WEB OF SCIENTIST: INTERNATIONAL SCIENTIFIC RESEARCH JOURNAL
ISSN: 2776-0979, Volume 3, Issue 4, April., 2022

POTENTIAL ORE-BEARING CAPACITY OF INTRAPLATE MAGMATISM OF THE YAKHTON AREA OF THE CHAKYLKALYAN MOUNTAINS (SOUTHERN UZBEKISTAN)

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Abstract
The article is devoted to intraplate magmatism of the Chakylkalyan mountains and its potential ore-bearing capacity. It is considered by the example of spatial coincidence of alkaline basaltoid and lamprophyre formations with apogranitoid gold and rare-metal mineralization in the contour of Yakhtona dyke formation. A comparison of signs of potential ore-bearingness of rocks and spatially combined gold-tungsten mineralization is given.

Keywords: gold, tungsten, mineralisation, mineralisation, magmatism, basaltoids, lamprophyres, ore bearing capacity.

Аннотация
Статья посвящена внутриплитному магматизму Чакылкалянских гор и его потенциальной рудоносности. Рассмотрена на примере пространственного совмещения в контуре Яхтонской дайковых образований формации щелочных базальтоидов и лампрофиров с апогранитоидным золотым и редкометалльным оруденением. Приведены сопоставление признаков потенциальной рудоносности пород и пространственно совмещенного с ними золото-вольфрамового оруденения.

Ключевые слова: золото, вольфрам, минерализация, оруденение, магматизм, базалтоиды, лампрофиры, рудоносность.

Introduction

The products of plate magmatism of the Burmese regions include a large number of alkaline and low-alkaline gabbroids (basaltoids) and various blast tubes and dyes of

carbonates, as well as small intrusions of syenitoids and lithium-fluoride granites. The products of Plitaichi magmatism, in spite of their small size, occupied a widespread and significant area; over time they were sharply separated from the previous collision and subduction granitoids.

The study of plate plate magmatic associations is of interest not only in terms of understanding the processes of magma generation in the anorogenic phase of geological development of the fold areas, which is an urgent task of fundamental research. has

Large and rare diamond, apatite, iron, platinum, titanium, vanadium, tin, niobium, tantalum, zircon, strontium, rare earth elements, copper-nickel and polymetallic ores with Au, Ag, Se; large deposits of five-element (Fe-Cu-Au-REE-U) formation, copper-gold ore deposits and gold ore, as well as sulfide mining of the Red Sea type and hydrothermal gold mining of the Carlin type are associated.

Literature Review

Platea magmatism is a unique geological phenomenon that has been variously named by researchers in different Burmese regions – “postgeosynclinal magmatism”, “postbatolithic magmatism”, “postorogenic magmatism”, “postcollision magmatism”, “epiorogenic magmatism”, “epiplatform magmatism”, “subsective magmatism”, “Antidrome tectonomic activation”, “fine porphyry intrusions and regional dyke stage” [1].

To explain plate magmatism, a hypothesis of boiling points has been proposed - mantle flow (plyums). The formation of plumes is associated with thermochemical processes in phase barriers and mainly at the core/mantle boundary, which are manifested in the form of both continuous and periodic occurrence of incoming convection currents [2, 3, 4].

Conditions for the formation of plate plate magmatism and the characteristics and prospects of minerals associated with this process I.X. Xamrabaev, I.V. Mushkin, T.N. Dalimov, V.M. Breyvinskiy, A.V.Golovko, V.I. Lebedeva, V.V. Yarmolyuk, D.V. Kovalenko, D.S. Korjinskiy, M.I. Kuzmina, R. Axundjanov, F. Pirajno, Oppilger, Murphy, Brimhall, E.M. Studied by Cameron et al.

Monchikits of the Sukar massif were first described by MM Posokhov and EI Sigalov (1949). Later, in the course of thematic work [5, 6], rocks of plateaus magmatism were identified in different parts of the Chakilkalyan mountains in the form of alkaline (subishkaline) basaltoids and kaynotip lamprophyres, mainly in the form of dyke. However, large concentrations of alkaline basaltoids and lamprophyre formation

rocks were detected in two areas: Yachton (northwestern sector) and Sukar (southeastern sector).

Analysis and Results

Comparative analysis of plate igneous rocks of Burmese regions provides a deeper understanding of their nature and formation processes, as well as the associated mineralization. Comprehensive consideration of this problem is a very topical task of fundamental research and has practical significance in connection with the development of mineral derivatives of rare, rare and rare earth metals among the products of plate magmatism.

Alkaline-basaltoid dyes and blast tubes, which have well-defined geological positions and are often systematically combined with ore formations, can contribute to the identification of many problems in the genesis and chronological sequence of different ores in the region.

Many questions of plate plate magmatism for the Chakilkalyan mountains, including the geochemical and metallogenic specialization of alkaline basaltoids and lamprophyre formation rocks, which are important for predicting gold and rare metal mineralization, remain unresolved.

The purpose of this study is a detailed description of the rocks of the formation of alkaline basaltoids and lamprophyres (petrographic, petrochemical, mineral-accelerator and geochemical) and its conclusions on the potential mineralization of plate magmatism.

The rocks of the formation of alkaline basaltoids and lamprophyres at the boundary of the yacht area were represented by kersantites, spessartites, vogezites and diorite porphyrites associated with them paragenetically, as well as the most recent kamptonites and monchikites. For dyke, virtually all types of rocks are characterized by the presence of a number of elements (Au, Ag, W, Mo, Se, Te, Bi, As, Sb, Re, Hf) with higher amounts than clarkes [7].

The range of change in clark-concentration of individual elements for rocks of formation of alkaline basaltoids and lamprophyres of the yacht area is as follows: Te - 56-110; Se – 2,8-82,2; Au – 6,8-28,8; Bi – 4,6-24,4; As – 9,07-10,7; Ag – 4,7-10,0; Sb – 3,6-10,0; Re - 1,5-10,5; Hf – 3,3-6,0; W –1,8-3,6; Mo – 1,2-3,7. The geochemical sequence (Te-Se-Au-Bi-As-Ag-Sb-Re-Hf-W-Mo) of the rate of accumulation of the main elements in the ore-generating magmatic products of the formation of alkaline basaltoids and lamprophyres contributes to the geochemical specialization and less clearly indicates that it has a mineralization.

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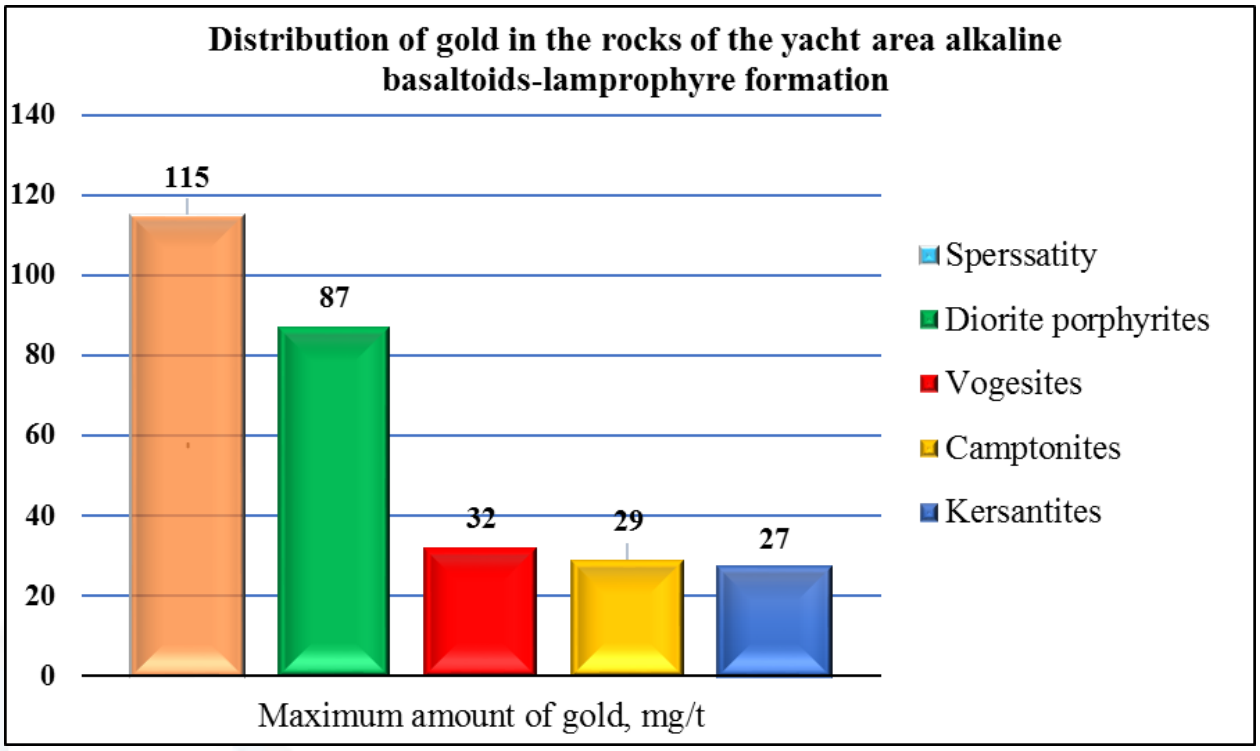
The maximum amount of gold was detected in spessartites (115 mg/t). In addition, its content decreases as follows: diorite porphyrites (87 mg/t) - vogezites (32 mg/t) - kamptonites (29 mg/t) - kerasantites (27 mg/t).



In the eastern part of the Chakilkalyan-Qoratepa mining region, the open accumulation of sheelite in spessartites, monchikites, vogezites and camptonites involved in the analysis of alkaline basaltoids-lamprophyre formation rocks and the formation of mantle magmatism in indicates a potential mineralization of gold and tungsten [8, 9].

At the boundary of the Yachton field, the rocks of the alkaline basaltoid-lamprophyre formation are spatially combined with the gold and tungsten ores of the lower stratum of the Yachton deposit, localized in the porphyry mesotropic biotite-amphiboles of the main intrusive phase of the yachton complex and leukocratic amphibole-biotite granodiorites.

The mineralization of the lower tier of the Yahton deposit is bimetallic in nature with the spatial separation of tungsten ore and gold ore bodies and with telescoping elements of different types of mining in separate parts of the ore zone.

The high content of gold is accompanied by high amounts of As, Ag, Te, Se and Bi, indicating that its pyrite-arsenopyrite, tetradimite-tellurovismutite, gold-hessite and gold-silver paragenetic mineral associations are related.

The ore bodies and mineralized zones of the lower tier of the Yahton deposit are accompanied by endogenous sets of typomorphic elements for the geochemical association deposit, which includes W and Au and Bi, Te, As, Ag, Se, Mo, Cu, Sb, Zn, Pb.

In the combined carbonyl migration of gold and tungsten from deep-seated sources, possibly lies the reasons for the paragenesis of natural gold and sheelite in the lower tier deposits of the Yahton deposit.

The plateau phase of the geodynamic evolution of the Chakilkalyan mountains is characterized by the formation of two main focal structures (Yachton and Sukar) covering the upper mantle, with a deep level of magma generation. For deep-bed furnace structures, such structures are characterized by geochemical specialization in gold mining with postcollision granitoids and indicator elements (Bi, Ag, As, Se, Te and Sb) and rare metal mineralization with satellites Re and Hf (W, Mo), is characterized by the spatial location of the most artificial products of alkaline-basaltoid magmatism. This geochemical specialization significantly determines the gold-rare metal metallogenic profile of the region.

The yacht area is a sign of potential mineralization of alkaline basaltoids and lamprophyre formation rocks and a comparison of spatially located gold-tungsten mineralization with them (see Table 1) once again emphasizes that some geochemical properties of alkaline basaltoids and lamprophyre formation rocks are inherited by ore. Most of these rocks are rock-forming from geochemically specialized elements (Au, Ag, As, W, Bi, Te, Se, Sb) and are part of a typomorphic productive association of apogranitoid gold-tungsten mining.

All of the above are alkaline-basaltoid dyes and blast tubes, and the gold-tungsten mineralization complex combined with them in time and space has a paragenetic correlation.

The formation of alkaline basaltoids-lamprophyres is the result of the formation of rocks and processes at the depth of artificial ore, and in its formation uses a single system of faults as a way to enter the upper horizons of the earth's crust.

Signs of potential mineralization of rocks of the formation of alkaline basaltoids and lamprophyres in the yacht area and comparison of spatially located gold-tungsten mineralization with them

WEB OF SCIENTIST: INTERNATIONAL SCIENTIFIC RESEARCH JOURNAL
ISSN: 2776-0979, Volume 3, Issue 4, April., 2022

Table 1

Signs of potential mineralization of rocks of alkaline basaltoids and lamprofir formation	Typomorphic characteristics of gold-tungsten mining of the lower tier of the Yachton deposit
Geochemical specialization	
Rock formations of alkaline basaltoids and lamprophyres at the boundary of the yacht area are characterized by the presence of a number of elements (Au, Ag, W, Mo, Se, Te, Bi, As, Sb, Re, Hf) that have higher amounts than clark in virtually all types of dyke products. The geochemical sequence (Te-Se-Au-Bi-As-Ag-Sb-Re-Hf-W-Mo) of the rate of accumulation of basic elements in ore-generating magmatic products of the formation of alkaline basaltoids and lamprophyres indicates that they have geochemical specialization predominant in gold and rare metal mining sufficiently clear.	The typomorph Au, W, Bi, Te, As, Ag, Se, Mo, Su, Sb is a geochemical association for gold-tungsten ore of the lower tier of the Yachton deposit. The main minerals of the sulfide part of the ore are pyrite and pyrrhotite. Amount of mixed elements (g/t): in pyrite – Au - 22,9; Ag - 51; , As - >4000; Te - 47; Se - 42; and Bi - 1600; pyrrhotite – Au - 3,5; Ag - 3,5; As - 85; Te - 7,3; Se - 17; and Bi - 400.
Mineral- accessor specialization	Basic paragenetic mineral association of mineralization
The potential mineralization of gold is confirmed by the accumulation of natural gold grains and sawdust found in different rocks of the formation in untouched, unchanged species by metasomatic alteration processes. In addition, xenolites with natural gold carbonated peridotites were detected, as well as pyroxene-porphyry trachybasalts containing brecciated and ultrabasic xenolites. Natural gold is associated with sheelite, molybdenite, cinnabar, magnetite, galena, sphalerite, pyrite, fluorite, chalcopyrite and graphite. The specialization of alkaline basaltoids - rocks of the formation of lamprophyres in tungsten is confirmed by the presence in them, as well as in carbonated pyridotites (xenoliths), the accelerator sheelite.	For tungsten - albite-sheelite. For gold - tetradimite-tellurovismutite, gold - silver, gold-hessite and pyrite-arsenopyrite. Mineral forms of gold are natural tellurides in association with natural gold and natural silver, pyrite, pyrrhotite, ores, arsenopyrite.
Features of metasomatosis	
In xenoliths, hyperbasites are characterized by highly carbonated listvenites and are described as a metasomatic type resulting from the treatment of magmatic solution in the deeper parts of the igneous chamber with high-potassium mantle fluids of carbon dioxide. In addition to the high concentration of potassium, the fluid was significantly saturated with gas and water.	Integrated siliceous metasomatosis, which brings Ca, Si, Mg, Fe to the periphery. For metasomatites formed along the aluminosilicate substrate, which has several modifications, the constant presence of calcite in practice is characteristic. The presence of thin veins of brownish-black symbolic substance (anthraxolite type), which records the arrival of juvenile carbon in metasomatites.

Conclusion

The presented geochemical materials suggest that the enrichment of mineralized zones with gold and tungsten in separate areas of the eastern part of the Chakilkalyan-Qoratepa mining region depends on the initial metallogenic specialization caused by the intratelluric flow of fluids saturated with alkali, volatile components and mineral elements. gives

This was largely due to the region's gold-rare metallogenic specialization.The complex specialization of the rocks of the alkaline basaltoid-lamprophyre formation of the plateau stage of the eastern part of the Chakilkalyan-Qoratepa mining region allows predicting gold and complex gold-rare metal mining in its territory.

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