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**PRE–ET–PROTOHISTORY AS WORLD OUTLOOK BASIS OF
ENGINEERING ETHICS**

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Abstract

A review of some aspects of the fundamental problem considered in terms of engineering ethics is presented. The study of protohistory in the framework of positivistic paradigm has been restricted by the absence of argumentative attributes of the past. In epistemology of post- and postpostmodernist model, it left the framework of traditional interpretation revealing its heuristic potential. The problem touches upon the hypotheses of existence and ruin of Hyperborea and Atlantis caused by global cataclysm. These are ancient archetypical beliefs that have not been used for prehistory interpretation. It is proved that myth can be relevant, and sometimes the only source of information making up for the deficiency in reliable knowledge about the world. It is stated that the study of history in terms of the consequences of natural disaster changes the attitude to the life environment of man. It is stated that thorough understanding of history causativity teaches people to admit and respect the self-sufficiency of the past. This builds the notion of the changes on the planet that lead to the present day location of continents, seas and oceans, climate, and the civilizational diversity, which followed a hypothetically built reality. The prehistory issue puts its scientific principles to proof. It is considered as an essential culture element of a modern engineer, and it forms the world outlook foundation of Man's understanding himself in the historical context. He is always open to the search of new knowledge consistently overcoming the restrictions of specialization relying on new ethical attitudes.

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1. Introduction

It is obvious that the engineering profession itself and engineering ethics evolved simultaneously in the 17-th century when the revolution in science, which regarded experiment as the cornerstone of rationality,



took place. In the course of the development of experimental knowledge that brought about advancements in the transformation of the world, ethics became an essential element of engineering activity. The subjective and objective structural components of the latter denote the conflict between the goal-setting free will of the subject and existing regularities. Being closely connected with science, the engineering activity is aimed at the confirmation of knowledge organized in a system when its validity is verified in the course of transformation of different objects. In these terms, engineer's work is identical to scientific research, which presupposes taking advantage of the value system through its constant acquisition. The formation of ideals and norms is the basis of scientific and, respectively, engineering ethics, and is historical in its character. In the 19th century and the beginning of the 20th century, the value priorities of technology-related culture specified the dominant status of science and engineering activity. At that time, the private autonomy of Man as an active being who puts nature under his control was an ideal of classical rationality. Nowadays other things are important, that is, organic integration of the values of technical mind with the social values, since the technogeneous resources of civilizational development have been exhausted, and the ideals of progress need critical revision. Nonclassical rationality of postmodern paradigm has set the vector of nonviolence ideals and human values priorities. As the basis of social life, this strategy means revision of the principles of man's domination also in scientific and engineering spheres, where the role of consensus between subject and object increases. However, the problem of global community that arose in the second half of the 20th century is far from being solved. The international tension and the political instability in the world show that dialogue-oriented culture is hardly possible now. It is actively displaced by new aggressive manifestations and is impossible outside the technological achievements. In this situation, the modern engineer faces difficult moral choice: should new ultramodern weapons of mass destruction be invented or, guided by human values, should the efforts be focused on creating safe environment for people without hybrid wars and local conflicts. The answer to these global challenges are characterized to a greater extent by the reaction to the situation, rather than by sensible activities due to step-by-step strategies of predicting possible risks and even disastrous consequences for the community. This is a new growing-point world outlook orientation of the post-non-classical rationality, where science and technologies, still aiming at transformation of objective world, engage new, complicated and self-developing systems of objects into the sphere of human activity. It is impossible to develop and control them just by exerting force, since Man does not confront the object from outside, but becomes a part of the system that he is changing (Stepin, 1994). This fact transforms the ethical component of human life activity: here the predicting tactics and the knowledge of bans on some kinds of interactions start playing crucial role in overcoming phenomena dangerous for human beings. It is only reasonable to ask a question: what has prehistory to do with it?

Understanding the finite causativity of phenomena is priority in any sphere of science. The study of humankind prehistory forms the comprehensive notion of the historic process and, what is more, it cultivates the culture of "respect to the independence of the past" (Tosh, 2000) that is essential ethical purpose of activity. The admission of the objectivity of the past would relieve the modern person of arrogant conduct that is more often than not the cause of practically all global, mostly ecological, problems of today. Although, prehistory does not possess an evidential base in the usual sense, which hinders the solution of many topical problems, but this fact does not mean that the academic community should ignore it. Science "should see both sides", using both material data, and new conceptual arguments

that change the methodology of research on the one hand, and human practice on the other. Prehistory, characterized by the absence of written sources, and protohistory, covered by the sources of other civilizations, denote the early stages of humanity and its cultural and historic development before civilization arose. As a special field of knowledge, prehistory does not separate the sources, but reconstructs the process as a whole in its causal relationships revealing the synthetic nature of history. By admitting research methodology only in terms of study of written sources and archeological reality, conventional science blocks the access to the knowledge as it is. The lasting dominance of narrowly specialized research at the expense of interdisciplinary studies has “frozen” the whole subject of prehistory. Meanwhile, its study provides a totally different vector of engineering activity, which implies the strategy of human survival through understanding the world integrity and new values. Both deep ecological and anthropological crises of the modern times and, above all, the global calamities of the ancient world lead to the problem of Atlantis and Hyperborea that was first represented in the works of classical authors (Plato, 1952-1954/; Herodotus, 2008). There appeared a new line of research, atlantology (Zhirov, 1964), which accounts for 25 000 volumes of all kinds of information that has been keeping up academic and public interest to the mythological island state for many centuries (Zhirov, 1964; Zaidler, 1966; Kukul, 1989; Henning, 1935/1961-1963). However, only Chechelnitkiy’s (2004) ideas of Wave Universe, Wave Astroynamics and Cosmogeonomy have actually become a breakthrough in the research of prehistory. Having paid attention to the role of Earth rotation Pole, the author put forward a hypothesis of Atlantis being located at Russian Far East. The prehistory of that region, its population, their languages, and land Bering Bridge in the period of late Pleistocene age are subjects of the world science now. The exploration of water area of Beringia and Alaska are also important for understanding of global tectonic changes on the planet before the Noah’s Flood and after the glaciations (Dikov, 1993; Kondratov, 1981; Hopkins, 1967). It was Chechelnitkiy, who posed the question on the transit crossing between Chukotka and Alaska in the terms of potential and further development of the primitive man. The strict system of mythological and religious beliefs reflected his knowledge about nature, plant and animal life, mastering farming standards, domestication, and later, irrigation.

The hyperborean problem is much less developed than atlantology. Nevertheless, the interest to the problem throughout many centuries, starting with the publication of the map made by the Flemish geographer G. Mercator and presenting Hyperborea as a great arctic continent, shows that these studies broaden the protohistory ideas significantly (Bailly, & Demin, 2003; Warren, 1893/2003; Tillack, 1903/2001). In the works of Russian scholars, the hyperborean problem was narrowed up to the format of local history. However, the modern research proves that the problem of Hyperborea is the key to the understanding of not only Russian history, but also of the origin of humankind in the framework of the academic problem (Guseva, 2003; Demin, 2002). There appeared major results of interdisciplinary nature in the study of this problem (Loskutov, 2011; Chechelnitkiy, 2004).

2. Methods

The aim of the article is to show, basing on the modern, first of all, natural-science knowledge, that:

- the study of prehistory is an essential component of the modern intellectual environment;
- Chechelnitkiy’s ideas about Far East ancestral home of humankind should be recognized as a

scientific hypothesis opening up new horizons of knowledge;

- eradication of disparagement concerning the conditions of life in the past from people's minds, as those conditions reflect the universal course of history, is one of the cardinal goals of modern knowledge and professional activity.

This publication follows the previous works of the author where the hypothesis of A. M. Chechel'nitskiy, that Atlantis had existed in the Far East region, is presented as one of the most intriguing versions of the ancestral home location of humankind (Sabirova, & Gataullina 2014) and the hyperborean myth about the origin of Slavonic ethnos is also considered as the source of prehistory (Gataullina, 2013).

Plato's Colloquies let the scholars interpret the geographic position of Atlantis quite broadly (Plato, 1952-1954/1994). Yet the key point here is the notion of Pillars of Hercules that is traditionally treated as the name denoting the elevations on both sides of the entrance to the Strait of Gibraltar. For the supporters of Donnelly's hypothesis Atlantis is the continent behind the Pillars of Hercules (Donelli, 1882/2004) and for those who follow the version of A. Galanopoulos and E. Bacon, it is in front of the Pillars of Hercules (Galanopoulos, & Bacon 2011). However, Chechel'nitskiy was of the opinion, that the Pillars of Hercules more likely marked the Bering Strait, which was in front of the island of Atlantis (Chechel'nitskiy, 2004). The scholar questioned the fact of the Pillars of Hercules being located in Gibraltar. He referred to the information of the philosopher Aristotle, the instructor of Alexander the Great, who cited his 'anonymous precursor' in the context of Indian campaign of the great military leader: "...The Land of the Pillars of Hercules is connected with the countries of India, and there is only one sea in between" (Henning, 1935/1961-63). This paradoxical information can hardly be understood without comprehension of the role of Far East in the history of humankind.

This region is the object of regard of geologists and geophysicists, who have stated the singularity of the territory long ago. The periodic volcanic super eruptions there can throw out more than 1000 cubic kilometers of substance at a time. Thus, the super eruptions of the Toba volcano occurred 74, 500, and 840 thousand years ago in the last one million years, moreover, the first one is considered the most disastrous on the Earth. It was found out that 2 800 cubic kilometers of rock was thrown out then, and the climate changed drastically (Kulakov, 2016). This extremeness of the natural environment influenced the character of abode in a certain locality and behavior of the primitive man, who migrated intensively and adapted to the changing life conditions in order to survive. It must be in this context that we should consider the front-page news about the findings of the Russian archeologists in Altai Territory in 2010. The study of the remains of the so-called Denisov man support the concept of "multiregional" evolution according to which the new type of man had lived on the territory of Siberia before the representatives of Homo sapiens populated it about 50 thousand years ago. Although, understanding of the place and role of Far East in the terms of Wave Cosmogony by the academic science is still ahead. Chechel'nitskiy relates the Atlantis disaster to the overwhelming cataclysm in Far East that was accompanied by unseen earthquake and flood about 9360 B. C. Not only extreme seismicity, volcanic outburst, and, may be, super eruption, but also transgression in the region of Alaska, Chukotka and Kamchatka caused the flood that swallowed up both Atlantis and Hyperborea. One can picture what flood in ancient times was by the latest findings of drift beds and river sediments that were formed because of cataclysmic events. They were found by Chinese scientists in the Ladzha district, which is the archeological zone now called

“Chinese Pompeii”. At that time, from 12 to 17 cubic kilometers of water flooded out. According to the legend, the flood took place about 4000 years ago and lasted for nearly 20 years (Astvatzaturyan, 2016). One can imagine what food for thought about frailty of life modern people got after the earthquake in Japan in 2011. It moved part of Northern Japan 2.4 m toward North America. The Pacific tectonic plate also moved 20 m eastward, and, according to other estimates, up to 40m. As a result, a part of Japan became wider than it used to be (Fifield, 2016). All that and also the towns and villages ruined by water, thousands of people perished and missing give the notion of flood real substance and make people think seriously of the roles of catastrophes in human history. It goes without saying that these events cannot be put to comparison with the flood caused by Cosmogenic shock that manifold surpassed all the previous and following cataclysms in destructive power. It is apparent that there existed a different reality before Cosmogenic shock, which cannot be reconstructed without understanding the Pole of Earth rotation. Although, according to Chechelnitzsky, the true history of the Pole in Holocene age has not been written yet, and the theory of catastrophic Pole shift is not recognized by the academic science, there is an opinion that before the Cosmogenic shock, the Pole of Earth rotation (then the North Pole) was in the region of North-West America, in the Hudson Bay. Whereas Alaska was in the zone of permanent spring. There was no summer-winter interchange, since latitude circulation dominated in the Earth climate, and the East-West Earth rotation axis did not exist. When the global glacial period finished, flourishing Atlantis perished, as the Pole of Earth rotation moved away from the Hudson Bay. This Pole movement dislocated the favourable orientation of the ancient Yukon valley near the Alaska Range (the location of Atlantis): being originally oriented from the South to the North enclosed by the mountains, it was situated along the West-East line also enclosed by the mountains. The theory of cosmogeonomy resolves this contradiction. In 9500 B. C. , the Cosmogenic shock not only radically altered the living environment of man, but also the cardinal points reference, which caused the distortion of the whole vision of the past (Chechelnitzsky,2004). R. Henning states that up to the 5th century B. C. the Strait of Gibraltar had never been associated with the boundary Pillars of Hercules, and that Semitic peoples called it “strait”,Hesiod also knew it as an ‘ocean strait’. “Anyway, only after 530 B. C. the Strait of Gibraltar became ‘the western end of the world’ due to political restrictions” (Henning, 1935/1961-63).

Today Russian scientists report intriguing results of their exploration of the Arctic Ocean, which Hellenes called the Cronides Sea or the Scythian Ocean, and the ancient Slavs and Pomors gave it the name of Milk (White, Cold) Sea. It is held that it was in the Arctic Ocean water area where Hyperborea existed and perished. Let us consider the arguments of the geologists.

The Arctic Ocean, which the Dutch geographer Varenius called ‘Hyperborean’ in 1650, consists of three orographic provinces: Eurasian and Amerasian subbasins and the Central Arctic region of ocean upheavals (CAROU). The age of the ocean, which is determined by the early formation of deep-sea trench and linear magnetic anomalies of the seabed is dated back to late Jurassic or, rather, late Cretaceous, that is Cainozoic era. This indication is essential for understanding of spreading, that is, the geodynamic process of lithosphere plates moving apart caused by magmatic melt, and the spreading nature of Eurasian deep-water basin that is retained by the morphology of seabed. It was rift related crushing of the continental Earth crust that formed the Arctic Ocean. It started from the late Jura in the course of disintegration of the Pangaea supercontinent that had anciently consolidated all dry land of the

Earth. The scientists state that the ranges and uplifting of the Central Arctic region of ocean upheavals are the outliers of Pre-Cambrian hyperborean platform that formed because of its catastrophic sinking to the seabed of the Arctic Ocean. According to Loskutov (2011), the Central Arctic region of ocean upheavals is the legendary Hyperborean continent, the habitat of the Indo-European ancestors. It was found that it could start sinking at the end of the early Miocene about 20 million years ago, and completely disappeared in the period from 18 to 2.5-3 thousand years ago. The age of the bottom samples of the Mendeleyev range is about 9 300 years old, and the New Siberian Islands and the Wrangel Island are the remnants of land that sank 5 thousand years ago. On the strength of that, the scientists believe that the exodus of the Aryans took place in two stages: the first one started 20 thousand years ago and the second – 9 thousand years ago.

3. Results

1. Prehistory of humankind related to the history of Atlantis and Hyperborea ruin due to the Cosmogenic shock is a topical issue at the intersection of natural science and humanities. The scientists comprehend the mythological information concerning the whereabouts of the Pillars of Hercules and the Northern ancestral home of humankind from a new angle, when present-day knowledge about natural disasters is taken into consideration.

2. The survey shows that history has a scientific aspect, which makes the information about the past of humankind complete. The concept of Wave Cosmogonomy and the theory of the Pole of Earth rotation change the understanding of prehistory, the study of which forms integral worldview essential for the perception of the processes taking place on the Earth.

3. Interdisciplinary research is the only way to solve hard problems related to the absence of written sources. Although, the situation is not hopeless until there is mythological information, which, as the latest research shows, can contain ‘the grains of truth’. The study of pre-et-protohistory is a challenge to the world outlook of a modern scholar who does not turn back from complicated problems, but works out new research approaches.

4. Discussion

The problem studied brings up an issue of veracity, the boundaries of historical knowledge, and the nature of scientific knowledge as a whole. Mythological information became “both the Generator and the Keeper of Tradition that dies and revives from time to time” (Chechelnitzsky, 2004), the knowledge vessel, which is still to be conceived by the humankind to the full. Although even now we can speak about some important results. The calculation of the Atlantis area carried out by Kukal is worth noticing. He made his calculations basing on Plato’s description of the plane “three thousand stadia long, and two thousand stadia in the direction from the sea to the middle of the plane” (Plato, 1952-1954/1994), which made the square of 579x386 km (Kukal, 1989). According to Chechelnitzkiy, the location of the Yukon River valley fully conform to this calculation of the Atlantis valley size, but it should be kept in mind that in ancient times its area size was greater taking into account the part flooded by the Bering Sea. The fact of establishing the date when Atlantis vanished, at the turn of the late Pleistocene and the early Holocene ages, is also interesting in the context of supporting the earlier hypotheses. According to the preliminary

assessment of the latest geophysical data, its radiocarbon dating equals 11550 cal BC, its conversion into the years before Christ makes 9550₋₇₀ cal BC (Chechelnsky, 2004). It seems obvious that this information is of great interest for any intellectual, not only modern engineers, since the genesis and evolution of the modern world are not just something intriguing, but are part and parcel of their world outlook. This knowledge is hardly possible outside history, which is actually a hybrid field of study. Being neither fully realistic, nor relativistic, it falls in between, when scientific methods are improved to bring the research as close to the 'reality' as possible and move it away from 'relativity' (Tosh, 2000).

5. Conclusion

Summing up, it should be brought into focus that pre-et-protohistory of humanity is that field of science, which expands the boundaries of knowledge and forms the world outlook basis of professional activity of any specialist. Its study shows that every knowledge is relative; any new idea means putting conventional preconceptions to proof and making another step to comprehension of true knowledge, which is open to critical analysis and further understanding. Scientists have all reasons to believe that the new extremely sensitive instruments that can 'see' under the ground and under water will soon revolutionize archeology, geology, and history, respectively.

Humankind is going to face 'a chain reaction' of discoveries of long forgotten ancient towns and even civilizations. It means that engineers making up-to-date technical devices will be indirectly involved into the development of new approaches to study prehistory, its research tools, and interdisciplinary expert evaluation of new hypotheses. It just proves that scientific and technological progress is the core of civilization, and today engineering deals with compound complexes in which technological progress and sociocultural environment are interdependent components of the single whole. It appears that it will lead to the replacement of a highly specialized type of a scientist characteristic of the 20th century (Ortega y Gasset, 1929/2002), by a new generation of intellectuals, both theorist and practitioners, who rely upon fundamental foundations of human existence in their activity, which are essential for determination of value intentions and development of new world outlook orientations.

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