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Substantiation of Methods for Complex Study of the Geomechanical State of Rocks in Mining in the Underground Style of Gold Deposits

Shokirov Muhammad Ulugbek oglu
Tashkent State Technical University named after Islam Karimov. Faculty of Geology and Mining and Metallurgy, Department of Surveying and Geodesy 70722001 - "Surveying (Physical Processes in Mining)", 34, Zarchabek street, Shafirkan district, Bukhara region

Safarov Jasurbek Abdunabi ǒǵli
Tashkent State Technical University named after Islam Karimov. Faculty of Geology and Mining and Metallurgy, Department of Surveying and Geodesy 70721502- "Mining and Underground Engineering (Surveying)", Almalyk city of Tashkent region. Mirishkor 9th house

Annotation: *The stunning nation of Uzbekistan is home to both historic buildings and breathtaking natural features. Here, lakes and mountains are next to one other, while wetlands are next to deserts. These locations are a true benefit for the Uzbek people, but hidden in the depths of these enormous plains is another, more valuable resource that is unknown to most people — those who are continually engaged in the search for and extraction of precious metals. This article keeps opinions and reflections on the substantiation of approaches for a detailed analysis of the geo-mechanical state of rocks in gold resources that are mined underground.*

Keywords: *gold, mines, rocks, geo-mechanics, underground, mining, complex, study, justification.*

Among the nations of Central Asia, Uzbekistan is one that is rich in natural resources and has excellent geographical and natural circumstances. Large resources of natural gas, coal, copper, tungsten, oil, precious stones, and of course platinum, gold, and silver are found in our nation. Murontov continues to be one of the world's largest and deepest kar'ers in terms of surface area. Large concentrations of turquoise and arsenic can be found in Muruntov. According to various estimations, this location has one of the greatest gold reserves in the world, with an annual volume of 5,300 tons, according to certain experts. The primary gold ore bases and deposits of today are found in the Navoi, Tashkent, and Samarkand, Kashkadarya, Surkhandarya regions and the Republic of Karakalpakstan.

In order to get it, gold must be mined underground, through mines, and by creating a quarry on Earth's surface. Although it is currently difficult to determine, hundreds of tons of gold are thought to be present on Uzbekistan's soil. Exploration for new mines and gold mining are still ongoing. This mass of rocks and the mechanical processes taking place within them are the main topics to be studied in geo-mechanics. The array's first three member states are identified in this situation:

1. structural features;
2. properties of rocks in the composition of the Massif;

3. State of tension.

From here, we turn our attention to the techniques for figuring out the constituent states' parameters that were previously discussed, with the goal of resolving real-world geo-mechanics problems. General knowledge of the upper mantle, outer shell, and structure of the Earth. Currently, mining is mostly done between 1000 and 1500 meters below the surface. Several deposits in Europe had depths of up to 2000 meters. Additionally, excavations are done at depths above 3000–3500 m in several mines in the South African Republic (JAR) and India. Fields of oil and gas are mined up to a depth of 6000–7000 meters. The depth of the deepest geological-structural and search squagges reaches up to 9000 m. As a result of the implementation of the project of very deep drilling work of the Russian Fedyeration on the Kolsk Peninsula, the depth of the squajinas reached up to 12,000 m.

The figures given apply to the potential depths of human penetration both now and within the next ten years, as well as the utilization of Yyer's depths. These depths are situated relatively thinly compared to the radius of the yyer sphere, between the upper part of the Earth's crust. The complete or upper half of the yyer shell's state of tension, which is the focus of geo-mechanics research, will be particularly high and is strongly tied to the evolution of the Earth and the depth of the overall structure. These are being researched by the geo-tectonics science.

The share of Navoi mining and Metallurgical Combine in the production of Republican industrial products is more than 13%, and the share of total revenues to the state budget is close to 20%. In 2021, the combine ranked fifth in the ranking of gold-producing companies in the world. Gold castings of “999.9” purity of the combine have become the brand of Uzbekistan on the world's precious metals exchanges. In subsequent years, large investment projects are being implemented in the complex. Within the framework of these projects, the 7th hydro-metallurgical plant was commissioned in 2021. At the 2nd hydro-metallurgical plant, the B Corps was launched, which processes 12 million tons of ore per year.

An explanation of the composition of the mineral aggregates that make up the structure of mountain rocks. Mountain rocks have formed this. The idea of mountain rock structure and texture is referred to as generalization. The texture of mountain rocks is influenced by their general and hollow location features, which are controlled by the size, shape, and cross-location of their minerals (mineral aggregates).

Igneous mountain rock structure. The makeup of the magma and the circumstances under which it cooled determine the structure of igneous mountain rocks. They differ in the flammable, vascular, and effusive rocks. Rocky rocks typically have full-crystal formations, in which all the components of the rock recrystallize. The crystallization process is complete because the presence of volatile components in the magma shortens the crystallization track and makes the magma less malleable. As a result, granular rocks are fully crystallized in the deep conditions of sour magma due to sluggish cooling that preserves volatile components (mas. lead to the formation of granite). Structures with the sum of minerals that form rocks of different levels of idio morphism are called hyp idio morphic granular.

Pegmatiti'c or graphic structures develop as a result of the simultaneous removal of quartz and feldspar from the solution. It can become flat-grained or uneven-grained depending on the size of the crystals. Granules that are not uniform will have a porphyry appearance. Mountain rock is small and medium-grained in porphyry-like structures, while separately is composed of sizable mineral fragments from porphyry. Massive or homogeneous textures, in which all minerals are evenly distributed throughout the rock and all maydos have about the same composition and structure, are the most significant among the textures in fiery rocks. There are also frequently

distinct sexes of taxi textures. Corridor and flyoidal textures are formed at the time of the actions of the crystallizing magma with an orienting arrangement of minerals.

Due to the presence of significant mineral allocations in the dense (aphanitic) mass that serves as the foundation of the vascular and effusive mountain rocks, this structure is occasionally visible in remote areas of otkdndi bodies. It symbolizes the rapid crystallization of magma, which is associated with cooling and the loss of volatile components. Aphanitic refers to the architecture of effusive rocks lacking cholcholicity. According to the ratio of Thats glassy or vitro phirous, semi-crystalline, and Microlite formations can be recognized as parts of the primary bulk. The composition of the magma and the geological conditions that led to its crystallization determine the degree of crystallization of effusive rocks.

The cooling of lava on the surface of the Earth and the loss of volatile components together occur rapidly. Sour and medium lavas (liparite, andesite) form glassy rocks (obsidian, pumice) that are semi-crystallized and have thin (tenths and one hundredths of mm) microliths in their main masses. The main and more liquid lavas cool on the surface of the earth in the form of semi-crystallized rocks. Among the textures of effusive rocks are: massive, fluidal, road fluidal, which will be associated with the location of volcanic glass of different colors, cholocholicity and microliths with parallel stripes. Depending on the amount of gaseous bubbles in the lava, porous, bubbly and pemzal textures differ. Almond-stone textures are formed when the voids are filled with secondary minerals (Quartz, opal, zeolite, carbonates.).

Even more so than with sedimentary rocks, a relationship between a rock's structure and its genesis appears to exist. The aniclaid texture comes in three different fundamental types: irregular, folded, and fluoidal, depending on how the grains of the agile mountain rocks are arranged in opposition to one another. Stinging stones can be disconnected or cemented (e.g., quartz, opal, and calcite). Organogenic mountain rocks have a hilmaxil structure, notably common carbonate rocks (limestone, dolomite). When the biological remnants found in these rocks have been adequately preserved, the formations are known as biomorphous and monolithic shells and are based on the description of the animals that once inhabited them. For biogenic rocks, structures of recrystallization and Meta somatis'm are typical. The structure of chemo genic mountain rocks is characterized by the growth of crystal grains of different sizes. Among the texture of the chemogen mountain rocks, Oolite, massive and folded ones are most common.

In conclusion, the thickness, length, depth, amount, and other properties of the mineral in the ore are determined depending on which side the ore rocks are spread and a lot of work, material resources, and money are spent on each of these. To ascertain the physical and chemical characteristics of the ore, geological samples that were acquired as a consequence of the research conducted are sent to specialized analytical laboratories. The primary indicators of the ore, such as its size, specific weight, average concentration of leading and satellite metals, and the number of minerals present in this confined ore area, are established based on the findings of the analyses. That is, the weight of the ore rock in a cubic centimeter is determined, and this indicator is then brought to the ratio of one cubic meter, and the total volume of the ore is calculated.

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