

original scientific article
received: 2012-09-17

UDC 32.01:5(091)

CONCEPTIONS OF NATURE IN THE HISTORY OF POLITICAL THOUGHT

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*Theoretical sciences study things of nature,
while practical sciences study those things
that were created by man by imitating nature.
(Aquinas, 1990, 42)*

ABSTRACT

The paper examines the relationship between the nature and its explanans natural sciences and political concepts, their trajectories of change, showing the impact of the changes in one for the other. It shows examples from the Ancient, Medieval and Modern political thought. It particularly focuses on crucial modern divide between politics and nature, whereby in contrast with prevailing attitude in literature shows how nature and natural concepts are deeply embedded in politics and vice versa.

Key words: nature; natural law; physics; history of political thought; Machiavelli; Hobbes.

CONCEZIONI DELLA NATURA NELLA STORIA DEL PENSIERO POLITICO

SINTESI

L'articolo studia la relazione tra le concezioni della natura, le spiegazioni della stessa nelle scienze naturali e i concetti politici. Contrastando l'opinione generale che la natura e la politica siano due sfere separate, l'articolo illustra i vari tipi di collegamento e interazione tra loro in diversi periodi storici. Studiando casi della storia del pensiero politico antica, medievale e moderna, l'articolo presenta i modi di collegamento tra la natura e la politica, i cambiamenti nel rapporto tra di loro e l'influenza reciproca.

Parole chiave: natura; legge naturale, fisica, storia delle idee politiche, Machiavelli, Hobbes

INTRODUCTION

Throughout history nature has had an important role in politics. Natural concepts have been used in various historical periods to generate and influence perceptions of politics. Politics was usually seen on the receiving end of the nature-politics relationship, borrowing imagery and vocabulary from natural sciences that were, especially since the modern times, progressively thought of as explanans of nature. Some older (Ullmann, 1961) and some recent critical studies (e.g. Keller, 1995; Shogimen, 2007) have, however, shown that there is a relationship of mutual construction, and that concepts in the natural sciences are themselves affected by political, technological and informational concepts.

Each historical period brought different conceptions of the main political concepts, often based on the perceptions of nature. As the conceptions of nature by natural sciences changed, so have the concepts in politics. Revolutions in scientific knowledge of the 20th century brought reflexivity and subjectivity into natural sciences, something social sciences have long been based on. Social sciences no longer 'borrowed' from natural sciences, but rather contributed its concepts for describing and performing in natural sciences.

Despite of these recent exchanges and mutual influences, it still seems that the prevailing attitude is that there is a profound difference between nature and politics.¹ Politics is regarded as a social activity, something not to be mixed with natural activity or natural processes. In contrast with this common attitude that has been persisting for centuries with no clear end, we would like to argue that nature and natural concepts are deeply embedded in politics. We will show, by the way of selected examples from the history of political thought, the embeddedness of politics in the concepts of nature. The paper will examine the relationship between the nature and its explanans natural sciences and political concepts, their trajectories of change, showing the impact of the changes in one or the other domain for the other. It will look into the linkages, modifications and revolutions. We will begin by providing some examples from the Ancient and Medieval political thought, then we will move on to focus on the crucial modern divide between politics and nature, and finish with the consequences of Copernican revolution for political thinking.

THE IDEA OF NATURE IN ANCIENT AND MEDIEVAL POLITICAL THOUGHT

Since ancient Greece, Western political thought has been full of natural metaphors, analogies with nature, and references to nature. Aristotle was convinced that

humans are *zoon-politikon*s, Plato compared a political leader with a physician, Cicero (1991, 34ff) analogized tyrannicide with cutting off an infected member, Aquinas argued that wisdom imitates nature, Machiavelli (1988, 61) was trying to show Lorenzo de' Medici that rulers can rule either by employing properly human means (i.e. laws) or by imitating the beasts. Ancient writers taught this political skill to ancient rulers by using allegorical tale of Achilles and other rulers who were entrusted to Chiron the centaur to raise them. Having a mentor who was half-beast and half-man signifies that a ruler needs to use both natures, human and beastly.

The origins of political references to nature can be traced back to ancient Greece. They are diverse, encompassing many aspects of nature that are allegorically or metaphorically then used in political matters. An analogy most used is the idea of body politic as a living organism. It can be traced back to the age of Pericles when Athenian polis achieved an extraordinary amount of political unity and developed organic analogy to express this unity (Hale, 1971, 18). The Athenian citizen was only fulfilling himself as a member of polis, as someone who takes part in the public affairs of polis. This basically meant discussion, debate, deliberating, election, holding office - participating actively in public life in general.

First examples of human body as an analogy to express unity of the state could be traced back to *Areopagiticus* (c. 355 BC) of Isocrates: »For the soul of a state is nothing else than its polity, having as much power over it as it does the mind over body; for it is this which deliberates upon all questions, seeking to preserve what is good and to ward off what is disastrous; and it is this which of necessity assimilates to its own nature the laws, the public orators and the private citizens; and all the members of the state must fare well or ill according to the kind of polity under which they live« (Isocrates, 1961, 7.14). Isocrates emphasized the participation of all citizens in the political life of polis and the dependence of their welfare on the proper functioning of the constitution of the city

Plato in *Republic* (c. 380 BC) speaks of the »healthy state« and »fevered state« (Book III)², while Aristotle (1996, 13) in *Politics* (Book I, 1253a, I, 4-5) says that »... it is evident that the state is a creature of nature and that man is by nature a political animal«. This reaffirms two basic principles of the idea of body politic: that society is natural, not the creation of man and that man's highest nature is to be part of society, not an individual (Hale, 1971, 21). Metaphorically wise we can speak of personification, when nonhuman becomes human (cf. Lakoff, Johnson, 1980/2003, 33).

The idea of body politic is made possible by Greek science, whose view of nature was generally accepted

1 This attitude is best summarized in Latour's Chapter 2 of *Politics of Nature* (2004).

2 Plato in the *Republic* also speaks of a metaphor of »fashioning« a happy city and he makes comparison to painting a statute (Zashin, Chapman, 1974, 303).

in Western thought until the Renaissance. In this view, the universe was created according to the most perfect model, Living Creature. The life and the psychological order that an individual possesses is identical with the life and order of polis and the Cosmos (Hale, 1971, 23). It is important to note that ancient Greek, like other modern languages (including English), has two important meanings for the word »nature« (*physis*). In one sense it is a sum of all created things, and in the other, it is also a defining principle of a thing, like quality of a thing. This has an important consequence for the discussion about the idea of body politic. The state in this respect is seen as a human organism: each member of the state has an important function which is natural and appropriate for both the part and the whole of which it is a part (Hale, 1971, 23). Aristotle (quoted in Hale, 1971, 23) even says that the constitution of an animal resembles that of well-governed city-state. According to him there is no need for special ruler with arbitrary powers in an ordered city, as there is no need for soul in each part of the animal body, because the nature has taken care of the functioning of the body, so that it performs functions in natural way (Hale, 1971, 23-24).

In Hellenic and Roman times close ties (including close family ties) of polis were replaced by other modes of inclusion into society. Political morality based on membership of a polis as a natural relation of the whole and its parts no longer seemed an appropriate mode of inclusion for larger territories and empires. Political thinking went along with new political conditions and Roman Stoics conceived political morality in terms of one's relations with other individuals and not with a polis (cf. Cooper and Procope, 1995). Seneca (1917-25, 91) writes in the 95th *Epistle to Lucilius*: »I can lay down for mankind a rule... for our duties in human relationships: all that you behold, that which comprises both god and man, is one - we are all parts of one great body. Nature produced us related to one another, since she created us from the same source and to the same end.«³

The idea of organic society from the later Stoics was passed into early Christian tradition. St. Paul in his *First Epistle to Corinthians* makes a number of points which are familiar with that of Stoics. He »assumes of hierarchical order, established by God (or nature), of differentiated parts, all of which are necessary to the body and which ought not, therefore, to regard themselves as either independent of the body or as superior to other members« (Hale, 1971, 29). This organic metaphor is

frequently repeated as an admonition against disagreement and dissension among the Churches.

St. Augustine in *The City of God* (c. 410) brought organic thinking further and developed the idea of a mystical body (*corpus mysticum*) (Hale, 1971, 31-32).⁴ This body has, in contrast to Athenian polis or Stoics universe, no real meaning in this world, but is rather community of the saved. The story is about the spiritual body, Christ being the head and members of the Church the body. The unity of the body and the head is achieved through sacraments, for those who have eaten the body of Christ in the form of eucharistia are incorporated in his body.

Throughout the Middle Ages the debate about mystical and real body of Christ continued. In the early Christian era both bodies were being kept apart, but at about the eighth century, the concepts began to fuse (Hale, 1971, 35). Body of the Church also ceases to be just a community of believers, but becomes a supreme ecclesiastical hierarchy whose head is Pope. Papal supremacy is in ever stronger conflict with emerging national monarchies, whose response to the was the appropriation of the language of political theology and use of body politic metaphor influenced by the recent rediscovery of Aristotle's *Politics*. Hale (1971, 38-39) talks of three possible answers to Papal supremacy: either rulers acknowledged Papal claims and identified king or emperor as a heart and stressed the importance of this organ to the head. Or they could define distinct corpus naturale (secular body) with its own head, thus making things schizophrenic. Or, most radically, they could maintain that only Christ, and not the Pope, is the head.

Analogies to nature in political thinking are neither limited nor exclusive to the Western political thought. They can be found in Islamic, Indian and Japanese writings. The Arabic philosopher Al-Farabi, sometimes referred to also as Islamic Plato, compared physician and the king, the ancient Indian political thinker Sukra compared seven parts of the state with the organs of the human body, and the Tokugawa Japanese political philosopher Ogyu Sorai often analogized political rule with medical treatment (Shogimen, 2007, 208-209). Natural and medical analogies and metaphors in political writings relate to anatomical, physiological, diagnostical aspects, or treatment. While in Western medieval political discourses the medical treatment analogies often refer to coercive and punitive aspects of government, in Tokugawa Japan they serve to accentuate the government's role

3 As already mentioned in the Greek view of the universe, Stoics also thought that the world is a single, rational animal. The 'world-animal' or Nature was identified with Zeus, 'world-animal's body is Zeus's body, its mind directing its movements in a perfectly rational way. Everything that happens in the world of nature is caused by his thought and always occurs for a good reason. Apart from animals, the only other rational animals are human beings, who are being governed by Zeus (that is, Nature) through use of human rational capabilities (cf. Cooper and Procope, 1995, xvii-xviii).

4 Organic analogies in medieval political writings have long attracted scholarly attention. Already at the turn of the twentieth century Otton von Guericke (1900) identified 'organic' analogies as distinctive feature in medieval European political discourses. See also works by Tilman Struve (1978) on organic metaphors in Middle Ages, Ernst Kantorowicz's classic *The King's Two Bodies* (1957), or Coker's *Organismic Theories of the State* (1910).

of preventing conflicts and maintaining stability without recourse to coercive measures (Shogimen, 2008, 80).

IN MODERN ERA, GOD IS REPLACED BY NATURE

The concept of the modern world as distinct from an ancient or medieval world is based on a premise that there has been a profound change, driven by human efforts to better the situation. Change was greater and profounder than ever before. Change was also different and by then not yet seen before. Transformation from an Old to the Modern is usually described as revolutionary, bringing advances in all areas of human activity – politics, industry, society, medicine, technology, economics, transport, communication, mechanization, culture, etc. Biblical value system was altered, monarchical system of government revalued, feudal economic system abolished, liberal and democratic ideas introduced in the areas of science, politics, sociology, economics. Distinct scientific methods were developed, which rejected myths and religious explanations of the world people lived in. New information about the world was discovered via empirical observation and deduction, leaving sole use of reason and religious arguments aside.⁵

Modern era thus begins by replacing the idea of God with idea of nature. World out there had been no longer God given, either as reward or punishment for human sins, but rather as neutral and independent entity that is capable of objective and value free observation, and is subjected to simple, non-teleological, i.e. mechanical laws (Jones, 1966, 20). Instead of thinking itself through God, Modern era thinks itself through nature. Sacredness, that had previously been a part of the legitimization of religious worldview, is now passed on to science. Science is the new explanans of nature. Science begins to be seen as being the only one with the proper relationship with nature and therefore capable

of explaining its explanandum. Delegitimization of God as world creator and interpreter happens simultaneously with legitimization of science as nature's explanans. Natural sciences thus become reflections of modern period, through natural sciences modern civilization gets its awareness.

By introduction of a new explanans in the form of natural sciences, God is stripped of its "competences" of explaining the world and is left only with initial creation.⁶ This process has foremost been going on in physics and is not yet finished.⁷ Physics seems to be the principal science of the modern age, as it provides awareness of the modern era. Therefore it can be described as an ideology of the modern age: in physics Western civilization gets a basic consciousness about itself, its conflicts, creates its identity, and solves the conflicts.⁸ The physics has a privilege to define what is the real, and with that what is the nature. Other sciences can on that basis create or discover only partial and/or derived realities. Although for Kant the premier science is mathematics, it lacks direct touch with reality and nature. Mathematics can only be connected with reality through physics (Kant, 1989, 12). Modern science has been so successful that it has become a "set of principles for ordering, acquiring and interpreting all knowledge" (Landau, 1961, 336). In other words, the findings of the physics have been prone to such generalizations that they profoundly affect "common understanding".

The crucial question every modern science has to answer is: What is natural? Only secondary comes the issue of an object of study of specific science. In that sense is the object of study of political science "determined" by the explanation of the world through physics. By defining what is real, it defines also limits of the political.⁹

Physics has been at the forefront of natural sciences because "history of physics clearly shows that the intro-

5 One of the examples of this division between humanist and scientific worldview is Hobbes's life and its reflection in political theory. Leo Strauss was the first to point out the dichotomy between Hobbes as humanist and scientist, while Tuck (1996, xxi) believes that a dichotomy between 'humanism' and 'science' is false, since for humanists of the late 16th century the status of natural sciences was bound up with moral philosophy. One can see this division as a moment in history where one paradigm was slowly being replaced by the other.

6 Hobbes, for example, believed that reflection on the nature of the universe would lead back to a concept of its creator – the being or event which started the mechanical processes which have persisted ever since (Tuck, 1996, xxiii).

7 Recent confirmation of an existence of an elementary particle called Higgs boson in July 2012 was described in mainstream media as discovery of »God particle«. Higgs boson is supposed to be, once it is completely confirmed, a particle that proves existence to the hypothetical Higgs field, in which elementary particles acquire mass through interaction. »God particle« may be the name of Higgs boson in the sensationalist media, but in historical perspective it is line with Modernity thinking of God as an initial creator and physics as nature's explanans.

8 Physics did not just define the new era in terms of a new awareness, but also served as ideological platform for capitalism as a production system. Physics models have influenced ideology of a class struggle, democratic resistances and revolutions, as well as other historic changes. See, among many of Althusser's works dealing with relations among philosophy, science, ideology and politics, *Philosophy and the Spontaneous Philosophy of the Scientists* (1990).

9 This is the dominant explanation that rests on a simple timeline of events. Modern social sciences have constituted themselves in the 19th century, after the physics had already taken place as the premier science. This dominant interpretation does not take into account the mutual transfers of knowledge and epistemical changes. See T. Kuhn's classic *The Structure of Scientific Revolutions* (1962) on paradigms and paradigmatic shifts. (Post)modern constructivists are highly critical about reality as an objective entity that is not susceptible to the creative power of thought. They see it as a common philosophical error, because it presumes that reality is one, single super-thing, whereas looking at the ways in which we endlessly renegotiate reality as our discourses, images, practices of Self, resistances, mechanisms of Self-creation leads to quite another philosophically significant conclusion (Putnam, 1994, 452).

duction of the concept of force led to a methodological unification of the conceptual scheme of science.” (Jammer, 1957, 242) Jammer (1957, 124) also notes that “force for the Newton was a concept given a priori, intuitively, and ultimately in analogy to human muscular force.” Like other contemporary scientists, he started with the concept of the “natural individual”.

Newton established “the first systematic deductive exposition of classical mechanics” (Jammer, 1957, 116) and therefore gave name to the mechanical consensus. Newtonian consensus is built on the concept of gravitation and from that concept of motion is derived. “I offer this work as the mathematical principles of philosophy, for the whole burden of philosophy seems to consist in this - from the phenomena of motions to investigate the forces of nature, and then from these forces to demonstrate the other phenomena.” (Newton in Jammer, 1957, 119)

Out of this one can stipulate that physics informs elementary concepts for all sciences: body without inside structure and independent from anima and consciousness, movement, force (power), time, space, velocity, speed, work, energy, etc. The concepts, though they are also social and political concepts, have been because of the dominant position of physics immanent to every science, including political.

It is therefore not surprising that one of the initial questions of modern political thought is the question of reality. Hobbes (1996, 9) expressed his vision of (natural and mechanic) reality in the very first passage of the Introduction to the *Leviathan* (1651): “Nature (the art whereby God hath made and governs the World) is by the Art of man, as in many other things, so in this also imitated, that it can make an Artificial Animal. For seeing life is but a motion of Limbs, the beginning whereof is in some principal part within; why may we not say, that all *Automata* (Engines that move themselves by springs and wheels as doth a watch) have an artificial life? For what is the *Heart*, but a *Spring*; and the *Nerves*, but so many *Strings*; and the *Joynts*, but so many *Wheels*, giving motion to the whole body, such as was intended by the Artificer? Art goes yet further, imitating that Rationall and most excellent worke of Nature, *Man*.”

Machiavelli in *Il Principe* (The Prince) (1532) embarked on a journey to discover “what really happens rather than on theories or speculations” (Machiavelli, 1988, 54). The Prince ought to be well acquainted with the human nature, to govern well and over a long period of time. Machiavelli’s thought, written at about the same time as Luther’s, starts from the same dominant position, split between fate in the form of God’s actions and human decisions: »I am not unaware that many have thought, and many still think, that the affairs of the world are ruled by fortune and God that the ability of men cannot control them. Rather, they think that we have no remedy

at all; and therefore it could be concluded that it is useless to sweat much over things, but to let them be governed by fate.« (Machiavelli, 1988, 84) Such a position is of course not acceptable for the burgeoning active political life of citizenry. Therefore he continues (1988, 85): »Nevertheless, so as not to eliminate human freedom, I am disposed to hold that fortune is the arbiter of half of our actions, but that it lets us control roughly the other half«. Freedom of human actions versus divine creation – in the modern political thought citizens’ actions and rights gradually replace God’s regulatory role.¹⁰

It is not entirely up to God or fortune to determine actions of people. A lot depends also on circumstances or the times. Machiavelli is led to believe that »we are successful when our ways are suited to the times and circumstances, and unsuccessful when they are not« (Machiavelli, 1988, 85). Apart from this, another innovation appears: routine in connection with natural inclinations. »And one does not find men who are so prudent that they are capable of being sufficiently flexible: either because our natural inclinations are too strong to permit us to change, or because, having always fared well by acting in a certain way, we do not think it is a good idea to change our methods« (Machiavelli, 1988, 86). At the beginning of the Chapter XXV entitled »How much power fortune has over human affairs, and how it should be resisted« Machiavelli thinks that God is arbiter to a half of human actions, while at the end nature, circumstances, and natural inclinations prevail in his thinking. God and fortune are being replaced by nature, reality independent of God that has a profound influence on the actions of the citizens.

For solutions to the political issues of the late 15th and early 16th century writers increasingly turned to nature, its laws, human nature, circumstances, natural inclinations and mastering of the natural. How to understand human nature, how to master behaviour of people is one of the main tasks of Machiavelli and other writers at the time. Machiavelli is, based on historical lessons of why the rulers of Italy have lost their states, advising the prince not to lament on their bad luck but rather to find the reason in their own indolence (cf. Skinner, 1978, 113–138). »Only those defences that are under your control and based on your own ability are effective, certain and lasting« (Machiavelli, 1988, 84). If ruler wants to be praised for his qualities, it is not up to God but rather up to him to conduct himself in a praiseworthy manner. »But because it is not possible to have all of them [qualities], and because circumstances do not permit living a completely virtuous life, one must be sufficiently prudent to know how to avoid becoming notorious for those vices that would destroy one’s power and seek to avoid those vices that are not politically dangerous« (Machiavelli, 1988, 55).

10 In Hobbes’s theory nature and God in their regulatory roles do not exist outside of the city, individual cannot appeal from the city to either nature of God. This is because Hobbes’s sovereign’s interpretation of Scripture is the only authoritative in the city (Brett, 2003, 105).

Machiavelli's political thinking expressed in the form of advice to the princes moves away from the abstract political thinking to the practical level. Though he may not be the first to successfully connect theory with political practice, he is certainly the first who embarks on his political thinking because of the practical issues and challenges Italian city-states are facing.¹¹ In this, he does away with scholasticism in the great fashion of Italian Renaissance¹² and turns to humanistic and naturalistic arguments. This is in direct conflict with the dominant Catholic and scholastic doctrines of the time about politics and ethics.¹³ The language he uses is no longer Latin, but Italian vernacular, being popularised earlier by Dante Alighieri. Machiavelli's political thought is still somewhere 'in-between', as it is true for many of his contemporaries.

Jean Bodin's political thought is caught in the same split as Machiavelli's: between premodern and modern political thought. Bodin seeks in nature and science needed argumentation for political legitimation, but at the same time he uses arguments of scientific disciplines (e.g. astronomy) that we later land at the rand of scientific spectrum. In his *Six books on the Republic* (*Les Six Livres de la Republique*, 1576) he deals with issues of political power, order, monarchy, ordered political life, and, above all, sovereignty. As a trusted advisor to kings Charles IX and Henry III he was able to experience differences in laws between countryside and cities, and the power of clergy, gentry and local customs in limiting the central political power. Constant religious differences and wars in the 16th century France have driven central power apart, thus making it almost powerless and void. Bodin vision was therefore a strong, limitless central power, that would be internally as well as externally sovereign. He sought his argument for the theory of sovereignty in the divine authority, not in nature. »Since there is nothing greater on earth, after God, than sovereign princes, and since they have been established by Him as His lieutenants for commanding other men...«, Bodin (1996, 46) says that the sovereign prince is earthly image of God. Jones (1966, 84) is nevertheless convinced that Bodin is very clear about two issues: that the state is a natural instrument, and secondly, that there is a rational order in the universe that is above the will of the human beings to which they must be subjected. The latter applies to everyone, including sovereign princes: »... the laws of sovereign princes cannot alter or change the laws of God and of nature« (Bodin, 1996, 32).

In his elaborate theory of the influence of climate and related factors (water, soil, elevation, laws, customs

and forms of states) Bodin holds that peoples of the north are resistant to strong authority and exhibit weakened forms of sovereignty, while peoples of the south incline to extreme forms of authority and peoples of the middle regions to moderate and tempered forms of governance (Franklin, 1996, 131, n.46). All these factors play role in the natural inclinations of the peoples and are therefore very important to the lawmakers (Bodin, 1996, 26). Will of the people is always changable and uncertain, so it is almost impossible to make any predictions about the direction politics will take based on human behaviour (Jones, 1966, 75). Knowledge about politics should therefore be based on natural causality, by which Bodin thinks of movement of Earth, positions of stars and planets.

COPERNICAN REVOLUTION AND ITS POLITICAL CONSEQUENCES

In 1543 Nicholas Copernicus published his treatise *De Revolutionibus Orbium Coelestium* (*The Revolution of Celestial Spheres*), and in it he presented a heliocentric model of the world and its context. That work challenged the age-old view that the universe worked quite differently, a geo-centric model that exaggerated the importance of the Earth, and, by extension, the importance of human beings. The realisation that we, our planet, and indeed our solar system (and even our galaxy) are quite ordinary in heavenly terms, since there are very likely myriads of planetary systems, provided a sobering and unsettling revision. All the reassurances of the cosmology of the Middle Ages were gone, and a new view of the world, less secure and comfortable, came into being. Despite these 'problems', and the many critics of the heliocentric view, this model of the solar system was soon accepted by the best minds of the time, such as Galileo¹⁴.

For late seventeenth century writers of social and political thought, the Copernican revolution brought many challenges and opportunities. Suddenly categories of social and political thought that were previously central seemed peripheral and useless, or even empty of meaning, and the concepts of authority and subjection had to be worked out anew. No longer was the Earth the centre of the universe, planets did not move in perfect circles, and a world less secure and central to humankind was born. All this impacted on the political and social thinking at the time.

Disharmonies in the body politic became easier to explore, and a new individualism was coming of age.

11 »However, how man live is so different from how they should live that a ruler who does not do what is generally done, but persists in what ought to be done, will undermine his power rather than maintain it« (Machiavelli, 1988, 54).

12 It would be wrong to simply accept the traditional, but often misleading picture of the Renaissance as a period of sudden and explosive cultural change, where earlier intellectual traditions were simply replaced or outgrown by the new ones. One needs to be cautious, since there is a certain continuity of thought from the medieval *dictatores* and Petrarchan humanists of the late fourteenth century with Renaissance writers (Skinner, 1978, 101-102).

13 Because of these actions, Machiavelli is labelled as »theorist of liberty« (Skinner, 2000, 54-87).

14 Hobbes, being very interested in physics at the time, met with Galileo at Arcetri near Florence in 1635 (Tuck, 2002, 18).

Thomas Hobbes, John Locke and their fellow thinkers were presented with the challenge of forging new political theories and doctrines based on these new scientific discoveries. Walzer (1967, 192) argues that the new cosmology and theology were a great influence on political writers, but that there was not a straightforward translation of cosmological and theological ideas into political and social ones. “[Robert] Hooke might write that it was ‘expedient’ to understand the angelic hierarchy for the “more perfect direction” of mankind, but he did not mean that the best social order could be deduced from the structure of evangelic squadrons” (Walzer, 1967, 192). In other words, the Copernican revolution provided a new worldview, a new epistemic reality according to which knowledge about the world was being re-created. It provided new principles, new metaphors to orient and create political knowledge; it would later evolve into individualism and eventually liberalism (cf. Wolin, 1960, 282; Walzer, 1967, 203).

Accordingly, society came to be thought in terms of mechanics. Social processes were seen as determined processes, the motion (behavior) of bodies (human beings) was preset and controlled according to the laws of nature (Landau, 1961, 338). Natural man, whose properties included natural rights, was directed by natural forces to form societies. A state was no more than a sum of discrete bodies and elemental bodies.

Thomas Hobbes’s political philosophy had two primary sources of influence: his classical humanist upbringing and education and scientific revolution of the 17th century, which he was witness to. His political writings, mostly written at the end of his career as philosopher and public servant and hugely influenced by his visits to the Continent and in-depth and personal knowledge of the Descartes’s philosophy, are based on a vision of a human nature.¹⁵ In one of his earlier political works *Elements of Law, Natural and Politic* (1640) he expressed his requirement for understanding of the nature: »True and perspicuous explication of the elements of *laws natural and politic* (which is my present scope) dependeth upon the knowledge of what is *human nature*, what is *body politic*, and what it is we call *law*.« (Hobbes, 1962, 182). He goes on to say, »Man’s nature is the sum of his faculties and powers, as the faculties of *nutrition, motion, generation, sense, reason, etc.* These powers we do unanimously call *natural*, and we are contained in the definition of man, under these words, *animal and rational*.« (1962, 182–183) Such position is not surprising knowing that Hobbes’s first

discipline of study was physical doctrine of motion¹⁶ and physical momentum.¹⁷

Hobbes’s humanist understanding of human nature married with physical-mechanical worldview can be best observed in the beginning of *De Corpore Politico*. In it Hobbes declares from the outset that »Men [are] by nature equal« (1962, 277). The equality of men should come from the fact that between mature men that are almost equal in their strenght, only little force is needed to take away other man’s life. So one would expect that »men considered in mere nature, ought to admit amongst themselves equality« (1962, 277). But since there are differences in strenght, knowledge, seeking of vain glory and passions between men, since these differences are provoking men to be anything but moderate, all men must fight for their preservation. To fight is their natural right: »And forasmuch as necessity of nature maketh men to will and desire *bonum sibi*, that which is good for themselves, and to avoid that which is hurtful; but most of all, the terrible enemy of nature, death [...] It is therefore a right of nature, that every man may preserve his own life and limbs, with all the power he hath« (Hobbes, 1962, 278).

Hobbes’s particular understanding of nature and its workings serves him to develop foundations of his political theory. By positioning all men equal in terms of their natural status, he is reflecting mechanical law of movement of bodies where all bodies, if in the same state, react the same to the outside forces. Newton’s First Law of Motion from *Philosophiæ Naturalis Principia Mathematica* reads: »Every body persists in its state of being at rest or of moving uniformly straight forward, except insofar as it is compelled to change its state by force impressed«. Hobbes was directly echoing this in *Leviathan* (1651): »That when a thing lies still, unlesse somewhat els stirre it, it will lye still for ever, is a truth no man doubts of. But that when a thing is in motion, it will eternally be in motion, unlesse somewhat els stay it, though the reason may be the same, (namely, that nothing can change it selfe,) is not so easily assented to. For men measure, not onely other men, but all other things, by themselves: and because they find themselves subject after motion to pain and lassitude, think every thing els growes weary of motion« (Hobbes, 1996, 15). Political expression of this mechanical thinking can be found in *De Corpore Politico*: »Every man by nature hath right to all things. [...] But that right of all men to all things, is in effect no better than if no man had right to any thing. For there is little use and benefit of the right man hath,

15 Hobbes was rather well aware of what was happening in the French philosophical circles at the time. He was aware of the works of Marsenne that was trying to marry critical insights of late Renaissance humanism with new natural science of Galileo. Marsenne had a profound influence on Descartes’s thinking, which is best seen in his the collection of essays *A Discourse on the Method for Rightly Conducting the Reason and Searching for Truth in the Sciences* (Tuck, 2002, 19–20).

16 The various branches of philosophy, as Hobbes sees it, are all sciences of motion. Being mechanistic materialist, he understands reality as being comprised of »matter in motion«, where to understand a given thing or event, one must understand the »motions« that brought it into being (Finn, 2007, 7).

17 Hobbes’s physics thinking can be best observed in his *De Corpore* (1639) chapters 7–11, 25, and Appendix 1 *A short Tract on First Principles* of the F. Tonnie’s edition of the *Elements of Law*.

when another as strong, or stronger than himself, hath right to the same. [...] Seeing then to the offensiveness of man's nature one to another, there is added a right of every man to every thing, whereby one man invadeth with right, and another man with right resisteth, and men live thereby in perpetual diffidence, and study how to preoccupate each other; the estate of men in this natural liberty, is the estate of war« (Hobbes, 1962, 279).¹⁸

Sixteenth and seventeenth century England experienced political transformations that were linked to the new worlds of the Copernican revolution. No longer was the harmony of various parts of the universe the most powerful metaphor; instead, the decay of the old cosmology and theology opened up a space for a new experience of man:

The body-in-motion upon which he [Hobbes] builds his system is a symbolic figure. It represents the individual human being, but in a very special way: no longer is he a member of the body politic; no longer does he have a place in a hierarchical system of deference and authority; no longer do his movements conduce to universal harmony. Instead, the individual is alone, separated from his fellows, without a master or a secure social place; his movements, determined by no one but himself, clash with the movements of the other, identical individuals; he acts out of chaos (Walzer, 1967, 201).

The Newtonian world of mechanical motion became the reference-world for new political thought, a new source of metaphors, analogies, and images. Mechanism as a way of thinking comes from Hobbes' sensationalism - all that exists is body, all that occurs is motion, and the fundamental element of life is body (matter) in motion (Landau, 1961, 342)

So how did this mechanistic view of the universe come to influence politics and political science? Capra (1982, 68) claims that

Descartes himself had sketched the outlines of the mechanistic approach to physics,¹⁹ astronomy, biology, psychology, and medicine. The thinkers of the eighteenth century carried the program further by applying the principles of Newtonian mechanics to the sciences of human nature and

human society. The newly created social sciences generated great enthusiasm, and some of their proponents even claimed to have discovered a 'social physics'.²⁰ The Newtonian theory of the universe and the belief in the rational approach to human problems spread so rapidly among the middle classes of the eighteenth century that the whole era became the 'Age of Enlightenment'. The dominant figure in this development was the philosopher John Locke, whose most important writings were published late in the seventeenth century. Strongly influenced by Descartes and his personal friend Newton, Locke's work had a decisive impact on the eighteenth century thought.

When Locke introduces definition of political power he claims that we have to "derive it from its Original", therefore "... we must consider what State all Men are naturally in, and that is, a *State of perfect Freedom* to order their Actions, and dispose of their Possessions, and Persons as they think fit, within the bounds of the Law of Nature, without asking leave, or depending upon the Will of any other Man." (Locke, 1964, 287) Being pre-eminent empiricist and rationalist, Locke thought of the natural law as a part of his rationalism.²¹ He was convinced that the universe is to be understood rationally, including the working of the deity and relations of human beings. Natural law must always be compared and fit into the observed facts about the created world and human behavior (Laslett, 1991, 88).

Rousseau (1952, 330) was in a similar fashion as Locke calling for 'the original', that is understanding and knowing of the nature and natural man as preconditions for building political thought: "But as long as we are ignorant of the natural man, it is in vain for us to attempt to determine either a law originally prescribed to him, or that is best adapted to his constitution. All we can know with any certainty respecting this law is that, if it is to be a law, not only the wills to those it obliges must be sensible of their submission to it; but also, to be natural, it must come directly from the voice of nature." According to him his *A Discourse on the Origin of Inequality* is written on the basis of that what he has read "not in books written by your fellow creatures, who are liars, but in nature, which never lies. All that comes from her will be true; nor will you meet with anything false, un-

18 Cf. *Leviathan*: »Hereby, it is manifest, that during the time men live without a common Power to keep them all in the awe, they are in that condition which is called Warre; and such a warre, as is of every man, against every man.« (Hobbes, 1996, 88)

19 Descartes's approach to physics differs from Newton's over the idea of action at the distance. While Newton argued for the workings and consequences of gravitational force, Descartes argued for forces that work only through contact.

20 August Comte labelled his approach to social sciences 'social physics'. He accepted the assumptions of naturalism and saw the natural sciences as an example of how to set up a new foundation for objective reasoning. He believed that it is possible to discover natural laws of social life that would have the same validity as scientific laws of nature. On this view life in society is governed by the same laws as Newtonian mechanics (Smith, 1998, 79).

21 Both Hobbes and Locke have profoundly changed they way politics was understood and praticed. Hobbes uses rather nice aphorism at the of the XXth chapter of the *Leviathan* to explain the change: »The skill of making, and maintaining Common-wealths, consisteth in certain Rules, as doth Arithmetique and Geometry; not (as Tennis-play) in Practice onely: which Rules, neither poor men have the leisure, nor men that have had the leisure, have hitherto had the curiosity, or the method to find out« (Hobbes, 1996, 145).

less I have involuntarily put in something of my own.” (Rousseau, 1952, 334)

Hobbes and his fellow contractualists (Locke, Rousseau, Grotius) were using the concept of nature as foundations of their political theories. The concept of social contract became fashionable in the 17th and 18th century, as the thinkers were preoccupied with the question how to build new foundations of political thought. One of their main concerns was to change perspective of political legitimation from hereditary and divine to natural origin. Out of this followed issue of transition from natural to civic and political state. The most explicit in this transition from natural liberty to human society was Hugo Grotius in his *De Iure Praedae* (1864) by stating: »human society does indeed have its origin in nature, civil society as such is based on deliberate institution.« (van Gelderen, 2006, 159)

The French revolution (1789) legalized this new political vision and effectively brought it to power. Nature became with the help of political power a new and dominant reality. By the same process, natural science became the state ideology. Modern political science began with political emancipation, that is with an act of recognition of individuals as citizens (citoyen), i.e. as discrete bodies that form the state. Bourgeois as a member of a civil society is an individual, which is recognized not as such but as an atom – the smallest particle of matter, an element of society, which understood itself through nature and natural science.

There are other numerous examples in the history of political thought where either natural, mechanic, biological or physical arguments, analogies or metaphors were being used for political thinking. Becker and Slaton (2000, 25-6) report that the American Founding Fathers were entrenched in the Newtonian worldview of their time by thinking in mechanistic terms, seeing individuals as independent units, accepting the supremacy of reason over emotion and being guided by cause-and-effect determinism (cf. Hamilton, Madison, Jay, 1982; Akrivoulis, 2008; Landau, 1961). Thomas Paine (1966, 161) declared in his essay *Common Sense* (1776) that: “All great laws of society are laws of nature”. “We must shut our eyes against reason, we must basely degrade our understanding, not to see the folly of what is called monarchy. Nature is orderly in all her works, but this is a mode of government that counteracts nature. It turns the progress of the human faculties upside down.” (Paine, 1966, 174) As one of many political scientists under influence of Newtonian physics, his acceptance of the Newtonian vision of the universe played an important role in shaping his political theories, and it served, through metaphor and analogy, to support his ideas about society and government. Together with many other political philosophers and scientists, he stated that politics could be rendered intelligible through metaphors of mechanics: “The Revolution of America presented in politics what was only *theory in mechanics*” (Paine, 1966, 154,

authors’ emphasis). William Bennett Munro, Professor of Government at Harvard University and President of the American Political Science Association in 1920s was one of the first to realise that American political science in the early 20th century was deeply entrenched in Newtonian thinking. In his *Presidential Address* to the Association on 28 December 1927 he claimed that:

Both the science and art of government still rest on what may be called the atomic theory of politics – upon the postulate that all able-bodied citizens are of equal weight, volume and value, endowed with various absolute and unalienable rights; vested with equally absolute duties; and clothed with the attribute of an individual sovereignty (quoted in Becker and Slaton, 2000, 39).

After Newton, at the time when Woodrow Wilson began to write about American politics (1870s), the influence of another natural analogy and metaphor prevailed. This time it was a metaphor of organism, biological science prevailed. Darwin had appeared. New modes of thought are introduced, new systems of analysis are employed. (Landau, 1961, 343) Organism replaced machine.

CONCLUSION

Modern political thought begins by dividing natural and political state of affairs that are connected by the social contract. Natural man is thus becomes political. This is not an evolutionary development, but a political decision born out of need to redefine what constitutes political. Ever since this development that mainly occurred in Europe of the 16th and 17th century, has politics been influenced by conceptions of nature and mainstream political philosophy has been naturalized.

In this paper we have briefly sketched the relationship between conceptions of nature and their influence on politics. We were predominantly concerned with discipline of physics and time between the 15th and 17th century, when changes occurred that are still having a decisive impact on the way we perceive ‘the political’. Although the natural sciences have seen the introduction of self-reflexive theories, especially in the form of quantum physics and the theory of relativity, and the social sciences have introduced various post-positivist and post-empiricist methodologies, ‘the political’ is predominantly still thought and imagined in relation to this tradition. Technological advances may have introduced new metaphors and analogies that differ from classical ones like the machine or the body (today we think, imagine and create using metaphors such as networks or flows), but the prevailing metaphor in political thought is still deeply within the Newtonian world experience.

The political concepts that are based on natural concepts are not present as language forms, but as cognitive schemata. They structure our systems of representation and meaning. They often function as ‘dead’ metaphors, though far from ‘dead’ in terms of their effectiveness and productivity.

POJMOVANJE NARAVE V ZGODOVINI POLITIČNE MISLI

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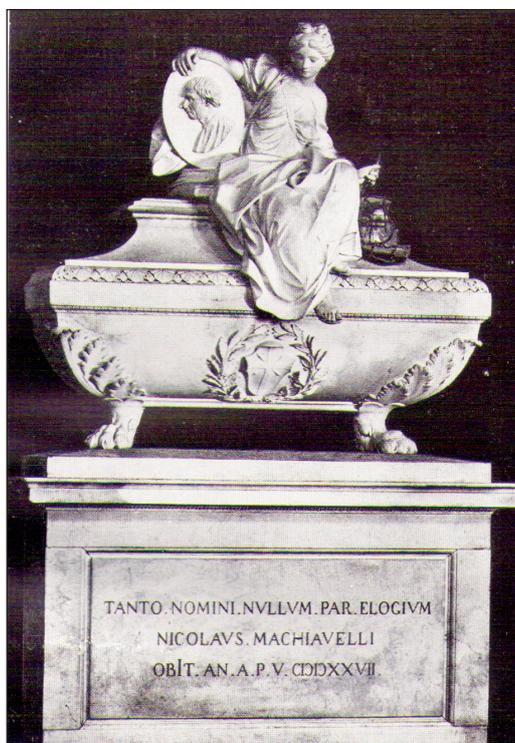
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POVZETEK

Članek raziskuje odnos med konceptijami narave, njenimi razlagami v naravoslovnih znanostih in političnimi koncepti. Kljub splošnemu prepričanju, da sta narava in politika ločeni sferi, so prikazani različni načini povezanosti in medsebojnega vplivanja v različnih zgodovinskih obdobjih. V zgodovini so konceptije narave pomembno vplivale na politiko in politično teorijo, predvsem z generiranjem in vplivanjem na to, kaj politika in politično sploh je. Vsako zgodovinsko obdobje je s spremembo v dojetju narave prineslo tudi drugačne politične uvide. Članek z raziskovanjem primerov iz zgodovine političnih idej prikazuje načine povezanosti, spremembe v odnosu in medsebojni vpliv. Začetek nanašanja politike na konceptije narave postavi v antično grško politično misel Isokrata, Platona in Aristotela. Nadaljuje z organicističnimi analogijami stoiške tradicije, ki je bila vpeljana tudi v zgodnjo krščansko misel ter srednjeveško politično misel. Pri tem opozarja, da analogije med naravo in politiko niso omejene zgolj na zahodno politično misel, temveč so tudi del indijskih, islamskih in japonskih tradicij. Posebej tematizira moderno politično misel in zamenjavo boga z znanostjo. Prikazuje razvoj fizikalne znanosti in spremljajoče inovacije v politiki (Machiavelli, Bodin, Hobbes, Locke, Rousseau), ki jih označi kot prevladujoče mehanicistične in newtonovske. Zaključuje, da so kljub izjemnemu razvoju novih teorij in metodologij v politični znanosti še vedno prevladujoče mehanske konceptije.

Ključne besede: narava; naravni zakon; fizika; zgodovina političnih idej; Machiavelli; Hobbes.



Sl. 1: Nagrobnik Niccolòja Machiavellija, Firenze, Cerkev Sv. Križa (Foto: Alinari)
Fig. 1: Tombstone of Niccolò Machiavelli, Florence, Church of St. Cross (Photo: Alinari)

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