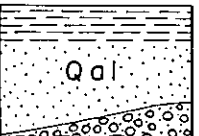


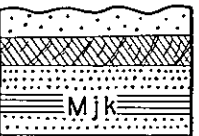
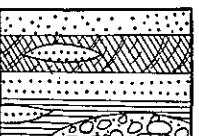
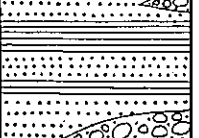




## GEOLOGIC COLUMN AND UNIT DESCRIPTION

AGE	ROCK UNIT	LITHOLOGY; THICKNESS WHERE KNOWN	UNIT DESCRIPTION	REFERENCES
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 Hu-ma Ho [呼瑪河], the P'an-ku Ho [盤古河], the O-mu-erh Ho [額爾齊斯河], and the Pei-erh-tz'u Ho [貝爾次河]. Alluvium in the regions of the pre-Jurassic granite and the Jurassic formation contains placer gold, but that in the Cretaceous granite region does not.	NALIVKIN, D. V., editor, 1955, Geological map of U.S.S.R., scale 1:5,000,000: U.S.S.R. Ministry of Geology.  SAITO, Rinji, compiler, 1940, Geological map of Manchuria and adjacent areas, scale 1:3,000,000: Manchoukuo Geol. Inst.  UCHINO, Toshio, 1935, Placer gold in the vicinity of Mo-ho [滿洲]: Unpub. rept., Geol. Inst., S. Manchuria Ry. Co.  YAMASHIMA, Sadao, 1935, Geology of the northern part of the Great Hsing-an Range: Shina Kogyō Jihō (Manchuria Geol. and Mining Rev.), no. 83, Geol. Inst., S. Manchuria Ry. Co.
	Cretaceous rhyolite	 Rhyolite, lithoidite and obsidian	Cretaceous rhyolite along the Hu-ma Ho occurs as flows resting on the Cretaceous and the pre-Jurassic granites. It consists of rhyolite proper in the upper part and lithoidite in the lower part, and is locally associated with obsidian. The rhyolite is dark gray to dark brown, porphyritic, and has a fluidal texture. It consists of phenocrysts of quartz, feldspar, some hornblende, and a dark gray to dark brown, cryptocrystalline ground-mass containing microcrystals of biotite. The lithoidite is a cryptocrystalline felsitic rock without phenocrysts.	
MESOZOIC	Cretaceous granite	 Porphyritic granite, felsitic granite, graphic granite, quartz porphyry, syenite, diorite and aplite	Cretaceous granite along the O-mu-erh Ho, the P'an-ku Ho and the Hu-ma Ho is generally rough, massive, coarse- to medium-grained and more or less porphyritic, consisting mainly of pinkish idiomorphic microcline, idiomorphic to hypidiomorphic quartz and small amounts of biotite and hornblende. The granite is locally associated with felsitic granite, graphic granite, quartz porphyry, syenite, diorite and aplite. Part of the granite may be genetically related to the Cretaceous rhyolite.	
	Jurassic-Cretaceous formation	 Clay slate, shale, sandstone, conglomerate and marl; thickness unknown	The Jurassic-Cretaceous formation in the northeast corner of the map area consists of clay slate, shale, sandstone, conglomerate and marl. The rocks are contact-metamorphosed by the intrusion of the Cretaceous aplite dikes or quartz veins. The formation rests conformably upon the Jurassic formation.	
	Undifferentiated Jurassic formation	 Sandstone, shale, clay slate and conglomerate; thickness unknown	The Jurassic formation is divided into the undifferentiated Jurassic formation (Mj) and the Upper Jurassic formation (Mju). The undifferentiated formation in the northeastern part of the map area consists of sandstone, shale, clay slate and conglomerate. Some of the rocks are contact-metamorphosed by the intrusion of the Cretaceous granite, aplite dikes and quartz veins.	
	Upper Jurassic formation	 Clay slate, sandstone and conglomerate; thickness unknown	The Upper Jurassic formation is exposed west of a northeast-trending fault which traverses the junction of the Fukuchin-ka and the O-mu-erh Ho. The formation consists of clay slate, sandstone and conglomerate. The clay slate is predominant, and is black to dark brown with a silky luster. It is interbedded with thin lenticular sandstone which is grayish brown to dark brown, medium- to fine-grained, showing knotty schistosity due to flattening of sand grains by pressure. The conglomerate pebbles are corroded siliceous rocks less than 5 cm in diameter. The formation rests unconformably upon the pre-Jurassic granite along the K'u-lien Ho [庫倫河], and is locally intruded by gold-bearing quartz veins, which are considered the source of the placer gold in the nearby Recent deposits.	
PRECAMBRIAN	Pre-Jurassic granite	 Gneissose granite, aplite, diorite and graphic granite	Pre-Jurassic granite along the Pei-erh-tz'u Ho, the Lao-ch'ao Ho [老朝河] and the Ta-lin Ho [大林河] is light gray, pinkish or whitish, medium- to coarse-grained, subequiangular, and more or less gneissose, consisting of orthoclase, plagioclase, small amounts of quartz, biotite, some hornblende, and accessory minerals such as tourmaline, spinel, zircon and magnetite. The granite is locally accompanied by gneissose granite, aplite, diorite and graphic granite. Muscovite phenocrysts occur only in gneissose granite. The granite is locally intruded by Cretaceous gold-bearing quartz veins, which are considered to be the source of placer gold in the nearby Recent deposits.	
	Precambrian gneiss	 Biotite granite gneiss, hornblende granite gneiss, muscovite granite gneiss and mica schist	Precambrian gneiss along the Pei-erh-tz'u Ho consists mainly of light to dark gray coarse-grained biotite granite gneiss which is locally accompanied by hornblende granite gneiss or muscovite granite gneiss and lenticular mica schist.	

(Column not drawn to scale)