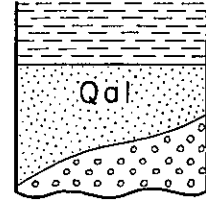
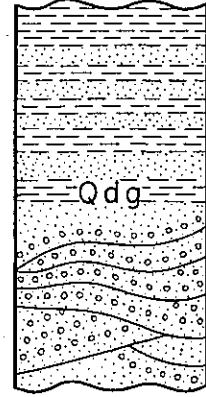
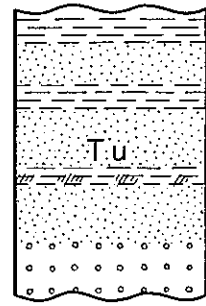
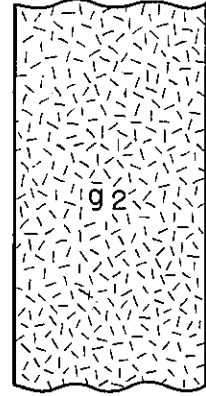
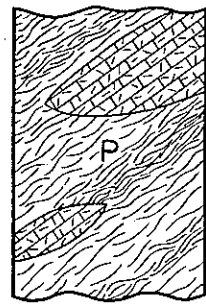
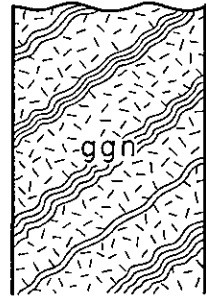


## GEOLOGIC COLUMN AND UNIT DESCRIPTION

AGE	ROCK UNIT	LITHOLOGY; THICKNESS WHERE KNOWN	UNIT DESCRIPTION	ECONOMIC VALUE	REFERENCES
QUATERNARY	Alluvium	 Qa	Sand, clay and gravel; thickness less than 10 meters	Alluvium, consisting of sand, clay and a small amount of gravel, is distributed along the T'ang-wang Ho (湯旺河) and its tributaries. The thickness seldom exceeds 10 meters. As the ground water level of the map area is generally high, broad marshes composed of black peaty mud in many places cover the alluvial beds.	Placer gold occurs in the drainage basins of the Lao-wu-t'ung Ho (老務洞河), the Nung-hsing Kou (蘆興溝), the T'ang-wang Ho, the Ch'a-pa-ch'i Ho (叉八負河) and the Wo-tzu-kou Ho (窩茲溝河). (1) The Lao-wu-t'ung Ho flows southeastward, forming very gentle slopes on the southwestern bank. The auriferous alluvial deposits near Wu-t'ung-ho-chin-ch'ang (烏洞河金廠) are 75 m wide, and the sand and gravel bed which abounds in gold lies at about 2 m to 3 m below the ground surface, and is generally 0.6 m to 1.2 m thick, but locally is as thick as 2 m. The old site of excavations is 6 km long and 25 m to 30 m wide. (2) The auriferous deposits near the village of Nung-hsing-kou is 90 m wide, and are supposed to extend for 31 km, of which about 10 km was formerly worked. The gold-rich sand and gravel bed is 0.6 m to 0.9 m thick and lies at a depth of 2.4 m. It was reported that nuggets 3 mm in diameter were abundant. The locality is one of the most promising gold mines in the T'ang-wang Ho gold field.
	Diluvium	 Qdg	Clay, sand and gravel; thickness 40 m to 80 m	Diluvium is distributed in the southwestern part of the map area and constitutes flat hilly land with about 50 m to 100 m relief. The upper part is composed chiefly of clay and sand, and the lower part consists of cross-bedded sand and gravel. The thickness ranges from 40 m to 80 m. It is generally covered by black muck which is about 1 m thick.	
TERTIARY	Neogene formation	 Tu	Sandstone, shale and conglomerate; thickness unknown	The Neogene formation is exposed in the northwestern part of the map area, constituting the hilly land about 50 m to 100 m in relative height. It consists of soft sandstone, clayey shale and conglomerate, intercalated with bentonitic shale. The rocks are harder than the Pleistocene sand, clay and gravel, and are markedly resistant to erosion. The formation may be correlated with the Pliocene continental deposits along the Amur River.	HATA, Jūkichi, 1927, Report on the gold field in the drainage basin of the Wu-t'ung Ho, T'ang-hsian Hsien, Heilungchiang Province: Geol. Inst., S. Manchuria Ry. Co. Bull. no. 68. MONZEN, Shigeyuki, 1936, Survey report of the geology of the route between Ch'i-k'o-te (奇克特) and Fu-yüan (撫遠) along the Amur River: Unpub. rept. Geol. Inst., S. Manchuria Ry. Co. 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. USHIMARU, Shūtarō, and others, 1937, Geology and geography of northern Manchuria: Geol. Inst., S. Manchuria Ry. Co.
MESOZOIC	Pre-Jurassic granite	 gz	Biotite granite, biotite-hornblende granite, hornblende-granite, two-mica granite, lepidolite granite, pegmatite, aplite, granodiorite, diorite, quartz diorite, quartz porphyry, granite porphyry and gneissose granite	The pre-Jurassic granite is widely distributed occurring as batholiths intruding the gneiss (gg) and the Paleozoic formation (P). It is generally light gray or partially reddish gray, fine- to coarse-grained, subequigranular, holocrystalline granite, and is unconformably overlain by the Neogene formation (Tu) and the Pleistocene deposits (Qdg). The rock comprises biotite granite, biotite-hornblende granite, hornblende granite, two-mica granite, lepidolite granite, occasionally accompanied by pegmatite, aplite, granodiorite, diorite, quartz diorite, granite porphyry, quartz porphyry and gneissose granite. The rock near Lao-wu-t'ung (老務洞) is coarse-grained biotite granite, occasionally containing large phenocrysts of reddish gray orthoclase. The rock along the Shih-t'ou-ch'a-tzu Ho (石頭岔子河) is subequigranular or porphyritic hornblende granite. The rock near Hsi-ling Shan (西嶺山) is light gray or partially reddish gray, subequigranular holocrystalline biotite-hornblende granite. The rock exposed on a hill 3 km to 5 km west of Sheng-lang (聖浪) station is hornblende granite which contact-metamorphosed the nearby Paleozoic formation.	
PALEOZOIC	Paleozoic formation	 P	Crystalline limestone, phyllite, mica schist and chlorite schist; thickness unknown	The Paleozoic formation exposed on the hill 5 km west of Sheng-lang station consists of crystalline limestone, phyllite, mica schist and chlorite schist. The formation was metamorphosed by the granite intrusion. No fossils to identify the age have been found.	
PRECAMBRIAN	Granite gneiss	 gg	Biotite orthogneiss, hornblende orthogneiss, metagneiss and gneissic granite	The granite gneiss, probably of Precambrian age, is exposed in the southeastern half of the map area. The rock consists chiefly of light gray biotite orthogneiss and hornblende orthogneiss, locally associated with metagneiss and gneissic granite.	

(Column not drawn to scale)