GEOLOGIC COLUMN AND UNIT DESCRIPTION

AGE	ROCK UNIT	LITHOLOGY; THICKNESS WHERE KNOWN	UNIT DESCRIPTION	ECONOMIC VALUE
QUATERNARY	Alluvium	Sand, clay and gravel; thickness less than 10 meters	Alluvium, consisting of sand, clay and gravel, is distributed in the drainage basins of the Amur River, the Hu-ma Ho (呼瑪河) and their tributaries. The deposit in the eastern half of the map area contains promising placer gold.	Gold Placer gold is found in the Recent deposits distributed in the regions of the pre-Jurassic granite, the Jurassic formation and the Jurassic-Cretaceous formation. These formations are locally intruded by many small low-grade gold-bearing quartz veins that are considered the source of the placer gold. Gold mines formerly worked prosperously are located in the following places. (A) In the pre-Jurassic granite region: (1) Ta-chung-kou (大中溝), Chung-kou (中溝), and Hsiao-chung-kou (小中溝) along the Ch'a-la-pan Ho (岔拉板河). (2) Fu-hsing-kou-fen-ch'ang (復興溝分廠) along the Borogri Ka. (3) Ta-la-han (逢拉罕); Chi-chia-wei-tzu (記家圍子), Han-chia-ts'ai-yuan-tzu (罕家菜園子) and Hui-pao-kou (會寶溝) along the Wo-la-ken Ho (倭拉根河). (B) In the Jurassic formation region: (1) Ch'ing-hsiang-kou (慶祥溝) along the I-sha-ch'i Ho (依沙渙河). (2) Pao-hsing-kou (寶興溝) along the Hsiao-hsi-erh-ken-ch'i Ho (小錫圍根奇河). (3) Fu-la-han (富拉罕) along the Fu-la-han Ho. (4) In the upper reaches of the Yü-weng Ho (漁翁河). (C) In the Jurassic-Cretaceous formation region: (1) Te-li-chin-ch'ang (德利金廠) along the Erh-shih-i-chan Ho (二十一站河). (2) I-hsi-k'en (依西肯) along the I-hsi-k'en Ho.
TERTIARY	Neogene formation	Sandstone, shale, lignite, bentonite and gravel; thickness unknown	The Neogene formation along the Ol'ga River consists of white, reddish yellow or gray, soft rough porous sandstone interbedded with dark brown to black clayey shale, lignite, bentonite and gravel. It rests unconformably upon the Jurassic-Cretaceous (Mjk) and the Jurassic (Mj) formations. It is generally stratified horizontally. Soviet geologists (NALIVKIN, 1955) defined it as a Pliocene continental deposit.	
MESOZOIC	Cretaceous granite	Porphyritic granite, felsitic granite, graphic granite, quartz porphyry, syenite, diorite and aplite	Cretaceous granite is exposed in the southwestern part of the map area. It is a rough, massive, coarse- to medium-grained, more or less porphyritic granite consisting chiefly of pinkish idiomorphic microcline, idiomorphic to hypidiomorphic quartz, a small amount of biotite, and, rarely, hornblende. It is locally associated with felsitic granite, graphic granite, quartz porphyry, syenite, diorite, and aplite. The Recent deposits distributed in the Cretaceous granite regions are destitute of placer gold.	
	Jurassic-Cretaceous formation	Clay slate, shale, sandstone, conglomerate and marl; thickness unknown	The Jurassic-Cretaceous formation in the northern part of the map area extends E-W forming a synclinal structure. It consists of clay slate, shale, sandstone, conglomerate and locally marl; the rocks are locally contact-metamorphosed by Cretaceous dikes. The beds yielding plant fossils such as Podozamites sp., Equisetites sp., etc., alternate with the beds yielding animal fossils such as Lucina sp., etc., identified by A. I. KHALPONIN, 1929 (referred to by UCHINO, 1935) at the locality near Albazino (Magdagachi, sheet NN 51-9). The formation rests conformably upon the Jurassic formation, and is overlain by the Neogene formation.	
	Jurassic formation	Sandstone, shale, clay slate and conglomerate; thickness unknown	The Jurassic formation extending E-W in the northern half of the map area is a continental deposit consisting of sandstone, shale, clay slate and conglomerate. The rocks are locally contact-metamorphosed by the intrusion of the Cretaceous low-grade gold-bearing quartz veins. The formation rests upon the pre-Jurassic granite (δ_2) along the Amur River, and forms a large synclinal structure with an E-W axis. According to IVANOW (1899) and SCHMIDT (1884), the formation near Chernyayevo yields remains of Asplenium whitbiense and other ferns, Baiera longifolia, Czechanowskia rigida and other conifers.	
MESOZOIC?	Pre-Jurassic granite	Gneissose granite, aplite, granodiorite, diorite and quartz diorite	Pre-Jurassic granite in the southeastern part of the map area is a light gray, pinkish gray or pinkish green, fine- to coarse-grained, subequigranular, more or less gneissose granite consisting mainly of orthoclase, plagioclase, small amounts of quartz, biotite, hornblende, and muscovite, and accessory minerals such as apatite, magnetite, titanite, and zircon. The muscovite occurs only in the gneissose granite. The granite is associated with aplite, granodiorite, diorite and quartz diorite. Soviet geologists assign it to the Paleozoic. The granite is locally intruded by Cretaceous low-grade gold-bearing quartz veins.	

(Column not drawn to scale)

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