Recent Ore-Formation in South Kazakhstan

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300 km north of Almaty at Mt. Kalkan Jurassic sandstones (100 m) with thin basaltic (0.25 m) and diabase (0.4 m) porphyrites lying at 85 occur on the crust of weathering after Permian rocks. Cretaceous gravelites (3.2 m) occur on their crust of weathering (5 m). Paleocene quartz sands and Lower Eocene gray clays (2–4 m) rest above them at 45°. Upper Oligocene sandstones with clay interbeds occur on the clays at an angle of 30°. Sands are burst by brown or cherry sandstone "veinlets" from 1 to 7 cm thick which turn the sands to brown-rusty-yellow or crimson-pink colours. In the sand roof modern proluvium to 0.8 m thick is also light cherry-coloured.

The spectral analysis of variegated sands showed that they contain Mo, Pb, Ag, Nb, W as well as higher contents of Fe, Co (0.02%), Mn (1%), Ti (2–4%). This points to the presence of ore-bearing fluids penetrating through fractures from deep ore-bearing zones and colouring sands and the overlapping proluvium.

0.5 km to the south mollusk shells in Pliocene deposits are filled in by ore material.

At the eastern slope of the Quaternary volcano Kalkan (previously thought to be Permian) a "tongue" from a liparite porphyry extrusion contacting with Middle Quaternary loam's turn them to brown ferriferous aleurolites to 6 m thick.

In the slope of the Ili River small cracks in silicified wood and in bones of mammals (to 5 mm) are filled in by ore material.

This facts are indicative of ore-forming processes in the Middle Quaternary – Recent time. In Kazakhstan it has been established for the first time.