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DEVELOPMENT OF HUMAN GEOGRAPHY

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PRE HISTORIC CONTIBUTION

The term geography has been coined from two Greek words "Geo" meaning the earth and "Graphe" meaning to write or describe. Thus geography literally means the description of the earth. The word geographia was first used by a Greek scholar Erastothenes in 3rd century B.C. The literal meaning of the term geography is very general in nature and does not specify what is to written or described about the earth which is full of innumerable things of the diverse nature. Geography has a longer genealogy than any science. The earliest records of mans interest in nature of the physical world around him contain observations and speculations of geographical type. In the ancient period geography grow out of explorations, mapping of areas known and the speculation about the material collected. It is difficult to trace the development, diffusion and spread of geographical knowledge during the prehistoric periods. Although geography began as a modern discipline only during the 19th century, there is a consensus that all civilizations contributed to the development of geographical concepts.

Greeks and Romans, the pioneers of prehistoric ideas followed two distinct traditions in their geographical work. One was the mathematical tradition and other was the literary tradition. The fall of Roman Empire marked the decline of interest in geographical knowledge. No science including geography could flourish during this Dark Age. At this stage geographical knowledge passed on to the Arabs who were then leading trading nations and recorded far and wide. Many of the Greek works were translated into Arabic and thus the Greek tradition was also kept alive. The Arab scholars and travelers paved the path for future explorations, discoveries and scientific inventions which energized the adventurous people to know more about the world.

During the 17th century there rose the need for specialization and division of knowledge into separate fields. Since geography was the integrated study of both man and physical environment, under such scenario it faced a crisis of identity. The period after the passing away of great modern geographers (Ritter and Humboldt 1859) was a period of great disciplinary confusion. Many pleaded that geography should focus on study of man where as others maintained that geography should concentrate exclusively on study of physical earth. It was only in 1880s by the innovative visions of Ratzel, Richtofen, and later Blache. According to them the domain of geography encompasses both natural as well as social phenomena in spatial context. In this process geography had under taken the task of bridging the gap between the natural and social sciences by studying the man and his environment in totality.

After Second World War geography experienced a number of conceptual changes. In the immediate post war period a major shift occurred in the form of quantitative revolution. It focused on mathematical precision in geographical description and analysis. Thus post war period was in geography was transformed into the science of special analysis of social and economic phenomena, leading to progressive decline in focus on the study of physical environment.

By the 2nd half of 1960s, there was general shift from spatial patterns to behavioural processes that had generated these patterns. This new turn into geographical study is called as "Behavioural revolution". It emphasized the role of cognitive (learning though knowing). This philosophy was soon encountered by lying emphasis on the central and active role played by human agency, human awareness, consciousness and creativity in the process of man –environment interaction. Emphasis was laid on the understanding of meaning, values and human significance of life events. This gave rise to "Humanistic geography". This philosophy emphasized the logical mode of inference rather than statistical one.

In 1970s radical approach developed in geography which was against locational analysis of quantitative revolution. It concentrated on the issues of social of social relevance like inequality, racism, sexism, crime, discrimination against blacks and females, exploitation of environmental resources etc. the social relevance research focused to introduce the concept of social justice and clear political terms in favour of less privileged sections of society, while as the earlier quantitative approach focused on the use of science and technology with a view to increase efficiency in exploitation of resources and there by contributing to economic prosperity of developed nations.

The first modernist geography of 1990s stands out as a unified discipline that combines the best of every tradition- Regional, Systematic, Idiographic, Nomothetic, Marxist, and Humanistic. The current generation of geographers has almost reached the consensus that what where appearing as conflicting perspectives in the past, represent only different ways of looking at the totality life in the world and each perspective has something valuable to contribute towards the better comprehension of the man environment system and thus equip the researcher with better tools of research in the service of society. With such a broad perspective one cannot confine the subject to the description of the earth only.

Geography is the discipline concerned with the systematic description and interpretation of special patterns and regional associations of all those phenomena which influence human life on the earth's surface, it helps us to adapt to the changing circumstances and how to live harmoniously with nature and let others live. In this context it is well said that geography is the base of humanity.

Branches of Human Geography

Traditionally Geography is divided into two main branch's physical and human geography. Physical geography deals with the physical features of the earth while as human geography deals with the human aspect of the earth's surface. Physical Geography provides a stage for human activities these together

constitute the whole gamut of geographical studies. Definition of Human Geography: Finch and Trewartha defined it as follows: "this human imprint, these features of material culture, associated with agriculture, manufacturing, trade, mining and the other economies-houses, fields, roads, factories domesticated animals etc. become the immediate interest and object of study of human geography. Human geography studies human aspects of the earth's surface under number of branch's as;

1. Economic Geography: This branch of geography deals with the economic aspect of human societies under;

- ***Resource Geography:*** That branch of economic geography that focuses o the study of resources their distribution, production, utilization and conservation.
- ***Agricultural Geography:*** It studies spatial variations in agricultural activity-the cultivation of soil in order to grow crops and rear livestock.
- ***Industrial Geography:*** It is the study of spatial variations in industrial activity on the earth's surface.
- ***Transport Geography:*** It studies the mobility of goods and transport.

2. Social and cultural Geography: It studies the social phenomena and occupation of social space, the development of human cultures etc. 1. Political Geography: It studies political phenomena in spatial aspect

- ***Population Geography:*** It is the study population dynamics like Mortality rates, fertility rates, migration etc.
- ***Medial Geography:*** It is the study of spatial aspect of disease distribution.
- ***Settlement Geography:*** It studies the spatial extent of human settlements their origin and evolution.
- ***Urban Geography:*** It studies the spatial extent of urban areas their distribution evolution growth and development etc.
- ***Anthropo-Geography:*** It studies the origin and evolution of human species.

Contribution of Phoenicians

More than 2,500 years ago Phoenician mariners sailed to Mediterranean and southwestern European ports. The Phoenicians were the great merchants of ancient times. They sold rich treasures from many lands. These Phoenicians (the Canaanites, or Sidonians, of the Bible) were Semitic people. Their country was a narrow strip of the Syrian coast, about 160 miles (260 kilometers) long and 20 miles (32 kilometers) wide. The area now comprises Lebanon and parts of Syria and Israel. Their territory was so small that the

Phoenicians were forced to turn to the sea for a living. They became the most skillful shipbuilders and navigators of their time. They worked the silver mines of Spain, passed through the Strait of Gibraltar, and founded the city of Cadiz on the southern coast of Spain. They sailed to the British Isles for tin and may have ventured around southern Africa. They founded many colonies, the greatest being Carthage. The Phoenicians began to develop as a seafaring, manufacturing, and trading nation when the Cretans—the first masters of the Mediterranean—were overthrown by the Greeks (see Aegean Civilization). Not only did they take the fine wares of the Eastern nations to the Western barbarians, but they also became skilled in making such wares themselves—especially metalwork, glass, and cloth. From a snail, the murex, they obtained a crimson dye called Tyrian purple. This was so costly that only kings and wealthy nobles could afford garments dyed with it. Perhaps the most significant contribution of the Phoenicians was a syllabic writing, developed in about 1000 BC at Byblos. From this city's name come the Greek word biblia (books) and the English word Bible. This form of writing was spread by the Phoenicians in their travels and influenced the Aramaic and Greek alphabets After the Jews and Egyptians, it was the Phoenicians who contributed to the advancement of geographical knowledge. Phoenicians occupied Asia Minor (coastal Turkey, Lebanon, Syria, Israel) while Tyre (Tyr) and Sidon (Saida) were their major ports and towns. Gadeira (Gadis) was established by the Phoenicians as early as 1100 B.C., while Carthage (near the present Tunis) and Utica cities were established in about 813 B.C. along the northern coast of Libya (Africa) as the colonies of Phoenicians. Thus, Phoenicians were the first repositories of geographical knowledge. But their narrow, selfish and secretive policies prevented them from communicating to others the information they had obtained about the distant nations and trading centres. The Phoenicians were expert sailors who are credited with discovering how to use the North Star to gauge direction. As a result of this discovery, the Phoenicians could sail on the open seas and in the ocean; they no longer had to use the coastline as a navigational aid. Phoenician sailors passed this important information on to the Greeks and other Mediterranean cultures.

Contribution of Greeks:

Greek was one of the well flourished civilization dating back to 500Bc – 200Bc established in Greece and its surrounding areas. There is no doubt that the roots of modern geography are to be traced back to the thoughts of ancient Greek, because Greeks were pioneers in many branches of knowledge. Not only geography has its origin during Greek period but other subjects also. Greek period is rightly called as the ''Golden period'' because all Greeks provided a framework of concept that guided the western thinking for many centuries .It was the most advanced economy of the world. The fertile soil of Greece has given birth to large number of scholars like Homer, Thales ,Anaximander, Hecataeus, Herodotus, Erastoshenes, Aristotle, Plato, Hipparchus etc. **Factors responsible for the contribution of Greeks:**

(a) Greeks possessed philosophical and scientific aptitude. They focused on the role of reason and enquiry and were having the quest for knowledge .They used to make considerable emphasis on literature.

(b) They were not secretive, they were very open minded.

(c) Location of Greece: It was a coastal area and was an earthquake zone, there were hot springs and volcanoes which were considered by some of them as supernatural things while others tried to explain them with scientific reasoning.

(d) The establishment of the famous Museum and library at Alexandria provided impetus to Greek scholars to know more about the phenomena of nature, places and people.

(e) The millet centre of learning also contributed to their geographical knowledge.

Hecateous was a Greek scholar of 6th century BC from Millets (the centre of learning in those days).He was a pioneer Greek scholar and one of the earliest writer of Greek prose .He was the first Greek scholar to classify the information about then known world brought to the millets and named it as ''Ges-periodos'',it was the first systematic description of the then known world, that was published by the end of 6th century BC . Ges-periodos describes the places in the vicinity of Mediterranean sea which was called as perplus means coastal area. Hecateus divided his book ''Ges-periodos''into two parts ,part 'A'dealing with geographical information about Europe' and part B dealing with Libya. Libya in those days consists of Asia and Africa.

Hecateus described earth as a spherical body surrounded by water called as Oceanus'.Hecateus was a great traveller and has travelled extensively which is clear from his ''periplus ''meaning coastal survey in which he described all the places around mediterranean sea.He had also visited Egypt.He also navigated river Nile and had described its sources as the Southern Ocean.Hecateus for the first time gave two approaches for the study of geography

a)Normathetic or law seeking approach.

b)Ideagraphic approach(descriptive)

Hecateus prepared the world map but it was based on the map of Anaximander and did some modification in it. He divided it into two parts by drawing a line passing through Halaspond, Caspian sea and Caucasus mountains. The northern part he named as Eurapa and southern part as Libya that includes Africa and Asia. The literature reveals that most of the work of Hecateus is not intact but was unfortunately lost.

Herotodus was an outstanding Greek scholar of 5th century BC. There is no exaggeration in the statement to say that Herodotus was the father of history— first and foremost historian but there are very good reasons for calling him as a great contributor in 'ancient geography'. Firstly it was Herodotus who placed historical events in a geographical setting and most of his historical accounts are truly geographical in nature. Secondly it was Herodotus who believed history must be treated geographically and all geography must be treated historically. He contributed both in physical and human geography.

Herodotus came up with the concept that Egypt is the gift of river where he emphasized that silt and mud of river leads to development of delta. It was he who for the first time gave concept that winds move from cold to hot places. He attempted to measure the age of earth on the basis of rate of sedimentation and estimated that one foot of sediment is formed in 880 years. Taking the total sediment strata 158 kms thick, Herodotus calculated the age of the earth as 440 million years when the exact age of earth is 4.6 billion years. In human geography it was Herodotus who for the first time gave an interesting detail of the existing tribes and their lifestyle, on the basis of this, anthropologists consider him as the first ethnographer. Eratosthenes an eminent Greek scholar has been rightly regarded as'' Father of Geography 'He put a stamp on the subject of geography as the ''study of earth as the home of man''. His outstanding contribution for which he is renounced throughout the world is his measurement of the circumference of world.

Erastosthenes was not only an ancient scientific scholar but also a mathematical geographer and was well versed in mathematical geography. He has also prepared a world map with respect to correct distance.His remarkable contribution was his text ''Geograhica''.He also described the five climatic zones:one torrid zone,two temperate zones and two frigid zones. He also measured different latitudes and longitudes.It is this reason that Erastosthenes was also considered the father of ''Geodacy''. Homer was the well known Greek and probably the first poet whose work was published in the form of Illiad and Odyssey.He described the four winds coming from different directions.

Thales was the first Greek genius,philosopher and traveller who originated several basic theorems of geometry.He was also the first who started the measurement of the earth and location of things on the face of the earth.

Anaximander is credited with the introduction into the Greek world of a Babylonian instrument known as Gnomon.Gnomon is a pole set vertically above a flat surface on which the varying position of the sun could be measured by the length and direction of the shadow cast by the verticle pole.

Reasons for the decline of Greeks:

1. Greek faced some epidemics which lead to a lot of disturbance among Greeks.
2. There were some drought conditions in Greece which affected the Greeks badly and led them towards declination.
3. Romans fought a war with Greek in which they won and flourished all over.
4. It was this period when Roman empire was in its zenith and was largest centralized empire in the world.
5. There was fire in the library of Alexandria in which some 4 lakh books were destroyed.This also led them towards declination as they had now hardly any literature available.

Contribution of Romans Much of the Greek traditions in geography were carried forward into ancient Roman scholarship. The Romans produced little that was new in the field of geography. Writing shortly

before the time of Christ, one Marcus Terentius Varro prepared a compendium of geography that dealt with a theory of culture stages that remained almost unchallenged until the nineteenth century.

Varro describes man's culture as moving through a regular sequence. Originally man derived his food from the things that the virgin Earth produced simultaneously. From this original state, man advanced through a stage of pastoral nomadism, then through an agricultural stage and finally to the stage of contemporary culture.

Strabo (63 BC-24 AD), a scholar and traveller writing at the height of the Roman Empire, was strongly influenced by the historical topographical tradition of Homer, Hecateaus, and possibly of Aristotle. It is often said that the historical tradition, introduced by the Greek scholars in geographical scholarship was finally summarized by Strabo.

His assertion on the geographer is as follows:
'Accordingly, just as the man who measures the Earth gets his principles from the astronomer and the astronomer from the physicist, so, too, the geographer must in the same way take his point of departure from the man who has measured the Earth as a whole, having confidence in him and in those in whom he, in his turn, had confidence, and then explain, in the first instance, our inhabited world—its size, shape, and character, and its relation to the Earth as a whole; for this is the peculiar task of the geographer. Then, secondly, he must discuss in a fitting manner the several parts of the inhabited world, both land and sea, noting in passing wherein the subject has been treated inadequately by those of our predecessors whom we have believed to be the best authorities on these matters'.

Strabo accepts Aristotle's zones of ekumene, as defined by Eratosthenes, and then goes on to assert that the limit of possible human life towards the equator is at latitude 12°-302 N, but does not explain the basis of his assertion. He also places the northern limit of the habitable Earth, where cold is the limiting factor, only 400 miles north of the Black Sea.

Strabo accepts the calculation of the Earth's circumference done by Posidonius in about 100 BC. He gives a correct explanation of the floods of the Nile, attributing them to the heavy summer rains in Ethiopia. Drawing from Hipparchus and Posidonius, Strabo concludes the geographer's need of a sound mathematical base, because that would give him an accurate description of the parts of the ekumene.

Strabo wrote a work of 17 volumes called Geographia. This was largely an encyclopedic description of the known world whose chief value was that it preserved for posterity many writings which he annotated and cited. Geographia also included attempts to explain cultural distinctiveness, types of governments

and customs in particular places. The significance of natural condition for cultural development was discussed in relation to a number of places, especially in the description of Italy.

The first two books of Strabo's work provide historical review of the progress of geography from the days of Homer whom be described as the founder of all geographical knowledge. He also discusses in detail the contributions of Eratosthenes, Hipparchus and Posidonius. He devotes eight books to Europe, six books to Asia, and one book to Africa, most of which deals with Egypt and Ethiopia.

Strabo's greatest contribution lies in the field of political geography, and in this field he carried forward the Aristotelian tradition. In his Geographia, he examines the pre-requisites for the successful functioning of larger political units and concludes that a strong central government and a single head of state are essential ingredients for success.

This was the famous Periplus of the Erythraean Sea, which Bunbury dates as some 10 years after the death of Pliny in 79 AD. The merchants and sailors of the first century after Christ, who had no access to the accounts of Aristotle, Posidonius, or Strabo, were happily not conscious of the horrible fate that would come to those who ventured within 120 of the equator or the impossibility of maintaining life in this central part of the Torrid Zone.

The mathematical tradition in ancient geographical scholarship, a heritage that the Greek scholars carried forward into the successive periods of academic innovations since Thales, really comes to an end with the monumental work of Ptolemy. Much of his geography, which he claims to be a science of the art of map-making, seems to have been borrowed from the earlier works of Aristotle, Hipparchus, Posidonius and his teacher, Marinus of Tyre.

Ptolemy tried to rationalize the earlier Greek geographical and astronomical ideas into organized categories preparing them in a scientific manner. His great work on classical astronomy— the Almagest—which long remained the standard reference work on the movements of celestial bodies, reveals his indebtedness to Aristotle, Hipparchus and Posidonius.

Ptolemy's concept of the universe is a mere reflection of Aristotle's tradition that the Earth was a sphere that remained stationary in the centre, while the celestial bodies moved around it in circular motions. This remained the accepted notion until the time of Copernicus in the seventeenth century. He adopted the grid of latitude and longitude lines developed by Hipparchus, based on the division of the circle into 360 parts.

Every place, therefore, could be given a precise location in mathematical terms. His biggest mistake was to underestimate the size of the Earth, rejecting almost correct estimate of Eratosthenes in favour of Posidonius who recalculated the circumference of the Earth.

The calculation of longitude in those days was only possible by estimating the length of journeys from one place to another and many of Ptolemy's locations of places were found to be incorrect. Therefore, each listing of latitude and longitude was, in fact, only a selection among estimates.

Ptolemy not only favoured a smaller estimate of the Earth's circumference, but also erroneously increased the eastward extension of the land area. Because calculations of longitude had to be based on rather unreliable travel distances, his otherwise accurate map of the then world included too many degrees of longitude. The map extended from a prime meridian in the Canary Islands to a 180 degree meridian which crossed inner China. Ptolemy followed Marinus in taking his prime meridian a north-south line.

In the art of map making, the great contribution made by Ptolemy was his modification and improvement over the previously drawn maps and this he did by adopting a projection for the world map showing the graticule of latitudes and longitudes. He was, in fact, far ahead of his predecessors with regard to the mathematical construction of projections.

He represented the equator and the latitudes by parallel curves, and the meridians as straight lines, cutting the equator at right angles that converge at a point (pole) situated beyond the limits of the map. Subsequently, he reduced the meridians also to a curved form, so as to make them correspond more nearly with reality. The map on which graticule of longitudes and latitudes were drawn was not a perfect hemisphere.

After the completion of the **Almagest, Ptolemy produced a Guide to Geography,** consisting of eight volumes. The first was a discussion of map projections together with a few corrections of the data from Marinus based on actual astronomical observation which he had himself done.

Ptolemy rejected the hypothesis of Hecateaus, Herodotus and Strabo who believed that there was an ocean to the east of Asia.

Strabo who pointed out that Sera and Sine (in China) were merely the most easterly points in Asia, just as Agisyamba was the most southerly. He also indicated on his map that the Indian Ocean was closed by land on the south, an idea he probably borrowed from Hipparchus.

However, Ptolemy accepted Aristotle's concept that the parts of the Earth near the equator were uninhabitable due to heat. It is interesting to note that Ptolemy accepted the incorrect estimate of the circumference of the Earth done by Posidonius, but he failed to appreciate Posidonius correct belief concerning the habitability of the equatorial region.

Impact of Dark-ages on Geography

The Dark Ages is a term often used synonymously with the Middle Ages. It refers to the period of time between the fall of the Roman Empire and the beginning of the Italian Renaissance and the Age of Discovery. Many textbooks list the Dark Ages as extending from 500-1500, although it should be noted these are approximations. The term Dark Ages was coined by an Italian scholar named Francesco Petrarch. Petrarch, who lived from 1304 to 1374, used this label to describe what he perceived as a lack of quality in the Latin literature of his day. Other thinkers came along and expanded this designation to include not only literature, but also culture in general. The term thus evolved as a designation for the supposed lack of culture and advancement in Europe during the medieval period. The term generally has a negative connotation. Debate continues to rage among historians over whether the Middle Ages were, indeed, dark or not. Increasingly, many scholars are questioning whether the term Dark Ages is an accurate description or not. The ancient Greek and Roman civilizations were remarkably advanced for their time. Both civilizations made a number of contributions to human progress, notably in the areas of science, government, philosophy, and architecture. Some scholars perceive Europe as having been plunged into darkness when the Roman Empire fell in around 500 CE. The Middle Ages are often said to be ''dark'' because of a supposed lack of scientific and cultural advancement. The decay and disintegration of the Roman Empire led to the decline in literature, science, and explorations in the European and South-West Asian parts of the world. This, however, does not mean that geographical knowledge at that time did not flourish in China, India and South-East Asia. The period of about five hundred years, i.e., 200 A.D. to 700 A.D., which followed the publication of Ptolemy s The Guide to Geography was an age of complication, turmoil and abridgement. During this period, not a single work of originality in any field of the sciences and humanities was written. There was continuous deterioration, both in the theory of geography and the practice of exploration from the glories of the Greek and Roman periods. Most of the correct classical concepts were forgotten and old errors reappeared about the map of the world and the habitable parts of the globe. Firmanus (260-340 A.D.), one of the leading protagonists of Christianity, denied the concept of a spherical earth. The interpretation of the nature of the universe reached its fullest expression in the work of Cosmas of Alexandria (600 A.D.). His book Christian Topography written about A.D. 550, refuted all the pre-Christianity views on geography. He worked out on earth modelled in all respects upon „Moses Tabernacle . Cosmas, who was a merchant in early life, travelled fairly widely. During the period of Christian Europe, there was a deterioration in the

art of map-making. The fairly accurate delineations of the better-known coastlines of the Greeco-Roman period were lost, and instead maps became purely fancy. This was the period of the so-called TO maps. Completely dominated by Christian supernaturalism, the map-makers of Dark Age made no serious attempt to show the world as it actually is. Instead, Firmainus followed an ideal pattern in his own mind, concentrating on artistic and symbolic expression. About the Dark Age, the German scholar Schmid summarizes: "New countries were not discovered; the empire became smaller not greater; trade relations, thanks to the war in the east, the south and the north, became more and more restricted; besides, there was no longer any question of research in industry and of the spirit of discovery. Thus, the only books that were put together were compilations from older works."

Contribution of Arabs to Geography

The collapse of the Roman Empire and decline of scientific studies in the European region saw the emergence of an interest in geography in the Arab world during the medieval period. During the early medieval period, the geographical works were based on description of voyages and journeys. Their aim was more to astound and amuse the readers rather than instruct the scholars of this period tried to give pictorial form to their conception of the universe, but in doing so they worked exclusively from a basis of faith and not reason. Their outlook was purely theological. The Arabs were great contributors in the field of mathematical, physical and regional geography. The Greek science was the starting point of studies of the Arab geographers. The works of Aristotle and Ptolemy were translated and studied most assiduously. Their achievements in climatology, oceanography, geomorphology, linear measurements, determination of cardinal points, limits of habitable world, sprawl of continents and oceans are highly appreciable.

Al-Masudi – Al-Masudi was an important scholar from Bagdad. He was a geographer, a historian a world traveler and a prolific writer. He wrote on diverse themes and his important works include Mehraj-al-Duhab, Kitabul Aswat, and Kitab-Akhbar-Zaman. Al-Masudi described the weather conditions of the places he visited or sailed through ad also pointed out that the salt in the seas comes from the land. In the field of study of landforms he appreciated the role of process of erosion and adjustment of streams to structure in the evolution of landforms. He had a clear idea of the spherical shape of the earth. In the field of human geography he tried to study the relationship between human beings and the environment and explained the impact of environment on the mode life and attitude of People .he divided the world into seven regions on the basis of language.

Al-Biruni – Al Buruni was a Tajik by race and a Persian by culture. His main interests include astronomy, mathematics, chronology, physics, medicine and history. He was a prolific writer his more books include Kitabul-al-hind, Al-Qanuan-Almasudi, Tarikul Hind, etc. In his astronomical writings he discussed and approved the earth's theory of rotation on its axis and correctly calculated the latitudes and longitudes of many places. He provided his views on the origin of universe in his book Al-Tahidi. He explained the phenomena of solar ad lunar eclipses. He also attempted to measure the longest and the shortest distance of the moon and the sun from the earth. He studied the relationship of tides with the phases of moon. In

geomorphology he compared the fossils discovered in the plans of Arabia, Jurjanand Khwarizmi along the Caspian Sea and suggested the occurrence of sea at these places in the earlier times. Al-Biruni visited India and wrote extensively about India. He mentioned that the distribution of rainfall in the peninsular region is controlled by the eastern and western Ghats. He provided detailed information about the source of Indus and explained the phenomena of floods in its basin. He gave the description of the city of Qannauj. He has provided an accurate account of the seasons of India describing the nature of monsoons. He was also aware of the large mountain range known in India as HIMAVAT [the Himalayas]. He had also studied Indian culture and Hindu beliefs.

Al idrisi – Al idrisi was a leading scholar of the 12th century. His most important and famous book was *Amusements for Him Who Desire to Travel Around the World*. His world map is considered the most important contribution to geography. His map was based on a rough rectangular projection. He had studied Ptolemy's work. His description of Sicily is perhaps the most detailed one and it is of great historical importance. His influence on European cartography and exploration of Africa influenced maps of Marino Saunto and Pietro Vesconts. Al Idrisi travelled over a great part of world including Spain, France, England, Sicily, Morocco, Asia Minor and interior parts of Africa. He described the course of many rivers including the Danube and Niger with precision. However in his works the maps were based upon the texts and not the text on the maps.

Ibn Battuta – He was the greatest Muslim traveler of his time. He spent 28 years in travel and crossed a distance of more than 75000 miles. His primary interest was in people though he has described the physical conditions of various regions that he visited. His description of house types and building materials in deserts is very interesting and informative. Through his experience he labels Morocco as the best of countries. His book *Rihlah* provides an insight into the soils, agriculture, economy and political history of the then Muslim world . He came to Delhi on an invitation of Mohd. Tughluk and served as a Qazi of Delhi.

Ibn khaldun – Ibn Khaldun was basically a historian but his writings also have been important as works based on travel. His most important work is known as Muqaddimah. In his writings, Ibn Khaldun has maintained that the northern hemisphere is more densely populated than the southern. He stated that the population along the equator is sparse, but there is an increasing concentration away from it up to 640. Further away there is little or no population. He emphasized the role of fertile land in the origin of settlements. He has argued that the origin of the large cities have always been in the form of small settlements. Ibn Khaldun is considered as one of the early environmental determinists as he tried to correlate man and his environment in a scientific way. Geography objectives and relevance Geography is a subject with longer genealogy than any other subject. Geography literally means description of earth's surface, a place where all life forms including human beings live and all human activities take place in combination with physical processes. The surface of the earth is a dynamic entity it changes constantly. Some of these changes are slow and imperceptible while others are rapid and perceptible. The goal of Geography is to study the origin of these phenomena, the processes that change them and have brought them to the present state and

arranged them in the space in the way they exist. Besides that it also studies implications of their location and arrangement of these phenomena for human beings. Being spatial science geography studies the surface features of earth and their association with one another and derives meaningful spatial and regional patterns. It is apposite to mention that some of the surface features are not visible like education etc. however geographers have over a period of time devised appropriate method to construct their social topographies. Geography as a science that deals with the spatial arrangement of things on the surface of the earth resulting from a dynamic interaction between humans and nature .Geography uses information generated by other subjects to analyze the emerging patterns and structures of the earth's surface and their implications for human beings. The relevance of Geography lies in the fact that with the new emerging trends new problems are surfaced and these challenges are to be answered geographically.

Contributions Arabs were the first to show their interest in geography because of their special surroundings. They gave pictorial form to their conception of the universe on the basis of faith. Their outlook was purely theological. They made outstanding contributions in the fields of mathematical, physical, and regional geography. Their achievements in climatology, oceanography, geo- morphology, linear measurement, determination of cardinal points, limits of habitable world, sprawl of continents and oceans are highly appreciable.

Contribution to Climatology: 1. In AD 1921, Al-Balakhi gathered climatic data and information from Arab travellers and prepared the first climatic atlas of the world— Kitab-ul-Ashkal. 2. Al-Masudi described Indian monsoons. 3. Al-Maqdisi divided the world into 14 climatic regions. He presented the idea that the southern hemisphere was the most open ocean and most of the world's land area was in the northern hemisphere. 4. Ibn-Khaldun, Al-Beruni, Al-Masudi described the influence of climate on vegetation and lifestyle of the people. According to Ibn-Khaldun, people of the warm climate are passionate. He also said that Negros are black because they live in warm climate. People try to build their houses and settlements on the southern slopes near water sources and springs.

Contribution to Geomorphology: 1. Al-Biruni in his Kitab-al-Hind opined that the stones became round because they had fallen along torrential mountain streams. He also discovered that alluvial soils became finer in texture farther away from mountains. 2. Avicenna keenly observed the works of agents of denudation and ascertained that (i) Mountain streams erode the slope; (ii) The highest peaks occur when the rocks are especially resistant to erosion; (iii) The mountains are immediately exposed to the process of wearing down as soon as they rise up. Contribution to Oceanography: 1. The Arabs proved that the tides are caused due to the gravitational pull of the sun and the moon, 2. Al-Masudi observed variation in the colour of the ocean water and attributed it to the variation in the salinity of water and presence of vegetation.