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 and its tributaries.	Gold Placer gold occurs along the Amur, the Osezhina, the Burgali, the Alma and the Ol'ga Rivers. The Jurassic-Cretaceous formation, the Jurassic formation and the pre-Jurassic granite in the vicinity of the gold localities are locally intruded by many gold-bearing quartz veins of post-Jurassic to Cretaceous age. Some of the gold mines are being worked.
	UNCONFORMITY			
	Quaternary basalt	Olivine basalt, andesite and tuff	The Quaternary basalt along the Osezhina and the Pravaya Burinda Rivers includes olivine basalt, andesite and their tuffs, according to Soviet geologists (NALIVKIN, 1955).	
	EFFUSIVE CONTACT			
TERTIARY	Neogene formation	Sandstone, shale and lignite; thickness unknown	The Neogene formation, covering the terraces on the banks of the Amur River, consists of white soft sandstone, clayey shale and lignite. Soviet geologist define it as a Pliocene continental deposit.	
	UNCONFORMITY			
MESOZOIC	Cretaceous volcanic complex	Acidic, intermediate and basic effusives	The Cretaceous volcanic complex is exposed near Promyslovyy and along the Kutichi River. It consists of acidic, intermediate and basic effusive rocks including andesite and rhyolite occurring as flows.	
	EFFUSIVE CONTACT			
	Cretaceous granite	Granite, granodiorite and quartz diorite	Cretaceous granite, consisting of granite, granodiorite and quartz diorite, is sporadically exposed in the U.S.S.R. Soviet geologists define it as the Jurassic to Lower Cretaceous acidic intrusives.	
	INTRUSIVE CONTACT			
	Jurassic-Cretaceous formation	Clay slate, shale, sandstone, conglomerate and marl; thickness unknown	The Jurassic-Cretaceous formation is widely exposed along the Amur River. It consists of clay slate, shale and sandstone, locally accompanied by conglomerate and marl. Plant fossil-bearing beds often alternate with animal fossil-bearing beds. Soviet geologists define it as the Upper Jurassic to Lower Cretaceous in age. The formation near Albazino and Peremykino yields the following fossils identified by A. I. KHALFONIN in 1929 (UCHINO 1935): Pseudomonotis cf. echinata Sow., Gresslya cf. peregrina Phill., Gresslya cornbrash Lyc., Nucula sp., Lucina striatula Bur(?), Lucina crassa Mar. et Lyc., Cyrena sp., Cyrena lunula Yokoyama, Vennulites cf. trigonellaris Schoth., Myocites sp., Podozamites lanceolatus L. et H., Equisetites columnaris Brongn. It is known that the affinities of Upper Jurassic plants are found in the Lower Cretaceous in Siberia.	
	DISCONFORMITY			
	Jurassic formation	Clay slate, shale and conglomerate; thickness unknown	The Jurassic formation, distributed along the Amur, the Urkan and the Kerak Rivers, consists of clay slate, shale, sandstone and conglomerate. Soviet geologists divided the formation along the Bol'shoy Never into two parts, the Upper Jurassic and the Lower to Middle Jurassic. The formation is a continental deposit and especially fossiliferous on the south bank of the Amur River. The plant fossils, collected near K'ai-k'u-k'ang (開庫康) and Hsiu-shui Shan (秀水山) were identified by IVANOW (1899), SCHMIDT (1884) and others as follows: | FILICES Thyrsopteris prisca (Eichw.) Dicksonia concinna Hr. D. saportana Hr. D. longifolia Hr. D. glehniana Hr. D. acutiloba Hr. Adiantites schmidtianus Hr. A. amurensis Hr. Asplenium whitbiense Brngn. A. var. tenue Brngn. A. (Cladophlebis) argutulum Hr. A. spectabile Hr. A. distans Hr. Taeniopteris parvula EQUISETACEA Equisetum sp. CYCADEACEA Cycadites gramineus Anomozamites (Nilssonia) schmidti Hr. A. acutilobus Hr. A. angulatus Hr. Pterophyllum helmersianum Hr. P. seminovianum Hr. Podozamites lanceolatus (L.& H.) P. var. intermedius P. var. eichwaldi Schpr. P. var. distans P. var. minor P. plicatus Hr. P. ensiformis Hr. P. glehnianus Hr. CONIFERAE Phoenicopsis speciosa Hr. P. latior Hr. P. angustifolia Hr. Baiera longifolia (Ergn.) B. pulchella Hr. B. palmata Hr. Ginkgo flabellata Hr. G. Sibirica Hr. Czeckanowskia rigida Hr. ABIETINAE Pinus (Pityophyllum) nordenskiöldi Hr. Asplenium whitbiense is the most common species of fern, and Baiera longifolia and Czeckanowskia rigida predominate among conifer species.	
	UNCONFORMITY			
	Pre-Jurassic granite	Granite, granodiorite and quartz diorite	Pre-Jurassic granite near Magdagachi consists of granite, granodiorite and quartz diorite. Soviet geologists call it Paleozoic acidic intrusives. The granite, overlain by the Jurassic-Cretaceous formation, the Cretaceous volcanic complex and the Neogene formation, intrudes the Middle Paleozoic formation and is intruded by the Cretaceous granite.	
PALEOZOIC	INTRUSIVE CONTACT			
	Middle Paleozoic formation	Limestone, clay slate, shale, mudstone and marly shale; thickness unknown	The Middle Paleozoic formation, consisting of limestone, clay slate, shale, mudstone and marly shale, is sporadically exposed in the northern half of the map area. The formation is divided by Soviet geologists into the following units: the undifferentiated Middle Paleozoic (Pm), the undifferentiated Devonian (Pmd), the Lower to Middle Devonian (Pmdl), and the Silurian (Pms).	

(Column not drawn to scale)

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