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# Legal system homeostasis in the dimension of living systems functions organization patterns

## Abstract:

In the article, the authors use the prism of living systems functions organization patterns to analyze originating sources of a new jurisprudence methodological direction that might be termed as “homeostatic legal studies”, and in the context of its development it becomes possible to provide a new paradigm of interpretation of jurisprudential reality as an integral living system as far as its homeostasis support is concerned. The integration complex and function model of universal **laws of the functions organization in living systems** in reference to their normal homeostasis might be applied to all and every living system, including social ones, and the authors express axiomatic statement that normal homeostasis is impossible beyond these patterns. The most progressive and most successful states are those with better organization in terms of the mentioned patterns observation. The article also considers typical problems at the state level occurring due to the low homeostatic capacity rate in their organizations and functioning. At the same time, one of the priority propaedeutic tasks of the article is to explore the notion, peculiarities and significance of the healthy (normal) homeostasis of legal system and its components, including fundamental identification of advantages from achieving normal homeostatic state.

**Key words:** legal system homeostasis, living systems functions organization patterns, homeostatic legal studies, homeostatic law consciousness, law methodology, improvement of legal system

A rising tide of academic interest has recently been taken in the revision of existing and elaboration of new methodological directions of the modern legal science at the level of scientific paradigm, due to unsatisfactory state of modern legal systems functioning in terms of the academic knowledge truth and efficiency. But particularly topical today are the new methodological models, namely integrative and synergetic. Among the new methodological directions in the given context we might single out also homeostatic law studies we suggested, in the framework of development of which it becomes possible to come up with a new paradigm of interpretation of jurisprudential reality as an integral living system as far as its homeostasis support is concerned. The core of this approach is the so-called “homeostatic legal consciousness” that is based, in particular, on the new living systems functions organization biological patterns, discovery of which enabled revision of a living system like legal one. When it comes to the new, integral model of homeostasis support patterns, the matter of which will be developed throughout a series of articles, it becomes possible to ensure maintenance of the healthy homeostasis of state (other legal system components). This is, however, a primary object as search for homeostasis and its achievement contain obvious advantages in terms of its integrity, stability and development, the essence of which needs to be explained. And thus, the primary task is to explore the notion, peculiarities and significance of the homeostasis of legal system and its components that is a pre-condition for understanding of living systems functions organization patterns, application of which is of direct importance for support of the general legal system homeostasis.

Emergence of the new, improvement of the existing legal methodologies might be explained, expressed, firstly, by the cognitive heuristic motivation – to discover something new: that would reveal new aspects of the legal occurrence; and secondly, by the search for the new and improved foundation for the legal consciousness in general that, to our opinion, at the right enforcement level, should ensure integrity, functionality and development of legal system. We are convinced, there is no use of the science, legal studies in particular, if its methodological background has no integral natural paradigm that would allow it (science) to become a tool for adequate understanding of reality, and would enable development of the systems representing it. So, the science and the scientists bear particularly heavy responsibility as they participate in laying the foundations for the world-view, and the model of this foundations determine the prism, dimension of the view to reality, its format, and thus – future of the systems people deal with.

The key social system that threads through our beings of social creatures is legal system, along with its key element – system of law, and the state as legal structure. Legal system is one of the basic society existence dimensions expressing its orderliness and supporting it as an orderly integrity on the condition that it (this legal system) is duly adjusted (on the level of the system of law), and equibalanced so that the society is in balance at all levels in terms of its integrity and development despite the need to survive with the limited resources.

Scientific understanding of legal system comes from scientific researches in the field of law accumulated in legal studies. We are convinced that academic knowledge at all times require verification against reality, continuous updating with view of new theoretical and practical experience. So, for instance, there is, at a minimum, a need for certain refreshment of legal system understanding in that sense of law, and state, in particular, with the account of existing legal reality in the aspect of poor efficiency of some suggested academic products applied to the reality as to integrity support, legal system homeostasis

in its functioning and in the aspect of increase of its opportunity to survive with the limited resources. Thus, the conversation will first of all relate to the issues of understanding the essence of subject, peculiarities of legal system functioning and organization when it comes to support of its healthy homeostasis and legal system development. It will also deal with the system-of-law special role in the legal system (state) as in the systemic complex of certain community legal phenomena, and in particular, interdependent and coordinated juridical means to regulate social relations.

No one can deny that achievement of legal system normal homeostasis is the major, key objective, achievement of which proves legal system integrity, balance and stability and this is definitely a desirable state for optimum functioning of a person, society and ecosystem in their interaction.

While analyzing contemporary legal systems, we came to decisive conclusion that they are organized with different extent of balance and function with different efficiency when it comes to the above-mentioned context. So, analysis of law making within first of all continental (Romano-Germanic) legal tradition sometimes conveys the suggestion that laws and other regulatory acts often seem to be formed at random, without thinking that actually leads to development of crisis phenomena. In spite of their multiplicity, laws, as a rule, are rapidly changing, and this has once led Herbert Spencer in his work “The Sins of Legislators” (1884)<sup>1</sup> to define some ‘legislators’ incapacity’ in addition to deficiency of legislation. There occasionally emerges an impression that regulatory act is a simple accumulation of regulations mass notwithstanding their connections, interaction within the legal system in general, and first of all, without understanding of their long-time outcomes in the legal system that forms a potential basis for further destruction of legal system relating to the norm of its homeostasis.

For instance, legal system elements at the level of legal relations subject composition due to the lack of resources for survival in the conditions of improper resource allocation within the system far from being adjusted, equibalanced in due way (in particular, with no account of the optimal level of the system-of-law for homeostasis support, model for information and resource interaction), frequently attempt to survive by all means, and their work for integrity of legal system, and state in particular, is ceased. Nevertheless, laws often justify inefficient activity of subjects of law, and other legal system components, with relation to achievement of integrity and efficacy of the entire legal system that leads to substantial resource consumption by the very state, and this places restrictions on its survival in interaction with other states. The incorrect definition on the system-of-law level of the legal system subjects’ interaction that causes conflicts harmful to the state integrity inevitably leads to high energetic consumption and again restricts opportunities for survival of legal system in the constantly growing life competition. Legal system structures, for instance, system of medicine, or education, poorly developed on the legislative level, as a rule, work with low efficiency factor when it comes to the legal system in general, while resources spent for the purposes of such system functioning, are not proportionate to low efficiency. Failure to identify priorities also inevitably leads to the results negative to the living system. Another problem is the results of the fact that legal system undergoes outflow of certain cooperons, formation of which in terms of legal system cost certain energy consumption and often, as experience shows, it is in vain. And incorrect, when it comes to homeostasis support, model of interaction of private – public (for instance, pointless strategic objects destatization), individual – national (for instance, policy of “unlimited freedom” of personality in relation to the interests of certain public, nation) and other things that do not support, do not favor living system homeostasis, increase social tension due to lack of explicit homeostatic model at the system-of-law level of the countries, serve as a bedding for the life troubles we see every day. Problems like this are factor or exponent of lack of normal homeostasis on the state level that entails its negative consequences.

However, while analyzing procedures of law-formation and right exercising, in particular, considering generally mentioned issues, we may come to conclusion that conceptually it’s not even about certain flaws on the level of legislative techniques that influenced system of law, and consequently, legal system in general, and this is expressed by remoteness from homeostatic optimum zone. It turns out, that the problem is much deeper: there is a lack of the necessary paradigm – comprehension of legal system as living one in its interaction with anthroposphere, ecosphere and other living systems, built for the purpose of homeostasis support – as a key target realized. And it’s exactly the search, elaboration of new paradigm is today one of the most topical legal system directions. We mean a paradigm that would give the wall in the development of society, having reduced its energetic, namely material and organizational (for instance, the very time) consumptions, tension inside the system, for interaction with both inner systems of society, and outer world (other societies), would increase its survivability and ensure its capacities for evolution.

This is why our today’s attention is drawn to consideration of legal system in its relation to homeostasis and its subsystems as “living organism”, living system with account of recent academic resolutions that gave us an impulse for development, and the key new direction for researches in the field of legal methodology, the results of which we will show in a series of academic works that begins with this article.

Prior to academic researches of legal system nature, right, legal structures as, for instance, a state, there took place various mythological, theological, philosophical studies, from which we can trace different dimensions for interpretation of these phenomena, in particular, social itself, information and communicative, organistic etc.

Thus, the studies of many philosophers have already viewed the state as a living organism. These studies might in general be resumed to reflections by analogy, comparisons and other methods alike, comprising state and nature, namely state

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<sup>1</sup> See: The Man versus the State, with Six Essays on Government, Society and Freedom (1884), ed. Eric Mack, introduction by Albert Jay Nock. – Indianapolis: LibertyClassics, 1992) – Pp. 71-123

and human organism. So, for instance, Plato reckoned that the more analogies to the person the state has, the more advanced it is. Aristotle similarly used alike comparisons of the state (as a certain totality) with one person – multilegged, multiarmed and multisensory.

In the Middle Ages, say, 12<sup>th</sup> c. philosopher Salisbury, referring to the ancient Greek historian Plutarch considered that the state is an organism, similar to human body, where clergy is a soul of state, and thence it has power over the whole body without limitation, and the head – the ruler<sup>2</sup>.

The alike ideas were also developed by the representatives of new age, enlightenment, contemporary age (Erasmus of Rotterdam, Hobbes, Spinoza, Jean-Jacques Rousseau, Herbert Spencer, Johan Rudolf Kjellén, Friedrich Ratzel etc.).

Spreading of organicistic ideas in sociology coming from tremendous upgrowth of biological science enabled development of intuitive tendencies in explanation of the nature of society, state as a living organism by the way of analogies.

This was mostly presentation, emphasizing of, first of all, features in common that relate to the society and, say, human organism.

Let us recollect the fact that foundation of organicistic school in the history of sociology is connected with Herbert Spencer's academic activity. He concludes that society is an organism that has much more in common with living creatures than with the non-organic aggregates. To H.Spencer's mind, state is an organism consisting of separate people similar to the living organism consisting of cells. The state is formed together with its counterparts – people – and will exist till the end of human society. It would be erroneous to see the state as unintentional human formation; it is a growing organism (...the error that society is a manufacture; whereas it is a growth)<sup>3</sup>. State power, to his mind, is predominance of the whole over its parts, expressed in state's support of its people well-being<sup>4</sup>. In the work "The Social Organism" (1860), Spencer wrote: «One more parallelism to be here noted, is that the different parts of a social organism, like the different parts of an individual organism, compete for nutriment; and severally obtain more or less of it according as they are discharging more or less duty»<sup>5</sup>, and these are actually common features of both systems. However, he specified features divergent with living organism as well. Nevertheless, we can agree with V. Khropaniuk's thought on Spencer's statement that theory of state would become academic only on condition that it will accept methodology and concept of natural sciences, has an objective sense<sup>6</sup>.

Besides Spencer, when it comes to organic views to society and state, we should give a positive evaluation to the fruitful studies of Johan Rudolf Kjellén and Friedrich Ratzel.

In the sophists' discourses in general we can single out bot partial and full matching of living system with social one. The key point is that application of comparisons and analogies was intuitively right approach of the researchers: to see society as a living, cooperative system as, indeed, the state (society) is an open system, organism, within which the processes similar to those in human organisms or other living systems take place. What remain unexplored are the living systems functions organization patterns that would in scientifically grounded way determine the practical use of such approach when it comes to the state and other social institutes.

Organicism has been criticized and this could be resumed in the following arguments: organicism attempts to explain the human world through the world of nature, its patterns, but even the deepest knowledge of biological patterns cannot reveal social patterns and vice versa. The arguments presented do not represent the fact, especially in the light of the latest scientific advances. Thus, in particular, today's scientists consider it not only possible to use common features, but also, judging on the situation, appropriate to explain the biological through the social. So, for instance, "it has been proven that the cells of multi-cell organisms are capable of coordinated "social" behavior with formation of regulated cell ensembles that ensure opportunity for morphological and functional variability that correlates to exhibition of wide variety of adaptive reactions"<sup>7</sup>. Or "organism is a state..."<sup>8</sup>. However, in the critical light it is considered that mechanical transportation of biological laws to society and superficial analogies gave almost nothing for scientific interpretation of society, and particularly, its laws. The criticism was baseless at times, grounded sometimes on the motiveless statements about non-academic nature of approach<sup>9</sup>. But the matter is

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<sup>2</sup> Organicheskaya teoriya gosudarstva (Organic Theory of State) (by V.Gessen) // Brockhaus and Efron Encyclopedic Dictionary: In 86 volumes (82 vols. and 4 add.). — Sankt-Petersburg, 1890—1907, Volume 22 (43), 1897 – pp. 96-99

<sup>3</sup> See. Spencer H. Autobiography. P. 1. Sankt-Petersburg: Prosveshchenie, 1902, - 355p. – P. 99; The Sins of Legislators (1884)//The Man versus the State (1884), introduction by Albert Jay Nock. – THE CAXTON PRINTERS, LTD., Caldwell, Idaho, 1960) – Pp. 79-120

<sup>4</sup>See. Spencer H. Osnovaniye sotsiologii (Principles of Sociology). Vol. I, II. Sankt-Petersburg, 1908.

<sup>5</sup> See: The Social Organism (1860)//The Man versus the State, with Six Essays on Government, Society and Freedom (1884), ed. Eric Mack, introduction by Albert Jay Nock. – Indianapolis: LibertyClassics, 1992. - Pp. 383-435 (9.35)

<sup>6</sup> Khropaniuk V. N. Teoriya gosudarstva i prava. Uchebnik dlya vysshikh uchebnykh zavedenij (Theory of State and Law. College textbook) / Edited by professor V. G. Strekozov. – Moscow: Interstil Publishing House, Omega-L, 2008 – p. 384. – Pp. 39-40

<sup>7</sup> V. A. Kotolupov, V. V. Isaeva Cells in the System of Multicelular Organism from Positions of Non-Linear Dynamics// Journal of Evolutionary Biochemistry and Physiology, 2013, Vol. 49, No. 2, p. 262

<sup>8</sup> V. A. Kotolupov, V. V. Isaeva Cells in the System of Multicelular Organism from Positions of Non-Linear Dynamics// Journal of Evolutionary Biochemistry and Physiology, 2013, Vol. 49, No. 2, pp. 270; Samoilov, V.I. and Vasilev, J.M., Mechanisms of Social Behavior of the Vertebrates Tissue Cells: Cultural Models, Zh. Obshch. Biol., 2009, vol. 70, pp. 239–244.

<sup>9</sup> See., for ex., Kovalevskiy M. M. Obshcheye ucheniye o gosudarstve. Lektsii, chitannyye v 1908-1909 gg. (The General Study of The State. Lectures, Read in 1908—1909). Sankt-Petersburg, 1909. P. 20—21.

that there are some common peculiarities, rules that relate to all living systems without exception, and availability of which disprove critical argument on impracticability of analogies and comparisons. Such comparisons quite on the contrary have natural grounding, but we will return to this later.

The approach of viewing the state as a living organism was unjustly rejected, mainly by representatives of positivist school, though intuitive analogies of philosophers and scientists were truly appropriate and provided with a new perspective, and became basis for existence of separate vision in view of the state, legal system in general.

Actualization of the new methodological tendencies, namely theory of systems and synergetics in the humanitarian science promoted development of new approaches for understanding social system as an open, self-organized living system. Until today the society as system together with its counterparts, and ecosphere have been considered as living systems, along with the other living systems, namely biosphere<sup>10</sup>. While, the key in understanding of a living system is not even a bearing substance (that might be different in different systems, though functions organization laws when it comes to homeostasis support, are the same), but openness, self-organization and self-management of a system at the level of energetic and information structure: the system exchanges information and substance with outer world on the basis of existing “instructions” from genetic and acquired-through-life memory; is capable of getting energy from outside etc.<sup>11</sup> Besides, the genetically changed living systems (say, food products) can be called conditionally living as they are lacking the key property commonly found in living systems – ability for evolution. This term can be transferred to the level of legal system, namely the state. If the system of law is formed in the way that does not allow the state to develop and sustain its economic counterpart (energetic counterpart), the main functioning element, then these states can be called conditionally living.

There were a lot written on homeostasis, but as a rule, it revealed position of one or another specific discipline, and this hindered incorporating any given facts and ideas within single approach that would interpret processes taking place in the living system<sup>12</sup>. Separation of academic model of living systems functions organization universal laws in the aspect of their homeostasis (and, consequently, evolution) support in their integral representation, enabled giving the problem a new look. Thus, in particular, it became possible due to the researches that were made public in 2009-2012 in the Springer network<sup>13</sup>.

So, in particular, if earlier in medicine and biology it was said that homeostasis is possible ‘in the framework of biological patterns’, now we have integral organization and function model: what are the universal rules in their integral, complex and functional rendering, that support homeostasis; in the integral, holistic paradigm the functioning mechanism of the organism, as open system in terms of its integrity and functionality, finally became clear (we mean mechanism of energetic and informational exchange in relation to organism’s psychics); how to ensure living system homeostasis; what homeostasis models are known; what is cancer in a living system; what is living system psychics and others. And all these new knowledge urge to revision of the existing academic knowledge on the living systems in the mentioned aspects of not only biology and medicine, but also invigorate to scientific researches in other spheres of science, namely legal one.

Integration complex and function model of living systems functions organization universal laws in reference to their normal homeostasis [hereinafter – homeostatic patterns] might be applied to all living systems, including social ones. We might express axiomatic statement that normal homeostasis is impossible beyond these patterns! It means that if these patterns are not kept, the healthy homeostasis in functioning of such systems is unachievable. And this axiom concerns all living systems without exception, including legal system, and state, in particular.

Upon singling out of the scientific model of living system functions organization laws in the aspect of its homeostasis, it becomes possible to give a new look to the problem of being, including legal system, and state, in particular, as living systems, and this undoubtedly is of great practical importance.

The problem is in the correspondence to the nature of living synergetic systems. Awareness of living systems homeostatic organization and functioning patterns, their universal nature leads us to understanding that it is impossible to do better than the nature does as it has billion years of experience. All we can do is imitate it, attempt to approach it, and we will not loose from this. In our quest for excellence, excellent legal system, state in particular, we must take into account the living systems functions organization patterns, ‘honed by the time’.

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<sup>10</sup> See: V. A. Kotolupov and V. F. Levchenko “Zonal Model” of Description of Homeostasis Journal of Evolutionary Biochemistry and Physiology, 2009, Vol. 45, No. 2, pp. 301-308; Levchenko, V.F., *Evolutsiya biosfery do i posle proiskhozhdeniya cheloveka* (Evolution of Biosphere before and after Origin of Human), St. Petersburg, 2004, p. 5

<sup>11</sup> V. A. Kotolupov and V. F. Levchenko Multifunctionality and Homeostasis. Regularities of the Organism Functioning, Important for Maintenance of Homeostasis//Journal of Evolutionary Biochemistry and Physiology, 2009, Vol. 45, No. 4, p. 542.

<sup>12</sup> V. A. Kotolupov and V. F. Levchenko “Zonal Model” of Description of Homeostasis // Journal of Evolutionary Biochemistry and Physiology, 2009, Vol. 45, No. 2, p. 301

<sup>13</sup> See: V. A. Kotolupov and V. F. Levchenko “Zonal Model” of Description of Homeostasis//Journal of Evolutionary Biochemistry and Physiology, 2009, Vol. 45, No. 2, pp. 301-308; V. A. Kotolupov and V. F. Levchenko Multifunctionality and Homeostasis. Regularities of the Organism Functioning, Important for Maintenance of Homeostasis//Journal of Evolutionary Biochemistry and Physiology, 2009, Vol. 45, No. 4, pp. 538—547; V. F. Levchenko and V. A. Kotolupov Levels of Organization of Living Systems: Cooperons // Journal of Evolutionary Biochemistry and Physiology, 2010, Vol. 46, No. 6, pp. 631—641; V. A. Kotolupov, V. V. Isaeva Cells in the System of Multicellular Organism from Positions of Non-Linear Dynamics// Journal of Evolutionary Biochemistry and Physiology, 2013, Vol. 49, No. 2, pp. 262-273

And that is why we attempt to extrapolate homeostatic laws to the legal consciousness level for their further implementation in organization and functioning of legal system (and state as its element), first of all, through the system of law – in legislative activity. We mean that our ideas on application of homeostatic laws on the level of right are not limited to the system of law (roughly speaking, to legislation) as a part of legal system, they are deeper as we speak of more – raising these universal laws, first of all, to the legal consciousness level! Such approach will allow us to develop theoretical basis, foundation of legal system made correspond to nature.

For the present day, the contemporary legal thought is quite developed when it comes to correspondence to nature, namely human. Yes, such outstanding achievement of mankind as human rights is one piece of the separate subjects of law (part of legal system) homeostasis support mechanism on the level of multiple legal systems of contemporaneity. Though the only poor adjustment of human rights mechanism might lead to legal system deformation when, say, national homeostasis, and then integral homeostasis of the country etc. might be broken. Unfortunately, today's macro-level lacks complexity, integrity of understanding what system-of-law model would imbalance legal system, society – what is today of exceptional topicality from the point of view of decrease, elimination of tension in the existing social systems. For the present day we have no paradigm of the legal system that would implement the legal system homeostasis inviolability and would ensure its evolution. All we see today on the basis of the existing rules of behavior-instructions will lead certain society to specific consequences, one of which might be downfall of the existing states etc. And this is just a matter of time: when it will take place if measures are not taken in time! And achievement of homeostatic condition optimum or at least approaching to homeostatic condition optimum is far from being utopist. We just need to adhere, while modification of such living system as legal one, to universal homeostatic principles valid for all living systems. Besides, it's high time to realize that such ideological directions as socialism, liberalism, nationalism are simply one-sided vectors that cannot by themselves function as a paradigm – homeostasis supporter, in harmonic interaction of legal system elements.

Owing to the latest discoveries, it's safe to say that now the repercussions of legal system, state, its occurrence interpretation organic theory acquire conceptually new look. And this direction, in reflections, might be fairly called 'homeostatic legal studies' or 'natural law in its scientific futurist vision'.

Obviously, we can simply ignore facts, disregard both homeostatic laws and logical laws, what usually takes place in the process of law-making and right execution. However, homeostatic laws that by their features are close to the nature's and logic laws, do not cease to exist and no matter how we ignore them, but homeostasis is impossible without compliance with them and the state in this case can be considered unhealthy.

Unfortunately, in today's life we might observe imbalance between cooperons in their energetic, informational and substantial support; imbalance between cooperons in priorities (resources support) from the viewpoint of system's existence in its integrity, on the other hand – there is imbalance between cooperons as due to wrong approaches (instructions) in government of a state, the cooperons are autonomized, start working inefficiently for the single system or not working for legal system homeostasis at all (i.e. they work for themselves).

Today's states work mainly by method of trails and errors – these are actually experiments on society due to poor awareness of how living organisms work. Experiments should be set up on the theoretical models with consideration of available experience, not on people.

Motivated by ill-considered law (with no consideration of living systems peculiarities) the functional, organizational inefficiency in many spheres, for instance, in medicine, in education, became 'pseudo-norm' of legal systems contemporary condition. Besides, lack of appropriate control over cooperon working quality, cooperon clusters compromises efficiency indicators as control guarantees efficiency.

We might also observe lack of programs, concepts of development of state as a living system and legal system in general, that would take into account homeostatic laws. These all add chaos to the life, make it more unpredictable.

Unfortunately, resource limitation in the context of further system evolution is similarly not taken into account – consumer-oriented approach does not provide for the thoughts on the next generation.

Pathogenic external factors that affect the state at times are unpredictable, but their influence upon the system might be reduced by the increase of resistance, and this can be achieved, amongst others, by reducing energy consumption with account of living systems functions organization peculiarities.

If modeling of legal systems of contemporaneity took into account biological patterns with the latest scientific discoveries, including biocybernetics, then, to our mind, it would provide for the opportunity to receive distinct advantages for the states that took this methodological direction as a basis for legal system modeling at the level of the system of law and legal consciousness.

As we see, approaches to the state problems solution, existing in the legal systems, do not provide for the global mechanism of understanding of all those patterns that relate to the state as a living system what in its turn endangers human safety, as well as its social and genetic evolution.

Awareness of patterns allows us to compare of what living systems have and what they fail to do, with legal mechanisms (laws). This will allow avoiding more wrong solutions. Thus, in particular, living systems do not use foreign genetic memory, but for symbioses. We mean intermediate transfer of genetic memory to its own organism, having skipped over huge historical interval and principle of genetic superstructure. For example, as if US law was transferred to Afghanistan or Iraq. Besides, in the nature living creatures do not give their organs for the other living systems' use. However, it often

happens that plants and technologies (that could serve to the state) due to inefficient ruling policy, are given over to the other countries or transnational corporations with, as a rule, the same persons behind them, and we can see what it leads to. Yes, we probably have got some means (money) instead, but it resembles 'insulin injection' when we need an organ that will produce 'insulin' all the time. The organ transplanted will operate in the new organism on certain conditions, but the organism this organ was taken from will not grow a new one! The idea might be new, but development of new production, new technologies demand huge amount of time and energy. Similarly, another big problem is the so-called 'brain drain' that has recently become common practice, unpaid for the donor country. On the other hand, the most talented people leave through imperfection of donor country legal system. We mean, first of all, the developing countries.

But, in the first instance, we need to explain some aspects of legal system homeostasis, and then speak of the laws that would support it, in order to operate knowledge for the practical purpose. It means, that before passing on to consideration of legal system homeostatic patterns we should cope with homeostasis of legal system as a living organism in the prism of its ontological aspects.

At the present day, some scientists considering law to be a system sometimes mention homeostasis, subject matter of which is determined by the semiosis pragmatic level. It generally touches only certain aspects of this phenomena relating to the legal system. Thus, for instance, I. Mukhachev, defines homeostasis as 'assurance of law's correspondence to the needs of social life'<sup>14</sup>. In his doctor's thesis "Problemy Gomeostaza v Teorii i Praktike Rossijskogo Konstitutsionnogo Prava" ("The Issues of Homeostasis in the Theory and Practice of Russian Constitutional Law") he views homeostasis as a 'factor, ensuring stability of judicial Constitution itself, legislation that forms branch of constitutional law, all legal system of the state, as well as correspondence of formal law (including Constitution) to the real needs of society and state'<sup>15</sup>.

And in her thesis research with the subject "Garantiruyushchaya Funktsiya Konstitutsii Rossijskoi Federatsii" ("The Guaranteeing Function of Russian Federation Constitution") M. Karateeva performs generic analysis of 'social and homeostatic' approach to the RF Constitution research, that consists in viewing society as an integral social organism, social system and separation in it of the social phenomena, existence of which is vitally important for this type of the social structure<sup>16</sup>.

However, we now have no adequate general-purpose legal research that would raise an issue of homeostasis, its role in relation to the legal system and universal theoretical model for its support.

What we know of homeostasis (from Greek *homoi* – similar, alike and *stasis* – constancy, immovability)? Today we might separate such referential meanings. Homeostasis is an ability of organism (object) to support its individuality (integrity, invariability), due to optimal value of the system's invariants, in spite of the environmental changes. This ability is peculiar to all living systems, including legal system, if we stick to homeostatic principles of its construction. In this case, we speak of ability of legal system as complex self-organized open system, as living organism to support values of its state in the limits that ensure its optimal functioning, in spite of the change of environmental factors. Along with this, homeostasis might be viewed as ability of organism to reach its optimal functioning parameters that would ensure its integrity, in spite of the environmental changes (of course, within certain limits).

Besides, homeostasis in general and legal system in particular might be seen as a living (legal) system condition expressed in the balance of system components in their interaction, due to the system's support (in case of available opportunities) of the optimum invariants' values that ensure its optimum functioning in spite of the environmental changes.

We will speak of homeostasis as a state and feature of living systems depending on the context, with adherence to the logical rule of unambiguity, to avoid equivocations and equiscriptions<sup>17</sup>.

Healthy (normal) homeostasis is homeostasis within the norm of genetic record with capacity for evolution – improvement of genetic record. Unhealthy homeostasis is homeostasis of diseased organism. Disease is a state of organism manifested in failure of its normal vital functions, span of life and its capability to support its homeostasis. It is a result of limited energetic and functional resources of a living system as contrasted to pathogenic factors. Disease is always failure of normal homeostasis<sup>18</sup>.

Concept of homeostasis appeared in the second half of the 19<sup>th</sup> c. owing to researches of French physiologist C. Bernard, while the term was introduced by W. Kennon in 1929. Study of homeostasis appeared on the basis of biological

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<sup>14</sup> Mukhachev I. Gomeostazis konstitutsionnogo prava: Postanovka problemy (Homeostasis of Constitutional Law: Problem Statement) // Pravo i zhizn. Nezavisimyi pravovoj zhurnal (Law and Life. Independent Law Magazine.) No. 12 - Moscow: Manuscript, 1997, P. 4

<sup>15</sup> Mukhachev Igorj Vladimirovich. Problemy gomeostaza v teorii i praktike rossijskogo konstitutsionnogo prava (Issues of Homeostasis in Theory and Practice of Russian Constitutional Law): Thesis ... of Doctor of Law: 12.00.02: Moscow, 1999, 321 p.

<sup>16</sup> See: Karateeva Marina Nikolaevna. Garantiruyushchaya funktsiya Konstitutsii Rossijskoi Federatsii (The Guaranteeing Function of Russian Federation Constitution): Thesis ... of Candidate of Law: 12.00.02 : Stavropol, 2005, 183 p.

<sup>17</sup> 'Equiscription' is a term first introduced to the academic usage by Pravomyr Kosianchuk in the article: Kosianchuk P. Polisemiya 'pravnoi vidpovidalnosti' u stosunku do 'derzhavnogo prymusu' (Polysemy of 'Legal Responsibility' in Relation to 'State Enforcement') // UzhNU Scientific Herald. Law Series. Publication 12. Part 1. – Uzhhorod, 2009. – p. 22-27

<sup>18</sup> Kotolupov, V.A., The Illness (Morbus) New Biological Principles Illness and Pharmacy. Proceedings of 3rd European Congress "Achievements in Space Medicine into Health Care Practice and industry", Kochueva, E. and Kochuev, N., Eds., (Berlin, 2005), pp. 170–176.

science, and later covered all living systems and their counterparts: from the cell to biosphere that might dynamically support their integral condition with the feedback mechanisms<sup>19</sup>.

Bernard stated that all vitally important mechanisms, if they weren't exposed to changes, have only one objective – to support regular internal environment. And it's a matter of course that homeostasis is related to struggle of individual organism for existence and ensures its optimal functioning in the changing conditions. E. Bauer in his works of the first half of 20<sup>th</sup> c., grounding on the conceptions of a range of naturalists, stated suggestion: that main part is played here by the positive and negative feedbacks that ensure regulation of vital processes<sup>20</sup>.

With the feedbacks mechanism, open systems are capable of sustaining their conditions. Positive and negative regulation feedbacks are similarly available for the legal system in the aspect of its key target – support of its homeostasis with opportunity for further evolution of such system. These connections are the ones that enable legal system to remain in the balance condition in spite of external conditions variations. And thus here there is a need for such adjustment of the legal system that would ensure its homeostasis, and consequently, society homeostasis. It's because legal reality is the main filter-paradigm for society that conveys incarnation of certain model order in it. Thus, optimum consistency of legal system internal environment is the main key to its homeostasis.

**Zonal model of legal system homeostasis.** Anokhin has differentiated rigid and flexible (adaptive) constants<sup>21</sup>. Deviation from rigid constants is incompatible with homeostasis. Flexible constants are those, deviation of which is acceptable within certain limits, and does not hinder performance of important functions of legal system, state, in particular. However, the term 'constant' does not suit this context and we'd better speak of the condition parameters maintained by the organism in the narrow or wide range.

What is obvious is the fact that legal system homeostasis condition is self-maintained: if homeostasis is violated, then legal system is unable to efficiently control and manage the processes directed at its survival. In the homeostasis, practically all strictly regulated and adaptive parameters maintain in the allowed value range. When it comes to illustrative representation of legal system condition in relation to its homeostasis, we suggest to apply the so-called 'spot approach' and speak of homeostasis parameters zone (zonal approach). It means that homeostasis condition is achievable not in some kind of 'homeostasis spot', but in the extensive though limited zone of legal system functional parameters space<sup>22</sup> within the framework of priority oriented at increase of the legal system functioning period. Organism always 'attempts' remaining within the homeostatic zone.

**Legal system of certain country constantly remains in the dynamic condition.** Collection of properties, features, peculiarities at one or another stage of development form **legal system ontogenesis**. Collection of transformations, undergone by the legal system, accumulate and form its ontogenetic experience.

Homeostasis varies from legal system ontogenesis. Legal system as an integral system should be homeostatically balanced at each step of its ontogenesis. Borders of the zone of optimum, system comfort are variable depending on the **adaptive characteristics, though invariants remain the same in any case.**

Legal system, state as an organism all the time attempts, strives to be within the **limits of legal system optimum attractor**<sup>23</sup>. It is exactly in the attractor center – system comfort zone<sup>24</sup> - where it is possible to achieve optimum in the state organization and functioning with reference to homeostasis support. However, it often happens that legal systems, states ontogenetic pathways never get into the zone of optimum in relation to attractor.

In the course of ontogenesis, comfort zone limits do not remain stable due to adaptive parameters variations.

Consistency of internal environment of individual legal system counterparts heavily depends on the general system condition as organism is an external environment for its subsystems. Thus, it is clear that like country, like life of its people. On the other hand, there is an inverse relation. We mean, like people – like country. The legal system subsystems interaction adjustment determines the legal system state itself according to the principle of legal systems coordinated functioning<sup>25</sup> with account of informational exchange within the framework of priorities, key of which is survival.

Unfortunately, person and state as cooperons are wasting significant efforts for support of their homeostasis because of not established mechanism of their interaction, and it turns out in the result that everyone 'hogs the cover'. This cost enormous energy consumption, and it is better to direct them at support of general homeostasis where each would spend efforts optimally, not disorderly. Homeostasis of a person and legal system should be harmonious, remain in one rhythm in the

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<sup>19</sup> V. A. Kotolupov and V. F. Levchenko "Zonal Model" of Description of Homeostasis // Journal of Evolutionary Biochemistry and Physiology, 2009, Vol. 45, No. 2, p. 302

<sup>20</sup> See. Bower, E., *Teoreticheskaya biologiya (Theoretical Biology)*, Moscow, Leningrad, 1935, New Edition, St. Petersburg, 2002, 352 p.

<sup>21</sup> See Anokhin, P.K., *Biologiya i neirofiziologiya uslovnogo refleksa (Biology and Neurophysiology of Conditioned Reflex)*, Moscow, 1968, 546 p.

<sup>22</sup> V. A. Kotolupov and V. F. Levchenko "Zonal Model" of Description of Homeostasis // Journal of Evolutionary Biochemistry and Physiology, 2009, Vol. 45, No. 2, p. 302

<sup>23</sup> Levchenko, V.F., *Evolutsiya biosfery do i posle proiskhozhdeniya cheloveka (Evolution of Biosphere before and after Origin of Human)*, St. Petersburg, 2004, p. 94-95

<sup>24</sup> Khlebovich, V.V., *Levels of Homeostasis*, *Priroda*, 2007, no. 3., p. 5

<sup>25</sup> Harrison, J., Wainer, J., Tanner, J., Barnicot, N., and Reynolds, B., *Biologiya cheloveka (Human Biology)*, Moscow, 1979, 607 pp.

framework of living systems functions organization pattern. We should combine interests of person and state, and this is often not taken into account in the real legal system. And this might be done knowing homeostasis and laws in the framework of which it is achieved in order to direct homeostatic attempts in unison. In this context it is important to introduce the notion of 'symbiotic coefficient' which is an important parameter in adjustment of interaction between cooperons.

System of law should foresee homeostatic interaction at all levels, including human-to-human. We will speak of cooperon level of functions organization patterns in the next article.

At each stage of legal system ontogenesis not all organism abilities are in fact used to the full extent. Thus, for instance, young state cannot immediately perform the functions requiring its completeness, 'maturity'. On the other hand, in conditions of maturity there does not any longer exist the need of some functions that were necessary during the development. However, there always exist the optimum zone, its targets and ways to reach them.

Zone of homeostatic parameters, similarly to parameter system optimum are not stable throughout the life. Optimum zone in the legal system evolution is displaced depending on the external environment and methods of adaptation to this environment. Thus, for instance, in legal dimension, external environment for the state will be other state formations. While analyzing legal system, we should consider existence of different dimensions and levels.

There is a variety (continuum) of potentially possible homeostatic states in relation to legal system adaptive system parameters! Part of them is actualized, other is not. For example, in the economic crisis the state in order to survive adapts to situation through the relevant economic measures, employing additional features.

However, whatever is nature of factor affecting the organism, it always, all the time 'attempts' to remain as close as possible to the zone of system comfort of certain moment, period of development.

Throughout its life the organism goes through different, relatively stable states, in other words, legal system is drifting along, with determined hereditary background (legal tradition, in particular), ontogenetic optimum ontogenetic tradition that lies within the continuum of potentially possible homeostatic states and describes the route of gradual displacement of homeostatic attractor center with legal system invariants remaining unchanged. For instance, public law forbidding norms do exist, but parameters of these norms undergo changes depending on the need of specific period within existing priorities.

Due to this we may state that each legal system as a living organism, as well as stage of its ontogenetic development has its own **potentially possible homeostatic zone** inside the continuum of potentially possible homeostatic states. This zone in the process of ontogenesis is displaced, and draws in the multidimensional physiological parameters space an zone that resembles tunnel or tube – potential ontogenetic channel. At first sight, channel zone coincides with continuum, though at least from the formal view it is not so, if for no other reason than because they are determined in different ways and we have no reasons to exclude hypothetical situation when continuum includes also some additional zones. The abovementioned drift takes place inside ontogenetic channel, but, of course, not exactly along the line of ontogenetic pathway as in real life legal system as a living organism remains in the state of adaptation to something, and, as a rule, does not reach state of complete optimization of all its functions. In shorter time spans legal system moves along the individually actualized pathway.

Individual pathway consisting of continuous displacements due to the need to adjust to changing conditions lies inside legal system ontological channel which, in its turn, belongs to continuum of potentially possible homeostatic states.

Drift by channel goes only in one direction what is stipulated by inevitable changes of the organism in its ontogenesis. Channel form and topology might look like in a way that make performance of some displacements within its different parts by the shortest way seem impossible as this requires either exit beyond the channel limits, or return to ontogenetically earlier states. That is why some directions of displacement on the defined ontogenesis stages seem absolutely reasonable while others – unlikely and even impossible.

Obviously, dimensions of the zone inside of which homeostasis is actually possible varies throughout life of any organism. We will consider the limits of potentially possible zone of legal system the 'marginally acceptable' by hereditary background values of systemic parameters. Approach to them is though achievable, but not in all circumstances (for example, economically weakened state has lower ability to survive in crisis situation than more economically powerful with similar crisis factors). In fact, in any moment of life, organism adaptive abilities lie in the narrower zone we will call **actually possible legal system homeostatic zone**.

Dimensions and other features of this zone are influenced by many factors, including energetic system character and functioning environment conditions in the time moment under consideration.

Besides, individual actualized pathway, as opposed to systemic optimum ontogenetic pathway describes real changes of legal system state, and is usually connected to events taking place in smaller temporary scale than ontogenetic changes.

An important aspect of homeostatic model determination is connection of natural environment (geoclimatic factor) and legal consciousness that was noted by the very Aristotle and Montesquieu.

**Thus, any legal system (subsystem) throughout its life moves along the complex individual pathway located inside both homeostatic zones – potential and actual, around homeostatic attractor<sup>26</sup>.**

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<sup>26</sup> V. A. Kotolupov and V. F. Levchenko "Zonal Model" of Description of Homeostasis // Journal of Evolutionary Biochemistry and Physiology, 2009, Vol. 45, No. 2, p. 304-305



Living organisms, namely the state, have protective mechanisms that prevent getting to forbidden zones beyond actually possible homeostatic zone as along with this protective mechanism acquires information on approach of some or another organism features to the systemic limit, and this is perceived as threat to integrity. On the other hand, approach to systemic optimum is perceived by the organism as positive information.

Legal system homeostasis support in the process of homeorhesis (consistency in the developing systems) is connected with obvious ability of all living organisms – attempt to reduce negative and increase positive components of information on contemporary, as well as anticipated state. Maintenance of legal system internal environment consistency during its development, or ability for ‘sustained development’ within the legal system optimum during its development **is called homeorhesis**. This term was first used by Waddington Conrad Hel in 1905, but suggested in 1957<sup>27</sup>.

When it comes to inevitable changes, literature contains numerous illustrations describing entire organism or its parts development direction radical change (even up to the change of phenotype).

All ontogenesis cases prove that homeostasis is inherent ability of any living organism. Homeostasis is maintained both in case of normal and in case of pathological branches of the organism’s growth<sup>28</sup>. It also exists in anomalous states stipulated by superior influences or diseases as till organism exists as a whole it ‘attempts’ to sustain internal condition acceptable to life processes functioning. It is a different story that staying in extreme conditions is usually possible within very limited period of time.

If key peculiarities of any ontogenetic channel in multidimensional space of adaptive systemic features are determined by hereditary background, then its actual filling in each moment of time by one or another actually possible homeostatic zone depends on the condition of organism, its age (experience) and peculiarities of environment it stays in. Real dimensions of the zone and its location in channel may significantly vary depending on the circumstances, and individual pathway inside the zone might be very complex (especially if viewed in short time spans).

Small, random variations of environmental conditions within the tolerance does not lead to physiological transformations of legal system and change of its actually possible zone. It is different situation if these changes have continuing and monodirectional character due to which the pathway usually remains in some one part of the zone. What happens in this case is usually called habituation or adaptation of organisms to living conditions typical at this stage of life.

Actually possible homeostatic zone in the adaptation process goes through gradual change of form and dimensions in reference to the character of systemic changes, necessary under present circumstances. In the conclusion it takes up another place as compared to the primary position<sup>29</sup>.

So, speaking of significant, lasting and almost inevitable change of actually possible homeostatic zone in the living systems, as well as on the possibility to choose individual development pathway within the life from the part of state, it is not to be supposed that this takes place only on the early stages of ontogenesis or in case of pathology of state. Of course, invariants and rigid homeostasis features are preserved in case of any individual pathway, but adaptive ones might significantly vary depending on state’s activity type. How it is performed on the systemic level, and to what conclusions it may lead – these are very interesting and important issues we will discuss latter.

Responsibility for legal system homeostasis support is held by and homeostasis mechanism is explained by the legal system psychics. **Legal system psychics** is a system of selection of priority activity form due to functioning of adaptive and compensational mechanisms: comparison of information of the given moment with genetic information and preserved information, and as a consequence – activity form. This system of selection of priority activity form for the specific moment is stipulated both by genetic information, and information the organism acquired throughout life, information received from outside of the system and generated inside the system in the given moment.<sup>30</sup>

Thus, systems of law in the state have role of legal system (state) homeostasis support. It is system of law that is key bank of possible programs of state elements interaction between themselves and with external world. Due to peculiarities of social laws along with the logic and natural laws the person deals in life with, non-conformity of rules of conduct to the Nature (homeostatic patterns) may lead to negative consequences. If these programs of system of law will not collectively assure homeostasis and evolution of legal system, such system is eventually sentenced to death through the struggle for existence at the level of separate subsystems. It means that if living systems homeostatic patterns are not actualized, then whether it is in human organism, or in ecosystem, or in state – the homeostasis will be broken, and this may lead to such systems liquidation.

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<sup>27</sup> Waddington, C.H., Canalization of Development and the Inheritance Acquired Characters, Nature, 1942, vol. 150, no. 3811, pp. 563–565; Waddington, C.H., Principles of Development and Differentiation, New York, Macmillan, 1966;

<sup>28</sup> Sorokin, O.G. and Ushakov, I.B., Possibilities and Perspectives of Use of Adaptation Potential in Medical Practice, Ekologiya Chelov., 2005, no. 10, pp. 1–8.

<sup>29</sup> V. A. Kotolupov and V. F. Levchenko “Zonal Model” of Description of Homeostasis // Journal of Evolutionary Biochemistry and Physiology, 2009, Vol. 45, No. 2, p. 306-307

<sup>30</sup> Psikhika (Psychics) (by V. Kotolupov) // The Great Soviet Encyclopedia (Bolshaya sovetskaya entsiklopediya); V. A. Kotolupov, L. V. Yakovenko Obshchie zakonomernosti funkcionovaniya zhivyykh sistem: sistemnyi podkhod v biologii i meditsine (General Living Systems Functioning Patterns: Systemic Approach in Biology and Medicine) // Medical and biological problems. Ergonomics and human factor. Zbornik nauchnykh materialov VII Mezhdunarodnogo Aerokosmicheskogo Kongressa (Collection of Academic Works of International Airspace Congress) IAC'2012 Co-Chairmen: A. Grigorjev, I. Gorodetsky, 2012 p. 546

Like organisms for the purposes of homeostasis support improvement overbuild their genetic record for its better functioning, like the state might improve the laws in the framework of homeostatic patterns. Thus, there is homeostasis, but if its model is imperfect: based on the genetic record – legislation that does not correspond to homeostatic patterns, that it is not enough for survival. How long will the state last, if its genetic record is not improved, is not made correspond to homeostatic principles?

Its worth emphasizing, that system of law within the limits of legal system of each country is individual, but laws of evolution are the same. It is due to the right laws that high level of system homeostatic capacity might be achieved.

Right legal system is the one that corresponds to the survival code. Legal system homeostasis in accordance to the living systems functions organization laws is a basis for legal system reconstruction at the level of consciousness and the system of law.

Advantages. We can acquire obvious advantages, approaching or having reached the state of normal homeostasis it its zone of optimal parameters – ‘comfort zone. Homeostasis is first of all stability and predictability, based on reduction of energy consumption in the conditions of energy limitation, as well as system working efficiency within its optimality values. This is extremely important from the point of view of the state existence, namely, its economic system. The only making of right decisions that allow to avoid errors, avoid tension etc., reduce, in the result, energy consumption, and this may give substantial advantages in interaction of the elements of not only state, but interaction of the state with the other states.

So, homeostasis is also a kind of predictability. Of course, we understand that issue of randomness is an issue lying in the dimensions of the probability theory and synergetics, but organization of legal system in the way complicated by the homeostatic laws (with the account of universal homeostasis support laws) allows significant increase of the level of adequate reaction to the changes inside and outside of the system for the purpose of preservation of system’s integrity and evolution capacity, and so ensures certain level of stability that, in its turn, speaks of the possible predictability and planning within the ‘rules of game’. Knowledge of the ‘rules of game’ is always competitiveness and he that does not know rules – looses.

Therefore, law is also a living system<sup>31</sup>, and, consequently, all those homeostasis support universal laws working in living systems work also in legal system. State is the integral organism, each component of which must ensure its homeostasis. But this ‘must’ depends on understanding of the open system subject matter and, actually, ordering model in the basis of homeostasis support at the level of system of law.

We can categorically state that the most progressive and most successful states are those with better organization in terms of the living systems functions organization biological patterns observation.

If we implement homeostatic approach with account of biological patterns at the level of legal system of contemporaneity of one of the countries, this will increase its competitiveness on the background of other countries where legislation does not consider biological patterns.

We are convinced, that if we implement integration methodology, through the prism of homeostatic principles, at the level of countries’, or states’ legal systems – this could become new basis for assurance of order, global piece, as the advantage of new approach is that it explains how to reduce conflicts, disagreement at the society functioning level, and thus increase level of integrity and evolution of legal system.

New approach might become the basis for proper life in society, namely when it comes to the views on biosphere (together with anthroposphere) in the part of its understanding as living organism we have feedbacks from, and in the part of correct patterns of interaction with Nature to ensure evolution of biosphere like of living system.

The foundation for legal system reconstruction is formed by the living systems functions organization patterns. Reforming, of course, should start from Constitution.

Obviously, introduction of new paradigm is not limited to the efficient laws developed with account of homeostatic peculiarities, but also through the system of legal education. We should nurture efficiency in legal consciousness as this is, first of all, rationalization of energy consumption. Thus, we are looking forward to ‘revolution of legal consciousness’ and directions for interaction with various level cooperons, at the source level, are held, first and foremost, in the consciousness. Revolution might be ensured, first of all, through the changes of paradigm – to the all-embracing, integral, complex, that would allow achievement of homeostasis at the level of Earth biosphere.

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<sup>31</sup> Bachilo I. L. Gosudarstvo i pravo v usloviyakh globalizatsii (State and Law in Globalization Conditions) // . Gosudarstvo I pravo na rybezhe vekov: Problemy istorii I teorii (State and Law at the Turn of the Century: Problems of History and Theory). M., 2001. - P. 37