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River valley construction as hazard for engineering structure

Galina Postolenko
Lomonosov Moscow State University, Faculty of Geography, Moscow, Russian Federation (gpostol@yandex.ru)

It is common knowledge that for designing of engineering structure at river valleys it is necessary to investigate base of dam rock with a view to find out the structure disposition and nature of bottom rocks. It is important with relation to structural and economic calculation. One object of that investigation is alluvium. At present due to achievement of large success in geomorphology it is known that river valleys are constructed very complex. They have buried alluvium. Buried alluvium one can find both in plain and mountain valleys. It differs by thickness, composition and age. Since the Quaternary geological body is local, it is very important to know its chronological successive rise and the regularity of its spatial disposal. The investigative base consists in the stratigraphic and genetic research of the mellow deposit. Earlier the chronological determination depended on the hypsometric criteria <the higher the more ancient>. Complex of geomorphologic, biostratigraphic, lithologic, and physical data established the history of relief development and the spatial distribution of different age and genetic homogeneous relief fragments and sediment. These data show that relief and correlative sediment are formed as a result of the complex cyclical, non-one-trend geomorphologic processes at the Quaternary period. The several stages of relief and sediment development are established at the Quaternary period. They differed in process intensity, character and duration. This is the cause that the morpholithogenetic results of these stages are different. These are different sizes of valleys deepening and increasing of the relief height amplitude at the instructive stage, the different correlative sediment capacity at the constructive stage of relief development. These indexes are so significant, that river terraces of something stages turned out buried by the alluvium those stages that have the smaller alluvium capacity. Consequences of such valleys development lie in complex structure, wide spread of the buried alluvium within them, and presence of the chronological interruption in the terrace stairs. It is very important that alluvium of different age is situated on the same relative altitude. Now it is known that already at the beginning of Pleistocene valleys were as deep as present-day ones. All following time the river worked in them during not less than seven erosion cycles. Disproportionate wide of recent valleys and modern river streams is explained by integral results of different size stream working of all erosion cycles.
Just buried alluvium distribution produced very diverse arrange of mellow rock thickness in the valley essential increasing the prospecting thickness of it. There are two extreme cases. One of them is when the buried layers are situated under recent bottom. Usually in that case the thickness of alluvium layers is small and the bore-hole always reveals it easily. Opposite case is when the buried alluvium is separated by cliff from the flood-plain and low terraces alluvium. In that case it is difficult to find out the ancient channel buried by grand mellow rock thickness. But just ancient channel is used for water drainage on level with modern stream. As a result the storage pole can not accumulate the water or can lose it and disappear. Taking proper account of such river valley structure it is possible to avoid the influence of weakly marked influence of this hazardous natural process and material losses as early as the stage of projection.