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### On system integration of scientific knowledge

**This paper discusses the author's approach to system integration of scientific knowledge of the 21<sup>st</sup> century based on the methodological research program**

Key words: system integration, scientific knowledge, methodological program

The 21<sup>st</sup> century is an era of avalanche-like accumulation of knowledge, owing to the internet, increased computer availability, emergence of the virtual world and the subsequent changes in social relations. If we match them against system integration of scientific knowledge, it will provoke further opposition between representatives of various scientific groups, social and intellectual strata, which may aggravate crisis developments in the human society.

We put forward a methodological research program for systematization of scientific knowledge, and human knowledge in general [1]. This paper will discuss only scientific knowledge. The program is unique in that it is based on a multi-layer system/hierarchy which includes **seven** methodological aspects, each of which should be discussed separately. Comprehensive idea of scientific knowledge is formed as a result of methodological synthesis.

The first challenge is **cultural** interpretation of scientific knowledge in general. It makes it necessary for us to take into account the entirety of all the forms of human culture existing today. In the 21<sup>st</sup> century the scope of culture has expanded significantly. Along with science, other forms of culture have gained momentum, such as education, engineering, medicine, technology, etc. Scientific knowledge has become culturally diversified, encompassing even such unscientific forms of knowledge as politics, art, pre-science, esoteric and daily experiences. That changes the nature and status of scientific knowledge, gives rise to new research areas, problems and methods. As a result, the role of science and culture as integrators and synthesizers has gained immeasurable importance.

Within the framework of the cultural approach, we should discuss the planetary/georegional aspect. Along with the universal human values, an ever-greater importance is given to the unique regional/national culture, first of all the western, eastern and Russian culture. In this context it is reasonable to talk about system integration of scientific knowledge from the **geocultural** perspective. Scientific knowledge will be systematized in accordance with the following areas: 1) West-European; 2) Eastern (Indian, Chinese, etc.); 3) Russian culture.

Unfortunately comparative analysis of the systematization efforts in science across all countries and nations has not yet been put forward as a problem for discussion. We believe that the most systematic result was achieved by the Russian space school of thought.

The 20<sup>th</sup> century witnessed an event of planetary impact – where there used to be only the **natural world** now also emerged the **artificial world**, which allowed for development of fundamental technological sciences. That gave rise to the problem of integration and systematization of fundamental and technological knowledge [2]. Systematized scientific knowledge can only be built on the basis of autotrophic understanding of the future of humanity [3]. The 21<sup>st</sup> century science will be increasingly based on the bio-autotrophic/cosmologic principles.

The underlying opposition of the natural and the artificial naturally results in nontrivial problems in the theory of knowledge (gnoseology). System integration of scientific knowledge calls for the use of non-Aristotelian logic (in particular, the novel logic of N. V. Vasilyev). The Vasilyev 'imaginary' logic offers significant expansion of logical and methodological tools, which gives rise to conceptually new areas of research, such as nanotechnology. The modern scientific subject has to project and reconstruct the information data of the sensitive human organs while taking into account not only the information derived from the planet, its biosphere and technosphere and the information generated by the human organism, but also the impact of astrophysical objects.

Understanding of the system/hierarchy of logical/gnoseological structures brings us to the **hermeneutical** component of scientific knowledge systematization. The key problem here is

interrelation between the whole and the part in science [4]. In this context, it is reasonable to discuss classification, systematization and periodization of scientific and technological knowledge through the lens of the humanity of the future. That requires a comprehensive effort in scientific reconstruction of the universal history of humanity and creation of a truly scientific history (chronology) of science.

There must be a common goal for the humanity, dominating the goals of the common planetary science. We will have to address the problem of making global scientific and technological forecasts, developing the models and scenarios of global development. That comprises the **conceptual** problem of scientific knowledge. And the Russian space school of thought plays a unique role in making conceptual forecasts.

The **anthropological** aspect is the closing systematic stage in integration of scientific knowledge. What will humanity of the future be like? How will its thinking evolve? Will it be able to bring the logical and methodological foundation closer to moral interests and needs? Solution of this problem will determine the future of science and the whole humanity.

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