we'll plan to finish the monograph «Gold of Eurasia steppe», which is characterized noble metals in ores and ancient Au items from this unique region.

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THE STRUCTURE AND LANDSCAPE PATTERNS OF THE GNEZDOVO NECROPOLIS

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The Gnezdovo complex of archaeological sites situated some 7-13 km to the west from Smolensk town is one of the major preurban centers of Medieval Rus' covering an area of more then 150 hectares. The complex is settled mostly on the right, with some parts also on the left, bank of the Dnepr River. The Gnezdovo archaeological complex currently consists of 2 hillforts, vast settlement and 6 groups of mounds interrelated by period of existence and homogeneity of material culture. The necropolis of Gnezdovo totally count more then 1600 mound survived from damage and previous excavations (fig. 1).
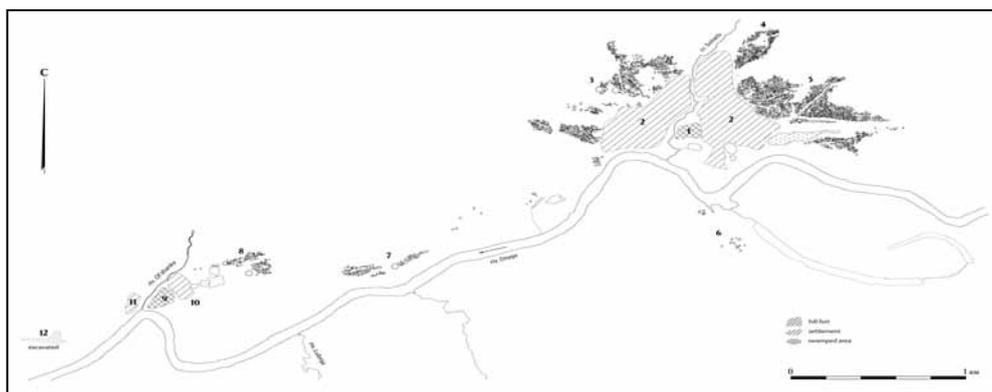
Figure 1. Map of the Gnezdovo archaeological complex: 1 – Tsentralnoe gorodishe (Central hill fort), 2 – Tsentralnoe selishe (Central settlement), 3 – Tsentralnaja gruppa (Central mound group), 4 – Glushenkovskja mound group, 5 – Lesnaja mound group, 6 – Levoberezhnaja mound group, 7 – Dneprovskaja mound group, 8 – Ol'shanskaja mound group, 9 – Ol'shanskoe gorodishe (hill fort), 10 – Ol'shanskoe selishe (settlement), 11 – Zaol'shanskoe selishe (settlement), 12 – Zaol'shanskaja mound group

Figure 2. Georeferenced data in a GIS framework: left side – intelligence image from 1970's, right side – contemporary image, color overlay – mound groups

In the past decade the History faculty of the Moscow State University has launched a project which aim was to integrate the total amount of scientific knowledge obtained from 140 years of excavations in a multifunctional computer data system. The data core of the system is operated by GIS engine which enables the spatial potential of

archaeological data. The multilayer cartography framework of Gnezdovo GIS includes a broad scope of topographic, cartography and remote sensing data: archive maps of the region dating from 1730's, historical topographic maps of the 19th century, large-scaled topographic map from 1 : 50000 to 1 : 500 produced during 20th century, archaeological plans of the complex beginning from the very end of the 19th century. A scope of remote sensing data covers intelligence photos of WW2 and 1970's as well as current high resolution satellite imagery.

Within GIS cartographic spatial data was georeferenced to a sole global coordinate system giving a versatile view on the Gnezdovo archaeological complex through temporal and anthropological change. Integration of the geodata multiplied its potential through spatial analysis algorithms applied to a variety of issues of landscape and structure specific patterns of the site (fig. 2).

Among those is the structure and interrelation between mound groups of the Gnezdovo archaeological complex. The structure of the Gnezdovo necropolis shows two distinct patterns – dense circular allocation of mounds around the settlement core of the complex and separated linear concentrations following the Dnepr flow as a baseline. Both patterns are relief relevant tending to keep an 8-10 meter minimum height gap from the water level of the Dnepr River (in its current summer flow state). The disposition of mounds avoids river floodplain and any lowlands, e.g. swamped areas. In the height critical peripheral zones of the necropolis the density of mounds seem to arise, which confirms the notion of Gnezdovo inhabitants to isolate their graves from the flood (fig. 3).
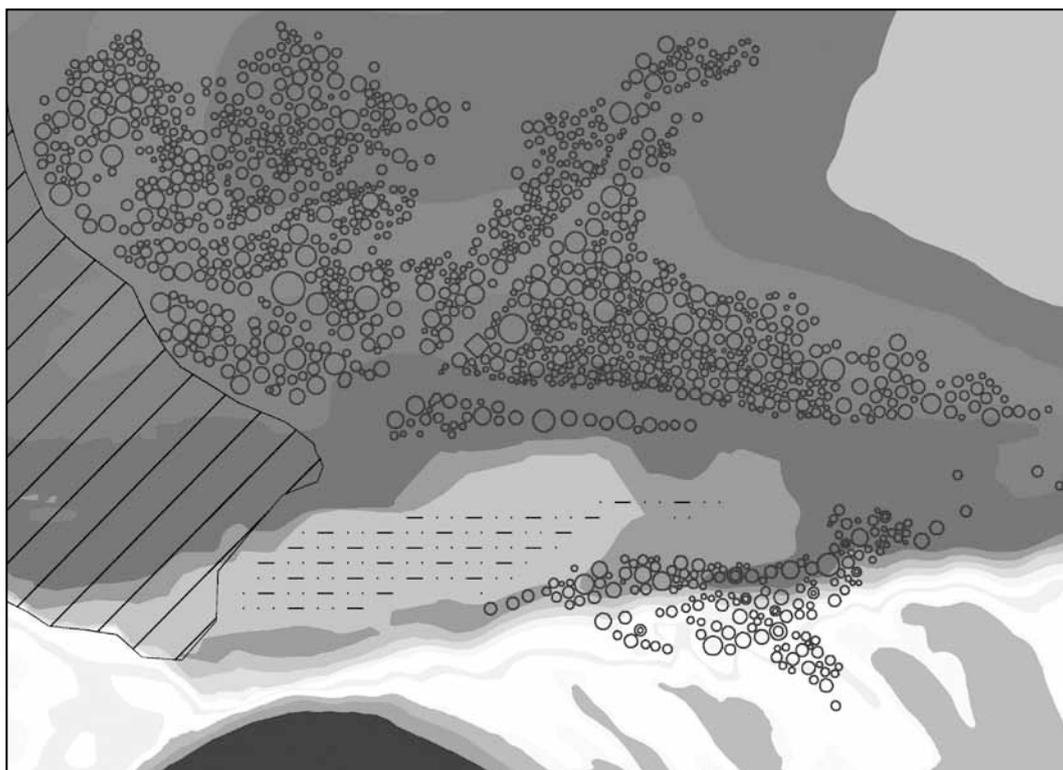

Figure 3. Eastern part of the central Gnezdovo necropolis (pattern 1) overlaid on the elevation banded map

Meanwhile in terms of isolation the circular pattern of the major part of the necropolis forms a distinct landscape barrier cutting off the settlement from the outer land. Its horseshow structure encloses the settlement from the west, north and east, while the Dnepr River provides a natural frontier from the south.

The analysis of the internal allocation of mounds within the mound belt revealed intentional gaps between mounds not related to later damage or anthropological change of the necropolis. These linear gaps most likely to be interpreted as ancient paths and roads concurrent to the Gnezdovo site.

The second allocation pattern of the Gnezdovo mounds demonstrates prominent semantic relation to the Dnepr flow, with a riverbed forming a baseline of the pattern. Mounds are grouped on the top of elevated floodplain ridges, majorly tending to their ends facing the main stream of the river (fig. 4). As opposed to the primary allocation pattern of the Gnezdovo mounds related to the settlement these mounds show no connection with inhabited areas. Such type of mound allocation forms a system of landscape marks emphasizing the role of river in the society of Gnezdovo population.

Figure 4. Mounds on the left bank of the Dnepr River demonstrating the second type of landscape allocation

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