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ARCHAEOLOGY AND ARCHAEOASTRONOMY PROBLEM OF COOPERATION

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It is discussed the coordination of archaeological and astronomical problems in the light of the new interdisciplinary science, archaeoastronomy.

KEY WORDS Archaeoastronomy

Archaeology is the study of mankind's activity and development by material remains. Archaeological methods can be used to study the latest societies as well as ancient ones. They serve to supplement the information known from the written sources. Reconstruction of ancient societies depends entirely on archaeological field and analytical (reconstructive) researches. But archaeology gives us only dead foundations of buildings, pieces of crockery, instruments, sometimes any kind of idols. We can describe and classify them, find out more or less the primitive technology of their making. We can appreciate their artistic value but only from our modern point of view. It is difficult for us to judge the economic and especially social value of our finds. By archaeological data we will never get to know emotions ancient people felt about material things of their culture.

Astronomy has an exceptional meaning among other sciences. It was at the birth cradle of thinking man. In the first place observation of regularly repeated natural phenomena (days and nights, the moon phases, year seasons) developed the thinking of primitive man. It promoted the origin of abstract ideas, a sense of time, measurement and counting. Astronomy served practical aims too. It was the foundation of the calendar and navigation methods.

More than 30 years ago a new scientific field, named archaeoastronomy, began to form. The aim of archaeoastronomy is the study of material objects (the archaeology sphere) such as special constructions for astronomic observation (the sanctuaries), study of burial sites orientation, reconstruction of ancient calendar systems by vessel ornaments, stone pictures, remains of ancient written language and so on. The sphere of using the astronomy methods is vast. The task is to work out common rules and methods (techniques) of researches.

There is one more very important aspect. It is the field of ancient astronomy ideas. They were closely interwoven with religious ideas and cults. As to mythology, conscious logic was necessary to repeat the imaginary acts of the creation of the world (cosmos) in the form of rite and ritual during the most important feasts dealing with nature cycles and the events of man's life (birth, initiation, marriage, death). Therefore in ancient times the accumulated astronomical information, and especially cosmological models, (in the absence of written language in a broad sense) was given to further generations by folklore, rites, ornaments and so on. It is necessary to add that the runic and other forms of symbol language were known and passed only among priests and were not open to others.

I would like to dwell on the most meaningful from my point of view directions, where knowledge of astronomy is of paramount importance for the interpretation of the sense of ancient (archaeological) sources. The question is about the burial sites (buried ones) orientation in an ancient necropolis (in barrow cemeteries and pit grave ones) and then about reconstruction of the special astronomical constructions and the sanctuaries (for example at the sites of ancient fortified settlements).

In the archaeological literature about burial sites the problem of the orientation of buried ones is discussed only in the aspect of differences in orientations, but rarely of reasons for it. A common point of view is that this orientation and departure from it deals with the change of summer and winter sunrise. Therefore, based on that we can say about which time of year interment was performed. There have not been enough attempts to use not only the Sun, but the Moon too in analysing the burial sites orientation. The reason for this is not only that the archaeologists do not know astronomy methods enough, but the common idea that the sunset (the West) deals with "a dead land" in ancient folk tradition. But "the West" is not only the place of the sunset (sundeath), but the place of the moonrise in the full moon period. Besides that, many Indo-European peoples have in their folk tradition ideas about the moon like "the receptacle of deceased souls". So it can be said that important and interesting material to study such as burial sites orientation still needs detailed research. Another large theme needing the cooperative attempts of astronomers and archaeologists is the theme of sanctuaries, the special places for keeping the calendar and the time.

Enough has been written about the sites of ancient fortified settlements like the archaeological study object. There are thousands marked on the geographical maps and dealing with different chronological periods and archaeological cultures. But there are not yet enough sites excavated completely. First of all I would like to pay attention not to all sites of ancient fortified settlements, but only to certain part of them, the so called sites of fortified settlements = sanctuaries in the archaeological literature. It is these sites that have some specific features marking them out from all other sites of ancient fortified settlements. First of all, they have a special plan and system. Such types of sites are spread on a vast territory including all the forest zone of East Europe. They date from one thousand B. C. up to the end of one thousand A. D. The topographic situation of such sites depends on the features of relief. In low flat country they were established on the heights among marshes, so called "the marsh sites of fortified settlements". In the indented and

hilly = mountainous country the sanctuaries were erected on the tops of hills often having a dominant position. Both types have a similar plan system. They are based on small circle or oval grounds with surfaces which are horizontal or some rising to the centre. Diameters of the grounds are from 14 up to 40 m. Usually they are circled by the fosse and a low bank (some times by two or three banks). Banks are not sizeable enough to have a war or defensive meaning. Most probably both banks and fosses have a cult (protective) sense.

As a rule the habitation layer of these sites almost has not archaeological material. Therefore it is difficult to date and make a cultural estimation of the site. In spite of this we have the possibility of evaluating the sites by archaeoastronomy on the remains of constructions. As a rule there were wooden constructions (sometimes stone ones). It was a system of posts established on a circle or near it geometrical figure (in the plan) on the ground surface. A post (an idol), bonfire or a construction imitating a "sacred tree" can be in the centre of the circle. Inside and outside the fence there were bonfires. Sometimes there were two or three lines of the post fences. These posts marked the position of the heavenly bodies such as the Sun, the Moon, the Milky Way, the constellations of the Zodiac. It is the most important feature of these post constructions independently of the sites geographical and chronological position. Such constructions were good enough for correct fixing of the seasons changing, the number of days and nights in a month and months in a year.

In conclusion I would like to note that these sanctuaries were first of all the cult objects where some ritual-magic acts were performed. Such a site was the place of meeting and "prototemple". It was the ground (observatory) for keeping the time and calendar with both practical and religious aims.

In this short review I have noted only the most important, from my point of view, themes for astronomers and archaeologists. I think that the organization of the interdisciplinary seminar or the group on the study of antiquity by the knowledge of astronomy will be useful not only for archaeologists, but will enlarge the number of sources for historians of ancient astronomy.