

# TRANSFORMATION OF THE FORM AND THE MORPHOLOGY OF THE SURFACE OF GOLD IN THE PROCESS OF THE ALLUVIAL SEDIMENTOGENESIS IN UKRAINIAN CARPATHIANS REGION (RIVERS BILYI AND CHORNYI CHEREMOSH)

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**Key words:** gold, transformation, alluvial sedimentogenesis, Ukrainian Carpathians.

The influence of alluvial sedimentogenesis conditions on grain size, form and surface morphology transformation of placer gold were ascertained. The transformation mechanism of some morphological forms into others during mineral transportation by fluvial flows were considered.

Form and morphology transformation of placer gold surface takes place by its removal from native sources and depends on physico-chemical features of minerals that contain gold or form the growth with it native morphology of gold nodules, hydrologic regime of fluvial flow, transfer distance, physical peculiarities of back rocks and clastic material, that is carried by fluvial flow and other factors.

Flatness index presence or absence of gold nodules with mechanical bend or inflection, their roundness are the main characteristics for the ascertainment of interrelations between gold morphology and distance from sources of alimentation. It is necessary to emphasize, that interrelations between transportation distance and flatness index of gold nodules (in particular) and grain morphology (in general) depends on river gradient and its energy level, and on size and type of bed-load material too. The infinite shape complexity of gold nodules is transformed down stream by flattening, mechanical bend (inflection) and rounding towards a relatively simple two dimensional formations dominated by plates and flakes.

Gold nodules of middle granulometric classes, especially flattened, are the most weared out. They have a large surface square, that is obliterated. The reason of precise dependence of gold nodule flattening on their size is the peculiarities of gold transfer and mechanical wear in water environment. In opinion of investigator majority the velocity of gold displacement along fluvial valleys is rather low, that's why gold surface wears out

thanks to the action of clastic material particles, that are moving more rapidly. Gold lies on one of the flattened sides and tries to fill a stable position with respect to water flow. When gold displacement the flattened sides position changes, and conditions for mechanical wear of two opposite squares and mineral flattening increase on account of it appear. With gold flattening increase its capacity for transportation in alluvial sedimentogenesis conditions rise; this factor together with other results in hydrodynamic metal grading. It should be noted, that it is necessary to take into account the primary middle mineral flattening, using the flatness index for the ascertainment of middle placer gold remoteness from sources of alimentation. Gold morphology transformation in sedimentogenesis processes can have such a succession: globe-shaped gold nodule – flattened globe-shaped gold nodule – discoide – rounded gold plate – gold plate with mechanical inflection – gold plate with mechanical bends – hollow tubular gold nodule, that was formed at the expense of mechanical bend of fine lamellar gold nodule – elongated plate that was formed in consequence of hollow tubular gold flattening – elongated plate with mechanical bend (repeated gold bending).