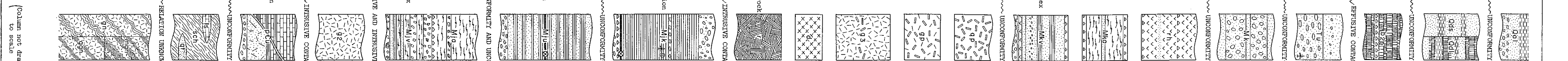
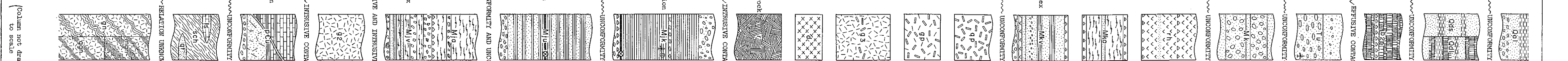
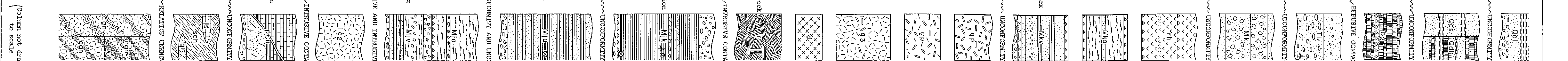
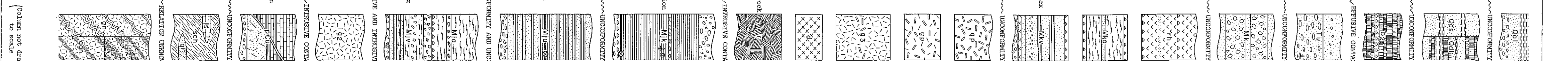
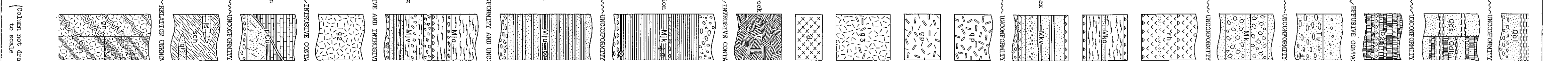
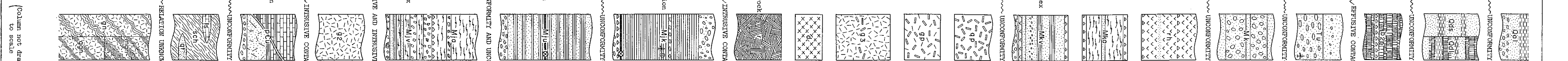
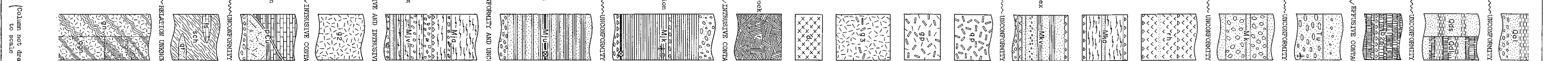
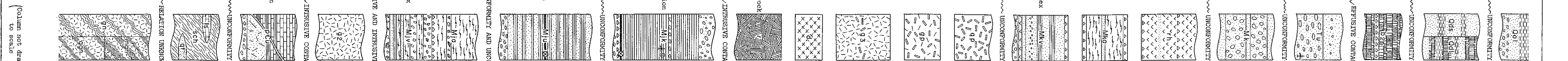
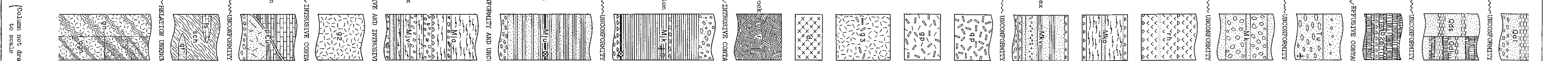
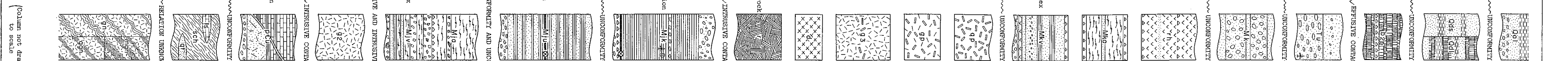
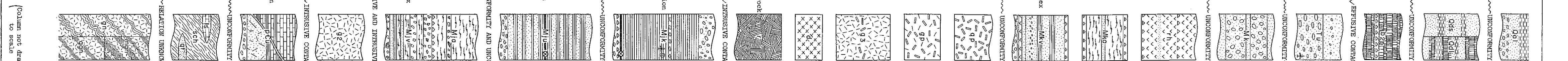
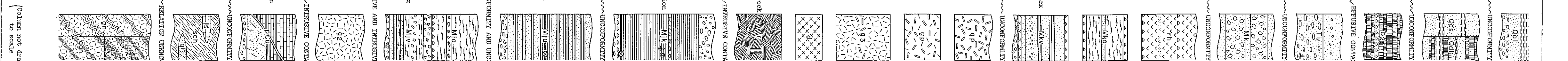
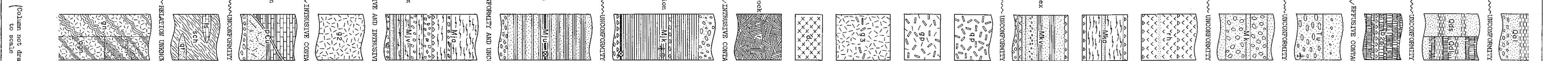
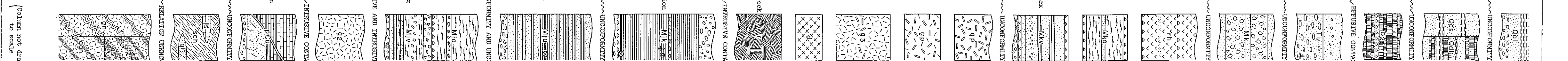


GEOLOGIC COLUMN AND UNIT DESCRIPTION

UNIT DESCRIPTION

ECOLOGIC VALUE

LITHOLOGY THICKNESS
METERS KILOMETERS

AGE	ROCK UNIT			
QUATERNARY	<p>Alluvium</p>  <p>Altuvium Olduvai QAL1, Jozesa, reworked sandy clay, thickness less than 50 m</p>	<p>Sand, clay, and gravel; thickness less than 5 meters</p> <p>Olduvai</p> <p>QAL1, Jozesa, reworked sandy clay, thickness less than 50 m</p>	<p>Alluvium, consisting of sand, clay, and gravel, is distributed along the narrow drainage basins of the Ol'ao Ho (OH) [1], the Hui-shan-Yi Ho (HSY) and other tributaries.</p> <p>Mtaviium, late Pleistocene in age, is divided into QAL and QAL1.</p> <p>This consists of loess-like sand and silt and Pliocene-Pleistocene sand and clay, and is distributed in the northeastern part of the map area where it constitutes a marginal portion of the Mongolian plateau. It is locally eroded by wind-blown sand dunes and redistributed sand dunes which is interstratified with loess-like sand and clay. The deposits is approximately distributed in small areas along the rivers.</p> <p>Neogene basalt occurs as a southeastern extension of the Mongolian plateau basalt which effused during the Miocene and Pliocene. The rock is a doleritic olive-argill basalt which occurs as an irregular flow associated with tuff and breccia.</p> <p>The Neogene formation near Wei-shi-hung (WSH) consists of light gray mafic sandstone with pebbles in the upper part, and reddish brown conglomerate in the lower part. The pebbles of conglomerate, 2 to 6 cm in diameter, are rounded to sub-round, and consist of quartzite, greenish and reddish granitic (G2) and the Jurassic volcanic complex (JNV). The lowermost part of the formation yields plant fossils which are defined as Upper Miocene in age by CHANG (1928) and SEEVER (1929).</p>	<p>(Deposit numbers refer to localities shown on map.)</p> <p>Altuvium (*) indicates sandstone horizon on map.</p> <p>Olduvai Copper-bearing quartz veins occur in two places: QAL1, Hui-shan-Yi Ho, where a vein 50 m wide occurs in granitic sandstone; and QAL2, Wei-shi-hung (WSH), 1/2 mi west of Jung-tai-shan, where a vein 20 m wide occurs in a contact zone between the Pliocene-Miocene granite and quartzite. See the contour in G-59.</p> <p>Geology Upper Pleistocene glacial drift consists of till, sand, silt, clay and gravel. The drift is derived from the Pliocene-Miocene granite and quartzite. The drift is derived from the Pliocene-Miocene granite and quartzite. The drift is derived from the Pliocene-Miocene granite and quartzite. The drift is derived from the Pliocene-Miocene granite and quartzite.</p>
TERTIARY	<p>Neogene basalt</p>  <p>Neogene formation</p>  <p>Neogene formation Conglomerate with mafic sandstone; thickness more than 300 m</p>	<p>Doleritic olive-argill basalt</p> <p>Mafic sandstone with pebbles; thickness more than 300 m</p>	<p>Neogene basalt occurs as a southeastern extension of the Mongolian plateau basalt which effused during the Miocene and Pliocene. The rock is a doleritic olive-argill basalt which occurs as an irregular flow associated with tuff and breccia.</p> <p>The Neogene formation near Wei-shi-hung (WSH) consists of light gray mafic sandstone with pebbles in the upper part, and reddish brown conglomerate in the lower part. The pebbles of conglomerate, 2 to 6 cm in diameter, are rounded to sub-round, and consist of quartzite, greenish and reddish granitic (G2) and the Jurassic volcanic complex (JNV). The lowermost part of the formation yields plant fossils which are defined as Upper Miocene in age by CHANG (1928) and SEEVER (1929).</p> <p>The Cretaceous formation, known as the QI, Hui-shan-Yi Ho (HSY) formation, consists of reddish purple conglomerate with thin bedded mafic sandstone. The pebbles of the conglomerate are rounded to sub-round, and consist of quartzite, greenish and reddish granitic (G2) and the Jurassic volcanic complex (JNV). The lowermost part of the formation yields plant fossils which are defined as Upper Miocene in age by CHANG (1928) and SEEVER (1929).</p>	<p>Upper Pleistocene glacial drift consists of till, sand, silt, clay and gravel. The drift is derived from the Pliocene-Miocene granite and quartzite. The drift is derived from the Pliocene-Miocene granite and quartzite. The drift is derived from the Pliocene-Miocene granite and quartzite. The drift is derived from the Pliocene-Miocene granite and quartzite.</p>
MESOZOIC	<p>Cretaceous and Jurassic</p>  <p>Cretaceous volcanic complex</p>  <p>Quartz porphyry</p>  <p>Cretaceous granite</p>  <p>Cretaceous and Jurassic</p>  <p>Quartz porphyry</p>  <p>Cretaceous granite</p> 	<p>Sandstone, shale, breccia and rhyolitic tuff; with flows of andesite; thickness 500 m</p> <p>Quartz porphyry with perthitic granite</p> <p>Hornblende-biotite schists, diorite, tuff, sandstone, shale, and breccia</p> <p>Sandstone, shale, breccia and rhyolitic tuff; with flows of andesite; thickness 500 m</p>	<p>Cretaceous and Jurassic volcanic rocks, including gabbro and hornblende, is also a marginal facies of the Cretaceous granite. A marginal facies of the Cretaceous granite, consisting of hornblende-biotite schists, diorite, tuff, sandstone, shale, and breccia, is also a marginal facies of the Cretaceous granite. The rock near Hui-shan-Yi Ho (HSY) is a marginal facies of the Cretaceous granite.</p> <p>The Cretaceous granite, known as the QI, Hui-shan-Yi Ho (HSY) formation, consists of reddish purple conglomerate with thin bedded mafic sandstone. The pebbles of the conglomerate are rounded to sub-round, and consist of quartzite, greenish and reddish granitic (G2) and the Jurassic volcanic complex (JNV). The lowermost part of the formation yields plant fossils which are defined as Upper Miocene in age by CHANG (1928) and SEEVER (1929).</p>	<p>Coal seams in the Jurassic-Cretaceous (JNV) and Upper Jurassic (JNV) are as follows: Locality: Number and thickness: Strike: Dip: 1 Peng-tai-ling 3 (0.3 to 0.5 m) N 50° E 10° to 20° W 2 Kang-yuan 4 (0.2 to 0.10 m) N 30° E 70° W 3 Hui-shan-Yi 1 (0.2 m) S 15° E 25 to 35° SE 4 Hui-shan-Yi 2 (0.7 to 0.2 m) N 60° W 50 to 60° S</p> <p>Oil shale Oil shale occurs in the Jurassic-Cretaceous formation at the following localities: 1 Peng-tai-ling 1.5 to 2.0 m thick and dips 30° to 35° N. 2 Kang-yuan 1.5 to 2.0 m thick and dips 30° to 35° N. 3 Hui-shan-Yi 1.5 to 2.0 m thick and dips 30° to 35° N. 4 Hui-shan-Yi 1.5 to 2.0 m thick and dips 30° to 35° N.</p>
PRECAMBRIAN	<p>Pre-Jurassic granite</p>  <p>Upper Permian formation</p>  <p>Crystalline schist (Mekki system)</p>  <p>Debris complex</p> 	<p>Granular biotite granite</p> <p>Quartzite, sandstone, and shale</p> <p>Biotite schist and hornblende schist, with lamprophyre (Ls) and quartzite (Qs)</p> <p>Mafic sandstone with pebbles</p>	<p>Pre-Jurassic granite, probably Proterozoic in age, is exposed in the western part of the map area. The rock is gray, and consists of granular biotite granite.</p> <p>The Upper Permian formation, of the Sibirian system, is exposed only in the vicinity of Shao-zi-hung (SHZ) and consists of quartzite, sandstone, and shale. The lower part consists of thick-bedded quartzite, argillaceous sandstone, and conglomerate.</p> <p>The crystalline schist, probably of the Mekki system, is approximately exposed in the southeastern and western parts of the map area. The schist is composed of biotite schist and hornblende schist, with lamprophyre (Ls) and quartzite (Qs). The schist is exposed in the southeastern part of the map area, and extends to the northern part of the map area.</p>	<p>Debris complex (G1) in the southeastern part of the map area is correlated with the Sibirian quartzite (SHZ) and granite gneiss (GM). The schists are composed of biotite schist and hornblende schist, with lamprophyre (Ls) and quartzite (Qs). It consists of biotite schist and hornblende schist, with lamprophyre (Ls) and quartzite (Qs).</p>

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