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IN ANTICIPATION OF TECTONIC CHANGES IN WORLDVIEW

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Abstract
The purpose of this study is to determine whether there are signs of logical similarity and harmony between the laws of nature and the social world, society. Such similarities certainly exist; however, since ancient times they have largely remained outside the field of human attention and have been reflected mainly in folk proverbs and sayings. The importance of fundamental discoveries and inventions in expanding social consciousness and elevating societal development to a higher level is undeniable.
Moreover, they play an enormous role in deepening the thinking of an individual person; unfortunately, new discoveries and inventions are rarely subjected to philosophical analysis. As a result, discoveries do not go beyond the boundaries of a narrow scientific domain and therefore fail to reach public consciousness.
The time has come to raise the level of understanding and interpretation of natural phenomena and laws and, consequently, to elevate our worldview to a higher stage.

Keywords: Fundamental sciences, social sciences, Prigogine's dynamic chaos, Stepin's levels, Mandelbrot's self-similarity, unification.

For humanity to survive, it must move to
a completely different way of thinking.
A. Einstein

Introduction

The system of knowledge about the world, society and the human being within it has been forming since antiquity. It is not by chance that philosophy is called the "father of sciences," since originally all human knowledge was concentrated within philosophy. However, humans are naturally inquisitive s of the world, nature, and the society in which they live. This process was long. As a result, the natural sciences gradually separated from philosophy: mathematics, geometry, astronomy,

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geology, geodesy, medicine, mechanics, physics, chemistry, biology; and starting from the eighteenth and nineteenth centuries, the social sciences step by step also separated and began to develop independently: sociology, ethics, aesthetics, logic, political science, and others [1].

This study is aimed at identifying general harmonies between the laws of nature and the social laws of society. Although they often remained outside human attention, from ancient times they were reflected in proverbs and sayings of peoples. The reason is that discoveries of global significance in the fundamental sciences are rarely subjected to philosophical analysis; inventions do not go beyond the boundaries of a narrow field and therefore reach public consciousness only with difficulty.

The time has come to raise the level of reflection and understanding of the regularities of nature and society and to bring the existing worldview to a new stage.

Literature Review

How did the fundamental sciences emerge from a "dead-end" situation? By the end of the nineteenth century, there was an impression that in the field of Newtonian classical physics there were almost no research topics left, as if the laws of nature had been fully and comprehensively studied. However, in 1896 an event occurred that created the feeling that the clear sky of physics had been covered by a black cloud [2]. Henri Becquerel, while studying luminescence and X-rays, noticed that uranium salts in the dark spontaneously exposed a photographic plate, emitting radioactive rays. In 1898–1903, Marie and Pierre Curie, developing these studies, discovered elements more radioactive than uranium—polonium and radium—and called this phenomenon "radioactivity."

In the early 1900s, Marie Curie applied these achievements in medicine and discovered the ability of ionizing radiation to fight cancer cells. In this way she laid the foundations of "radiation therapy". Thus, the accidental discovery of radioactivity by Henri Becquerel in 1896 led to a revolution in physics, chemistry, and engineering. The atom, which Democritus considered indivisible and homogeneous, turned out to be "hollow" (i.e., to have an internal structure). Thus began the era of "atomic sciences," which by today has grown into the era of nanosciences.

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Niels Bohr formulated the first and second postulates of the atom [3].

Briefly: The atom cannot be seen with the naked eye; atoms are small spherical particles located at the nodes of a crystal lattice, with a nucleus at the center. Inside the nucleus are positively charged protons and neutrons without charge; around the nucleus, at different distances and different energy orbits (levels), negatively charged electrons (e^-) rotate.

In more detail:

Postulate I (conditions of the stationary state of the atom):

The atom can exist only in discrete states. These states have their own energies (E1, E2, E3…). In a stationary state, the atom does not radiate.

Postulate II (conditions of absorption and emission):

An atom absorbs or emits light (a photon) only when transitioning from one stationary state E1 to another E2. The frequency of emitted or absorbed radiation is determined as: $\nu = (E1 - E2) / h$.

The energy of the emitted or absorbed photon is also discrete.

These postulates deepened knowledge about the internal structure of the atom and the nature of light and played an important role in the formation of quantum mechanics as a science.

If we look more broadly, in the history of humankind both in the fundamental sciences and in the social-humanities fields there have been, respectively, great discoveries and world-level bestsellers that reveal the inner experiences of the human soul—for example, in the humanities, the poetic masterpieces of Alisher Navoi (“Khamsa”) and A. S. Pushkin (“Eugene Onegin”).

The system of knowledge about the human being and society has been forming since antiquity. During the eighteenth and nineteenth centuries the social sciences, like the natural sciences earlier, separated from philosophy and began to develop independently.

If the revolution at the turn of the nineteenth and twentieth centuries in the fundamental sciences began with Becquerel’s discovery in 1896, then the date marking the beginning of a later revolution in the social sciences might be considered 1848—the year of the French Revolution. At that time it became necessary to define the fate of the human being, the driving forces of history, and the causes of social upheavals, in the way that was done with the atom (i.e., to “postulate”). In parallel with the growth of knowledge in the fundamental sciences,

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social problems became increasingly relevant: material and spiritual life, legal relations, political and moral issues. Their gradual resolution stimulated the creation of many treatises on society and the human being. Examples include the works of Platon "The Republic" [4] and "The Laws", Aristotle "Politics [5], al-Farabi "The Virtuous City" [6] and "The Science of Politics", Abu Rayhan al-Biruni "Monuments of Past Generations" [7], Mirzo Ulugbek "History of the Four Uluses" [8], al-Marghinani "Al-Hidaya" [9], Thomas Hobbes "On the Citizen" [10], Hegel "The Philosophy of History" [11] and "The Philosophy of Right".

How can we overcome the situation that has developed in the social-humanities sphere? The answer to this question is sought in the following points.

Analysis and results

A brief clarification of the topic title

For a specialist far from the fundamental sciences, particularly physics, the question "What is the Great Unification №1?" may be interesting. In nature there are four interactions: gravitation, the weak and strong (nuclear) "electric fields" (interactions) and electromagnetic waves. The fact that ultimately they share a single underlying nature is called in physics "Great Unification №1" [12].

In this sense, centuries later, the phenomenon of a renewed logical rapprochement of the fundamental and social-humanities sciences—originally separated from philosophy—can, without exaggeration and fairly, be called "Great Unification No. 2," since the need for it is becoming ever more urgent. To substantiate this view, we will, where possible, refer to remarks (Wikipedia) [13] and, on the basis of the universal principle of "self-similarity" formulated by B. Mandelbrot [14], we will lay a foundation for the hypothesis proposed below (the tandem "the individual and humanity"). A remark is a clarifying author's note; in this work we use many such remarks.

First, allow me to recount a case directly related to the hypothesis, witnessed by Benoit Mandelbrot himself. In 1958 he joined IBM. There colleagues told him about a problem that had long worried them: when transmitting data through telephone networks, information reached the recipient intermittently or was lost. An unexplained noise appeared in the customers' networks, and huge volumes of "fragmentary" information accumulated. The situation remained extremely acute and seemed unsolvable. Mandelbrot began plotting the temporal graphs of these

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noises and accidentally discovered a regularity: noise graphs over a second, an hour, and a day turned out to be "self-similar." He was astonished. Scientists had encountered such oddities before and called them "mathematical monsters." The first "monster" was devised more than a hundred years ago by Georg Cantor; the second by Helge von Koch; and Mandelbrot himself contributed to the solution of the third "monster" of Gaston Julia.

Until that time they could not be solved; this became possible with the advent of high-speed computers capable of performing millions of calculations per second.

The hypothesis I propose, connected with the tandem "the individual and humanity," is logically similar to this case: in the small (the particular) the great (the whole) is reflected, and vice versa. The idea first "struck" me almost 45 years ago. Intuitively following this dream-idea, I even had to change my field of study. Over this "enormous" 45-year period by human standards, no specialist in the social or humanities sphere appeared who would do it. They say life is a game, and fate arranges it so that "social postulates" once again have to be put forward by a physicist.

If in natural phenomena the main player is the atom, then the creator of history and the main player in the social-humanities sphere is the human being (a part of the whole).

The term "atom" was introduced by Democritus as something indivisible and homogeneous; however, as it turned out, the atom proved to be "hollow" [15]. Experiments were then conducted to clarify its internal "architecture": first Rutherford proposed the planetary model, then Bohr made it coherent and formulated "postulates" for the hydrogen atom.

If we pay attention, the worldview of an individual person changes through seven stages from infancy to deep old age; these stages differ qualitatively and fundamentally. The process follows the principles of "negation of negation" and the "transition of quantitative changes into qualitative changes." These are: the period up to 4 years; physiologically, at age 12 in girls and 15 in boys; at 30–35 years; in the interval 40–45 years; at 60–65 years; at 80–85 years; and finally after 85 years. In all seven cases, a qualitative change in a person's worldview toward nature and lived life is observed [6].

This idea may seem implausible; however, its closeness to the truth is confirmed not only by B. Mandelbrot's views on similarity and self-similarity [14], I.

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Prigogine's views on dynamic deterministic chaos [16], and V. S. Stepin's concept of "levels" [17], but also by recently published results of an experiment that lasted three years. The results are close to real physiological processes in the cerebral cortex. From this one may conclude: we stand at the threshold of a new, truly "first" stage of worldview. The possibilities of the "zero stage" of humanity's worldview are already exhausted: no matter how many scientific discoveries are made, no matter how much information is "stuffed" into it, the situation will only worsen. We must act according to the principle "step back in order to hit the target." Just as a child becomes older than four years, humanity seems to have crossed the threshold of 2.5 million years—like a child crossing four years—and now the worldview of the "first stage," truly conscious, comes to the forefront.

As reported by the Daily Mail, scientists at the University of Cambridge, based on their research [18], presented a five-stage model of human brain development. The analysis is based on MRI data from 3,800 people ranging from infants to 90-year-olds. The results show that, from a neurobiological perspective, adolescence lasts much longer than previously believed. According to Dr. Alexa Mosley, the brain enters a transitional state around the onset of puberty and remains in it for more than three decades, gradually restructuring neural connections and reaching a mature form only by the mid-20s. According to the researchers, after 30 years of age a person's intelligence and personality traits enter a stable phase. The research used diffusion MRI, which made it possible to track the movement of water molecules along neural pathways and to map connections between brain regions. Analysis of thousands of scans identified five main stages of brain development:

* from birth to 9 years: an important phase characterized by a rapid decrease in the number of synapses during "network consolidation" while preserving the most active connections; the volumes of gray and white matter increase, and the outer cortical folds stabilize;

* around age 9: the first major reorganization (a phase transition, Z.K.), accompanied by a sharp growth in cognitive abilities;

* 9–32 years: the "adolescent" stage; white matter continues to grow, neural connections become clearer, shorter, and more efficient; the brain undergoes its greatest "topological reorganization" (phase transition, Z.K.); this age is most vulnerable to mental disorders; Professor Duncan Astle notes that the mechanisms

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require further study and are not yet clear, and are associated with a weakening of processes of neural network formation;

* after 32 years: the longest period up to 66 years; the efficiency of brain function no longer increases, architecture stabilizes, and certain regions operate in a more specialized mode; this corresponds to a plateau in cognitive abilities and personality traits;

* after 66 years: the first moderate stage of aging; the number of neural connections gradually decreases and white matter quality worsens, corresponding to an average risk of age-related brain diseases (e.g., hypertension);

* the final, fifth stage begins around age 83: overall neural function sharply declines; the brain loses connections formed in adolescence and is forced to rely on an increasingly limited set of functional regions. According to Dr. Mosley, previously freely used "direct routes" between brain regions disappear; the role of integrative regions increases, functioning as "transmitters" of signals. The researchers emphasize the importance of these data for studying neuropsychiatric diseases, mechanisms of aging, and the development of preventive strategies.

Thus, the experiments confirm the hypothesis of qualitative "stage-by-stage" development of worldview across different age periods of personality formation and can serve as a basis for declaring the beginning of a transition to a new "first" stage after the "zero" period of worldview.

Conclusion and recommendations

Postulate I. All people are like one person.

Among Uzbeks there has long been a proverb: "hamma odam bir odam." They do not single out people of other nationalities and consider everyone "of one blood." Today, against the background of the discussed new "first stage" of worldview and the coinciding process of revealing harmony between the fundamental and the social-humanities sciences, the true meaning of this proverb is being раскрывается: "all people are like one person."

It should be recalled that this was especially vividly manifested during World War II: Uzbeks took into their families tens of thousands of children left without parents so that they would not end up in orphanages. In this regard it is enough to remember the wartime film Sen yetim emassan (You Are Not an Orphan) [19], based on the

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script of the great Uzbek poet G. Ghulom, or his poem Men yahudiyman (I Am a Jew) [20].

Human settlement of the Earth and continents [21]

Another argument in favor of the proposed hypothesis: humanity initially spread from the African continent. This process began about 2 million years ago with migrations of ancient humans and continued with the emergence of modern humans (Homo sapiens) about 200 thousand years ago. At that time humans made the first tool of labor—a stone knife. Settlement was driven by the search for better living conditions, food, and water, and by population growth; as a result, about 11 thousand years ago all continents except Antarctica had been inhabited.

Main stages of settlement:

1. about 2 million years ago: ancient humans begin dispersing from Africa across continents, reaching Eurasia;
2. about 200 thousand years ago: after numerous “interbreedings” of humanlike apes, the ancestors of Homo sapiens appear and migrate into Eurasia;
3. about 80–100 thousand years ago: via the Middle East people disperse across Europe, Asia, India, China, and Southeast Asia;
4. about 40–50 thousand years ago: humans reach Australia by crossing sea straits (the first major maritime migration);
5. about 30 thousand years ago: via land in the Bering Strait region, Homo sapiens first enters North and then South America;
6. about 11 thousand years ago: virtually all continents are inhabited except Antarctica.

Causes and factors: search for resources for life (primarily due to population growth); climate cooling forced migrations; during certain periods sea level was lower, creating “land bridges” between continents and islands.

This process itself is a vivid example that “all people are like one person.” Inability to “digest” this simple truth once again shows how the “zero” level of thinking and worldview has fallen into disrepair.

Postulate II. As unusual as it may sound, human-like creatures separated from the animal world approximately 2.5 million years ago. After several species interbred, a “relative” of modern humans, Homo sapiens, emerged, and it was this species that began to actively spread across the Earth approximately 200,000 years ago. As

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people began to live collectively, each member of primitive society gradually began to develop human qualities. But to become “human” in the full sense of the word, a key condition arises: as they grow older and are raised in a social environment, the phenomenon of “faith” must develop in the mind and soul of each person [22]. This circumstance and quality of the individual as an individual is brought to the forefront of the “new” worldview. A person without faith is more dangerous than a predator: they are dangerous to themselves, to their family, to their relatives, and to the state; for them, nothing is sacred.

Science also faces the problem of ethos. On this important issue, I'll most readily refer to V.S. Stepin, who convincingly explains this issue in his presentations. There are two principles in science. The first is: seek the truth; truth is most precious. Socrates is quoted as saying, "Plato is my friend, but truth is more precious." The second principle is the principle of novelty of truth. Deliberate distortion of truth—plagiarism—is not permitted. It's necessary to strictly adhere to the institution of references and distinguish between what existed before the novelty was introduced and, in fact, what constitutes the novelty introduced by a specific study.

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