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UKRAINE IS MODERN. SCIENTIFIC STUDIES OF THE PAST AND PRESENT

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**Boiko Y., Bogatchuk S., Levchuk K., Belkin I., Manhora V.,
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8. Renaissance forms of determinism in the context of the becoming of classical scientific nomology

Introduction

In domestic methodology, the formation of a categorical level of nomology awareness was of fundamental importance, and for the sake of completeness of the study, it was considered at two levels at once, giving rise to two main meanings (levels, aspects) of this problem – philosophical and natural science [1]. If the first, referring to the times of the ancient Greek «logos» and the ancient Chinese «tao», depicted the formation of a category as a process of concretizing the intuition of «universal connection» and generalizing socio-political connotations, then the second, referring to the XVII century, represented the category as the result of the organization of the accumulated empirical experience in a certain way of material and production activity. Meanwhile, the resulting time gap should be filled, on the one hand, with details of the study of the nomenclature of determinism, in which some categories of nomology overcome the status of preliminary «forms of conditioning» and «aspects of the relationship of interaction», and on the other hand, with lively etymological developments [2; 3].

In this case, the secondary complication of the problem of the formation of a scientific law will require a combination of relevant methodological approaches and the introduction of additional historical and terminological milestones. In this regard, the Renaissance deserves close attention, filled with the greatest number of forms and aspects of the application of the «law», which experienced simultaneous synthesis and reduction in the course of subsequent formalization into science. In the edition familiar to us, the classical scientific description, which involves the systematization of phenomena to the degree of mathematical regularity, is both a consequence and a hidden premise of the *atomistic* worldview: it phenomenally coincides both the structural elements of quantified matter, which transferred their functions of movement to the laws of mechanics, and the structural elements of an anti-traditionalist society, which transferred their functions of production to the laws of political economy. At the

same time, the philosophical and methodological reflection of scientific revolutions demonstrates that it would be naive to believe the quantification of matter and the establishment of substantial laws of nature as a simple result of scientific and industrial practice: connoisseurs of the Renaissance subordinate them to cardinal changes in life, worldview and self-awareness of a man who went along the path of scholasticism to the value gap of the Renaissance.

Indeed, although the «gospel» function of mediating between the absolute (ante rem) and man (post rem) began to be assigned to created nature (in re) already in the time of Thomas Aquinas, judging by the leading teachings on the eve of the era of scientific determinism, nature as such did little to feed the leading anthropocentric interests of scientists. Once associated with the *human* fall into sin, it possessed laws of a clearly lower derivative order, illustrating the oppressive feeling that «we live without a clear goal, as if in a gloomy blindness, we move not along a well-defined path, but along an accidental road offered to us <...>» [4, p. 49]. The opposite impression from the mechanized nature morte will arise only through strong physical-deterministic implications of the Hellenic-Roman *ethical* teachings, reclaimed by the kinship of individualization and negative equality of man in the context of the new socio-political absolutism.

On the other hand, the external motives of scientific programs usually do not manifest themselves directly, but rather modify or promote selection in a series of previous academic values. The revision of ancient *individualism* took place in the conditions of Christian moralizing ontology, when behind its phenomena a symbol of the divine was guessed, helping the «judgments of the soul» to transcend the accidents of intra-worldly goals (actus occasionalis). Therefore, humanistic thought had to change the traditional image of individualism (κοσμοπολιτής), highlighting it with a metaphor for the healing of the whole through its parts (uomo universalis). Thus, Epicurean atomism, Stoic naturalism and Neoplatonic esotericism entered into ethical resonance with the vertical methodological reorganization of the «idols» of traditional craft practice, which contributed to the mitigation of the Augustinian «original sin» of

individual creations (*casus*), extending to them a general idea of the created world as aesthetic phenomenon (*occasio*).

After Dante's metaphor of the descent from the depths of hell through the heavenly spheres to the heights of paradise, human piety and knowledge of God receive the humanistic purpose of intensively penetrating the hierarchy of existence. At the same time, art primarily appears as a means of finding the «first formal causes» of divine creativity (*natura naturans*), embodied in the created natural order (*natura naturata*). The aesthetic and practical reproduction of the laws of art obtained in this way for Renaissance artists and inventors becomes the best evidence of involvement in the same original Idea, which scholastics sought to reach through endless interpretations of the written word, and mystics – through self-knowledge. Thus, imitating the highest creative ability serves the simultaneous understanding of man and nature.

Thus, ideas of nomology arising in the course of the implementation of the transcendental Plan ceases to bear the stamp of the duality of the ontology of the «Earthly City» and the «City of God», opening up new perspectives for mutual projections of the divine, human and natural possibilities of free choice (*contingentia*). At this crossroads, the creative project of the Renaissance is established, where humanism gives the ideal of the identity of the macrocosm (*major mundus*) and microcosm (*minor mundus*) an active dimension and reaches the structural identification of the hierarchical levels of the created world on the basis of the universalization of the ancient idea of natural law [5, p. 49]. In natural philosophy, both hypostases of the cosmos acquire a harmonious whole thanks to a mixture of horizontal and vertical material, language-symbolic and psychological connections. By physicalizing them into uniform forces of heat, cold, light, magnetism, etc., B. Telesio and his followers balance medieval creationism by restoring ancient substantiality in nature, making it a sensuous hypostasis of the highest truth. Other ways of immanentizing divine laws in the pantheistic motifs of Spinozism, German idealism, romanticism, American transcendentalism, and «deep» ecosophy will form the basis for honoring and imitating natural harmony in the process and results of human activity.

The methodological reconstruction of the centrifugal processes of this project according to the content areas and historical stages of Renaissance thought involves the «smoothing» of the dialectics of Renaissance determinism in the context of the humanization of the late scholastic («Gothic») picture of the world and the establishment of the significance of the sacred miracle, secular freedom and ontological chance for the formation of scientific nomology.

8.1 Humanistic premises of the Renaissance natural philosophy: mantic, astrology, magic

The moral promise of the intrinsic value of creations and the attainment of the harmony of the whole in their relations contained a contradiction between active humanism and the speculative doctrines of the Renaissance, in which the creative goals of replenishing nature, overcoming the accidental fate and achieving the public good were mediated by the problem of independent «*cultivation of virtue*» (transcensum) by the individual. Despite the German alternative of «theosophical naturalism», when the Creator and his creations *directly* coincide in the fertile idea [6., p. 54], in Italy, the most convincing guarantee of the «expressive» transcensum of knowledge seemed to be the «world connection» (συμπνοια πάντα) of the systematizer of Stoicism Posidonius.

Revived by G. Pico della Mirandola and other «naturalists» mainly in the eclectic version of Cicero and Laertius as a priori «astrological conformity», this world connection, on the one hand, was the ultimate school expression of medieval symbolism and allegorism, and on the other hand, it is more corresponded to the specific Renaissance *problem* of human freedom as a self-determining combination of the imperfect elements of earthly action and the perfect guidelines for spiritual existence. Under the conditions of Christian dualism, this material-sensory attraction of things, symbolically likened by belonging to one universal (archetype), forming a system of mutual support and balancing by the forces of all universals, opened up an attractive opportunity to foreshadow the action of fate (μαντική) and, in general, potentially pierce the hierarchy of being.

For all the speculative nature of its «sympathy» (*sympathia*), in which material, linguistic and psychological properties and connections merge, the world connection of the «Stoic Aristotle» softens and mediates the personal risk of establishing a connection – that is like the relation of «children» to «parents», content to symbol, spiritual to bodily, history to scripture – between the available influencing unit of the sublunar world and the inaccessible influencing unit of the supralunar world. «The whole world becomes the field of all-encompassing symbolization and is covered with stone colors of symbols <...> as soon as symbolization passed from a purely religious sphere into an exclusively moral one, we already see its hopeless degeneration <...> in fact, this is already a symbolization reversed; when it is not the lower that points to the higher, but the higher is the symbol of the lower» [7, p. 207, 209].

Supported by translations of such newly authoritative manuscripts as *Almagest*, *Qabbalah* and *Corpus hermeticum*, this connection, according to the associations of that time, became the «gray of philosophers», into which the anti-scholastic «mercury of philosophers» crystallized – the less material world Soul of Neoplatonism, which served as a guarantee of mimetic mysticism [8]. Before the development of the famous artistic and «Pythagorean» means of the Renaissance, in the arsenal of its implementation, one can see, first of all, the textual method of creationism with its contradictory casuistry of natural patterns of things (*prima natura*) and symbols of their creation (*signatura rerum*). «Symbolism, viewed from the point of view of causal thinking, is a kind of mental short circuit. Thought seeks a connection between two things not along the hidden coils of their causal interdependence – she discovers this connection in a sudden leap, and not as a connection between cause and effect, but as a sense and purpose. The belief in the existence of such a connection can arise as soon as two things reveal the same essential common property, which correlates with some universal values» [7, p. 204].

On the other hand, the «myth of the Renaissance», which promised to certify the value preferences of these analogies by the continuity of the restored tradition [9, p. 357-365], put forward a cathartic method of reception of ancient languages and dispositional-mantic anticipation of the «second nature». In fluctuations between these

methods, the moral transcensum turns into a «chameleon» *ability* to measure the substantial levels of the macrocosm in the life stages of the microcosm, which gives a *human* «connection and similarity with all parts of the world» and embraces the worlds of the valley and the mountains in their endless convergence without sacral sanction.

The power of love, for example, in which from the fifteenth century. the universal creative principle and natural human feeling begin to coincide, he unites the hierarchy of cosmic forms (*copula mundi*), thus ascending from flawed creations to the ideas of the divine mind and the content of his own nature. In the Neoplatonic tradition, they rely here on the representation of the ideas of the divine mind in the world Soul – the «seed logoi» (*rationes seminales*), since they combine the irrational grace and the rational harmony of its *beauty*. Love compels the sublimation of the lower bodily forms to the perfection of this beauty, «like the reflections of the luminary to the very luminary» – in nature, based on a simple thirst for pleasure, and in art also for the manipulation of «seed meanings» that concentrate the highest blessings (*coelestia vendicat*). Since under normal conditions the function of their distribution in copies of bodily forms is entrusted to the celestial spheres and stars, thus active resources of evasion from astrological determinism are opened up to a human [10, p. 357–382, 402–417].

Non-demonic *magic* that specializes in such a «marriage of the lower to the powers of the higher», in the words of the «naturalists», deserves to be called both natural and divine: due to the fact that she peers intently and puts on public display the secret wonders of nature, «she herself, as it were, is their creator» [11, p. 262]. As if in continuation of the thesis of Nicholas Krebs of Cusa about the coincidence of opposites, this common denominator with the Creator is achievable only if a person focuses on the *symbols* of creation, since by their nature they express the unity of the earthly and the heavenly, linking them with rational rules [12]. In the face of declining clerical guarantees of social life, the educated mind will find such rationality in *the regularity of the movement of the heavens* – refined to mathematical proportions, like Cusan, or astrological, like most.

The indicated «creativity» here still resembles the implementation of the scholastic program in the ontology of Cusan – reproduction of the world panorama (*pax philosophica*), contributing to the identification of hidden, hidden or forgotten truths. But its mathematical component is modernized by Pico della Mirandola so much that in the preserved linguistic parallelism of the two worlds one can see the inductive Averroist-Padua preference for the sublunar world. «That heaven is the common cause of terrestrial events is also recognized by Pico. But all individual phenomena must be explained by their proximate causes» [13, p. 341].

At the very least, the physical causality of the *observed* elements of heat and light compares favorably with him in that it connects the «proximate» atomic causes of things and the «first» causes of the forces that *bind* them, while the hidden qualities of the astrological pneuma seem too creationist – as self-sufficient symbols of the «first causes» (*propriis principiis*). «The determinism inherent in judicial astrology, which seeks to make the inner life dependent not only on bodily changes, but through the body – and on the arrangement of the heavenly bodies, inspired by pagan ideas about the divine will, replaces the beauty and divine harmony of causes with a chain of random and imaginary correspondences. Pico does not exclude and could not exclude the physical connection of the whole, but he denies that the stars can have a position that has a direct effect – and therefore a privileged position <...>» [14, p. 141].

At the most general cosmogonic level, the new scheme of determinism figuratively looks like the introduction of Venus (chaotic matter full of mixed and imperfect forms) into Mars (the image of the highest incorporeal principle), which should provide the world with a teleological reason (*lex divina*). The latter, unlike the «closest» (random atomistic) «knows about the purpose of the whole», but unlike the «first» (necessary astrological) is capable of miracles with the help of natural forces. A human who is involved in both principles, according to Pico della Mirandola, is capable of both resuming the birth of the world in magic and profaning it in astrology [15, p. 91–99].

However, in addition to hermetic rhetoric, the works of the astrological cycle also reveal a re-actualization of the ideas of early Christian humanism about the self-determination of a person. In particular, in the coming natural philosophy,

reminiscences of the «microcosmic» anthropology of Methodius of Olympus and Gregory of Nazianzus acquire methodological significance. Being the support and instrument of the Creator in his world-ordering efforts, man from the height of universal world harmony (archeus) is able to literally «heal» random *deviations* of the fallen nature, produced by the immediate material causes of things, into the perfect *possibilities* of this matter [16].

If we consider the worlds as *books* of Nature and Holy Scripture, then the condition for the creative magic of their mutual translation will be the Stoicist reduction of the verifying inclusiveness of the world order (Ordo) and the polyphony of the meanings of any of the things to the polarity of moral and aesthetic *possibilities* in nature and (or) translations in language, one of which (positive) will be the counterpart of the transcendent, accessible only to the elect. At the same time, the *humanization* of the Areopagitic ladder of being carried out by Cusan, which made *each* of the steps both an adequate private manifestation of the extraordinary One, and a «poetically significant» (Petrarch) form of human knowledge, promises the same virtue to the ordinary profane, but in an extensive aesthetic expression. From here comes not only the Renaissance fundamentalism of Neoplatonism, which reached its apogee in the universal aesthetic objectivity of I. Kant, but also the fideistic need for the scientific *spectrum* of studia humanitatis, replenished by «ancient insights» [17, p. 43].

In some cases, like the mechanics of Archimedes, the physics of Lucretius, or the geography of Strabo, they serve as an ideal to emulate speculative esoteric practices; in other (the stories of George of Trebizond and the moral philosophy of N. Machiavelli) – as the starting empirical point from which the concepts of «collegium sciences» will develop. But in general, the spiritualistic monism of magic presents this Krebsian diversity already in the purely *epistemological* aspect of an enthusiast piercing the cosmos, when the aesthetic measure of the transition from part to whole is realized in the continuous movement of his mind from the finite substantial foundations (corporeal) to the Infinite (spiritual). Being included in the ascent of the «spiritual circle of being» (circuitus spiritualis), he is inclined to overcome any limits – in habitation,

possession or enjoyment, until he guarantees himself an infinite foundation in the impersonal law of this movement («ideal form», «supreme good») [18].

8.2 Naturphilosophical foundations of Renaissance (in)determinism

Thus, by virtue of its middle position and «figurative likeness», the Renaissance man played the role of a transmission link (*vinculum mundi*) of a more general process of unification. Its hermetic reason was the discovery of the «Emerald Tablet», which postulates the miracle of «one-single»: «and this is how all beings came from one through the mediation of one: all beings appeared from this one being through likening» [19, p. 24].

By the time of «A free inquiry into the vulgarly received notion of Nature» by R. Boyle, this perception of things will be forged into the status of «an essential modification of the Cosmic Mechanism». But first it is realized in the neo-Platonism of Cusanus: there, structural relations and driving functions were transferred to the Absolute Subject (*Mens-mensura*), and then returned to Nature along the substantial ladder— already as a modifier of infinized properties («infinity», «emptiness», «inertia») [20, p.100].

This Subject was curtailing, according to A.V. Akhutin, the created world of Augustine and Aquinas, the world of substantial (immeasurable, qualitative steps of the One) forms, but unfolds another world, the world of homogeneous measurability, possible measures. In it, the qualitative *certainty* of the expedient movement of substantial forms find a common denominator of the infinite extensive spatial characteristics of the *Mens-mensura* (the prototype of the Newtonian sensorium), thereby becoming physical *quantities* subject to the *equations* of motion. «Any thing can be represented as a modification of another thing, each thing is comprehensively connected and correlated with others, determined not by its internal nature, but, roughly speaking, by a random combination of circumstances in which a single nature, which constitutes the essence of each individual thing, was determined in such a way. The thing is this, because the only one happened to come true» [21, p. 48].

Although Krebs' subordination of cognition to the subjective function of measurement (*mensura*) already presupposes the relativization of the Aristotelian «place» and «movement», the cosmological resonance of the emanation «resolution» of movement already produces in natural-philosophical treatises, where the cycle of world unity is formed by the communication of *one and the same* spirit in the form «creative nature» (*natura naturans*) and «created» (*natura naturata*). First, this is an outwardly formal expression of the divine potential in relative reality – random arrangements of atomistic «matter», and then overcoming its accidental nature – «matter» in its highest sense, rising above all dichotomies.

Then the qualitative certainty of a thing in begins to be interpreted as «*potency*» – a measure of its ability to perceive divine forces, despite the fact that this universal ability is given and varies quantitatively. ««...» It is necessary to recognize in nature two kinds of substances: one is form, and the other is matter; for there must necessarily be a most substantial reality, in which the active potency of everything is contained, and also a highest potency and substratum, in which the passive potency of everything is contained: in the first there is the possibility of doing, in the second there is the possibility of being done» [22, p. 85].

In J. Bruno, the physical expression of this relationship is realized in the form of a revived atomism – «discontinuous bodies in a continuous space» [23, p. 202]. However, unlike ancient atomism, its space is not empty, but the place of divine shaping, and the driving abilities of the material atom are not alienated, but are identical to the abilities of the pantheistic Universe as an absolute minimum and maximum on the basis of identity in the world Soul of the mind and the active cause. Otherwise, the observed «reasonable order» must be communicated to a random inanimate arrangement of atoms by an anthropomorphic transcendental Will, which contradicts the natural *constancy*, on the laws of which magical practice is based. «Bruno renounces ancient atomistics: random collisions and groupings of atoms do not suit him. He searches for an integral order in nature and in these searches he comes to the infinite nature as a whole – the *motionless* nature» [24, p. 130].

It is important to note that this integral order, having received the Copernican vector of infinitesimality and equalizing the status of internal and external causes, did not immediately experience the classical geometrization of things into properties and quantities [25]. Before its self-constituting law can become fully discursive, it will require the use of an entire arsenal of cognitive faculties. From these fittings, the «*natural*» aspects of the realization of divine potency will grow along with the moral and philosophical ones («soul motive», «natural law», «moral law» and «political power») [26]. For example, the physical principle of self-preservation (inertia) is initiated by P. Gassendi as part of the program of alienation in favor of the Creator of purely individual forces of atoms as *identical* to external ones, but too piecemeal and requiring complex meditative procedures (hypotheses).

Instead, a general abstract grammar will be proposed, in which the «intense» convergence of the divine and human minds is established on the basis of the consistent identification of mental operations with a figure (G. Galileo), mathematical actions (R. Descartes), and a moment of movement (G. W. Leibniz). In particular, the Galilean «figurativeness», assigning to matter also a quantitative aesthetic relational measure of existence, reduces the Aristotelian nomenclature of «moving causes» to combinations of «displacement» (κίνησις), in order to then raise them to their own idea of «laws of motion» (leges motus). To complete the process of infinitization, the qualitative originality («diverse definition») of the *being* will be rendered into a humanitarian epiphenomenon («secondary qualities»), depriving it of the ability to improve both in the Platonic external and in the Aristotelian internal plans. Coming out of the department of the divine Intention and the world Soul, it became identical to itself in the mathematical («ontic») dimension [27].

Splitting Aristotelianism into conservative metaphysics and instrumental physics, the self-confidence of the «dual truth» placed physics under the supervision of Pythagorean mathematics and forced to perceive the infinized properties of natural entities as functions of human activity, and the human himself as a surrogate legislator of the sublunar world: by the measure of his knowledge, he potentially compares with nature, and by the magical ability to release the hidden wonders of nature, he actually

surpasses it. This superiority is carried out at first according to the closed logic of a ritual-sign relationship to nature, behind which stands an inert social practice, associatively-syncretically combining the legalized with the random, as far as they serve to reproduce the tradition [28]. At the same time, the collective experience of magical symbols and transformations is already opposed by the individual esoteric significance of their goals and the creative nature of the method.

In the course of its implementation, the Renaissance man paved the way for pantheism and, having overcome the spiritual and qualitative hierarchy of the peripatetic-scholastic world order, naturalized the World Soul and Fortune into single laws penetrating material nature. After the scholastic ranking of categories, the Renaissance-humanistic idea of artificial reproduction of the spiritual essence of divine creation, materialized or sensationalized in nature, contributed to the removal of the opposition of accidental and contingent accidents, a derivative of the Aristotelian distinction between primary and secondary entities.

However, the development of socio-political absolutism will reveal the reverse side of the universalization of labor and the individual himself: along with the liberation from the system of communal obligations, the Renaissance man comes to the *equation* of value («sympathetic») alternatives, not suspecting that he himself will soon become an object of arbitrary choice. In the «natural fear» then revealed, he delegates his goals and possibilities to the «clockwork» of Leviathan, involuntarily revealing his anti-individualistic forerunner in the neoplatonic One [29].

As soon as the predecessors of I. Newton «turned off» the immanent driving causes of bodies, the «chaos» of the creative spirit began to be disciplined into practical «natural laws» of world necessity [30, p. 265-267]. In order to fully understand the methodological possibilities of representing a new ontology, in the vicissitudes of the humanization of the ancient medieval picture of the world, one should discern a more general process of its aestheticization, reflected in the philosophical reflections of the art of the Renaissance.

8.3 The formation of the creative project of the Renaissance: from personal manner to a universal method

It has already become customary to elevate the universal method of classical European science to theological sources, since they justify the ideal-archetypal lens, and with it mathematical determinism, and the experimental enterprise of scientific knowledge [31]. At the same time, the rational use of this lens in the form of Galilean «idealizations» in historical retrospect seems to be a mysterious anamorphosis that denies the irrational schemes of the entire combined philosophical and theological tradition. For example, in Neoplatonism, fundamental to the Renaissance worldview, the role of man in establishing a connection between ideal archetypes and material reality was associated with the mystical and artistic state of «divine fury» (mania), from which, according to legend, Orpheus and Hesiod drew their chants. When it is ennobled by J. Bruno to a «heroic enthusiasm» (furor), combining the imitation of sensual nature (mimesis) with the elucidation of the ideal archetypes of nature in one's own soul (katharsis), rationality will prevail in the artist's creative exaltation.

The assumption that arises from this about the artistic and aesthetic rationalization of the cognitive ascent to ideal archetypes (transcensum) is based on the tradition of the aesthetic criterion of truth. With the crisis of ideas about the transcendent Intention and the determination of individual places in the world, systematized by «world sympathy», aesthetic forms outgrow the official illustrative and educational purpose. Following the model of Plotinus, they are assigned an active role of mediation between analogous archetypes in the divine and human minds: with the help of artistic means, they can emphasize, adding or subtracting, strengthening or weakening, in real objects, the corresponding significant properties [32, p. 192].

The pantheistic tendencies of Neoplatonism contributed to the deepening of the content of art, softening medieval dualism and eclecticism both in relation to the subject of mimesis and its artistic means. In search of sublime reality, when, in the words of J. Huizinga, «with their own hands people brought heaven down to earth» [7, p. 266], the role and place of man in the Neoplatonic circuitus spiritualis lose their exclusivity. Depending on whom he mediates in relation to «absolute – material

nature», the ideal of insight into a largely single archetype based on the artist's personal genius is replaced by the ideal of compositional-dynamic combination of many things in one image based on the «laws of art». Here, the *dogma of creation* played the role of transmission, which made it possible to bring together the initially opposite spheres of the heavenly (theo), natural (fusus) and artificial (techne). Its meaning in comparison with the Middle Ages is changing: under the methodological impression of Pliny's revived Natural History, the emphasis is shifted from the allegorical knowledge of the divine infinite plan to the canon for artificial imitation – the cosmological theodicy of Cusanus goes into the artistic parousia of the Florentines.

Accordingly, the initial thesis that any image is only a shadow of the original *idea* of creation, which is also found in the soul, is supplemented by the fact that in order to bring it to the light of qualitative certainty, an inventive effort inspired by the «ancients» (*invenzione*) is required, capable of evoking in the soul «grace of form» and make up for the damage done to things. By means of art, the master as «Deus occasionatus» tragically strives to reproduce the spiritual essence of the infinite divine idea, sensationalized in the random diversity of nature, and to limit it to the fullness of eternity [33, p. 71].

From here, obviously, comes the common thesis that in the «ancient classical» warehouse of the Italian imagination, «talent and taste for order, therefore, for correctness, for harmonious and strict form» prevails. In contrast to the medieval German and to the detriment of the inner deep truth, «it is with difficulty that, like the first, it is given to portray savagery, coarseness, strangeness, pure chance, disorder, an unexpected explosion of self-willed forces, countless and elusive particulars of some individual, which - some lower or nondescript creatures, deaf and dark for us life, common in all layers and spheres of existence <...> it alone revealed and transmitted to us the natural order of ideas and images» [34, p. 70].

However, personal mastery will not immediately crown the hierarchy of virtues, marking the overcoming of the general cultural gap between spiritual intellectual contemplation and material handicraft practice, the new personality and the old cosmos. «The revolution in political theories could not but affect the corresponding

development of personality <...> man also became more selfish when the accidents of historical life dissuaded him from the viability of that epic-ordinary way of life, of which the social theories of the Middle Ages were an extreme expression <...>. Sometimes, however, some strange fatalism of fate, which cannot be reckoned with, will sound a sad note in the midst of a merry day, and then the turmoil and noise rise even more than before. Here skill is the highest <...> the worship of custom was replaced by the cult of luck» [35, p. 96-97].

Indeed, being one of the aspects of the Renaissance problem of freedom, the humanistic going beyond the limits of social tradition and symbolic navigation needed guarantees, finding them first in the finiteness of sensory experience, then in the regularity of technical means. The formation of the first guarantee can already be seen in the literary history (*studia litterarum*), basic for the early Renaissance, which is the first of the arts in their modern sense to try on the religious privilege of textual interpretation of reality. If Dante's «Comedy» reveals the *dilution* of cosmic harmony by the arbitrariness of individual situations, then in the «Decameron» by G. Boccaccio, who had the fame of «the impresario of Fortune», the amorphousness of world determination is positively disciplined by personal efforts. «The tradition coming from antiquity connected events with anything, but not by a causal-temporal connection; the next event was not the result of this one, it was the result of chance encounters, mystical powers, magic spells, providential intervention, or the machinations of Satan <...> But the poetics of the Renaissance <...> which includes the influence of the individual, his fate, emotions and will on the nature of causal manifolds <...> already includes causal manifolds, series of situations connected with each other, almost as unambiguously as the elementary states of *here-now* movement in modern cosmology» [24, p. 164-165].

In the «Genealogy of the Pagan Gods», this transition is already personified in the figure of Prometheus, similar to Adam, in whom innate moral virtues take shape in cultural gifts (*ars*), and high personal valor (*virtù*) is realized as an aesthetic «valor in skill» (*il virtuoso*). Thus, the ancient agonistic value of perfection from the contemplative «acquisition» of pure ideas was modified into the ability to invent and embody them.

Together with the reception at the time of the Basel Council of the natural science works of Aristotle, the «crazy» content of the mimesis of beauty scattered in the elements of nature is also being revised, resolving the moral aspect of the relationship between the object and the subject of imitation. «Imitazione» in the classical-phenomenal theories of art by L.B. Alberti, L. Ghiberti, Leonardo, at the instigation of Ciceron, acquires *cognitive* significance [36, p. 54], combining the medieval metaphor of art as a «mirror» («monkey») of sensual nature (*natura naturata*) with the Renaissance metaphor of the Creator as an «artist», based on the geometric archetypes (*mathesis*) of the world Soul.

The hermetic thesis about a man who creates «as a second god», popularized at the beginning by Cusanus, L.B. Alberti rethinks in the spirit of *modus operandi* – as an artistic ability to realize the highest design in finite matter, thereby uniting theory and practice without «world sympathy» or other symbolic aids [37].

Unlike the ancient classics, the sensual *beauty* of the sublunar world of Christianity was devoid of substantiality, unable to restore the latter even with the New European substantialization of Nature. Despite the internal distinction between ontological priorities between a natural thing and an artistic form, it acted rather as a means of creative self-knowledge: individual accidental qualities were actualized only thanks to their ideas, actively connected by the «parts of the soul» of the absolute Subject. At the time of secularization and exotericism, when a person is perceived as the closest and most accurate «image and likeness» of the creative Absolute, «parts of the soul» first imitate in the «narcissistic enthusiasm» of aesthetic prototypes, and then – in the self-sufficient rules of the arts, which until recently were called «servile» (*serviles artes*), and now they translate the tragedy of the fall into poetic discourse and, in the spirit of the «golden mean», rehabilitate the extremes of earthly creations on their own [38, p. 257-355].

The fact is that the notorious apology of human capabilities and the breaking of traditions, losing the original Renaissance values, turns into arbitrariness, and for the original harmony and completeness of existence, they increasingly turn to the creative nature itself (*natura naturans*). In order to recreate it not naively, visually, but

functionally, setting in *motion* the bodily possibilities of creations (dynamis), more and more often resort to «skillful calculations and sleight of hand» (dynamis cai techne). The latter, commensurate with the invariants of movement as a kind of natural law, pass from the status of a technical *manner* that determines the value of an object by the amount of labor expended on it, to a *method* that puts forward incomprehensibility for the layman as a criterion of artistry [39].

L.B. Alberti in this regard, even on the eve of the high Florentine aesthetics, refers to the Ciceronian *distinction* of «beauty» (pulchritudo) as an internal necessary law of beauty and «embellishment» (ornamentum) as a relative or introduced predicate of beauty, found in the course of «correspondence» (decorum) of technical means for the restoration of the whole [40, p. 177-179]. Although the distinction was made according to the criterion of mathematizability and justified in practice (for example, in painting it will lead to a synthesis of Flandrian Gothic or Byzantine Romance with ancient Romanesque monumentality, and in architecture – a Gothic structure with antique decor), in the general Renaissance test of aesthetic emancipation by art, this distinction could be realized quite arbitrarily.

Therefore, here the «Italian Vitruvius» relies on another rhetorical distinction – «dissolutio/compositio» that functionalizes the Neo-Platonic circuitus spiritualis into linear chains of decreasing/increasing complexity of the part and the whole [41, p. 157-183]. The artistic techniques that arise from here, defining the space of possible aesthetic experience, in the mannerist result (G. Vasari, G.-P. Lomazzo, F. Zuccari, etc.) turn out to be only ambivalent *means*: imitating not so much the «physical» appearance (imitatio) as the «poetic» («historical») action (representatio) of Nature and (or) the Creator, they can serve to awaken the most opposite emotions (ethos and pathos) in the soul.

Under the conditions of schism, dynamis cai techne will subordinate the original imaginative (neo) Platonic aesthetic concept of «mimesis» (mimetai toi noi) to the didactic functions of the Aristotelian «catharsis» (F. Robortello, L. Castelvetro), which sets apart the image and its object, the viewer and the participant. If the Middle Ages noticed in Aristotle only the degrading natural aspect of chance, which connected its

ontological status with the secondary principle of *individuation* in Stagirite, then the Late Renaissance discovered, together with his poetics, the ranking of these individuals – according to the presence and degree of their highest expediency as purely aesthetic outcomes, perceived in such an aesthetic form only by the viewer: ««...» and this most often happens when one thing unexpectedly turns out to be a consequence of another (in fact, there will be more surprising here than [if it happens] accidentally and by itself, because even among unintentional events, those that seem to happen as if on purpose seem the most amazing: how, for example, in Argos, the statue of Mitius fell and killed the culprit of the death of this same Mitius, when he looked at her; these events do not seem to be random), then the best stories will necessarily be just such» [42, p. 656].

8.4 The art of discovering «true» nature and its assimilation in science

Thus, along with the transfer to nature of the idea and design of its organization, the creative and driving causes are depersonalized, and a person's access to them will lose spiritual immediacy. The restoration of material naturalness is felt in the course of rethinking the ancient category of freedom: the simple elimination of random spatio-temporal circumstances in favor of natural evidence dictated by the common experience of social tradition is no longer enough. Given that the incarnation itself assumes the status of an Aristotelian entelechy, it should be certified in the opposite way by multiplying and extremizing random circumstances, so that the «individual nature» that has survived under their onslaught will show its freedom and authenticity. In this sense, for example, the image of Fortune, widespread at that time, is understood as a lady who can be won over only by constantly demonstrating the superiority of her own valor over everyday circumstances. In the final experimental evidence, it is only necessary to eliminate those of the circumstances that cannot be controlled by reproduction, the invariant of the ontological relations of nature and the neutrality of human experimental preferences will coincide.

It is characteristic that the theoreticians of the new art realized this first of all, having prepared their images for naturalists. Thus, Vincenzo Galilei, in his «Dialogue on Ancient and Modern Music», experiments with the revived cathartic principles of

melopeia, paving the way for the monodic style of operatic art. «When, for entertainment, they go to tragedies and comedies played out by fairground actors, let them one day restrain immoderate laughter and let them, please, let them, please, observe [how] the [actor] speaks, with what voice – high or low timbre, with how many long and short sounds, with what force of accents and gestures, how the speed and slowness of movement are conveyed [when he speaks] one nobleman with another <...> let them consider when this happens to a prince talking to his subject and vassal, or asking for protection, as an angry or excited [person] does, like a married woman, like a girl, like a simple child, like an insidious public woman, like a lover when he speaks to his beloved, seeking to win her over to his desires, like those who complain, those who cry, like those who are fearful, and like those who rejoice with joy. From these various cases, when they carefully observe and carefully study them, they will be able to take the norm of what is appropriate for the expression of any other state» [43, p. 518-519].

A similar certification of naturalness through the technical exhaustion of randomness can be seen in the experiments of representatives of the fine arts – colorists, luminaries, stereometrists. Supported by the Augustinian concept of «formal-numerical laws of sensual beauty» revived at the Academy of M. Ficino, exercises in aesthetic delights (*varietas*), seen in astrological periods, neo-Pythagorean proportions and magical recipes, will open self-sufficient methodological invariants at their expense – the laws of dynamics and composition, in the fixation of which G. Vasari saw his superiority over Pliny. Such a comparison of the sides of the creative process, since the Creator tells both Nature and the Artist the rules of his creation, has taught the scientific community to pursue the extrapolation of the law, and not its letter, but to be scrupulous about its authorship. However, the personal beginning both in the «virtuoso» and in his «creation» was actually diminished. After all, now it is not necessary to elevate their phenomena to the level of self-sufficiency each time: «high art» (*maniera grande*) recognizes in advance the *eidos* in *each* phenomenon without an «enthusiastic» *transcensum* or local *decorum*.

According to N.A. Berdyaev, who opposed, in contrast to the Vasarian tradition, the Florentine Quattrocento Botticelli and the Roman Cinquecento Raphael, such an imbalance of spirit and nature meant not only the pinnacle of the classical tradition, but also the «mortification of the spirit» in the canon, and art in compositions. «The art of Raphael is the abstract perfection of composition, these are the very laws of perfect art forms. Raphael is the most non-individual, most impersonal artist in the world <...> All this lofty and perfect art of the XVI century is essentially unoriginal, imitative and reactionary in the world sense» [30, p. 446].

At the same time, all his formalisms, decorativisms, allegorisms and symbolisms, replacing the humanistic content of art, will be *formalized* in new mathematical disciplines (projective geometry, analytic geometry, trigonometry, etc.). Impersonal quantitative expression will replace personal qualitative expression, purism will be replaced by mannerism, and «physics» will become cognizable only with the help of the «geometry» tool.

«It seems that we have before us the classical ancient opposition, fixed by Plato, who contrasted in the “Phaedo” “divine – human”, “immortal – mortal”, “intelligible – sensual”, “uniform – diverse”, “permanent and unchanging – impermanent and changeable”. But this similarity is deceptive, it is limited only by the plan of opposing the world of phenomena to being, the phenomena themselves and being are understood differently» [44, p. 178].

For example, Leonardo da Vinci, criticizing the cognitive position of the «commentators» in favor of the «originals» who are able to invent by imposing «common sense» on natural experience, nevertheless borrows from the first the metaposition of discorsi, thanks to which the magical-mystical ability of a person to sporadically empathize with Nature *distances* itself from it. «If Leonardo da Vinci turns to experience, it is only in order to discover in it the eternal and unshakable laws of the mind. For him, his own subject of research is not so much experience itself, but rather the rational foundations of experience, its “ragioni”, which are in it in a latent form and only partially manifest themselves» [45, p. 67].

In addition to the implementation of the metaphysics of Nicholas of Cusa [46, p. 417], here one can see the looping of the Platonic methodological dichotomy of «dialectics» and «mathematicians», although Leonardo himself rather retains an a priori belief in their parallelism, drawn now in Logos, now in Sensus, as is characteristic of mathematics, which constitutes both the «way up» and the «way down». «This interdependence of causes and experience, this constant striving to comprehend what you see, from experience, from experiment, from observation, makes the old combination of empiricism and fantasy, observation in detail and love for wonderful, implausible explanations no longer possible. Now only one way of action is possible in any kind of creativity, to act, “now deriving actions from causes (*cagioni*), then confirming reasonable grounds (*ragioni*) by experiments”» [47, p. 40].

Finally, the son of V. Galileo, in *his* famous dialogue through the lips of Sagredo, referring to Michelangelo, Raphael and Titian among the geniuses of art, offers the same norm of *activity* both in application to sensual matter and in application to a rational spirit [48, p. 89-90]. In her desired quantitative practice, on the material of mechanistic gravity, the heavenly symbolic and the earthly experimental poles of world sympathy will converge, and the moral probabilism of Catholicism will find a calling in the experimental epistemology of the Reformation: since divine *causation* is not mediated by anything, its non-cessitary nature is reproducible only probabilistically – as «theoretical assumptions». «The canon spoke in due time: of course, distant bodies do not send us, as Epicurus thought, perfect resemblances that convey the corresponding body both in external form and in hidden nature. Only signs, signs come to us, and we use them for conjectures, which we call contemplation» [49; see in 50, p. 70].

Having established himself in the perception of nature not so much as a result, but as an object of divine creativity, the Renaissance scientist will also assign a purely artificial (methodological) status to the substantial principles, thus eliminating the ontological gap between essence and phenomenon in the «sensualization of ideas and intellectualization of images». The latter turned out to be fraught with elimination from the matter of motion, and from nature in general – everything that is not subject to

certification: according to G. Galilei, from the mathematical principles of cognition, natural phenomena will become deductively derivative in their sensual form, and intellectual idea, and G.W. Leibniz would fix the new situation ontologically by forbidding accidents to «separate or move outside of substance» [51, p. 414].

Thus, exercises in aesthetic refinements will become the basis of a revolutionary strategy of combinatorial-mathematical discipline of accidents, scientifically formulated in methodology as ideal constructs that protect mathematical formalism from moments of qualitative originality of sensory experience, if it has not become mediated – «empirical». However, the mimesis of the privileged position of the subject of theoretical language, undertaken in this way, turned out to be in conflict with the atomistic image of the individual, giving rise to an empirical-analytical *gap* between personal life and social institutions, which was generally eliminated by *withdrawal* the moral dimension from the goal-forming function, and with it the reuniversalization of social values and cognitive goals. The «expressive» scheme of cognition, which grew out of the ideal of individual piety («Socratism») of Cusanus, in his epistemological syncretism, a replacement was found in the face of the «stage-distributive» scheme of the trinitarian ideal [52].

Developed by P. Pomponazzi, J.F. Stapulensis, Sh. Bovelles and, finally, J. Locke as a form of self-control of the subject's established activity, the new scheme meant the revenge of didactics over poetry. Contributing to the reinforcement of the inductivism of the new natural science, it will finally subordinate the ontology of individual «nature» to the expediency of linguistic-theoretical structures, so that only their experimental and technical updating turns into an improvement and an increase in experience. As the «unity of spatio-temporal being» is being compiled, the meaning of finding and following the exact laws of nature will appear, and with it the naturalistic method in relation to man, which by the twentieth century will have time to produce so much substantive content that E. Husserl in search of «pure human consciousness» will have to «bracket it out».

8.5 Socio-humanitarian genealogy of scientific nomology

The constant historical leitmotif of the content of the forms and aspects of the application of the «law» is still served by two main meanings, dating back to the preclassical and classical ancient Greek concepts $\theta\acute{\epsilon}\mu\varsigma$ and $\nu\acute{o}\mu\omicron\varsigma$. In the first of them, in the spirit of Plato, an external unambiguously mathematical «prescription» is attached to matter, implying among themselves natural accidents; in the second, the internal multi-valued balancing «*tendency*» is explicated in Aristotelian fashion through the actualization of «formal» connections of accidents.

According to the authoritative British systematizer of nomological concepts, «like other most general ideas, the concept of Law entered the consciousness of different eras in a variety of its concretizations arising from the combination of this concept with other components of popular cosmology» [53, p. 506]. Since Quattrocento, faithful to the precepts of F. Petrarch, has not yet discovered the practical value of non-Aristotelian natural science, a kind of testing ground for developing the idea of a scientific law, where Platonic and Aristotelian nomological strategies intersected as spheres of due (desired) and possible, were the ups and downs of the formation of anti-scholastic anthropology and social philosophy.

Therefore, an additional study of such extra-natural forms of expression of «universal world connection» as «divine law», «*fatum*», «*fortune*», «*virtue*», etc., repeatedly reanimated in the history of methodology, promises to enrich modern generalizations of scientific law [54]. The general outline of this «adventure of ideas» consists in transposing the content of the nomological «prescription» from the logical-theological to the astrological-mathematical and experimental-historical, and the starting point is the classification of the laws of Thomas Aquinas.

At first glance, the hierarchical distinction of laws, noticeable in it, lays the foundations for the subsequently leading alternative of the dynamic and statistical levels of the law in scientific description. However, upon closer examination, each of them reveals the Aristotelian scheme of substantial teleology, which combines the internal and external at the cost of inescapable empirical randomness:

- for the «eternal law» (*lex aeterna*) – due to the diversity of participation (*participatio*) of individual things and their extra-essential circumstances in the supreme good (*summum bonum*);

- for the «natural law» (*lex naturalis*) - due to the constant lagging behind of tradition (the institutions of marriage, education, curiosity, peacefulness, etc.), developed in addition to the Mosaic commandments (*lex divina*), from the expansion of the illuminative inclination (*inclinatio*) of created things (and man in the first place) in relation to the universality of the supreme good (*bonum commune*);

- for «human laws» (*leges humanae*) – due to the historical contextuality of applications and restrictions of human nature by the state in society.

Since at any level the law is called upon to actualize the *goals*, consistently linking those already achieved in the role of means for the more supreme (*regula est et mensura actuum*), the Thomist person has a *rational resource* (*virtus est potentiae perfectionem*) to overcome the accidents that separate the human and divine minds, in face of logico-mathematical truths, theological method, or «positive» innovations [55].

The increment of this resource is determined by the social context and externally expressed in the development of civilization. However, the latter is by no means always centered around the real *common* good, therefore, with each such acquisition, citizens have an additional reason for sensual egoistic impulses, and the state for regulatory adjustments, some of which limit the expanded potential of freedom to natural frameworks (*dispositio*), and some are looking for him transient forms (*adiventae*) [56].

It is known that the Renaissance intensification of Christian civilization set in motion the Thomistic levels of legislation, breaking their harmony and, in the end, dividing them into spheres. Among the long-term consequences of this overcoming of the theological paradigm of law are deism, «natural» law and law of T. Hobbes and «laws of motion» of I. Newton. The first symptom of change was a kind of dynamic contradiction between *titanism*, behind which stood the transcensum of Nicholas of Cusa, and *tyranny*, behind which stood the strengthening of monarchism (papism) in Europe.

The social circumstances of the emancipation of man from clerical fate, produced by humanism, which was considered in spite of all «inscrutable» (for example, when comets «caused» pestilence on Earth) always a reasonable form of realization of good Providence, turned the accidental resources of individual creativity into the category of «ferocious» fortune (Dante, F. Petrarch, G. Boccaccio C. Salutati, M. Ficino). For a long time, the attitude towards it was built according to the Christian model of «an all-encompassing instrument of divine truth (will, purpose)», re-founded by Albertus Magnus and Thomas Aquinas as a spiritual overcoming of carnal passions (or, in «reverse» medieval terms, overcoming by Fortune of Doom). Thus, Pico della Mirandola, outlining the essentially Platonic position of M. Ficino, compares the «order of ideas» (providenzia) and the «order of things» (fato) with the life of a disembodied rational soul and a temporary sensual body: just as the law of Providence «directs things to its goal, to the achievement of the highest and final good», the subordination of the secondary senses to the primary mind promises a person fatally weighed down by the body freedom in the realization of final desires [57, p. 263].

Remarkable is this appeal to philosophical help, which accompanies the typographic surge of theological projections at the ups and downs of earthly life. «Contemporaries of Ficino, then Pare and Shakespeare believed that in essence nothing is material and there is no difference between the causality of material forces and the effect of spiritual forces, since it is the latter that explain the movement of the planets. Each fate is in the interweaving of mutually affecting influences» [58, p. 44].

Thus, in M. Ficino's treatise «On the Threefold Life», we see the (im)moral content of fortune already in an alloy with an emphatically exoteric physicalist description: the subordination of the spirit to fortune is a «disease of corporality» (including social), since the spirit (mind, will) in relation to the body has the advantage of a much superior mass – almost the same as the gravity of the stars on a single body. Due to the dual spiritual and bodily nature of a person, the influence of fortune is irremovable, but is subject to selective redirection by the «spiritual mass» into good, evil or inaction [45, p. 110].

The key to the success of such a spiritual overcoming is the practice of the moral improvement of the individual – the «cultivation of virtue (virtù)» widely known at that time. In the Neoplatonic version, it is directed back to the evolution of the One («from the reflections of light to the light itself») and driven by «divine madness» moves from the moral-poetic level to the loving-intellectual, from transcendence of chance to the good will of fate. «Therefore, what in relation to us is called Fortune or chance, in relation to universal nature can be called fate, in relation to the rational principle – providence, and in relation to the highest good – law» [59, p. 262].

However, as its source is transferred from divine grace to human nature, which obviously expresses the growing social strength of the individual, the ascetic means of improvement are replaced by civil and entrepreneurial means of the *earthly transcensum*. Often for humanists who accepted the experience of «sympathy» of the transcendent and ethical (L.B. Alberti, M. Palmieri, M. Parenti, G. Rucellai), the degree of spiritual perfection had a quite visible expression – in the magnitude of personal wealth, preserved and incremented in the vicissitudes financial market.

Moreover, stable economic well-being was considered a consequence of moral virtues, because, firstly, it is based on the desire to surpass the cash, secondly, it increases the potential of the entire community, and thirdly, it usually does not exceed the measure of natural necessity (P. Bracciolini, L. Valla); and with all this, it also expresses divine providence. «There was a new way of thinking, in general terms - the way of thinking of still early Western capitalism, a set of rules, opportunities, calculations, the ability to live and get rich at the same time. It was also a risky game: the key expressions of the trade language «luck», «chance», «prudence», «prudence», «security» (fortuna, ventura, ragione, prudenza, sicurta) set the limits of the risk from which one must protect oneself» [60, p. 477].

Against this ideological background, the formation of the first statistical models is taking place, serving, according to the patterns of astrological fortune, the financial inventory of the emerging banking system («chance», «balance», «insurance», «risk», «function», «average», etc.). Having the status of independence from the will of individuals, they will soon be extrapolated to the environment of state policy and social

reality in general. In the Polanian society, where the original Christian model acquires the anti-estate meaning of overcoming the stellar lot, in accordance with the depersonalization of fortune, carnal passions lose their personal beginning, which allows, on the one hand, to naturalize them into the «causes of things», and on the other hand, to designate morally unacceptable reasons as unacceptable. natural and therefore requiring extra personal effort. Although the latter is constituted by secular republican government, in practice it is more often reduced to an apology for the «good tyrant», a derivative of the scholastic identification of moral and political hierarchy [61, p. 38].

So, L.B. Alberti of early treatises, exalting the individual as a creator over the means of fortune and nature, argues that «in civil affairs and in the lives of people, reason has much more weight than fortune, prudence than chance» [62, p. 10]. But in the second half of the XVth century, when the disharmony of nature and traditional society is felt, he is already inclined to believe that fortune rewards the unworthy, and the virtuous should stock up on skill and diligence [63] and for many humanists, exhausted by civil wars and lawlessness, the visionary maxim of the inveterate Republican C. Salutati takes on a second life – «there is no greater freedom than to obey the best sovereign» [64, p. 114].

In both positive and negative conditions of socio-political instability, intellectuals turn to the heavenly order, hoping to see in its original (or purified) mathematical copy of the earthly order the signs of tomorrow. ««...»Their goal is not to recognize the dark power of blind forces in the world, but to give it a more perfect correctness, for weaving a network of universal connections in the universe, in which natural reality appears to be a solid foundation for human activity that does not violate the overall harmonious picture» [65, p. 90].

According to this logic, the accidental nomination of an individual to the sovereign with an unexpectedly large asset of well-being, which should testify to the high potential of his virtue (G. Pontano), should at the same time «naturally» be explained by his outstanding personal horoscope. And since that, according to the «universal form of the Law», is closely determined by the entire celestial system, subjects have the right to expect a mirror determination of their system of social organization by the horoscope

of their sovereign and involvement in his outstanding well-being... The time is passing when «planets and constellations» (as well as any «knowledge») served as an instrument of the divine will; now the tool dominates the Will, leveling the differences between the miraculous and the natural.

If the Aristotelian P. Pomponazzi in this context also points out that the natural order of the «eternal and indestructible Law» not so much outstrips the divine will with its predictions, but saves it from profanation by astrologers and soothsayers [66, p. 184-194], then the pantheist G. Bruno in his apology of magic speaks of sympathetic activation forces of the macrocosm («Providence»), *regardless* of the stars, relying only on expedient choice within the microcosm («Prudence») [67, p. 103-104, 178].

It should be noted that the methodological trick, taking the celestial ensemble now in a straight line, now in a mirror image, simply expresses the Renaissance *mezheum*, where medieval ontological dualism is tested by anthropological ambivalence. «Imagine the most incompatible combinations and tendencies, coexisting in some strange way with each other, and you will never be mistaken in recognizing the double physiognomy of this transitional time: youthful enthusiasm and corrosive skepticism, brutal appetite and hopeless satiety, flourishing and withering, hope and doom. , ardent faith and blasphemous skepticism coexist here on equal terms, creating a unique situation of expediency without a goal; that is why the only dazzlingly deceptive beacon in this sea of lawlessness and madness is artistry<...>» [68, p. 184-185].

Under the influence of the Italian wars, which made the dependence of welfare on politics obvious, civic prowess mimics courtesy and administration, conscience – insolence, and glory – in the ability to achieve one's own, acting according to time and circumstances (*virtuoso*) (B. Castiglione, F. Guicciardini, N. Machiavelli) [69].

As can be seen, it is from the contradiction between state-legal and non-institutional (first of all, moral) principles that the «ferocity» of fortune indicated above occurs. «And although the final causality continued to be attributed to God and His providence, He was already losing omnipotence and was actually forced out to the periphery of the universe by fortune wedged between Him and the lower reality, which claimed the place that had previously been due only to Him» [70, p. 469]. Given the monarchical

context, which discredits the status of the divine level of legislation, this «destroyer of earthly goods» can be identified with the Hellenistic goddess of chance (τυχή). At the same time, in the revived context, this accident also gave rise to opposition – in the analogue of the Epicurean «clinamen» and the Stoic «logos» («fatum»).

The first of these, on Christian-anthropological grounds, expanded the possibilities of the spontaneous to such an extent that only a «positively» daring monarch could cope with them. The second came into force when the valor (virtù) of the monarch began to seem insufficient: Copernicanism, having expanded the limits of the macrocosm to infinity, made it necessary to extend the «spiritual abilities» of the microcosm into the infinity of the immanent natural order (regnum naturae), capable of curbing both the arbitrariness of fortune and the mystery of the higher order (regnum gratiae), having defined the «law» with it. The trend of transition from the first to the second was wittily foreshadowed by M. Ficino: «few are given the power to make laws, and still fewer who obey the laws that have been issued» [71, p. 234].

8.6 Naturalization of Socio-Political Laws by N. Machiavelli

N. Machiavelli is considered to be a textbook thinker who combined all the above aspects of the original model of overcoming fortune. In the author of «Il Principe», analogous to the pantheistic dehierarchization of nature, the infinitization of man occurs by alienating the divine substantial morality from him. The fact is that the notorious Florentine intensification of social life [72], having separated the spheres of moral prescription of ends and causal description of their means, immediately revealed the consequences of such secularization for both: instead of participating in a predetermined process of improvement, the individual becomes an enterprising subject of egoistic goal-setting. Since the social context still constitutes some «lines of force» (qualita dei tempi) for isolated means, (a)moral permissiveness was naturalized and nomologized by N. Machiavelli on the basis of *experienced* history and realist politics. They take the place of the «ideal» canons of statehood, court law and diplomacy, derived from theological dogmas and scholastic universals, insofar as they oppose the new atomistic worldview of the era of permanent martial law [24, p. 144].

In such «secular casuistry», which in fact combines both medieval theology and the inductivism of ancient jurisprudence and medicine, the transcendence of morality is distributed in earthly history, turning into pragmatic examples of (in)expediency (*exemplum effectuale*). Thus becoming just an accidental prescription, morality (be it grace, virtue, fortune and state institutions) yields the substantiality of a person to his generalized (replenished) nature of behavior, now sought in the invariants of earthly history as «the law (outside) of historical causality». «Whenever historical forms have already become obsolete, when law has turned into lawlessness, beneficence into torment, alliances into chains and shackles, it seems as if the human spirit is plunging into eternally the same nature in order to wash away the dust of centuries, – like Antaeus, seeking to receive a surge of fresh strength from the eternal native land, – and «the ancient primeval state of nature returns again». This is, first of all, the main feature of the Renaissance «...» [6, p. 53].

If the predecessor in this genre is L.A. Bruni confines himself to clearing the historical chronicles of legends and miracles [73], then N. Machiavelli, on the same basis of variability, separates *socio-political* reasons from the «unchanging nature» of individual psychological motives, presenting them as equal poles that set the space for the movement of social life. As a result, according to V.A. Andrushko [74, p. 38], developed by Cusanus in relation to the cosmos, the *repetition* of a perfect circular motion as the first Stoic-Renaissance intuition of the category of law, N. Machiavelli, focusing more on Polybius and Cicero, applied to society [75, p. 410; 76, p. 128-130]. However, as socio-political reasons are ascertained, more and more surpassing the cyclical respectability of the rationally transcendent «heavenly ensemble», the historical law is drawn into a substantive and from the side of nature (*φύσις*) and society (*νομος*) a causal chain in which the content of the law and methodological requirements become indistinguishable.

Excommunicated from the goals of Holy History, the new morality no longer implies qualitative progress: after the longed-for and symbolic national unification of the Italian state, its dynamic harmony will be guided, according to N. Machiavelli, by «unchangeable nature», transcended after the Golden Age from its *bearer*, now

graceless, but comforted by the coming freedom of goal-setting. «And since, in the spirit of this freedom, the liberated person himself decides what will be obligatory for him, this latter can henceforth be defined in different ways. The human mind and its law or an institution according to the norms of this mind and an objectively ordered being, or that chaos that is not yet ordered and only yet subdued through objectification, which at a certain epoch begins to demand mastery of itself, can become obligatory» [77, p. 56].

The range of this scatter, which correlates up to the establishment of an epistemological subject-object distinction with the range of forms of the social and state structure, is determined by active *correlation* within the framework of syncretism, covering the personal and impersonal, individual and social, internal and external, spiritual and material, natural and artificial, necessary and random...

We are talking about the moral capacity of virtù, in which the medieval balance of transcendent «giving/communion» is violated in favor of active communion, understood in the sense of an autonomous earthly transcensum. If at the social level the risk of such a way of actualizing the heavenly potential is reinforced by its historical reminiscences, then individual virtue seeks guarantees in the natural *law* of this history. However, the antischolastic implications of Cinquecento's naturalism still deny the law some constant properties, turning it into a phenomenal fate-fortune. The latter, still fulfilling the role of ancilla dei prescribed by the authority of S. Boethius and directing free will from earthly goods to «heavenly reunion», has been experiencing since the XVth century. the influence of the Roman tradition of Cicero, Sallust, Seneca, Livy [78, p. 48-53].

Being in its original meaning bona dea, rewarding feats with glory, honor, wealth and freedom, this «good goddess» of the Romans becomes a (super- or impersonal) force that supports talented and virtuous daring in the right, but inscrutable direction. In accordance with its promises, the virtue of the individual is also concretized, saturating hitherto abstract prescriptions of ideal ends with real accidents of their means: that is why history teaches that the same actions lead at different times to different results («happy» and «unlucky» fortune) [79].

In order to ensure control over them, the individual is forced to abandon the intuitive Aristotelian ethics of the «middle measure» and resort to the aesthetic *extremization* of moral means, thus achieving the pure quality of one of the polar possibilities of the Ordo world order in Nature. Hence the conviction, reinforced by the authority of Virgil, that virtù multiplies in the morally ambivalent *struggle* for the favor of fortune, that the passivity of a person will completely surrender him to the power of fortune, and energetic actions can get her support in at least half of the undertakings and replenish the moral strength reserve for the inevitable blows of chance [80, p. 116–119].

But N. Machiavelli is not content with this. In the desire to eliminate the half-heartedness of luck and secure long-term guidelines, he turns to astrology, which also expresses the unfinished Renaissance overcoming of ontological dualism, comparing the «fate» of a person with the trajectory of his «star». In other words, overcoming the natural and judicial sinful determinism of the «earthly elements», the knight of fate can turn to the perfect original of space and time of the determinism of the «heavenly ensemble».

Despite all the anachronism of astrological support, already felt, for example, by N. Machiavelli's younger contemporary F. Guicciardini, its applicability to fateful decisions in the context considered was obviously justified by the «noble *combination*» of the natural and judicial components even in the naturalized forces of fortune. Both the dictates of fate and its stellar clues already contain a «*half*» of the grace won from God, in which the individual still only guesses her social dignity, but already encroaches on it. «Nicolo Machiavelli in «Il Principe» first declares that the founder of the state is determined by his inner strength (virtù), realized in a dynamic struggle against the evil changes (fortuna). In times of victory, the sovereign (il principe), following the principle of the power of his virtù, establishes a legislative basis, or the principle (principe) of the newly created state» [26, p. 83]. His internal criterion of perfection thus finds an external justification in civil laws, which, from the point of view of Cusanus intellectum, are linear restrictions on individual arbitrariness, and for the mind (mens) are invariants of expedient actions.

The content of the state principle, in fact, is diverse and, at first glance, combines continuous contradictions: «the law of people» and «the power of the beast», «the power of the lion» and «the cunning of the fox», public morality and diplomatic games, state institutions and the law of circumstances bullying crimes and winning sympathies. In part, this impression is due to the descriptive-historical method, demonstrating the «power of Fortune in the accomplishment of destinies» and «the power of the ancient founders of states»; in part – the priority of the empirical level of ethical and political praxis; partly – the political chronology of Florence at the turn of the XVth–XVIth centuries and the corresponding difference in the addressees of the main works. However, if we proceed from the presumption of the effectiveness of N. Machiavelli's method, the state principle reveals a balance of these opposites.

The method is based on a popular Christian *metaphor* attributed to Menenius Agrippa [81, p. 89] or apostle Paul (Rom. 12:4-5), according to which society is likened to a living organism (σώμα), and individual citizens are likened to interdependent bodies. If in the «Latin Renaissance» of the XII century. it justified the division of estates and the feudal order [82, p. 158-169], then at the time of the alternation of the power of the «Council of Ten», the seignury of the Medici and the papification of the provinces, its meaning already falls on the carnal manifestations of this organism: as the consequences of the fall, one should perceive the ostentation of public virtue, the selfish nature of subjects and the insatiable conflict of neighboring states.

Thus, the moral and political dehierarchization of the Quattrocento, which opened up the ambivalent freedom of self-determination, turns into a chaos of freedoms in the next century. Perceiving it as a «triumph of the flesh», the sovereign resorts to repressive ascetic measures – it's good that the completely depraved turn out to be the most pious: «in fact, not a single people has ever had a founder of emergency laws who would not resort to God <...> for there are many blessings known to a reasonable person, which in themselves are not so obvious that all other people could immediately appreciate their merits» [76, p. 150-151].

However, the latter correspond to the artificial, «positive» level of legislation with its diversity, opposites and variability: «<...> when a good custom disappears, the law

immediately becomes necessary <...> hunger and want make people inventive, and laws good <...>» [76, p. 133].

But history teaches that the longevity of the state depends not only on the size of the private virtù of the founder, which is easily replaced by tyranny, but also on its function to nurture the virtues of the «social flesh» (pigliatore). Setting the state institutions, the constitutional structure, the principles of organizing society (ordini) by personal example, the private virtù of the newly minted despotism, like the «law» of the Old Testament, must pass into the New Testament «grace» of the communal virtù of a free republic, intimidation and glory into patriotism and greatness.

True, this hearth of lumen naturale in the social organism, in order to avoid regression to natural law, which is always accompanied by corruption of the communal virtù, is ready to be supported by a mass of auxiliary ordini laws with a common initial principle of state-ideological expediency, in which the historicity of moral teleology is accumulated in the potency of self-preservation, extreme reproduction. Thus, in contrast to the «republican» tradition of Florence, which extols a priori harmony (Dante, B. Latini, F. Guicciardini, etc.), the moral goals of Machiavellian society autonomously vary by means, and the laws of the «mixed» republican constitution provide civil freedom according to the results. permanent disagreements between the rich and the poor, the noble and the upstarts, the demagogues and the virtuous.

8.7 The scientification of laws as a prerequisite for ontological reductionism

The final removal of state-legal principles from under the auspices of theology to the agency of human nature did not mean the eradication of *transcendence*: it remained to the extent of (un)cognition of regnum naturae. To the same extent, the equation of a person with commensurate forces of nature discriminates against the irrational component of knowledge associated with the individual, that is, the selective concentration of the potentials of the (micro-)cosmos to overcome one's stellar lot.

Its successor, still far from any expediency, will be the ability to use natural properties quite arbitrarily. In this context, Leonardo da Vinci, for all his eclecticism, is probably the first to depersonalize the discourse of charismaticity («enthusiasm»,

«heroism») revived together with Neoplatonism, identifying the mathematical reflection of experience («the foundation of a certain measure and strict rules») with the *mastery* of a chaotic variety of phenomena and speaks of the transformation of the experimentally random into the naturally necessary. «Oh miraculous necessity, with the greatest mind you compel all actions to be involved in their causes, and according to a high and indisputable law, every natural activity obeys you in the shortest action! Who could have thought that such a small space could contain the images of the entire universe? O great manifestation whose mind is able to penetrate such an essence! What language can explain such miracles? Obviously none. It directs human contemplation to the contemplation of the divine» [83, p. 303-304.]. And further, speaking of lightning: «‹...› Oh powerful and once animated instrument of skillful nature, more than your strength is not enough for you, you must leave a quiet life and obey the laws that God and time bestowed on mother nature» [84, p. 327].

Thus, the above-described transformation of the Thomistic universe of laws adds up to the following sequence: when mastering a new subject area, the deontological claims of tradition first dictate a structural prescription («eternal law»); then this speculative legislation reveals exemplary immanence in the soul and nature («natural law»); where there are means to profitably adapt natural reality to social practice («positive human laws»), approximate regularities are reduced to necessity, inheriting the status of eternal and natural. This renaissance fate of the law allows us to reinforce the widespread thesis that the classical concept of the scientific law of nature in its mathematical precision comes from the pragmatic orientation of modern European science. «The center of gravity is no longer in generality, but in the possibility of drawing particular conclusions. The law turns into a program of technical application ‹...› the ability to make predictions based on it about what will happen as a result of this or that experiment» [85, p. 114].

The potential of divine powers transferred to the Renaissance man, justified by Nicholas of Cusa as an active participation of any spiritual essence in its irremovable individuality, was soon limited by the requirements of social expediency. In turn, social determination, mystically expressed through astrological ensembles, led to the

substantialization of nature in the form of *ragione* – reasonable grounds, initially antipathetic to man, but secondarily discovered by him through the division and ranking of experience. Since in the conditions of the modern times the moral and sensual aspects of experience are subject to pragmatic guidelines, the manifestation of the spiritual essence already falls on the generalized Subject and Nature, in which an individual has the freedom of transcendent self-identification and goal-setting only on the rights of a citizen, and true knowledge of nature seems possible only in the form of scientific knowledge law.

Thus, the entire Neoplatonic ladder of mental nomenclature becomes redundant: reason exhausts the subjective side of cognition, and sensations exhaust the objective side. «That kind of human existence begins when the entire area of human abilities is captured as a space where the mastery of beings as a whole is outlined and carried out» [77, p. 49.].

Let us note that the existent, moving into the category of *empeiria*, that is, a priori resubordination to the theoretical law instead of moral goals, repeats the reductional fate of cognitive «abilities» – the moral and aesthetic gradient of the divine plan (*Ratio*) and the ensemble of the earthly world order (*Ordo*) merges into a hidden from direct contemplation *ratio ordinis*. [86, p. 30]. Since the phenomena in Copernicanism have only those properties that are given to them from the transcendent department, their quantitative diversity is deprived of qualitative diversity and development – ««...» qualitative differences appear only as a consequence of the geometry of repeatedly intersecting trajectories, collisions and adhesions of atoms with a finite variety of shapes» [53, p. 520]. The former are represented by the revived atomistic program, the latter are described by the Platonic-Pythagorean; in their alliance against Aristotelianism, according to A. Koyre, the scientific revolution of the XVIIth century consists [87].

More clearly, the redistribution of objective properties resulting from this union can be imagined if we consider it the completion of the Renaissance cultural synthesis, that is, taking into account also the medieval component – the metaphor of the world as a text. Then the Galilean requirement to learn to read the book of the Universe, since

it is written in the language of mathematics [88, p. 41], should also be taken as a more general demand for the transition from the ideographic writing revived by Hermetism to the alphabetic one [89, p. 227].

In addition to the fact that the signs of the new method of description, like atoms, are indifferent to the subject of description, its impersonal mathematical grammar, which completely defines and allocates objective properties (since, unlike Aristotelianism, they are completely reduced to [spatial] movement), due to its quasi-transcendental genealogy, it distances itself from the contemplativeness («aestheticity») that precedes the translation of the «text» of the work on understanding its content, and with it from the «sympathetic» connection with things.

This late Renaissance *demythologization* of language, which disidentifies the word and the thing, is assessed negatively in the *program* work *Dialectics of Enlightenment*: after all, it is the indifference of the word in relation to its content that makes the random active word usage rigidly determined, and the connection between language and things magical. «The decisive break, declaring the course of the word accidental, and the subordination of the object arbitrary, puts an end to the superstitious confusion of word and deed. That which, in a strictly established sequence of letters, goes beyond their correlation is expelled as incomprehensible and verbal metaphysics. But by doing so, the word, which is only supposed to designate and is no longer given to signify anything, fixes fixation to the thing to such an extent that it turns into a frozen *formula*. To the same extent, this affects both the language and the subject. Instead of making the object accessible to experience, the purified word exposes it as a special case of an abstract moment, and everything else, being forced to ruthless distinctness, deprived of expressiveness, which no longer exists, due to this, also falls into decline in reality» [90, p. 206-207].

From the subordination of external nature to reason, and reason to metaphysics, comes the everyday intuition of law as an efficient cause, in which the virtues of essentiality and universality, necessity and regularity, which together constitute the ideal of control, are discovered or artificially fixed. It should be noted that this polarity was established only under the dual influence of medieval creationism, which set the

semantic interpretation of the law: according to the Augustinian version of Platonism, the symbols of creation prevent their alienation from the subjective context already at the discursive level of their expression, while in Aristotelian Thomism about the «dignity of causality» of the divine Words can approximately testify to the embodied creation itself. «And then it turns out that the two opposing doctrines of the Law lead in different directions: on the one hand, to the monotheistic conception of God as a transcendent and only incidentally immanent essence, on the other hand, to the pantheistic conception of God as an immanent essence and by no means transcendent. Plato's *Timaeus* gives us an example of the ancient vacillation between these two doctrines of the Law: the doctrine of immanence and the doctrine of external imposition» [53, p. 519-520].

The revival of «*Timaeus*» stimulates their interaction, outlined by Cusanus and Copernicus and realized through the «artificial» substantialization of Nature: in connection with an attempt to humanistically overcome the Thomist-Christian hierarchism, extended in natural philosophy to all of nature, it was expressed in the sophistication of the material aspect of the world order – from chaos flesh (*casus*) to the immanent conformity of the body. For example, a graduate of the University of Padua, E. Dole, who earned himself the fame of a freethinker, following Cicero, argued that «nothing happens that is not destined to happen, and nothing will happen when nature has no effective reasons for this» [91, p. 486]. Despite the opposition of antiquity and Christianity in terms of readiness to perceive *natural* deviations – monsters and miracles, respectively – he interprets a miracle in the spirit of modern times as «everything that by its nature causes our surprise».

The fact is that the Augustinian *interiore homine*, which was established in the European consciousness and «transformed» in the Protestant version of the confession, dictated to the ancient model of the relationship between the idea and the thing, which was the basis of the medieval *casus*, a new – *epistemological* – status of *contingentia*. Overcoming such an accident, it became possible to transfer from a qualitative aesthetic-transformative movement to a quantitative spatial movement – with the preservation of the original (non-)identity of the «world of the earth» and the «world

of heaven» in the epistemological plan of yesterday's magician as *empirical* and *theoretical*.

Prior to the invention of Galilean idealizations, this complication of Renaissance mathesis went through a consistent path of eliminating ratio sensus in painting, anatomical atlas, mechanical scheme, geometric drawing, while maintaining the support of the Absolute [will, idea, space, force ...], distributed in a «circle» [instead of a qualitative «ladders»] of substantial cases. The certification of their relationship, which ends at the level of philosophy, is carried out through reductionism – the spiritualistic Florentine or the naturalistic Padua. The latter was realized at the level of physics as a symmetry of a substance (thing) and *accidents* (properties) of its *movement*, finally uncessitated in the form of «dynamic» laws, reducing the material movement of contingencies (substantial cases) to a generalized mathematical equality. In the future, «dynamic» is one of the central methodological concepts, which leads a number of meanings – both specifically scientific (especially from mechanics) and more general, close to the ontological ideas that originate in Aristotle's δύνάμις. In modern academic literature, such stable phrases as «dynamic laws», «dynamic models», «dynamic style of thinking», etc. are used without separate explanations [92; 93]. In general, these values can be considered in symmetry to the discursive levels of randomness, and at least one of them – probabilistic-statistical values with dynamic characteristics – acquires the status of a general scientific idea.

The fact is that thanks to the well-known Galilean «immanentization» of nature and mathematics [94], *force influences* acquired a mathematical expression of *dynamic dependencies*, that is, dependent on the function of time. After I. Newton and G.W. Leibniz, they became universal tools both within physics («dynamic systems», «dynamic states», «dynamic structures», «dynamic regularities») and within mathematics («dynamic descriptions», «dynamic models», «differential equations»). The mathematical image of mechanics acquired a reflexive expression in *dynamic methods* of description, which under the conditions of disciplinary-methodological uniformity of classical science passed to the status of a paradigmatic scientific tool – for basic scientific methods (inductive, deductive, hypothetico-deductive), oriented in

this way to the ideal of complete description and comprehensive mathematical determinism, identity of theory and empiricism.

A dynamic description was introduced into natural science as an antithesis to a static description based on the variability of the quantitative expression of movement under the action of forces (factors). And today, for example, among the methods of diagnosing energy systems, which use deterministic, statistical, probabilistic approaches, static and functional methods are mutually opposed [within the general limits of the idealization of system closure and coherence of subsystem behavior [95].

While the Renaissance worldview was still alive, the explanation of any change was dominated by the «four causes» of Aristotelian determinism. Under the influence of the scholastic principle «causa aequat effectum», when solving physical questions, effective explanation was even more limited than in Aristotelian physics to formal and final causes, which (sometimes without distinction) describe the restoration and maintenance of the natural order: any natural objects and processes had to be integrated into a more general context, encompassing both the Past and the Future, which, in turn, dictated a quasi-physical (religious, mythological, aesthetic) cause for the local order [24, p. 164-165].

For the latter, in the context of the revival of the Platonic-Pythagorean tradition, a less speculative form of mathematical regularity was found in distinctions and their derivatives (J. Kepler, G. Galileo). «Rejecting Aristotle's idea of formal causes, mathematical consciousness nevertheless carefully treated the brilliance of the old classical logos and even updated it: it not only reunited truth and being (contrary to Christianity, which was the cause and basis of their separation), but also united phenomena and intellectual categories, and more successfully than classical philosophy did» [96, p. 88].

However, with the reduction of the mathematical description to the model of equations of motion (forms to formulas), their variables began to be associated with the closest («active») causes («causal automatism»), and the formal ones were pushed to the axiomatic («ultimate») mechanism – external form («formal»), position, order of primary corpuscles of matter. In non-mechanical physics of the XVIII-XIX centuries

formal causes were split into qualitatively different material causes – «forces» and «fields» [97], which took on the appearance of active ones in the measure of their mathematization in the mechanistic paradigm.

In connection with the new socio-cultural ideals, these active causes, which performed a non-natural episodic role for Aristotle, are reduced to the nomological model of formal causes in mechanism, thus narrowing the structure of possibilities and understanding of regularity (explanation) in natural science. «In this language, the words «to reveal cause-and-effect relationships» mean «to understand the dynamics of intermediate processes». At the same time, they silently think that the causes and consequences are proportional» [98, p. 14].

Obviously, it was against this tendency that D. Hume protested in his critique of «causality», seeing in it the subordination of naturalness [free, probabilistic] human perception to some artificial phantoms in the same row as «matter», «transcendence», «teleology». «There is no algebraist or mathematician who is so well versed in his science as to trust absolutely to any truth immediately after its discovery, or to look upon it otherwise than as mere probability. With each new review of the evidence, his credibility increases <...> It is clear, however, that this gradual increase in confidence is nothing more than the addition of new probabilities<...>» [99, p. 289-290]. A topical example is the laws of I. Newton, laid in the form of differential equations in the basis of dynamics, thereby providing it with a mathematically precise foundation.

Such a sample of dynamic methods of description makes it possible to determine the law of its motion based on the forces *acting* on the system. In contrast to pre-classical physics, this is not prevented by any potentialities, transitions of possibilities (posse), since all existence has flattened to the existing (actualites) [100]. The nature and history of forces is not studied by dynamics, limiting them to the role of the *formal* cause of motion in the fundamental *equation* of dynamics, which is capable of exhaustively expressing Newton's second law.

Thus, this sample also demonstrates that the presence of a time variable can be limited to a purely mathematical sense – without the supposed asymmetry of the possibilities of the Past and the Future. Here, dynamic laws assume the reversibility of

time, which means timeless, universal applicability. According to I. Prigozhin and I. Stengers, the timeless nature of the equations of classical physics is a specification of the mechanistic picture of the world, which presents the universe as amnesiac and deterministic. The mind «which penetrated beyond the appearance of changes», «into being beyond the framework of becoming» was allowed to deduce all the unknown variety of phenomena from the known, the Future – from the Past and vice versa [101]. This leads to the conclusion that dynamic nomology expresses changes in overly strong idealizations and is only a mathematical generalization of fixed ontologies [material points]. According to E.Ya. Rezhabek, this still corresponds to the geometric «Platonic paradigm», which assumes correct thinking only of the substantive, of what «already exists» [102].

At the same time, the actual conditions of the interaction of objects are limited to genetic (causal), and those, in turn, take the form of nomological (regular), as if each event was decisive and exemplary. As a result, when analyzing the quantitative parameters of the movement of such objects (mechanics of a solid body and continuous media), their relationships and behavior are reduced in all their details to a single image (variant), otherwise the description will not be *scientific*. G.W. Leibniz, who contributed to the formation of the classical scientific description, also assumed the existence of a random phenomenon: ««...» speaking in the language of algebra, if one formula of a higher characteristic expresses one phenomenon essential for the universe, then in such a formula it will be possible to read further, future phenomena in all parts of the universe and at all strictly defined times«...»» [103, p. 212]. The Laplace projection of this method of description onto the entire universe leads to the fact that the behavior of any object in the system of nature is unequivocally determined by the behavior of all other objects.

8.8 Scientific nomology in the structure of new rationality

Known for its revolutionary changes, the New Age, on the one hand, compensates for the remaining content of the spiritual tradition with institutional forms of professional science based on the universal method of cognition, and on the other hand,

synthesizes the established components of ancient, medieval, and Renaissance scientific programs in program scientific research versions of this method. Even on the eve of this synthesis, Renaissance scholars justified the free treatment of ancient content by the need to replace it with scholastic means of achieving the ideals of antiquity common to all. And the new scientists completely distance themselves from the goals of achieving higher prerequisites of knowledge in favor of a universal given of thinking, which represents any being as an object of knowledge, and the subject as a carrier of cognitive abilities.

The cultural background of this revolutionary epistemologizing of the worldview was the «bourgeois» transformation of crafts into industry, communal and guild relations into capitalist ones, and the traditional clerical way of life into a secular one. Social consciousness accompanies these transformations with the development of new values of naturalness (a practical filter for traditional experience and the priority of immediacy over *ratio scripta*), individualism (the ultimate criterion of personal achievements instead of inert devalued status models and advantages), activity (creative explorations according to the universal criterion of economic profit instead of individual reproduction practitioner). In other words, at the turn of two eras, the fateful regularities of the life of an ordinary person acquire signs of arbitrariness in the form of evil Fortune or incomprehensible Providence and require personal intervention and complicity or humility instead of rational prediction of events in order to achieve the public good [104, p. 59]. A visual embodiment of the bourgeois mentality is the reasoning in the literary plot of Robinson Crusoe, which describes his own life on the island as the realization of a whole set of new social institutions under conditions of desolation. Thus, his subjectivity reveals the features of cognitive universality and risky freedom, which allow in a positive way to realize and overcome the gap with corporate traditions [105].

However, such optimism is only one of the trends of the XVII th century, which is fully realized only in the Enlightenment, while the other – skeptical – questions the objective expediency of world laws or the subjective ability to understand or constitute them. Its ancient pedigree was based on the experience of numerous crises of social

institutions, the competition of different ontologies and the superiority of cognitive and methodological self-reflection as a common denominator for them. Instead, the transfer of cognitive abilities of the scientific subject from the vertical plane of the natural and supernatural to the horizontal coordinates of reason in relation to the «book of nature» and faith in relation to the «book of Revelation» opened a new page of scientific methodology and theory of knowledge, which outlines the conditions for the possibility of rapprochement between the human and divine mind. First of all, they include the replacement of the logical paradigm of natural science with a mathematical one manifested by G. Galilei: «the truth, the knowledge of which mathematical proofs give us, is the same that divine wisdom knows; but <...> our way is reasoning and going from conclusion to conclusion, while His way is simple intuition <...>» [48, p. 89].

The weakening of the opposition in mathematical assumptions between mental states and sensory evidence contributed to the rehabilitation of the carnal nature of the latter and the introduction of a more constructive epistemological distinction between the theoretical and the empirical. If the prerequisite of these changes was the intersection of the program content of antiquity, such as the determinism of peripateticism and atomism, then the immediate consequences turned out to be the normalization of mathematical hypotheses in scientific and educational practice, such as the Copernican doctrine, the reduction of the heterogeneity of nature and their «secondary qualities», as well as a rigid determinism as evidence of the homogeneity of creative Design outside the circumstances of the actual act of Creation of the world or miraculous intervention in it [106, p. 85-86].

The epistemological narrowing of worldview issues caused a reorientation of philosophy from the models of astronomy and humanities to natural science based on the common functions of open knowledge, a critical attitude towards authorities and leading actors (G. Galilei, Ch. Huygens, R. Descartes, etc.). If natural philosophy returned to nature its own substance, then the natural sciences concretized it according to the laws of motion demanded by the mass mechanized industry of the new Europe. From the middle of the XVII century. their representatives, on the one hand, receive training according to new, not ancient authors, and on the other hand, they surpass the

craftsmen of that time, whose practice is not based on a combination of theory and experiment. Moreover, obtaining in this way the laws of nature, which it observes equally both in wild and in tamed states, allowed natural scientists to claim to revise and update any knowledge, including socio-political, leaving behind the categories and values of the spiritual tradition, art or politics. «Since the scientific picture of the world is characterized by the fact that through the mediation of knowledge it is possible to predict and control the events taking place in the world, so any recognition of the existence of uncontrollable and uncontrollable forces that limit or capture our consciousness is considered mythology. Because what is recognized in this way cannot be really being» [107, p. 167].

The institutions of the new science are losing the individual dimension in which Renaissance scientists fulfilled their soteriological purpose of rising from the newly discovered laws of nature to the supernatural world, each time combining ancient means of knowledge in an original way. As evidenced by Bacon's scientific project of the new academy, scientists, losing the distinction between inner meaning, form of professional recognition and social application, turn into impersonal servants. Thus, the method from a means of self-realization, since it translated transcendental goals into personal competences, turns into a means of representing natural laws away from any personal authoritative models [108]. Together with this pragmatic vector, yesterday's natural philosophy acquires objective differentiation, productive power, public recognition and state patronage.

The new worldview basis for the systematic search for scientific laws primarily includes *naturalism*, which equally denies the objects of research otherworldly involvement and justification by tradition in favor of, if not their empirical comprehensibility, then at least their completeness in the existing form. In scientific methodology, this principle is concretized in the requirements of valid observations and experiments, publicly available verification, analytical separation of the studied objects and their properties from the system of physical and symbolic connections, just as, for example, it happened in Newtonian optics with light due to its dispersion. Paradoxically, the mentioned naturalism combines with *mechanism*, which deprives

the nature of soul traits in favor of the nomological perfection of the machine (absolutely reproducible dynamics, precisely distributed among internal elements) and provides scientists with universal tools for idealizing matter, space, time, and the experience of their knowledge to a mathematical dimension [109].

Because of the a priori symmetry of the naturalized and mechanized object to the scientist who knows it, the latter is also subjected to a certain refinement, losing direct historical, interpersonal and bodily-sensual connections in favor of the actual transcendental status of the «subject» of universal thinking. Unlike nature, such a subject is outside the spatial and temporal context, having the ability to comprehend in a single form the extensive unfolding of natural laws in a multitude of things and moments of time. The same applies to social history and one's own biography.

True, the *initial* search for one or another nomology requires a certain sequence of cognitive actions that correspond to the dual psychophysical organization of a person – the synthetic path of experience and the analytical path of the mind. Their methodological coordination brings modern science and metaphysics closer together, when the former provides appropriate examples, and the latter universalizes them and rids the scientist of delusions: ««...»the only salvation remains in the fact that all the work of the mind should be started anew and that the mind should not be given to itself in any way from the very beginning, but that it should be constantly controlled and the matter should proceed as if mechanically» [110, p. 28].

Modern metaphysics should protect from distortions the «mechanical» advancement of the method in a part of the world unknown to tradition, because it will offer for it categories derived from the absolute subject, which will constitute the «conditions of possibility» for the (non)existence of this or that being. For example, R. Descartes considered metaphysics only as a rational-intuitive source of universally applicable axioms. According to his metaphor, the «roots» of metaphysics, through the «trunk» of physics, should eventually give birth to the «fruits» of mechanical engineering, anatomical-physiological medicine, and psychological morality [111]. Although it soon turns out that their content as a creative Idea of an absolute subject in the secondary edition of the natural mind (*lumen naturale*) is not immune to alternatives

(«pictures of the world»), the (methodological) logical «stem» continuity of the original and derived categories will guarantee *uniformity* of causation in the global order. The latter will unite a multitude of individual things along the lines of former theocentrism: the essential inner properties of things are rejected in favor of a common *substance*, which instead gives them the unifying, equal meaning of «modes».

Thus, in R. Descartes, two substances (which in traditional terminology were called «spirit» and «nature») acquire at the same time independence and mutual symmetry in each of their areas («ideas» *res cogitans* – «general immutables of nature» *res extensa*) with the exception of a human body capable of communicating with the mind through the soul in the «cone-like» gland and in this way diluting mental ideas with bodily affects. Thanks to such a project of the world system, which had a precedent in the Platonic parallel of «ideal» and «figurative» geometries, when the first is simplified by matter into the second, R. Descartes received grounds for the rationalist thesis that the mind is capable of making discoveries independently of sensory experience, however in the future, it will be confirmed by him or the counter-empirical thesis that even knowledge that is experiential in origin requires mental processing and everything will remain hypothetical.

In addition, ethics was justified rationalistically: the experience of meditation reveals to a person a personal point of *freedom of will*, divine in origin, which is able to spread to the entire space of the spiritual substance. But the material substance present in a person also makes itself felt in *affects* – bodily passions, which distort (with prejudices, delays, belittlements, exaggerations) the flight of free will and are grasped by the soul as «secondary ideas». Instead, the conscious reflection of the space of the spiritual substance on the model of the methodical development of the ideas of common sense makes it possible to eliminate the cacophony of passionate «secondary ideas» (whose hypothetical alternativeness is often mistaken for «free will») in favor of the deductive geometry of «primary ideas». In this way, not only is the soaring of true freedom of will verified, but also the essential arrangement of material natures for the «fruit-bearing» of the «tree of knowledge» is understood.

Compared to the traditional didactic palliative mind/sense, the new empirical-analytical cycle of knowledge, symbolized by Bacon's «New Organon», is actually intended to combine the transcendental idea and its earthly embodiment in knowledge, therefore it claims to be natural, impartial and innovative. Having as a prototype the artistic practice of the Renaissance, where the sculptor had to cut off everything superfluous from the material bounty of nature, and the artist – to layer the best combination of meanings on the material substrate [112], the new Organon sees the beginning of research in the critical revision of traditions and authorities in order to separate from the objective nature the impurities of human nature, and the continuation – in the combination and mutual verification of empirical and theoretical knowledge. The subject of philosophical and methodological disputes here is only the direction of the cyclical movement: from the external or internal source of knowledge to the academic or practical criterion and form of truth.

On the other hand, the initial positions of empiricism and rationalism did not envisage opposition, being equally determined to overcome the helplessness of university scholasticism before the challenges of the Reformation and Counter-Reformation by abstracting from conflicting values in favor of impersonal omnipresent means. A fundamental difference was revealed later, in the XVIIth century, when it became clear that the methodological rules of these means can be based on the nomology of created nature or the logic of its creator, which will find expression in the terminological distinction between inductive analysis of reason and deductive synthesis of reason, as well as differences between phenomenological and essentialist approaches, each of which claimed universal status in science [113].

F. Bacon's inclusion of the «idols» of human nature in the methodological stage of critical revision was continued in the reception of P. Gassendi, G. Galilei, R. Boyle, and others. atomistic teaching in the scholastic interpretation of «primary and secondary qualities of things». The first are critically tested by mechanistic measurements of size, state of movement, and shape, the second are recognized as epiphenomena of the physiology of the human sense of temperature, taste, or smell. At the basis of the first and second, only the relative position and movement of elementary

atoms is recognized, while qualitative differences are removed from the nature of things before its interpretation by human nature. In addition to the basis of mechanistic nomology, this way of understanding matter also laid down certain anthropological models, such as Cartesian «clarity», Spinozian «freedom» or Hobbesian «machine», in which expediency coincides with predictability and controllability. Compared to official Aristotelianism, there is no room for spontaneous (occult) properties that came from the Aristotelian formal reason («secondary essence») and had an a priori correspondence to the innate ideas of a person [114].

Conclusions

During the Renaissance, the crisis of the traditional organic world order manifested itself in the fact that behind the canonical selection of «first causes» for the obvious «immediate causes» of experience, «sympathetic» *alternatives* of description began to break through, expressing a certain immanence («own nature») of experience. Filling the magic of organicism with emotional and affective arbitrariness, which found expression in the revisions of the mythology of Fortune and the mystery of transubstantiation, they desacralized the external canonicity of symbolic associations and, according to the patterns of ethics and medicine, initiated an independent dictionary of sublunar determinism.

The latter, abolishing the multi-order determination, in the course of justifying the individual value of creations over the course of four centuries, will have time to identify a new discourse «towards a single goal in different ways» (F. Petrarch) and *turn* it over to a new European program of searching for a universal method. A special role in solving the problem of this revolution belongs to the theory and practice of the revived ancient art, where the indicated creative project is realized in the vicissitudes of combining individual sensual images with higher spiritual ideas.

Initially, this humanistic criterion was supposed to distinguish updated knowledge from the *didactic* massif, so it did not yet contrast modern inventions with ancient texts, if they elevate the mind above other abilities of the soul and lead it from the domain of book philosophy to creative practice (*artificio*). Its ability is proven by the explication

of the accuracy of the means of rhetoric or the explication of the hidden potential of created nature under the auspices of mathematized painting. Then, despite numerous borrowings of the formulas of ancient poetics and rhetoric (L.B. Alberti, L. Ghiberti, F. Brunelleschi), in the theoretical reflections of art, inspired by Plato's «Timaeus», the artist, due to the beauty and harmony of the works, imitates not so much the oratorical basis, as much as the proto-*geometric* function of Creation, directing a person to the ultimate aesthetic perception of his imaginary archetypes [20, p. 139-142].

For this, art (*ars*), which according to the Aristotelian definition of *τεχνη* deals with things whose «causes» are split into «movements» from creation and existence, must bring them to harmony, or by accumulating all the possibilities of the material in an ideal form (the idea of beauty), or by reducing them to necessity as a relation of ends and means. On this path, artistic representations of natural things are presented as divisible into individual universal elements that are amenable to theorization in the system of geometric means, and art merges with science.

Therefore, for experimental artists, such as Leonardo da Vinci, and innovators of musicology, science paved the way to true art, which corresponds to true nature and rises methodologically and socially to the level of synthetic wisdom. However, soon artistic creativity acquired a separate institutionalization of mannerism, and «art books» began to specialize in accordance with human cognitive abilities, normalizing the humanization of the highest «philosophical» theory into applied counterparts – magic and science (for example, astronomy was embodied in both horoscopes and calendars and navigation equipment).

The methodological consequences of the humanization of the antique-medieval picture of the world were reflected in the philosophical reflections of the Renaissance as a more general process of its aestheticization, realized on the basis of the mimetic and cathartic concepts of art. In the course of their interaction, the intensive path of virtuous overcoming of accidental chance was transferred to natural creations, constituting the quintessence of Renaissance *art* as going beyond the limits of everyday experience (*prima natura*), and the extensive mimesis of the personality of the Artist-master – to the mode of his action, transferred to pantheized nature (*natura naturans*).

The artistic and aesthetic canons developed for this will gradually acquire internal logic as «idealizations», likening their spatial, technical and symbolic (re)combinations to a figurative distinction of things, and after extrapolation to mechanics, a general scientific methodological significance. Under the conditions of the post-Trident condemnation of «Copernican» atomism, they completely mimic the politically neutral structural-mathematical language of «theoretical assumptions», which reduces the immanent freedom of experience and understanding to the quantitative distribution of a hypothetical substance.

The logic of methodological hypostatization universalizes the diversity of things and processes as only particular cases-states within the law and schematizes the picture of the world, depriving it of animation, and with it transcendental and immanent spontaneity, as if the metrical and experimental idealization of experience eliminated unpredictable and irremovable accidents in itself «first nature».

In combination with the new European transition from the contemplative process and results of knowledge, justified in advance by the original truth of tradition, in favor of pragmatic rationality in knowledge and activity, the aforementioned reductionism of the picture of the world led to the narrowing of the potential of the human microcosm to the methodological standards of the scientific subject. The establishment of natural nomology as its main goal subordinates the organization not only of science, but also of philosophy with its reflection not only of scientific, but also of non-scientific and transcendent spheres. Metaphysics of the New Age primarily serves as a guide to the search for or verification of general laws.

In the structure of the new rationality, a shift is established from transcendental goals in relation to society towards creative means in relation to nature, which are subject to normalization and generalization to the status of a universal method. According to the metaphor of prominent artists of the Renaissance, the structure of such a method includes a preparatory stage designed to eliminate the subjective influence of human nature, and the main one, which determines the ideal sequence of cognitive and practical actions of the scientific subject. The first of them largely relies on the reflective experience of philosophy and later merges with metaphysics, the

second – on the methodical experience of mathematics and later merges with mechanized natural science.

Not only the empirical, but also the rationalist version of the universal scientific method envisages, at one stage or another, the use of a mechanical experiment in the role of an artificially created reality that reflects the idealized content of laws and theories. Thus, pragmatic rationality, in contrast to purely cognitive rationality with its duality of logical forms and natural experience, is realized in the logical symmetry of scientific discoveries and inventions, mathematical structures and mechanical capabilities. It is this coincidence of the origin and justification of scientific nomology that provided the program of experimental-mathematical natural science with a wide range of applications, the perspective of a scientific paradigm, and a socio-cultural form of human rationality.

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