

GENESIS OF THE NEW TYPES FERROUS AND FERRO-MANGANESE ORES OF THE LAPTEV SEA.

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In sediments of the Laptev Sea have been found unknown earlier ferro-manganese formations. On the basis of structural textural external signs they were in five groups: 1) tube – and spindleshaped pseudomorphoses over and within invertebrates; 2) nuclear and without nuclear nodules; 3) flagellum – and tube – like skeletons of polychates; 4) flat and flat-like bark-like nodules and crusts; 5) micronodules. All types of ferro-manganese ore are sorted in three main genetic series: eigenferrous formations of autochthonous (polychates, goethite micronodules) and allochthonous (nuclear nodules) nature; ferro-manganese nodules formed under mild hydro-geodynamic conditions at the boundary of a geochemical barrier “sediment-seawater”; ferro-manganese formations produced under conditions of changing physico-chemical media. Ferro-manganese formations of allochthonous type have signs of littoral zones. They contain both bi and trivalent iron and have low degree of oxidation of manganese comparison with the autochthonous type. Manganese minerals with moderate degree of oxidation are represented by vernadite and busserite. Such features of iron and manganese indicate on different conditions of their formation and occurrence. The main distinctive feature of ferro-manganese mineralisation of the Laptev Sea is the redox barrier – a water layer with enriched oxygen and reduced sediments. That makes favorable conditions for bacterial formation of ferro-manganese ores. Understanding of genesis of ferro-manganese formations should be found in the study of organic matter treatment by bacteria.