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SOME ISSUES OF TEACHING GEOLOGY IN THE HIGHER EDUCATION SYSTEM

Anvar Rasulov

Head Of The Geography And Teaching Methodology Department Of Tashkent State Pedagogical University Named After Nizomi, Ph.D. Tashkent, Uzbekistan

Alibobo Eshmetov

Tashkent State Pedagogical University Named After Nizami Fundamentals Of Geography And Economic Knowledge Educational Direction, Evening Section 1-Stage Student, Uzbekistan

ABSTRACT: The purpose of the geology course is to study the various processes taking place in connection with the structure and composition of the outer and inner layers of the earth, as well as their derivatives.

KEYWORDS: Crystallography, minerology,petrography,tectonics, dynamic geology, hydrogeology, Volcanology, Nurota, Turkestan, Zarafshan, Kopetdog, al-Khwarazmiy, al-Beruniy, Abu Ali ibn Sino.

INTRODUCTION

The purpose of the geology course is to study the various processes taking place in connection with the structure and composition of the outer and inner layers of the earth, as well as their derivatives. To accomplish this goal, this course carries out the following tasks:

- The purpose and objectives of science to give knowledge to the requirements about the history of development and research methods;
- The role of the Earth's sphere in the universe to give insight into its structural structure;
- highlighting derivatives of endogenous processes and their laws of occurrence;
- exogenous Geological illuminating their derivatives of the laws of their occurrence;
- To give insight into the history and stages of the development of the Earth.

Geosciences began to develop strongly in the late 20th and early 21st centuries, along with the kata demand for fossil resources of production and its associated disciplines, among the younger disciplines. Therefore, it formed a number of new directions in an increasingly rich composition. The composition of these routes consists of:

- Crystallography-studies crystals and their natural properties.
- Minerology is the direction that embodies the oldest concepts of geology, that is, the study of the type, origin, geographical distribution, natural properties, uses, etc.of minerals.
- Petrography-provides information about rocks, their geographical distribution, ways of formation, types, composition, use.

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- Tectonics-studies the derivative of changes caused by the rise, bending, elongation, displacement of the Earth's crust under the influence of internal forces and their significance.
- Dynamic geology-due to internal and external factors, the processes of peat occurring in the Earth's crust, the dynamics of their types, the laws of formation and geographical distribution, the positive and negative significance are studied.
- Hydrogeology-groundwater is studied in their formation, movement, causes of surfacing, their role in nature, types and their importance.
- Volcanology-the study of volcanic species, causes of origin, geographical distribution, products, importance in nature.
- Historical geology-a system of changes that have occurred on Earth since ancient geological times, the importance of each period is studied.
- Paleontology-in the history of the geological development of the Earth, the derivatives of the fossil remains of representatives of the organic world that developed throughout its various parts, according to the traces of their species characteristics, the geological significance of living conditions are studied.
- Geophysics-through the study of the natural properties of the earth, ways of differentiation (types using tools) are determined from it.
- Geochemistry-the various elements that make up the composition of layers provide insights into their types, migration, accumulation.
- Engineering Geology-studies ways to combat the negative characteristics of various geological processes, approach mining,urban planning from an engineering point of view.
- Cryogeology-the work of glaciers, paleontological finds formed in connection with ice deposits explore ways to use the products brought by the glacier in search of certain fossil resources.
- Rare geological monuments-one of the youngest directions that diverged from the composition of geology. In its chain lies the study of geological formations that occur in a rare way.

These directions, although they have already reached the level of Science in an independent way, develop inextricably linked with each other, and the geology, in a holistic way, keeps them all together.

Geology is a science that studies the Earth, and therefore it gives in Latin the meaning "geo" – Earth, "logos" – science, doctrine. Although this science was formed relatively young, independently about the next 200 years ago, some concepts inherent in it began to form in harmony from very ancient times, even with the first periods of human economic activity.

The desire of mankind to know the universe that surrounds it has led to the fact that from the earliest times, the treatment of diseases using the water of mineral springs, various salts, minerals became known among the public.

The peoples of Central Asia had accumulated advanced experiences beginning in the earliest times with the facilitation of underground fossil resources, especially groundwater.In particular, those who made it possible to meet the demand for fresh water by building various ancient hydraulic structures in the foothills of Nurota, Turkestan, Zarafshan, Kopetdog, where the arid

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climate, hydrological conditions are complex.Including koriz wells drilling, chirli, chogom, doshkok, well, cistern, obkhana, it is evidence of my opinion that such ancient hydraulic structure species as qaynar also existed in the millennia before our era.Thus, humanity's quest to know the world that surrounds it has led to the creation of the theoretical, practical foundations of geological views.Such scientific hypotheses, together with the formation of the foci of development of Culture, Science, develop in different parts of the world, forming different periods.

In particular, China, Greece, Arabia, the territory of Central Asia are such centers of ancient culture – one of the regions where the main theoretical aspects of the science of geology were formed.With the commission of Caliph Ma'mun, a group of more than seventy scientists were engaged in the work of mapping the Earth's surface.This group was led by Muhammad Musa al-Khwarazmi.It is a collection of maps that has been called the "Ma'mun world map" for providing material support to this scientific work.

Thus, in the works of Khwarazmi, ideas about the size of the Earth's size were conceived.

Meanwhile, Moses al-Khwarazmiy's work by the Greek geographer Claudius Ptolemy (ad 90-168), "Megallosyntaxis", i.e. "the great structure", was translated from Greek into Arabic and published under the title "Almajsitius", and a preface was written to it, more than a hundred sheets.Ptolemy's famous "the Earth stands in one place without moving, and The Sun and stars revolve around it", it was in this work that the idea of a geocentric was presented.We see Muhammad Moses al-Khwarazmi's scientific legacy as a clear scientific justification for The Shape of the Earth and its place in the universe.His account of this is given in the book "Surmat al-Arz", which features the globe and parts of the Earth (these maps are "named after the Ma'mun world map") and is written as a commentary on this atlas (in 840).

In total, our famous compatriot Abu Rayhon Beruniy (973-1048), the owner of qomusi knowledge, who founded almost all directions of geology that exist in our time, is the author of more than 150 works, the special book of which is written exclusively on minerology is three volumes.All of berunius ' remaining Geological views are covered in a scattered state in his books.Beruni's works were collected in our time in books consisting of Volume VII, copies of which were translated from Arabic into Russian and Uzbek were published in 1968-80 on the side of the publishing house "Fan". Volume I of berunius ' selected works is called "relics from ancient peoples".This masterpiece touches on such an important scientific issue as the hydrogeological views of the scientist, including the emergence of artesian waters, scientifically substantiating the nature of pressurized waters for the first time in the history of Science and proving it using experiments, equipment.

“Hindiston” asari orqali daryo deltalarining hosil bo‘lishi, hamda alyuvial, prolyuvial yotqiziqlarning tabiiy tarqalishi, brekchiya, konglomerat qatlamlarining shakillanish xususiyatlari, dengiz transgresiyasi va regresiyasi, yerning ichki kuchlari ta’sirida tog‘larning o‘sishi, yirik quruqliklarning “suzib yurishi” kabi ilg‘or ilmiy g‘oyalarni fan tarixida ilk bora olg‘a surgan edi. Vaholanki qit’alarning ajralishi va qaytadan bir-biriga yaqinlashishi haqidagi (keyinchalik Vegener nazariyasi) ilmiy g‘oyalar Beruniy fikrlaridan 750 yil keyingina fanda qaytadan shakllantirildi.

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The scholar Abu Ali ibn Sina (980-1037), known and famous in Fanda through his views on medicine, was also a major contributor to the development of Geosciences, and more than 300 of his works are known to science, most of them summed up in several volumes, such as "laws of Tib", "book ash-healing", "questions and answers of Beruniy and Ibn Sina". In particular, Ibn Sina's Geological views are also enriched in certain parts of his books by geological views such as astronomy, physics, literature, philosophy, biology, geography.In particular, the layers of the rocks, the relief views formed, were not overlooked by Abu Ali ibn Sina.The scientist's advanced Geological views may have been formed, especially due to his thoughts about the healing properties of various minerals, salts for the human body.Like Berunius, Ibn Sina created scientific ideas about sea transgression and regression.In his opinion, in those times, the addresses inhabited by mankind were once occupied by the sea, these marine creatures, the plants of which over time have hardened, turned into various deposits, advanced paleontological scientific ideas. Also, Movarounnahr began to rise again economically and spiritually from the 50s-60s of the 14th century, in connection with the rise of the Emir Temür dynasty here. The establishment of peace in the country became an impetus not only for the development of the farm, but also for the development of Science and culture. The city of Samarkand, the center of the Temur dynasty, gathered highly capable figures of science, eunuchs, architects, artisans. As a result, Science developed, attention was paid to architecture. Construction raw materials opened their new deposits around Samarkand with increasing demand for semi-precious stones, especially haqiq-oniks, finishing rocks marble, granite, limestone. For agricultural and military purposes, the need for metal objects grew, which in turn became the basis for finding new mines. The demand for gold, silver from rare metals increased. New deposits of such rare metals began to work in the foothills of the Qizilqum residue mountains, the Nurota range, Western Tianshan.

Especially in 1409, the coronation of Muhammad Taragai Ulugbek, grandson of Amir Temur, son of Shahrukh Mirza, and his relatively peaceful reign for forty years set the stage for the further development of cultural science in the country. The Samarkand falakiyot school, founded under ulughbek, played an important role in the Tamaddun of world science, not just the Muslim sharqi culture of the time. The main library established here contained 15,000 volumes of books covering almost every branch of science. In Ulugbek Bukhara and Samarkand, madrasas were established, giving not only religious, but also secular knowledge. Both of them are preserved until our time. In the madrasas, mature scholars such as Ulughbek, Mavlono Muhammad, Kazizoda Rumiy, Ali Qushchi took classes in various fields. In particular, the science of astronomy has developed. For by Ulughbek on The Hill of Kohak in 1424-1428, the most perfect absorvatorium of his time was built, and thanks to him the work "Ziji the Seeragonian", which was considered a masterpiece of Science, saw the face of the world. Its author, The Wise King, the outstanding scientist Mirzo Ulugbek, clarified the theoretical and practical issues of the role of the Earth Sphere in the sky, classical falakiyot. His disciple Ali Qushchi was recognized as" Ptolemy of his time". During this period, scientific visions of the natural features of the globe, the object of study of geology, expanded.

From the end of the 15th century, the Timurid Kingdom began to decline. Now science has continued to flourish at other points in the world, in the territories where a somewhat peaceful,

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centralized strong statehood Reigns. By the beginning of the 20th century, the science of geology had become more perfect. Now it began to develop beyond the limits of general concepts and divided into several directions.

Research methods of geology. Minerals and rocks are formed during a long period and as a result of complex processes. For example, the formation of volcanic or coral islands, coal, an oil-gas layer, ore or sawn gold deposits are examples of this. The study of current natural processes - the geological work of rivers, glaciers, seas and winds, and knowledge of the laws of formation of rocks and minerals-play a large role in determining the formation of ancient mountainjins. By itself, it is known that 11 questions arise about how the science of geology studies the structure of the Earth's crust and the issues of the history of its development. Like all natural-historical sciences, geology has methods of observation, experiment (experiment), and imaging, inference, or logical reasoning. The object that geology examines is the Earth, which has a long history of development. Consequently, the experiment ranks second among Geological methods. Because experimenting over the formation of mountains is not in our power at the moment. Thus, the most convenient method used in geology is the observation method, which should be carried out completely and accurately. From well-observed and clearly observed natural phenomena, detailed scientific conclusions can be drawn from all sides. The method of observation in geology is based on the study of stratigraphy, petrography, paleontology, fascia and tectonics of the Earth's layers.

The stratigraphic verification method is understood to examine the order in which the layers of the Earth's crust lie and whether they are regularly formed in series in historical, chronological periods. According to the stratigraphic Basic Law, the lowest layer (if the layers are all unbranched and lying horizontally) is the oldest. Petrographic observation, on the other hand (petros - stone, grapho - drawing), determines what the mountainjins contained in the Earth's crust are made of. A petrographer should know what rocks stand in front of him-sand, clay, limestone, shale or granite. Paleontological observation, on the other hand, studies petrified remains of an animal, plants found in mountainjins on the Earth's crust, while the discovery of petrified animal and plant remains in mountainjins allows the geologist to determine the relative age of the same genus. During paleontological observation, conclusions are drawn using the laws of Biology on the formation and development of the organic world on Earth. A layer of the same composition and consisting of the same fauna and Flora, or a sum of several layers, is called a fascia in geology.

Phasia means species. While the red color of the sand indicates that it is formed in a warm, even hot climate, the fact that it is black or gray indicates that it is formed in a cold climate. Sand, in general, is formed by grinding stones under the influence of wind, water and hot-cold, and Clay is formed by diving under muddy water in the water. The fascia is a complex of layers with a specific Petrographic and organic composition. It is very important to find and identify the remains of an animal between the sexes to study the fascia. For example, Shell 12 thin shells live in calm and deep waters, heavy, shell rough shells live in turbulent, turbulent water. Depending on the faulty characteristics of the genus, the geologist can find out in what natural geographical conditions it originated, that is, the paleography of the fertile period of the same genus. Finally tectonic observations can result in the study of every actor of mountainjins lying. The jeans lie both

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horizontally and obliquely. Tectonics studies the structure, movement, transformation and development of the Earth's crust. Layers of mountain rocks are raised by tectonic movements, forming folds. Curling is associated with the process of mountaineering. Tectonic movements result in the formation of a mountain somewhere in the Earth's crust. In the following years, the growth of Science and Technology opened a wide way to further explore nature.

In the second half of the 19th century, Playfair, Dobre and others attempted to introduce an experimental method into geology. Dobre studied the fertile forms of the layers under artificial conditions to explain the reasons for the stratification of the mountainjins. Later, wanting to know some features of volcanic rocks, he melted volcanic rocks at high temperatures and cooled them until they solidified. These different experiments carried out in the 20th century were not limited to solving theoretical issues of geology - the presence of extinct genera, but also solved economic issues. These experiments, which are of theoretical importance, are first of all penetrating into industries. Geophysical and geochemical methods are widely used in geology. The Earth's weight strength is measured by precision and sensitive instruments. Gravimetry checks the distribution of gravity on the surface of the Earth. The determination of the distribution of the force of gravity explains the physical state of the Earth - isostasis, that is, the state of equilibrium. And the study of the magnetic and electrical properties of the Earth is very important in magnetometry intelligence, which is the most important method of searching for geology. This method is used a lot when looking for fossil resources. Geophysically surveying the Earth uses a seismometric method that examines the deepest part of the Earth. This method studies the rate of propagation, absorption and return laws of seismic (earthquake) waves in the Earth's layers, and the physical and chemical properties of the Earth. 13 also has a great place in geology, the achievements of geochemistry. Geochemistry identifies the chemicals that make up the mountainjins, studies the laws of diffusion of chemical elements that occur in the processes of metallogeny and volcanic eruption.

Historical method in geology. In the study of nature and society, the historical method is one of the most fundamental processes of dialectics. In this method, any event and phenomenon is studied on the basis of historical development conditions. In geology, the historical method began to be used after the emergence of geological concepts, especially in connection with the emergence of scientific geology; the fossil resources of the Earth's sphere were not located accidentally in the space, but they arose as a result of the physicochemical process of chemicals in the Earth's sphere. Geological processes played a large role in the formation of minerals and rocks. Therefore, when each geological product is examined in connection with historical geological events, its true essence is revealed.

The role of the method of actualism in geology. When the geologist studies the structure of the Earth, he first collides with the Earth's crust. It is known that the Earth's crust is composed of minerals and rocks formed by various geological processes. But these processes have passed at some point. The rocks are still forming today. A close study of the processes of their formation, the examination of Lake, sea and river beds and the laws of the formation of minerals are important in determining geological processes in ancient geological periods and the occurrence

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of mineral raw materials. This method of verification is referred to in geology as the method of actualism (the process of actualism).

All the knowledge that geology teaches us is essential and necessary in our lives.In particular, just as each discipline has its own composition, purpose, tasks, and teaching and learning departments, the science of geology has its own mission.This task consists in studying and teaching the processes taking place on and inside the Earth's surface.Each of us is obliged to have information about what events are happening on Mother Earth.I read this discipline and realized that geology is – the best about the Earth is a complex of knowledge.I wrote this article in order to concentrate and spread and promote more and more what I read and the knowledge that my mentors give.Geology is not just a simple science, it is the best in the sciences.

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