The astronomical nature of the sign

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Abstract

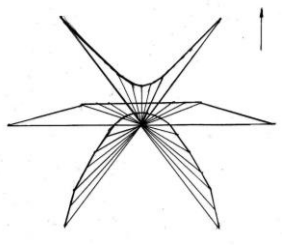
Statement of the Problem: A discussion about the origin of the sign systems began back in ancient times. Modern research in the field of semiotics (the science of signs) is based on the opinion of the artificial nature of the sign - it's meaning by agreement. The purpose of this study is to justify the astronomical source of the ancient graphic signs – sunlight and gnomon of sun-calendars.

Methodology & Theoretical Orientation: The author's navigational concept of information modeling of the world establishes cause-effect relations in the system of "signs of nature – signs of culture" on the basis of solar navigation technologies in space-time.

Findings: Modeling (mathematical calculations) and observation of the gnomon's shadow provide graphical forms that coincide with the known solar signs and signs of modern alphabets. The shadow of the object in the form of a "T", turned by the crossbar to the north, is symmetrical at the moments of the passage of the sun through the points with azimuths of 90є and 270є, and only at noon it turns into a straight line (in the conditions of the polar day – at noon and at midnight). The rest of the time, the shadow moves clockwise from west to east in a form resembling the letter "Γ", and its sequential drawing gives a solar sign. The Gnomon in the form of "Γ" ("7", "?") creates a curved shadow at any time, except for noon. Staffs in the form of a hook are known from archaeological materials of Russia (Oleny Island, Karelia - 3-4 thousand years, Oleniy Island, Murmansk Region - 6-10 thousand years, man site Sungir, Vladimir region-25 thousand years). The tradition of installing navigation crosses has been preserved in the North up to the present days.

Conclusion & Significance: The reading of the name of the ancient solar sign "swastika" (sva- "light" (in Russian – "svet") and "stik" – stick), which was proposed by us in 2010, has been confirmed. Solar technologies for the use of ancient objects have been defined: the Taul of the Island Minorca (Bolerian Islands), megalithic complexes of the South-West of Turkey (Gebekle-Tepe and others). The signs of a sundial-calendar are specific in content, but they are abstract in form, so they could be a factor of sapientation. Sun energy could become the basis of signs-knowledge, because it is the basis of the spatio-temporal organization of the Earth's geographic envelope, including the reproduction of renewable resources and the operation of the light signal system. Thus, the signs of culture can be regarded as elements of the system of adaptation and as a model of geographical space-time.

Image



A – Winter solstice: Shadows lie in the northern sector of the site because

sunrises/sunsets occurring the southern half of the horizon;
B – Spring and autumn equinoxes: Shadows form a line of W-E;
C – Summer solstice: Shadows lie in the southern sector of the site.

Figure 1: Scheme of the areas covered with a shadow in the days of solstices and equinoxes separating the astronomical seasons of the year (the arrow shows the direction to the geographical north, the gnomon in the horizontal projection is the point, the shadows at the sunrise / sunset moments are excluded - for scale enlargement)



Biography

Alina Paranina is an Associate Professor at Herzen State Pedagogical University of Russia, St. Petersburg, Russia. She uses her professional knowledge in Geography to explain rational primary purpose of ancient and most ancient objects of the cultural heritage. The research in geography of culture began with the interpretation of the drawing of northern labyrinths by means of a gnomon of sundial calendars (Paranin, Paranina 2009).

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