

DEMETRIUS CANTEMIR

Romanian Cosmogony in the Century of Lights – a Contribution to Natural Philosophy –

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Abstract. Demetrius Cantemir can be considered actual for having made very good use of logic, in a time when few dared it. In his ambitious attempt to elaborate a “System of Knowledge” for his followers beginning with a Metaphysics in line with the European philosophers of the time, Cantemir synthesized in his work Oriental wisdom with European knowledge, enriched by the results of his own logical reasoning and by always respecting the strong authority of the Church. Distrusting the “art of mathematics” in describing nature, like later Hume and Kant, he built a “cosmogony” with modern ideas and – by first applying the Aristotelian logic to Aristotle’s Postulates for Motion – he has logically inferred interesting “relative theories”¹. This constitutes a valuable scientific legacy of his and even if he could not interpret them otherwise than ‘being absurd’ in the realm of the Metaphysics of his time, his logic results are a valid contribution to Natural Philosophy, turning him into an European philosopher with similar orientations as Descartes in method and intent and featuring similar intuitions as Newton in respect to the ‘uncreated’ (‘true’) Time and in the clear distinction made between the ‘true’ (absolute) Time and the relative’, sensible (measured) time, as was also formerly suggested by the Holy Fathers of the Church.

Keywords: Metaphysics, J.B. van Helmont, Aristotle, Descartes, Newton, logic, reasoning, relativity.

Demetrius Cantemir – a rationalist philosopher with faith in God

The Romanian prince Demetrius Cantemir (1673-1723) was forced by history to spend over 20 years in Constantinople – first as an Ottoman hostage for his reigning father, then as ambassador of his brother. He managed to take best advantage of this long stay there, in the first place for his study and documentation, to clarify his orientations and aspirations, preparing himself in

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¹ Striking at first glance for any physicist of the present times is the *wording* of these logically inferred „relative theories” which are thus *resembling* to notorious results of modern physics. Therefore the present paper is a Comment aimed to explain ... how this was possible! (All format emphasizing belong to the author.)

all respects to become a ruler of his country. During this time, Constantinople was a metropolis where came political figures and scholars from the Islamic Orient, as well as ambassadors and other representatives from the Occidental Europe, whom Cantemir was meeting in his capacity as an ambassador of the current Moldavian ruler.

In this confluence of ideas from the Orient and the Occident, prince Cantemir learned this way – from historical sources – for example about the way in which ideas from the Islamic Orient were reflected into the European Occident, so that we can say that during this time, he managed to synthesize Oriental wisdom with knowledge arrived there from the Occidental Europe. As well – mainly through diplomatic channels – he got surely acquainted with all important events and situations occurring in Europe during those years.

Things which were moving the spirits in Occidental Europe for already some time and were intensely vehicled in the cultivated European circles, had inevitable reverberations in Constantinople and undoubtedly they increasingly became stimulents for the political conscience of the becoming ruler Cantemir, which imperiously felt the call to get active in the ‚enlightenment by philosophy’ of his people.

Thus his political conscience as a future ruler of his country led him to put himself questions and – in time – to come to *similar conclusions and orientations as René Descartes*² in the Occident. Like Descartes in his Preface to the French edition of his ‚*Principles of Philosophy*’³, young Cantemir feels the drive to create for his followers a ‚System of Knowledge’, made of three parts from which the first one – the ‚Metaphysics’ – would be the ‚basis’⁴. Exactly in this line the young prince Cantemir wrote an early work of philosophy which he intended to be a fundamental work, a Metaphysics.

This is the very spirit in which appeared by the year 1700 ahead of Cantemir’s confirmation as a ruler in Moldavia (1710-1711) his philosophical work „*Sacrosanctae Scientiae Indepingibile Imago*”⁵, translated into Romanian

² Descartes, in his first work ‚*Studium Bonae Mentis*’ (1623), (today lost), had explained himself being so fond of geometry and physics as he intended „*to secure a sound basis for Morale and to respond precisely to the problems raised by the human conduct and destiny*”, apud Adrien Baillet, *La biographie de Mr. Descartes*, Paris, 1691, vol II, p. 152.

³ Descartes assessed: „Only she (philosophy) can make us different from savages and barbarians and a nation is civilized and evolved to the same extent to which people philosophate well, and the best thing for a State is to have true philosophers”, apud Ernest Stere in *Ethical thinking in France of the XVII Century*, Scientific Ed. Bucharest, 1972, p. 102.

⁴ Like Descartes which in his Preface to the ‚*Principles of Philosophy*’ indicated the plan for his ‚System of Philosophical Knowledge’ – like a ‚Tree of Knowledge’, having as roots the ‚Metaphysics’ or the ‚Principles of Knowledge’ and whose ‚ultimate fruit’ would be the Morale, apud Ernest Stere, *Ibidem*, p. 105.

⁵ Demetrius Cantemir, *Integral of Cantemir’s Manuscripta*, Metropolitan Library of Bucharest, 2012.

(only by 1928) under the title ‚Metaphysics’, where Cantemir is pointing to the *practical finality of philosophy* referring to „some neologues, more inventors of words than discoverers of the essence of things”⁶, whereas he was *addressing his followers* to deliver them „truth”⁷.

In order to understand and interpret *the spirit* in which wrote Demetrius Cantemir, it is essential to keep in mind what *significance* „science” and „religion” had by that time: As a matter of fact, the distinction between „science” and „religion” or „theology” as separate fields is a phenomenon of relatively *recent* date. In Europe of the Renaissance and in the Late Middle Ages, up to the time when Cantemir learned and wrote, there was a „confluence of ideas” in a ‘continuum’ – the „natural philosophy” – in the realm of which coexisted „science” and „theology”. Everything was explained by this „philosophia naturalis” and the Church wished to hold this „entity” as united and „undivided” as possible.⁸ Descartes had respected this, which is seen from the very fact that he even has *demonstrated* in his „Meditations” „the necessity of the existence of God”, but simultaneously he claimed as „instrument of work” and as „Method” the very *human reasoning*, while Francis Bacon had already suggested the „material soul”⁹. Such processes gradually led to the idea of the „Double Truth”, fiercely defeated by the Church and thus – exactly in Cantemir’s time – evolved in the Occident the „crisis of the European conscience (1680-1715)”¹⁰. Did Cantemir ignore all these phenomena?

A thesis on his alleged philosophical „isolation” from Occidental Europe – peaking in the conclusion of discrediting Cantemir as an European philosopher – is in fact extremely *unlikely* even for an observer from outside the field of philosophy, and here is why: Cantemir had lived for over 20 years in Constantinople, mainly studying at the Aecumenic Academy and by far not only that. He also had learned Turkish and has had access to works of Islamic scholars. Even only these aspects – without taking into account his contacts with diplomats and personalities which came to the Ottoman Port – plead actually for the *great opening* he enjoyed both to the evolution and the exchange of ideas which had always taken place between West and East. As an illustrating example, Copernicus, which, as was demonstrated¹¹, inspired himself

⁶ Demetrius Cantemir, *Metaphysics*, translation by Nicodim Locusteanu, Ed. Ancora, București, 1928, p. 229.

⁷ *Ibidem*, p. 199.

⁸ Brandon Moran, *Science as Religion – Theology and Science during the Italian Renaissance*, 27.05.2008-Yahoo, Contributor Network.

⁹ James A.T. Lancaster, *Francis Bacon and the Material Soul*, New Europe College, Bucharest, 2013.

¹⁰ Paul Hazard, *La crise de la conscience européenne (1680-1715)*, Paris, 1935.

¹¹ Charlotte Hoffstrom, *Islamic Astronomers, Copernicus and the Question of Intellectual Mobility*, in vol. *Medieval Islamic Astronomy*, Part 3 of 3, Dec 19, 2007 Yahoo, Contributor Network.

inclusively from writings of Islamic scientists, knew about the learned sultan, astronomer and mathematician Ulugh-Beg of Samarkand, which had built an astronomic observatory and had elaborated by the year 1400 a catalogue of the stars which was more precise than that of Copernicus, over 100 years ahead of the very existence in Europe of the first astronomic observatory – Uraniborg of Tycho Brahe – which was possible only after the year 1600, when the first lens was fabricated in a „Glashütte” by Jena, in the Thuringian Forest. It would have been impossible for prince Cantemir, which was interested in cosmogony, not to know about all these things, especially due to the existence of the great *astronomic observatory in Istanbul*, built by the Ottoman engineer and astronomer Taqui al-Din, which had calculated the astronomic year and its correction with a higher precision than Copernicus. These things were all well known in Constantinople, where only one of the sultans which reigned during Cantemir’s long stay there, was only a „warrior”. All the other sultans were cultivated Islamic personalities. Under these circumstances, we can suppose fairly right that Cantemir *knew* about Descartes, even more because by that time there was commented in the circles of Islamic scholars that even the „revelation” Descartes has had in the fall of 1619: “*Dubito, ergo cogito, ergo sum!*” could have been ... of Islamic inspiration!¹² So *Cantemir was very likely acquainted with the „crisis of the European conscience” of his time*, which is obvious even from the fact that when starting to write his own „Metaphysics” – in the noble intent to „enlighten” his followers and people – Cantemir will say that he felt like „an earthquake”, not knowing „which master to trust” as „model”.¹³

And even this rethoric exclamation of his could have been „in the spirit of the epoch” too, as most scholars wrote in an „encoded” way – even „hieroglyphically” – like that wise Jesuit monk Baltazar Gracián (whose „Aphorisms” had inspired Schopenhauer) – exactly in the aim of „hiding” their orientations, which became more and more „*rationale*” and therefore they often even ... *didn’t sign their works* to avoid the danger of painful religious trials.¹⁴

Descartes – in his capacity as a physicist continuing Galilei’s work – had formulated for the first time the Laws of Motion¹⁵ based on the Postulates of Aristotle and had published his *Principles of Philosophy* (1644) and Newton had also already published (1668) his main work – *Philosophyae Naturalis Principia Mathematica*. These works have, all of them, had an extraordinary impact on the

¹² Max Power, *Descartes and Al-Ghazali – „The Meditations...” vs „The Delivrance from Error”*, Nov 15, 2006, Yahoo, Contributor Network

¹³ Demetrius Cantemir, *Metaphysics*, Ancora Publishing, Bucharest, 1928, p. 20, 21.

¹⁴ Michel Foucault, *Dits et Ecrits*, Gallimard, Paris, 2001, vol. 1, p. 832-833.

¹⁵ A.W. Berry, *Methaphysical Concepts and Scientific Explanation in the Works of Galileo and Descartes*, from „The Philosophical Foundations of Science”, Aug., 27, 2007, Yahoo, Contributor Network

European conscience of that time and it is impossible for them not to have been heard of, and this not having impressed the young prince Cantemir.

But Cantemir could *no way* „confess” as his “master” a philosopher like Descartes, which had been severely criticized by the Church for his „Discours sur la Méthode”, or any other natural philosopher with scientific orientation, for the same reason for which *most scientific writings of the time circulated unsigned*, so they could not possibly be mentioned. This is the explanation for the apparent „complete ignoring” by Cantemir of *all* the great philosophers of his time and before him and that is why there cannot be found in Cantemir’s work any references at all to Copernicus, Galilei, Descartes, Newton and not even to Leibniz. He could neither „quote” nor otherwise mention them, so that on the extent to which he had got acquainted with their writings ... we can only make *suppositions*.

What is known for certain is that at the Aecumenic Academy in Constantinople Cantemir had got familiar with the works of St. Dionyssus the Areopagite, or more exactly to those of Pseudo-St. Dionyssus Areopagite, particularly with his main work “The Knowledge of God”, officially recognized by the Church: „The Church has recognized in the Greek philosophy the results of a salutary effort of the *human intellect (itself, a gift from God)*”¹⁶.

In the very spirit of the things learned at the Aecumenic Academy about Maximus the Confessor and Dionyssos Areopagita, *Cantemir knew for sure that the Greek philosophy and especially Aristotle’s Metaphysics were revalorized* – in an almost „rationalist” spirit (alike that of Descartes) and for this reason there is even more likely *Cantemir’s having already opted for Descartes* – from philosophical point of view – but to „signalize” *J. B. van Helmont as „model”*, in order to make it possible for his metaphysical work to be *recognized and admitted* by the Church, because Jean Baptiste van Helmont was both recognized in Western Europe and taught about in the Pallatinum Schools of the Romanian Principates – which were following the tradition of renowned European schools as that of Padova – whereas a rationalist philosopher like Descartes was severely criticised and so impossible to ... „confess”.

Thus, what was left for the young prince Cantemir as possible and accepted *official models* remained only the „Fathers of the Church” and ... Jean Baptiste van Helmont, whose work was known to him from his professor Ieremia Cacavela of the Palatinum School of Iassy, a very good school in the Paduan school tradition. But even under these circumstances it is rather difficult to believe that a practicing orthodox Christian thinker like young prince Demetrius Cantemir could have possibly based his *Metaphysics’ work only* on a single source, even if this was the lifelong work of a famous alchemist and even if that

¹⁶ Nicolae Fer, *Knowing God at Pseudo-Dionyssions of the Areopague*, Yahoo, Contributor Network.

‘magister’ chosen as model might have been a famous disciple of Paracelsus, and this is even more so as probably not without reason the name of J.B. van Helmont had remained in the memory of the Natural Philosophy history as the „Dr. Faustus of the XVII. century”¹⁷!

The main argument in favour of the ‚Cartezian’ spirit of Cantemir’s writing – reflected in his *Metaphysics* – is the very fact that he applies Descartes’ Method – ‚*Reason as Method of Research*’ – in the *Philosophia Naturalis*. As a result of this spirit, he was the very first European philosopher which ever attempted to apply Aristotle’s *natural logic* – obviously taken over from Aristotle’s disciples, as proven in his treatise of logic „*Compendiolum of Institutio logices ad mentem neotericorum philosophorum*” – even to Aristotle’s Postulates, in his „rationalist” attempt to see by himself where these postulates were leading to, irrespective of what conclusions these logically inferred results could possibly lead to.

Cantemir’s revering admiration for Descartes and the ‚rationalist’ scholars can also be seen from the significant fact that he later did not continue in the same spirit with the other two parts of his initially projected „System of Knowledge”. This is so, very likely because in the light of science’s evolution – which he had surely got acquainted with, at least at the Academy in Berlin (where he had been received in 1714) – it had become obvious to him that *it made no sense to continue writing the other two parts in the same spirit as the „Metaphysics”* because: „what would have ment an ABC-like philosophy?”¹⁸

In this way should be understood why Cantemir has opted later to complete his projected „System of Knowledge” for his followers in other ways, by many other works in different fields. Thus Cantemir is in line with the series of rationalist philosophers of the XVII. century which all intended to „enlighten the people”¹⁹ and to solve the „crisis of the conscience”.

Demetrius Cantemir’s Contribution to Philosophia Naturalis
– *Cosmology, Cosmogony and the logic analysis*
of Aristotle’s Postulates for Motion –

Aiming to build *his own* *Metaphysics*, Cantemir has *extracted* from the chosen model (which was by force of the circumstances J. B. van Helmont’s „*Tractatus Ortus medicinae*”) exactly and *only* those parts which he deemed *relevant and worth being analysed* to serve his purpose. By compilation from the „*Tractatus..*” resulted a manuscript of Cantemir’s with the title „*Ioannis*

¹⁷ Angela Botez, *Demetrius Cantemir – „Divanulu or About the Trial of the Soul with the Body”*, „*Revista de Filosofie*”, Nr. 5-6/2011, p. 505.

¹⁸ Gheorghe Vlăduțescu, *Cicero and Cantemir*, „*Revista de Filosofie*”, Nr. 5-6/ 2011, p. 492.

¹⁹ Virgil Căndea, *The Dominating Reason*, Ed. Dacia, Cluj-Napoca, 1979.

*Baptistae Van Helmont physices universalis doctrinae et christianae fidei congrua et necessaria philosophia*²⁰, which is completely different from Cantemir's original philosophical work „*Sacrosanctae Scientiae Indepingibile Imago*”.

Cantemir writes his Metaphysics by analysing „rationally” J. B. van Helmont's writings and it is exactly the „Cartesian”- type rationalist spirit which leads Cantemir to build an entirely *original* Metaphysics, different from the work of his famous model J. B. van Helmont. Obviously, only those who didn't take the pain to read – comparatively – the two manuscripts could not notice Cantemir's *originality*.

Cantemir picked van Helmont's cosmogony model as it was both „modern” and „recognized in Europe” and *improved* it by his own reflections, in which he did his best to be as „Cartesian” as would have possibly been allowed by the rigors of the Church's Authority of his time. Remarkable is Cantemir's concern to bring „truth” to his people, keeping in mind that the circulating old Romanian cosmogony legends, though inoffensive, could have been „exposing to heresy”²¹.

The essence of Cantemir's philosophical endeavor can be seen from the *spirit and atmosphere* of his writing. This becomes clear from the very beginning, as in the title of Chapter I. of his Book IV, „About Time” – Cantemir points out explicitly: „*Why the doctrine of truth is at distance from the proposed perspective...*”, as he accomplished this work by *correcting van Helmont's perspective*. He undertook his own “rational” critic of Aristotle's principles. Applying a formally correct logic, valid until today, Cantemir seems to intend to demonstrate – by the *method of ,reductio ad absurdum'* – the „falsity” of Aristotle's Postulates for Motion which he “rejects” as they would – logically – lead to the formulation of „*relative theories*” – this meaning in Cantemir's opinion „*to introduce an 'anarchas' into the Universe*”.

This very interesting part of the Metaphysics is the Book IV. of “*Sacrosanctae imago*” with the title ‘*About TIME – where we speak about motion, place, duration and Eternity*’²² – where Cantemir brings **original contributions** to the *Philosophya Naturalis of that time*. (See attached the page of the manuscript with the title of this Book IV.)

Persuaded by the truth of the creationist principle as shown in the Bible, which he considers to be the „*Sacrosancta Scientia*” with „*indepingibile*”

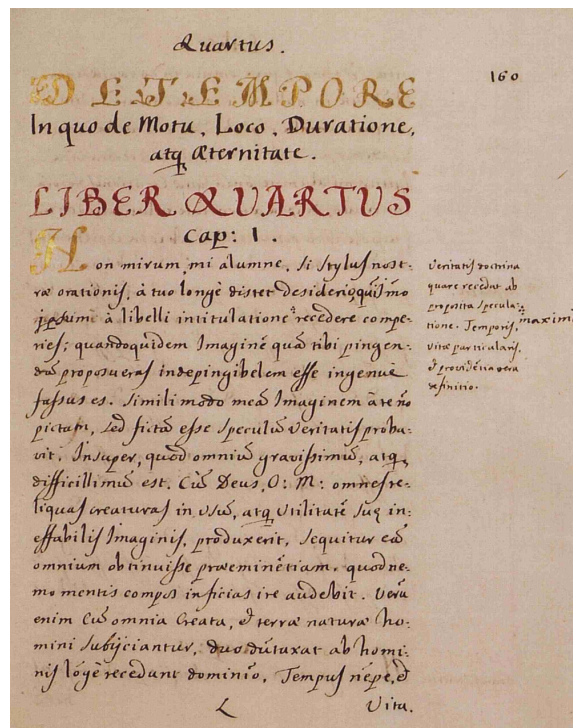
²⁰ Demetrius Cantemir, *Integral of Cantemir's Manuscripta*, Metropolitan Library of Bucharest, 2012.

²¹ Gheorghe Vlăduțescu, *Philosophy of Romanian Cosmogonic Legends*, Paideia Publishing, 1998, p. 71.

²² Demetrius Cantemir, *Metaphysics*, Bucharest, Ancora Publishing, 1928, p. 197.

imago” Cantemir builds his own „cosmogony”, *different* from that of van Helmont.

He begins in the intent to point out which ‚category’ the time belongs to: „...albeit all things existing on earth having been created to be submitted to man, though there still are two (things) which are not within the realm of man: *Time* and *Life*. Time, as all are represented in it, and itself in none of them, but the eternity; and Life, as it comprises all, being itself not comprised by anything, but by the universal and eternal Life. Thus...all which are adorned with the name of creation should be considered as accidents in the very eternity (i. e. as being posterior and comprised by it)”²³.



In Chapter II where he deals with „the difficulty of knowing time, life and eternity”, he says: „But all difficulty of knowing comes for mortals, from the fact that they said they had the knowledge of things ... and not knowing eternity, they have dared to define the time, in which all (things) are... As well, albeit the universality of time having been hidden to them, they believed describing the particular *durations* of things”.²⁴

²³ *Ibidem*, p. 198.

²⁴ *Ibidem*, p.200.

Therefore, Cantemir considers it necessary to „first speak about time” telling in the title of Chapter III: „The science of time is very necessary in order to turn down the atheists. The Word of the Holy Spirit: *'And there will be stars in time'* has been *misinterpreted*. This is corrected and the explanation of *truth* is shown”.²⁵

Cantemir quotes Augustin from Hipona, which „confesses that he actually knows that time is *something*, but what it is, he does not know”²⁶. According to the Christian faith, which was dominant in his time, Cantemir says: „The Lord is „to be” and everyone’s life, that is of those which are comprised in the catalogue of creation and conservation.”²⁷ But at the same time, very objectively, Cantemir notices like a true „scientist”: „As time anticipates the other creatures, and in the sacred books there is nowhere mentioned its creation, except „*and there will be for you stars in signs, times, days and years*”, from here some of our kin have deemed it compelling to construe the beginning of time and so, misinterpreting the Bible, they don’t see the obvious consequence. As, where the Sacred say: „there will be stars in time”, immediately they add: „in days and years”; *but the days and the years are not the time, they are the vicisitudes of changes and alterations of temperature which occur in time.*” „Moreover, *the stars, do not show the essence of time*, but they only indicate the mutations of the girations of heaven, of the bright stars and of the other celestial bodies as moving and alternating causes of things down here”²⁸.

He ends Chapter III with an objective appreciation even concerning God: „... finally, *it is not allowed to infer that the Spirit of God, speaking in the Holy Books, neglected to mention the creation of time...*”²⁹.

In Chapter IV Cantemir begins the *critic of Aristotle’s principles* and obviously under both the influence of Augustin of Hipona and equally to be in line with van Helmont, he names Aristotle „son of darkness”, “father of pagan obscurity”, „a man very inclined to make-up definitions and as much light-minded as arrogant when it comes to propose axioms...”³⁰

In Chapters IV, V, VI, VII and VIII, Cantemir *demonstrates reasonably* that as well Aristotle as the peripathetics „could not *define Time*”. He says: „Using that shameless defiance, (they) *define time as being the measure of motion and rest...*”³¹ and he continues: „... it is obvious that the measure always supposes the existence of some measurable thing, as *the measure of a measurable thing is the measure, and not the other way round*. And if the time,

²⁵ Idem, p.200.

²⁶ Idem, p.200.

²⁷ *Ibidem*, p.201.

²⁸ Idem, p. 201.

²⁹ *Ibidem*, p. 202.

³⁰ *Ibidem*, p. 203.

³¹ Idem, p. 203.

according to the definition given by Aristotle, would be the measure of motion, time would be posterior to motion, which is absurd, as any motion is made in time, and not time is made in motion”³².

Chapter VI (he says, in the title): „As well, there is shown that time is not motion, by the *accidents and attributes which are given to time*, and which by *fault are taken for time*; but they are expelled, time remains and has in itself *something*”³³ and he even argues: „In the definition conceded, that time is the measure of motion, there would follow the same absurdity that time is subsequent to motion, which is against nature and the truth, because, as demonstrated above, any motion is made in time and not the vice-versa. As (time) issued from a species which breeds a thing alike itself, it will be clear that neither time can breed motion, nor motion time, because the time is not similar to motion, nor is motion similar to time.”³⁴

In the title of Chapter VII we read: „The gravest error of the peripathetics, which believed that time is made of indivisible points, is defeated, as showing artificial delusions on the „what it is” of time, in its quantity, etc. They are *inventions of Man and have nothing in common with time.*”³⁵ and he continues: „Indeed, the spring of steel does not generate time, nor does it indicate what time is, but (has) to perform the work characteristic to its own nature, that is to distend and take the natural position”³⁶.

In Chapter VIII Cantemir claims: „The peripathetics, in order to produce time out of indivisible points, declare that they are finite parts of the infinity. Thus, *demanding the knowledge of time from artificial instruments*, beside the danger of being wrong, it means to blaspheme on God”. And he concludes: „**they could no way define the essence of time**”³⁷.

Summarizing, Cantemir starts with noticing that the „category” of Time belongs to and „demonstrates” that „*time has not been created*”. Further he points out logically that the scolastics – based on the definitions postulated by Aristotle – „*could not define time*”, so the *essence of time could not be defined*.

He says: „...in the sacred books there is nowhere mentioned its (time’s) creation, ...except „and there will be for you stars in signs, times, days and years”, and from this, some of our kin have deemed it compelling to understand „the beginning of time”, and *misinterpreting the Bible*, they don’t take into account the consequence as obvious. Because where the Sacred say: „there will be stars in time”, immediately they add: „in days and years”; *but the days and*

³² *Ibidem*, p. 207.

³³ *Ibidem*, p. 208.

³⁴ *Idem*, p. 208.

³⁵ *Idem*, p. 209.

³⁶ *Ibidem*, p. 211.

³⁷ *Ibidem*, p. 212.

the years are not the time, but they are the vicisitudes of changes and alterations of temperature which occur in time... So, by the expression in the holy books: "There will be stars in time" **there is not made the beginning of time.** Moreover, they, the stars, not even show the essence of time, but they denote **only the mutations of the girations of heaven, of the bright stars and of the other celestial bodies...**³⁸.

Cantemir notices very angrily that the *error* of attempting to *define* Time is perpetuated throughout the entire scholastic: „...the entire scholastic commands to its pupils that they must believe like this, that time and his parts are *generated*, (time) is composed by mathematic indivisible points.”³⁹. „Continuing in their bad custom, they have assessed that time is to be defined by motion, that it is produced by mathematical points, that it is long and short, big and small, distributes itself in anterior and posterior parts.”⁴⁰

Cantemir is angry because of the continued ‘erroneous’ *attempt of „defining time”*- and thereby he implicitly assesses the fact that *time belongs to the category of the ‘non-created’* things. This is even more so noteworthy and valuable as Cantemir knew for certain very well from the Aecumenic Academy in Constantinople that these were the continued explicit opinions of the Church itself. What a defiance it was for that time – by the year 1700 – **to deny the „creation of time”** and to say, moreover, that **„the Bible was misinterpreted!”** – and Cantemir assessed this in spite of the great respect he had for the ancient Fathers of Church, (some of them, like Ambrosius⁴¹, having stated the very „creation of time”), and especially Augustinus which, albeit quoted by Cantemir, had mentained that „ the world was created *not in time*, but *together with time*”⁴², while other Fathers of Church, like Dionyssos Areopagita and Maximus the Confessor, had pointed at something *different* in this respect, as will be shown further.

Perhaps Cantemir extracted his courage to *notify* that „Time was **not created**” from the spirit of Thomas d’Aquino which in his very capacity as the principal normative theologist of Catholicism stated that „ *the beginning of the world is but a truth of the faith*” („*Mundum incepisse sola fide tenetur*”)⁴³.

³⁸ *Ibidem*, p. 201.

³⁹ *Ibidem*, p. 209.

⁴⁰ *Ibidem*, p. 210.

⁴¹ Ambrosius: „*In principio itaque temporis coelum et terram Deus fecit. Tempus enim ab hoc mundo, non ante mundum*”- apud Juliani Garnier, „Opera et Studio”, Tomus primus, Pars prior, Parisus, MDCCXXXIX, p. 10.

⁴² „ *Procul dubio non est mundus factus in tempore, sed cum tempore*” (Augustinus, „*De civitate Dei*”, XI, col. 322, apud G. Florovsky – „*L’idée de la création dans la philosophie chrétienne*”, in LOGOS, Nr.1, 1928, p. 10.)

⁴³ Paraphrasing of „*Mundum incepisse non potuit demonstrari, sed per revelationem divinam esse habitum et creditum*”, a conception that Thomas d’Aquino defends in „*De aeternitate mundi*”

This *result* of Cantemir's – the „uncreated Time” – is very important and worth praising, proving his „scientific spirit”, because this very ‚error’ (the „creation of time”) – which has been signalized by Cantemir in the interpretation of the Bible – went up to our days, when, in 1951, the Pope Pius the XII – wishing to prove the „Church's opening to science”- declared that he accepted the cosmogony theory of the Big-Bang as this theory says that time and space appeared at a certain moment, out of nothing, seeming to confirm the first sentences from the Genesis. And it was exactly this acceptance by the Pope that made the scientific world suspicious towards the Big-Bang theory.

Two centuries later, *science confirmed this early intuition of Cantemir's*.

Moreover, this notification of Cantemir's that “Time is *uncreated*” is *similar* to Newton's opinion on the ‘uncreated’, absolute, “true” Time and this similarity – despite lacking any references to Newton in Cantemir's work – could be construed as a hint to the fact that perhaps – again only a supposition! – Cantemir had known or heard about Newton's main work, already published in 1668, *Mathematical Principles of Natural Philosophy*, where Newton emphasizes the very character of the ‘true’ “absolute” Time – as distinct and different from the ‘relative’, sensible, “measured” Time – in a way that cannot be overlooked⁴⁴. Newton had done so, since he deemed that in common life these quantities are conceived of in terms of their relations to sensible bodies and therefore it is incumbent to distinguish between, on the one hand, the ‘relative’, common, “measured” conception of them and on the other hand the absolute, ‘true’, mathematical quantities as such. Cantemir – inspired or not by Descartes – **looked for the ‘truth’ in the Sacrosancta Scientia** like Descartes who wrote his “Discours sur la Méthode, pour bien conduire la raison et chercher la vérité dans les sciences”, *attempting to see whether its image was “depingibile” or not by the human reason*. This was the very aim of his study. *If* it would be true that Cantemir had also known the *content* of Newton's work (which is very unlikely, indeed, even if he had *heard* about Newton!) there could be also explained by the same “Newtonian influence” the clear distinction that Cantemir makes himself in his Metaphysics between the “absolute” and the “measured” time.

But in this very respect *there are* yet – as a matter of fact – *other substantive reasons* speaking *against* such a possible influence and in favor of

contra murmurantes”, apud H. Pinard, *Création*, art. in *Dictionnaire de la Théologie Catholique*, t. III, Paris, 1937, col. 2087.

⁴⁴ Isaac Newton, *Mathematical Principles of Natural Philosophy*, says in the ‘Scholium’ at the beginning of the *Principia*.. inserted between the “Definitions” and the “Laws of Motion” – to lay out his views on time, space, place and motions: „Absolute, true, and *mathematical* time, from its own nature, passes equably without relation to anything external, and thus without reference to any change or way of measuring of time (e.g., the hour, day, month, or year)”.

these ideas being Cantemir's own intuitions: First is Cantemir's definite distrust in the use of the "applied art of mathematics" in describing nature⁴⁵. (E.g. for Newton the *mathematical* time is "true", for Cantemir it isn't!)

A more important reason is the fact that Cantemir's rationality is not directed *against faith*, but is *subsequent to faith*, as he uses a *reason preceded by faith*, like the Fathers of the Church.⁴⁶ Alike the Fathers of Church which made a clear distinction between the "usual", sensible, "measured" time and the time of the Eternity⁴⁷, so does Cantemir.

Therefore we can suppose with a good reason to be sure of it, that there is in Cantemir's metaphysics *only a similarity* with Newton's 'uncreated' time and with his distinction between absolute and measured time, D. Cantemir coming genuinely, by his own reflections and/or inspired by the Fathers of the Church, to these metaphysical conclusions. Thus, for example, in pointing out the *clear distinction that should be made between the notion of time as an absolute 'something' and the 'measure of time'*, he makes very explicit this important distinction, more suggestive than was J. B. van Helmont's text: „As well, the century, lustrus, year, month, week, day, hour, minute and second are not time, nor do they breed or show the time, but they are only observations, or some notifications of certain movements, *invented by the very human fragility*, which, by *numbering and measuring the accidental succession of movements*, believed measuring, numbering, dividing and distributing time in parts, bigger or smaller, longer or shorter; in reality they are not time, nor parts of it, and not, finally, something that could have anything common with time.”⁴⁸

In Chapter IX Cantemir starts *signalizing and defeating the logical consequences of the errors of interpretation made by the peripatetics*, precisising in this way **his own vision of ,cosmogony'**. In the very title of Chapter IX he says: „By the fact that they could not demonstrate that time was ahead of motion, ... they uselessly introduced an ,anarchas' of the universe and a first mobile motor, which is anyway liquidated by a sorite syllogism, thereby

⁴⁵ „*Quandoquidem talis motor Mathematicis artibus, et non naturae, aut naturalibus, contribuendus erat, qui Mathesi, non naturae inserviat. Hinc liquet artem mathematicam naturae superciliosum deluisse clavigerum*”, Demetrius Cantemir, *Sacrosanctae Scientiae Indepingibile Imago*, Caput 9, p. 176 (Cantemir Manuscripta).

⁴⁶ St. Maximus Confessor, *Gnostic Heads*, translation Walther Al. Prager, Bucharest, Ed. Herald, 2008, p.116.

⁴⁷ For example: “*following a suggestion from Dionyssos Areopagita (Div. Nom. 10.3), Maximus the Confessor thinks about the 'century' as being different from time, distinguishing a 'time' of God's descent to the Man by the act of Creation, to which our 'century' also belongs – and a future 'time' of Man's ascension to God beginning with the instauration of the future eternal life*”, *ibidem*, p. 112.

⁴⁸ Demetrius Cantemir, *Metaphysics*, Bucharest, Ancora Publishing, 1928, p. 209.

demonstrating that **such a motor serves only to mathematics, not nature**".⁴⁹ And he continues: „These scaremongers claim that in the very nature of things there should compulsorily be *a motor*, of course an immobile one, which should move the naturals in a natural way"⁵⁰. „It would follow, by the definition of nature, that the motor itself needs another nature, which would be the cause of this standstill of the immobile motor”, „...and thus such natures would go infinitely and infinite would be the first immobile motors".⁵¹

From the perspective of today's physics, this cosmogony theory which Cantemir takes as resulting from Aristotle's physics – and which he syllogistically dismantles by a sorite – resembles very much to the Big-Bang theory with its infinite cycle of cosmic collisions, wherefrom the Big-Bang is only the most recent one, and therefore in this text we must notice that **Cantemir defeated the validity of the Big-Bang theory**, long before this theory had even been formulated! As he concludes objectively that „*such a motor should be attributed to applied mathematics, not to nature and to the naturals; in order to serve science, not nature. Hereby clearly mathematics' art is delusive (about) the severe keeper of nature's keys.*"⁵² Therefore Cantemir asks himself: „Which man with a sound mind would contest that *one is the order of nature and another, completely different, is the order of mathematics.*"⁵³ Cantemir intuitively did not credit the possibilities of the emerging “art of mathematics” to succeed in finding the nature's cipher, like later – in another philosophical level – Hume⁵⁴ and Kant⁵⁵ and it is this intuitive distrust which very likely caused the very title of his work: “*Sacrosanctae Scientiae Indepingibile Imago*” as well as his advice from Cap. XIV warning against „some neologues, more inventors of words than discoverers of the essence of things”⁵⁶, Cantemir pointing to an ‘ethics’ of the way of thinking, which is an actual ‘advice’ even for our days!⁵⁷

⁴⁹ *Ibidem*, p. 213.

⁵⁰ *Ibidem*, p. 214.

⁵¹ *Ibidem*, p. 215.

⁵² *Idem*, p. 215.

⁵³ *Idem*, p. 215.

⁵⁴ „*The book of nature cannot be meaningfully deciphered in the language of mathematics*”, apud Tamas Demeter, *Hume on the Limits and Prospects of Natural Philosophy*, Conference, Bucharest, January 2014.

⁵⁵ „*Mathematics never define a given concept by analysis, but they define, by an arbitrary relation, an object, whose conception becomes first possible precisely herewith*”, Im. Kant, *Untersuchung über die Deutlichkeit der Grundsätze der natürlichen Theologie und Moral*, AA, vol. II, p. 280, apud Tinca Prunea Bretonnet, *Kant sur la méthode mathématique et la spécificité de la philosophie au début des années 1760*, Conference, 2014.

⁵⁶ Demetrius Cantemir, *Metaphysics*, Bucharest, Ancora Publishing, 1928, p. 229.

⁵⁷ Because here is the stage of today's cosmologies (in continuous development): Albeit being disappointed by the conventional Big-Bang model – a theory whose problem was not only that it

The „Relative Theories” of Cantemir

Further in his *Metaphysics*, Cantemir deals with *Aristotle’s Postulates for Motion* because knowing from the Aecumenic Academy in Constantinople that the Fathers of the Church – especially Maximus the Confessor, via Dionyssos Areopagita – had strongly pleaded for the “re-valorization” of the Greek antiquity dominated by Aristotle into the Christian doctrine – is motivating for him to see by himself *what* these famous Postulates for Motion are *logically* leading to, because in his opinion they seem to be rather “confusing”.

Chapter X has for title Cantemir’s conclusion *after* his undertaken logical analysis: „*There are defeated the confusing axioms of Aristotle about place, motion and time*”⁵⁸. But feeling compelled (as ‘method’) to try his own reason he endeavors to analyze logically in a way of reasoning applicable even in our days⁵⁹ – the justness or „falsity” of Aristotle’s Postulates which (very significantly!) **he does not deny „a priori”**. Going out from Aristotle’s Postulates he *infers syllogistically* and here are his results, his „*Relative Theories*”: „There cannot be sought the place (position) without motion, there is no time without motion, there is no motion without time and position. So it follows that: Time is in motion, motion is in time, the position is in motion, time is in the position, in time the position and in the position the motion.”⁶⁰ Wherefrom he infers: „***It is absurd to seek the place by motion***”.⁶¹

By a little effort of imagination there can be noticed here the astonishing *resemblance* with the conclusion of the ***impossibility to determine simultaneously the characteristics of motion (speed, impulse) and the position of a particle in motion*** within quantum mechanics (*Heisenberg’s principle of Indeterminacy*). Is this resemblance the mere result of imagination?

In Chapter XI Cantemir asks himself: „If time is the measure of motion, which body’s motion does it measure?”⁶² Cantemir looks like beginning to get a

imposed time and space to have a beginning – the physicists had though to put something in place and the explanations grew more and more complicated, see the *superstrings*-theory, or the theory of *inflation*, a more complex approach of the Big-Bang, where cosmologues were forced to suppose the existence of something like a powerful energy field having acted only for a fraction of a second after the Big-Bang and which dissappeared afterwards (*Wilkinson Microwave Astronomy Probe-2001*) which looks almost *creationist*. The developing of new cosmologic theories continues.

⁵⁸ Demetrius Cantemir, *Metaphysics*, Bucharest, Ancora Publishing, 1928, p. 216.

⁵⁹ Alexandru Surdu, „*The Axiome at Demetrius Cantemir*”, Conf., Christian University „D. Cantemir, 2012.

⁶⁰ Demetrius Cantemir, *Metaphysics*, Bucharest, Ancora Publishing, 1928, p. 217.

⁶¹ *Ibidem*, p. 216.

⁶² *Ibidem*, p. 219.

hint on the fact that the *motions* of different bodies, *in different circumstances*, might have to be measured... *differently*.

Being not a physicist like Galilei or Newton, Cantemir could not see „*in what*” consisted this actual difference. But he comes here, by his own rational reflections, to some formulations which are very close to *suggesting* that *motions should be considered with respect to „something*”, very suggestive for the role of a „*reference system*”. He indeed seems to come very near to this, when *conceding* yet, in a certain sense, that „*time could be the measure for motions*”, and also that *time could be measured* by the „*vicisitudes of the changes ... and the alterations...which occur in time*” so ... ***through Motion!***

Then Cantemir develops as further logic conclusions from Aristotle's Postulates: „Because, if (time) would be the *measure of all measures*, in reality, *one would be the time in man's life*, and another, different ... *in the life and flight of an eagle*, because the motion of this one is ***faster***, while that of the man is ***slower***. In the same way we should consider also about other *unequal motions*.”⁶³ We notice here the important fact that albeit Cantemir not giving in the least up the notion of the absolute, universal Time, there appears for the first time the notion of ***a time associated to each observer***, which will be explicitly introduced in physics only two centuries later, by the theory of relativity. As Cantemir concludes: „From here are resulting that... there are *several... times*, very diverse and differing” and „Time is always *uniting... and... coming close to the fastest motion*”.⁶⁴ Here again, with a little effort of imagination we could construe this last sentence as looking like *time would be at „standstill” on that body in „fastest motion*”, and so these formulations seem to be ‘resembling’ to the *relative dilatation of time* for bodies in (very fast) motion in the *theory of relativity*.

Cantemir understands and construes these results of his fairly valid logic analysis as something being completely „absurd”. Therefore he presents these logic results inferred from Aristotle's Postulates – taken as *hypothesis* – as the „proof” for the „non-sense” of Aristotle's Postulates. That is why in conclusion of this „demonstration through reductio ad absurdum”, in Chapter XII Cantemir calls Aristotle's axioms „fake and useless coins”, which (*only!*) lead – logically – to some „relative theories”⁶⁵, which, consequently are „of no use”.

And he bitterly concludes: „Introducing an ‚anarchas’ is not wise at all”⁶⁶.

Obviously, Cantemir undertakes this „*demonstration by reductio ad absurdum*” of the „*falsity*” of Aristotle's Postulates, in the aim to „*prove*” that „*the Sacrosancta Scientia*” of God is the *only true science*. Cantemir (1673-

⁶³ *Ibidem*, p. 220.

⁶⁴ *Ibidem*, p. 220.

⁶⁵ *Ibidem*, p. 224.

⁶⁶ *Ibidem*, p. 224.

1723) came closely after Descartes (1596-1650) and albeit *not existing anywhere any reference „proving”* that he knew about Descartes, this very „*demonstration*” of Cantemir’s is very much alike Descartes’ „*Demonstration of the necessity of the existence of God*” in his „*Meditations*”⁶⁷ – and could be a proof that Cantemir *possibly knew* about Descartes. But even if he had not known from the beginning that *reason was the right „Method”* indicated by Descartes, and had proceeded like he did by his own inner call, *daring to signalize even „errors in interpreting the Bible”*, Cantemir *acts in an utmost true „Cartesian” spirit* and even by *applying Aristotle’s logic principles* at each step, even to Aristotle’s Postulates for Motion, which was thus done for the very first time! These are the **facts** – the „*atmosphere*” of Cantemir’s writing. This is Cantemir’s own „*cosmogony*”, not „*van Helmont’s*” because *it is him who noticed the misinterpretation in the Bible*, by the fact that „**Time was not created**” and consequently he built his entire „*cosmogony*” thereon. Cantemir’s indignation by which he „*perseveres*” in demonstrating the “falsity” of the “arrogant” Aristotle is desolating.

But **is it really true?** Could this have been the *only* intent of Cantemir? I am inclined to *doubt* it, and here is WHY⁶⁸:

At a second, more attentive, glance on this „*demonstration through reductio ad absurdum*”, Cantemir commits an **error** in terms of philosophy of such an extent, that this error is unconceivable at such a fine observer as Cantemir (from what we have seen above): In his “demonstration”, he simply *compares two completely distinct and incomparable things, as they belong to two different categories* whom he had just taken over from his „*master*” J.B. van Helmont exactly in the idea **to emphasize** clearly *their not being the same*:

- **Time** – as an absolute, *abstract* notion, „*not created*”, „*impossible to define*” and

- **Measure of Time** – a *number*, the *numerical value* of „*intervals of time*” which are only „*invented by the very human fragility*” (according to his own wording).

How can we possibly believe that he was able to make such an error ... *unconsciously* ?

When he distinctly had picked from J.B. van Helmont the mentioning of the *absolute Time* he spoke about in his „*cosmogony*”, how could he have possibly „*confounded*” that „*absolute Time*” with the „*Measure of Time*”, which he had *distinctly defined by himself*, in a definition that J.B. van Helmont never gave: „*As well, the century, lustrus, year, month, week, day, hour, minute and second are not, don’t breed and don’t show the time, but they are observations, or some notifications of certain movements, invented by the very human*

⁶⁷ Zachary Fruhling, *Outline of Descartes’ Meditations*, 21 Aug. 2007, Yahoo Contributor Network.

⁶⁸ The following argument does not mean that I don’t admit it as possibly being a “wishful thinking” of mine.

fragility, which ... by ...*numbering and measuring the accidental succession of movements*, believed measuring...*Time*...”⁶⁹ And if he was **aware** that these were two things which couldn't be compared, could we possibly conclude that he made this error of philosophy ... **with intent**?

It would be like ... *not having wanted to deny Aristotle*, but ... *without showing this!*

Could possibly Cantemir's philosophical endeavor be construed this way?

Could he possibly have risked his prestige as a philosopher, by such a huge error committed on purpose, only to respect the authority of the Church which severely imposed that all recognized and admitted philosophy of the time should compulsorily observe the „*Characteristica Universalia*” – the „*Sacrosancta Scientia*” on God, and though *to follow his natural call to „think*” and to be in the same spirit both with the Fathers of the Church *and* with those philosophers who reconsidered and developed the principles of Aristotle?

This „*error of philosophy*” – which Cantemir could have possibly made *consciously* – appears in this light as a true „*hermeneutical strategy*” dictated by both Cantemir's *political conscience*, which he continuously gave many proofs of and by his *program of emancipating the people by culture*, as he proved that not only by his „*Metaphysics*” – as shown above – but also by many other endeavors, throughout his entire work.

Even by this signaled „*philosophical contradiction*” Cantemir is in line with the spirit of the *Philosophia Naturalis* of his time because herewith he gives way to the so *dared* interpretation that „it would be possible *not* to deny Aristotle!” – thereby Cantemir suggesting the possibility to believe that ... ***the product of Reasoning could be right!*** ... along with, and ... ***even if it opposes to what says the „Sacrosancta Scientia*”**. Construed in this way, Cantemir knew – or! – is arriving by himself – consciously or not – to the „*Theory of the Double Truth*” of Descartes, which inflamed the spirits of that time into a “*Crisis of the European Conscience*”, which led, gradually, to the separation of “*Science*” and “*Religion*” within the “*Natural Philosophy*”.

Whether Cantemir has acted *consciously* in this way – in a „*Cartezian spirit*” – or *he arrived independently to the same feelings and philosophical orientations as Descartes*, we cannot possibly know precisely – as any references in this respect are missing.

Anyway, by his philosophical endeavor Cantemir proves to be an European philosopher of his time with a valuable contribution to *Natural Philosophy*, featuring a similar orientation with Descartes in method and intent and having had similar intuitions with Newton's with respect to the ‚*uncreated*’ *Time* and the clear distinction to be made between the ‚*true*’ (absolute) *Time* and the ‚*relative*’ (measured) *time*, as formerly suggested by the Holy Fathers.

⁶⁹ Demetrius Cantemir, *Metaphysics*, Bucharest, Ancora Publishing, 1928, p. 209.

Importance of Cantemir's „Relative Theories” for the History of Physics

„Analogies do not demonstrate anything, but they do ... suggest!”⁷⁰

The astonishing resemblance – in the *wording of their terms* – of the „Relative Theories” logically inferred by Cantemir, with notorious results of contemporary Quantum Physics, might seem at first glance to be the mere result of an „exercise of imagination”.

This was even claimed to be so by some physicists of today, which would see Cantemir's „Relative Theories” as being only „mere words”.

Personally I am definitely doubting that this amazing „qualitative” resemblance with results of *both* essential contemporary theories in Physics – the Quantum Mechanics and the Relativity – could be explained as being a mere „coincidence of words”. This *coincidence* is too big and obvious to be only due to an „exercise of imagination”. I believe that the cause of this resemblance is neither in our imagination, nor is it a simple „coincidence of words”, but it is more profound than that.

Analyzing the possible cause of this „resemblance” I have come to the conclusion that it is due to the very fact that both *Classical Mechanics*, developed, going out from Kepler, Galilei and Descartes by Newton, and also *even the contemporary Non-classical Mechanics* – albeit its results not fitting any more with the Newtonian Mechanics – **rely**, as a matter of fact, – like the entire Physics! – **on the Postulates for Motion given by Aristotle.**

The very first question which should legitimately rise from D. Cantemir's Metaphysics is whether his inferences leading to his „Relative Theories” are surely correct or not: *Do there really result such things as his „Relative Theories” from Aristotle's Postulates?*

The answer is „yes” – honoring Cantemir! – and this is so because, as was demonstrated⁷¹, Cantemir's inferences were based on *silogisms of the three Aristotelian types*: 1. Principle of Identity; 2. Principle of Non-Contradiction; 3. Principle of the Tertium Excluded, *and* along with them, there is also the *Principle of the Sufficient Reasoning*, which Cantemir had taken over from Leibniz.⁷² Furthermore, it is demonstrated in Logics that *a syllogism is* a true, valid, *deduction*⁷³.

⁷⁰ Petru P. Ionescu, *The Unity of Knowing*, Bucharest, Casa Școalelor Publishing, 1944.

⁷¹ Al. Surdu, „*Introductive Study*” to D. Cantemir's „*Compendiolum of Institutio logices ad mentem neotericorum philosophorum*”, Bucharest, Ed. Științifică, 1995.

⁷² Apud Costel Chites, *Elements of Mathematical Logic in D. Cantemir's Thinking*, Conference, Christian University „D.Cantemir”, October, 2013.

⁷³ Petre Botezatu, *The Value of Deduction*, Bucharest, Scientific Editing, 1971.

To be correct, the same question (of logical correctness) should be put equally to the contemporary Quantum Physics' theories. The logic used in contemporary physical research was demonstrated to be equally an Aristotelian-type logic⁷⁴ and even in our days it was pointed out by outstanding logicians⁷⁵ that the Aristotelian logic kept going on – literally like a steadfast golden thread – from the deepest Antiquity until present, throughout the history of all human thinking. „Logic alone survives as the one ‚science‘ in a science of sciences”⁷⁶.

But physics (or metaphysics) is not made exclusively by Logic, as applying causality to reality succeeds only partially. Reality is not always rational.

It is generally accepted that a scientific theory is „true” when confirmed by experiment and when it is at the same time enabling verifiable predictions – whereas from philosophical point of view „to be in possession of science means to know the *cause*”⁷⁷.

At the same time, the endeavor of physics' theories should not refrain from *intelligibility*. For reasons of intelligibility, the concepts and axioms in physics are (or at least should be) subordinated to *general philosophical concepts*. The *philosophical rigour* imposed to Physics by Philosophy – demanding intelligibility – is seen as a natural contribution to „solving the crisis” by appealing to *clarity*: „Ce que l'on conçoit bien s'énonce clairement / et les mots pour le dire arrivent aisément”⁷⁸.

This condition is attempted, for example, by Heisenberg with his continuous reference to the “unity” as stipulated by Plato, and this in spite of the steady opposition between the *interpretation of physical theories* (their *Metaphysics*) and the *mathematical apparatus* used; (one hereby recalling Kant⁷⁹). And Heisenberg emphasized (in his recourse to Plato⁸⁰) the value of the notion of the „*abstracting idealization*”.

Helmoltz had also postulated the existence of a *fundamental invariant* – above all natural transformations – in order to *recognize in natural*

⁷⁴ Karl. R. Popper, *Logic of Research*, translation Bucharest, Scientific and Pedagogical Editions, 1981.

⁷⁵ Graham G. Priest, *Revising Logic*, Conference, Ghent-Congress on „Logic & Philosophy of Science”, 2013.

⁷⁶ Don Howard, *Lost Wanderers in the Forest of Knowledge: Some Thoughts on the Discovery-Justification Distinction*, University of Notre-Dame IN, 2006, p. 2.

⁷⁷ Petre Botezatu, *Physical Causality and Pan-Quantism*, Iassy, Ed. „Al. I. Cuza-University”, 2002.

⁷⁸ Boileau Despréaux, *L'Art Poétique*” Chant I., Paris, Editions Garnier Frères, 1952, p. 163.

⁷⁹ Emmanuel Kant, *Prolegomena for any Metaphysics*, 1783.

⁸⁰ Werner Heisenberg, *Steps over Frontiers*, translation, Bucharest, Political Editions, 1977.

*transformation the product of a reality which remains constant with itself along all its transformations.*⁸¹

Max Planck, the father of the „quantum energy” which brought discontinuity in motion/evolution, and looked so „confusing”, said: „We should not imagine it possible for us to progress – even in the most exact of the sciences of nature – without *a concept about the world!*” this meaning „without *,hypotheses’ which cannot be probed*”, underlining that „*we cannot be happy without the existence of some other reality, outside of us.*”⁸²

Quantum Physics-theories are – as demonstrated by K. Popper – *deductive systems based on hypotheses*. Therefore, the next important question has to be about the *hypotheses* themselves.

In their capacity as basic *hypotheses* of all physics’ theories, Aristotle’s Postulates for Time and Motion reflect the *inter-relation* between the two:

- *Motion* can be construed as *general Evolution*

and thus

- *Time*, the *non-created* term and even its ‚sensible’, „measured”, counterpart, becomes the *dimension* of Evolution, indispensable for the evolving of *causality*⁸³ itself.

No wonder therefore that their *inter-related postulation* leads to ... *relativity*.

Demetrius Cantemir’s most important contribution to the *Philosophia Naturalis* of his time was mainly due to the fact that he had first applied the Aristotelian silogisms – id est the logic *deduction* – to Aristotle’s cosmogony and Postulates of Motion, even if his own interpretation of his logic results was completely “absurd” according to the *Metaphysics* of his time. But in the very respect pointed out above, Cantemir’s logic results have the merit to *confirm the actually instructive role which constructive hypotheses* have in leading to the *elaboration of abstractions in Physics*. (‘Time’ could be such an example.) Cantemir could not have possibly answered otherwise to the questions raised by these for him so „confused” logic results, which he had himself so fairly *deduced* from the Postulates of Aristotle.

But contemporary Quantum Physics should have its own *Metaphysics* and therefore we are all challenged to answer the question (that Newton strongly pointed out *to be avoided!*): **Quo vadis, Metaphysicae?**

⁸¹ Apud Ilya Prigogine and Isabelle Stengers, *The New Alliance*, transl., Bucharest, Political Editions, 1984, p. 161.

⁸² Max Planck, *The quantification of the radiation-matter interaction*, *Annalen de Physik*, 4444, 1901.

⁸³ Petre Botezatu, *Physical Causality and Pan-Quantism*, Iassy, Ed. „Al. I. Cuza-University”, 2002, p. 186.

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