

## On several prerequisites for the emergence of rational medicine according to Hippocratic Corpus

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Based on an analysis of Russian translations of *Hippocratic Corpus* texts, several preconditions are identified that enabled the emergence of rational medicine in the classical period of ancient Greek culture. According to the author, the first prerequisite formed under the influence of the first Greek natural philosophers' framework for finding natural causes for the behavior of normal and pathological processes in the human body. The second prerequisite was the formation of practical methods of medical diagnosis and treatment and their subsequent use together with theoretical methods. The merging of experimental-practical and logical-theoretical ways of knowing made it possible to develop a unique approach to medicine, creating the opportunity to mentally "complete" a picture of a disease and to detect the "invisible" – the hidden processes that were taking place in the human body during illnesses, and on this basis, issue the correct diagnosis and apply adequate treatment. A third precondition is defined as the reflexively formed distinction of object and subject in medical practice – the patient's body and the physician as a theorist-researcher and healer-practitioner, which indicates a growing interest in the issue of humanity in the classical period of ancient Greek culture. The ideal of justification and evidence in knowledge as the main activity of the authors of the landmark *Hippocratic Corpus* text is the fourth prerequisite for the development of rational knowledge about health and disease of the human body in ancient Greek medicine. Arising from this premise, a consistent and logical form of presenting the content of *Hippocratic Corpus* treatises enabled a productive transfer and efficient reproduction of the accumulated secular ancient Greek medical theoretical knowledge and practical skills of each successive generations of doctors.

**Keywords:** *rational medicine, Hippocratic Corpus, a human, the nature, organism, health, illness*

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One of the most interesting, complex and relevant issues in the history of medicine is the advent of its development, not only as a form of medical technology, a "secondhand product" of craft or ritual practice, but as a purposefully created, specific and unique system defining the rational knowledge of man<sup>1</sup>. The appearance of rational knowledge is the result of a "logocentric" paradigm that formed emerged solely in ancient Greek culture, based on the belief in the absoluteness and immutability of the laws of the

universal mind, laws understood and discovered by the man in his own spiritual ability [2]. Accordingly, in addition to thinking about the principles of the world order, the emergence of rational knowledge implies a reflection of the "second order": man's pondering of his ability to grasp these principles and the production of specific methods for the study of nature and man on this basis. The reinforcement of this paradigm as a common cultural and ideological principle exerted a significant influence on the representatives of the Greek secular medicine of the 6th-4th centuries BC, primarily the Kos school, which led to the emergence of a new, rational form of medicine that included a set of invariant features that were sustainably preserved during the historical change of the types of scientific rationality [3]. As each stage of the development of medicine, in each specific historical era unfolds,

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<sup>1</sup> D.A. Balalykin states: "Without attracting the conception of" "rational knowledge" we can not denote a line of the formation of natural science, separating it from the magical practices of the temple of medicine, the occult mathematics of the Pythagoreans, etc" [1, p. 169].

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the interaction of these characteristics occurs with characteristics peculiar to each epoch of scientific knowledge [3], it always remains a relevant problem of finding premises, due to which medicine as a social institution and as a special form of rational theoretical and practical activity has retained its uniqueness. Our present time is no exception. The discovery of the origins and premises of scientific and rational medicine, especially at the stage of its development, analysis and comparison with characteristic features of modern medicine is an effective way of understanding current problems and finding ways to subsequently overcome them.

By the 6th–4th centuries BC, the history of therapeutic and preventive technology of the ancient world spanned several millennia. Within the framework of the oldest folk tradition, a considerable number of models on the effects on the human body medicines of natural origin were formed by through experience. Egyptian papyri were famous for their detailed descriptions of various diseases and methods of treatment, Indian surgery reached an unusually high level, and an ancient Chinese pulse diagnostic retains its importance to this day. However, in spite of these achievements and the existence of outstanding groups of professionals, modern researchers in the field of the history and philosophy of medicine [1, 4–9] do not consider the knowledge accumulated during the millennia of ancient eastern healing systems medicine in its modern sense, according to which it acts as a system of theoretical and practical activities, built on a scientific and rational foundation. Eastern medical knowledge must be denoted by such terms as “healing”, “treating”.

W. Jaeger notes that even with considerable experience and numerous empirical observations of healing, he did not work outside the craft in ancient Egypt because Egyptian culture did not have a philosophical approach to natural phenomena [7, p. 15]. James Longrigg indicates that in ancient Egypt and Mesopotamia, disease etiology and the use of therapeutic agents were so strongly associated with the belief in magic and supernatural reason that a rational understanding of the mechanisms of disease, its effects on the body, as well as ways to cure it was impossible [8, p. 26]. A healer’s thought process in ancient Eastern societies is mythical, not rational: he was still unable to distinguish himself from the

surrounding reality, but he understands that there is an external reality, but is also weakly conscious of himself in this reality. The dominant civilizations in ancient religious and philosophical systems “did not create the conditions for a positive response to the question on knowledge of nature and of man” [4, p. 65].

Societies of this type were not adapted to the dynamic, actively-developing type of information accumulation that allowed for the formation of the limited knowledge and practical skills that were used only for the preservation of the traditional type of economic activity. The creation of scientific knowledge in eastern culture is a practical prescription and still has acquired the status of knowledge in the natural processes unfolding in accordance with objective laws [3].

Only in ancient Greece, where a new type of culture had emerged radically different from that of the Ancient East did there occur a pivotal moment in medical development, becoming the necessary step in the process of the formation of proper scientific medicine, completed in the New Times. A new type of culture emerged during an acute crisis in the settled way of life and traditional values [9, 10]. At that time (6th century BC), the role of the ideological foundation found itself threatened by failure and the order of human life assumed a philosophy that arose in an environment where old traditional mythological representations of ancient society had been inadequate and no longer carried out their ideological function [10, p. 9]. Only after graduating from the school of its philosophical predecessors, which sought to understand the essence of nature and the world as a whole, was Greek medicine able to create a theoretical system that could serve as the basis for scientific medicine.

Serious difficulties during the study of the emergence of rational medicine are caused by insufficient fundamental domestic research in the field of the history of ancient Greek medicine, particularly Russian-language reports that analyze the interaction of medicine and philosophy in the development of scientific knowledge of man. The identification and analysis of the formation of the premises of rational knowledge of man in ancient Greek medicine was conducted based on a study of the treatises published in the 1936 Russian-language edition of “Hippocrates: Selected Books

“(translated by V.I. Rudnev), works of foreign and Russian authors on the history and philosophy of medicine, as well as the studies of Russian experts in the field of the history of philosophy and science.

According to this premise, the most significant factor was the authors’ of the “Corpus of Hippocrates” to find natural causes for different states of health and disease. According to J. Longrigg, the “Corpus of Hippocrates”, virtually free of magic and the supernatural, was a vivid contrast to the texts of the magical medicine of the Ancient East. As Longrigg notes, the most significant feature of ancient Greek secular medicine that arose under the influence of Ionian natural philosophy is the ability of rational medicine to explain the emergence and course of diseases and also explain the methods of their treatment using natural (and not supernatural) reasons. A similar opinion is expressed by J. Jouanna: “Hippocratic philosophy no longer ignores or denies divine intervention in the process of disease, magic treatment through prayer, incantations and purifications” [6, p. 201].

This approach is present in the treatise “On Sacred Disease”: “With regard to sacred disease, it works as such: I think it is not at all divine or more sacred than others, but it has the same nature of origin as those of other diseases” [11, p. 495]. In another treatise, “On Airs, Waters and Places”, he considers the nature of diseases, the physical and mental constitution of the peoples of Asia, Europe and Africa, their lifestyles as a result of the influence of natural factors on man, namely geographical location and climatic conditions.

The claim of the author of “On Airs, Waters and Places” that any illness “has its own nature, and nothing is done outside nature” [12, p. 300], should be understood as such: that every disease has the necessary features of emergence and duration, as well as a natural cause, which is a derivative of general natural laws.

One of the features of tests of the “Corpus of Hippocrates” is that the rationalism of the authors of these treatises, “even when it rebels against magic and superstition, is not atheism” [6, p. 216]. V. Nutton, commenting on the opinion of the author of the treatise “On Sacred Disease”, said that the greatness of the divine is not revealed in the possibility of accidentally “requesting” recovery from the gods, but most

significantly in the “necessity” that permeates the entire the world and allows a genuine doctor to understand how disease occurs [13, p. 65]. This change is observed in the strategy of the healer: the passive position of the healer, blindly obeying (unknowably) divine power that can take or give health, is replaced by the position of the subject that knows the natural laws (“necessity”) of the divine universe in accordance with the idea of micro and macrocosms and, on that basis, diagnostic and therapeutic procedures.

An analysis of the texts of the “Corpus of Hippocrates” indicates that the concept of the “divine” in Greek secular medicine gradually loses its former importance as “supernatural” and becomes “natural”, expressing the original, timeless, natural, and, most importantly, knowable cosmic order. By existing independently of man but including him as a particle, deified nature becomes the only source of knowledge of man.

Based on such an understanding of the natural and divine, secular rational medicine differs significantly from the mystical medicine of the Asclepius temples. Knowledge of the natural, legitimate reasons of disease and the characteristics of their course is necessary for the successful medical treatment of people. According to the laws of temple medicine, recovery of the sick is due to divine intervention, which precludes the possibility of having any “control” over the treatment process (it is reduced to a “miracle”, or an “exceptional case”) and of acquiring new knowledge of man (it is not required).

J. Jouanna explains the distinction of rational medicine from the previous forms of medicine with the term *miasma*, which is used in Sophocles’ tragedy “Oedipus Rex” and the treatise “On Wind”. In “Oedipus Rex”, *miasma* is a religious offense involving bloodshed, and in the treatise “Hippocratic Bodies”, that is, certain types of evaporations emanating from the ground, wetlands or cadavers, deprived of any religious and moral qualities. In this way, *miasma* in the treatise “On the Winds” acts as a natural cause of epidemic diseases, and influencing these can thus prevent epidemics.

However, the establishment of a rational knowledge of man is not limited to the desire to expand the concept of the natural space apparatus. Some texts of the “Corpus of Hippocrates”

demonstrate the emergence of another important event, which became a prerequisite for the advent of rational medicine, or the creation of a new empirical method of studying human nature.

The first Greek natural philosophers tried to understand the patterns of cosmic order in a speculative fashion. So, in the treatise “The Body”, anthropogeny is wholly dependent on cosmology: the formation of different parts of the body is described as a mix and transformation of the primary elements of the universe: ether, air, and land. Only two of the primary elements – fire and water – are recognized by the author of “Mode”, and he visualizes the organization of the human body through an analogy with the structure of the universe, and not on the basis of empirical observations. In the work “Week”, a correspondence is established between man, the microcosm, and the universe, the macrocosm, but on the basis of global organization, which is in contrast to the treatises discussed above, in which the idea of the number seven is put forth [6]. The fact that the concepts of the organization of the cosmos and man did not have any significant influence on the subsequent development of medicine indicates a gradual transition of secular Greek medicine from an exclusively speculative approach to an understanding of the world.

In the treatise “On Art”, the author describes two categories of diseases that correspond to two ways of understanding: observation is employed for “open” diseases that “break through to the surface of the body or produce a tumor” and “reveal themselves, either for viewing or touching” [14, p. 136]. Hidden diseases are understood by “mental vision” [14, p. 137], “which relate to the internal parts of the body” [14, p. 136], and are therefore impossible to study experimentally. It is the ability to see the invisible – the hidden processes occurring in the human body during an illness, and on this basis make a correct diagnosis and select proper therapy – that became a feature of the emergent rational medicine in ancient Greece.

The author of the treatise “On Ancient Medicine”, criticizing the natural philosophers, such as Empedocles, said: “I suppose that a clear understanding of nature is borrowed not simply from anywhere, but only from the medical art”, that “all that is said or written by sophists as well as doctors relates not so much to medical art as it does to painting” [15, p. 162]. According to him,

“medicine does not need a hypothesis at all” [15, p. 147] and exact knowledge of what “a person is and for what reasons he emerges” [15, p. 163], is achieved in a practical, manual way – the way of medical art. However, this does not mean that inferences are excluded: the experimental method of understanding nature and man is present in the treatises of the “Corpus of Hippocrates”, along with the thinking method of constructing knowledge.

Only since the creation of its own, the experimental method of cognition distinct from the purely speculative has rational medicine become aware of itself as a special, specific area of activity. Combining inferences with the practice, the physician studies man not only as part of a whole, like a miniature model of cosmic organization, but the universe begins to be understood as a smaller-scale whole – the human body. It is known that the interests of the first philosophers lay more commonly in the universe than in man. In Greek culture, the 5th century BC is referred to as the era of the birth of ancient origin of humanity, in which “man is conscious of his place in the universe, its constructive power, which allowed him to move from the natural to cultural, and when he discovered that he himself is an object of science” [6, p. 232]. This trend was fully supported by ancient Greek rational medicine, because only in the works of the “Corpus of Hippocrates” does man consciously become the subject and the object of medical activity.

The evidence-based approach, which objectifies the human body, and on the basis of practical observations, identifies patterns of its functioning, is the treatise of “On Human Nature”, in which the author no longer believes that human nature copies the universal process precisely. The humoral theory he puts advances, according to which the ratio of the four main human body fluids (blood, phlegm, yellow and black bile) plays a major role in maintaining the health and appearance of the disease was the result of, on one hand, the search for a specific human nature (man first appears as unique object), and on the other – the approval of the empirical method by lengthy observations of the sick person.

The treatises “Prognostics” and “On Sacred Disease” are also based on a detailed and thoughtful practical study of the body of the sick person. The author of “On Sacred Disease”

searches inside the human body for the natural cause of disease: “The cause of this disease, as well as many other diseases, is the brain” [11, p. 500]. Further on, he develops a supposition that all higher mental functions – thinking, feeling joy and sorrow, emotions – are associated with the brain, when functioning during normal activity, its problems disappear. Although the idea of the leading role of the brain in ensuring human life is dominant in most of the works of “Corpus of Hippocrates”, over a fairly long period of ancient medical practice development was dominated by other views (for example, according to Aristotle, the rational part of the soul is in the heart and the function of the brain is to cool the heart).

The treatise “On Airs, Waters and Places” is dedicated to the description and analysis of the medical object, that is, the human body and its relationship with the environment. In the opinion of the author of this work, the impact of external conditions of various types – climatic, local, natural, astronomical, and even social – on human nature determines the physical and mental constitution of the peoples of Asia, Europe and Africa. However, even the author’s distinction between “*physis*” and “*nomos*” (a custom or a social norm and independent from the law of human nature) does not contradict the idea of the domination of natural factors in the development of diseases: social environment is conceived as a kind of natural environment. This does not prevent the treatise “On Airs, Waters and Places” – being not only a work of medical literature, but also one of the first works on ethnography and anthropology – from making “a significant contribution to the emergence of the human sciences” [6, p. 240].

In addition to the goal of identifying and analyzing the natural causes of good health and illness, the creation of a special cognitive method, the “discovery” of man as an object of medical practice in the texts of the “Corpus of Hippocratic”, a universal idea of its subjects – doctors and researchers – emerges.

As is well-known, the “Corpus of Hippocrates” was not the first and only medical document in which the ethical system of regulations and requirements for the medical profession were introduced. The Chinese and Indian treatises also described the norms for a physician’s behavior, appearance, their attitude towards colleagues and the requirement of continuous professional

development. However, only in the “Corpus of Hippocrates” are there separate individual works dedicated to the matter – “The Oath” [16], “On Doctors” [17] “On Courteous Behavior” [18] “Manual” [19]. Moreover, alongside the apparent similarity of ancient Eastern and ancient codes of ethics is a significant difference in the question of who should be given special medical care. The canonical treatise of Indian medicine “Charaka Samhita” indicates that the treatment of the sick in ancient codices was selective, and the status of patient was not given to all the sick: “You should never prescribe medication to those who hate the king, those who are too sick, criminals, people with unstable behavior and an evil character who do not know themselves and indulge their sins, those who are close to death, as well as women in the absence of their husbands or guardians [20, p. 16]. For the doctor, the only Hippocratic condition providing medical care became the presence of the disease [9, p. 170]. “Thus, the works of Hippocrates minimize social opposition ...they treat the slaves as well as free, and ignore the difference between them in nature” [5, p. 131].

V.A. Rybin notes that the principles of the Hippocratic Oath are medicine not only as a sphere of professional activity (work with the human body), but as a sphere of “practical philosophy”. With this approach, the patient, for the first time, becomes the center of research and subject to deliberate action on the part of the subject – the medic. This is possible thanks to the fact that the doctor sees the patient as a reflection of himself: a situation where with the diversity of natural and social differences of all people (including most doctors) are united by a single “human measure” [9]. The “benevolence” of the relationship of the doctor with his patient is manifested in the fact that the interests of the patient and his health are the starting point in treatment and diagnosis. The patient is not an impersonal object of influence or manipulation, and is a sentient and intelligent being, “responses” of whom the doctor’s effects are essential to building adequate therapy.

Another prerequisite for the birth of rational knowledge of man – knowledge that distinguished ancient Greek rational medicine from that of the ancient East – was the ideal of substantiated and evidence-based knowledge. As V.S. Stepin notes, the Greek polis made

important decisions during public assemblies by passing them through competing proposals and opinions. The advantage of one opinion over another was determined only through evidence, in which references to the authority or special social status of an individual was not considered a serious argument [3]. Being a citizen of a certain polis, the doctor in ancient Greece was not only a participant in such meetings, but was forced to “shine with eloquence” by virtue of their professional affiliation. It is not due to chance that some treatises in the “Corpus of Hippocrates” (“On Art”, “On Ancient Medicine”, “Law”, “On Human Nature” (first 8 chapters), “On Winds” were public speeches.

And in all other compositions, regardless of whom the authorship belonged to (Sophists, representatives of the Kos or Knidos schools), the content is presented consistently and logically, to convince the reader. This way of presenting information shows that facts, descriptions and conclusions presented in these texts not only passed checks by special practices, but also received a serious theoretical substantiation. In this way, the analysis made it possible to identify several important prerequisites for the birth of rational medicine in the culture of ancient Greece in the 6th-4th centuries BC. First, under the active influence that formed as a part of the Ionian natural philosophical principle which searched

for the natural causes of good health and disease in ancient Greek medicine, there emerged the possibility of the rational study of human nature. Second, the evolution of the ideas presented by the authors of the “Corpus of Hippocrates” relating to the explanation of the nature of man – from the purely speculative schemes to a focus on an empirical knowledge of the patient – which contributed to the emergence of a practical method of studying the human body in medicine. This approach was realized in the form of its figurative theoretical inversion: the universe (the macrocosm) began to be studied through man (the microcosm). Third, in ancient Greek rational medicine, under the influence of “Greek humanism” as a general cultural trend in the 5th century BC, a conscious separation took place of the object of medicinal effect (human body) and the subject (the doctor as the researcher). The firmly-established ethical requirements and regulations in the “Corpus of Hippocrates”, addressed the subject of medical practice and became the “gold standard” of medicine, marked by its “categorical imperative”. Lastly, the ideal of the validity of evidence and knowledge, established in ancient Greek philosophy and medicine and reflected in classic medical treatises, was the beginning of a continuous process of a progressive expansion of knowledge of human nature, which has led to the emergence of modern medicine.

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