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Phases of the paradigm. (a draft of psychological and historical epistemology) Part1

The paradigm is defined as a contrast of a narradigm. The narradigm is a transformation from potentials of creative individuality into a set of cultural models in textual and narrative terms, and paradigm is quite the reverse, it is a displacement of the "subjective" by the "objective" picture of the reality using the instruments and the rigorous scientific research procedures.

Historical period of the paradigm is divided into lengths which are called the phases of the paradigm: heuristical, magical, philosophical, scientific and the phase of astroregulation.

In the first part of the article we describe the heuristical and magical phases of the paradigm.

Key words: a *paradigm, a narradigm, the phases of the paradigm, heuristical, magical*

Present theoretical reanimation of the psychology of our country brought joyful news to humanities that psychological science exists and even wins. But the new fear immediately springs up, it is the fear that a pendulum of humanities could rotate about pseudo-science [12]. Frankly speaking, the active researchers say that rumours of the sunset of the paradigm of natural science have been greatly exaggerated. As regards the world science it is just the opposite. Concerning our science they will disappear when the expensive research equipment floods the laboratories [2]. But the humanitarian paradigm in psychology, according to the adapts' words, it is not obligatory occult science*;* it can be a cultural analysis [5]. However, there are different points of view about interrelation of natural science and humanities in psychology, it can be considered as a break-down of a pendulum or dragging the rope or maybe on the lines of Beethoven final "Hug

millions" the word "paradigm" flashes through the mind automatically. I must admit that I can not use this indicated term easily that's why this article will be devoted to cultural and historical analysis of the structure of the paradigm.

The attempt of the periodization of psychological science according to paradigms was made by Madsen K. [7]. The Dutch scientist separating a structural unit for analysis of psychological history, firstly has limited the history to contemporary knowledge, secondly he has put down the standard concept out of the brackets of his construction. In this article brining to your notice, we are dealing with historicism of the science in the context of the paradigm.Besides I think that, paradigm process (legitimization of knowledge in a certain light) is larger than science in the full sense, and includes the latter as its historical moment. Historical period of the paradigm is divided into lengths which are called the phases of the paradigm.

To put it briefly, I'd like to explain how this idea was conceived. Since 1994 I have been elaborating a model of the narradigm. I propose it to counterbalance Koon's concept of the paradigm, and in addition to it. The definition of the narradigm is given together with the description of its phases, I distinguish five of them: apocrypha, canon, humanism, humanitarianism, humanities. (see Shkuratov, 1994). I seek to show that the cycle of humanities is specific and different from the cycle of natural sciences proposed by Koon T. [6].

I suppose that these indicated cycles are built in respect to a man and his world in different way: the narradigm is a transformation from potentials of creative individuality into a set of cultural models in textual and narrative terms, and paradigm is quite the reverse, it is a displacement of the "subjective" by the "objective" picture of the reality using the instruments and the rigorous scientific research procedures. Now I have to infringe upon Koon's concept and modify it adding some phases. This transformation will be made in order to juxtapose the two concepts in a certain light. I have no possibility, right or desire to intrude into the history of particular natural science. The sense of juxtaposition consists in finding two psycho cultural vectors of knowledge-personal and extra-personal.

The first marks the trend of socio-cultural consolidation of integral human being and the second one is the transformation of human knowledge into reality cleared from "subjective" (The

other).(Details about juxtaposition The other- Self see [10]).One trend is called the narradigm, another – the paradigm.)

I distinguish five phases of development for both the paradigm and the narradigm as well.I think such a coincidence is not occasional. I tried to compare them and draw a parallel between development of experimental-empirical and narrative series of knowledge.I won't deny that thinking over phases; I couldn't prevent half-intentional adjustment of the paradigm phases to the narradigm ones. Now it is a question of the hypothesis, when we start verifying initial model, this symmetry, perhaps, will disappear. Thus the phases of the paradigm are the following: heuristical, magical, philosophical, scientific and the phase of astroregulation. The discussion is mainly held about material of Modern history**.** Though I didn't aim to describe the course of European knowledge from the late Middle ages till the 20th century, I believe it is better to introduce the general science schema, using coherent and homogeneous material, besides it is well-known to the most of readers from the school course of physics. The chronology of the phases is tentative (don't forget that it is the first presentation of the model): heuristica- the 14th century, magical- the 15th-16th centuries, philosophical-from the beginning of the 17 th century till the end of the 18 th century, scientific- from the beginning of the 17 th century till the end of the 19 th century. The phase of astroregulation is assigned for the edge of New European paradigm.

Philosophical and scientific phases are following in parallel, they adjust each other, all the history of European knowledge-it is a dialogue of philosophical generalizations and theoretical and empirical scientific discoveries.

However, firstly, philosophy precedes the science logically. Secondly, I do not plan to cover all New European science; I try to trace how its paradigm core is forged. The scientism of European culture of the last three or four centuries is supported by a small group of physics and mathematics, gradually, turns touching, embracing all natural sciences and beyond them.

Every time pioneers' discoveries are consolidated into contemporary production of knowledge,using prepared by the philosophy ground in advance.

The wavy development of particular paradigms makes impression of the parallel existence of philosophy and science.

However, if we examine particular paradigm lines it turns out that there is a definite sequence of the phases. It, obviously, follows in outline the sequence of maturing central mechanics and mathematics paradigm, making corrections for specific character of the material.

Progressive European science of Modern History is nature-oriented; its ideal is mathematical knowledge. I will permit myself another image. Planetary system of scientific bodies is kept in its place by the sun of physics and mathematics. The standard of precise sciences can not be complied with some other sciences, and even approaching these standards would signify their destruction. But there is no question of resemblance between peripheral bodies and the sun. We mean only leaning towards the sun in the knowledge system.

High standard of scientific work of Modern History includes experimental research, mathematical verification of data, and the existence of the subject under consideration in the form of the hypothetical quantitative models. It is desirable to do without a priori profound definition of the explored phenomenon, giving the possibility to empirical research to outline its nature. These are Newton's winged words "I do not advance hypothesis" and the main law of nature-the law of gravitation. Instead of law definition we find the order of its measurements, in other words, we face the paradigm center of knowledge of Modern History. Classical mechanics, formed after appearance of "Mathematical principles of natural philosophy" (1687), do not lose scientific priority till the end of the 19th century in spite of sophistication of architecture of organized thought. At the end of the 18th century Kant I. set up the gradation of sciences, taking as a reference point Newton's natural sciences. Critical philosophy shows the architectonics of scientific intellect, and its interrelation with spheres where imperatives of freedom and taste operate-moral and aesthetics. So philosophy finishes the career as a creator of gnosis basis of New European knowledge and goes along with Newton's paradigm a special professional science ("science building", "gnosis", "the theory of knowledge"), a scientific phase of Newton'paradigm. Kant's trend of philosophy becomes instrument of normal research practice (according to Koon), improving its category apparatus and methodological consciousness. It doesn't relate to parallel philosophies joining the sciences of lower status than mechanics and

mathematics have, for example Hegel's philosophy which serves historiography.

They are placed outside the central paradigm of Modern History, they have their own autonomous lines, conjugate to the main direction of European science.

Thus, the border of "count-down" of New European paradigm is more or less clear. Regarding the movement from the past to this border, it is Middle Ages science of the 14th century. Her principal paradigm is Aristotle's paradigm. It means that scientists are looking for hidden forms of phenomena inside these phenomena or in the notions of these phenomena (universals). To put it otherwise, they discuss what to learn first- abstract words: a circle, whiteness, a cat, a frog or objectively existing entities of the circle, whiteness, cat, and frog. The first are called nominalists, the second ones are realists. Though both of them are scholiasts, this is the last nominalism that was starting point of New European paradigm.

Up till now there was a tendency to look for roots of New European discoveries in the antiquity,rejecting Middle Ages a fruitless, obscure period. It still exists thanks to popular-science publications. A closer look at the material shows that there is no gap between ages. Scholastic physics can not give rise to Newton's physics, of course. These are absolutely incompatible ways of knowledge production. They are divided in phases entering the paradigm, but they do not meet the definition of science (scholastic, experimental or some other).

I denote the beginning of the paradigm cycle by heuristical phase of the paradigm.

It is the period of productive conjectures and thoughts about knowledge problems when instrumental or logic-theoretical solution doesn't exist. The specialists of heuristics advise to stimulate intellectual activity, allowing paradoxical, illogical, fantastic ideas, and choosing, consolidating, developing perspective solutions to cut down the way between "zero" heuristical state and mental product.

Interesting thoughts coming to mind and the beginning of European science are the phenomena of different order.

But they are similar because they are characterized by intellectual indeterminacy and basis absence. Principal difference consists in the fact that the intuitive beginning of European science

developed into well-known results, that the science historians consider a starting point and an individual's ideas fade away without consequences. However, we can omit this key moment while we speak about general picture of experience in a state of epistemological indeterminacy.

It is not true that an ordinary thinker can only "contrive a bicycle" or "discover America", some original ideas occur to them. But they are lost for the sciences, because inventors forget about them, do not keep notes, do not formulate them well and, of course, they do not spread their ideas. Everyday knowledge do not possess a special instrument, procedures to acquire something new. There are few people who will advance ideas observing rules: formulate a hypothesis, find facts to verify it, to find a theory for explanation. Besides, it is necessary to meet corporative requirements of the leading science; nonprofessionals deprived of professional status and who dared to declare about themselves, lead a solitary life and become victims of knowledge. Organized knowledge rejects ruthlessly conjectures made by "strangers" and helps forward selected discoveries on the stages of their legitimation. People who are doing researches according to their profession and know their technology have the best opportunities to grow their conjectures up to recognized discovery. The beginning of the paradigm is tabula rasa, we mean that this new direction doesn't have at the disposal a technology, formulated problems, social status and a psychological portrait of the researcher.

Therefore we can compare an individual's conjectures with the beginning of European science: it is a development from a "zero", heuristical state. Certainly, the new grows through the old in the real life. I have to sacrifice difficulties of formation in order to give characteristics of paradigm phases from the standpoint of logical and historical succession. This succession is isolated from retrospective review. When we know what we want to find we can omit the context and start from some "absolute beginning". We take for that starting point heuristical conjecture, to put it differently, amorphous problem without structural task and without dividing into subject, object and knowledge facilities. I call this very period by the heuristical phase.

The history of the discovery starts by the case of the private researcher, demonstrating universal human curiosity, when he faces mysteries of the universe.

At the heuristical phase the universe and the subject are merged in the individual's thinking process. Clear separation between individual and universal doesn't exist, but the creation leaves a trace.

Heuristics is a series of mental conjectures, existing till the "right" answer is found.The inventor has to find the answer out off the norms of intellectual intelligibleness adopted in a certain culture. Of course, heuristical statements are more universal, than a correct logical reasoning. It is like a habit of people to see dreams than to study scientific treaties. We also need to add dream interpretations which arevery unsteady and local.

Heuristics are a kind of day dreaming, the new flashes through the mind of the inventor in the form of the fleeting images. The first conjectures take the form of pictures, signs, fragmentary sentences, sketches and so on. They look like unintelligible words, but they are adequate to the first specification of creativity in a mental culture. The thought is too original, Self is dissimilar. These ideographs, hieroglyphics are not the formulas, tables or diagrams, they represent an idea rather than a particular word. When the mind makes the first step to intelligibleness, its exercises are pretentious and remind poetical imagination, schizophrenia delirium or mystical revelations. You can perceive future formulas, designs, definitions through these hieroglyphics and ideograms. We'd better to say it is a registration of particular states. Judging by their contents, these are mystics, emotional sufferings from merging the universe. It is put into a frame of symbolic and image mental activity of a man. Heuristical phase of the paradigm corresponds with apocrypha phase of the narradigm. As a matter of fact, the first symbolic artifacts are not easy reading. To a certain extent, apocrypha is heuristics, treated as a note, and scientist's sketches from the point of view of contents volume are apocrypha.

Every fact can be placed into different appreciation and interpretation coordinates.

I am not willing to say that we'll be able to interpret pencil notes made by Mendeleyev as poetical conceptions, or pieces of Poushkin's archives as a preparation of scientific discovery. We know who they belong to. Division in the paradigm and narradigm during the lifetime of these people was made before they produced any creative works. This point of division is socially fixed as a famous cultural type. The way of description is not predetermined for common creativity by

personality reputation, that's why it varies. Psychoanalytical interpretations, capability tests, pathopsychological diagnoses assume social and cultural vague position of the respondent. Artistic or analytic mentality, evocative or logic thinking, a schizoid or hysterical person and etc. These are not simply psychological characteristics, but sketches of socio-cultural profile of the respondent. Though the starting points of the narradigm and paradigm are close, vectors of their development point to different directions.

I'd like to move on to organized European science. Its historical debut is a transitional mentality from mythology to philosophy of pre-classical Aeolia. (4-5 centuries B.C.) there we'll find a lot of hints to all doctrines of latest science in the form of speeches and fantasies. To a certain extent all the antiquity is a heuristical phase of European science if we try to generalize its development during more than 2,5 thousand years as an unique paradigm. If we take the main paradigm of Modern History-classical mathematical sciences-here the period of primary conjectures without adequate instrument, logic and theoretical basis dates back to 14th century. At this time the ideas which will be used by all natural sciences appear among scholiasts and nominalists from Oxford and Paris. Among them we can mention the notion of impetus proposed by Buridan G. To put it otherwise, It is a jerk under which the body moves, until the resistance exceeds starting impulse. This dynamic idea is alien to Aristotle's physics that was studied at the universities. According to Aristotle, scientists of Middle Ages divided things in these which are able to move themselves and in those which move under external action. He attributed living beings to the first class, and inanimate nature to the second class. Objects, without soul, move, if they are pushed by somebody or something, for instance, the air. The division had a hierarchy and qualitative character, because physical objects were classified as the lowest world, according to their entity, they were deprived of the power of moving given by the God to animated world. Dynamics proposed by nominalists from Paris were beyond explanatory means of contemporary physics. It was static and qualitative. These dynamics corresponded neither to dominating world picture, nor accepted research apparatus.

Though successor of Buridan, Nicholas Orem tried to use right-angled system of coordinates to demonstrate the fall of the body, this

procedure seems to be pretentious,on the background of correct scholastic reasoning about qualities and entities. When new physics ideas were translated into the language of "qualitative" mathematics of that time, as it was made by a group from Merton's college, it was something intelligible. "the absence of geometrical representations of these "movements", like getting dark, cold, thickening, made Merton's scientists to limit their research by measurements of the range of corresponding qualities. This produced the puzzling apparatus which is widely spread in their works and which the other scientists complain of." [1, p.134-135].

Mathematics of that time can not give anything for solution of dynamic problems, it was busy with the search of soul entities, archetype figures."It was the question of the existence of spiritual world and behind the figures the adapt saw the entities out of the phenomenon. Mathematics in its full volume of semantic perspectives were equal to science where the specifications didn't exist. It was an exceptional kind of science initiation, not into "one branch" and then to another, but into everything immediately. Its authority wasn't based upon opinions, but upon things nature." [11, p. 42].This qualitative mathematics will be eliminated from circle of exact sciences only at the second part of the 17^{th} century.

Ideas reminding European natural studies of Galileo and Newton are in the air of Universities in 14^{th} century but all attempts to formulate them fail. New learning object wasn't possible to be described in comments to Aristotle or solving any practical problems. This fact casts a doubt on what forerunners of new European science had been doing: discussing main points in a modified way or trying to find new key categories of future physics. It seems "that either "calculators" or Orem didn't "give birth" to new science understanding, but tried in absolutely new conditions and with totally new content to use antic meaning of the Form as a Form of hidden substantial qualities" [2, p. 135].

A pass from Middle aged system of scientific knowledge (Aristotle's paradigm) to new European system (Newton's paradigm) symbolizes such a total change in all cognitive means and methods that allows, instead of formulating substantial forms of speculative objects, to build the universe experimentally. According to R.Rorti "hylemorphic epistemology which considers understanding of

universal ideas by a concretized display in a human's mind of what is concretized as a frog in her alive body, due to the development of mathematical physics was replaced by law-event structure that explained "being frog" state as a simple nominal essence" [8, p. 46]. The difficulty of such a change has to be carefully evaluated. Law-event that the American philosopher speaks about is created not by a simple discourse but by manipulations with tools and calculations. "Hylemorphic epistemology" of aristotelism is equal to thought-speculative growing of meaningful forms from substance of the universe. A Middle aged scientist combines logical scrupulosity in determining scholastic types and species with admirable pray in front of the God-made first structure of the universe. The subject of learning in neutralized in him by believing. A new science researcher in his actions is only linked to the rules of experimental procedure and to the properness of the application to the theory. A direct pass from Aristotle's configurative research to Newton's one is impossible. Beforehand we have to pull religious and ontological subordination of subject-researcher to the real Subject of the universe out of researching procedure. The definitions of a science and a paradigm have to be separated. Newton paradigm changes Aristotle paradigm but Aristotle's science doesn't touch Newton's: there are several paradigmatic phases between them that can't be described in the frame of science as a research system. Inside the middle aged science "physicians" and "calculators" of 14^{th} century belong to the late scholastics. They give to essence-forms rather unusual, arithmetical and geometrical specifications. Inside the Modern History paradigm there can be found some authors of perspective physical ideas that in their times had been left unrealized because of lack of language, tools, workers, social order and other conditions of modern new European science.

Between the sciences of Middles Ages and Modern History appears the transformation of a Scholastic using his abilities to think and to examine as a creature and slave of the God into a subject-researcher free of religious and ontological matters but obliged to be précised in laboratory procedures and description of hypothesis. It takes time to happen. In the next phase the autonomy of learning is growing because of adding a Thinker some prerogatives of the Creator. It puts his self-assessment, social measure of powers and

abilities of a human's learning into an adequate side. This very phase can be called Magic.

Magic phase of the paradigm.

A step from heuristics to magic determines the appearance of action-will mediation. A cognizing Man makes an effort to display the Other. Two sides of paradigmatic relations are closely linked. Heuristic pictures are developed in movement activity. In a very simple way a researcher in order to catch the bright idea, "executes" it with psychophysical actions. To present the Other reality the closest tool is used – a body. Spasmodic and strange movements, muscles strain and even convulsive is an external picture of mental work to possess wage world allusions. In modern knowledge they are hidden under strange and extravagant behavior of creative personalities. Child's expressive body movements, manipulations, self-made words and gestures, spellings are usual attributes of intellectual development sometimes understood as ontogenetic reproduction of primitive magic. As for ancient magicians, their intellectual presentation of external reality with the help of improvised means is done in complex receipts with numerous ingredients and accessories. A magician blocks his personal reflexive Self, performing in extremely active, single-minded and individual way. His psychophysical nature is an instrument and base for displaying the Other which in heuristic phase is syncretically combined with Self. Saying "to display the Other" I assume that Self is the Other's mean, that my efforts only reproduce the reality in several psychophysical movements and object-oriented actions. I accept that magic can have two phases: esoteric and exsoteric. On the first phase magic manipulations are covered by mystery and are beyond understanding, on the second one they are already open to discussion.

Magic phase of new European paradigm (15-16 centuries) is chronologically and contently matched with Renaissance. "To evaluate the importance of magic in the beginning of Modern History, we should consider that being a widely developed motive in Middle Ages, it is coming out of cultural underground and getting a new appearance. It becomes common for all great thinkers and scientists being sanctified by them" [4, p. 332].

There is a big gap in the history of European science. This gap is a break in physico-mathematical development between 14^{th} and 17^{th}

centuries. It is about late nominalism. This tendency of high scholasticism in the first two third of 14th century foresaw the most important ideas of Modern mathematical science. Galileo and Kepler started from the point where Buridan and Orem had stopped. Francis Bacon declared the beginning of experimental science more then 300 years after his compatriot and namesake Rodger Bacon had done it. What is the reason of that 2-3 centuries loss? Why did the experimental European science appear in 17th, not in 15th century? Late nominalism can't be rejected by referring to Ancient Ages routs of new European science. Ancient knowledge can be taken as an overall premise of new European science. And according to historical chronology the 17th century follows the 16th but not the 4th BC. Classical ideas came to New times through Middle Ages. Probably the reason is in Centenary War, in Black death of 1349-1350? But peace times in Europe were rare, so why the violent growth of Renaissance started in the frame of Italians wars and awful devastation of Rome in 1527? European science also started in bad times – Thirty-year War. I will try to answer this question not from the point of view of Science historian, but on the basis of suggested above historical and psychological epistemology.

The common sequence "Middle Aged scholasticism – Renaissance knowledge – Modern science" gives a poor explanation even together with précised Middle Aged ideas of Copernicus, Galileo and Kepler. The mechanics of 17th century is closer to Paris occamists than to High Renaissance. New Science has to be cleared not from strict scholastic logic, extremely modern principle of intellectual economy and well-prepared experimental theory, but from so-called advanced ideas of Renaissance. At least from some of these ideas. Renaissance isn't homogeneous. It consists of dying Aristotle's, i.e. Middles aged scholasticism, and renaissance "new" model – Neo-Platonism of 15-16 centuries. This new model is based on anthropocentrism, on glorifying a human. There is no doubt, it is very useful for the science as it opens up man's enterprise and helps to find out proves for heurists of late Middle Ages. Humanists didn't' make so many scientific discoveries. The renewal of Ancient Greek ideas refers mainly to the art and literature. As for main ideas in natural science - they were known by humanists' rivals – middle aged scholastics. Though humanists did not have many new ideas, rose a

Man and his fantasy, broke logical discipline that was very strong in late scholasticism. The magic culture was introduced to science by humanists as well. This fact revealed the art of occultism and covered for a long time the complex ideas of Paris and Oxford scientists. The capital of European science moved from Paris to Florence. There at Medici's court reigned Marssilio Faccino – the translator of Platon and Hermes Trismegist, the creator of charming "Platon's theology which is according to specialists' opinion had nothing in common with Christian science of Middles ages and with Christianity itself. The syllogisms of Sorbonne and Oxford professors step back in front of mysterious fireworks of Egypt priests or Jewish Cabbalists! These flashes light up the gallery of new Italian art. A protestant broom, violent work of contrereformism, grammar-mathematical Jesuitical schools had to appear to clean among this amazing carnival a place fro more prosaic scientific knowledge. Fantastic and hot heads like a martyr of occlusive science Giordano Bruno wasn't of any use to them.

Introducing the magic phase of paradigm we fill in the 300-year gap between physical ideas of nominalists and Galileo's mechanics which is usually hard to explain. "If a book-printing was invented two centuries earlier, the impetus doctrine would have speeded up the general development of science history and wouldn't wait for so long to step from Jean Buridan to Galileo", Svassian suggests [11, p. 44].

But the book-printing by itself doesn't explain much. It explains the cultural influence of Renaissance. But Renaissance as it was aid above brought an incredible fashion on magic into the scientific world.

In rising queer superstitions one could always see a strange aberration. A zigzag in forward march of science, a spot in a good reputation of Renaissance. On my opinion, there is neither aberration nor zigzag, but a choice of language to write down the Other as well as methods to learn it. What seemed suitable was already occupied: language – by the art, method – by the magic. The latter as a way to learn the external world describes the idea of this paradigmatic phase. The accepted meaning of magic is an influence on the subject combined with a show of this influence. To separate the manipulative and art components of archaic pseudo-action is impossible. This "being together" arises from the "concept' of magic: to influence on something, you must have this something in front of you. A hair, a part of nail, a piece of clothes according to the principle *pars pro toto*

(when a part represents the total); a picture or a puppet according to the principle of similarity. Magic is invented by a body culture to get physically what is out of the contact. It can't be made without a prove of presence. As the art connotation isn't an end in itself and is included into an action, it can reach the sufficient level of elaboration and even autonomy being projected either on art description, or knowledge. In the first case there appear magic stories, in the second one – a set of secret tools, magic knowledge. Sometime "almost a science" but hidden. Art-mimetic connotation is drawn in this case towards magic concept, reality covered by Izida's veil. Even in archaic etymology this potential of secret art is hidden. For example the old Russian lexical group "obaviti", "obavlenie", "obavliati" has two fixed meanings: 1) conjure; 2)to make visible, to show, to announce [3, p. 8,12]. The meanings are neighboring, the words are formed by adding prefix "ob" in the meaning of special rapprochement.(the archaic meaning of "ob" – to go round) to the base "aviti" – to show. Under this archaic use of words the print of an action to get the object is seen ending up in a magic circle. This very action appear, shows the object. We can suppose that further in history – the more shows of different kind, and appearance has a magic color. The magician first makes the object of his influences appear. He forces it with several hand-actions. The object is called, caught and put to further pressure. If we stop the manipulation on the first phase, we get a possibility to learn the appeared object. Magic "obavlenie" of the object is done not for the research reasons of course. Nevertheless we should consider the inertia and self-sufficiency of technical moments in secret art as well as its growing speciality. If we follow the historical traces of magic up to Renaissance and Modern Ages, we will see the on object is called not to change it, but to learn it itself. Technical operation moved towards an objective. But first scientists found difficult to prove such non-interested attitude to this kind of manipulations. The whole magic phase of paradigm represents the basis of research side of magic. In Modern History the technical preparation and the experimental stage is firmly separated from the scientist's motives which can be very exotic. The "presentation" of an object follows the rules the most important of which are: public opinion, reproduction, checking, and performance. They lost the individuality but became commonly accepted. The object has to be

presented in the best way open to anyone who wants to check the researcher's results. In ancient magic this phase is covered and maximum hidden.

In magic the closeness is prior. That's why in Old Russian "announcement" the manipulation is underlined that lacks in the modern word. Old Russian "announcement" has lots of meanings: the appearance made by a person: announcement of comedies, performances: judicial prove. From this semantic bunch while being influenced by books we've got oral reading, announcement of a document as well as influenced by science – appearance as a present of something supported by the research.

Renaissance gives us a picture of movements from magic esoteric to exsoteric. Magic having come from cultural underground in Renaissance times starts to spread also by legal books and studies. In 15th century the universe is presented to educated people in secret books "Poymandre" according to Hermes Trismegist. In the beginning of the 17th century magic is understood as practical occupation and gives basis to the science under Bacon's motto: "knowledge is power". Experimental science is first called natural magic. Together with the methods of nature knowledge, it describes the ways of possessing the supernatural power of spirits.

The magic phase of European paradigm in Modern History is not equal to the magic in pre-history when secret studies are really universal and play the same role as science and engineering technology nowadays. In Middle Ages the recognized (paradigmatic) science is a commentary research from the Bible and antic works of Platon and Aristotle. Magic is seen as a cultural underground, solid power against official book-knowledge because there still exists an untouched level of popular myths and magic chthonic. The latter supports magicians, prophets, healers (persecutions to them s\in 15-16 centuries have an episodic character), as well as that fraction of scientific culture which doesn't go together with orthodox studies. The practitioners of black magic are supported by popular magic indirectly – they remain being book-readers, interpret the texts out of antic and Bible's canons. All magic practices: primitive, before written language and bookish, are similar having as a base the domination of physical and muscles power in domestic, pre-industrial production. Nevertheless they are culturally different from the main information technology – pre-printed written language. Popular magic didn't have any attention to the written language in the beginning, it stayed in the

frame of body culture. Practitioners of black magic are the marginal level between book-knowledge and manipulative practice of wizards, magicians and sorcerers. Alchemy and astrology are two hybrids that equal methods of direct influence with book and symbol interpretation. Renaissance gives a start of quick bookish transformation of magic. It is an era when printing houses and growing literacy push book knowledge into mass. Book education together with censorship (including inquisition that also burns unlicensed books and their authors) turn very fats the primitive, chthonic magic into a palliative of book culture. People cite versions from black magic books in front of the inquisitors. But scientific black magic books are also in the process of changes. From one side Renaissance increases the value of magic scientists. Demonologist, astrologist, alchemist, spelling doctor are fashionable and necessary professions of that time. Occult revolution of 15-16 centuries brings into public the magic canon – Hermes Trismegist's corpus. For some time being supported by Platon's fichinism he is being put by scientific elite on the same level as Aristotle's canon and with this he pushes out scholastic science. Nevertheless magic doesn't become a universal world base. On the contrary it is being defeated. Magic of 15-16 centuries is just a phase in paradigmatic knowledge development in Modern Ages where the main role is given to rational and empirical nature studies. Exoterism of Renaissance let the nature learning intuitions of late scholastic enter the ideology of changing the universe (which also has a magic color) and meet them with operations of experimental science.

Magic is rebuild by Renaissance together with anthropocentrism as magician is demiurge taking some prerogatives out of God. In Middle ages the above mentioned tendency was limited by Theo centrism. When a person tries to give the nature his orders, he first become Man-God, not researcher. This collision can be reflected to appear the categorical couple subject-object. Philosophical attitude becomes clear as the research activity changes significantly. And this is the science line. Middle aged science about immovable universe with immovable Earth and fixed hierarchy of main points made studies on movements the most inert and not up-to date part of arisotelism. The bright ideas of late nominalists shine inside the doctrine of stable forms firstly, due to directing a movement into the

category of quality essence, and secondly dew to rather practical calculations. The occult idea of Renaissance was turning movement into a magic force; it had nothing in common with theoretical mechanics. Nevertheless at that time an important process of separating pseudo magic and real magic started. This discussion doubtful from empirical point of view was of great importance as it described the axiological status of research studies. The rite magic is false, from devil. The real magic is natural. Real magic is the first name of experimental science. If a Man wants to reach God and creates beautiful objects, it is pleasing to God even if the man uses secret spelling and addresses spirits. He only has not to address unpleasing to God spirits and to serve evil. The frontiers between good and bad in magic are unstable. And the division of good and sinful things is very problematic while it is done under secret, in the shadow of secret practice and doesn't go out to public understanding. The discussion of secret studies, the move from esoterical, spelling magic to its esoterical public analyze is already a progress. Final uncharming of the universe will happen only with appearance of rational, accessible and completely explained science. Until now even real scientists prefer to be half in rational knowledge and half in the world of mysterious spirits.

to be continued…

The Literatura

1. Akhutin A.V. The history of principles of physical experiment (from antic till XVII) M., "Nauka", 1976
2. Alexandrov Y.I. About "damping" paradigms, teleology, "causalism" and peculiarities of Russian science // Voprosi psychologii, 2006, №5, c. 154-158.
3. Dictionary of Russian language XI-XVII. M., "Nauka", 1987, ed. 12.
4. Garen E. Problems of Italian Enlightenment. Russian translation. M., "Progress", 1986
5. Gusseltseva M.S. Cultural psychology and humanitarian sciences methodology // Voprosi psychologii, 2006, №5, c. 3-18.
6. Koon T. The structure of scientific revolutions. M., "Nauka", 1977.
7. Madsen K.B. A History of Psychology in Metascientific Perspective. Amsterdam – N.Y. a.o., 1998.

8. Rorti R. Philosophy and nature mirror. Novosibirsk, NSU, 1997.
9. Shkuratov V.A. The Historical Psychology. Rostov-on-Don, 1994.
10. Shkuratov V.A. To narrate and to norm (freedom horizons in narration) // Existential tradition, philosophy, psychology, psychotherapy, 2002, №1, c. 10-36.
11. Svassian K.A. The destiny of mathematics in the history of Modern History studies //
12. Yurevitch A.V. Natural scientific and humanitarian paradigm in psychology or balancing pendulum // Voprosi psychologii, 2005, №2, c. 147-151.