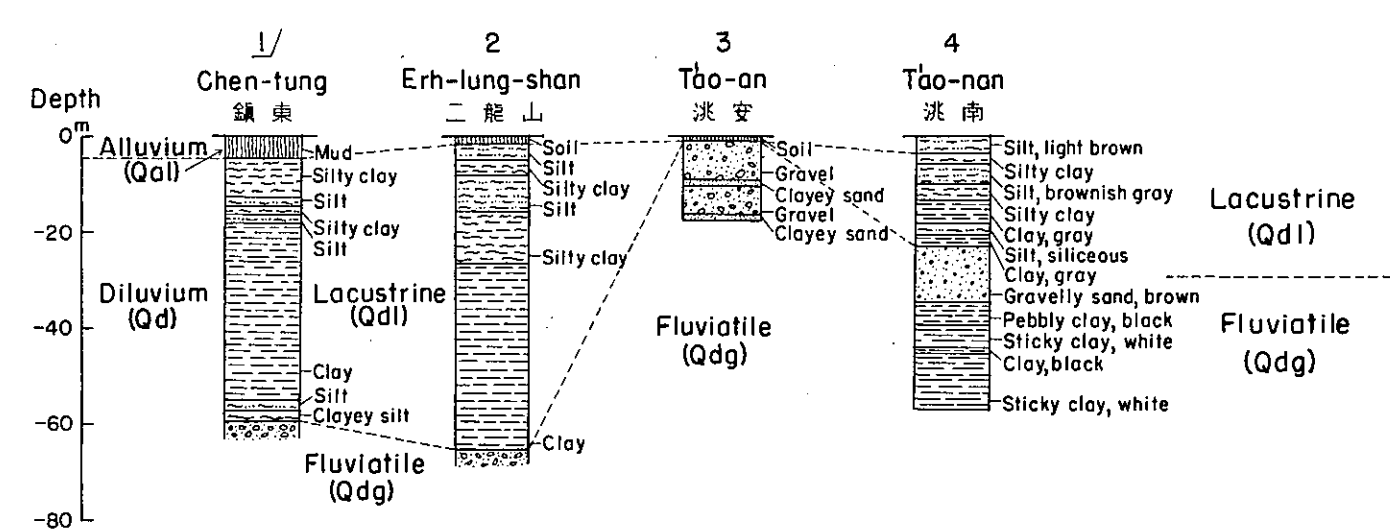


## GEOLOGIC COLUMN AND UNIT DESCRIPTION

AGE	ROCK UNIT	LITHOLOGY; THICKNESS WHERE KNOWN	UNIT DESCRIPTION	ECONOMIC VALUE	
QUATERNARY	Recent	Alluvium Qal	Sand, gravel and clay; thickness less than 15 meters	Alluvium consists chiefly of sand, gravel and clay, and is less than 15 m thick. It is distributed in the river flats and playas. There are also Recent river dunes derived from the upheaved loose Diluvium.	Potter's clay has been mined and processed in the vicinity of Ch'ien-pai-t'u-k'eng (前白土坑).
	Pleistocene	Diluvium Qdl Qdg	Qdl, loess, sandy loess and clay Qdg, gravel, sand and clay Total thickness more than 100 m	Diluvium, or Pleistocene deposits, with a maximum thickness of more than 100 m, can be divided roughly into two units, Qdl and Qdg. Qdl consists of loess and sandy loess of aeolian and lacustrine origin, and constitutes the main body of the Quaternary in the Mongolian plain. The lacustrine phase in the upper part is often represented by the wind-blown sand and silt which settled in the ancient lakes and swampy basins that have later been uplifted and wind-eroded, becoming the source of the presently drifting dunes. Qdg is a gravelly fluvial deposit. (Refer to the appended borehole sections.)	
MESOZOIC	UNCONFORMITY				
	Cretaceous	Rhyolite 	Rhyolite, trachyte, trachyandesite and pyroclastics	Rhyolite consists of flows and sheets of rhyolite and trachyte and associated pyroclastic rocks. They are thought to have been erupted during the Cretaceous age. Rhyolite is buff to drab; phenocrysts are quartz and alkali-feldspar, accompanied by lesser amounts of biotite and hornblende, and the groundmass is either partly glassy or cryptocrystalline, frequently showing a flow structure marked by banding. The rock constitutes the main body of the Ta-hsing-an-ling range on the west. The thickness may attain one thousand meters. Trachyandesite is found in places north of Na-chin-ho (察全河).	
	Cretaceous	Granite 	Biotite granite and hornblende granite	Granite comprises biotite granite and hornblende granite and probably intruded during the period from Late Jurassic to Early Cretaceous.	
UNCONFORMITY		INTRUSIVE CONTACT			
Upper Triassic - Jurassic	Jehol formation 	Mj, tuff, tuffaceous sandstone and conglomerate, andesitic lava flows, shale, and porphyrite; Mjc, coal measures. Total thickness more than 1,000 m	The Jehol formation comprises three parts, upper, middle and lower. The upper part (Mj) consists of tuff, tuffaceous sandstone and conglomerate, associated with andesitic flows; the middle part (Mjc) is a coal-bearing formation consisting of sandstone, shale and conglomerate, in addition to coal seams; the lower part (Mj) consists of tuff, porphyrite and andesite sheets. The formation suffered contact metamorphism due to granitic intrusion. The thickness of the formation may be more than 1,000 m. A similar formation in southern Jehol was assigned by the compiler to the Jurassic, and partly to the Triassic.	Coal is found west of Ch'ien-chin-ch'an (前森城). (Refer to the Hei-ting-shan coal mine in the T'u-ch'uan sheet (NL 51-7) adjacent on the west.)	
UNCONFORMITY					
Upper Paleozoic	Upper Paleozoic formation 	Graywacke, chert, graphite phyllite and schalstein; thickness not known	The Upper Paleozoic formation is represented by such metamorphic rocks as graywacke, chert, graphite phyllite and schalstein which are considered to be Permo-Carboniferous in age.		
RELATION UNKNOWN					
AGE UNKNOWN	Granite gneiss 		Granite gneiss is an intrusive rock of unknown age. Granite gneiss and the Upper Paleozoic formation (Pu) constitute the bedrock of the map area.		
(Column not drawn to scale)					

Record of holes drilled in the Quaternary deposits of the T'ao-nan map area



1/ Number refers to symbol of map localities on reverse side

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