification of Knowledge.....	15
1.3.1 The Beginning: Classification of Knowledge.....	15
1.3.2 Geography as Science.....	16
1.3.3 Geography as Social Science.....	17
1.3.4 Geography as Integrative Science/Science of Synthesis.....	18
1.4 Branches and Sub Branches of Geography.....	20
1.4.1 Geographical Traditions.....	20
1.4.2 Branches and Sub-Branchees of Geography.....	22
1.5 Summary.....	24
1.6 Terminal Questions.....	24
1.7 Answers.....	24
1.8 References and Further Reading.....	25
Unit 2: Perspectives of Geography.....	27
2.1 Introduction.....	27
Expected Learning Outcome.....	28
2.2 Geography as the Study of Planet Earth.....	29
2.3 Geography as the Science of Distributions.....	31
2.4 Geography as the Science of Human-Environment Relationships.....	34
2.4.1 Determinism.....	35
2.4.2 Environmentlism.....	36
2.4.3 Possibilism.....	37
2.4.4 Neo-Determinism.....	39
2.5 Summary.....	41
2.6 Terminal Questions.....	41
2.7 Answers.....	41
2.8 References and Further Reading.....	41
Glossary.....	43

BLOCK 1: UNDERSTANDING GEOGRAPHY

Geography has evolved as a formal discipline in an oscillating fashion. There have been significant works on geography in ancient times laying down the foundation stones starting from the scriptures to the works of Greek, Roman and Arab geographers like Homer, Thales of Miletus, Anaximander, Hecateus, Herodotus, Aristotle, Eratosthenes, Hipparchus, Ptolemy, Strabo, Al-Biruni, Ibn-Battuta, Ibn-Khaldun, etc., and improved astronomical works by the Indian astronomers and travellers. However, the beginning of geography started with the contributions of Bernhard Varenius and Emmanuel Kant, which became an important milestone in making geography a formal discipline. Following this, it was moved further by Humboldt and Ritter and many others down the line till now to give the present shape or personality of geography giving its definition, nature and scope, perspectives and its own indigenous and derivative concepts.

This Block has two chapters called Units – 1. Foundations of Geography and 2. Perspectives of Geography.

Unit 1: Foundations of Geography provides a basic understanding of the development of geography as an institutionalised discipline through a very long journey of its struggle to house itself in the university departments and other educational institutions. Ironically, it is older than many disciplines, it had to struggle for its separate identity as the initial geography teachers were from diverse disciplines and self-taught. The unit also gives a brief note on the place of geography in the classification of knowledge starting with the beginning of the classification of knowledge and critically evaluates geography as a science discipline, geography as a social science discipline and geography as an integrating science or science of synthesis as it integrates and synthesises the aspects of reality from natural and social sciences in studying the regional patterns of human-nature interaction reflected through various tangible and intangible forms as the process and outcome both. It also gives an idea about the branches of geography in terms of regional and systematic and physical and human geography and their sub-branches.

Unit 2: Perspectives of Geography explains geography as the study of planet Earth. It also highlights geography as the science of distribution. Finally, it explains geography as the science of spatial relationships and human-environment interactions reflected through various approaches to studying these interactions or relationships like Determinism, Possibilism, Neo-Determinism and Environmentalism.

It is expected that after studying this block, the students will have a good understanding of geography as an academic discipline, its development and place in the general body of knowledge as a science, social science and integrating discipline along with its branches and sub-branches. Also, the students will have a good idea of the perspectives of geography as the study of planet Earth, the science of distributions and spatial relationships, and the study of human-environment interactions through various approaches.

FOUNDATIONS OF GEOGRAPHY |

Structure

1.1	Introduction Expected Learning Outcomes	1.4	Branches and Sub Branches of Geography
1.2	Geography as an Institutionalised Discipline		Geographical Traditions
1.3	Geography and its Place in the Classification of Knowledge		Branches and Sub-Branched of Geography
	The Beginning: Classification of Knowledge	1.5	Summary
	Geography as Science	1.6	Terminal Questions
	Geography as Social Science	1.7	Answers
	Geography as Integrative Science/Science of Synthesis	1.8	References and Further Reading

1.1 INTRODUCTION

You have studied geography at various levels right from your school. Some of you may have studied it at the bachelor's degree level also. Let's recall some of the topics we studied as part of our school curriculum. You would fondly remember topics such as 'The Universe', 'Our Solar System', 'Earth and its Motions', 'Weather and Climate', 'Mountains, Plains and Plateau', 'Vegetations', 'Human Settlements', 'Population' and so on. Our college curriculum comprised many sub-branches of physical and human geographies: geomorphology, climatology, economic geography, political geography and many more, including regional geographies and the geography of India or the concerned State where our college was located. We learnt about maps, making and interpreting them and in the process also became familiar with the trail and travesties of the great explorers and travellers who found out continents, islands and people who lived there, informing us that we were not alone on this planet earth, much the same way as our planet earth is part of the solar system that has other planets as well. The explorers not only found the sea and land routes connecting various continents but also the relative locations and distances from their places of origin. Thus the knowledge of places and people led to the science of 'what is

where', the foundational question that shaped the development of the discipline of geography. The descriptions of places and people noted that the earth was not uniform and that there were huge variations over the surface features both natural and human. The next foundational question was 'why and how does one understand the variation?' The sequence and scope of questions gradually became much larger as we attempted to find answers to 'what is where and how'. Geography as a scientific discipline has risen from encyclopedic, descriptive narration to searching for causality and generating laws- nomothetic. Geography, like other branches of knowledge has been changing, though its focus on human-environment interrelationships, which are complex and dynamic, remains central.

In simple terms, geography studies the earth, environment and people in relation to one another as they go on to produce a variety of human, socio-cultural and economic landscapes over space and time. It is a vast discipline in its content and extent as its subject matter includes extensive physical and human properties and experiences in their spatial and temporal settings. In doing so, the discipline borrows concepts and subject matters from other physical/environmental and biological sciences as well as social sciences and humanities into its framework of methodology. Thus, geography has had a long tradition of interdisciplinary synthesis. It addresses the questions of 'what is where' first and also advances explanations of 'what is where' with causal relationships through the questions of why and how things may have come to exist across space and time. It also studies phenomena with reference to what it may have been in the past, what it is currently and what are the likely future scenarios of change or what it is likely to become. Hence, it is not only descriptive, but it is also explanatory due to its capability of explanation with integration and synthesis.

It is considered as an integrating discipline or science of synthesis due to its nature of being a science as well as a social science. It is because geography includes the study of natural phenomena, it derives the subject matters from the natural science disciplines like geology, meteorology, hydrology, pedology, zoology, human ecology, and environmental science under physical geography for its sub-branches like geomorphology, climatology, hydrology and oceanography, soil geography, biogeography and environmental geography, respectively. It also borrows subject matters from the social science disciplines like economics, political science sociology and anthropology, demography, etc. for its sub-branches economic geography, political geography, social and cultural geography, and population geography, much the same way as has been the case with the discipline of history since its early days, and with all branches of knowledge that have gradually begun to borrow from one another. No discipline is complete by itself and geography and history have for long contributed through spatial and temporal synthesis. Geography also blends the subject matters and methodology from different science and social science disciplines as an applied science/discipline like urban and regional planning, disaster management, rural and urban studies, and natural resource management. Its modern tools and techniques are very strong and widely accepted across disciplines with a wide range of applicability like geospatial techniques (remote sensing, GIS, GPS and digital cartography) for solving real-world problems related to various environmental and human aspects over space.

In this Unit, you are going to study how geography emerged as an institutionalised discipline in the field of knowledge. You will also study the place of geography in the classification of knowledge. Finally, this Unit will also give you a brief of the branches and their sub-branches of geography- systematic and regional, and physical and human in their various combinations along with geographical traditions, which have been ever-changing and growing.

Expected Learning Outcomes

After studying this unit, you should be able to:

- explain how geography was established as an institutionalised discipline;
- describe geography and its place in the classification of knowledge;
- explain geography as a science, geography as a social science and geography as an integrating discipline; and
- discuss the branches and sub-branches of geography under regional and systematic, and physical and human along with various geographical traditions.

1.2 GEOGRAPHY AS AN INSTITUTIONALISED DISCIPLINE

The institutionalisation of a discipline means the establishment of a discipline within the structure of formal education, with clear objectives and purpose, academic standards, theory, methodology and field of study.

“Institutionalisation of geography meant that examinations with national standards had to be organised and the discipline defined as a subject area with a distinct content. This ‘new’ geography for which syllabuses and reading lists were drawn up, led to professionalisation of people calling themselves geographers” (Holt-Jensen, p. 41).

Geography formally came into existence as an institutionalised discipline in the 19th Century. The foundation was laid down a thousand years back with the contributions of Greek, Roman and Arab geographers like Homer, Thales of Miletus, Anaximander, Hecateus, Herodotus, Aristotle, Eratosthenes, Hipparchus, Ptolemy, Strabo, Al-Biruni, Ibn-Battuta and Ibn-Khaldun, etc. In India, there are also traces of geographical descriptions found in ancient scriptures like Vedas and Epics. In addition, the improved astronomical works by Indian astronomers and travellers accounts have contributed to geography in India (Ali, 1966).

It was from the contributions of Bernhard Varenius and Emmanuel Kant who took geography closer to a formal discipline, which was further supplemented by voyages, explorations and discoveries. The beginning of formalisation started from the work of Varenius (*Geographia Generalis*, 1650), where geography made a departure from cosmography to geography as it focused only on earth by clearly separating it from the astronomical studies of the heavens or cosmography (Unwin, p. 66). He clearly stated the discipline into two branches- general and special. He attempted to include general principles/laws and theories in geography to guide it as a science discipline.

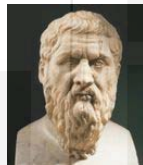
In doing so, he divided general geography into three parts- absolute (body of the earth and its constituents- lands, rivers, etc. with their properties like geometry and movements), respective or relative (effects of celestial phenomena on the earth) and comparative parts (spatial variations of the properties) (Unwin, p. 67).

Early Geographers

Homer (900 BC-701 BC) was a Greek poet with his writings on historical geography and classification of winds. Thales (6-7 century BC) was the first to give geometry theorems, measuring the earth and determination of locations on the earth. His other contributions are in cosmology and prediction of solar eclipse. Anaximander (610 BCE – 546 BCE), a disciple of Thales, invented the instrument 'Gnomon', a pole set for the measurement of the sun like sun dial, preparation of world map to scale and foundation of mathematical geography. Hecataeus was a Greek geographer, who wrote the book *Ges-periodos* (Peridos-ges) as the first systematic description of the earth.



Strabo



Plato



Homer



Thales



Hippocrates



Eratosthenes



Ptolemy

Herodotus (c. 485-425 BC), despite being a Historian, documented the events in geographical settings with explanations for their existence. He was of the belief of flat earth and was least interested in mathematical and astronomic problems. Plato (428-348 BC) was the first scholar to propose the concept of spherical earth located in the centre of the Universe. Aristotle (384-322 BC), a teleologist, followed inductive reasoning in the collection of knowledge through observed facts formulating the fundamental principles of scientific explanation. He also gave the idea of varying inhabitability of the Earth with varying latitudes 'ekumene'. Hipparchus (190-125 BCE) invented an instrument 'astrolab' to determine latitude in the seas.

Eratosthenes (276-194 BC) was a librarian who calculated the earth circumference with significant precision. His major contribution was the use of coordinate systems with latitudes and longitudes for locating places and measuring distance. Strabo (64 BC-20 AD), a Roman geographer, wrote a 17 volume book '*Geographia*', which is a major contribution in the field of political geography.

Ptolemy (AD- 90-168) contributed mainly by his eight volumes of Ptolemy's Geography explaining the principles of calculation of dimension of earth and with its division in degrees, latitudes and longitudes and geography of different parts of the world with calculated latitudes and longitudes of places.

Ibn Khaldun (1332-1406), an Arab geographer, wrote the historical geography of various empires. Al Idrisi (1099-1180) did work on the division of climatic zones better than Greek geographers. Al-Biruni (973-1039), an Arab traveller and geographer, wrote 27 books on geography (cartography, geodesy, climatology, comets, meteors and surveys) including *Kitab-al-Hind*. He measured longest and shortest distance of the moon and the earth.

According to Hartshorne, geography was not established as a university discipline until the division of natural and social sciences into separate faculties despite being a very old subject. Despite significant progress in geography, the regular departments of geography were first established in Germany in the 1870s and 1880s and a little later in France. It took a little longer to find a place in Great Britain and the United States during the early 20th Century.

Till the 1830s, a number of geographical societies were established in Europe like the Geographical Society of Berlin, Paris and London followed by the creation of university chairs of geography, especially after the 1870s, which were a major force in the institutionalisation of geography. In Germany, Berlin emerged as the centre of geography. Berlin Geographical Society was established in 1828 with the impetus received from Alexander von Humboldt. During this time, Carl Ritter became the first professor at the University of Berlin and continued as the chair professor of geography since 1820. The Society also focused on financial support and extensive exploration during the 1860s. The chairs of geography continued to be established in various universities (in 1871 in Leipzig, in 1873 in Halle, etc.) in continuation with the discipline receiving its recognition as a subject at the university and school level. It further received support from the Prussian Government's (Prussia, a former German State in the northern and central part extending upto the Baltic Sea, was the largest and most influential part of the German Empire at the end of the Franco-Prussia War during the 1870-71) decision for the establishment of geography chairs in all the state universities. "In 1874, an event of major importance took place in Berlin. The Prussian Government decided to establish a chair of geography (to be occupied by a scholar with the rank of professor) in each of the Prussian universities...Prussia's action was followed elsewhere in the newly unified Germany" (Martin & James, p. 165). Friedrich Ratzel was appointed as chair in Munich in 1875 and Ferdinand von Richthofen as professor of geography in Bonn in 1877. By 1914, Germany had 23 chairs of geography, which was a significant development in terms of the establishment of geography as a university subject in German universities.

In France, geography was initially integrated with history until about the last quarter of the 19th century. Some initiatives to establish a geography chair started in 1809 in Sorbonne in Paris and the Paris Geographical Society was formed in 1821. However, the subject did not receive its due here as the second Paris chair was established almost after eight decades in 1892. In the 1850s, geography teaching was started in schools with its inclusion in primary school syllabi for developing children's power of observation. In 1857 the subject got recognition in the universities for preparing geography teachers (Unwin, 1992, p. 81). After the 1870s, it got momentum with the emergence of a number of geographical societies with a major focus on colonial expansion.

A notable contribution during this time came from Vidal de la Blache, who contributed as the chair of geography from 1875 at the University of Nancy in France. He founded the *Annales de Geographie* in 1892. He gave the idea of **Possibilism** reflected through *genre-de-vie* indicating the lifestyle or way of life of any particular region, which is the reflection of a combination of entire physical and human factors of that particular region. From the government

also, there was support for geography teaching at the university level with structured texts and atlases to meet the requirements of geography teachers.

In Great Britain, the Royal Geographical Society was founded in 1830 mostly by non-geographers with military importance. Later on, the involvement of scientists and sponsorships for scientific explorations aiming for the documentation of geographical knowledge through the collection of new facts and discoveries accelerated the subject. "Geography was promoted this time mainly in order 'to serve the interests of imperialism in its various aspects including territorial acquisition, economic exploitation, militarism and the practice of class and race domination'" (Hudson, 1977 quoted in Unwin, p. 84). They expanded their explorations in resource-rich regions of Africa, Asia and Canada. During the initial days of the establishment of various universities, geography was not a subject until the 1880s. Initially, geography was clubbed with geology as 'Geology and Physical Geography' and later on separated from Geology and clubbed with 'Geography and Ethnology.' In 1869, it became an independent discipline as Geography. Overshadowed by geologists, it struggled to receive its singular identity in the universities until the late 19th century when Halford Mackinder was appointed as a reader at Oxford in 1887 with sponsorship from the Royal Geographical Society, who successfully carried forward the regional and political geography. Similarly, J.Y. Buchanan at Cambridge popularised physical geography in England.

In the USA, the American Geographical and Statistical Society of New York was established in 1851 with a central concern of exploration and economic integration of the USA. It was greatly influenced by German geography. It had considerable teleological Christian religious influence in shaping the geographers of mid-19th century American geography (Unwin, p. 86). Although the first department was established in 1818 in the name of the Department of Geography, History and Ethics in the United States Military Academy with the sole strategic purpose, after the geographical activities in military establishments, US Geological and Geographical Survey was established in 1879 in the Department of Interior subsequently removing the term "Geographical". The subject grew very closely with geology in its initial institutional development. The first chair of geography was founded in the year 1854 at Princeton University with Arnold Guyot as a Chair Professor. At other universities, the subject was included in the Department of Geology with an emphasis on physical geography. The first known geographer, William Morris Davis, was also in the Department of Geology and Geography at Harvard since 1890. The first PhD in Geography was awarded in 1903 in the USA from the University of Chicago.

The geographical societies were simultaneously established across the world – in Mexico in 1833, in Brazil in 1838 and in Russia in 1845. Russian geographers are not on the list of well-known geographers, particularly in the English-speaking world and western and central Europe. M.V. Lomonosov was appointed the head of the world's first officially named Department of Geography located in the Russian Academy of Science in the Eighteenth century only (1758). It is recorded that there was a long history of geographical work, but due to the language barrier, its reach among geographical scholars of Western Europe and the USA got delayed for many decades and could not become as popular as the German geographers

(Martin and James, pp. 230-231). V.V. Dokuchaiev became the first professor of geography at St. Petersburg in 1885. D.N. Anuchin also established geography as a major university subject during this time along with framing curricula for primary and secondary schools. He was appointed as the head of the newly created Department of Geography and Ethnography at Moscow State University in 1887. Though geography started much earlier in different faculties, in 1919, two independent departments came into existence- the Department of Geography and the Department of Anthropology.

In India, there have been few geographical writings and much came through the travelogues of foreign travellers, which also remained unknown until some of them were explored during the colonial period. Its institutionalisation started in 1924 with the first formal department of geography established at the Aligarh Muslim University with an undergraduate programme, later upgraded into the Post Graduate Department in 1931. It was followed by Patna University in 1928, Calcutta University in 1941, Ravenshaw College (Patna University) in 1944, Banaras Hindu University in 1946, Agra and Allahabad Universities in 1947, the University of Madras in 1948, MS University Baroda in 1952, Ranchi University in 1954, the University of Bombay in 1957, Gorakhpur University in 1958, Delhi University in 1959, Punjab University in 1960 and Jawaharlal Nehru University in 1971.

As you could observe that the process of institutionalisation as a distinct subject was very sluggish in the universities because of its annexed position with geology for a long time and criticisms by natural scientists for lack of clarity about its nature and objectives. The subject had to face competition from others and there was no formal institutionalised system of state-sponsored grants until about the time that World War II took place.

SAQ I

Why was the institutionalisation process very sluggish in the universities?

1.3 GEOGRAPHY AND ITS PLACE IN THE CLASSIFICATION OF KNOWLEDGE

1.3.1 The Beginning: Classification of Knowledge

We know that geography is the study of relationships between humans and the environment including description and explanation of the same. As discussed above, Geography faced tremendous hurdles in establishing itself as a distinct university subject due to its nature of being interdisciplinary covering both the realms of science and social science. By the time it started to be recognised as a distinct field of study or subject in academia, the social science and physical science subjects had already been established with their clear fields of study in various universities. However, the long and strong tradition of human-environment studies kept it to be in both faculties due to its scope and coverage of the subject matter.

Geography emerged with history as the science of exceptionalism where the two disciplines' core academic area was uniqueness with differentiation in

time (history) and space (geography). The argument was that "Geography and history fill up the entire circumference of our perceptions: geography that of space, history that of time" (Hartshorne, 1939, p. 135).

Geographers who laid the foundations of the classification of knowledge and contributed significantly to placing geography as an academic discipline include Bernhard Varenius, Immanuel Kant, Alexander von Humboldt, Carl Ritter and Alfred Hettner. Kant presented the classification of knowledge as logical and physical putting systematic sciences (natural sciences) into the logical one; and placing history and geography into the physical group due to the phenomena under study, which belong to a particular time or a particular place/space. Phenomena classified according to time were kept as History and phenomena classified according to space were designated as geography and both filled the entire circumference of reality.

Geography is both regional as well as a systematic science. It got split between physical geography pursued as a group of systematic sciences and regional human geography (Hartshorne, 1959, p. 180). Like the predecessors such as Kant and Humboldt, Hettner also moved ahead with a view of the whole field of objective knowledge rather than the consideration of particular branches of science while considering the logical position of geography among the sciences (Hartshorne, 1939, p. 140).

1.3.2 Geography as Science

Initially, there was a strong push to identify geography as a science discipline. Kant's idea in this regard is significant: "Geography is an empirical science, seeking to present a 'system of nature', and is a law-finding discipline" (Martin and James, 1993, p. 111). Alexander von Humboldt described the position of geography among the sciences (Hartshorne, 1939, p. 135).

Geography is still science – both natural and social as its method is equally based on empiricism (observation/experimentation and measurement) and reasoning (reason), hypothesis testing and generalisation like other systematic sciences. There are echoes of physical science tradition in the methods of geography and the geographical enquiries have close parallels with the physical sciences with field-based case studies and observations in place of laboratory experimentation (Richards, p. 36). "Geography has had at its disposal the same pluralist methodology that characterises the physical sciences but which is, in fact, common to many areas of science (physical, natural, environmental and social)" (Richards, p. 44).

Geographers had immense understanding and contributions, but many lacked systematic approaches. As a consequence, Harvard University closed its Geography Department in 1948 citing reasons as unscientific and lacking intellectual rigour. Not only from the science faculty, but geography was significantly excluded from social sciences also. Koelsch (2002: 270) expressed the impact of it: "The closing of geography in the major private universities sent a powerful signal that geography is no longer valued by academic administrators in institutions that traditionally have turned out the country's economic decision-makers and its cultural and political elite" (Johnston, p. 55). Even in social sciences, geography found its place much later due to the strong advocacy of geography as a science discipline in the beginning. Later on, it remained out of the ambit of social sciences for a long,

especially in the USA when geography as a high school subject was merged with social studies; and in the UK, geography with anthropology and economics existed long before the existence of social science disciplines like sociology and political science, still gained its identity very late.

1.3.3 Geography as Social Science

Sciences are defined by the objects under their domain of study, and hence the whole reality cannot encompass entirely in the systematic sciences unless time (history- division and arrangement with time) and space (geography- division and arrangement with space) are considered as three-dimensional reality – similar things, time and space. These are ignored by the systematic sciences otherwise.

Initially, only those disciplines were classified under sciences, which were empirical in the sense of laboratory experiments and testing but gradually other disciplines also emerged as systematic social sciences with distinct subject matter under study like that of language, religion, the state (political science), of economics, etc. History and geography emerged distinctly as exceptional areas to study the differentiation in terms of time and space, where the different objects are the subject matters of history, and the same are the subject matters of geography in terms of their occurrences over space (distribution and pattern) in a particular region. So the reality is studied systematically (specialised fields) as well as exceptionally when studied in terms of development (through time) and space (through regions).

During the colonial era, colonial expansionists required geographical knowledge, especially regional geography for the knowledge of physical conditions, resources and people to control the resources. Similarly, during Second World War, geographers were engaged by the government and military for information about places and interpretation of aerial photographs.

Gradually, geography developed as the science of the spatial arrangements of phenomena over the earth's surface through the uniqueness of regions (exceptionalism). The earth was supposed to be the mosaic or tiles of various regions homogenous from within and heterogeneous from each other. The argument was that there would not have been spatial science had there been no causality among different phenomena within a region or causality among various regions. During post Second World War period as opposed to exceptionalism, a massive positivistic approach influenced the subject where scientific methods in studying human aspects in geography were applied and placed itself towards the domain of social sciences also. After the Hartshorne-Schaefer debate in 1953, geography strongly got the recognition of spatial science due to dealing with the space represented in geometry and its scientific analysis. Human geographers reoriented geography towards social sciences with their theories and borrowed their subject matters along with the studies on spatial patterns and spatial organisation of objects and phenomena. Much later Tobler's First Law of Geography in 1970 strengthened this idea that "everything is related to everything else, but near things are more related than distant things".

Later on, geography accelerated as a social science with the fast-changing arena of social sciences and its interdisciplinary approach borrowing subject

matters from other social science disciplines. It was also due to the sharp criticism of quantitative revolution/positivism ignoring the role of culture and individuality in human conditioning and behaviour (Johnston, p. 56). "Geography came late to the social sciences, therefore, and by the time that human geographers sought to ally with them they found they were excluded" (Johnston, p. 58).

At a later stage, this tradition was enriched by human geographers by more and more breaking the natural science tradition accelerating the discipline with diverse theories like Michael J. Dear, David Harvey, Edward Soja, etc. Though the natural science tradition is equally advancing often in alliance with other systematic science like environmental sciences, geology, meteorology, water resources, hydrogeomorphology, disaster studies, studies in natural resources, etc.

1.3.4 Geography as Integrative Science/Science of Synthesis

It is known that geography borrows its subject matters from other disciplines. However, not intentionally, but geography has become important in many sister disciplines - like geographical boundaries/alliances based on geographical locations for political science; geographical space, location and distribution pattern for economics; geographical factors in anthropology and archaeology; geography and society in sociology in addition to the two-way relationship with history (historical factors in geography and geographical factors in history). It is a continuous phenomenon where physical geographers take superior positions due to factors mentioned earlier (prestige of science, acceptability as law formulating discipline and greater funding in science research) and human geographers argue that the work excluding human aspects is meaningless. There are some instances of collaborative work in the process of bridging this gap.

Hettner in agreement with Kant and Humboldt outlined that "Unfortunately, philosophers interested in the problem of the division of the sciences seldom have a knowledge of the actual field of geography sufficiently adequate to enable them to judge the system" (Hartshorne, 1939, p. 143). There were perceptions of geography that it includes both human and non-human phenomena as dualism by those who were focusing on the boundaries and compartmentalisation instead of integration with the zones of contact among all sciences as one unit of science the way Fenneman has represented through his Venn diagram (Fenneman, 1919) of the interrelationship of geography and other sciences including both the aspects of natural and human interwoven as a complete reality presented in the Circumference of Geography.

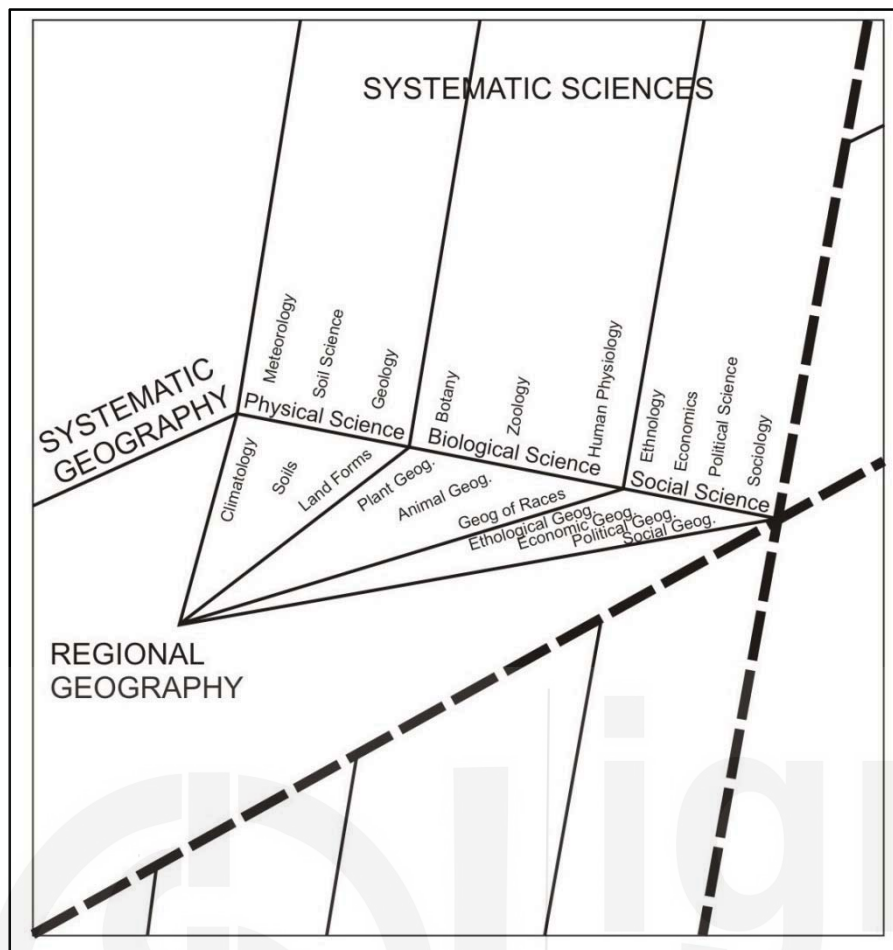


Fig. 1.1: Diagramme showing the Intersecting/Continuous Relationship of Geography with other Systematic Science Disciplines

"The planes are not to be considered literally as plane surfaces, but as representing two opposing points of view in studying reality. The view of reality in terms of areal differentiation of the earth surface is intersected at every point by the view in which reality is considered in terms of phenomena classified by kind. The different systematic sciences that study different phenomena found within the earth surface are intersected by the corresponding branches of systematic geography. The integration of all the branches of systematic geography, focused on a particular place in the earth surface, is regional geography."

(Source: Hartshorne, R. (1939): *The Nature of Geography: A Critical Survey of Current Thought in the Light of the Past*, Wisconsin: Association of American Geographers, p. 147.)

The world around us, both physical and human, has many aspects or parts with different kinds of phenomena sorted and studied in different systematic sciences as different sections and sub-sections of reality. However, to understand the whole reality, there is a need to integrate the different aspects of reality or phenomena. Thinking all facts in terms of their spatial existence on the earth's surface constitute geographical facts and are studied within the domain of geography without distinguishing any particular fact as its own object of study. Its methodology of the chorological study with the complex areal combination of objects and phenomena studied under different disciplines has always been a source of dissatisfaction. In the process of evolution, geography known as the mother of several systematic sciences itself experienced desertion and emergence of specialised disciplines such as

Chorology- Science of space relating geography as chorological science concerned with the systematic study of various facts in a region.

Chorography- Holistic (regional) study of a region including all aspects in areal combination as a study of reality. (regional geography).

population studies, urban and regional planning, meteorology, hydrology, oceanography, GIS, surveying, etc. However, the chorological study of objects and phenomena or facts remains to serve as the core domain or field of study in geography. Geography attempts to study the interrelationships between objects and phenomena or facts as interconnected systems within a particular region and/or between and among various regions with a central idea of the uniqueness of every area or region.

Thus, geography is an integrating discipline, bringing together a scientific understanding of the natural environment with studies of resources, illustrated by patterns of land use, settlements and human activities over the earth's surface – both as a product of nature and producer/modifier of surroundings. This is an important claim for its recognition as a synthetic discipline. It is also regarded as a bridge between the natural and social sciences due to its nature (which was often asserted by Penck). The discipline is not only the connecting field but is a continuous field intersecting various systematic sciences (as shown in Fig. 1.1).

Systematic geography in the beginning was associated with the natural sciences with sub-branches like geomorphology, climatology, hydrology, etc. Later on, systematic geography included the specialised sub-branches of human geography as well. A strong argument was that the “Science of earth cannot logically be developed as a single branch of knowledge” (Hartshorne, 1939, p. 141) while compartmentalisation of various disciplines, especially natural sciences in the university teachings.

Regional geography was supposed to be the end of geographical studies as a study of unique space (region) and systematic geography was taken as the means to the end by adding new knowledge or sharpening knowledge with tested and verified analysis of different phenomena of reality with high accuracy. Regional geography studies the whole reality not in pieces but in an interrelated manner with the principles of spatial associations, whereas the systematic branches work towards the advancements of geography with sophisticated tools and techniques for research in respective fields.

SAQ 2

Why is geography an integrative science?

1.4 BRANCHES AND SUB-BRANCHES OF GEOGRAPHY

1.4.1 Geographical Traditions

There are diverse definitions of geography due to its diverse sub-fields. In writing about the evolution of geography and its branching, W.D. Pattison (1964) and David N. Livingstone (1992) have discussed various traditions, which help in better understanding of the branching and sub-branching of geography. For the easy identification and grouping of sub-fields of geography, Pattison gave the four traditions in geography in 1964. These are

1. Spatial Tradition, 2. Area Studies Tradition, 3. Man-Land Tradition, and 4. Earth Science Tradition.

Spatial Tradition has been there since the days of Ptolemy but has got recognition from the writings of Immanuel Kant spelling space as a component of geographical studies followed by other geographers like Emory R. Johnson and Edward L. Ullman working on geometry and movements in general and transport geography in particular. F.K. Schaefer wrote in 1953 that geography is the study of spatial patterns only. Initially, spatial tradition created a bond among geographers who were more concerned with map-making. This tradition received further impetus with the development of the Central Place Theory.

Area Studies Tradition, also known as **chorographic tradition**, is also in existence in the writings of Strabo dealing with the nature of places, their characteristics and differentiation exhibiting the area-studies tradition followed by the modern geographer, Richard Hartshorne.

Man-Land Tradition has its roots in the writings of Hippocrates (On Airs, Waters and Places) in the 5th century BC reflecting the impact of the conditions of external nature on human health and more specifically the effects of winds, drinking water and seasonal changes upon man. It was, though, the unidirectional view of nature as an active actor leading to the idea of Social Darwinism in the late 19th century. This idea was dominant among the first generation American Geographers. Gradually there existed a reverse idea in the form of Possibilism considering man as the main actor and land (nature) as the social/human product. However, geographical research and studies were centred around this man-land tradition.

Earth Science Tradition embraces the study of the earth, its waters, its surrounding atmosphere and the association between the earth and the sun. Initially, it declined but college education continued this tradition. It is because American college geography followed this tradition due to their separation from the geology departments. Earth Science tradition is supported by other disciplines also. This tradition was rejuvenated by Varenus in his book *Geographia Generalis*, which is the basis of the development of geography as science with several such sub-divisions like mineralogy, palaeontology, glaciology, meteorology and other specialised fields. It is on the basis of the philosophy of the earth as a unity, the single common habitat of man.

“The spatial tradition abstracts certain aspects of reality; area studies is distinguished by a point of view; the man-land tradition dwells upon relationships; but earth science is identifiable through concrete objects” (Pattison, 1964, p. 215). Geography, carrying all four traditions simultaneously with regional variations, the division of its fields may be explained with varying combinations. “Human or cultural geography turns out to consist of the first three traditions applied to human societies; physical geography, it becomes evident, is the fourth tradition prosecuted under constraints from the first and second traditions” (Pattison, 1964, p. 215).

David N. Livingstone makes an addition to the geographical traditions. He says that Geography is the collection of ideas and practices concerned with the earth and its inhabitants and has a contested and pluralist tradition. He

has given the chronological geographical traditions with various themes as geography meant different things to different people in different settings. The heart of his argument is geography changes with the change in society and the best way to understand the geographical tradition is to understand and deal with the different social and intellectual environments where geography has been practised.

The major events which contributed the geographical traditions start with navigations and explorations and continues through astrology and natural magic, mystical elements (magical geography often ignored in the writings of history of geographical evolution), survey and cartography/map making (paper world by transferring globe into two dimensional paper through developing projections), tool of imperialism through Environmental Determinism and Social Darwinism, Possibilism and Stop-Go-Determinism, regional recitation (or regional studies as qualitative approach and regional science as quantitative approach), go-between (geography as integrating discipline as prominent tradition with the study of nature and culture because both realms are incomplete without each other; and also as causal science in interaction between man-environment and growing crisis due to human's activities), space science (or spatial science as a result of Schaefer's Execeptionalism in Geography of 1953, Bunge's Theoretical Geography of 1962 and Harvey's Explanation in Geography reinforcing geography as the science of spatial distribution or locational analysis); human-centric (antithesis of positivistic approach with radical, humanistic and behavioural geographies with human experience); and postmodernism (things beyond grand narratives signifying place and theories like structuralism and structuration, cultural and epistemological pluralism and importance of particular, the specific and the local).

The geographical tradition is also "an historically located mode of intellectual inquiry but it is also, to make a kind of methodological claim about the doing of its history" (Livingstone, 1995, p. 420). Hence, it is also writing the history of geographical knowledge.

1.4.2 Branches and Sub-Branchees of Geography

Geography is classified into either general or systematic geography and special or regional geography, or physical geography and human geography as you have already studied in the previous sections of this Unit. General or systematic geography is concerned with the formulation of laws/principles and generalisation, whereas special or regional geography is concerned with the various aspects existing in a particular areal or regional setting. Within general or systematic geography, there is a further classification based on the specialised area of study and within regional, there are area studies for a particular region encompassing physical (natural and biotic) as well as human phenomena as an aerial combination to study the reality in totality. Regional geography covers all topics of physical geography and human geography at the macro, meso or micro level region. You may see that there is an overlapping in the classification as systematic geography includes various aspects of both physical and human geography independently, while regional geography includes all aspects of the region under study in an areal combination (Table 1.1). The applied branch of regional development and

planning also falls within the framework of this regional geography. Regional planning may further be divided into town or urban planning and country (rural) planning.

As per the above classification, systematic geography has two main branches- physical geography and human geography. Further, within physical geography, the sub-branches are astronomical geography, geomorphology, climatology, hydrology and oceanography and pedology or soil geography and biogeography. These sub-branches have further specialised micro-sub branches like fluvial geomorphology, glacial geomorphology, coastal geomorphology, arid geomorphology; plant geography, zoo geography, human ecology and environmental geography or bio-geography, etc. There are some specialised branches such as hydro-geomorphology combining two sub-branches- hydrology and geomorphology.

Table 1.1: Branches and Sub-Bran­ches of Geography

Geography			
Branches			
Special or Regional Geography (Macro, Meso, Micro)	Physical Geography	General or Systematic Geography	
		Sub-Bran­ches	
		Geomorphology	Fluvial Geomorphology Glacial Geomorphology Arid Geomorphology Coastal Geomorphology
		Climatology	
		Oceanography	
		Soil Geography	
		Bio-Geography	Plant Geography Zoo Geography Human Ecology
		Environmental Geography	
	Human Geography	Social and Cultural Geography	Ethnicity, Caste and Tribes, Languages, Religion, Education, etc., Health Geography, Gender Geography, etc.
		Economic Geography	Agricultural Geography, Industrial Geography, Geography of Trade and Commerce, Geography of Transport and Communication
		Political Geography	Electoral Geography, Geopolitics
		Population Geography	
		Settlement Geography	Rural Geography, Urban Geography
		Medical Geography	
		Behavioural Geography	
		Regional Development and Planning	

Human geography includes social geography, cultural geography, economic geography, political geography, population geography, urban geography, rural

geography and medical geography or geography of health. Some of these have further sub-divisions like economic geography has sub-branches as industrial geography, agricultural geography, the geography of trade and transport, resource geography, etc.; political geography has micro-specialised sub-branches like geopolitics, electoral geography, etc. There are also combinations of many sub-branches leading to the applied branch in geography like regional development and (regional) planning including regional geography (economic geography, population geography, political geography, cartography, tools and techniques of regional analysis).

Some of the sub-branches studied in geography include subject matters from both physical as well as human geography like the geography of natural resource management, disaster studies, environmental studies, etc.

Methods and techniques of geography or geographical methods and techniques include field survey, cartography, quantitative and qualitative techniques and geospatial tools and techniques, which are applicable to both physical as well as human geography.

SAQ 3

What are the major branches and sub-branches of geography?

1.5 SUMMARY

In this unit, you have studied:

- Geography as an institutionalised discipline;
- Geography and its place in the classification of knowledge; and
- Geographical traditions and branches and sub-branches of geography-systematic and regional, and physical and human.

1.6 TERMINAL QUESTIONS

1. Explain the process of institutionalisation of geography as a university subject in the world.
2. Discuss in detail the place of geography in the classification of knowledge.
3. Discuss geography as an integrative science highlighting it as a science and as a social science discipline.
4. Write about the branches of geography as systematic and regional and physical and human with geographical traditions given by William D. Pattison and David N. Livingstone.

1.7 ANSWERS

Self-Assessment Questions (SAQ)

1. The process of institutionalisation as a distinct subject or true science was very sluggish in the universities because of its annexed position

with geology for a long time and criticisms by natural scientists for its non-clarity about its nature.

2. Geography is an integrating discipline having a continuous field of studies intersecting various systematic sciences from natural sciences and social (human) sciences in a single areal combination due to spatial relationships or causality to study the whole reality.
3. Major branches of geography are systematic and regional geography; and physical and human geography. It is further sub-divided into various specialised sub-branches.

Terminal Questions

1. Explain the process of institutionalisation of geography as a university subject in the world with major barriers and milestones. Refer to Section 1.2.
2. Logically elaborate your arguments on the place of geography in the classification of knowledge with the help of a diagram. Refer to Section 1.3.
3. Give a discussion on how geography is an integrative science highlighting geography as both – a science and a social science. Refer to Sections 1.3.2, 1.3.3 and 1.3.4.
4. Write about the branches and sub-branches of geography as systematic and regional, and physical and human. Also, discuss the geographical traditions given by Pattison and Livingstone. Refer to Section 1.4.

1.8 REFERENCES AND FURTHER READING

1. Hartshorne, R. (1968): "Geography: The Field" in Sills, D.L. (ed.): *International Encyclopedia of the Social Sciences*, Vol. 6, USA: The Mcmillan Company & The Free Press, pp. 114-115.
2. Unwin, T. (1992): *The Place of Geography*, London: Pearson Education.
3. Castree, N. (2005): "Is Geography a Science?" in Castree, Noel, Rogers, A. and D. Sherman (eds.): *Questioning Geography, Fundamental Debates*, Oxford: Blackwell Publishing Ltd., pp. 57-79.
4. Richards, K. (2013): "Geography and Physical Science Tradition" in Clifford, N.J. et al. (eds.): *Key Concepts in Geography*, New Delhi: Sage, pp. 21-45.
5. Johnston, R. (2013): "Geography and the Social Science Tradition" in Clifford, N.J. et al. (eds.): *Key Concepts in Geography*, New Delhi: Sage, pp. 46-65.
6. Hartshorne, R. (1939): *The Nature of Geography: A Critical Survey of Current Thought in the Light of the Past*, Wisconsin: Association of American Geographers.
7. Dikshit, R. D. (2004). *Geographical Thought. A Critical History of Ideas*, New Delhi: Prentice-Hall of India.

8. History of Faculty of Geography, Lomonosov Moscow State University, <http://www.eng.geogr.msu.ru/about/history/>
9. Pattison, W.D. (1964): "The Four Traditions of Geography" *Journal of Geography*, Vol. 63 No. 5, pp. 211-216.
10. Ali, S.M. (1966): *Geography of the Puranas*, New Delhi: People's Publishing House.
11. Livingstone, David N. (1995): "Geographical Traditions", *Transactions of the Institute of British Geographers*, Vol. 20, No. 4 (1995), pp. 420-422.
12. Livingstone, David N. (1998): *The Geographical Tradition: Episodes in the History of Contested Enterprise, Chapter 10*, Oxford: Blackwell Publishers.
13. Fenneman, N. M. (1919). *The Circumference of Geography*, http://www.d.umn.edu/~okuhlke/Archive/GEOG%205803%20Readings/Week%206/circumference_geo.pdf.
14. Hartshorne, R. (1959): *Perspective on the Nature of Geography*, Chicago: Rand McNally & Company.
15. Martin, G. J. and James, P.E. (1993). *All Possible Worlds: A History of Geographical Ideas*, New York: John Wiley and Sons, INC.
16. Halt-Jensen, A. (2018): *Geography: History and Concepts*, New Delhi: Sage.
17. Husain, M. (1995): *Evolution of Geographic Thought*, New Delhi: Rawat Publications.
18. Adhikari, S. (2015): *Fundamentals of Geographical Thought*, New Delhi: Orient Blackswan Private Limited.
19. *Encyclopedia Britannica*, <https://www.britannica.com/>

Sources of Photographs

1. *Encyclopedia Britannica*, <https://www.britannica.com/>
2. <https://iep.utm.edu/thales/>
3. <https://mathshistory.st-andrews.ac.uk/Biographies/Eratosthenes/>

PERSPECTIVES OF GEOGRAPHY |

Structure

2.1	Introduction	2.4	Geography as the Science of Human-Environment Relationships
	Expected Learning Outcome		
2.2	Geography as the Study of Planet Earth	2.5	Summary
2.3	Geography as the Science of Distributions	2.6	Terminal Questions
		2.7	Answers
		2.8	References and Further Reading

2.1 INTRODUCTION

In the previous Unit, you have learnt about the foundations of geography including geography as an institutionalised discipline and its place in the classification of knowledge. You have also learnt about the geographical traditions and different branches and sub-branches of geography, like regional and systematic, physical and human, etc., in detail. In this Unit, you will be learning about the perspectives of geography, covering 'geography as the study of planet earth', 'geography as the science of distributions', and 'geography as the science of human-environment relationships'.

Geography as a discipline originated in the 19th century in Europe but has a long history that has evolved with varying perspectives from scholars over time (Holt-Jensen, 1999). Human beings and animals have always been curious about their surroundings and have identified their living spaces. This inquisitiveness compels them to discover what lies beyond the hills, mountains and oceans. Human beings noted the behaviour and characteristics of the environment around and this process eventually became the foundation of the history of geographical ideas. The history of geographical ideas is the record of human effort to gain more and more knowledge of the human habitat.

The first period of intellectual import can be traced to the written tradition of the Western world, particularly to ancient Greece, in the fourth and third centuries B.C. The Greek scholar, Eratosthenes, described geography 'as the study of the earth as the home of human beings'. The Greeks and Arabs

developed the science of astronomy, which was a formidable step forward in the history of ideas.

A long period of decline had set in during the Middle Ages when geographic horizons contracted in the Western world. The Greek and Phoenician explorers and Greek geographical concepts were largely forgotten. Dikshit (2004) summarises the struggle that eventually led to the acceptance of scientific enquiry. Geographical work in ancient Greece followed two distinct traditions: the mathematical tradition pertaining to the location of places, and, the literary tradition concerned with describing what was actually observed. Ptolemy represented the former, while Strabo the latter. The expansion of the Roman Empire contributed immensely to the pursuit of geographical knowledge. The fall of the empire marked the decline of interest in geography due to the rising influence of theocracy. The spirit of scientific inquiry ebbed as any attempt to question God's creation was viewed as blasphemy. Arabs had access to Greek literature and were developing their own as they traded far and wide across the land and seas.

In Europe, things had begun to change for the better during the Age of Explorations, approximately from the sixteenth century. The geographical horizons of the Europeans began to change, which eventually culminated into territorial imperialism. Scientific knowledge about lands and the peoples on the earth's surface became the most sought-after intellectual commodity. The decline of theocracy led to the concomitant rise of the spirit of 'academic freedom' -the right of scholars to seek answers to questions. The momentum was in favour of scientific enquiry that eventually shattered the old theocratic and biblical tradition with the publication of Darwin's theory of evolution. In the middle of the nineteenth century, Europe's separation of fields of knowledge became possible with rising specialisation. Under such a scenario, geography as a subject focused on the integrated study of man and the environment faced a crisis of identity as the human and physical world was seen as fundamentally separate entities. The anomalous situation arose as geography sought to study both and this did not fit into the scientific framework then. The geographers were divided as many pleaded that geography should focus on the study of man whereas others maintained that geography should concentrate exclusively on the study of the physical elements.

In this Unit, we will study three main views or perspectives that contributed towards diversities of ideas and methodologies in the early stages of the evolution of geography as a modern scientific discipline- 'Geography as the Study of Planet Earth', 'Geography as the Science of Distributions' and 'Geography as the Science of Human-Environment Relationships'.

Expected Learning Outcomes

After studying of this unit, you should be able to:

- analyse the perspectives of geography from the viewpoint of eminent geographers;
- be acquainted with geography as the study of planet Earth;
- recognise geography as the science of distributions with respect to systematic science; and
- explain geography as the science of human-environment relationships.

2.2 GEOGRAPHY AS THE STUDY OF PLANET EARTH

In the introduction of the unit, you have already learnt how different scholars from different countries not only started debating about what should be taught and how it should be taught in geography but also tried to convince the world about their philosophies for the development of the subject matter of geography. In this section, we will study how geography is regarded as the study of the planet Earth and how different geographers had advocated this idea.

There were many geographers whose ideas and debates have laid the foundation of geography discipline as the study of the planet Earth. According to Hartshorne (1959), Geographers like Georg Gerland (1833-1919), Otto Lehmann (1855-1922), Albrecht Penck (1858-1945) and Ferdinand von Richthofen (1833-1905) thought that geography is the study of the entire planet Earth. However, there is some confusion about whether geography only focuses on the Earth's surface and its environment that we can see or experience directly or whether it includes the Earth as a whole, including those that are not apparently visible to humans.

According to Hartshorne (1959), Georg Gerland, a German geographer, and geologist, had raised a critical question in his famous essay titled, 'The Position of Geography among the Natural Sciences', which was published in 1891, about whether the field of geography encompasses the entire planet Earth or only the part that is known to everyone. His essay had a significant impact on the development of geography as a discipline and helped to establish the idea that geography is the study of the Earth as a system. However, most geographers limited their studies to the surface phenomena of the Earth, and so geography in practice was the study of the Earth as it is typically understood. This attempt to limit the study of the planet Earth to its outer surface is arbitrary. In 1883, Richthofen defended this restriction in his inaugural address at Leipzig. He claimed that a geographer's primary focus should be on the outer shell of the Earth, but this was not found to be convincing.

Gerland discussed the difference between geography and geophysics. He argued that geography should take an objective and scientific view of the Earth, considering it as one of many similar units in the universe. Gerland believed that the focus on the Earth's surface in geography was simply due to our inability to directly observe the interior of the Earth. He also acknowledged that the Earth's unique features, such as its narrow temperature range and the existence of life, justified studying it as a separate science.

Gerland recognised that science is the pursuit of knowledge in the universe and that the Earth is unique because it's where humans lived. He explained that if we were to compare Earth with other similar planets, we would see it from a celestial perspective, which would require little justification for studying it as a separate science. Gerland concluded by saying that it is important to study the Earth because it is the only known planet, where life exists.

It is evident that humans have always thought of the world they live in as a significant part of their reality. Thus, now we know that the Earth is not just a planetary body, but it is also the only home we have. The term "earth surface" is now essential as it accurately describes the physical extent of our planet's outer shell. The word "world" is commonly used in phrases like "worldwide," "world map," and "world tour," which all refer to the physical space that includes the Earth's surface. This space goes deep into the ground and high into the atmosphere, but it does not include the Earth's core, moon, or other celestial bodies.

The physical scope of geography doesn't require a strict definition of the earth's surface. Geographers study surface phenomena and can explore deeper conditions if needed. There is no need to set a boundary between the world and the earth's interior. The earth's surface is the focus of geographic study serving as the meeting place for various sciences like history, geophysics, meteorology, economics, and geology. Each science approaches the study of the earth's surface from a different perspective. However, the distinction between the geographic viewpoint and systematic sciences studying the same subjects was often overlooked by scholars like Richthofen. Hettner emphasised this distinction in 1905. Geographers' contributions were limited by specialised techniques in geophysics, leading to the establishment of geophysics as an independent field associated with geology and physics, as noted by Wagener (Hartshorne, 1939, pp. 119-120).

There are many other important works from eminent geographers who advocated "Geography as the study of Earth Planet" and are mentioned below:

- Carl Sauer (1956) said, "Geography is the science of the earth's surface, and the study of the relationships between people and their environment".
- Richard Hartshorne (1939) said, "Geography is the study of the earth as the home of human beings".
- D.W. Meinig (1975) said, "Geography is the science of the earth and its features, the study of human activity and its relationship with the physical environment, and the synthesis of knowledge about the earth and its inhabitants".
- William Morris Davis (1909) said, "Geography is the science that studies the physical and cultural features of the earth's surface, and the spatial relationships between them".
- Jean Gottmann (1973) said, "Geography is the study of the earth's surface, the human use of it, and the interrelations between the two".
- Peter Haggett (1983) said, "Geography is the study of the Earth's surface and the processes that shape it, including human activities".

From the above discussions, it is evident that the study of the Earth's surface is essential in geography, as it is the physical extent of our planet's outer shell which refers to the space that goes deep into the Earth and high into the atmosphere but does not include the Earth's core, moon, or other celestial bodies. Geographers need not concern themselves with establishing an exact line between the world and the interior of the earth. The earth's surface is the

sphere of geographic study, and it forms the meeting place for all sciences concerned with the earth, including history, geophysics, meteorology, economics, and geology.

SAQ I

Fill in the blanks with suitable words:

- i.) The Greek Scholar _____ described geography as the study of the earth as the home of human beings.
- ii.) _____ in his books "Nature of Geography" (1939) and "Perspective of Nature of Geography" (1949) traced and identified phases in the development of geography as a discipline.
- iii.) _____ suggested that if history may be considered the science of "when", geography would be logically the science of "where".
- iv.) _____ developed the science of astronomy, which helped in the development of geography as a discipline.
- v.) In the opinion of geographers such as Gerland, Lehman and Richthofen, geography is the science of _____.

2.3 GEOGRAPHY AS THE SCIENCE OF DISTRIBUTIONS

Distribution refers to the way something is spread out or arranged over a geographic area. The concept of distribution can be applied to almost everything on the planet, from floral and faunal species to weather phenomena. Geography and geographers have proved that many of the things listed are found in some places but not in others and that's why it is considered as the science of distributions. Geography as a science of distribution is rooted in the idea that everything on Earth has a spatial context. Geographers study the distribution of physical phenomena such as landforms, climate, vegetation, and water resources, as well as human phenomena such as population, culture, economic activity and political organisation. By analysing these distributions, geographers can gain insights into how and why phenomena are distributed as they are and how they interact with each other.

Geography as a science of distribution has its roots in the work of Alexander von Humboldt, a German naturalist who explored South America in the early 19th century. Humboldt was interested in the spatial distribution of plant and animal species, and he used this information to develop a concept of the 'geography of plants' that would become the foundation of biogeography. Since then, geography has evolved to encompass a wide range of disciplines, including physical geography, human geography and environmental geography. These sub-disciplines are united by a common focus on understanding the distribution of phenomena on the earth's surface. Physical geography, for example, examines the spatial distribution of natural phenomena such as climate, vegetation and landforms. It seeks to understand the processes that shape these distributions, such as plate tectonics, weather patterns and erosion. Human geography, on the other

Wallace line is a geographical boundary that marks a distinct difference in the distribution of flora and fauna between the regions of Asia and Australia. The Wallace Line runs through the Indonesian archipelago, specifically between the islands of Bali and Lombok, and then continues eastward through the Makassar Strait, separating Borneo and Sulawesi.

The significance of the Wallace Line lies in the distinct differences in animal and plant species found on either side of the boundary. To the west of the line, which includes mainland Asia and the western part of the Indonesian archipelago, the fauna and flora are predominantly of Asian origin. Species such as tigers, elephants, monkeys, and various Asian plant species are the characteristics of this region. To the east of the line, in areas such as Bali, Lombok, and the islands of Wallacea, the fauna and flora are predominantly of Australian origin. Unique species such as marsupials, cockatoos, and other Australian plant and animal species are found in this region.

The Wallace Line is considered one of the most significant biogeographic boundaries in the world. It highlights the separation between two distinct evolutionary realms and has had a profound impact on our understanding of species distribution and evolution in Southeast Asia.

hand, is concerned with the spatial distribution of human activities, such as population, migration and economic activity. It seeks to understand the social, economic, and political factors that influence these distributions. Similarly, environmental geography tries to understand the complex interactions between humans and the environment. It examines the distribution of environmental phenomena such as pollution, biodiversity, and natural resources, and seeks to understand the underlying causes and consequences of these distributions.

One of the key strengths of geography as a science of distribution is its ability to identify and analyse spatial patterns and relationships. For example, Cartography and Geographic Information Systems (GIS) allow researchers to map and analyse spatial data on different scales, from local to global. This can help to identify areas of high or low biodiversity, patterns of land use change, or the distribution of natural hazards such as earthquakes and tsunamis.

Geography as the study of distribution is a derivation from Humboldt's description of geography as the study of what exists together in an area. Humboldt, during the expedition of the Orinoco River, Colombia, Cuba, West Indies, Amazon Basin, and Andes Mountains, established the fact that there is variation in the distribution of precipitation, soil, vegetation, flora, fauna, and temperature. Consequently, there are variations in the distribution of economic activity and population. In his monumental work called *Erdkunde*, Ritter's teleological approach discussed the spatial distribution of physical phenomena. Hettner, in his work, declared that geography deals with "distribution by place." He, while dealing with the distribution of flora and fauna, focused on the importance of the **Wallace Line**, which separates the flora and fauna of Australia from South-East Asia and Asia. Hettner illustrated the same distinction in viewpoint. In each case, systematic science is focused on the phenomena that are studied in their distribution, and that of geography on the areas that differ from each other in their other content.

Hettner stated similar objections to this concept of geography commencing with his earliest methodological discussion in 1895. He wrote "Distribution by Place" in 1905, which forms a characteristic of the objects and should, therefore, necessarily be included by systematic science and not geography in the arena of their research and presentation. He focused on the difference that Wallace had made between geographical zoology, which studies the distribution of the individual sorts and species of animals, and zoological geography, or simply animal geography, which is concerned with the difference in faunal equipment of the different lands. Hettner illustrated this through several other examples of physical features from the same difference in perspective. In each instance, the view of systematic science emphasises the phenomena that are studied in their distribution and that of geography on the areas that differ from each other in their floral, faunal, and mineral associations. This geographical view represents a consistent derivation from Humboldt's description of geography as the study of that which exists together in an area. It appears in Hettner's example concerning cultural phenomena.

Geographers are often inclined to focus on the distribution of various phenomena, and, one may also note that distribution alone doesn't create a

common bond of interest. While many geographers acknowledge that geography's special function is not solely the study of distributions, it is difficult to avoid the assumption that the study of 'where' is an integral part of the field. This issue is particularly relevant in systematic geography. It is worth noting that all systematic sciences studying phenomena within the earth's surface must address the question of 'where' in some of their work. However, geography as the discipline dealing with distribution has not been accepted by several geographers as the main sphere of geography.

Many scholars have contributed to the development of geography as a science of distribution. Some of the famous scholars with their works are listed below:

- Von Thunen's Agricultural Land Use Model: In 1826, Johann Heinrich von Thunen developed a model to explain the spatial distribution of agricultural land use around cities. The model suggests that different types of crops are grown at different distances from the city based on their perishability and transport costs.
- Carl O' Sauer (1925): Sauer is known for his work on cultural landscapes, which are the result of human interactions with the natural environment. He argued that cultural landscapes are not just a product of physical geography, but are shaped by human activity and cultural practices.
- August Losch (1930): In his famous work on Location theory, he explains how businesses and other economic activities choose a location based on factors such as transportation costs, labour availability and market access. The theory helps to explain the spatial distribution of economic activities and the location of industries.
- Walter Christaller (1933): Christaller's work on the Central Place Theory sought to explain the distribution of human settlements and economic activity. This theory posits that settlements are organised hierarchically with larger settlements providing more complex goods and services.

From the above discussion, it is evident that geography as the science of distribution focuses on the study of the patterns and spatial arrangement of various phenomena on the earth's surface. It seeks to understand the distribution of natural and human phenomena such as landforms, climate, vegetation, population, and economic activities among others. This perspective is based on the assumption that the distribution of these phenomena is not random, but rather determined by various factors such as physical and environmental processes, human activities and historical events. By studying the patterns and processes of distribution, geographers can gain insights into the functioning and interrelationships of different aspects of the earth's surface, and develop theories and models to explain and predict their behaviour.

SAQ 2

State whether the following statements are true or false:

- i) It is important to understand factors like vegetation, climate, landforms, etc. to understand the population distribution patterns.

- ii) Geography as the study of distribution is a derivation from Humboldt's description of geography as the study of what exists together in an area.
 - iii) 'When' is one of the many questions historians seek to answer, just as geographers are always interested in knowing 'where' these phenomena are.
 - iv) 'Erdkunde' is the monumental work of Hettner, where he discussed his teleological approach to the spatial distribution of physical phenomena.
 - v) Cultural Morphology and Agricultural Origins and Dispersal is the monograph of Carl O' Sauer.
-

2.4 GEOGRAPHY AS THE SCIENCE OF HUMAN-ENVIRONMENT RELATIONSHIPS

Geography is often described as the science of human-environment relationships. This is because it studies how human societies interact with and are influenced by the natural environment. Geography explores how physical processes, such as climate, landforms, and natural resources, shape human activities and how human activities, in turn, impact the environment. It seeks to understand how societies use, modify and adapt to their environments, and how these interactions can have both positive and negative consequences. By studying the complex relationships between humans and the environment, geography can provide insights into some of the most pressing global challenges of our time, such as climate change, environmental degradation and sustainable development.

Richard Hartshorne was a prominent geographer who contributed significantly to the study of human-environment relationships. In his book 'The Nature of Geography: A Critical Survey of Current Thought in the Light of the Past (1939),' he emphasised the importance of understanding the complex relationship between human societies and their physical environment. According to Hartshorne, human societies were not merely passive recipients of environmental influences but were active agents who could shape and modify their environment to suit their needs. He recognised that the environment exerted a powerful influence on human societies, shaping their culture, economy and way of life.

Hartshorne's work on human-environment relationships continues to influence the study of geography today. He stressed the importance of understanding the reciprocal relationship between human societies and their environment and the need for a holistic approach to studying this relationship.

As we know geography as a discipline is comprised of multiple dualisms with varying schools of thought. So, it will be interesting to study these dualisms which are dealing with the relationship between human beings and the environment. The human-environment relationship has been interpreted for several years. Since the post-Darwinism era, geographers have differed greatly over the methodology and approaches required for examining and interpreting human-environment relationships. The approaches to studying

human-environment relationships are Determinism, Possibilism, and Neo-Determinism. We will discuss these approaches in the following sections.

2.4.1 Determinism

Determinism was at the centre of one of the longest debates in the history of the evolution of geography. Determinism refers to the idea that everything in human life is caused inevitably by previous events or conditions laid by nature or the environment. It talks about the functional relationship, which means human beings are the products of nature. Human beings are bound by their physical environment and climate and adjust their behaviour to their environment. It suggests that the environment and climate determine human societies. In the early stages of human beings, their interaction with their natural environment was greatly influenced by it. They were controlled by the dictates of nature because they listened to nature and were afraid of its ferocity and worshipped it. This is so because the level of technology was not so advanced and the stage of human social development was primitive. This type of interaction between strong forces of nature and primitive human society was called environmental determinism. The German school of thought thoroughly supported determinism, which greatly affected the geography in America also. It is a way of thinking or thinking about how nature determines human activities. The first approach adopted by geographers to generalise the pattern of human occupation on the earth's surface is that the nature of human activity is controlled by the parameters of the physical world within which it was set.

Determinists generally regard humans as passive agents, where nature is superior to humans. There is a direct dependence of human beings on nature for resources that sustain them. The physical environment for such societies becomes Mother Nature. The essence of the deterministic school of thought is that the culture, lifestyle, stage of development and history of a social group or nation are exclusively governed by physical factors of the environment. While describing the ecumene in the modern geography epoch, Eratosthenes (234 B.C.) redefined Aristotle's zone of habitability, but he also emphasised climatic determinism. Carl Ritter attempted to establish the cause of variations in the physical constitution, health, body and physique of humans living in different environmental conditions. Humboldt asserted that the role of nature as a model of life for the inhabitants of mountainous countries differs from that of plain countries. Darwin's publication of 'Origin of Species' in 1859 profoundly guided the geographical approach of study in a deterministic fashion. It influenced W. M. Davis, E. Heckel and the German geographers-Fredrich Ratzel and Herbert Spencer. Spencer developed the concept of the 'Survival of the Fittest'. Ratzel followed the path of Social Darwinism. E. C. Semple propounded the theory that "Man is the product of the earth surface." Huntington was engaged in developing the idea of the leading role of climate in the advancement of civilisation. He said that religion and racial characteristics are products of the climate. Hence, determinism advocates that temperature, soil, rainfall, humidity, topography, and vegetation individually and collectively affect social and economic institutions.

The deterministic school of thought is criticised for two reasons. First, it is clear that similar physical environments can't produce the same responses

everywhere. In fact, the Mediterranean civilisation of Greece and Rome didn't develop in similar Mediterranean climatic conditions in South Africa, Australia, California and Chile. Similarly, the cultural development of the Thar Desert is quite different from that of Saudi Arabia and the Sahara Desert. Secondly, although the environment influences humans, humans also influence the environment, and the both have a cause-effect relationship.

The critics of determinism argue that it overlooks the role of human agency and cultural factors in shaping human behaviour and societal outcomes. They point out that humans have the ability to modify and transform their environment, and that social, political, and economic factors also play a significant role in shaping human societies. We will be studying this in the section on possibilism later on in this unit.

2.4.2 Environmentalism

Environmentalism is a political and ethical movement that seeks to improve and protect the quality of the natural environment through changes to environmentally harmful human activities. It can be done through the adoption of forms of social, economic and political organisation that are thought to be necessary for, or at least conducive to, the caring treatment of the environment by human beings. This can be done through a reassessment of humans' relationship with nature. It advocates the discussion of environmental rules and regulations, including international conventions, treaties, and environmental laws. The environmental movement can be broadly divided into two intellectual groups based on their perspectives towards the environment. The first group is the anthropocentric or human-centred group, which sees the environment as primarily valuable for human use and enjoyment. This perspective focuses on how humans benefit from the environment, such as through economic development, recreation and aesthetics. The anthropocentric perspective focuses mainly on the negative effects that environmental degradation has on human beings and their interests, including their interest in recreation, quality of life and health. The second group is the bio-centric or life-centred group, which sees the environment as valuable in and of itself, independent of human use. This perspective emphasises the intrinsic value of nature and the importance of preserving the environment for future generations of all species.

The vision of the environmental movement of the 1960s and early 1970s was generally pessimistic, reflecting a pervasive sense of civilisation malaise and a conviction that the earth's long-term prospects were bleak. Important works like Rachel Carson's 'Silent Spring' (1962), Paul Ehrlich's 'The Population Bomb' (1968), Garrett Hardin's 'The Tragedy of the Commons' (1968), Edward Goldsmith's 'Blueprint for Survival' (1972) and Donella H. Meadows' 'The Limits to Growth' (1972) suggested that the planetary ecosystem was reaching the limits of what it could sustain. This so-called apocalyptic or survivalist literature encouraged reluctant calls from some environmentalists for increasing the powers of governments over human activities deemed environmentally harmful. Environmentalists like Robert Heilbroner in his work 'An Enquiry into the Human Prospect' (1974) put forward the idea that human survival may only be possible at the cost of human freedom of choice. However, this viewpoint was challenged by counterarguments presented by

Julian Simon and Herman Kahn's in their work 'The Resourceful Earth' (1984), which emphasised that humanity has the capability to come up with alternatives for scarce resources that are at risk of being depleted.

The growing debate on the perspective of environmentalism also started influencing the politics of the world. The first green parties in the world, such as 'The Value Party,' a nationally based party in New Zealand and the United Tasmania Group organised in the Australian state of Tasmania, were founded in the early 1970s. The first explicitly green member of a national legislature was elected in Switzerland in 1979. In the late 1980s, environmentalism had become an international and national political force. Some environmental and non-environmental organisations, such as the World Wildlife Fund, Greenpeace, Friends of the Earth, and the International Union for the Conservation of Nature, have established a significant international presence with offices throughout the world and a centralised international headquarters to coordinate lobbying campaigns and to serve as campaign centres and information clearing houses for their national affiliate organisations. Although some bilateral and multilateral international environmental agreements had come into force before the 1960s, Stockholm hosted the first world conference on the environment- United Nations Conference on the Human Environment' in 1972. The changing nature of the public debate on the environment was reflected in the United Nations Conference on Environment and Development, 1992 (the Earth Summit) in Rio de Janeiro, Brazil. Around 180 countries and various business groups, non-government organisations and media partners attended the summit. The Kyoto Protocol, Sustainable Development Goals and Paris Agreement are the results of such a movement.

In India, movements like Chipko Movement, Silent Valley Movement, Appiko Movement, etc. took place which forced the government to make laws to conserve their forests and environment. Concepts like green cities, ecotourism, environmental impact assessment, and other environmental friendly schemes have come into effect due to environmentalism. The Indian government has launched several initiatives to promote the use of clean energy, such as the National Solar Mission, which aims to generate 100 GW of solar power by 2022. Additionally, India is a signatory to the Paris Agreement on Climate Change and has committed itself to reducing greenhouse gas emissions.

2.4.3 Possibilism

Possibilism is a philosophy that attempts to explain human and environmental relationships differently, taking humans as active agents. Possibilism suggests that there is a range of opportunities from which an individual may choose. The choice is based on an individual's norms and needs. It acknowledges the range of choices that may be limited by the environment but allows choices to be made, rather than thinking along deterministic lines. The emphasis of possibilism is firmly placed on humans rather than nature, in which humans are seen as active forces rather than passive beings. Possibilism in geography developed as a reaction to extreme generalisations of environmental determinists that led to a counter-thesis as possibilism, which presented man as an active agent. People begin to understand their

environment and the forces of nature with the passage of time. Through cultural and social development, human beings develop better and more efficient technology to negotiate or alter these conditions suitable to them. They have moved from the stage of necessity to the stage of freedom. They create possibilities with the resources they obtain from the environment. The activities of human beings create a cultural landscape. The imprints of human activities are created ubiquitously, which include satellites in space, oceanic routes on the oceanic surface, highlands, pastures, and orchards in plains, which is termed as possibilism. Nature provides opportunities and human beings use these opportunities, and slowly nature gets humanised and starts bearing the imprints of human endeavour.

Lucian Febvre and Paul Vidal de la Blache advocated the philosophy of 'Possibilism'. However, the true preacher of possibilism in geography was Paul Vidal de la Blache. In his studies, Vidal de la Blache saw a limited influence of the environment on the activities of human beings. He tried to explain that the differences between groups are not due to the physical environment but are the outcomes of differences in customs, traditions, culture, attitudes, ways of life, and habits. Variations in habits and attitudes create several possibilities for human communities. According to him, human societies have the ability to modify and adapt to their environment through cultural practices and technology.

Vidal de la Blache believed that it was important to study the relationship between people and their environment. He believed that each region had unique physical and cultural features that shaped its society and that culture and society could only be understood by examining these specific features. His approach was therefore grounded in a deep appreciation for the diversity of human societies and their connections to the natural world.

One of the key contributions of Vidal de la Blache's possibilism was its emphasis on the role of human agency in shaping geography. It rejected the idea that humans were passive actors who were entirely at the mercy of their environment. Instead, it acknowledged that humans have the capacity to modify their environment in a variety of ways and that they do so in response to a complex interplay of social, economic and environmental factors. Another important contribution of Vidal de la Blache's work was his rejection of the idea that there were some universal laws or principles that could be used to explain all of human history and culture. Instead, he believed that each region had its own unique characteristics that made it distinct from other regions. This view laid the foundation for the development of what is now known as regional geography, which emphasises the study of specific places and the unique characteristics that make them different from others.

Meanwhile, the French historian Lucian Febvre, who coined the term 'Possibilism' in the late 19th century, put forward the idea that the true and only geographical problem is the utilisation of possibilities. According to him, *there are no necessities, but everywhere there are possibilities*. Thus, possibilities saw in the natural environment a series of possibilities for human development but argued that the actual ways in which development occurred were related to the culture of the concerned people in regions of extreme climatic conditions. It includes tundra, deserts, high mountains, and equatorial

regions. The concept was exclusively associated with the French school of geography. It doesn't mean that the concept of possibility didn't exist before the French school of geography. It has been in existence right from ancient to modern times, but as a part of discipline, it came into existence with the French school. The idea of possibilities emphasises that the natural environment offers opportunities, the number of which increases as the technology and knowledge of a cultural group develop.

According to possibilists, nature is never more than an advisor. However, many geographers didn't accept the approach of possibilism and argued that although humans do have agency and can shape their environment to some extent, they are still influenced and constrained by physical factors such as climate, topography and natural resources. They believe that the environment still plays an important role in shaping human activities and shaping the course of history. In this view, the environment provides a range of possibilities, but it also imposes limitations and sets boundaries on what is possible which introduces a new concept of Neo-Determinism in the field of geography.

2.4.4 Neo-Determinism

Neo-determinism is one of the three major approaches in geography that explain human and environment relationships. As neither determinism nor possibilism has been able to describe the relationship between the man and environment correctly, the concept of Neo-determinism emerged in geography. Neo-determinism believes that if human activities cause long-term damage to the environment (climate change, pollution), then these activities must be stopped, otherwise human beings can do everything the environment permits us to do. Griffith Taylor introduced the term Neo-determinism, which is also known as Stop-and-Go-Determinism. He argued that nature determines the program only in broad terms and human beings determine the rest and follow the program of nature to their benefit. Neo-determinism reflects a middle path, which is known as *Madhyam Marg*, between the two ideas of environmental determinism and possibilism. This middle path asserts that human beings can influence and shape their environment, but they are not entirely free from the constraints of their surroundings. This idea is similar to the traffic lights at a crossroads which regulate the traffic. The red light indicates stop, the amber light indicates a gap between the red and green light indicating watch, and the green light indicates go. This shows that neither there is a situation of absolute necessity (environmental determinism) nor is there a situation of absolute freedom (possibilism). It means that human beings can win over nature by obeying it. They must respond to the red signals and can proceed in their search for development when nature permits the modifications. It is apparent that possibilities can be created within the limits that do not damage the environment. Neo-determinism seeks to strike a balance in order to eliminate the 'either or' dichotomy.

As mentioned above, the philosophy of Neo-determinism was given by Griffith Taylor, an Australian Geographer. He stated that the purpose of geography is to study the natural environment and its effects on humans and not all problems connected with the human or cultural landscape. In his book, *Australia: A Study of Warm Environments and Their Effect on British*

Settlement (1949), Taylor said, "Man is able to accelerate, slow, or stop the process of a country's development. He should not, if he is wise, depart from the direction as indicated by the environment." Human beings can change the environment through various innovations and can perform all those activities, which are not naturally possible in the environment. For instance, human beings have started cultivation in barren lands and even during summer by providing fertilisers and irrigation facilities. Farming has become possible without soil and water due to innovation and advancement in science and technology. However, there is a limit to how much one can change the environment as human beings cannot go against everything in nature. Human activities must be done according to the law of nature; otherwise, nature will force human beings to stop and regulate their activities accordingly. For example, developed countries in the world have chosen the path of free run as these countries are neither obeying nature nor judiciously using their natural resources. We have examples from developed nations that despite being a signatory to the Paris Climate Agreement, the U.S. government has rolled back environmental regulations and promoted the use of fossil fuels. China, one of the world's largest emitters of greenhouse gases, has been facing criticism for its reliance on coal power and its construction of coal-fired power plants. Australia has been criticised for its support of the coal industry, including the construction of new coal mines and the export of coal to other countries. The deforestation of the Amazon rainforest in Brazil has continued to accelerate, despite international concern and pressure. These countries are dealing with ozone depletion, glacier retreat, the greenhouse effect, land degradation, forest fire, the extinction of life on land and below water, etc.

Human activities, climate change and pollution are causing harm to the environment. However, there is a limit to the extent of environmental pollution. Nature, through climate change, is compelling humans to rectify their actions. Unsustainable agricultural practices and over-exploitation of groundwater in states like Punjab and Haryana in India have led to a decline in groundwater levels indicating environmental degradation. The Maldives is experiencing submergence due to rising sea levels resulting from climate change. Water scarcity in major cities like Mumbai, Chennai, Delhi, Bengaluru, Cape Town, and Islamabad is a consequence of excessive groundwater extraction and inadequate conservation practices. Recent floods in Indian states such as Jammu and Kashmir, Tamil Nadu, Assam, Kerala, Karnataka, and Bihar are a result of mismanagement and abuse of natural resources. The environment serves as a regulator indicating when human activities are erroneous. Humans can adjust, slow down, or halt developmental activities by adhering to environmental regulations, and remain sensitive to the idea of sustainability.

SAQ 3

Match the columns A and B

Column A	Column B
a) Griffith Taylor	i) Possibilism
b) Blache	ii) Social Darwinism
c) Humboldt	iii) Man is the product of the earth surface

-
- | | |
|----------------|--|
| d) Ratzel | iv) Geography is the science of distribution |
| e) E.C. Semple | v) Neo-Determinism |
-

2.5 SUMMARY

In this unit, you have studied:

- Geography as the study of planet Earth, where the domain of geography is not the entire planet Earth, but only its outer shell, where human beings see the convergence of the hydrosphere, lithosphere, biosphere, and atmosphere.
- Geography as the science of distributions; and
- Geography as the science of human-environment relationships with three approaches – Determinism, Possibilism and Neo-Determinism.

2.6 TERMINAL QUESTIONS

1. Why is geography regarded as the 'Study of Planet Earth'? Discuss it in detail.
2. "Geography is the Science of Distributions." Elaborate this with arguments given by various geographers.
3. Explain the human-environment relationship with Determinism, Environmentalism, Possibilism and Neo-Determinism.

2.7 ANSWERS

Self-Assessment Questions (SAQ)

1. i) Eratosthenes ii) Hartshorne iii) Carl O' Sauer iv) Greek v) Planet Earth
2. i) True ii) True iii) True iv) False v) True
3. a) v b) i c) iv d) iii e) ii

Term End Questions

1. Give your detailed discussion on geography as the study of planet Earth. Refer to Section 2.2.
2. Place your arguments in the light of various geographers for geography as the science of distribution. Refer to Section 2.3.
3. Discuss in detail geography as the study of human-environment relationships with various approaches- Determinism and Environmentalism, Possibilism and Neo-Determinism. Refer to section 2.4.

2.8 REFERENCES AND FURTHER READING

1. Dikshit, R.D. (2004): *Geographical Thought A Contextual History of Ideas*, New Delhi: Prentice Hall of India.

2. Husain, M. (2014): *Evolution of Geographical Thought*, New Delhi: Rawat Publication.
2. Husain, M. (2013): *Environment and Ecology (3rd ed.)*, New Delhi: Access Publishing India Pvt. Ltd.
3. Singh, S. (2011): *Geography of India*, New Delhi: Tata McGraw Hill Education Private Limited.
4. Henderson, G. & Waterstone, M. (ed.) (2009): *The Geographic Thought*, Madison Avenue, New York: Routledge.
5. James, Preston E. and Martin, Geoffrey J. (1982): *All Possible Worlds: A History of Geographical Ideas (2nd ed.)*, New York: Johan Wiley & Sons.
6. Hartshorne, R. (1959): *Perspectives on the Nature of Geography*, Cambridge, MA: Harvard University Press.
7. Adhikari, S. (2004): *Fundamentals of Geographical Thought*, Allahabad: Chaitanya Publishing House.
8. Martin, G.J. (2005): *All Possible Worlds*, New York: Oxford University Press.
9. Goudie, A. (2019): *The human impact on the natural environment: past, present, and future*, Sussex: John Wiley & Sons.
10. Heilbroner, R. L. (1974): *An enquiry into the human prospect*, New York: Norton.
11. Simon, J., & Kahn, H. (1984): *The resourceful earth: A response to global 2000*, New York: Basil Blackwell.
12. Taylor, Griffith (1949): *Australia: A Study of Warm Environments and Their Effect on British Settlement*, London: Edward Arnold Publishers Ltd., p. 96.
13. Sauer, C. (1956): "The Education of a Geographer", *Annals of the Association of American Geographers*, 46(3), pp. 283-288.
14. Hartshorne, R. (1939): "Perspective on the Nature of Geography", *Annals of the Association of American Geographers*, 29(4), pp. 201-215.
15. Meinig, D.W. (1975): *The Shaping of America: A Geographical Perspective on 500 Years of History, Volume 1: Atlantic America, 1492-1800*, New Haven: Yale University Press.
16. Davis, W.M. (1909): "The Nature and Purpose of the Geographical Society", *Bulletin of the American Geographical Society*, 41(4), pp. 233-247.
17. Gottmann, J. (1973): "The Significance of Territory", *Virginia Geographical Bulletin*, 15, pp. 9-15.
18. Haggett, P. (1983): *Geography: A Modern Synthesis*, London: HarperCollins.
19. Holt-Jensen, A. (2000): *Geography: History and Concepts: A Students' Guide*, London: Sage Publications.

GLOSSARY

Classification of Knowledge	: The process of segregation of branches of knowledge into various categories like natural or physical sciences, social sciences, logical sciences, etc. during the early phase of recognition of different disciplines.
Chorography	: Holistic (regional) study of a region including all aspects in areal combination as a study of reality.
Chorology	: Science of space relating geography as chorological science concerned with the systematic study of various facts in a region.
Determinism	: It is one of the approaches to human-environment relationships or interactions popularised by Friedrich Ratzel, which advocates that the natural or physical environment dictates and shapes the complete functioning of human beings and their cultures. According to this approach, nature is the active agent and human beings are the passive ones completely controlled and guided by nature.
Environmentalism	: Environmentalism is a political and ethical movement that seeks to improve and protect the quality of the natural environment through changes to environmentally harmful human activities.
Exceptionalism	: Geography emerged with history as the science of exceptionalism where the two disciplines' core academic area was uniqueness with differentiation in time (history) and space (geography) filling up the entire circumference of our perceptions as anything or phenomena exists on a particular space at a particular time.
Genre-de-vie	: Vidal de la Blache gave the idea of Possibilism reflected through <i>genre-de-vie</i> indicating the lifestyle or way of life of any particular region, which is the reflection of a combination of entire physical and human factors of that particular region.
Hartshorne-Schaefer Debate	: During the post-Second World War period, geography was greatly shaped by an idea of spatial science through the Quantitative Revolution. During this period there was a series of articles by Richard Hartshorne and F.K. Schaefer where Schaefer argued that geography cannot remain with exceptionalism means just differentiation with uniqueness as regions, but it was more than that emerging as the spatial science. This exchange of ideas between Hartshorne and Schaefer about the nature of geography evolving from exceptional discipline to spatial science is known as Hartshorne-

	Schaefer Debate.
Inductive – Ideographic Method	: An approach to scientific studies, is an explanation and description of a unique or particular event/phenomenon or connections based on empirical observation, which is on a single stance only not of a general trend.
Integrating Discipline/ Integrative Science/Science of Synthesis	: A discipline bringing together a scientific understanding of the natural environment with studies of human and cultural aspects for the study of whole reality drawing materials from various disciplines. Geography is a unique discipline known as an Integrating discipline.
Logical Positivism	: Logical positivism is another philosophy which says that some facts in the form of statements can be verified without empirical experience encompassing the rules of formal logic.
Neo-Determinism	: Also known as Stop-and-go-Determinism is also an approach to the study of human-environment relationships or interactions, where humans are supposed to be like traffic controllers who control the speed but not the direction. Humans should not go against nature's direction; they can regulate their pace of development.
Positivism	: Positivism is a philosophy given by August Comte, which is the application of scientific theories and approaches to scientific knowledge validated with observable facts.
Possibilism	: Possibilism, the antithesis of Determinism, is an approach to study human-environment studies in geography, which suggests that human beings are active agents and nature is passive in relationships. In this approach, humans are seen as the modifiers of nature for their needs. This approach was advocated by Lucian Febvre and Paul Vidal de la Blache.
Regional Geography	: Geographical study of any region or unit of area holistically covering physical and human aspects as a synthesis or integrative study. In other words, regional geography is the geographical study of regions with their total features and phenomena as single composition with their complex interrelationships through synthesis and integration of both the aspects- physical as well as human with causal relationships considering both as cause and effect simultaneously.

Scientific Empiricism	: Scientific empiricism is a philosophical movement that denies the existence of any differences in the sciences. It adheres to the principle of unity of sciences through a synthesis of scientific methodologies and is distinguished from earlier empiricism.
Systematic Geography	: Specialised branches of geography based on specific themes covered like geomorphology, climatology, hydrology, oceanography, social and cultural geography, economic geography, population geography, political geography, etc.
Systematic Science	: Specialised branch of knowledge in the field of natural science like Physics, Chemistry, Mathematics, Meteorology, Geology, etc.
Tobler's First Law of Geography	: The First Law of Geography, "everything is related to everything else, but near things are more related than distant things" is given by Waldo R. Tobler in 1970, which strengthened the idea of causality of things and phenomena existing in any particular area or region in areal combination.
Wallace Line	: Wallace Line is a geographical boundary that marks a distinct difference in the distribution of flora and fauna between the regions of Asia and Australia. The Wallace Line runs through the Indonesian archipelago, specifically between the islands of Bali and Lombok, and then continues eastward through the Makassar Strait, separating Borneo and Sulawesi.

