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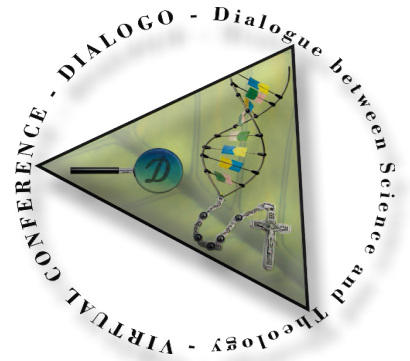
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Edited by Cosmin Tudor Ciocan



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DIALOGO

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the Dialogue between Science and Theology

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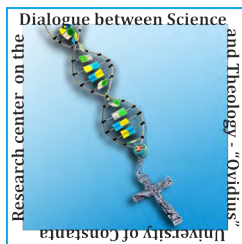
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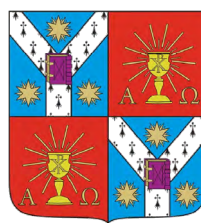
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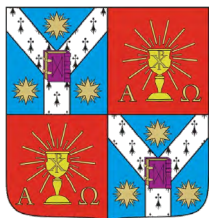


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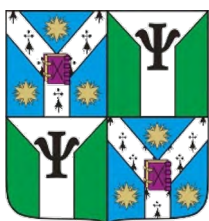
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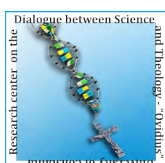


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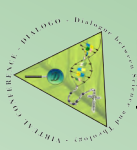
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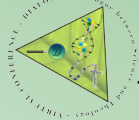
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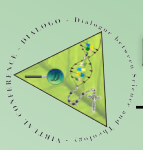
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INTRODUCTION

On behalf of the Organizing Committee, we welcome you to the events of **DIALOGO Conferences & Journal**, an international endeavor targeting Conferences on the Dialogue between Science, Philosophy and Theology, jointly organized by “the Research Centre for Dialogue between Science and Theology” (RCDST) from “Ovidius” University of Constanta (Romania) along with international partners from 31 academic institutions, faculties and research centers within 21 countries, made the conference truly international in scope. This Spring the topic of Dialogo multidisciplinary conference was directed towards a more focused aim, envisioning a dialogue between religion, medicine-neurosciences, and psychosociology, **The 4th Virtual International Conference on the Dialogue between Science and Theology (Dialogo Conf 2017)**, and it held virtually on our website/platform, from 3 to 10 November 2017, presenting to the public at our official website, www.dialogo-conf.com/archive.

In contrast with the past Dialogo events - when we have approached this interdisciplinary debates in a general topic under each and separate section - this time a very useful interaction was created due to this more specific topic that brought together theologians and scientists to identify and resolve some of the problems that arise in this clash which came about in this conference. In the questionnaire launched at the end of this conference, many requests we have received from our actual and former attendees and Dialogo visitors to join, at least once per year, a conference will be always held with this virtual formula of a mutual topic for only few fields of research, besides the general presentation that are the core of Dialogo November conferences. Due to the interest in debating on specific issues, we consider useful to engage this dialogue under particular and distinctive aspects of our society and understanding for every second issue we will have from now on, in Spring.

The success of the conference is due to the joint efforts of so many people. Therefore we would like to thank you all for trusting and considering Dialogo endeavor a trustful and credible forum for academic debates so that we all carry on this dialogue with other domains of human knowledge. We would like to thank all the participants, philosophers, scholars, theologians, and many other, that have presented interesting and useful papers; unfortunately, for several reasons, we could not gather all the presentation in this volume, for there are many not yet written or translated on time to be included in this main volume of Dialogo Journal. We also recognize the merits of the Scientific Committee and the Reviewers for their valuable contribution. All accepted papers have been precisely reviewed with a double peer-review process. Furthermore, we are proud to announce that all these concerted efforts are international endorsed and till the moment of this volume Dialogo Journal of Proceedings received recognition in the following well-known Databases. Dialogo Journal is now indexed in **The European Reference Index for the Humanities and the Social Sciences (Erih Plus)**, **Social Science Research Network (SSRN)**, **The CiteFactor**, **Directory of Open Access Journals (DOAJ)**, **Advanced Science Index (ASI)**, **Index Copernicus**, **The**

Philosopher's Index, Religious and Theological Abstracts (R&TA), Central and Eastern European Online Library (CEEOL), The American Theological Library Association (ATLA), EBSCO, SCIPRO (Romania), and the subject for indexing under evaluation in JSTOR, SCImago, Summon by ProQuest, and Cabell's.

*Dear all, we proudly want to announce you that, due to our mutual efforts - organizers and attendees - Dialogo Journal has received the highest indexation from **Web of Knowledge, by Thomson Reuters**, which has already accepted and indexed our Journal. A well-received improvement was regarded the endorsement of Dialogo Journal & Conferences accredited by several international Databases that indexed our Journal starting with the volume from 2016 in this notorious Database, as mentioned on the page of indexing, and we are grateful and honored once again for this endorsements.*

This proves that our endeavor is on the right track and it encourages us to step forward.

We thank you all - team members, partners, participants - for this endorsement.

Be welcomed to enjoy this accomplishment!

*See you again for the DIALOGO 2018 May exciting event and new challenging topic, one about the side-effects and challenges of **the Overpopulation!***

*your host,
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*Great minds discuss ideas;
Average minds discuss events;
Small minds discuss people.*

Eleanor Roosevelt

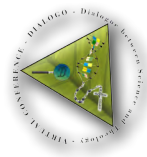
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SESSION 1

Art and Literature & Religion



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Union between the body and the soul

Medieval theology concerning the five senses



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ABSTRACT

The theme of the five senses in the medieval literature is very specific. We recognize the three variations of this subject in the literature of medieval Austria and Slovakia written by three theologians Thomas Ebendorfer de Haselbach, Nicolaus de Dinkelsbuhel and Johannes Roznawiensis Jambor. In their teaching they represent the five senses as the instruments of the soul to know the external world, but also as the gates by which the sins and death enter into the soul. In addition, they divide the senses on the interior and exterior senses to express their function in the body of man. These three men influenced the philosophical and theological ideas of their epoch and created the fascinating system to understand the union between the body and the soul.

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I. INTRODUCTION

The study of the five interior and exterior senses was developed at the University of Vienna in 15th century. Three men, theologians and philosophers stood at the beginning of this philosophic system: Nicolaus de Dinkelsbuhel, Thomas Ebendorfer de Haselbach and finally Johannes Roznawiensis Jambor with their treatises dedicated to the problem of the five senses. The point of departure of their way of thinking is represented by platonic dualistic idea that the man possesses the senses of the body, which are united

to the senses of the soul. In this paper we try to present, hence, the medieval comprehension of the five senses in the light of the thinking that has been spread in the region of the medieval Austria and Slovakia. We focus on the treatises written by Dinkelsbuhel, Ebendorfer and Jambor who were the only ones to describe and also to resolve the difficulties attached to the understanding of the five senses.

II. THREE LITERAL SOURCES OF THE QUESTION OF THE FIVE SENSES

The medieval treatises pronouncing the question of the five senses were in the period of Middle – Ages very exceptional and moreover very rare. In the history of the medieval literature we can find only three variations of this subject. These three dissertations represent the three different approaches to elaborate the same issue. They differ by their style and manner of resolving the theme. That is why in these treatises we can find the theological and at the same time philosophical, moral and biological system. The authors of the mentioned works used the teaching of the antique and Christian philosophers as well. They unite and put together the philosophical concept of Aristotle, Plato and of the other philosophers and Christian writers to form very specific, unique and at the same time original philosophic system, which cannot be characterised as fully Aristotelian or Platonic.

The first treatise with the title *Tractatulus de quinque sensibus* (*Treatise of the five senses*) [6] dealing with the theme of the five senses is from the year 1417. The author of this treatise is Thomas Ebendorfer de Haselbach, teacher at the University of Vienna [12]. This treatise gained a great favour toward the public and for this reason it was, at the time, very often recopied and known in many adaptations. Today we can find two copies of this work, one at the Parochial Library in Kremnica and the second at the State Archive in Bratislava in the Slovak Republic.

The second book concerning the inquiry of the five senses holding the title *Tractatulus pulcherrimus de custodia quinque sensuum* (*Very nice treatise of the custody of the five senses*) placed in the Gerardi Codex at the National Library in Budapest under the signature Cod. Lat 73 is a compilation

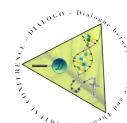
of Johannes Jambor Roznawiensis [9], [15], medieval theologian of the present Slovakia, student at the University of Vienna. This work of Jambor, from the year 1461 cannot be seen as the authentic work in the light as we understand the authentic literature nowadays. Jambor used the existing treatise of Thomas Ebendorfer to create his own text, which is very similar to the version of Thomas Ebendorfer due to the reusing of the same sentences and the ideas, which could be found in the manuscript of Ebendorfer. Nevertheless, it is important to say that the work of Jambor in comparison with the treatise of Thomas Ebendorfer is still entirely different in the point of view of the stylistic and the context. The manner of the revealed literal production in this period was absolutely in harmony with the style of writing in the Middle – Ages. The simulation and the literal repetition were at that time very frequent to prove the credibility of the contents.

The third variation of this subject is the edition of Nicolaus de Dinkelsbuhel, Austrian theologian [13]. Actually, we do not know its manuscript, only the edition from the 16th century with the title *Tractatus octo de quinque sensibus* (*Treatise 8 about the five senses*) [14]. All three books are very similar, as we have already explained, but at the same time they differ a lot.

The Austrian medievalists Alphons Lhotsky and Alois Madre have tried to resolve the question concerning the textual tradition to give us the answer, which one of these authors could be considered as the first author, the creator of this text. Unfortunately, they have not succeeded, and the question is open till nowadays [12], [13].

III. THE FORMAL STRUCTURE OF THE TREATISES

The treatises of Thomas Ebendorfer,

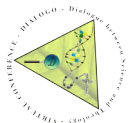


Nicolaus de Dinkelsbuhel and Johannes Jambor have more or less the regular structure. The chapters, concerning one of the five senses, follow the introductions having the different length in the every mentioned treatise. The order of the five senses in these manuscripts is very remarkable. In the citations and allusions to the texts of the philosophical authorities, all three authors stay faithful to the division of the five senses made already by Aristotle and they repeated the statements of the catholic authors, the sources so important for the development of the medieval thinking. The frequently used author, whom we can find in the treatises, is Gregory the Great, Hugh of Saint Victor, Thomas Aquinas etc. Actually Ambrose divides the five senses. His division we can read on col. 382: „*Quinque enim sunt notissimi corporis sensus, locis sibi convenientibus a natura compositi, videlicet visus, auditus, gustus, odoratus et tactus. Civitas enim uniuscujusque animae corpus est ejus, in quo tanquam in civitate clausa inhabitat. Per hujus civitatis portas mortuus effertur, cum quis per aliquem corporis sensum malae voluntatis indicium ostendens, mortuum se in anima esse declarat.*“ The translation is: “*There are well known five senses of the body placed on the convenient places given by the nature. The senses are sight, hearing, taste, smell and touch. The city of every soul is its body and the closed soul lives in this city. The death enters through the gates of this city, if there is somebody who shows the indices of the bad will and the man become death in his soul.*” [1].

Hence, they talked about the senses of sight, hearing, smell, taste and finally touch. But in the division of their own works they denounce this well-defined order and they replace the touch from the last position to the third one. So, the order of the five senses represented is variable in each of the mentioned books. Thomas Ebendorfer and Nicolaus de Dinkelsbuhel talk about the sight, hearing, touch, smell and, at the end, taste. Johannes Jambor, in addition, in his treatise, in comparison with the treatise

of Thomas Ebendorfer and Nicolaus de Dinkelsbuhel, mentions the other order of the five senses changing the position of the taste with the sense of smell. The reason for which he had made this replacement of the senses is fully theological and consists in the idea that the corporal senses are the weakened places through which enter the mortal sins into the soul. Johannes Jambor understands, it is evident, the sins committed by the touch as weightier as those committed by the sense of taste or smell and this idea presents on folio 189v [9].

In the introductions of the treatises written by all three stated authors, we can find the first definition of the sense. Using the citation taken from the prophet Jeremy, they consider the five senses as: “*fenestre obscurantes,*” which means “*the obscure windows,*” as we can read on folio 153ra [14]. This metaphor is lately reinforced by the similar examples. The senses became the gate, using the statement of our authors, or those of Augustin: “*aditus sensibilis,*” which means: “*the sensible entrance*” [3]. They call the five senses the windows or the gates adopting the citation of the prophet Jeremy through Ambrose, what we read on folio 153ra: “*Ministeria enim aurium et oculorum fenestre anime esse probantur.*” [14]. This idea is lately accomplished by the belief of Gregory the Great who considers the five senses as the ways leading from the outdoor directly to the human spirit. Johannes Jambor writes about it on folio 189v: “*visus et auditus, gustus, odoratus et tactus sunt quasi quinque vie mentis, quibus foris veniat et extra ea, quae eius sunt, concupiscat, per hos enim corporis sensus quasi per fenestras quasdam exteriora queque anima respicit, respiciens concupiscit, scilicet inordinate.*” [9], which means: “*The sight, hearing, smell and touch are the five roads of the mind, by which enter all things that belong to the mind. The mind sees all the things through these senses of the body and looking at them, desire them.*”



The senses of the body are the windows, which give access to the human soul. The man's body is necessarily influenced by the senses. According to Nicolaus de Dinkelsbuhel [14], there is a very close union between the rational soul and the body represented by the sense, as we can read on folio 155rb. Augustin compares this union with conjugal unification. It is why the rational soul feels the stimuli arrived from the five senses. And, because the soul represents the superior part of nature, it has participation on the inferior part, i. e. on the senses.

IV. DEFINITIONS OF THE FIVE SENSES

To describe the senses, all three mentioned authors use a metaphor of the city with five gates occupied by the enemies. The city in this metaphor represents the reason or the soul and the gates of the city are, evidently, the five senses. The human body, understood through the five senses, under the influence of the medieval asceticism is nothing but the slave of the human soul. In this philosophical system, our authors underline and highlight mainly the fort Platonic dualism of the soul and body.

Nicolaus de Dinkelsbuhel, furthermore, proposes as the definition of the five senses the biologic conception of Avicenna and Algazel [5]. Under the authority of this physiologic concept, he omits the existence of the interior sense. His biological conception with all the anatomical restrictions is today a precious testimony of the great knowledge of the medieval man about human body. Dinkelsbuhel describes the senses as the organized forces, which are situated in the nerves issued from the brain to be attached to the one concrete sense. He ignores to give an explication of the sense of the sight and we can ask why he does that. He tries, indeed, to give its definition while speaking about the sense of hearing, but he makes an

allusion to the existence of the optic nerve. According to Nicolaus de Dinkelsbuhel, one branch of the optic nerve is guided toward the internal ear and on this way it becomes the nerve of the hearing. The stimulus for the hearing is provoked by the oscillation of the air produced in the spaces and curves and membranes of the internal ear.

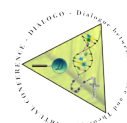
The sense of smell is characterized by Nicolaus de Dinkelsbuhel as a nerve that joins the nasal cavity with two glands placed in the anterior part of the brain. The stimulus to create the smell is formed, according to Dinkelsbuhel, directly in the nose by the vaporization of the air.

The sense of touch occupies the biggest surface on the human body. In reality, touch consists on the network of nerves, which are hidden under the skin and lead to the brain. Its target is to guide the different sensations of the body to the brain.

And finally, the taste represents again the well-organized force, which is situated at the posterior extremity of the tongue. In the teaching of our authors, the tongue is the only organ, whose role is double. It serves to speak and, at the same time, as the position for the taste. The stimulus of the taste is formed by the dissolved smells.

A. Interior and exterior senses

Gregory the Great, in the book 11, chapter VI. and paragraph 8, already makes difference between interior and exterior senses: "*Ex istis ergo corporalibus et exterioribus, interiora et spiritalia colligenda sunt, ut per id quod in nobis publicum est transire debeamus ad secretum quod in nobis est et nosmetipsos latet,*" which means: "*From these charnel and exterior senses, we must choose the interior and spiritual senses, because we must change all, which is inside of us public, to the secret and we need to hide ourselves.*" [10]. According to his belief, the exterior senses bring the stimuli to the interior senses, which



are understood as the senses of the soul. Interior senses chose from the exterior stimuli and create knowledge.

Hence, the exterior senses are strictly and very closely attached to the way of knowing. The stimuli of the external world are brought by the five senses toward the human spirit, so toward the brain. We can read on folio 90rb: “*Nullus enim dubitet, quantum mens distrahitur et inquietatur a varietate obiectorum horum quinque sensuum, nec aliquis ignoret, quantum visio pulchrorum obiectorum, varietas sonorum, accessus ad spectacula, varietas vestium, ciborum, potusque sapor turbat devotas mentes et illicite movet,*” which means: “*There is no doubt how the spirit can be disturbed and anxious because of the variety of objects of the five senses. Nobody knows how the sight of the nice object, the variety of the sounds, access to the theatres, the variety of the clothes and the taste of the foods and drinks can perturb the devoted spirit.*” [9].

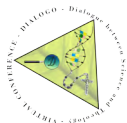
It is evident from the mentioned citation that the five senses are represented at that time in harmony with the ideas of the great medieval philosophers as Thomas Aquinas or Roger Bacon. They pronounced the opinion that every human knowledge is issued from the exterior sense.

In the case of Ebendorfer and Jambor, we can observe that the five senses are understood in the context of evil. “*Mens*” – the spirit, or the mind, is continuously disturbed by the exterior senses. This fact is well seen by the abundant use of the verbs having the similar connotation, by the synonyms leading to the gradation. As we can read on folio 90rb, the mind is: “*distrahitur... et inquietatur, turbatur... et illicite movet,*” which means that the mind is: “*disturbed... anxious, perturbed... and guided to the evil.*” [9].

Thomas Aquinas, in his writings, represents the senses of the body in the positive or neutral light. Despite, our three

studied authors consider the five senses not only as the mediators between the mind and the external world, but as the obstacles between the soul and the beatitude, which is the preferable state of the soul. They consider the exterior senses as the windows through which the death and sin enter the soul, as we can see for example in the treatise of Jambor on folio 90rb [9]. It is why the exterior senses damage the men and lead them to the death, as Ebendorfer writes on folio 91rb [6]. These senses according to Thomas Aquinas cannot lie, because they, created by God himself, are good. The problem makes the interpretation of the stimuli made by men. He writes about it: “*Falsitas non est quaerenda in sensu, nisi sicut ibi est veritas. Veritas autem non sic est in sensu, ut sensus cognoscat veritatem; sed in quantum veram apprehensionem habet de sensibilibus, ut supra dictum est. Quod quidem contingit eo quod apprehendit res ut sunt,*” which means: “*There is no lie in the sense, but the truth. Hence, the truth is not directly in the sense in the way that the sense recognizes the truth; but it has the real apprehension from the sensible things, as we already said. So, it is necessary that it recognizes the things as they are.*” (Ia, XVII. 2) [17]. Nicolaus de Dinkelsbuhel, in harmony with teaching of Thomas Aquinas, admits that the five senses nevertheless their evil character, are created by God, so they should be laudable.

Thomas Ebendorfer asserts that the five exterior senses have the same origin represented by the common interior sense, which cannot be perceived by the sight. According to his supposes, there are the unions attaching this common interior sense with the exterior senses that Thomas Ebendorfer calls “*lineae,*” which means: “*lines,*” on folio 92ra [6]. He presupposes, on folio 92ra, that the senses differ in the fact that gives the term: “*in medio differenti,*” which is the mode of its difference [6]. This term used without any definition or



explanation serves to Thomas Ebendorfer to express the principle that consists in the distinction of the senses. For example the mode of the difference between the sense of taste and the sense of touch, the only senses which arrive to the physical contact with its object, is the manner how the stimulus gains the body which Ebendorfer on folio 92ra calls: “*transitus in corpore*,” which is the entrance to the body [6]. The other senses – the sight, the hearing and the smell are simply diversified between itself by their natures. On the other hand they vary in the velocity of perception of their objects, in their position in the human body and finally in the order which was given to them.

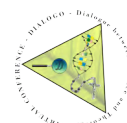
The sense of the sight is absolutely and without any doubts the superior and supreme sense in the body. From the time of Aristotle [2], but the same idea we can find also in the thinking of Gregory (21. l. 4.) [10] and of Thomas Aquinas (IIa, XV. 2) [17], the sight belongs to the first position from the all the other senses. Therefore the sight does not come to the physical contact with the perceived object [8]. And that is why the sense of sight is in harmony with the thinking of Aristotle defined as the noblest sense because it is situated on the man head and it does not come to the contact with its object [2]. In addition, the sight is the only sense that can change immediately the object of its interest, as we can read on folio 153rb [14].

The senses differ, according to the teaching of Thomas Ebendorfer, by its utility for the body, too. In this case the sense of touch and taste are essential for the life, as he shows on folio 92rb [6]. The sense of taste is for him the part of the sense of touch, which is, in his doctrine, the most important from the all senses and the subtlest, too. This is why the man can live without the other senses, but no without the sense of touch, as Thomas Ebendorfer explains on folio 108va: “*Multam nobilitatem*

inter quinque sensus exteriores habet tactus ex hoc, quia sine aliis potest homo vivere, sed numquam sine tactu.,” which means: “*The biggest nobility from the five senses belongs to the sense of touch. The man can live without other senses, but he can never live without touch*” [6]. And finally the senses are distinguished in addition by its dominance in the human body. The first position, here, gains the sense of touch, because it is situated all around the whole body.

It is not possible for a man, as Thomas Ebendorfer highlights the fact, to restrict some of the five senses in their actions as for example, the sense of sight or hearing. So, the five senses represent for him the forces of the soul that is the part of the natural forces. And it is clear that the man does not possess enough force and enough possibilities to eliminate their actions or to escape them that is explained on folio 98va [6]. For this reason there is the will. The will is the only one that could influence the soul and, at the same time, the body of man. The will only decide if the soul pays attention to the stimuli arriving from the exterior object or not. The will according to Thomas Ebendorfer does not have the same influence to all five senses as he writes on folio 98vb [6]. The biggest power of the will could be applied to the sense of sight and the smallest to the sense of touch. Thomas Ebendorfer writes on folio 98vb: “*Voluntas non habet equalem potestatem super omnes sensus. Nam maxime habet super visum, minimam autem super tactum quia necesse est quam diu homo vigilat, sensus tactus secundum aliquod obectorum sit in actu eius*,” which means: “*The will does not have the same control on all the senses. It disposes the biggest control on the sense of sight, the smallest on the sense of touch because it is necessary that the man vigils a lot, but the sense of touch is situated in its acts*” [6].

It is very interesting to see how the



medieval authors had understood the senses. They had considered them for autonomic, divided from the mind and from the will of man, but attached to the human soul. The senses react as the autonomic organs that could deal with their passions. For this reason Thomas Ebendorfer talks on folio 99rb for example about the concupiscence of the eyes, of the sense of sight [6]. In addition, the medieval authors give the question where is situated the origin of the sin that man could commit. Without giving the answer, they hesitate if it is placed directly in the sense or in the object of the sense.

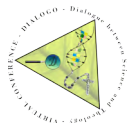
Thomas Ebendorfer distinguishes between the exterior and interior senses. There are five invisible senses hidden inside the man. Every exterior sense has its opposite interior. He talks about the spiritual senses, which calls on folio 130ra: “*sensus spirituales*” [6]. But the true paradox is that the five interior senses are not simply the senses of the soul as sight, hearing etc. The five interior senses are represented by the heart, soul, mind, intellect and thought. The explication of this reality, which gives us the medieval authors, is purely theological. The interior sight has its opposite in the intellect because intellect could contemplate or observe the divine beauty. Hearing is identified with the soul that is only capable to catch the celeste harmony. Smell represents the heart full of the good odours issued from the goodness and the virtues that delights in God. Interior taste becomes the mind because it could obtain all the sweetness of the goods that only God gives us. And finally the interior touch signifies the thought that could believe in God and quickly receives the goodness issued from Him. The five interior senses absolutely cannot be understood in the stage of philosophy. They became rather the media, the categories, which serve to express the religiosity and adherence of man to God himself.

In addition, according to Thomas Ebendorfer, the man possesses the five interior senses to accomplish the aims to which he was invocated to the existence. Ebendorfer, on folio 130ra, writes talking to God: “*Da cor, quid cogitet, animam, quae te diligat, mentem, qui te recolat, intellectum, qui te diligat, rationem, que te, quantum tibi fortiter et dulciter sumo adhereat et te sapienter sapienti amore diligat,*” which means: “*Give me the heart that thinks, give me the soul that loves you, give me the mind that accepts you, give me the intellect that loves you, give me the reason that loves you wisely with the wise love, because it fully and sweetly belongs to you*” [6].

Now it is clear that the interior senses are designated for the cult and for the ardent and at the same time reasonable love toward God. The principal target of the five exterior senses is situated in their capacity to be restricted from the intellect in order that man could without any intrusion from the world contemplate, observe and recognize the divinity. The five interior senses, on the other hand, cannot be without any action because they consist in the adoration of God. The medieval ascetical ideas, under the influence of Augustin tried to degrade the body to make from it the humble servant of the soul. So, at the time, it was necessary to weaken and destroy the exterior five senses to enforce the five interior senses that please God. This is why it is indispensable to close the five exterior senses because by them enters to the man the interior death, which is death of soul: “*Quando iste fenestre aperte sunt, tunc ianua salutis et vite ac porte paradise clause sunt.*” which means: “*When these windows are opened, then the door of the salvation and the paradise are closed*” [9].

CONCLUSION

At the end we could say that the medieval doctrine concerning the subject of the five



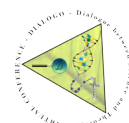
interior and exterior senses consists in the conviction of the authors that the exterior senses are unified with the interior senses. The interior senses do not represent only the senses of the soul, but they become the five philosophic categories: soul, heart, mind, intellect and thought. The exterior senses are described in the terms of biology and anatomy, but they are still seen in the theological way as the instruments of devil to kill the human soul.

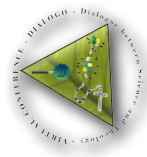
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Explicit Evaluative Activity in the Subject „Religion”

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ABSTRACT

Unlike subjects in which the role of the explicit evaluation is almost unanimously accepted in traditional mass education, there are some subjects in which the lack of a certain talent or of certain abilities leads to poor results, to the decrease of self-esteem and even to perceiving the compulsoriness of attending them as a sort of humiliation for the pupils who are in this kind of situation.

Besides music and art, physical education requires certain and almost visible skills, while literature, mathematics, physics, biology, and geography in their turn require multiple specific mental abilities. We consider that religion has got a special status, for which apparently no special skills are required, whose evaluation is among the most demanding towards the teacher, but can lead to real „mutations” in the axiological system of the adult-to-be.

Through this paper, we try to identify some of the difficulties in the evaluative activity in Religion, focusing mainly on elementary school.

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I. INTRODUCTION

By „explicit evaluation” or institutional evaluation we understand a „deliberate and socially organized act that leads to expressing a value judgment”, as it is defined by J.-M. Barbier in his 1990 paper, *L'évaluation en formation* [1]. From a general social perspective, this form of evaluation is found along *spontaneous evaluation*,

consisting in value judgments based on implicit and subjective criteria, and along *implicit evaluation*, a „universal social act”, preceding almost all human decisions. [2] Although in institutionalized education all these three forms of evaluation are to be found, „the pupils' evaluation in the process of education is part of the category of instituted/explicit evaluation” [3].

Given the fact that in the last decade the academic community has preferred the phrase „evaluative activity” to the concept of evaluation [4], and since we deal with evaluative practices and their impact on the primary and secondary beneficiary of the institutionalized education, we embraced this vision, mainly focusing on the situations that occur in elementary education.

Despite the fact that „current theories on education insistently promote the idea that modern evaluation must be an integrant part of the education process, to be intimately associated to it” [5], „one can notice a discrepancy between the rich theoretical discourse and the poor evaluative practices” [6], which can explain the difficulty in evaluating *Religion as a school subject*.

II. GENERAL COMPETENCES IN RELIGION AS A SCHOOL SUBJECT (PREPARATORY GRADE – 4TH GRADE)

According to the curricula of 2013 [7], 2014 [8] respectively, the following general abilities are mentioned for elementary school:

1. *Applying some norms of behavior specific to religious morals, in different life contexts*
2. *Cooperating with the children and the adults in the family, in accordance with religious values*
3. *Actively exploring some elements of the everyday life, from the perspective of their own faith.*

In the same documents, among the theoretical specifications on evaluation of the subject *Religion*, we can find the following: „The process of evaluation will focus on recognizing the learning experiences and the abilities acquired by the children in non-formal or informal contexts.” This requires the teacher to „monitor” the pupil beyond

the teaching process, either as a systematic observer during extracurricular activities, fie or as an investigator of the child’s behavior towards his family, neighbors, friends and relatives, but also of his attendance in church and his carrying out the religious practices pertaining to Christianity.

III. MOTIVATION AND THE PURPOSE OF EVALUATION

Just as in any other subjects where it is applied, evaluation in religion as a school subject in traditional mass education is a *sine-qua-non* component of the teaching process considered to consist in the teaching-learning-evaluation triad, according to some authors, this being the most important component of the triad, since it has got visible results and intersects many factors: teachers, school, parents, local communities/administrations, various decision makers in the field of education, and to different degrees, the pupil. For the last one mentioned, ”the grade is like a warning message more about what might happen to him and less about what and how much he knows”. [9]

The purpose of the evaluation is closely related to the functions of the evaluation. **The general functions** of the evaluation are to *detect, diagnose and forecast* the results of the learning process, and the **specific functions**, in relation with the factors involved, are to *inform, motivate, educate/ form, control, classify, select, prioritize, regulate*.

IV. CONCRETE ASPECTS IN GRADING

In many schools we have visited for educational purposes (the students’ pedagogical training and special inspections for the first degree in teaching), we have discovered the following situations in explicit evaluation in *Religion* as a school

subject:

1. all pupils get the F.B. grade (or the maximum grade), in order to be stimulated to take part with pleasure in the proposed evaluation activities;

2. all pupils are examined and graded with maximum rigor, given the fact that most of the times they do not have the possibility to follow the advice „Believe and do not doubt!” and they do not have the family’s support in attending mass and in putting certain Christian rituals (making the sign of the cross, fasting, confessing, taking Communion) into practice;

3. where the teacher is also the children’s confessor, especially in the countryside, there is a subjective evaluation, for (actively) attending church, confessing, taking Communion and belonging to a profoundly religious family favorably influences rewarding the pupil with the maximum grade or giving him the „Foarte bine” (Very Well Done) grade, even if the acquired knowledge does not justify this result;

4. there are, of course, situations in which the grading is generous in order to stimulate the participation in activities, but also to offer feedback on the progress in acquiring knowledge and especially a certain position in the class hierarchy.

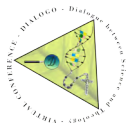
We will go through the amendments that can be made especially to the first three situations that we have encountered, even though they are easily deductible, for they are also arguments for our option to eliminate grading in the subject we deal with.

In the first situation we have identified (when all pupils get the maximum grade or the „F.b.” grade), not only is there no real feedback on the amount of knowledge, but also there is an induced feeling of the futility of the effort made in participating in the activity, the subject being in danger of

becoming obsolete. Why would a pupil who does not have enough intrinsic motivation for this learn if the result is predictable and maximal?!... Neither the subject, nor the teacher enjoys great valorization as long as the result is not motivational, and the teacher shows indifference towards assessing the knowledge of his or her pupils, towards ranking them in accordance with their knowledge and towards the other factors who are interested in the pupils’ school results. In such a situation, Religion as a subject appears to be a means of equalizing the pupils’ performances, a situation which is negatively perceived by the diligent students, and which is artificial towards the low-grade pupils, who know their possibilities, and are aware of their poor implication in acquiring knowledge.

A value judgment on rewarding bad with good, inadequate/unsustainable, of course, in the context it appears in, expressed by the voice of Petronius in the novel „Quo vadis” might be paraphrased regarding this type of equalizing grading: „if we give good reward for bad behavior, what will we reward good behavior with? And if the reward is the same for both kinds of behavior, what is the point of being good people?” [10] Adapting this, we can ask ourselves (and the pupils ask themselves, too) why learning is good, if, no matter to what extent it is accomplished, the reward is the same?!...

In the second situation that we mentioned earlier (when pupils are examined and graded with maximum rigor), given the fact that the power of representation of certain actions labeled as „miracles”, of the contradiction in the age of the world mentioned by different sciences (physics, history, astronomy, geology etc.) and religion, as well as the paradox of many of the biblical parables [11] (for example, that of the unfaithful servant, that of the barren fig tree, that of the prodigal son, etc.), pupils can greatly suffer because of a



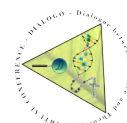
low grade they get, ending up not learning the respective subject, being profoundly inhibited or even perceiving attending classes as a huge burden. Extremely rarely it so happens that a poor undesirable result gives the pupil the ambition to show that that is not his or her real level, that getting it was an accident or that he or she has more knowledge than those previously assessed. Here we can bring forward the argument that religion could benefit from the same treatment as history, since the events and facts presented should be taken as such by the pupil, who often does not have the possibility to verify their reliability (because they do not have the proper studying tools and methods, and quite often the scholastic sources of information).

The third situation, in which subjectivity advantages or disadvantages the pupils under examination, in relation to their religious practices (or sometimes just those of the family!) or, more exactly, to the way they are perceived in extracurricular context by the confessor-teacher, implies even greater drawbacks, in the sense of clearly disadvantaging the children whose families do not attend church and do not encourage their children (sometimes they do not even allow them) to carry out various religious practices. For example, fasting (both for Christians, and especially for Muslims) implies, among others, a strict diet that people in poor health or those whose jobs require a great amount of concentration (airplane pilots, air traffic controllers, surgeons, professional athletes etc.) cannot observe, which means that their children cannot observe either, and demanding jobs, in shifts, prevent them from attending church. Moreover, in the case of thousands of families who work abroad (at least from Romania) and leave their kids with a legal guardian, emotional deprivation and domestic chores also prevent mass attendance and other various religious practices. As a matter of fact, despite the

massive percentage of the population who have declared their religious faith in the 2011 census (only 0,11% being atheists, and 0,1% agnostics and non-religious persons, and very few people without a declared religion, given the fact that 18 religions and religious cults were declared, orthodox one being predominant, with 86,45% of the total population [12]), churches would be too small if 10% of the population attended mass!

Paradoxically, the first general competence of Religion as a school subject (in elementary school), *applying some norms of behavior specific to religious morals, in different life contexts*, is closely related to religious practices, and accomplishing certain specific competencies (for example, 1.3.) implies going to church. Made solely with the teacher (since there is only one Religion class per week), the simple „visits” are irrelevant/insufficient, especially when paid outside the hours of mass or when getting only a minute part of it.

Beyond these possible amendments to the way of grading pupils in Religion, just as in Moral and civic education, there appear numerous dilemmas with regard to evaluation: *Do we evaluate only acquired knowledge or developed competences as well? (if verifying their assimilation is quite difficult); If one component of the grade is given by the attendance in mass and accomplishing various religious practices (fasting, confessing, taking the Communion, etc.), how can the teacher know they are true? (In other words: how does he or she know they are not mere simulacra, that will be abandoned once the child becomes an adult?); How can faith, one of the highest values of any religion, be validated and quantified?; Could a faithful child, who fears God and has hope in Him, have his faith partially annihilated, in case he did not assimilate a series of facts/information that are not historically proven nor are they easy to retain? Some of the prelates and theologians*



assure us of God's love for mankind, while others present Him as a harsh judge of men's sins, and teachers, depending on their mentors and their personal life experience, follow either of these two perspectives. In addition there are the pupil's own readings and his or her collateral experiences. What point of reference can they have in shaping their own vision on this topic?

Regarding this last aspect, we share Emil Păun's opinion on evaluation: "Often, evaluation is influenced by the teacher's personal history (especially that as a former pupil), social origin, and professional experience. The teacher has the tendency to identify in certain pupils the behavior he himself had during his school years. Through this identification process, the teacher develops (most of the times unconsciously) expectations and he values that behavior from his history as a former pupil whose reproduction he favors in his or her pupils." [13]

Therefore, if the teacher was stimulated/rewarded/favored in evaluation by extracurricular behavior, he is likely to do the same when evaluating the pupils he identifies with, not taking into account the possibility of a profoundly religious and meek spirit in his faith and practices. Moreover, the existence in the Bible of certain antagonist advice [14] regarding the behavior of a good Christian can cause confusion to the pupil, or can lead to his following one piece of this advice.

CONCLUSIONS

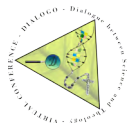
We plead to keep Religion as a subject in schools because the covered knowledge area is so vast, both as a field of interest, and as a cultural field, but also because, under ideal conditions, it facilitates the assimilation of some moral norms and of some desirable moral and civic behavior, offering examples of good behavior and

amendable counterexamples, but also historical and geographical landmarks, at the same time inviting to reflection and excellence, at least from the perspective of the traditional educational ideal.

We admit to the difficulty of the evaluative activity in this subject and we express our hope that the specialists in this field, especially pedagogues, will search for and will identify evaluation strategies specific to this subject, that will assess the knowledge of the pupil, his developed religious practices, but also his faith and his ability to make value judgments in the case of various controversies among the theologians' opinions. Regarding this last aspect, we do not necessarily plead to scientifically establish the truth for example using the chronovisor, but to give proof of religious tolerance and to follow the immutable values such as Truth, Good and Beautiful, in general, also the pupil's reading, and the ability to give arguments and to comprehend facts.

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- [2] idem
- [3] idem
- [4] See also Manolescu, M., 2010, 2.2.3. *De la evaluare la activitate evaluativă Sau învățarea asistată de evaluare (From evaluation to evaluative activity Or Teaching assisted by evaluation)*, pp. 30-31
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- [7] http://patriarhia.ro/images/pdf/Invatamant_pdf/30_RELIGIE_Cultul_ortodox.pdf
- [8] <http://patriarhia.ro/images/pdf/>



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- [10] Henryk Sienkiewicz, *Quo vadis*, vol. I, translated by Stan Velea, Ed. Adevărul Holding, București, 2011, p. 278.
- [11] See art. *Se poate vorbi despre nedreptatea lui Dumnezeu?* (Can we speak about God's injustice?), in: Steinhardt, Nicolae, *Dăruind vei dobândi (Giving you will receive)*, Editura Mănăstirii Rohia, Rohia, 2006, pp. 344-350
- [12] https://ro.wikipedia.org/wiki/Religia_%C3%AEn_Rom%C3%A2nia.
- [13] ibidem, p. 216.
- [14] „And when you pray, do not be like the hypocrites for they like to pray standing in the synagogues and on the street corners to be seen by others; truly I tell you: they have received their reward in full. But when you pray, go into your room, close the door and pray to your Father, who is unseen. Then your Father, who sees what is done in secret, will reward you.” (Matthew 6:5-6), respectively, the urge to public collective prayer „if two of you on earth agree about anything they ask for, it will be done for them by my Father in heaven. 20. For where two or three gather in my name, there am I with them.” (Matthew, 18: 19-20).
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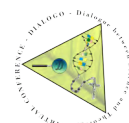
BIOGRAPHY



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SECTION 3

Social Sciences, Culture, Lifestyle Choices & Religion



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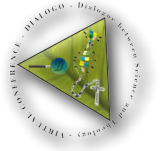
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Indonesia's Public Diplomacy in the Internet Era: Bringing the State Back In

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ABSTRACT

This paper argues that the increasing use of internet and its social media in Indonesia's diplomacy has inevitably promoted the role of the state in enhancing public diplomacy (PD). On the one hand, Indonesia's PD had found new 'vehicles' to reach society through various internet-based applications. These tendencies are in line with the serious effort of involving people or non-state actors in diplomacy. On the other hands, Indonesia's PD has also had to deal with several problems and threats of the internet's use, which have inevitably provoked governments' authority in order to manage and coordinate responses and policies. This paper seeks to discuss to what extent the Ministry of Foreign Affairs (MOFA) or Kementerian Luar Negeri (Kemlu) has responded to manage the growing use of internet in PD for achieving national interest. Therefore, an analysis on the way the MOFA has maximized social media and digital diplomacy platforms and integrated them into Indonesia's diplomatic practices is of importance.

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I. BACKGROUND

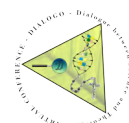
The rapid development of information, communication, and technology (ICT) has inevitably changed the nature of diplomacy (Ehiane and Mosud, 2013), including Indonesia's public diplomacy. The Internet with its social media outlets has increasingly attracted Indonesia's Ministry of Foreign Affairs (MOFA) or Kementerian Luar Negeri (Kemlu). The Minister of Foreign Affairs, Retno Marsudi, eloquently pointed out the importance of the internet for assisting the work of diplomats. This institution also internally encouraged its diplomats in various levels to keep up with the rapid development of ICT tools by exploring the use of new media. Nowadays, Indonesian people can easily find many of Indonesian diplomats have their personal social media for expressing their interests and reporting their diplomatic activities, such as Facebook, Twitter, or LinkedIn account.

New technologies gave a strong impact to the policy implementation and change the landscape of diplomacy, governance, and international relations (Westcott, 2008). At the same time, various approaches have been formulated and implemented which involved the use of ICT in the conduct of diplomacy. Websites, social media outlets, and live-chats are now among the common platforms used by ministries and government agencies. Much has been debated on the nexus between internet and diplomacy which concluded to various terms, such as "cyber diplomacy", "internet diplomacy", "digital diplomacy", or e-diplomacy (Hocking and Melissen, 2015). However, this is not simple task to pick one of them as there is currently no such a single definition.

While foreign ministries throughout the world have been enthusiastically adopted "digital diplomacy", each ministry defines and practices this form of diplomacy in a different manner. This paper uses the term

of digital diplomacy as 'solving foreign policy problems by using the Internet'. In the era of digital diplomacy, governments or non-state actors have objectives they want to secure and develop a diplomatic strategy to secure them. (<https://envoycentre.wordpress.com/2014/01/22/what-is-digital-diplomacy/>). Ben Scott outlined three components of digital diplomacy: 1). Public diplomacy, including the use of online platforms; 2). Building expertise in technology policy and understanding the way the internet impacts international developments such as political movements (i.e. Hong Kong's Umbrella movement); 3). Impact on development policy and how ICT can be used more effectively to promote economic growth around the world (<http://www.lowyinterpreter.org/post/2015/04/17/Does-Australia-do-digital-diplomacy.aspx>). Internet has inevitably managed to democratize diplomacy by enhancing access of diplomacy to both state and non-state actors (Saddiki, 2006: 102). Therefore, internet does not merely give impact to liberalize domestic politics, but it also unprecedentedly influence the practice of diplomacy.

Apart from those development, internet has also promoted the necessity of the government for playing central role in managing, controlling, and preventing various potential problems (Kalathil, 2013: pp. 3-16). While many positive impacts of the internet have increased migration of everyday life into online space, the fact also shows that the internet has also posed negative effects. Cyber threats in its various forms has also put governments and their society into unexpected risks. In international relations, cyber threats have exposed states into potential conflict or war (Granger and Kelly, 2013: pp. 99-112). In this context, public diplomacy in recent internet era has found its strong foundation for providing reliable information for other governments and their citizens.



This paper seeks to discuss to what extent the Ministry of Foreign Affairs (MOFA) or Kementerian Luar Negeri (Kemlu) has responded to manage the growing use of internet in PD for achieving national interest. Analyzing the ways the MOFA has maximized social media and digital diplomacy platforms and integrated them into Indonesia's diplomatic practices is of importance, without neglecting broader national context on the existing cyber threats to Indonesia. Recent policy on the establishment of the National Cyber and Encryption Agency (Badan Siber dan Sandi Negara or BSSN). Finally, this paper discusses different task that the BSSN and Kemlu have to do in relations to their respective authorities and special assignments towards digital problems to Indonesia.

II. METHOD

Descriptive qualitative research method is of importance for analyzing the Indonesia's MOFA in organizing and managing its public diplomacy in recent internet era. While MOFA's use of internet represented the positive impacts, this paper also presented problems and threats of the internet use. Focussing on the the ways Indonesia's MOFA has responded to the internet era led the analyzis to the growing interests of the MOFA in putting the national interest first and, at the same time, seeking hard to invole people's participation in its public diplomacy in recent cyber era.

III. RESULT AND DISCUSSION

A. MOFA Goes Online

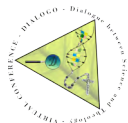
Digital diplomacy has played increasing role for today's foreign policy. In online space, both state and non-state actors compete for influence and power (Porte,

2012). More than 3 billion people occupied that space which mostly only accesses the internet through their mobile phone. In positive side, digital diplomacy is a persuasive and timely supplement to traditional diplomacy that can help a country in order to advance its foreign policy goals, extend international reach, and influence people in any other side of the world (<http://www.lowyinterpreter.org/post/2015/04/17/Does-Australia-do-digital-diplomacy.aspx>). Therefore, digital diplomacy does matter for foreign policy in various governments all over the world.

Most Minitries of Foreign Affairs now have website addresses for representing their presence in online realm (Bjola, 2016). Some of them also have a Facebook account and a growing number of ambassadors have an active twitter and other social media presence. As public diplomacy continues to be one of the missions of Kemlu, policies and programs which create and support Indonesia's positive image will persistently be strengthened and strongly supported by all elements and venues of diplomacy, including through social media outlets.

Comparing to other recent government's institutions, Indonesia's MOFA is considered to have better, more organized, and coordinated online presence (see www.kemlu.go.id/en/Default.aspx). Kemlu has enthusiastically conducted its public diplomacy through various social media (see figure 1), including official websites, Facebook (https://web.facebook.com/Kemlu.RI/?_rdc=1&_rdr), Instagram (https://www.instagram.com/kemlu_ri/), and Twitter (https://twitter.com/portal_kemlu_ri)accounts. The official website of Kemlu has been established since 2002 in addition to traditional means of diplomacy.

Figure 1. MOFA's social media accounts





For educating its diplomats, Kemlu also encouraged the Senior Diplomatic Course (also referred to as “Sesparlu”) to undertake sessions on the Digital Diplomacy Module on the 29th and 30th September 2015. It was held in cooperation with the Center for Strategic and International Studies (CSIS) Jakarta, which included presentations from various business and Government officials such as Transportation Minister Ignasius Jonan, Head of the Presidential Delivery Unit for Development Monitoring and Oversight (UKP4) Kuntoro Mangkusubroto, as well as the Executive Director of Lippo Group John Riady. Some leaders from various companies and leading institutions were also presented, such as Nanyang Technological University (Singapore), GoJek, Intel Corporation, Tokopedia, and the University of Indonesia (<http://www.kemlu.go.id/en/berita/siaran-pers/Pages/Digital-Diplomacy-Week-for-Indonesian-Senior-Diplomats.aspx>).

Interestingly, the session obliged its participants (senior and junior diplomats) to have a personal blog account (for example see agungcahayasumirat.wordpress.com/). In a certain time, the participants were required to write down their opinion regularly on various international issues, particularly Indonesia’s foreign policy, onto their personal blog. These blogs—personally owned and contained opinion written by senior diplomats—do not necessarily represent policy of the MFA, instead of their own. Nevertheless, these personal blogs could indirectly reflect the position of Indonesia in various recent international issues. As the blog is managed personally and interactively, public can directly ask question and request personal answer from

the senior diplomats.

Early 2016, Indonesia’s Ambassador for Australia, Nadjib Riphat Kesoema asserted the importance of social media in Indonesia, especially its influence towards digital diplomacy. Ambassador Najib added that social media has increased the chance of interactive dialogue between Indonesia’s diplomats and society. Indonesia’s government has made the most advantage of social media for increasing working performance of the government’s public diplomacy. For instance, twitter media has become a very supporting tool for promoting world’s understanding towards Indonesia (<http://www.pikiran-rakyat.com/pendidikan/2016/04/23/teknologi-informasi-pengaruh-kehidupan-masyarakat-indonesia-367467>).

It is important for Kemluto reconsider the ways it prepares and coordinates reliable and updated information through its website and other social media. Establishment of such a digital public diplomacy center within Kemlu is of importance for those coordinative and integrative tasks. Different from other ministries, Kemlu has to design, organize, and coordinate through its internal ad hoc agency for integrating websites of Indonesia’s 131 missions abroad, which consist of 95 embassies, 3 permanent missions, 30 consulate generals and 3 consulates. With the presence of at least 131 websites, Kemlu must formulate such a guide book which contains standards, norms, guidelines, criteria and procedures in conducting digital public diplomacy.

B. Strengthening the Role of State

Digital problems in the form of cyberattacks in Indonesia have been rising at alarming rate, which is undoubtedly beyond Kemlu’s authority. Cyberspace has been medium for separatist movements in Indonesia for promoting their struggle for independence from Indonesia, such as Free

Aceh Movement and Papua Independence. Another case is potential danger for war between Indonesia and Malaysia which was triggered by cyberwar between netizens from both countries on Ambalat crisis in 2005 (Madu, 2008). These cases are of course the main concern of Kemlu for responding through diplomatic means and providing reliable and updated information in social media outlets. However, coordinative policy at the national level of Indonesia's government is much more urgent and important than a mere Kemlu's response.

The problem of cyber attacks has seemed to be an indirect attack to the government of President Joko "Jokowi" Widodo since October 2014. Indonesia is even deemed in a cyber attack emergency. Cyber attacks in Indonesia rose up 33 percent in 2015 from the previous year. From the figure, 54.5 percent of the attacks were aimed at e-commerce-related websites. In turn, these problems led to the urgency of establishing such a national agency which is usually called national cyber agency (Badan Siber Nasional or BSN). After the failure of setting up a National Cyber Agency early this year, President Jokowi finally ratified a presidential decree on the establishment of the National Cyber and Encryption Agency (Badan Siber dan Sandi Negara or BSSN) on 1st June 2017 (https://en.tempo.co/read/news/2017/06/02/055880_781/Jokowi-Officiates-Cyber-and-Encryption-Agency).

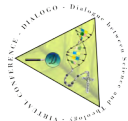
Its main duty is to monitor social media activities, suppress the spread of anti-State ideologies, which includes hoax and fake news spreaders. It has been a general understanding that the country has been tackling cyber-related issues and the urgency of setting up national policy on information technology defense. The cyber attacks could be a sign of larger problem/s in Indonesia's ICT environment, particularly on the issue of high connectivity but low awareness of cyber security among government, public

and private sectors, and internet users (<http://jakartaglobe.beritasatu.com/news/hackers-paradiseor-host-nation-indonesian-officials-weigh-cyber-threat/>).

In relation to digital diplomacy, the BSSN also a sign of government's commitment in coordinating national policy on responding to digital problems, including its public diplomacy. It is important to see the issue both in the levels of national and international challenges. The instrument of digital diplomacy is not just a matter of choice, but it would also closely relate to national security within the framework of Indonesia's foreign policy. This coordinative institution for national digital policy is not just a step in the right direction (<http://thediplomat.com/2015/01/indonesias-cyber-challenge-under-jokowi/>).

The establishment of the BSSN, unfortunately, represents slow pace adaptation to digital diplomacy by Indonesia's government considering its positive impact for minimizing digital problems in the country. On the contrary, the BSSN also shows the increasing awareness of the government the necessity of transparency in term of information for their citizens. In the context of digital diplomacy, Kemlu can learn best lessons for other countries in building an internal coordinative infrastructure, such as Taskforce on eDiplomacy in the US (Hanson, 2012) and Office of Digital Diplomacy in UK (Adesina, 2017). Considering Kemlu's growing responsibility in coordinating and integrating information in at least its 131 websites, such internal infrastructure is of importance to establish.

The establishment of the BSSN and internal digital infrastructure in Kemlu strongly represents the necessity of the state role in recent digital or internet era. The primary task is to preparing, formulating, coordinating, and integrating national response toward digital problems, such as



cyber attacks to Indonesia's institution and people. Through its internal central digital infrastructure, Kemlu could maintain its public diplomacy to keep both Indonesian and international citizen updated about current activities and progress of Indonesia. Kemlu of course uses its social media outlets to disseminate information about policies and diplomatic relations which Indonesia's government has been undertaking. In coordination with the BSSN, Kemlu keeps focusing on its main task of public diplomacy, which is winning people's heart and mind both at home and abroad.

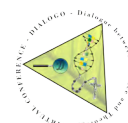
CONCLUSION

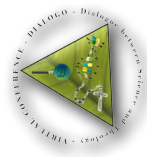
Recent development of public diplomacy in the internet era has posed Indonesia's MOFA or Kemlu to use internet and its social media outlets. The main assumption is that digital diplomacy is not a replacement of face-to-face or traditional diplomacy. Digital diplomacy gives more ways for government, particularly Kemlu, to reach people by using social media. This rapid development inevitably posed Kemlu to respond appropriately by establishing accounts on facebook, Instagram, and Twitter. This positive impact of digital diplomacy also resulted in various digital problems for Indonesia which led to the establishment of the BSSN. Beyond Kemlu's authority, the BSSN is set up to coordinate digital-related policies and responses at the national level. At the same point, Kemlu keeps focusing its public diplomacy on winning public hearts and mind. At first, rapid development has enhanced people involved in public diplomacy. Later, the increasing digital problems inevitably posed the emergence of state's role in the form of the BSSN in Indonesia.

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Religion in High-Performance Athletes

An exploratory study about the dynamic

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ABSTRACT

The religious phenomenon is considered a tool to modulate behaviors or cognitions, and therefore influence every aspect of life, including sports. The religion and its effect on sports, especially in High-Performance Athletes are due to be analyzed. The assessment of the athletes it was used the Interiorization Religious Scale (Barros, 2005). The instrument was applied to athletes from High-Performance Sports Centers, in function of gender, age, and religion. The results showed that religion does not spurs the vision of the athletes. Even though the results makes no evidence of the religion importance in sports, it would be useful for coaches, managers, and team leaders, to insert and contextualize the beliefs and religious rituals of the athletes in training process.

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I. INTRODUCTION

Religion as guidance for aptitudes is the living expression in social relationships. As individual and in society, religion forms the universe of beliefs and rituals of each one [1], in which athletes adhere.

Religion is due since the beginning of times, in which Humankind lived with spiritual and religious beliefs, assuming practices, rituals, and superstitions. Guralnik (1986) considered that those practices were de result of science inconsistency, fear, and ignorance of people [17].

Religion, as a whole, as a great effect in

the most diverse patterns of behavior, and so, sports is also influenced by it. In fact, religion affects health conducts, whether it may be by implementing conducts or by eliminating those [11].

However complex psychology of religion is because it involves a variety of approaches [18], this paper contributes to knowledge in this area by analyzing the importance of religion in the sports context and helps to define the determinants of religious interiorization, in a dynamic process.

Religion inputs in the individual characteristics such as devotion, spirituality, engagement with faith with repercussions

in life (professional, matrimonial, sexual and educational). Taking this into account is living is done by moral principles of religion, and constant unity with the divinity [4]–[5].

As religion affect healthy conducts by adding or elimination behaviors [11], as so sports are influenced by patterns. Those recurrent patterns, promoted by sports competition are: i) respect, ii) equality, and iii) development of well-being. Subsequently, the exchange is mean to new strategies, ideas, and innovation in and for the sports (Figure 1).



Figure 1. Religion and sport intertwined

Hence, the focus of this paper is the religion and the relation with sport. The identification of the levels on religious interiorization (identification and introjection). The other objective is to determine the importance of religion in sports development and the interaction between these two aspects.

The first two sections of this paper consider the relationships between religion and sports and a number of other potential variables. The third section considers the data, method and initial results for the relationships involving religion and variables such as gender, age, and religion. The results are also subject to discussion of the

relationships obtained between religion and sport and the issues raised by the analysis in the fourth section. A conclusion section summarizes the findings.

II. RELIGION AND SPORTS

In reviewing the literature on the relationship between religion and sports, it must first be discussed how religion influences human behavior, and how the psychology of religion emerges as a human science.

A. Religion and Psychology

The fundamentals of the concept of religion have many approaches, of which we present some that are relevant to the matter.

Religion is all that relate to the divine, among them feelings, acts, individual experiences, and the way we apprehend them (James, 1985) [5]. It also can be measured by the group of beliefs and rituals that are centers in the mains stream of human existence, and its different stages, since birth, life itself, suffering, disease, tragedy, injustice, and finally death [10].

The complexity of these items induces to another view of religion, as a meaning system, that is unique and focused on what is perceived as sacred and manages the complicated relations with individual and societal well-being [26].

The main classes or types of religion are made between «intrinsic religion» (interiorizes, auto-motivated) and «extrinsic religion» (exteriorizes, hetero-motivated), between «compromised religion» and «consensual religion» [3]–[5].

The identification of religious people normally can be done following the criteria: i) belonging to a church or congregation; ii) participation in religious services; iii) reading the bible or other sacred books; iv) monetary

contribution for the cause; v) respect for holidays and celebrations vi) acceptance of food restrictions, among other possibilities [17].

As for the specific interest of religious phenomenon, emerged the Psychology of religion, with the purpose of “observe, describe, analyze religious phenomenon, considered as objects of behavior or consciences, putting in commas the effective existence of God, to which might refer the experience, attitude or religious ritual” [1].

This new area is the search for evidence on how people built their beliefs and religious conducts, investigating the attitude agnostic and religious, focusing on the verbal, symbolic, and manners manifestations, viewed as the tendency of supernatural causes, associated with religion and witchcraft [17].

The spiritual living helps the individuals to feel good with life, is a source of life meaning, and helps to face drastic moments in life and dealing with anxiety.

Many studies prove that elderly show a higher level of religiosity [23], that grows from middle age to senior [12].

It might be noticed that religious living has a positive correlation with satisfaction with life, psychosocial well-being, as well physical and mental health, and is a driven force for illness recovery and life objectives [4] [15] [25] [27].

B. Religion and Sports

In historical terms, sports is related to religion in Antique Greece, where Gods were honored by sportive practices. Most of Greek Gods were physical perfect beings, as so the Olympic Games and all competitions were in honors of Zeus. Even though in the beginning sports weren't considered maleficent, the puritan interpretation of religion, centered in work ethics,

individualism, rationalization, and success, considering that unoccupied hands were the devil's shop [10].

The middle of XIX century is considered the turning point, because the physical well-being has become an issue, which conducted in XX century a close connection between religion and sports, never imagined before. Now, they are two institutions that promote a better life, in a bi-directional path.

This revolution allowed a growing interrelation amongst them [28], because it's also considered by religious leaders as another mean to achieve the crowds, and influence religious conducts. Hence it's currently seen in sports, before or after a trial, to pray or to thank divine help by the athletes.

The formal, civic and sporting learning, is a consequence from sports competition and experience exchange. It also help to diminish the differences inter-pairs, and promotes the well-being.

This process culminates with strategies and innovations for and by sports (Figure 2)

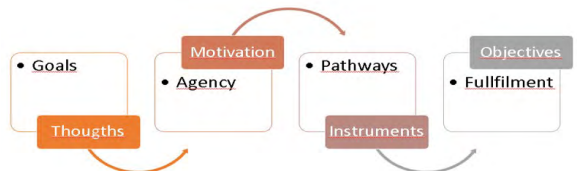
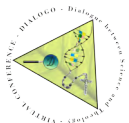


Figure 2. Religion Interiorization [24]

As cultural practices, sports and religion, they are key elements in the search of meaningful and significant life's [10] [13], even though the differences are shown in table I:

Features	Concepts	
	Religion	Sport
Fundaments	Sacred and Supernatural	Profane and Material
Context	Non-competitive	Competitive
Objectives	Transcending circumstances and material living conditions in search of spiritual well-being	Transcending circumstances and living conditions in search of fame, pleasure, and fortune.



on the Dialogue between Science and Theology

TABLE I. RELIGION VERSUS SPORT [10]

Figure 3. Conceptual framework

The rituals, dogmas, superstitions, magic and any form of religious symbolism are present in sport [6]–[7]. As cultural practices, both are a mode to achieve satisfactory, meaningful life's [10] [13].

C. Religion, Trainers, and Athletes

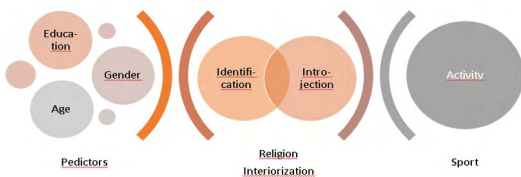
Religion in a sports context is used, particularly in athletes with great devotion, as a tool to justify the commitment with high-performance competition and results, to cope with uncertainty, pressure, to strengthen the bonds among team mates, and to guide morally every decision [28].

In any sporting event, there are demonstrations before and after a trial of the devotion, in cross symbol, praying, or just believing in the destiny ahead. For this fact, working with athlete's devotion is important for the trainer, since it's an apparatus for encouraging, dealing with pressure, uncertainty, and depression that might occur before, during and after competition [28].

As role model trainers try to serve as an inspiration for the athletes, leading and managing their value system, centered on spirituality, ethics, and respect. The triad will ensure excellence in performance [28], and success (competitive and personal). It also consolidates the impact of sport in the personal identity [10] [13].

III. METHOD

Bearing in mind the objectives established for the research it's possible to present the conceptual framework (Figure 3).



A. Participants

The relationship between religion and sports and other potential variables is investigated using a panel of 90 High-Performance Athletes practicing in High-Performance Sports Centers.

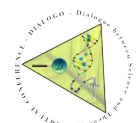
The age of participants ranged from 19 to 40 (M= 25.95 SD=4.91).

B. Procedure

They were assigned to respond to the questionnaire based on Scale of Religion Interiorization [9], and were informed that, in addition to brief demographics questions, they should answer to four essential items (“One of the reasons for which I share actively my faith with others is...”; “When I turn to God, I do it, in most of the cases...”; “The reason I pray alone is...”; “The reason that I go to church is...”), so as to know, what they think about religion and to evaluate the intrinsic/extrinsic motivation for religious life. Every item has 4 options, in a scale type Likert, in which 1 is “totally false”, 2 “relatively false”, 3 “strongly agree” and 4 “agree totally”. All the items have two distinct classifications: interiorization (identification). The question is based on the way individual positioned and feels religion, with a maximum of 28 points) and exteriorization (introjection, it means the classification of individual behavior in religion to the exterior. The maximum value of introjection is 20.

The fulfillment of the questionnaire was made after the informed consent and without limit of time so that participants could apprehend every question to make responses adequately to perception about the subject in the analysis.

For the questionnaire validation was applied the Alfa Cronbach.



The Cronbach's for the whole scale was 0.885, with confidence level a 95% for α from]0.768;0.907[, that is a desirable consistency [9]. As so the instrument meets the theoretical assumptions set out in this study demonstrating, confirming and reinforcing the reliability of the instrument [10][19][20].

The systematization of the results as was conducted by a statistical analysis's using SPSS Statistics version 24 (SPSS Inc, USA) and Excel 2017 (Microsoft Corporation). Descriptive statistics are expressed as absolute and relative frequencies, means, mode and standard deviations, accordingly with the type of variable. Other statistics tests were used to determine the dependence or independence of variables towards religion.

IV. RESULTS

As previously mentioned the population consisted of 90 High-Performance Athletes.

The large majority of participants are from male gender (85.56%), as female only represent 14.44%. The participants identified themselves as having a high school education (56.66%), followed by higher education (21.11%), and have a uniform distribution between single (63.33%), and married situation (30%). More than half of the participant's practices sports in federated conditions. 68.89% of them considers having a religion, being Christianity the prevailing one (96.77%).

The descriptive statistics analysis for religion interiorization, considering gender, are provided in Table II.

TABLE II. DESCRIPTIVES STATISTICS OF MEASURES OF RELIGION INTERIORIZATION

Religion	Female		Male	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Identification	5.38	6.75	10.05	7.35
Introjection	3.15	3.80	5.34	3.51
<u>Interiorization</u>	8.62	10.97	15.84	11.27

The data showed that athletes have different levels of religion, without the factor religion itself. As so, the identification level (interiorization) presents a distribution of 13.6 ± 7.4 , and introjection (exteriorization) of 7.3 ± 3.6 .

Concerning the gender of the High-Performance Athletes, there was no difference between the gender regarding introjection, identification and religious interiorization, but was found differences for the identification variable (p -value = $124.35 > 0.05$).

TABLE III. INFERENCE STATISTICS OF RELIGION AND VARIABLES

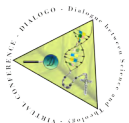
Variables	Identification		Introjection		Interiorization	
	<i>test</i>	<i>p</i>	<i>test</i>	<i>p</i>	<i>test</i>	<i>p</i>
Gender	1.155	0.133	1.630	0.240	1.235	0.051
Age	2.075	0.670	2.140	0.300	2.182	0.176
Religion	2.3741	0.541	2.187	0.150	2.513	0.152

** Correlation is significant at the 0,01 level (2-tailed); *
Correlation is significant at the 0,05 level (2-tailed)

Table III details the relationship between some of the variables and religion. There was no difference between the variables gender, age, and religion regarding identification, introjection and the religious interiorization.

Explanations for the non-existence differences might be found in some key elements, such as i) the athletes are all in senior level; ii) the unanimous influence of Christianity in face of Judaism and the agonistic athletes; and iii) a superior number of male gender of High-Performance Athletes.

In fact, some utter evidence has shown that heretofore that age has a positive correlation with the increasing levels of faith and rituals in line with previous investigations in different areas [12][15][23][24][27].



In recent decades psychology of religion has been more concerned about individual religious psychology [2], nevertheless, a relation between different aspects, such as sports, is possible.

CONCLUSION

In this paper, we approach the question of the correlation between sports and religion. Using a test that exploits the data, we are able to confirm the hypothesis, suggesting that religion influences the attitude of High-Performance athletes. For this reason, it's prudent the examination of the robustness of the results by making a more profound research, in a wider analysis, considering for instance athletes for different ages, and types of religion, to determine if there any differences between them.

As a domain of study that religion complies, and being a common and important part of a process [14], is fundamental to include variables such as sports (individual, collective), and others (number of years of practice), to show the interdisciplinary of it.

As some authors referred the role of the psychologist is to search in the mind, society, and culture, the nature of religiousness and the assumed behavior, in every moment of one's life, including sports [17].

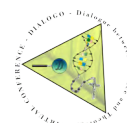
Taking in account links with religion, such as, promotion of self-control, self-monitoring, achieving goals (selection, organization, instruments) and self-regulation [8] [21] [22], it's possible to determine the dynamics between religion and not only with social behavior or health, but also with sports, because it's an activity that requires all mentioned characteristics, compelling to the dynamic of these two aspects.

Even though the results lack from demonstration of the importance of religion and sports, it's important the awakening

of trainers, monitors, psychologists, High-Performance Centers, sports leaders, and other stakeholders, to contextualize the action according to with the level and kind of religion of the athlete's.

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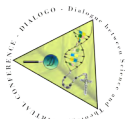


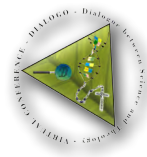
BIOGRAPHY

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The association between depression and dementia and gender differences among older adults

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ABSTRACT

The psychopathology of the elderly is not approached to an appropriate extent in the psychological research in Romania, despite the fact that the emergence of specific symptoms (first signs of depression and even dementia) occurs at an early age (in people just over 50 years old). This phenomenon leads to a drastic decline of the quality of life of those individuals, and accelerates their disengagement from professional and social positions and roles.

In our research, we aim to highlight the correlations between depression and dementia on a sample of 100 third-age individuals, processing the data from applying MMSE-2 (Mini-Mental State Examination) and MADRS (Montgomery-Asberg Depression Rating Scale). Our results confirmed the positive correlations between depression and dementia, and also the fact that women experience a higher level of depression compared to men. Our findings are in trend with those of longitudinal studies, which included large-scale participants, as a result of increasing interest in gerontopsychology issues at international level.

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I. INTRODUCTION

Lately, the importance of criteria that attest to the elderly's mental health has increased greatly.

It is known that at the third age resources are diminished and adaptation to new situations is becoming more and more difficult, thus contributing to addiction, an element often encountered in the elderly. Therefore, it is very important during this

period, the early diagnosis of the cognitive deficit but also the affective disorder. The therapeutic intervention can maintain an adaptive level of the elderly's independence, but also its autonomy.

Psychodiagnosis is generally defined as "revealing features or personality disorders by psychological means (tests, observations)" [1]

Elderly's psychodiagnosis includes

assessment of attention, memory, thinking, affectivity, personality and social adaptation, the level of depression and critical sense, etc. The results of the investigations can help the elderly monitor the aging period. If some psychological changes are observed, it is very important for the elderly to be explained how these things are and what they are. When difficulties arise, the job of the psychologist is to identify the nature of the dysfunctions, but also the particularities of their psychological nature.

In evaluating the elderly's psychic life, its functional capabilities must be taken into account. Many authors have emphasized the emotional disturbances of the elderly and the idea that these are the most often measured elements. "On the psychopathic slope, emotional disturbances are dominant and they mark the whole behaviour. In this context, there are frequent depressive states that lead to maladjustment..." [2]

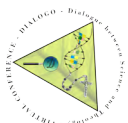
II. DEPRESSION. DEFINITIONS AND PECULIARITIES AT THE THIRD AGE

Depression is a major problem today, occupying the second place on the list of the most common medical conditions, but unfortunately, many cases are not reported and go unnoticed. A clear distinction is needed between depression as a symptom and the syndrome, respectively the depressive episode. "Depression is a pervasive pattern of sadness and pessimism, of self-criticism, reduced self-esteem, passivity and inhibited expression of aggression" [3]. From a psychoanalytic perspective, depression is considered to be a state of exaggerated sadness accompanied by low self-esteem, high self-criticism and the existence of an intra-psychic conflict between Id, Ego and Superego.

Depression has been known since antiquity, from Hippocrates under the name of "melancholy", and it was attributed to

the black ball. In antiquity, depression was described as a "severe grief disorder". Currently, there are multiple approaches to depression. The cognitive-behavioural approach characterizes it as a disorder, consisting of negative elements that arise in the relationship of the individual's behaviour with the environment. According to these perspectives, depression would arise from a small number of positive reinforcements, which would trigger the withdrawal of people from social activities that can no longer confirm their value. Depression implies a pervasive pattern of cognitive and depressive behaviours that arise at the beginning of adult life and manifest itself in a variety of contexts that are based on a sense of discouragement, lack of joy and unhappiness. [4]. In these cases, the effectiveness of cognitive-behavioural therapeutic interventions has been proven, and the patients treated by these techniques have achieved significant progress. Another approach, experimental therapy, for example, focuses on developing the level of emotional intelligence of patients in preventing and fighting depression. Specialists claim that depression depends on the characteristic way in which each person lives this state.

Modern psychology calls for an integrative approach when describing depression. Thus, depression may have neurobiochemical, behavioural, neurophysiological, cognitive implications, but it also includes heredity, predisposing triggering and maintaining factors, and depression assessment calls for a multimodal model. Depressive individuals also have low sexual and nutritional appetite. Depression can affect anyone from the young people to the old ones, but it is often encountered in people with medical conditions. It has been registered that regardless of country, culture, socio-economic standard, the number of women suffering from depression is higher than that of men.



According to DSM IV, the diagnostic criteria for the depressive episode are: 1. Depressed mood (or irritability in children and adolescents); 2. Marked decrease in interest or pleasure for any or most of the activities; 3. Significant weight decrease or increase; decrease or increase of appetite; 4. Insomnia or hypersomnia; 5. Anxiety or psychomotor slowness; 6. Fatigue or loss of energy; 7. Feelings of excessive or inappropriate uselessness or guilt; 8. Low concentration, indecision; 9. Recurrent thoughts about death, recurrent suicidal ideation without a specific plan, suicidal attempt or a specific suicide plan. [5].

Depression is part of the wide-range affective disorders. New studies in the field demonstrate that depression facilitates disengagement from pregnancies and outlines the person's discontent. Often, depression was confused with sadness, sadness being a normal feeling without pathological implications.

Depression of the elderly is more difficult to be acknowledged due to the somatic comorbidities specific to this age stage, but also to the erroneous idea that at this stage of life it is normal for the individual to be sad. Depression can have a major impact on elderly life. It leads to the reduction of activities but also to the loss of autonomy. Specialty studies show that only 17% of elderly depressions are being treated. All studies show that the elderly with depression often receive tranquilizers and only one person in seven receives the appropriate treatment. A percentage of 50-70% of elderly visits to primary care rooms is due to psychological factors such as anxiety, depression and stress.

The most important symptom of depression at the age of three includes: Slowing down thinking processes; Psycho-motor lulling; Somatic and Neuro-vegetative Symptoms (changing appetite; changing sleep quality; cardiac symptoms;

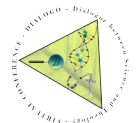
pallor, dizziness, sweating).

A. The importance of gender difference in elderly people experiencing depression.

A study conducted in 2012 in Greece identified the differences in depression among elderly women and men. The objective of the study was to estimate the importance of gender in depressive manifestations. A sample of 360 people, including 218 women and 142 men, minimum 60 years old, coming from 4 centres for the elderly. The Geriatric Depression Scale revealed about 100 people who experienced depressive symptoms. The conclusion of the study was as follows: the absence of social relationships and the deterioration of health are the predisposing factors for depression for both men and women. On the other hand, it seems that women are more sensitive than men, in the absence of social life, for example lack of outings excursions ... women are also more sensitive to the economic factor, which could lead to the appearance of depression more quickly in women's case than in men's. [6]

B. The influence of social support, cognitive functioning and personality

A study conducted in the Netherlands by Peerenbooma and collaborators in 2014 [7] included 341 participants diagnosed with depressive disorder and 125 non-depressive participants. The socio-demographic variables, social support variables, depressive characteristics, cognitive functioning, and personality factors have been considered as possible explanatory factors or factors of confusion. (The study has shown that depression and loneliness are strongly related to the elderly. Studies conducted in other countries have generated important reports, where loneliness has a relevance of 39% to 72%, and loneliness has been characterized over time



by specialists in the field, as a dynamic multi-dimensional phenomenon, which can vary in different ways, depending on context and cause. Also, the mentioned researchers have characterized loneliness as an unpleasant experience that occurs when the person's social relationships are deficient. The lack of social schemes is a major and triggering factor in depression in the elderly. A high score of neurosis and a low score of self-control are the most important trigger factors for depression. "(L. Peerenboom, R.M. Collard, P. Naarding, H.C. Comijs, 2014, 31). The very low level of extraversion is also strongly correlated with depression.

III. DEMENTIA. DEFINITION AND CAUSES

Dementia is a disorder characterized by multiple cognitive deficits, a brain disease that initially manifests with memory loss but subsequently affects other parts of the cerebral cortex that cause: difficulty in maintaining and starting common activities, difficulties of speaking and of maintaining a dialogue, mood and personality swings. The specialists have characterized dementia as "a clinical syndrome characterized by the loss of intellectual functions or by a progressive decline compared to the previous level." [8].

Statistics estimate that 2 million people suffer from severe dementia in the US, and another 1.5 million suffer from mild or moderate dementia. (Prah, Krook, Fagerberg, 2015). This data is due to increased longevity, but also to better and more complex diagnostic processes in recent decades.

Unlike other psychiatric disorders, dementia has an organic substrate, it is not a process mental disease, but an organ metal disease. There is damage to the brain, its functioning, and therefore to the person's behavior. Functions that are most often affected by dementia are: intelligence,

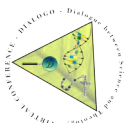
language, problem solving, short and long-term memory, social skills. Dementia usually progresses in time, and the affected person becomes dependent on the close people in order to carry out the usual activities. This disorder is more common in the elderly, but it can also occur at younger ages. Dementia is considered to be the early psychiatric illness that begins in Alzheimer's disorder. The primary causes of dementia are genetic, but also due to degenerative lesions of the brain. The secondary causes are tumors in the brain, metabolic disorders, and vitamin deficiency. The main types of dementia are: Alzheimer's, vascular dementia, frontotemporal dementia, and dementia with Lewy Bodies. Currently, the most common disorder present in the elderly is dementia Alzheimer, followed by vascular dementia and dementia with Lewy bodies. Dementia that occurs in Parkinson's disease and mixed dementia should also be mentioned.

IV. STUDIES RELATED TO DEMENTIA IN ELDERLY PEOPLE

The increase of life expectancy in recent decades has also effects on the elderly's disorders. Demographic trends are in a major and dramatic change, the number of elderly people is rising in the world every day. It is assumed that the number of elderly people will reach 1.5 billion in 2050, compared to 600 million today. The number of dementia sufferers is currently 44.3 million, but it is assumed that by 2050 this number will triple. [9].

The authors in the field point out that dementia is a disorder affecting brain and neuronal synapses, which prevents communication between brain cells, causing negative consequences on cognition, behavior, motor skills and other functions.

The most common speech deficiencies, correlated with dementia, are the apraxia of speech and dysarthria. People with apraxia



usually have difficulty pronouncing certain sounds, syllables and words. Most often apraxia occurs in Alzheimer's dementia. Dysarthria is also a disorder of speech, sometimes present with apraxia. It is caused by the lack of movement of muscles that are used for speech, including tongue, vocal folds and lips.

V. INSOMNIA AND THE RISK OF DEMENTIA IN ELDERLY PEOPLE

Over time, it has been demonstrated that there is an association between sleep disorders and cognitive impairments in elderly people. But in this sphere, there are still no longitudinal, clear studies that have demonstrated the correlation between insomnia and dementia in elderly people.

Almondes and Costa [10] conducted a comprehension research on insomnia and dementia in correlation, studies that have been published in the electronic bibliography such as PubMed, Scopus and PsychInfo. In order to achieve a meta-analysis, there were selected the studies that met the following criteria: subjects over 60 years old, the population measured to provide sufficient information on insomnia and the presence of a type of dementia. This meta-analysis was the first to investigate and demonstrate that insomnia increases the causes that lead to dementia at the third age. The authors of the research claim that insomnia is associated with dementia due to the presence of stress. On the other hand, with the aging, certain nucleuses deteriorate. In this way, the individual's biological rhythm is affected, therefore sleep disorders are present. These changes also affect cognitive performance.

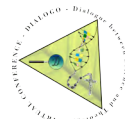
VI. VASCULAR CONTRIBUTIONS IN COGNITIVE DEFICIENCIES

Over time, great emphasis has been put on the fact that vascular and pathological dysfunctions play a critical role in cognitive

impairment, more specifically in Alzheimer's disorder and dementia. When discussing vascular pathologies and deficiencies, we discuss microinfarcts / macroinfarcts, brain disorders that are characterise, especially in elderly people, the disease of the white matter. These conditions lead to cognitive deficits and dementia over time. Etymological studies have shown that Alzheimer's dementia and stroke have common risk factors. For example, hypertension, diabetes, nicotine, excessive alcohol consumption, high cholesterol." It is possible that the cerebrovascular changes associated with these risk factors and the spread of the Alzheimer's dementia pathology may be a common mechanism associated with the cognitive decline" [11]. The association between diabetes and the increased risk of dementia is well known. This study argues that each vascular disease, such as stroke, contributes to the cognitive deficiencies. "It is clear that the vascular affections and the Alzheimer's pathology only appear isolated, and this entity that we know as Alzheimer's dementia, which occurs in elderly people, is in fact a complex process composed of vascular and neuro-generative disorders"

VII. THE ASSOCIATION BETWEEN RELIGION AND THIRD AGE

At the third age there is a strong influence of age-specific as well as non-normative factors, hence aging becomes a "process of individualization".[12] The psychological assistance of elderly people will have to take into account the biological decline of the body with psychological implications (possible sensations of disability and helplessness related to addiction to others, fear, anxiety, sometimes hypochondria), the drastic restriction of the socio-professional sub identity due to the retirement condition, changes in the couple's relationship (the departure of



children, “the naked nest syndrome” and missing children, grandchildren) or the loss of the partner as a result of divorce, death, etc. In elderly people, sometimes intimately connected to the fear of death, it usually occurs an intensification of religious preoccupations, an aspect that provides them with the spiritual and psychological resources necessary to cross this existential stage.

Otherwise, the psychosocial and medical services for the institutionalized elderly, for example, include, besides the residence, medical care and psychological counseling as well as involving the elderly individuals in the activities of the religious community that they belong to [13]. It is known in the published literature that people with an increased religiosity are more optimistic, more confident and if they suffer from chronic diseases, they have a better adherence to treatment, being cooperative, compliant patients, to those who do not acquire such a “spiritual anchor” throughout their life.

According to researcher Kübler-Ross [14], the elderly religious person has an authentic relationship with God, the beneficial effects of this relationship being found in prayer and rituals or religious symbols, in the way he/she perceives the role of the Divinity in his/her life.

Research on coping (adaptation to stress) tries to explain the way some people deal with existential stress, the fact of being “faithful”, this representing one of the ways that has been proven to be the most effective. Authors such as Kübler-Ross, 2009 and Pargament et al. [15], reported in their works that life traumatic events can be better overcome by religious people, through a positive adaptation. The cited authors define religious coping as an indicator of the individual’s mental well-being, an effective defense mechanism against stressful situations. Related to our research, we

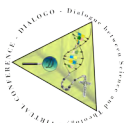
will refer to the study by Bosworth, Park, McQuoid, Hays and Steffens [16] conducted on a population of 114 elderly, over 60 years old individuals, suffering from depression. The results of the study showed that the following: religiosity and religious coping correlate with depression; positive religious coping influences the levels of long-term depression; and negative religious coping correlates with serious symptoms of depression at the onset of the disease.

Koenig [17] identifies a number of factors that mediate between the individual’s beliefs and his/her mental health, as follows: religious practices cause the individual relaxation responses that help reduce the activity of the sympathetic nervous system, muscle tension or lower blood pressure; contributes to reducing the individual’s involvement in risk behaviors (smoking, alcohol or drug abuse, suicide attempts, etc.); religious practice positively correlates with high social support with supportive effect on the individual’s morale; religious people are submissive, comply more easily with the medical treatments and doctors’ advice; religion contributes to the development of the sense of consistency and value of the person’s life, enhancing the quality of daily living, optimism and hopes for a better future.

In the therapeutic interventions for elderly people diagnosed with depression, the factors mentioned above are and can be motivational variables. Psychological counselors and therapists specialized in working with elderly people will assess from the very beginning the perceived importance of religion in the person’s life, in order to encourage and develop religious coping as a strategy of confronting situations and events related to aging.

VIII. METHODOLOGY

As pointed out in the theoretical part of



this study, the literature and recent studies in this field, conducted by specialists have attempted to demonstrate the link between dementia and depression in elderly people. The psychodiagnosis aspects of the elderly have begun to be studied more and more once scientists have noticed increasing global life expectancy in recent years, but also the problems associated with this phenomenon.

The published literature of recent years has increasingly highlighted the importance of these specific aspects of the psychodiagnosis of the elderly. According to the authors, these psychodiagnosis aspects show the quality of life of the elderly, the way they perform their activities in the post-retirement age, and these aspects also contribute to the quality of interpersonal relationships. The authors mention the issue of depression in the elderly, how the degree of sociability can affect in a positive or negative way the quality of their life.

In this study, we compared the scores to depression for elderly men and women, if the theory that depression is more present among women than men is a stereotype or a reality that can be statistically demonstrated.

The objectives that we have pursued in this research are: Statistical evaluation of depression in the elderly; Assessing dementia in elderly people; Interpretation of differences in depression and dementia, depending on the gender.

A. Research hypothesis

1. It is assumed that for elderly people, the dementia correlates positively with depression.
2. It is assumed that elderly women manifest a higher level/score of depression, compared to elderly men.
3. Women versus men with dementia

B. Subjects / The target

In the present research we investigated a sample of 76 participants, elderly people who presented themselves to the clinician psychologist at Constanta County Emergency Clinical Hospital, for a psychological evaluation, women and men, aged between 65 and 94 years.

C. Tools used in research

To collect the data needed for the research, we used the MMSE-2 Test, the Mini-Mental State Examination, the Second Edition[18], and the Montgomery-Asberg Depression Rating Scale (MADRS) [19]. MMSE-2 is one of the broadly used short screening tools for assessing cognitive impairment and patient selection for dementia treatment studies. Cognitive examination is intrusive and therefore must be carefully presented and conducted in such a way as to maintain the cooperation of the tested person and avoid an emotional reaction that can diminish its performance. The test is administered in a private setting, without the presence of family members or friends, who may try to help the person being examined when responding.

The Montgomery-Asberg Depression Rating Scale (MADRS) contains 10 items and was designed to have the sensitivity and accuracy required for psychopharmacological studies. MADRS is an observation scale that refers to the evaluation of depressive symptoms three days in the past or in another time frame that the investigator can establish. Each item has an operational definition and is scanned on the Likert scale with seven points, where 0 represents the absence of the symptom and 6 represents the frequency and intensity of the symptom. The following score ranges were presented for different severity of depression: 0-6 = lack of depression, 7-19 = minor depression,

20-34 = moderate depression and 35-60 = severe depression. The scale presents a very reliable intercourse both when considering the total score and each item and good validity when administered concurrently with the Hamilton scale for depression assessment, especially for endogenous depression.

MADRS items refer to: Sadly reported; Apparent sadness; 3 Internal tension;; Sleep reduction; Reduced appetite; Difficulties in concentration; Lentor; Inability to feel or enjoy; Pessimistic thoughts; Suicidal thoughts.

D. Results and discussions

Hypothesis number 1 suggests that dementia in elderly people correlates positively with depression. The results of the research support the hypothesis at a coefficient obtained $R = 0.468$, corresponding to a significance threshold of 0.000

Correlations

		MMSE	MADRS
MMSE	Pearson Correlation	1	.468**
	Sig. (2-tailed)		,000
	N	76	76
MADRS	Pearson Correlation	,468**	1
	Sig. (2-tailed)	,000	
	N	76	76

** . Correlation is significant at the 0.01 level

(2-tailed).

These results also confirm the results of the last few years' research, which claims that the most common disorder associated with depression in the elderly is dementia.

The 2013 studies, such as the one conducted by Salary and Moghadami [20], highlight that a reason for which there is a correlation between dementia and depression could be found in cognitive changes associated with frontal lobe functionality. Following these studies, we

understand that geriatric depression occurs against cognitive problems associated with the aging process, and when it is installed, cognitive impairment may occur.

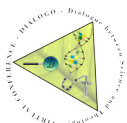
Not a few times, dementia onset may also have depressive features. Many authors claim that the presence of depressive factors may be the first features of the clinical dementia. Following the synthesis of recent studies in the field, we can conclude that more than 40% of elderly people suffering from dementia also experienced depressive symptoms with different intensities and frequencies. There are different views on the reversible or irreversible character of cognitive impairment in geriatric depression. In some studies there has been reported an improvement in depression results in neurocognitive evidence, following the favourable response to antidepressant therapy; in others, persistence, at least of some of them, has been observed after the remission of depression as well.

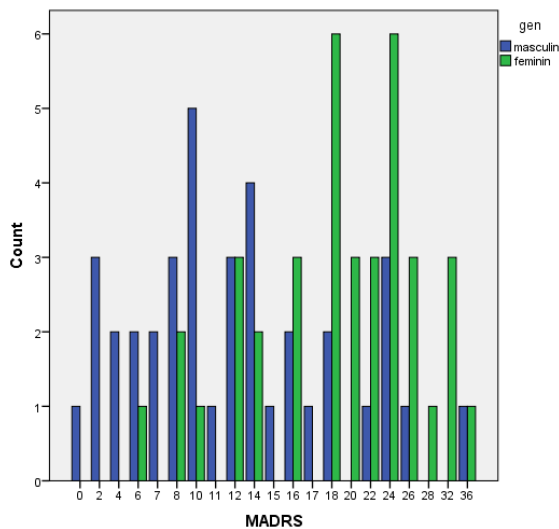
After examining the first hypothesis, we can notice the presence of depression in elderly people along with dementia, elderly depression emerging on the background of cognitive impairment inherent in the aging process. Depression is considered to be a first symptom of the clinical picture of dementia.

The hypothesis number 2 presumes that elderly women manifest a higher level / score of depression than elderly men.

Group Statistics

		N	Mean	Std. Dev.	Std. Error Mean
MADRS	male	38	12,45	7,734	1,255
	female	38	20,00	7,143	1,159





From the data analysis we note that the hypothesis is confirmed in the sense that women are more depressed than men. Thus, $t = 4,422$ statistically significant at a significance threshold $p = 0.000$.

It is known that over time, studies have shown through focused research that women of all ages are more prone to depression than men, it seems that women are more sensitive than men in this regard. Research on this topic has shown that older women represent the segment of the population with the highest risk of depression, and the second hypothesis of this research confirms the same. Studies show that elderly women suffering from depression have specific manifestations for a longer period of time than men. Some of the latest studies in the field conclude that women are more sensitive to the absence of social life, and are also more sensitive to the economic factor, which could lead to the faster occurrence of depression in women than in men. The treatment of depressive episodes in the elderly is of an urgent nature and involves multidirectional approaches, with the active participation of the entourage, family, or close supervision in

specialized institutions, taking into account the suicidal risk.

Social and emotional loneliness is caused by the restriction of social contacts or the activities of the elderly, that become inappropriate to the needs of the person, which causes the symptoms of depression to increase. The lack of social schemes is in fact a major and triggering factor of depression in the elderly. With aging, the social relationships diminish, the partner's death and widowhood triggering emotional loneliness. In other cases, however, the elderly suffer from depression, and as a consequence, their social life is diminishing very much. Our hypothesis is consistent with the study of Peerenboom et al., cited above, which shows that depression is strongly associated with emotional loneliness, but not with social loneliness. A high score of neurosis and a low score of self-control are the most important triggering factors of depression.

After confirming the hypothesis, we can say that depressed elderly people have an inappropriate social behaviour, with a significant social deterioration. Depression reduces the level of energy needed for relationships. This disorder causes the individual to isolate himself / herself from his/her fellow men/women. Dementia is an organ illness, the person's brain is affected. Communication is diminishing. There are deficiencies of language and speech, which automatically affect the sociability and social life of the elderly. Some scientific research has looked for the differences and resemblance of language and speech deficiencies in these disorders, dementia. Various researchers have highlighted the importance of prevention with the help of therapies specific to communication disorders. The suffering from dementia person's communication and language skills are affected. It is increasingly difficult for the elderly people to communicate with people

around them, and so the opportunity to participate in social activities is diminished. Language deficiencies can be understood as an altered linguistic system.

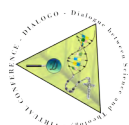
CONCLUSIONS

The difficulties and limitations of this research are due to the lack of studies in the Romanian literature, which relate directly to the theme of the paper, but also to the insufficient attention paid to the elderly and the problems they face. Following discussions with the people surveyed, we found an acute lack of information, many of whom were unable to explain their state of continuous sadness - depression. They manifested embarrassment when they were urged to talk about their problems. The general idea that persists in public perception is that "sadness is normal at the third age", a totally untrue fact ...

Another thing we have noticed was the attitude of the personal assistant / relative of the elderly person, especially if the elderly suffered from dementia. These specific aspects of the elderly are not understood, they are often marginalized and deserted at times when they most need the dear ones in their lives.

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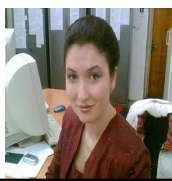
domains of interest are neuropsychology, cognitive psychology, diagnosis and settlement of social problems and statistic

BIOGRAPHY



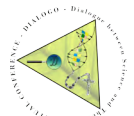
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Calin Mariana Floricica

I have a Doctor of Psychology degree and my





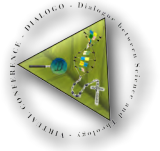
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Multifactorial Causes of Suicide

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Nervousness; suicidal behavior;

ABSTRACT

The science of psychology is well placed to the advantage of understanding why some people are trying to take their lives, and others do not. Understanding the psychological processes underlying the idea of suicide and the decision to act on suicidal thoughts is particularly important. Especially since interventions should be targeted at the suicidal ideation when it first appears before it becomes an attempt of suicide. Factors associated with suicidal risk can be classified into four groups: personality and individual differences, cognitive factors, social factors and life-threatening factors. Each of these factors can contribute to the emergence of suicide risk independently or together with other factors. Some of them are associated with the emergence of suicidal ideation, while others increase the likelihood that these thoughts will come to life.

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I. INTRODUCTION

Surprisingly fewer attempts were made to investigate the direct or indirect association between the optimism feature and the suicidal ideation or attempt. Almost no longitudinal study was published. Some evidence from students suggests that people with high optimism have low risk of ideation or attempted suicide when experiencing moderate to moderate negative life events. Low levels of optimism are associated with self-mutilation in adolescent girls. Optimism also acts as a shock absorber between hopelessness and suicidal ideation. The protective effect of optimism was also highlighted in a sample of patients in the clinical setting. Although these findings are promising, the long-term protective effect is unknown.

Despite the researchers' interest in resilience (defined as someone's ability to succeed in adversity), there is little evidence of protective effects in the context of suicide risk. Some evidence suggests a protective effect of resilience to the suicidal idea of military personnel, prisoners, but their effect on suicide attempts and deaths is unknown. Validating the inventory of suicidal resilience could stimulate more research into this.

II. CONTENTS:

In an attempt to understand how and why the thought processes of some people make them take their lives. Researchers have examined various cognitive processes that may be deficient or dysfunctional in suicidal people. The research identified many cognitive factors that seem to increase suicidal risk:

A. Cognitive rigidity

For decades, clinicians and theorists have described suicidal people as being cognitively rigid, leading to the conclusion

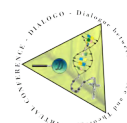
that suicide is the only option. The findings from studies in which cognitive rigidity tests were conducted led to this notion being supported. Rigidity was first reported in Neuringer's previous studies (1964). It has since been considered by using a broad assessment of cognitive rigidity or flexibility, such as set-change tests (the ability to change thinking and behavior in response to a changing environment). Findings from recent studies show that this effect was not responsible for the presence of depression, and cognitive rigidity predicted suicidal thought. Impairment of decision-making is also evident in suicide bombers.

B. Rumination

Rumination, which refers to the repetitive focus on their own symptoms of distress, was associated with suicidal thoughts and attempts. A review of the association between rumination and suicidal behavior has shown that in 10 out of 11 cases on this issue, this link is supported. A distinction has been made with regard to rumination. Rumination means the person is lost in his own symptoms, and reflections, in which the person contemplates the motives of the symptoms and potential solutions. The rumination is more associated with suicidal thoughts and attempts. Rumination has also been associated with high symptoms of depression, lack of hope and poor problem-solving ability; an important direction for future research is to clarify how these factors can work together to increase the risk of suicide.

C. Suppressing thoughts

Suppressing thoughts refers to attempts to stop unwanted thoughts intentionally. Over the past 25 years, Wegner and other researchers (1987) have argued that suppression of thought paradoxically raises specific unwanted thoughts. This



may be a mechanism by which various forms of psychopathology develop. The findings in numerous studies show that the tendency to suppress undesirable thoughts has been associated with both suicidal ideation and attempts. The suppression of thoughts mediates the association between emotional reactivity and self-mutilation thoughts and behaviors.

D. Bias of autobiographical memory

People who resort to suicidal behaviors have a low ability to remember certain things. This can affect their ability to imagine their future and solve problems, thus increasing the likelihood of suicidal behavior. Some evidence suggests that the biases of autobiographical memory result partly from previous abuses or from the presence of an affective disorder. These are potential mechanisms by which abuse and affective disorders can lead to suicidal behavior.

E. The sense of belonging and being a burden

Durkheim (1897), Shneidman (1996), and, more recently, Joiner (2005), suggested that the feeling of belonging predisposes to the development of thoughts and suicidal behavior. The lack of social connection and the subjective perception of sentiment of belonging have been associated with suicidal ideation and attempts of suicide (O'Connor and Nock, 2014).

One's perception of being a burden to others is an independent predictor of suicidal ideation in a range of samples, including older adults and people with chronic pain. The perception of being a burden mediates the association between perfectionism and suicidal ideation. The interaction between the feeling of belonging and being a burden, is a predictor of suicidal ideation even when investigating depressive symptoms.

F. Lack of fear and sensitivity to pain

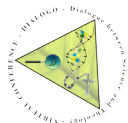
Suicidal behavior often involves the production of physical pain on the body. That's why the association between suicidal risks and both sensitivity and tolerance to pain and lack of fear of death has been examined. Although most research on pain sensitivity centered on non-suicide wounds, pain and tolerance thresholds were reported in adolescents. More research is needed to find out whether changes in pain sensitivity are a cause or a result of suicidal ideation or behavior; as these changes vary as a function of the suicidal history throughout life. Scientific findings suggest that people with suicidal attempts have a greater fear of death than insincere people. This difference may explain that men commit more suicide than women.

G. Troubleshooting and coping

It is obvious that people who try to take their life have difficulties in solving problems or coping. The findings of studies have shown a link between suicidal behavior and problem solving deficits in interpersonal and coping relationships. However, in the view of many cross-sectional studies, the direction of this association is not clear. Moreover, these associations appear to be more considered for the presence of depression.

H. Nervousness

Nervousness, which is often conceptualized as a state of anxious enthusiasm or disinhibition, has been linked to suicidal behavior in many studies. For example, in a study of 76 patients who committed suicide during admission, 79% had severe anxiety or agitation before death. It was considered that nervousness is one of the potential mechanisms by which bipolar disorder, medical illness and



prescription of certain drugs can increase the risk of suicidal behavior. Recent research suggests that nervousness is especially pre-emptive to suicide attempts in people with a high suicidal capacity.

I. Depression:

Depression, including feelings of hopelessness, is one of the common factors identified for the suicidal ideation. A quarter (25%) of high school students has symptoms of depression. For example feelings of hopelessness and sadness, and there is an urgent need for preventive interventions against the potential risk of developing suicidal tendencies.

III. GROUP OF SUBJECTS:

It is to take into account that the topic of the study did not allow me to include more people in my group of subjects. But with the help of family medicine cabinets and psychologists from the neuropsychiatric departments of two hospitals, I included a number 32 people. This means 18 women and 14 men aged between 24 and 40, and the average age being 31.47 years, both in urban and rural areas.

In order to study the phenomenon that is the subject of the research, we used the survey method based on a questionnaire. Patients were assigned to complete the assessment tools, being applied directly and personally, thus avoiding non-responses. Some patients received them during hospital treatment and the other patients in family doctors' offices. Participants in the research were informed about the rules for completing the psychological tools used and went to distribute them for completion.

The study was conducted over a period of 4 months, between January and May 2016, within a transversal, exploratory-descriptive research. The data being collected once, after which the statistics were processed.

The use of defense mechanisms for people with suicidal attempts also required the involvement of a control group. This was made up of people who never used any form of aggression on their own.

For statistical data processing, the dedicated SPSS statistics program, version 20.0, was used.

The statistical apparatus used was based on:

- correlation analysis of the stress perceived by people with suicidal behaviors and the defense mechanisms used by them. The correlation coefficients Bravais-Pearson (r) and Spearman (p);
- comparative analysis of men and women with suicidal behaviors regarding defense mechanisms used, perceived stress and depression. Between the participants in the working group and those in the control group regarding the defense mechanisms, using the Student t test and the Mann-Whitney (U) test.

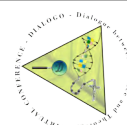
IV. STUDY HYPOTHESIS # 1:

It is assumed that there are statistically significant differences between men and women with suicidal behaviors in terms of depression.

And for testing this hypothesis, the data gathered from the 32 study participants in the case of depression were analyzed compared to the Student t parameter for parametric data. The collection of data for depression also having a normal distribution.

Table 1 Scoring averages for the DEPRESSION variable by gender

Group Statistics					
	gender	N	Mean	Std. Deviation	Std. Error Mean
Depression	male	14	53,79	9,006	2,407
	female	18	63,17	8,262	1,947



In the case of depression, all women achieved a higher average score than men, being more depressed than men.

Even if the assessment was post-suicidal, women are more vulnerable than men, although they were under medical treatment. Table no. 2. Student t test for independent samples in case of DEPRESSION variable by gender

Independent Samples Test		Levene's Test for Equality of Variances									
		F	Sig.	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference			
								Lower	Upper		
Perception of stress	Equal variances assumed	.265	.611	3,064	.30	-.9,381	3,062	-1,5,634	-3,128		
	Equal variances not assumed			3,030	.26,807	-.9,381	3,096	-1,5,736	-3,026		

The comparison between men and women revealed that, in the case of depression with equal assumptions (Levene test = 0.26, $p = 0.61$, $p > 0.05$), women have a higher level of depression (average difference = -9.38). There were significant differences between men and women with suicidal behaviors in depression ($t = -3.06$, $p < 0.01$).

Based on the results we can accept this hypothesis as true, women being more depressed than men. So there are those significant differences between the scores of the two categories of people.

Depression is one of the causes of suicidal behavior. Specific to it being the feelings of futility, guilt, but also lack of hope and catastrophic thoughts that amplify the impotence. All of these are more felt by the female participants than by men. Although, both women and men have resorted to suicidal gestures.

CONCLUSIONS

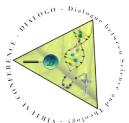
The evaluation of patients during the period when they were subjected to a medical treatment after a suicide attempt could distort the answers given to the applied instruments.

Most people struggling with suicidal thoughts and attempts do not receive treatment (estimated at 60%). The main reason why they do not ask for help is the poorly perceived need and the willingness to deal with the problem by themselves. Future research should focus on effective ways to get in touch with people with suicidal thoughts and behaviors. Unfortunately, there are few well-established treatments available, such as prevention programs, pharmacological interventions and psychological treatments. Treatments for depression did not reduce suicidal behaviors, as observed in our study. Women still had moderate depression after treatment. We wonder what will happen when they will not take the medication anymore?

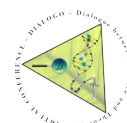
Some evidence suggests that certain forms of cognitive and behavioral therapy, aimed at thoughts and suicidal behaviors, may reduce attempts to people who have had previous attempts. Corroborative assessment and suicide management is a clinical intervention designed to steer the therapeutic alliance and reduce the risk of suicidal behavior.

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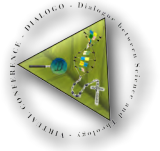
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Secularization and its Impact on the Jews' Religious Life



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ABSTRACT

Secularization brings forward a desacralized world, exclusively oriented to the material and concerned with the “fashion of the day” rather than with the Spirit of God. Secularism made man wander from god and ignore the religious, spiritual and moral principles found in Christianity and Judaism. Secularization caused all social, economic or political aspects be expressed outside these principles and, many times, against them. Man’s religiousness has become something personal and original that has nothing to do with community or the life of the community, thus becoming a strictly private or intimate option, and in many case even a taboo. Therefore we speak about a privatization of the religious feeling that has no connection to Christianity or Judaism. Unfortunately Judaism has been affected in some other way besides what concerns religious life. We are referring to the anti-Semite feeling that reached its peak at the beginning of the last century and tragically ended in the holocaust in which millions of Jews lost their lives.

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I. INTRODUCTION

Secularization is not the end of the religious experience of the human being, but only a temporary crisis of religiousness. This phenomenon causes panic by its dimensions, but which claim, on the one hand, a profound experience of the feeling if being a creature, of that *mysterium tremendum* or *fascinans* in the presence of the sacred (in God’s presence) and engaging in a relation full of dynamism with Him. Lately the human society has tended towards a

pronounced and accelerated process of globalization. An important contribution to this process comes from the technological and scientific progress, which provides man with faster means of transportation, but also from the speed of information travelling around the globe. Society is global, for we all live in a „global village” and the issues the religions of the world are facing are most of them global, being triggered in one place, but indirectly affecting the entire religious space. The same thing happened in the case of secularization, which was born in *societas*

Christiana, but which currently affects all civilized human societies, connected to the western Christian civilization. Secularization is a pan-Christian phenomenon, if we can say so, because even though it was generated by the Catholic and Protestant West. It has begun to be felt in the Orthodox East, protected for years by the „iron curtain”, but also in the major religions: Judaism, Islam or the oriental religions.

II. SECULARIZATION – A PHENOMENON THAT AFFECTS ALL RELIGIONS

In the opinion of many 20th century sociologists modernity was a process opposed to a religious existence. That is why, Jean-Paul Willaime considers that if „industrialization, urbanization and rationalization contributed to dissolving the religious worlds, if modernity represented a «demythization of the world» (Weber), under these conditions the religious could appear as a surviving remainder meant to disappear, in the long or the short term, from the horizon of the modern societies”.

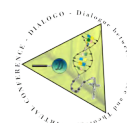
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That explains why the acceleration of this process was noticed only at the beginning of the 50s and 60s, at the height of triumphant modernity, especially in highly developed western societies. In France, for example, the secularization of society coincided with the Catholic Church’s loss of authority within society. Starting in the 60s, the family model and the sexual moral have been suffering a lot because of the radical transformations of the moral principles amongst youngsters. In other words because of the emancipation of the social moral governed by the Church. On the other hand, the number of the so-called „practicing” believers has continued to decrease: 28% of the young people with ages between 18 and 30 went to church every Sunday in 1958; only 13% kept going to church in 1969, and less than 10% in 1975. This

is how dramatic the descending trend of the religious experience is in a western country with a long anticlerical tradition. This data represent clear clues to the amplitude of the secularization in contemporary western society. [2]

Churches have adopted modern organization patterns and thought systems. The Roman-Catholic Church, at the second Vatican Council adopted the *aggiornamento* as a way to respond to the transformations within the society which is no longer considered as exclusively evil and, as a result, the Church can adapt to the spirit of the world. The fight against modernism, so intense in the first decades of the 20th century, ended with the victory of the latter, the Church adapting to the new mentalities. Within Protestantism the role of the Barthian theology– a theology that preached a separation with the world and circulated a pessimist vision on man – declined and the „theologies of the world” and the „theologies of God’s death” have started to impose themselves.

A somewhat special situation can be found in the Unites States where the Churches still have an important social role, despite the secularization which is also present in this social context. Here religious practice has not disappeared because it represents yet another proof of social respectability, but the religious motivations have lost their force and the biblical and patristic source. In the seventh and eighth decades of the last century the American society witnessed the birth of a multitude of new religious groups widely known as „New Religious Movements” (NRM), which interferes even more with keeping the Christian identity in this country. By these „New Religious Movements” we mean the Jews for Jesus (a Judaic and Christian group), Jesus movement (a neo-Christian group), Rajeneeshism (an oriental inspired group), as well as religious communities that



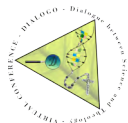
result from the development of classical oriental religions, such as the diverse forms of Buddhism, Hinduism or Sufism. Also included in the NRM there are the para-religious groups, such as Transcendental Meditation or Arica, but also groups that revive various esoteric or magical practices. This religious effervescence has touched Europe as well, where, even though there are national particularities, we can meet the same religious beliefs and practices everywhere. The only differences come from the extent of the phenomenon (which is less on the old continent) and not from its structure.

Secularization is a more visible phenomenon within monotheist religions, because in their cases the distinction between the sacred and the profane is more decided than in the oriental religions. The translation from the sacred to the profane and the other way around is much easier to make, the two being one and the same. In another train of thoughts, Christianity is the first religion that managed to separate the religious, on the one hand, and the political and the national, on the other hand. Christianity invented religion as a separate thing, which is to not be found neither with the ancient Greeks (because they did not make a clear distinction between the human and the divine, between the civic and the cultural), nor in Judaism (because religion and the nation are superposed).

Even though in the Christian East there existed the Byzantine model of the „symphony” between the political and the religious, currently religion has become autonomous in relation with the state. This explains how easy secularization was reached, and how precisely this phenomenon can be quantified. In the first part we will insist upon secularization in monotheist religions, and then we will specify how oriental religions respond to this phenomenon.

Islam in its turn did not triumph in the conflict with modernity. Many violent manifestations of certain present-day integrative and terrorist movements are generated by this conflict not being solved. This means adopting the products generated by the extraordinary technological and scientific progress originated in the West, but refusing progressionist ideas coming from the western secularized cultural environment. [3] It is enough to mention the invasion of pornography broadcast by various western television channels or over the Internet, or some of the human rights that do not correspond with the Islamic law (shari'a). [4] These are only two examples meant to show the true challenge addressed to the contemporary Islamic community: how can you accept western technology, but not the liberal emancipation ideas brought to the collective mentality by technology?

Another secularization-related aspect contemporary Islam is facing is the current rationalist trend, which has penetrated the Islamic world, and even the Quran exegesis. But it is known that a liberalism of the text sacred exegesis has not developed within Islam. Three important rationalist schools are to be noticed, the Egyptian and Syrian one, the India one and the Turkish one. The first school is represented by Sayyid Jamal ad Din Afghani (he died in 1897), Muhammad 'Abdu, Rashîd Rida, 'Alî 'Abd ar Râziq, the last one being dismissed as a canonic and Taha Husein (who has recently died) who wrote a book that was later banned in Egypt, but also the existentialist Badawi. [5] The Indian school comprises Sayyid Ahmad Khān of Delhi (who died in 1898), S. Nu'mānî (who died in 1914) and M. Iybal (who died in 1938), the most interesting of all Muslim modernists, the only one who knew the European civilization very well. As far as Turkey is concerned, modernism here was represented by President Mustafa Kemal Atatürk and his republican party,



who abolished mystical congregations and proclaimed the secular state. [6]

In regard to oriental religions, it is much more difficult to distinguish secular manifestations in their believers, given the religious particularity of certain religions that do not make a clear cut distinction between the sacred and the profane. In India, for example, the notion of secularism (*sadhamna-loka-sambandha*) does not cover the entire contents of the western notion which depicts such a religious reality. It is not a separation as such between the state and the religion. In India „public administrations take upon themselves to judge different communities as equal, no matter how numerous they might be”. [7] According to Jawaharlal Nehru, who was an agnostic, secularism was the one that „protected all religions without favoring any of them to the detriment of another” thus being based upon religious pluralism. Therefore, we cannot find here the anti-religion character of secularism, as we can do in Christian Europe, for example.

As an expression of the influences coming from western mentality, from the human rights in particular, we can also see the changing of the situation in the case of castes, as the role and the very clear difference between them slacken. Social problems in India have been a priority for many reformers. Father Nicolae Achimescu shows that „Some of them set themselves to improve caste legal restrictions, while others went as far as wanting the abolishment of the system. Along this century (the 20th century, n.n.), many outside the castes were given certain rights: for instance, some temples that were once inaccessible, can enjoy their presence now. In the same way, the members of some inferior castes or those without a caste are protected by Constitution”. [8]

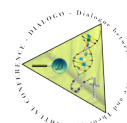
A leveling of the differences between different castes has not been achieved yet,

these taboos being strictly kept, but once started, the process will continue, and India’s rapid industrialization will favor this process.

Even though the roots of secularization can be traced as far as the Middle Age, its effects started to be felt in the second half of the last century. However, there were clues in this respect in the previous decades as well. In this context, we call to mind a statement made by Father Ilarion V. Felea in the 40s: „there are voices that call to the world that religion belongs to the past; an obsolete ideal, an old force; that the future has other aims to accomplish, other problems: concrete, urgent and general, not secondary and particular, like the religious ones are”. [9] Theologian Dietrich Bonhoeffer expressed himself on the religious destiny of mankind in the same pessimist note, but in the Protestant world: „On December 5, 1943 he wrote to his friend Eberhard Bethge, from Tegel prison: «We are heading towards a period completely deprived of religion: basically people nowadays can no longer be religious»“. [10]

III. SECULARIZATION WITHIN JUDAISM

As far as Judaism is concerned, the emancipation of the Jews, which unfolded under the influence of Enlightenment and is called *Haskala*, began towards the end of the 18th century and it implies a more open attitude of the Jewish community towards the profane values and towards the way of way of living of the non-Jewish. [11] The beginning was marked by the French Revolution and the of the assertion human rights, which also applied to Jews, and which extended to the countries around France, and determined the Jewish intellectuals to be more attracted to the secular culture of their protectors. *Haskala* has promoted several ideas, among which: “studying profane subjects that were supposed to be part of the education of the Jewish children,



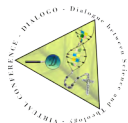
knowing the language of the country that Jews lived in, needing in-depth research of Judaism and the history of the Jews which increased the interest in the Jewish language, adapting the Hebrew religion to the new conditions of the modern world, in other words, modernizing Judaism". [12] Jews were wished to have a country of their own and to give up their traditional activities, embracing more concrete and more productive professions in the sense of producing material goods.

Regarding the relation of the Judaic community with the ideals of the *Haskalei*, some Jews identifies themselves with them, while others rejected getting too close to secular values. The objective of this movement was one: integration, which from a religious perspective meant trying to overcome several centuries of „teaching despise” propagated by the churches of the West. This act of „teaching despise” has darkened the image of the Jews and of Judaism in general in the eyes of the Christians. Judaism was considered a set of superstitions and archaic practices originating in a mysterious east. In order to overcome this situation the Jews had two possibilities: the religious path accomplished by the Reform and the academic path accomplished by *Wissenschaft des Judentums*, the science of Judaism. But all these attempts to adapt, to escape the cultural, not only spatial ghetto, have greatly contributed to the secularization of Judaism, which appears as a brand new phenomenon. In the past, the Jew could choose between religion and Judaism, known as assimilation. Starting in the 20th century we have witnessed the immergence of groups that refuse religious practice, though understanding to base their activity on the Jewish tradition. Alongside the Jews of the cult there appeared the Jews of the culture. [13] This period at the beginning of the century meant a crisis of faith, one that has intensified. In the second half of the

twentieth century, Judaism had to answer many questions, including those about God’s silence during the Shoah.

Since its establishment in the 1820s, Jewish history has forces practitioners to reflect the nature of Judaism and, by extension, the sense of secularization. Both the pressure to strictly reinterpret Judaism as a religious category rather than a national category, and the diverse answers of the Jews to this pressure have inspired a profound narrative link to the fundamental problems of modern secularism. These narrations had two main forms: (1) an embracing of secularism, often without theoretical debates; and (2) a criticism of secularism as part of a criticism of assimilation, of modernity or both of them.

The majority of the Jewish intellectuals in the 19th century accepted the transformation of Judaism into a religion of a secular nation, either as a condition or as a corollary of emancipation. Even the great number of Jewish journalists and pamphleteers who have written against the excesses of atheism and materialism confirmed the secularist expectations about religion, suggesting that this should remain secondary to national identity in political issues. There were, of course, Jewish writers, including Moses Mendelssohn, who criticized certain aspects or versions of secularism and thus developed what researchers such as Jonathan Hess and Aamir Mufti have identified as alternative concepts of modernity. Despite this, until 1880, the majority of the Jews in western and central Europe, and many more, have embraced secularism as part of a continuous promise of the French Revolution or of the larger European liberalism. [14] In the same way, the majority of the Jewish historians who work in the *Wissenschaft des Judentes* (Science of Judaism), based on the Enlightenment and the liberal thought, have implicitly accepted historical narrations,



which have allowed them to join the secular and modern ones. [15]

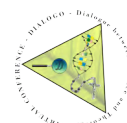
It is difficult to establish the date of the emergence of the Jewish anti-secularist or counter-narrative crisis. Important debates on the consequences of the transformation of the Jews into a purely religious community erupted in the 1860s and 1879, along the nationalist history of the Jews by Heinrich Graetz. Although Graetz rejected the idea that the Jews were a mere confessional group, he worked out a complete criticism of secularism in itself. By the end of the 19th century, Jewish nationalists and autonomists, including historian Simon Dubnow, had made a central element out of the fact that the Jews were a nation. [16] Although they criticized the liberal position, which forced the Jews to retreat into a purely religious identity in exchange for their adhering to the nation states they lived in, these Jewish nationalists and autonomists of the 19th century hung in secular engagements. What they criticized in the European liberal secularism was the way Jews were determined to think of themselves as being part of a group defined only by religion and to grow on assimilating. As a result, thinkers such as Dubnow might be, on the one hand, critics of secularism of the so-called liberal assimilation-oriented Jews, and, on the other part, or show themselves as being totally anti-religion. Since Jewish nationalists and territorialists claimed that Jewish auto-governing was the solution for the Jewish condition, finally they proved uninterested in the huge criticism of the secular national state.

When Zionism appeared at the end of the 19th century, the followers of the movement also proved to be much more preoccupied by the opposition towards exclusive non-Jewish nationalism than by the challenge of the fundamental idea or the state itself. And the state, just like the nation, became the place, the purpose of secularism in a

different way. Jewish Liberals in Western Europe, as well as many Jewish enlighteners in Eastern Europe or, by contrast, Maskitzm, continued to believe in the role of the state as a keeper of social peace –one of the original and fundamental promises of secularism –as well as in the right to ask for exclusively political loyalty from its citizens. Such a binary form meant that the Zionist Jewish historiography school, known as the Jerusalem School, was implicitly anti-Semite, without questioning the fundamental secularist assumptions that Zionism had shared with other contemporary European nationalisms. [17]

A wider criticism of the secular nation-state and of its requirements goes back to the inter-war period and to the generations of scholars who have grown around Franz Rosenzweig, Martin Buber and Gershom Scholem. For all their differences, these thinkers share an abusive opposition to assimilation and rationalism, on the one hand, and a fascination with recovering aspects of the Jewish tradition, on the other hand. Their conscientious decision to break up with the liberal Jewish perspectives took the shape of some new historical agreements, which generated many of the *Wissenschaft des Judentums* hypotheses. [18]

In the same period, the article of 1929 by Salo Baron “Ghetto and Emancipation” elaborated one of the oldest extensive criticisms of the effects of secularism, arguing against the fact that the French Revolution and emancipation should be read as a redeeming narration, in which modern age has overcome countless persecutions and the suffering of the medieval Jewry. A critic of the Zionists, especially of the religious reformers of the German Jewish tradition, he wrote: “Now the theory was put forth that the Jewish religion — which the Jew was permitted to keep — must be stripped of all Jewish national elements.



For national elements were called secular, and in secular matters the Jew was to avow allegiance to the national ambitions and culture of the land in which he lived. Jewish Reform may be seen as a gigantic effort, partly unconscious, by many of the best minds of Western Jewry to reduce differences between Jew and Gentile to a slight matter of creed, at the same time adopting the Gentile's definition of what was properly a matter of creed." [19]

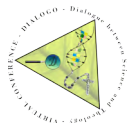
Baron did not use the term secularism, but, if we read his criticism in the light of recent debates, we can understand his counter-narrativism as a criticism of secularism as "definition of what was properly a matter of creed". Baron's understanding foreshadows a series of critical Jewish approaches on modernity, published after the Second World War and the Holocaust. The wide criticism of enlightener rationalism as intolerance to difference, especially Jewish difference, has also inspired a greater examination of the secularist inheritance of the Enlightenment. Works such as *Dialectic of Enlightenment* by Max Horkheimer and Theodor Adorno (1944), *The Origins of Totalitarian Democracy* by Jacob Talmon (1960) and *Modernity and the Holocaust* by Zygmunt Bauman (1989), explicitly or implicitly related the Nazis' genocidal policy to the radicalization of the requests for uniformity and utility coming from the secular nation state.

These two first models -embracing secularism and rejecting it selectively in nationalist or anti-modernist terms -had an enormous influence in the period after WWII. In the long history of the Jewish intellectual interaction with matters of secularism, as Jewish studies reached a peak in the 20th century, the problem has remained a rather implicit than explicit study subject. Few important researchers of Jewish history, religion, thought or literature have systematically discussed

the issues of "secularism" "secularization". Perfectly using the concepts, most accounts of the Jewish modernity have localized secularization or secularism in the great narrations of the western progress, in the Jewish decline or in both of them. The key element of an unwritten assumption of this doctrine was a wrong equivalence between Jewish secularization and assimilation. [20]

The new works of the German Jewish history offer, for example, complex opinions both on liberalism and on secularism, denying that the latter is simply coercive, on the one hand, or politically liberator, on the other. The German school shows that the Jews have found creative ways to interpose the requirements to present Judaism as a private religion, which were placed in the foreground, ahead of their secular citizenship and of their German nationality. Moreover, some researchers have started to dispute the idea that the majority of the German liberals- as the self-proclaimed heirs of the Enlightenment's inheritance- have requested the Jews to head for the non-religious particularities as a condition sine qua non for emancipation and integration. [21]

Researchers working on the history of the East Europe Jews have similarly offered new approached of the subject. David Roskies, for example, tells about how in Russia, Poland and in other parts, the pogroms and, finally, the Holocaust caused crises of faith and new ways of Jewish iconoclastic literature. However, these changes were not absolute break-ups with tradition, he argues; rather, certain modern and secular texts of Yiddish kept sacred references to the past, that the authors transformed into sacrilegious parodies or „pogrom” poems. As Anna Shternshis points out, even early soviet Russia has created spaces to transform Jewish practices, despite the often brutal anti-religious policies of the state. [22]

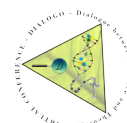


Beginning in 1905, such evolutions have helped opening the trail towards engaging Jewish studies on secularism and secularization more directly. One of the most exhaustive research works in this respect was that of Shmuel Feine, which offers an ample and ambitious narration of the separation of individual Jews from the traditional Judaism of the entire Europe. [23] Feiner's work engages, but mostly rejects recent reevaluations of secularism and secularization, reaffirming the conventional border between religious and secular efforts and tries to recreate the apparition of secular options in the life of European Jews. Concentrating on those denounced as *ca* epicureans and materialists, Feiner underlines the break-ups between the more and more polarized groups of the traditionalists and progressists.

Another side of the research has concentrated less on the liberal Jewish meetings with the secular ones and more on the fight of Judaism, obsessed with maintaining or reinventing tradition in the modern world. Michael Silber, Menheh Friedman and others have shown how, rather than being evidence of the continuity of the halacic Judaism, many of the most traditional orthodox movements –such as Hungarian ultra-orthodoxy of the 19th century and the Haredi Judaism after the Second World War - represented radical innovations. Trying to adapt to the challenges of secularism and to the traditional Jewish life, the rabbies of Hatar Şofer of Ungaria and Hazon Ish in Israel set halachic decisions and issued new interdiction in the areas previously considered outside the scope of the rabbies' authority. Research dating from that period reveals the way in which the leaders of the orthodoxy had to develop new approaches for the increasing number of the “deviant” or secular Jews, setting new limits around their flock as an obsessive, “holy” community, expressing in the same time certain solidarity with the Jews whose

practices they considered to be unauthentic. [24] The work of Aviezer Ravitzky presented in detail the way the apparition of the secular Zionism has complicated even more the problem of the relations between orthodox and non-orthodox Jews, producing a series of answers from the tolerance to the la articulation of religious Zionismca an “oath of destiny”, which included the secular Zionists as well. As these authors only occasionally deal with secularism as such, they offer a crucial perspective on the way different orthodox movements were fundamental products and producers of secular arrangements. And yet, because this literature still places these evolutions as reactive and posterior to the apparition of a greater secularizing force, it leaves the binary division of religion and of the secular ones mostly intact.

David Biale looks toward ancient history and the Bible to explore the early Jewish sources of modern Jewish secularism. For Biale, the Jewish secularism is embodied in the Talmudic aphorism that “the Torah is not in heaven”, but rather the Torah and Judaism have become significant in the human, earthly domain. Biale uses the secular side to find inspiration for the modern Jewish secularism in various thinkers from Maimonides to Spinoza and from Marx to Ben-Gurion – and that rose criticism from certain authors. Using a different approach, David Sorkin offered a new vision of a vibrant “religious Enlightenment” of the 18th century. In this context, he situates Jewish thinkers such as Moses Mendelssohn in a larger network of Protestants and Catholics who tried to establish a rationalist religious philosophy, in collaboration and in competition with more radical critics of the traditional religion. Sorkin's work shows how, for these thinkers, searching for greater secular knowledge has not been understood as an outside threat, but as a source of comprehension, which had the potential to improve the perception of God



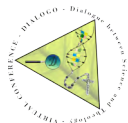
and of the Torah. [25]

Other researchers have found the inner origin of the Jewish secular thought elsewhere -in the early modern transformations of the models of common conduct of the Jewish public moral, of the legal theories and of the means of studying the text or, at the end of the 19th century and the beginning of the 20th century, in representations of Judaism as a religion existing outside political authority. However, others have begun to present a Sephardic genealogy of the Jewish secularism, dedicating its first apparitions to crypto-Jewish critics of the law and rabbi authority, especially in early modern Amsterdam. By localizing the origins of the Jewish secularism and secularization within Judaism itself, such works allow us to see its pathway in the Jewish history.

The new literature which emerged from the wider debate of secularism has also begun to gradually take into account the importance of the Jews. Partly, this reflects the same factors that combined to generate the reevaluations of the German crisis of the theory of modern secularism and secularization over the last decades, including the influence of the post-colonial studies and the inheritance of the Jewish skepticism regarding the Christian concepts of religion. In an ever increasing number of studies, criticism towards modernity, colonialism, secularism and the gaps between them have turned the Jews into a central subject of analysis. [26] Researchers such as Mufti, Gil Anidjar, Amnon Raz-Krakotzkin and Robert Yelle launched different challenges against secularism, from a Jewish perspective. Inspired by Talal Asad's interventions in the field, each of these authors tries to decipher the association between secularism and Western progress. Also, they ask the following questions: What is the impact of secularism on minorities? How can we simultaneously think of

different groups-especially of Jews and Muslims, who have become the pages of the secularist discourse in various moments? In spite of their divergent answers to these questions, each author sees secularism as being inseparable from orientalism. Their approach showed how individual examples of oppression or resistance – starting from the Jews' responses to the efforts of the European liberals of the 19th century to privatize Judaism, and going to the British initiative of a Muslim „reform” in colonial India – emphasize the phenomena of orientalism, secularism, anti-Semitism and minoritization.

Also, the Jews get a special attention in recent debates on the “secular” Bible, a term used to describe the transformation of the holiest book of a Judaism and Christianity into a central literarily and pedagogical text of the modern occidental canon. Jonathan Sheehan followed the apparition of the “Enlightenment Bible” in early modern Germany and in England through a flux of translation projects and the stock exchange which deconstructed the portraits of the divine origin of the Bible, transforming it into a “cultural” text. The changing images of the Jews played a key role in this process. Indeed, just as Sheehan and the others have shown, by the end of the 18th century, German thinkers contradicted the Jewish Bible more and more, as an emblematic oriental text of an outdated Judaism, with the Enlightenment Bible, a sign of the German culture and of the modern progress. Eric Nelson reverses the narration of the secularization especially related to the European political thinking, claiming that renascent humanism unleashed a revitalized interest in the sacred scriptures during the 16th century and especially the 17th century. As a result, he traces the origin of the modern western political thinking in the fascination of English and Dutch political theologians with the Hebrew Bible, as well as with the comments of the rabbies, a



phenomenon that he calls “Hebrew revival. [27]

Paula Hyman, Marion Kaplan and others cleared the way in which secularization historically occurred differently for women and for men. In East Europe, secular education was sometimes available sooner for women than for men. This, together with the limitations that the Jewish traditional society imposed on the women’s roles to teach and to lead, made the perspectives of the secular education and of the professional life extremely attractive for women. In Western and Central Europe, Jewish women had fewer chances than their husbands to have an education (secular or religious) or to join the labor force. In exchange, they were expected to maintain a house full of strong religious values. These dynamics corresponded to the idea of separate spheres that were at the center of a secular bourgeois vision of society. Nevertheless, privatizing Judaism has not led to a decrease in respect. In Central and Western Europe, Jewish women often remained rooted in Jewish traditions more than their husbands through a set of ritual like practices, such as supporting the Jewish laws in relation with preparing and eating food (kashrut) and the Shabbat.

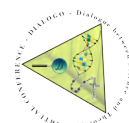
CONCLUSION

In the above mentioned we have identified several hypotheses regarding the connection between secularism and modernity within the Jewish society. The majority of the modern Jewish works and studies were touched by the unchanged presupposition of the fact that the Jewish experience of the secular has unfolded coherently along the larger narration of the western secularization. Thus, scientists have said nothing of what secularism or secularization means to the Jewish history and culture. Moreover, they have generally treated non-Jewish forces as main data for

the Jewish secularization and secularism, the Jewish figures playing an important reactive role. Just as reconsidering secularism requires taking into account the Jewish experience, present-day attempts in the Jewish studies to develop new paradigms must seriously engage the debates on the meaning of secularism. Recently, there has been a third set of approaches that we can consider post-secularist, since they overpass the debates on the positive or negative impact of secularism. This can be seen in a series of major works of the Jewish history that tried to go beyond previous theologies, refusing to describe the Jewish history of the 19th century exclusively through the lenses of the Holocaust or of the State of Israel. Therefore, they prepared the path for a more fragmented and nuanced image of the Jewish encounters with cu secularism.

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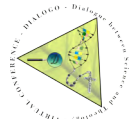
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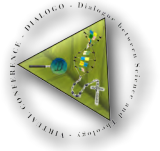
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SECTION 4

Law and Political Science & Theology



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Constantine's Christianity for the (Dis)integrated EU

*Déjà vu of Constantine's Roman governance reflecting of the mistrial of
Jesus for EU?*



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effective and efficient governance;
integrity; mistrial of the Jesus Christ;
post-Lisbon EU;

ABSTRACT

Two thousand years ago, a horrific mistrial occurred demonstrating, among other features, many failures of proper governance and administration and constituting a total violation of the rule of law. Seventeen centuries ago, the Roman Emperor, Constantine the Great embraced Christianity and overcame the immediately threatening disintegration of the Roman Empire. His administration and integration drive could be seen as addressing the faults of the mistrial of Jesus Christ. His approach to governance and justice under the auspices of Christianity allowed overcoming a set of crises and many disintegration issues linked to ineffectiveness, inefficiency and corruption, denoting him as an illustrious and just leader of a united Empire spreading over a large part of Europe and part of Africa and Asia. Seven decades ago, a modern European integration around the common market was launched and progressively expanded to other spheres. One decade ago a set of crises hit and challenged the European integration. The current post-Lisbon EU, constitutionally defined by the TEU, TFEU and Charter and strategically by Europe 2020, faces many issues which were greatly addressed by Constantine. Hence, the question emerges – is the post-Lisbon EU inspired by the lesson of Constantine? Namely, do its leaders, as well as the constitutional and strategic frameworks, encompass Christianity and Christian principles, especially those implied by the mistrial of Jesus? Or are we departing from Christianity and denying that Christianity is the glue and fundament of European, indeed Western, civilization and a great guidance for EU integration?

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I. INTRODUCTION

The 4th century looked fatal for the Roman Empire and in an attempt to save at least a “split” order, the Emperor Diocletian divided the Empire into four parts to be ruled by four different Emperors, two Augusti and two Caesars. This tetrarchy soon collapsed

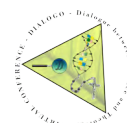
and a disintegration with disorder prevailed. A set of crises seemed to seal the Empire's destiny. However, Constantine the Great found an effective and efficient solution and restored unity and order. Undoubtedly, his conversion to Christianity heavily contributed to the success of his strategy and policy. Indeed, in 313 AD, both Roman

co-emperors, Constantine and Licinius, promulgated the Edict of Milan, granting religious tolerance and returning property to Christians. In the next decades, Constantine became the sole Augustus of the Roman Empire, while heavily relying on Christianity and the principles generated by the Bible, especially those reacting to the mistrial of Jesus Christ.

A set of crises, and many disintegration issues linked to the ineffective and inefficient government and administration, were overcome by Constantine, his zealous endorsement of Christian values and principles shown by the Edict of Milan and later incorporated in the *Codex Theodosianus*. Indeed, some authors even suggest that Constantine's embracing Christianity was (partially) motivated by pragmatic reasons linked to the need for effective and efficient governance and administration aimed to contribute to order and peace in an integrated Empire [3] and to the awareness that the gradual loss of civic virtues can lead to the defeat of the Roman Empire [7] by barbarians and, later, Islam. Indeed, Constantine did not hesitate to explicitly emphasize that God is over him, not the other way around, and that the rule of law along with other Christian substantive and even more procedural law principles are pivotal for effective and efficient governance and administration [3]. However, the Roman Empire was faced with far too many challenges and Christianity could not fix its embedded flaws. Thus, several decades later, despite the fact that the last Emperor of the entire Roman Empire, Theodosius I, made Christianity the official religion of the Empire, the inevitable split occurred in 395 AD. The Western Roman Empire vanished in 476 AD, but the Eastern Empire, aka the Byzantine Empire, lasted until 1453 AD when it was destroyed by the forces of Islam. Well, the end was probably inevitable, the integration process leading to the unification of Europe by the Roman Empire

did not represent a smart, sustainable and inclusive growth in the 4th century, but still, thanks to the dramatic improvement of the governance and administration, along with even justice and its perception, over one hundred years for the entire Empire and one millennium for its Eastern part were saved, enriching humanity.

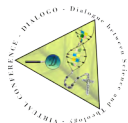
Before reaching the time of crises faced by Constantine, the Roman Empire experienced two hundred years of autocratic divine governance and administration which both feared and hated the emerging Christianity. The illustrious Roman law, which later on was codified by the Byzantine Emperor Justinian, became the foundation of all laws belonging to the continental civil law family and partially even of law belonging to the common law family, i.e. is the basis for virtually all current legal democratic systems. The Roman system of governance and competence sharing is often projected in current legal systems. However, this still did not prevent a total misinterpretation of substantive law, a direct violation of procedural law and their combined culmination in the mistrial of Jesus. A great injustice occurred and, despite all efforts, it was not forgotten. Constantine was the first Emperor completely crossing the "Rubicon" and both recognizing it and learning from it. His mistrust of provincials and officials, especially if of the equestrian order (no senators and no members of established aristocratic families), his demand for transparency, publicity, free and timely access to justice, as well as his order to keep perfect proceedings' records and to establish and operate a real and unbiased appeal system are direct answers to all justice failures leading to the crucifixion of Jesus. Constantine was Christian and pushed vigorously for Christian values and Biblical principles, especially those included in the New Testament and dealing with effectiveness and efficiency of governance, and ultimately with the justice



of the legal system. Constantine won his battle and entered into history as Saint Constantine who successfully united the disintegrated Roman Empire, created the capital Constantinopol, made monetary reforms, and even more importantly brought Christianity, peace and order, and even a new dimension of the ephemeral justice. Constantine's Christianity united the disintegrated Europe in 306-337 AD.

In 2007, the EU underwent a constitutional reform by the Lisbon Treaty based on a constitutional trio – the Treaty on EU (“TEU”), Treaty on the functioning of EU (“TFEU”) and Charter of fundamental rights (“Charter”). Simultaneously, a set of crises, both global and regional, hit this post-Lisbon EU, which is the current European integration project aiming to support much more than only the economic co-operation of EU member states. The economic and monetary union, the Eurozone and even the single internal market were shaken and the situation remained deplorable even in 2010, when the European Commission decided to ‘take the wheel’ and to issue a new strategy, Europe 2020, aiming to take the post-Lisbon EU to a world leading position in 2020. Yet, is this done in a “Constantine-like” manner, i.e. is Christianity recognized as the glue of Europe, European civilization and culture and of European states and nations? Well, it appears that the smart, sustainable and inclusive growth of Europe 2020, along with principles and values proclaimed by the TEU, TFEU and Charter are rather departing than getting closer to Christianity. Further, it seems that the European top bureaucracy is growing in a rather uncontrollable manner and both effectiveness and efficiency are rather decreasing than increasing. Voices about abuse of powers of both officials and certain states over others, about the lack of legitimacy [13], about self-indulgence and self-centrism, about problematic access to justice, about the delay and costs of getting justice, etc. are growing.

Meanwhile, the economic and innovation gap between the EU and other developed countries is widening and it seems very unlikely that the EU will beat the US in the macro-economic, micro-economic and innovation criteria and factors in 2020. The EU will probably never reach the federalist integration of the US and the EU idea of the integrated economic and social Europe is becoming a utopia. The less Christian EU is becoming less integrated, less effectively and efficiently governed and administered and less acceptable even for nations which are not models of an over-eager Christian proclamation (see UK and Brexit). By rejecting Christianity and deriding it as “something old-fashioned” and regressive, the EU is progressing to the inevitable disintegrated end, where the top public servants are not accountable and lack both integrity and vision. Constantine would probably be amazed and disgusted, while Jesus could witness another instance of hardness of human hearts. In order to explore this rather grim message about Christianity for the (dis)integrated Europe, a short overview of selected aspects of Jesus' mistrial are presented (II.) and contrasted by an overview of selected aspects of Constantine's governance based on Christianity and done to increase the effectiveness, efficiency, justice and integration (III). The search for similar aspects and principles (and their lack) in the post-Lisbon EU framework in the light of Europe 2020, along with the scrutiny of its leaders' integrity (IV) follows along with critical and holistic Meta-Analysis and Socratic questioning. The conclusion offers fresh and new pragmatic ideas and thoughts relating the perspectives of the EU departing from Christianity and confronted with the global society and highly competitive markets. The smart, sustainable and inclusive growth without Christianity is condemned to failure, exactly as the Roman Empire in 306 AD. Edmund



Burke stated, and George Santayana allegedly re-stated, “Those who don’t know history are destined to repeat it.”

II. THE MISTRIAL OF JESUS – SELECTED ASPECTS OF THE MISCARRIGE OF GOVERNANCE, LAW AND JUSTICE

It is well known that, although the mistrial of Jesus in the large sense, i.e. from the arrest until execution, took just a few hours, it has changed permanently human civilization and given a new dimension to integration, especially in the European sphere. It is less known that this mistrial is perhaps the “best” example of a trial in breach and violation of basically all aspects of the rule of law and justice, of both competency and its execution, of both substantive and procedural norms. Naturally, the substantive and procedural aspects of the mistrial of Jesus were not predominantly governed by the Roman law *sensu stricto*, but by local law. However, whatever was the source or origin of these valid and applicable norms, they all were violated by dishonest and disloyal top officials. These officials manipulated crowds and contributed to a massive and multifold miscarriage of justice and instability. Arguably, Constantine learned from that. He understood many threats to effective and efficient governance, and even for the integration and social stability.

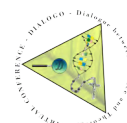
A. Competence, liability and integrity in the mistrial of Jesus

The involvement of subjects in the mistrial of Jesus demonstrates a violation of competence, liability and integrity requirements. These subjects committed right away a criminal act of conspiracy and bribery in order to achieve a fraud.

I AKA “Those who cannot remember the past are condemned to repeat it.” – for a discussion please see <http://bigthink.com/the-proverbial-skeptic/those-who-do-not-learn-history-doomed-to-repeat-it-really>

They were both envious and afraid. They negotiated with a third party and then bribed it to intentionally manipulate the justice system and attain capital punishment of an innocent person who had been exposing their suspicious financial and other activities. Namely, the high priest, Caiaphas, was the head of this conspiring group which was determined from the beginning to abuse their powers and competencies and to breach the law (Mt, 26:3-5). They contacted Judas Iscariot and made him their accomplice and bribed him with thirty pieces of silver (Mt, 26:14-16). The entire group around Caiaphas was a conspiracy demonstrating a total lack of integrity and breaching Roman law *sensu stricto* as well as local rules. This total abuse of competence was further magnified by the fact that these conspirators managed to exercise powers putting them into a conflict of interest, i.e. they participated in the arrest, were judges and even influenced the decision about not granting mercy. In addition, they were members of a family, i.e. Annas was a father-in-law of Caiaphas (Jn, 18:13).

The conspirators knew that based on their local law (Jn, 18:31), no capital punishment may be ordered. Hence their abuse of their “own” local competencies was not sufficient. They needed to involve as well Pilate and the Roman law *sensu stricto*. Despite all their efforts, still the miscarriage of justice was threatened by the peaceful and firm standing of Jesus and the lack of any basis for criminal trial. In such a situation, Caiaphas moved to misleading and self-incriminating questions, comments and suggestions and mocked Jesus, while knowing that all this was forbidden (Lk, 22:63). Caiaphas and other conspirators intentionally abused their powers and even other powers (see involvement of Pilate) and misled crowds so to achieve a miscarriage of justice. They undermined the entire governance and law system and destabilized the situation, ultimately leading



to disorder, chaos and revolt.

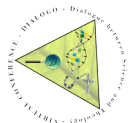
B. Substantive aspect – no grounds, no blasphemy

The manner and form of Jesus's accusation was obscure, and more so were the substantive law grounds for it. Basically, Jesus was arrested without being properly charged. This is logical, because he did not breach law, especially not criminal law, and thus there were no legal grounds to support his charge and arrest (Mt, 26:3-5). The insinuations about the substantive law being allegedly breached by Jesus indicate issues with Jesus' (non)compliance with temple respect and operation and with faith in one God. This was totally absurd because Jesus was not hostile to the temple, instead he wanted to protect it as "the house of the Father" (Jn, 2:16). Jesus never contradicted (Israel's) faith in the one God, not even when he performed the stupendous divine works to fulfill the messianic prophecies [21].

A criminal charge needs to be explicitly linked to violating a specific substantive law norm or rule. The only detectable specific charge and accusation vis-à-vis the "criminality" of Jesus is blasphemy (Mt, 26:59-68) (Mk, 14:55-65) (Lk, 22:63-65). The very nature of blasphemy rests in ill and/or impious speech, near to the contemporary slander and libel. During Jesus' time, blasphemy was understood as speaking evil about God. Along with other provisions, the large category of blasphemy under Roman law *sensu stricto* and "province" law encompassed insults and disrespect vis-à-vis Emperor and his family (Roman Deity) and perhaps other recognized Gods. Provincial officials or local religion leaders were not classified as Gods and any remarks against them did not qualify as blasphemy. Indeed, it was the other way around. If provincial officials or local religious leaders would charge somebody for blasphemy because of words addressed to them, they would

commit blasphemy themselves, as this would rank them as Gods.

Jesus irritated a group of people so they pretended that he committed blasphemy. However, these people were arrogant and disrespectful to authorities, including to the ultimate authority of the Emperor. Aging Tiberius facing depressing private and state situations, including a sequence of murders in his immediate family, could not and did not want to fight against abuses of power by various officials. He probably did not care much that in his name substantive law was misinterpreted and abusively applied by trespassers against the victim. A like passivity, combined with fear, shared as well his direct representative, Pontius Pilate, who concluded that Jesus committed neither treason nor other criminal acts and who suspected those people "charging" Jesus committed a crime themselves. Still, he failed in his duty, was intimidated by them and ultimately he "passed" Jesus into their hands in the vain hope that they would extend mercy unto him. His wife attempted to stop this. One can speculate whether this was due to her honest concerns and commitment to justice or due to worry to make sure that her husband, the governor, performed perfectly his functions, not allowing total misinterpretations and misapplications of law leading to a miscarriage of justice and ultimately to his recall from his duties. The magnitude of the competence and substantive law violations is even surpassed by the extent of procedural law violations. Corrupt and disloyal conspirators managed to breach basically all applicable procedural norms and totally undermined the system and its application. Their personal bias and envy became the ultimate object and they did for it all legally and illegally possible, regardless that this was in breach of law, of justice and of respect to the Emperor, Divine Tiberius. They had to totally break the procedural law and this they did.



C. Procedural aspects of the mistrial of Jesus

Basically, no procedural norm was properly observed in the mistrial of Jesus. Conspirators intentionally violated all norms on proceedings because of their personal evil interest, which had nothing to do with the interest of the Roman Empire. The below long list summarizes just some of these breaches. It shows how corrupt representatives, officials and bureaucrats can totally sink a decent political, legal and justice system and contribute to the disorder, chaos and disintegration.

Firstly, Jesus was not properly charged and tried for a crime. Blasphemy was not specifically established and even if it were, it would be necessary to investigate the falsity and lack of truthfulness of Jesus' claims to be the Son of God. This was neither investigated nor proven. Without substantive grounds, charges, the accusation and condemnation of Jesus were missing foundation and showed an extreme level of vagueness.

Secondly, his case was not heard by unbiased and impartial judges. Instead, the head conspirator, Caiaphas, usurped local as well Roman competencies, committed bribery and manipulation. There was not even any sign of a true panel of twenty-three judges (Mt, 26:59-68) (Mk, 14:55-65) (Lk, 22:63-65).

Thirdly, despite the clear mandate of law that all trials to be held in public and according a time plan, Jesus was tried immediately, in private and even without any legal representation or advice (Jn, 18:12-14). His trial occurred in random places with swift and unpredictable adjournment, as convenient for the conspirators (Lk, 22:63-65) (Mt, 26:3-5).

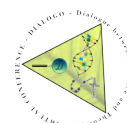
Fourthly, the "private" and moving mistrial was done in flagrant violation of even then valid rules of evidence – no witnesses properly testified against Jesus.

Misleading questions and self-incrimination were allowed (Jn, 18:12-14). The mistrial was filled with misleading questions and other statements and situations which should be objected to. The prosecution must have been frustrated that nothing seemed to work as smoothly as expected. They 'secured' false witness statements, but could not use them as they contradicted each other (Mk, 14:56). Obviously, the conspirators were corrupt and totally disloyal officials and administrators, but not the brightest and most capable. The fact is that Caiaphas could not even keep up an appearance of a judge, because in his frustration and fear regarding the outcome he plainly moved to perform the prosecutor function along with the judge function (Mt, 26:59-68) (Mk, 14:55-65) (Lk, 22:63-65).

Fifthly, even two thousand years ago, beating, slapping, humiliating and mocking were not integral and legitimate parts of court proceedings, especially if the accused person did not resist (Jn, 18:20-23). It seems the conspirators were becoming emotional and less professional even in their evil behavior.

Sixthly, Jesus was arrested in the night, not as required before sunset (Mt, 26:49-87). Further, he was tried, condemned and executed on the same day. This was illegal, as was the lack of possibility of appeal (Mt, 27:1), (Mk, 15:1-15). Time worked against the conspirators and they did not manage to find any solution for at least pretending to follow a normal time line and sequential schedule of trial.

Finally, the conspirators knew that a capital sentence is a last resort and they were not allowed to condemn a subject for it, especially not a subject who was not disturbing the peace and order of the Roman Empire. They mixed in a prohibited manner local substantive and procedural law with Roman substantive and procedural law, involved the governor Pilate and



manipulated the trial to lead to the worst possible result. Upon conviction, all the judges immediately left and escorted Jesus to Pilate for the confirmation of the capital punishment and immediate execution (Mt, 27:2-10). Although by the law they had to remain seated for a day, waiting for last moment witnesses (such as the mind changing and bribe returning Judas), complete protocols and all records (needed especially in the case of capital punishment) and prepare a case for a possible appeal. However, they illegally skipped all that and rushed to Pilate in order to put Jesus to death within a few hours. They even made sure that mercy could not be administered. Boldly, they totally usurped the power, avoided official records and behaved disloyally to the Emperor.

Summing up, the mistrial of Jesus was an exemplary cascade failure of the entire governance, administration, law and justice systems. The failures extended to these systems and even more to subjects operating within these systems. Namely, all subjects involved in the mistrial of Jesus committed serious breaches of governance and administration rules. They often even violated the law and committed crimes themselves by their acts and omission during the mistrial of Jesus. In contrast, pursuant to Christianity, each person is free, has dignity and is responsible for his or her actions and omissions [21] and thus could hardly actively or passively participate in such a miscarriage of justice and of a proper governance and administration.

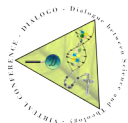
From strictly a governance and administration perspective, the mistrial of Jesus testifies about the catastrophic deficiencies of law and its enforcement during the era of the 2nd Emperor, Tiberius. Indeed, the Sejanus episode and Tiberius' total withdrawal from Rome, plus other failures and crises complete the picture of the Roman Empire at that time. And

then, things turned from bad to worse, the Empire faced various crises and Christians and Christianity were often blamed for these and reviled. However, three hundred years later, at the edge of the chaos and disintegration, the wheel turned.

III. CONSTANTINE'S GOVERNANCE AND JUSTICE – HINDSIGHT AND ILLUMINATION FROM THE MISTRIAL OF JESUS

The Christian influence on the policy setting and legislation of Constantine attracted the attention of many authors [4],[22],[23] and studies and its strength and significance is beyond all doubt [3]. Constantine converted to Christianity, established the religious peace and tolerance and addressed pro-actively a set of crises. He kept struggling with the effectiveness and efficiency of his governance and administration, faced increasing theological controversy [4], see donatists v. arians, and became continuously frustrated by his officials. However, he always had a vision and went for it. This vision was a functional and integrated Christian Empire.

Constantine took a more progressive and innovation-welcoming approach to the law than conservative Diocletian [3]. He authored many changes in various areas of both public and private law, including administrative law, law of persons, family law, and law of sales [18]. One of his biggest ambitions was the propagation of justice, just governance and integrity, especially the integrity of imperial officers [3]. He was deeply convinced that as long as his government was just, his empire would flourish, i.e. Divine sanction manifested itself in success and displeasure in failure [3]. He perceived himself as an intermediary of God who rules over the world by heavenly decree. He did not rule in ignorance or in tandem with God, but as his subordinate dependent upon the benevolence of God



[3]. With just a touch of exaggeration, it can be stated that Constantine “learned” the lesson from the mistrial of Jesus and this was obvious in his governance since 306 AD, i.e. even before any signs of his conversion. Indeed, after being educated by the imperial court and marching with his father’s army and seeing a lot of betrayals, Constantine demanded discipline, loyalty, professionalism and respect of the rule of law, and this especially from provincial officials. Caiaphas, Annas, Pilate and similar people were prototypes of the biggest internal enemies of Constantine. Constantine did his best to establish and enforce a stable legal system, avoid miscarriages of law and so ultimately supported integration. He welcomed his subjects to help in this task and to monitor and inform about any failures of competence, responsibility and integrity aspects as well as any violation of substantive or procedural law, especially if this was done by his officials!

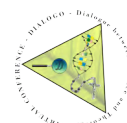
A. Competence, liability and integrity aspects

Constantine recognized one God who has one chosen servant alone, this being Constantine. This God demanded righteousness and justice of his servant who ruled by his grace [25]. Constantine, as the chosen servant and intermediary of God, was perceived as the ultimate source of justice and was determined to maintain it [3]. This was mirrored by his policymaking as well as legislative endeavors. A clear distribution of competencies and responsibility for their performance while maintaining a high integrity was a clear priority for Constantine. It was personal integrity and honesty that induced him to select and appoint his officials [3]. His conversion was preceded by a consistent attitude of sympathy for Christianity and as he established the “peace of the Church” with the Edict of Milan in 313 AD [11]. He shared an attitude

to competence, responsibility and integrity aspect reflecting the famous “*Quae Caesaris Caesari, quae Dei Deo*” (Mk, 12:17) and fully recognizing the ultimate responsibility. This was vital because Constantine relied, or better to say had to rely, on a massively growing central administration that started to become independent and self-absorbed [11].

Constantine inherited, and expanded, the bureaucracy formed by Diocletian [2]. He had no doubts that the effective and efficient governance and administration of an Empire tottering at the edge of disintegration was directly threatened by competence confusion, an irresponsible approach, growing bureaucracy, administrative abuse and corruption. Unlike the favored method of today’s politicians, Constantine didn’t “kick the can down the road.” His statements of both a legislative and non legislative nature even suggest that Constantine worried more over the administration served in his name than over barbarian invaders or domestic criminals [3]. He did not “wash his hands” and took a direct personal engagement in this matter while clearly proclaiming the restoration of liberty, the recognition of religious tolerance and the introduction of the rule of law [3]. And this engagement was backed up by a strong enforcement system. Indeed, Constantine harbored a mistrust against members of the imperial administration and urged his subjects to participate in the control of the imperial administration [3]. At the same time, he had faith in bishops and this was reflected in his personal policy in filling openings by his closest officials, provincial administrators and prefects as well as by giving the competence for deciding cases.

Constantine was well aware that the proliferation and the power of the bureaucrats were characteristics for his government and was determined to keep



the ultimate control [11] while endorsing Christianity.

B. Substantive aspects of Constantine's governance, administration and justice

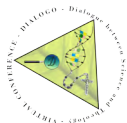
Substantive aspects of Constantine's governance, administration and justice reflected both, *ius* and *leges*. Originally, the *ius* was either primarily oriented to citizens, i.e. *ius civile*, or other (free) people, *ius gentium*, but as the Empire grew, *ius civile* was displaced by *ius gentium* and *ius gentium* by *ius naturale* [2]. *Ius gentium*, resp. *ius natural* in Constantine's era existed in a symbiosis with *leges*, and they framed substantive aspects of his governance, administration and even justice. The sources of substantive law governing and applying to the administration and governance did not include just the explicit legislation directly made in the name of Constantine – constitutions and statutes (*leges*), but as well the existing law in the large sense (*ius*) [6]. Therefore, positivism and formalism did not beat directly natural law. Instead the ephemeral concepts of justice, fairness, public order and good manners (*bonos mores*) were integral parts of the substantive law, and not mere interpretation instruments.

Constantine did not consistently cite divine favor in his enactments, regardless whether they were constitutions, edits or administrative letters. Yet he did insert direct references to God and indirect references to Christianity in them [3]. His legislation in the field of administrative law, law of persons, family law, and law of sales is impressive [18] and this not only from the point of view of law, but also from the point of view of economics. Even more impressive are his direct and explicit references to God in his legislation, namely constitutions [3], see their abridged version in *Codex Theodosianus* as well as in Constantine's letters, e.g. to the Christian proconsul Annullinus or to

Felix [3]. Constantine had to deal with the near-collapse of the economy of the Empire as defense costs had risen tremendously due to external, often barbarian and immigration, attacks, a disastrous inflation occurred, and citizens became very distant and reluctant to participate and hold civil offices [2]. Chaos and disintegration were just around the corner and a glue, a new impulse and momentum were needed. As already indicated, Constantine accepted this tremendous challenge and decided to address it on the personal, substantive and procedural level.

Regarding the substantive level, Constantine introduced a massive set of enactments and policies and their reforms. He substantively touched both the private law and public law spheres. He reformed fiscal and monetary policy and did not hesitate to give the primacy of gold in trade, e.g. by creating the gold coin called a *solidus* in 311 AD [11]. Even more interesting is that Constantine's administration and justice were substantively set to support innovations, which led e.g. to the improvement and spreading of water mills, as well as agriculture, trade and manufacturing activities [11]. Constantine's system of substantive law applicable in the entire Empire via linked to a single internal market with a unified currency and benefiting by integrating infrastructure exceeded in many aspects the current EU substantive setting.

Even more interesting is the strict hierarchical setting of the governance and administration with the omnipresent message that positivistic attempts to breach the purpose of the law or any abuses and inefficiency are repugnant. Constantine made sure that bad governance and administration, e.g. via corruption, was substantively well set via legislation, but not the punishment. In short, Constantine reserved unto himself the opportunity to



determine an appropriate punishment (like capital punishment, amputation of a hand, exile, fine, etc.) from case to case and the flexibility to punish effectively and efficiently failures of his administration [3]. The teleological and purposive interpretation of the substantive law in order to boost Constantine's governance, administration and justice was a must and the procedural system was set to protect it.

C. Procedural aspects of Constantine's governance and justice

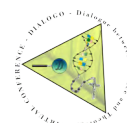
A high level of sophistication was typical for the law and justice during Constantine's reign [11] and an elaborate system for the enforcement of the substantive law was established. Municipal magistrates dealt with minor cases while governors of the province dealt with more important affairs. However, it was Constantine who dispensed the justice and on whom the entire system depended [3].

Procedural aspects, especially appeals, not only helped to guarantee a just ruling but also checked the conduct of imperial officials [3] and generally enhanced the awareness and trust. Appeals were heard either by the Emperor or his representative, the praetorian prefect [11]. However, Constantine was open, and even welcoming, to informal and direct submissions and complaints targeting his governance and administration, namely the administration made in his name by his officers. Boldly, in addition to ordinary recourse, the Emperor, Constantine, as the ultimate source of justice [3] was always ready to hear complaints and appeals linked to (alleged) failures of his system of law, governance and administration.

Indeed, Constantine was fully aware about the vices of the imperial officials and administration and about imperfections of the substantive law and its interpretation and application. Therefore, he strongly

endorsed five rather innovative and highly efficient procedural instruments and principles – (i) elimination of time and monetary restrictions by making a free and timely access to justice, (ii) compulsory public trials, (iii) compulsory keeping of the records of proceedings, (iv) enlargement of the availability of the appeal against regular judicial and administrative decisions, and (v) a call to everyone to report directly and personally to Constantine about any failure of imperial officials and administration [3]. These instruments and principles were proclaimed continuously from the beginning of Constantine's reign [16] until his death. For example, after the conquest of the East in 324 AD, by the Edict of Constantine CTh. 9.1.4. in which Constantine stated that he, himself, will hear and judge based on all informal complaints about any abuses or miscarriages caused by his officials and administration. In addition, Constantine made sure that no fixed sanctions were set for misbehavior by his officials and administration and the threat of prosecution and uncertainty about punishment types strongly dissuaded officials and other administrators from acts and omission incompatible with the effective and efficient governance and administration of Constantine [3]. Well, Constantine was an absolute monarch and his power was pressing, perhaps oppressive, and used an increasing number of officers and employees in the service of the state. Although bureaucrats became more meticulous and officious [11], Constantine kept both control and a pragmatically skeptical approach. Further, his determination to keep trials open to public and the order to keep records about proceedings became both a method of formal and informal control and a method of enhancement of awareness not only about the law.

Constantine was fully in charge, but he did not take direct responsibility for the actions of his officials, rather the responsibility of

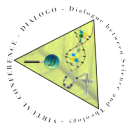


punishing them. He was the victim of their wrongful behavior which was a betrayal and violation of his trust deserving a swift sanction [3]. The immolation of guilty officials transformed the failure of the administration into a public celebration of Constantine [9], as the rightful and chosen servant and ruler by the God's will. He was aware about threats to the effective and efficient governance and administration and used rules fully compliant with Christianity to suppress any attempt to his vision of a prosperous, and integrated state able to go for smart, sustainable and inclusive growth. Constantine was never worshiped as a God, instead he embraced the function of patron of Christianity [2]. Constantine was a powerful monarch who placed trust in his closest officials, in Christians and himself and was ready to carry the responsibility for an integrated, sustainable and "just" Empire [3]. He was an absolute monarch who introduced a rather rigid system discouraging individual initiative [2], but at the same time he placed himself always in the position of the subordinate of God [3], of a person respecting the rule of law and pragmatism towards feasible integration along with the above discussed values and principles. Simultaneously, he more than welcomed information, submissions and appeals from subjects, especially if they were hassling with the administration. However, what is the attitude of the current EU and EU leaders to them? Are principles of an open trial with a hearing, compulsory record keeping, free and immediate access to justice, public transparency and mistrust vis-à-vis bureaucracy and power abuse, which were fully endorsed by Constantine the Great, who placed God above him, paralleled by the attitude of the EU current leaders and Europe 2020?

IV. POST-LISBON EU- INTEGRITY AND LEGAL FRAMEWORK JUSTICE WITH(OUT) CHRISTIANITY

Modern European integration is a complex phenomenon entailing an abundance of complicated processes in various fields within our post-modern, global and strongly virtualized society [14]. Modern European integration, like other multinational integrations, is based on common policies entrusted by member states, and common policies rely on an organized set of enforceable rules [13]. Modern European integration is based upon the doctrine of the famous four freedoms of movement in the single internal market and undoubtedly commercial parasitism is a real threat for it [12].

The current post-Lisbon EU relies on the EU law which is embodied by the EU legal system. It is based on several sources of law dealing with competencies conferred to the EU. Thus EU law is neither universal nor discretionary. The EU can neither simply go ahead and enact any legislation it pleases [8] nor misinterpret and misapply it. As a matter fact, EU leaders, authorities and institutions are bound to zealously respect the competence boundaries and make, interpret and apply the EU law along with the EU constitutional framework. This is ultra critical for the legitimacy and sustainability, because EU law is integrated into national laws in a manner similar to a friendly occupation authority taking over foreign soil, by making use of national procedural settings to directly incorporate and enforce its norms with the national jurisdiction of the EU member state. [13]. Indeed, the post-Lisbon EU law reflects both supranationalism and intergovernmentalism. Their constitutional framework consists of three unanimity requiring documents – TEU, TFEU and Charter. This trio naturally belongs to the primary sources. It is based on the intergovernmental approach, all EU member states, by a unanimity,



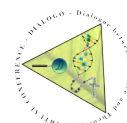
agree which competences are conferred exclusively or in a shared manner to the EU and how they should be exercised and possibly implemented by the secondary EU law (regulations and directives), which is based on the supranational approach. The operation of this system is controlled by the Court of Justice of the EU (“CJ EU”), which generates a case law that constitutes a supplementary source. The enforcement of the EU law, regardless whether from primary or secondary, or perhaps even supplementary sources, is entrusted to both, EU institutions as well as national institutions of EU member states, under the supervision of EU institutions [13].

In sum, EU leaders, authorities and institutions are bound by the constitutional trio, TEU, TFEU and Charter, and the leading strategy, Europe 2020, and this should be closely supervised by the CJ EU. This trio continues the strong emphasis on the single internal market with the famous four freedoms of movements - of goods, services, capital and people [15]. Indeed, the *raison d'être* of modern European integration was three-fold – economic integration, avoiding war and reducing the risk of famine. However, the EU institutions, especially the Commission and CJ EU, have consistently and continuously embraced more broad and ambitious targets. The last contribution to this trend is the above mentioned EU strategy issued by the Commission for the period 2010-2020 under the name Europe 2020 Strategy for smart, sustainable and inclusive growth (“Europe 2020”). Europe 2020 should overcome all crises and make the EU a world leader and avoid the threat of disintegration and chaos. This seems as *déjà vu* and Constantine with Roman Empire while using Christianity managed it. So, does the post-Lisbon EU have inside leaders with the highest integrity and devoted Christians? Is the post-Lisbon EU framework following the pattern which was proven to be effective and efficient for Constantine. Or

is the EU departing from the integrity and Christianity and wanting to reach integration and sustainability without them?

A. Competence, liability and integrity in the post-Lisbon EU

Modern European integration is centered around the market, originally common and recently even single internal. However, there is a universal tendency to market deformation [26] often orchestrated by selfish individuals and groups skillfully abusing powers and misinterpreting law. So it is up to EU leaders, authorities and institutions to protect EU integration and EU law against these evil actions. In addition, as already mentioned, the EU and its representatives are inclined to go even in fields not strictly conferred to them, so their commitment to responsibility and integrity is of the highest importance. In other words, their failures challenge the legitimacy and sustainability of modern European integration. In 2007, the legitimacy deficit and aborted EU Constitution led to plan B, i.e. Lisbon Treaty reforming the EU and its constitutional framework, EU, TFEU, and Charter. Immediately thereafter the crises hit. Further, in 2010 it became obvious that the previous ten year strategy failed and financial, sovereign and other crises produced disastrous effects for EU integration [24]. What about leaders, who were they and who are they? The TEU and TFEU were reformed to make it clearer, but they partially failed. In addition, the public-at-large hears, during critical moments for the EU integration, about meetings and decisions of Merkel, Macron, etc., i.e. persons not holding any (!) EU function. Well, TEU and TFEU do not name who is the inside top leader of the EU, nevertheless despite the reform reducing the power and competence, still the Commission attempts to look like a government and the President of the Commission as the



Prime minister. From 2004 to 2014, it was José Manuel Barroso and since 2014 Jean-Claude Juncker. So if we do not want to overlook the formal EU independency and pragmatically turn right away to the German Chancellor and French President, i.e. if we want to search as did Kissinger for the top EU representative and government, then the leader and government of the post-Lisbon EU is its President of the Commission and the Commission.

In 2010, the Barroso Commission reacted to the ongoing legitimacy deficit and crises by launching Europe 2020 with 3 priorities (smart, sustainable and inclusive growth), 5 targets and 7 flagship initiatives. It was Juncker's Commission who in 2014 followed. Europe 2020 ambitiously distributes and orders tasks to the EU as well as to EU member states, which have to do their country's reporting. Europe 2020 goes way beyond market concerns. Despite the Lisbon Treaty and its reform addressing the legitimacy deficit, the Barroso Commission behaved as did the Delors Commission. With Europe 2020, they got to the boundary of, if not beyond, their competence. The CJEU has not challenged it and kept its position of the faithful partner from the internal pro-integration tandem, i.e. the Commission and CJEU are well known to stick together. However challenges came anyway, such as the Brexit referendum in 2016 or the current emergence of clear indices that Europe 2020 priorities, targets and flagship initiatives will not be met. This is due to the fact that (i) Europe 2020 focuses too much on areas outside its legal competence, (ii) it lacks recourse for non-compliance and (iii) it does not really do too much for increasing the competitiveness [5]. Indeed, in 2017, it is obvious that Europe 2020 is not going to be fully met in 2020, see e.g. the Innovation goal of 3% of HDP for R&D [1]. Since Europe 2020 is at the edge and even beyond competences and this breach is not post-factum justified by success, the issue of

liability emerges.

TABLE I. EUROPE 2020 – 3 PRIORITIES, 7 FLAGSHIP INITIATIVES

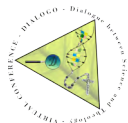
Europe 2020	Priorities		
	Smart Growth	Sustainable Growth	Inclusive Growth
Flagship initiatives	Innovation Education Digital Society	Climate Competitiveness	Employment Poverty
Competence	Shared or none	Shared or none	Shared or none

Prepared by the author based on the Europe 2020 and TEU + TFEU

Well, it seems that nobody is held accountable for it, or at least not called to be accountable. Institutionally, the Commission has been posting various statements and presented various declarations and reports, but has not offered a commitment or assistance. After eagerly pushing for Europe 2020, currently nobody really seems to be committed to it and working for its success. Perhaps Europe 2020 was not set as effective and efficient, but certainly it is applied in an ineffective and inefficient manner [12]. Naturally, the change of the Commission, from Barroso to Juncker, is used as a reason for it. This reason is both absurd in the light of the demand for proper governance and administration and pointing to the key player's involvement and integrity.

Even more sadly, the integrity of the de facto or de iure leaders of the EU is highly questionable. In 2005, Barroso spent a week on the yacht of the Greek shipping billionaire Spiro Latsis and one month later his Commission approved EUR10 million euros of Greek state aid for Latsis's shipping company.² Thereafter, Barroso opted for a less fuel efficient Volkswagen Touareg though he allegedly knew about (and did nothing against) the emission fraud and the cartel organization for its supplies. His dismissed all this by accusing others of

² For more reports and journalist and academic discussion please see <http://news.bbc.co.uk/1/hi/world/europe/4578261.stm>



“overzealous moralism,”³ although the EU legislation demanded a drastic reduction of these emissions. Even more shocking was his rejection of legitimate demands of the EU member states by arguing that anyway “decisions taken by the most democratic institutions in the world are very often wrong”⁴ and putting the blame for the Eurocrisis and banking crisis on Ireland⁵ while conveniently omitting to mention the PIGS countries. However, the grossest example of his integrity occurred immediately after he finished his second presidency of the Commission, because he accepted a top job with GoldmanSachs, the company which nearly broke the EUR during the crisis. In addition, after the Brexit, he decided to move to the subsidiary of GoldmanSachs in London.⁶ Neither official sanction nor rejection was made by the EU. Regarding Christianity, Barroso forced the policy “Islam is a part of Europe”, famously stating in 2008 “We can be a European citizen being a Christian, being Jewish or Muslim or having no religion”⁷ while further making sure that Christianity is not used as the foundation or glue of European integration and civilization. Unlike his above mentioned scandals, his indifference to Christianity is in compliance with the EU law (see below).

The next and still current president of the

Commission, Jean-Claude Juncker, was hit in 2014, immediately after his election for the President of the Commission, and in 2017 by various disclosures suggesting that he facilitated corporate tax avoidance in the EU. Unlike his predecessor, at least, he reacted by promising to “try to put some morality, some ethics, into the European tax landscape.”⁸ Since the EU summit in Riga, his attitude to no soft beverages and his very relaxed and informal attitude have become a hot topic.⁹ Similarly, his statement in the middle of the immigration wave in 2016 that “borders are the worst invention ever made by politicians”¹⁰ as well as his description of the European Parliament in 2017 as “ridiculous”¹¹ and promises regarding a MEP’s groups “I will never again attend a meeting of this kind”¹² are highly controversial. Neither a Christian servant nor Constantine and his officials could freely state something similar. Even more shocking is his attitude to the truth, since he officially stated “I had to lie. I am a Christian Democrat, a Catholic, so when it becomes serious we have to lie.”¹³ Allegedly, the EU is headed by the Commission and its Presidents are rather departing from the concept of Christianity and effective and efficient governance as established and enforced by Constantine. Increasing disintegration issues of the EU suggest that the decreasing observance of competence, liability and

3 For more reports and journalist and academic discussion please see <http://news.bbc.co.uk/1/hi/world/europe/6432995.stm>

4 For more reports and journalist and academic discussion please see http://theconservativeonline.com/article/brexit_where_next

5 For more reports and journalist and academic discussion please see <http://www.independent.ie/irish-news/politics/eu-chief-barroso-no-backed-bank-debt-deal-for-ireland-29854504.html>

6 For more reports and journalist and academic discussion please see <https://www.theguardian.com/business/2016/oct/31/jose-manuel-barroso-cleared-ethics-breach-goldman-sachs-job-european-commission>

7 For more reports and journalist and academic discussion please see <http://www.islamweb.net/en/article/144036/barroso-islam-is-part-of-europe>

8 <https://www.theguardian.com/business/2014/nov/05/sp-luxembourg-tax-files-tax-avoidance-industrial-scale>

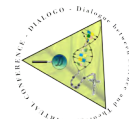
9 <https://dailynewshungary.com/juncker-known-for-informal-style-spoj-says-on-greeting-orban-as-dictator/>

10 For more reports and journalist and academic discussion please see <http://www.independent.co.uk/news/world/europe/national-borders-are-the-worst-invention-ever-says-ec-chief-jean-claude-juncker-a7204006.html>

11 For more reports and journalist and academic discussion please see <http://www.politico.eu/article/jean-claude-juncker-european-parliament-is-ridiculous/>

12 For more reports and journalist and academic discussion please see <https://www.theguardian.com/world/2017/jul/04/jean-claude-juncker-criticises-ridiculous-european-parliament>

13 For more reports and journalist and academic discussion please see <https://euobserver.com/eu-elections/124789>



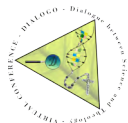
integrity truly undermine integration efforts and even the smart, sustainable and inclusive growth of Europe 2020. This leads to the question if these deficiencies are reflected, matched, supported or prohibited by the EU legal framework, especially the constitutional trio and Europe 2020. Modern societies have to take responsibility for the fate of future generations [20], but this is not the case of the post-Lisbon EU. Do we have a failure of individuals or of the entire system? Do we have any signs of Christianity?

B. Legal framework of post-Lisbon EU with(out) Christianity

The legal, doctrinal and conceptual foundations of the post-Lisbon EU and EU law are included in the TEU, TFEU and Charter and regarding the strategic development in Europe 2020. None of them includes any reference to Christ, Christianity, or a responsible servant approach to entrusted talents. The TEU merely mentions “religious inheritance” (Preamble) and provides the following list values (Art.2): “... respect for human dignity, freedom, democracy, equality, the rule of law and respect for human rights.” In contrast, the TEU is very clear and explicit regarding the principle of conferral (Art.4) and distribution of competencies (Art.13 et foll.). Therefore, even if doctrinally different from Constantine’s legal framework, a solid legal framework is laid for proper governance, administration and justice. However, this legal framework misses not only the Christian background but as well the very secular and religiously neutral enforcement. As mentioned above, Europe 2020 was issued by the Commission which did not have the competence to do so [5] and so is in breach of the rights of EU member states, in particular the breach of the principle of conferral. Further, Presidents of the Commission are disrespectful vis-à-vis the European parliament, which is proclaimed by the TEU and TFEU as the

top institution and authority representing the interests of all Europeans. Similarly, the TFEU passed on Christianity, but still reaffirms the principle of conferral (Art.4 et foll.) and describes the institutional framework. The result is the same – Europe 2020 breaches the TFEU and the Presidents of the Commission do not strictly adhere to the institutional framework, while perhaps still hoping to live in the golden era of the Commission being legislator, governor and judge.

However, regarding the dogmatic and conceptual foundation of the current, post-Lisbon EU, the most relevant is the exploration of the Charter which states in its Preamble: “Conscious of its spiritual and moral heritage, the Union is founded on the indivisible, universal values of human dignity, freedom, equality and solidarity; it is based on the principles of democracy and the rule of law... while respecting the diversity of the cultures and traditions of the peoples of Europe as well as the national identities of the Member States and the organisation of their public authorities at national, regional and local levels; it seeks to promote balanced and sustainable development and ensures free movement of persons, services, goods and capital, and the freedom of establishment.” Hence the reference to the rule of law and to traditions is not complemented by the reference to the Christianity. Human dignity is proclaimed as inviolable and as to be respected and protected (Art.1) and the freedom of religion is understood as a right including “freedom to change religion or belief and freedom, either alone or in community with others and in public or in private, to manifest religion or belief, in worship, teaching, practice and observance.” (Art.10). This vague and weak norm is further weakened by the practice which allowed that cases aiming to the prohibition of displaying crosses and crucifixes in classroom or wearing crosses in the workplace reached the CJ EU and even European Court of



Human Rights, see e.g. 30814/06 Case of Lautsi and others v. Italy from 2011. Since, the EU “shall respect cultural, religious and linguistic diversity” (Art.22), secularism is implemented and Christianity is completely omitted from the constitutional framework of the EU, the question of the social glue and commonly accepted standards emerge. TEU, TFEU and Charter recognize that EU member states and nations demonstrate many diversities and national particularities. However, they do not identify philosophical or social backgrounds or clear common denominators and consciousness standards. They merely repeat the dignity, democracy and rule of law. Even the implementation of these three values fails, at least if assessed by scrutinizing the recent internal EU leaders, see above.

Since the constitutional legal framework omits both referring to Christianity and identifying a common foundation for European integration and ultimately effective and efficient governance leading to the smart, sustainable and inclusive growth, it is relevant to perform the same analysis of the key strategic document of the post-Lisbon EU – Europe 2020. Although Europe 2020 is entirely secular and silent regarding Christianity, it attempts to point out European strengths and common features able to overcome current crises and to support the integration. According to its wording they are “*the talent and creativity of our people, a strong industrial base, a vibrant services sector, a thriving, high quality agricultural sector, strong, maritime tradition, our single market and common currency, our position as the world’s biggest trading bloc ... our strong values, democratic institutions, our consideration for economic, social and territorial cohesion and solidarity, our respect for the environment, our cultural diversity, respect for gender equality.*”

Well, Barroso’s Commission exceeded not only its competence by issuing Europe

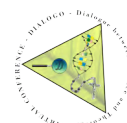
2020, but also set unrealistic goals which Juncker’s Commission tries desperately to attain. So the what and how is wrong. Sadder yet, the why is missing. Certainly, smart, sustainable, and inclusive growth, the single internal market and R&D leading to innovations on the national, as well as the entire single internal market assist in expanding the technological potential of EU member states, [1] and this is good. However, why should this be done under the auspices of the EU? Perhaps the single internal market cooperation is the only common denominator ... and seeing the current Volkswagen and other scandals and the misbalanced prosecution by the EU and the not effective and efficient leadership with problematic integrity, perhaps even not that.

V. QUO VADIS EUROPEAN INTEGRATION?

Every human community needs a legitimate authority that preserves order and contributes to the realization of the common good [21]. This needs to be done via a generally acceptable, effective and efficient systems leading to proper governance and administration.

The Roman Empire embraced Christianity seventeen hundred years ago and this helped to integrate and improve effective and efficient governance. Consequently, the disintegration was for decades, respectively a hundred years, overcome and the Roman Empire, especially its Eastern Part, the Byzantine Empire, managed to create several golden eras.

The EU law, as well as the law of all EU member states is influenced by the Roman law. National laws belonging in the continental law family are based on the re-codification of the Roman law prepared by Constantine and Theodosius and performed by Justinian with Theodora. In general, the Christian values endorsed



by Constantine's Roman Empire, such as liberty, justice, law, honor and courage are embedded in the European civilization and are hallmarks for European integration ideas [6].

Post-Lisbon European integration with its constitutional trio TEU-TFEU-Charter plus strategy Europe 2020 has recently faced many challenges similar to those which threatened European integration in the Roman era, especially during the time of Constantine. Perhaps the financial and real estate crises are past, but civil and cultural crises are present. It is even suggested that we are witnessing a philosophical and intellectual crisis which is a "crisis of truth" [10]. The deepest level of this crisis represents the spiritual aspect and the resignation and disinterest. However, the EU passes on Christianity, proclaims vaguely values and does not bring them to life. Conscience, as the combination of the voice of God and free will [19], is replaced by liberal comitology. Presidents and Commissions have competence, liability and integrity issues, but they keep calling for more integration and power. Their vision as expressed in Europe 2020 is partially a chimera and their leadership and governance do not match the profile of the humble servant observing the rule of law. Neither they nor EU law understand that tolerance does not mean making compromises at any price or abandoning our traditional and well established values for something else [17]. Constantine would not like that a bit. Caiaphas and Annas would not mind, after all the competence flexibility without integrity might please them. One question remains, can modern European integration still make it without Christianity? Constantine would not go for such a dangerous experiment.

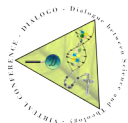
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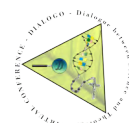
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She is a member of the Czech Bar Association since 1998 and a member of the Michigan Bar Association since 2004, and has been advising and representing clients in the EU and in the USA regarding EU law, intellectual property, and management issues. Since 2008, she has been lecturing full-time at colleges and has published five books and almost one hundred academic articles. Her drive to a multi-disciplinary connection of the world of law, economics, management, modern technologies, philosophy and theology and her pioneering ideas and new arguments attracted attention by academia as well as practitioners and has won support through grants.

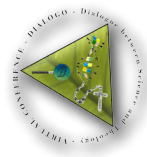


SECTION 5

Philosophy of Science & Theology



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The Dialogue between Sacred, Symbol and Ritual to Mircea Eliade's Thinking

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ABSTRACT

Consequently implementing a vision that was mostly phenomenological and hermeneutical on the object and of the religious doctrine and content, Mircea Eliade had a remarkable contribution of originality and profoundness to the study of the problems related to sacred and profane and symbol and ritual. For the Romanian researcher, at the core of the dialectic game between sacred and profane, there is the behaviour of the religious man, opposed to the natural man, searching for divinity in an instinctive/ programmatic manner, trying to overcome his earthly condition by entering the inaccessible world of the sacred. Due to the more than obvious contemporaneity importance of the preoccupations and behaviour of homo religious, in post-modernity, starting from the dialogue between science and religion, we consider that there is the necessity and opporteness in a secularised and desacralized world to dedicate a study, 110 years later from the birth of the eminent professor, to the manner the Romanian eminent researcher Mircea Eliade saw and explained the sacred, the symbol and the ritual.

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I. INTRODUCTION

Evaluating the sociological and phenomenological-psychological perspectives of the research of the nature and on the function of the sacred, not being satisfied with them, Mircea Eliade starts his scientific study from two scientific evaluations belonging to well-known names in sociology and history and philosophy of religion. The scientists are the sociologist Emile Durkheim [1] (Durkheim 2005) and the theologian Rudolf Otto [2] (Otto 2005). Using part of the coordinates

from the thinking of the two researchers, widening them and going further in his studies, through a complete and integrative research on the religious phenomenon, Mircea Eliade built his own system of understanding this complex phenomenon. 1. The Romanian researcher observed that, for Emile Durkheim, religion is a pregnant dimension of the social consciousness, a natural manifestation, and a particular social phenomenon, which, as origins and aims, contains elements that will generate various manifestations in the daily life:

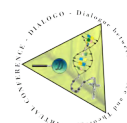
art, poetry, science, morality, etc. In other words, religion is a philosophical-theological collective given, built continuously on the ambivalence sacred-profane, explaining its dimension as a united system of beliefs and practices related to the sacred things – meaning separated, forbidden - , beliefs and practices that uniting into the same community [...] all those adhering to it [3] (Durkheim 1912, 65).

II. THE FUNDAMENTS OF ELIADE'S THINKING

In relation with the society, religion has the fundamental role to manage the sacred, a management that must be understood as a transfiguration of the divine in society, identified by Emile Durkheim with the totem – the one that, in a way, is a hypostasis, through the language of the symbol, of the tribe/community, whose inner energy is capturing and channelling. Thus, the French sociologist and philosopher concludes that the genesis of the religion is concretised on the axis tribe/community/society – sacred – totem – supposed to be related to each individual of the community – reporting to it through a sum of means, which constitute the religion in its practical dimension. At the base of the genesis of the sacred in the community there is the social function of manna – the anonymous and impersonal force – synthesis of its manifestations – under various kratophanies – cumulated in totem, which becomes the deposit of the sacred, the collective and anonymous religious force of the tribe, simultaneously transcendent and immanent, a product of the social consciousness of the community. 2. Not agreeing with the above observations, the theologian Rudolf Otto orients his own research to another perspective, not a sociologic one, but one that is phenomenological and psychological on the nature and the function of the sacred, which starts not from the social natural man, but from the religious man. The German thinker

will propose a new research project to a new generation of researchers, intending first: A. to atone the science and the religion, the naturalism and the mystery, concluding that the religious conception on the world bring to the world a plus of knowledge on the Divine Revelation, surpassing the scientific concept. B. influenced by the School of History of Religion/Religionengeschichteschule, under the influence of the liberal Protestant theology, limited to the historical and philological study of the documents, and especially under the influence of Wilhelm Bousset, he discovers the Neo-Kantian Fries, who confers a rational fundament to the intuitions, guaranteeing their value as knowledge. Otto affirms that the necessary ideas, as the Idea of God, Immortality and Freedom, taken from the philosophy of Kant, need no demonstration because they are derived from the pure reason. Rudolf Otto highlights the fact that the sacred is not part of the natural order, totally different from the manifestations of the natural order. To mark this difference, he uses for the Sacred the term of *eine ganz andere* – something else, circumscribed to three complementary acceptations: 1) the sacred is a numinous element – a term invented from the word *numen* ; 2) the sacred has a paradigmatic value and 3) the sacred is an a priori theological-philosophical category [4] (Otto 1992), proving the option of the German philosopher for founding the religion of predominantly psychological basis. The significance of the three acceptations is major, determining fundamentally the religious manner used by the human to relate to the sacred:

- The sacred as numinous is, before everything, a category of interpretation and evaluation, which exists only in the field of religion, making the human perceive his quality of inferior creature in front of the Creator, to whom he reacts through a triple sensation of *mirror*,



tremendum and *fascinans*;

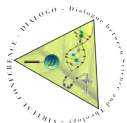
- The sacred is a composed category, with a paradigmatic value that places the relation of the human with the Creator in the field of the axiology, where the human – illustrating the immanent – realizes his value deficiency and absolutizing the way the sacred is received, as Good, Beautiful and Absolute Truth. If, under its rational side, this category of the sacred leads to the ideas of Absoluteness and Perfection, under its irrational, mystic, side, this category expresses the religious feelings developed when reacting in the presence of specific phenomena;
- The sacred as a priori theological-philosophical category marks the appurtenance of the sacred to an existential dimension inaccessible to the human – the transcendent; positioned in this manner, the sacred manifests in immanence through signs and miraculous events, marking its ontological superiority; thus the origins of the religions are to be found in the religion.

From the above presented aspects, we observe that Mircea Eliade, in a long process of evaluation, will use from Emile Durkheim mostly the insistence for the significance of the ontological antagonism between sacred and profane, and, instead of the postulate of the social collective conscious, he will use the postulate of the inner revelation, which identifies itself with the Sacred, a category a priori to the spirit; he also uses from Rudolf Otto the thesis on the manifestation of the sacred into immanence, the sacred identifies as transcendent – the hierophany/epiphany and the kratophany [5] (Ries 1978, 83 and Eliade 1957, 166). The two priory directions are attaches by Mircea Eliade to his consequent phenomenological

and hermeneutical perspective, to the importance given to the morphology and the inner structure of the religious acts, with the explicit aim of identifying the most intimate contents and functional aims. In parallel, Mircea Eliade insists on the dimension of supernatural power of the sacred, as Rudolf Otto does, rejecting in the same time the decisive role Emile Durkheim accords to manna/ the impersonal force that may be found only in the archaic/ primitive religions. In other words, for Mircea Eliade, the sacred manifests in specific modalities and different levels of understanding, his presence in the immanent world imposing the appeal to the analytical perspective related to mythology, cosmology, ritual and symbol; its knowing is possible due to the mediation of the language of the symbol. If the sacred manifests in another order, its nature must be known, so Mircea Eliade approaches several hierophanies/kratophanies, concluding that, in all situations, the divine characters have features that show intelligence and wisdom[6] (Eliade 1948, 46 and 1989, 179).

III. THE PLACE AND THE ROLE OF THE SYMBOL

At the end of a complex analysis on the functions of the symbol and of the mythical thinking, Mircea Eliade discovers the Supreme Divine Being through the symbol, which is an immediate given of the total consciousness manifesting in time as spiritual power. In this process of *ad extra* manifestation, the symbol has an important place in the specific dialectics of the sacred, because it articulates and gives meaning to the language, which may reveal a multitude of fundamental truths related to the architecture of the manifestations of the transcendent divinity. This architecture, inside which the symbol reveals a dimension transcending the natural, will induce necessarily the use of



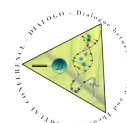
a special way of thinking called symbolic thinking. Inside this thinking, the Romanian researcher will find the *ab origine* archetypes related to Significance and Truth, due to the symbol that possesses significant valences circumscribed to Theo-gnosis, a symbol that acts as a mediator factor between Immanent and Transcendent. Through this symbolic thinking, the mediation function of the symbol becomes fundamental from the perspective of the religious practice in the liturgical manifestation of the god/gods. In Mircea Eliade's thinking, the historian of religion has the priority mission of highlighting and evaluating the presence of the sacred in the human experience, using the investigation of the three zones of the human spirit: the conscious, the subconscious and the trans-conscious[7] (Eliade, 377-378) all being in connection with the archetypes of the mythical thinking systems [8] (Eliade 1986, 140). From this perspective, the religious symbol, as fundamental theological element [9] (Eliade 1973, 315), may be a being, including a co/divine nature being, an object – natural of human-made, a myth – under the aspect of mythological structure, or a cultic rite/ritual. In all the case, the symbol has a functional role in showing the immanent/immediate experience, a character or a transcendent divine structure, otherwise not communicable or accessible to the world [10] (Eliade 1962, 134). Thus, the report of the human to the symbol, as cultic-ritual behaviour, traces practically the history of religious thinking and practice, generating Mircea Eliade's approach to a global scale of this symbolic dimension, from the ancient times to our time [11] (Eliade 1986). For Mircea Eliade, the symbol reveals several modalities of expression in the immanent world of the transcendent and irreducible reality to the categories of the material world, this modalities being nothing more than specific forms of experience of the sacred, permitting its observance through

a specific symbolic thinking, so ancient that precedes the language.

IV. THE COMPLEX FUNCTION OF THE MYTH

Researching the myths, the Romanian scientist adopts an exhaustive manner of working, starting with the mythologies of the people with no writing and finishing with those circulating in the cultures with major roles in the history of the civilisations [12] (Eliade 1978, 2). Eliade concludes, with documentation, that, organically connected with the behaviour of the religious man, the myth tells a sacred story [13] (Eliade 1978, 5), where, due to the actions of the supernatural beings, a new/ another reality is created, while the characters of the myths reveals a creation activity and brings to light the sacrality of their work [14] (Eliade 1978, 6).

Related to the effective factual contents, nothing from the myth, mythology and the connected religious behaviours, cannot be placed in a childish or hilarious zone; any religious teaching or practice is legitimate in the mythical space, when is created by the mythical thinking. The behaviour based on myth is a way of life, whose roots are beyond the world, because it resides in reproducing/ imitating some archetypal patterns or scenarios. Studying them, the human has the possibility, as Mircea Eliade shows, to know the cipher of the myth and the way it restores, bringing into contemporaneity a temporal sequence – relevant for the intelligible metamorphosis of the sacred – from other times/ *illo tempore*. Related to the relation between myth/mythology and Christianity, Mircea Eliade highlights their irreconcilable opposition [15] (Eliade 1978, 197), rejecting implicitly the interpretation of Rudolf Bultmann, who tends to see in the primitive Christian spirituality the prolongation of the horizon dominated by myth of the archaic societies. For Mircea Eliade, Jesus Christ is not a mythical

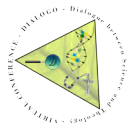


character, but a historical one, who, more than this, is not similar to any of the heroes of the past religions, due to 1) the holiness of His life, including the aspect of identity with the Holy Father; 2) the content of the teachings transmitted as Good News, starting from the scandal of the Resurrection and of the future Kingdom and 3) the unique and unrepeatable soteriological value of His sacrifice and Resurrection, comparing with other religions. This aspect, specific to Christianity, as Eliade observes, is living the faith as absolute religious experience, on one hand, and converting history in space and time, depending on the direct manifestation of God [16] (Ries 1987, 91) into the world. If the mythical aspect is not to be found to the level of the Christian doctrine, Eliade affirms that the Christian human is to be found in the religious mythical behaviour due to the imitation of an archetype and the repetition of a scenario [17] (Ries 1987, 91). Still, the Romanian researcher highlights, Christianity brings permanently in actuality a mystery-reality and not a myth of the eternal return, the new religious experience being based on following the historical Jesus Christ – *imitatio Christi* – and the celebration of the Liturgy, which becomes a model and a way of sacramental actualisation of the sacrifice and of the Resurrection of the Saviour.

V. RITE AND RITUAL

The research of the mediating function of the sacred leads Mircea Eliade to the further study of the religious rite and ritual [18] (Eliade 1959). For the modern man, as well as for the archaic man, the reality depends of and is in conformity to a celestial archetype, giving strength and efficacy to the human action. From this perspective, life has a sacred origin, the human existence actualizing all the potential availabilities, as long as they are religious; thus it does not have to observe the fact that the theme of the religious initiation

is present in the archaic religions and in the important religions. In this context, we must underline that Mircea Eliade rejects the mythologizing thesis and conclusions – especially from the beginning of the 20th century – on the presumed origins of the Christianity in the mystery religions – Greek and Oriental, the Romanian researcher underlining that, in fact, the presumed relation of opposed diametric causality, the real expansion of the mystery cults during the first centuries is caused mostly by the plus of attractiveness conferred by reinterpretation of their specific themes in a Christian key and vision. In fact, the capacity of the Christianity to modulate the rituals of the initiatic cults manifests in a context where it possesses its own initiation mysteries, its own mystagogy, as long as there is no way to be superior in the world or during the history except dying in an initiatic manner for the profane existence and being born again for a new life [19] (Eliade 1995, 171). Thus, the ritual, next to the symbol, are the elements that facilitate to the human – for the prehistorically and the postmodern human as well – the connection with the sacred and the divinity; reciprocally, the ritual and the symbol, brought together by the human searching for meaning by practicing a religion, intermediate the spiritual metamorphosis of the divinity, the divine descending to and into the immanent world and, implicitly, the establishment of a relation I – you for the one searching for it. In other words, facilitating and occasioning the appearance during history of several metamorphosis – forms of the Sacred, independently of their content – the ritual and the symbol redo the bridge between two worlds, between two Theo-Cosmic spaces, otherwise with no communication between them and, at least from a certain point, incompatible, conferring to the human the possibility to reposition permanently in relation with the divinity.



CONCLUSIONS

Through his contribution to the research of the sacred and of the profane, of the dimension of *homo religiosus*, of the myth, rite and symbol, Mircea Eliade is a reference point, hard to surpass in the history and the philosophy of the religion, due to the accuracy of his life-long research, giving us the possibility to call him *primus inter pares* of the Romanian professors of history and philosophy of religion. Through his intellectual profile, the prestige and the value of his works, Mircea Eliade calls us to a permanent dialogue with the religion, the religious phenomenology and the hermeneutics, and to assume some exigent standard of professional rigour and quality, worthy of our huge precursor.

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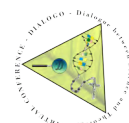
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- [7] Idem. *Traité de l'histoire des religions* [*Treaty of the History of Religions*], Paris: Payot, 1948:377 – 378; for Mircea Eliade, the subconscious is the „depository” of the

dreams, hallucinations and reveries and the trans-conscious is the uspace of rituals and mythology.

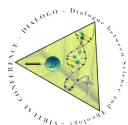
- [8] Idem, *Ordeal by Labyrinth. Conversations with Claude-Henri Rocquet*, Chicago: University Chicago Press, 1984: 140; for Mircea Eliade, the term archetype has the meaning of model, paradigm, and it resides in the structure of the human conscious ab origine; it is not a cultural-historical acquisition discovered in time.
- [9] Idem, *Fragment d'un journal*, [*Fragments of a diary*], Paris: Gallimard, 1973: 315
- [10] Idem, *Méphistophélès et l'androgyné*, [*Mephistopheles and the androgynous*] Paris: Gallimard, 1962: 134
- [11] Idem, *Istoria ideilor și credințelor religioase* [*The History of Religious Ideas and Beliefs*], volume 1, București: Polirom Press, 1986
- [12] Idem, *Aspecte ale mitului* [*Aspects of the myth*], translated by Paul Dinopol, București: Univers Press, 1978: 2 (“the myth is alive, meaning that it reveals patterns for the human behaviour, conferring significance and value to the existence”).
- [13] *Ibidem*: 5
- [14] *Ibidem*: 6
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- [17] *Ibidem*: 91
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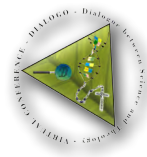
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The Perspective of Modal Logics on the Religious Language

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ABSTRACT

The plural worlds' thesis indicates the existence of parallel worlds which may be causally, temporally and spatially isolated, according to the controversial opinion of D. Lewis. If for a realistic analytical philosopher of religion, such as Alvin Plantinga and other theists concerned with the problem of alternate possible worlds, one world can be upgraded from this whole multitude of worlds, whilst others remain at the level of possibility, D. Lewis argues that we have no reason to believe that a world would be more current than another, the issue of updating being meaningless to him. Applying these theories in the analysis of religious language, we will see that within one (or multiple) of the possible worlds the religious propositions can hold sense and truth, whilst within others they do not.

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I. INTRODUCTION

The philosophical considerations of modal language have long been under the criticism of Quine, who rejected the *re* modality, because they would cause inextricable difficulties. This position of denial is projected on the background of the increasing progress of the modal language as against the existence of some entities whose identity terms are not yet known to us.

Where does Quine's aversion against *re* modality come from? While *dictum* modality

follows the linguistic expression of the property's attachment to the object, the *re* modality's object is the link between the thing and its property [1]. In Quine's opinion, *re* modality engages the essentialism, namely the division of predicates into essential and accidental ones. Quine pleads in favor of a strict extensionalism, rejecting the meaning of the expressions, the essences, the properties and the possibilities for the ontology of a theory that would engage them as inadmissible.

The *re* modality can be conceived in two contexts: a predictive one, in which *re*

modality act the predicative relation, and a fregean one, in which *re* modality depends on the position in the phrase of the operator that is used.

In the first case, the modality has a basis in the object, since the predicative link is ontologically real (and the definition of *re* modality is ontological-grammatical).

Within fregean framework, *re* modality has a narrow field as against the quantizer field (the definition of the modality is this time syntactic).

Consider the following example:

In Christianity, it is necessarily that the Virgin Mary be a mother.

In the predicative framework, the term “mother” is attached to “Mary” by a predicative link, this being a necessary connection.

Quine draws attention at this kind of expression. If we accept the idea that the Virgin Mary is necessarily a mother, we are tempted to attribute to Virgin Mary the essential property of being a mother.

According to the MN rule (*modal negation*) about the necessity, *Virgo Maria (F) is necessarily a mother (M)* means that *F is M* in all possible worlds where *F* exists, since the modality falls on the essence of the Virgin Mary, respectively on the object itself.

Two interpretations result from here: either the essential necessity of being a mother is in the Virgin Mary, whether it is necessary to find the attribute of being a mother in the essence of the Virgin Mary. But the fact that *F* possesses an essential property *M* can mean, *X* that its identity would suffer if *F* were deprived of this property.

Quine categorically rejects the corroboration of identity conditions with essentialism. Such an essential property would make it possible to identify an

individual along the possible worlds, and Quine could not be convinced that one possible individual can be distinguished from another possible individual.

Returning to the example above, for the second context (fregean) it should be said that, for the statements which are preceded by a quantifier, the expression receives two types of modulation, depending on the syntactic placement of the modality of necessity:

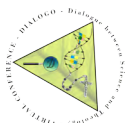
1. *de re*: Some women are **necessarily** mothers; it emphasizes the narrow field of necessity.
2. *de dictum*: **Necessarily** some women are mothers; here is emphasized the broad field of the modality of necessity.

II. RELIGIOUS LANGUAGE AND POSSIBLE WORLD SEMANTICS

The modal skepticism, arising from the deflection of interpretation over the modalities, makes it possible for semantics of the possible worlds to emerge. At the beginning of the sixties, Kripke was to develop, based on previous formal research, the models of interpretation of modal logics, then called “Kripke’s models”.

Kripke’s vision of the possible worlds leads us back in time to Leibniz’s interpretation, which he has often been likened to. What did Leibniz mean by the possible worlds? In short, he had associated them with divine understanding. According to Leibniz, in the divine intellect it identifies two distinct sections: one of the necessary truths, which is common to all possible worlds, and another of the possible individual substances. These *possibles* are not isolated, but belong to possible world systems. God chooses between possible worlds, but never between possible isolates.

Since these possible worlds exist only in the divine intellect, Leibniz’s conception



is classified as conceptualist. On the other hand, because before creation all possible worlds have equal chances in God, it has also been framed in actualism. Regardless of its integration into one current or another, Leibniz's modal version is overtaken by the semantics Kripke's possible worlds, in the sense that the first does not conceive that an individual possible substance belongs to several worlds but rather belongs exclusively to only one possible world. Kripke states, on the contrary, that an individual may belong to several worlds, under certain conditions, as follows:

Possible worlds ($w \dots w_n$) are assemblages of individuals and properties, within which w is the present world. Since the idea of truth is crucial in the semantics of possible worlds, a modal logic formula is logically true if and only if it is true in all possible worlds and if and only if its negation is not true in any possible world. Also, if a proposition p is true in all possible worlds, then $\Box p$ is true in all possible worlds in the system; if the sentence p is false in at least one possible world in the system, then $\Box p$ is false in any world in the system. If a proposition p is true in at least one possible world, then $\Diamond p$ is true in all possible worlds in the system, and only if the sentence p is false in all worlds, $\Diamond p$ is false in all worlds in the system [2].

The operator of necessity (\Box) is the equivalent of the universal quantifier, and the possibility operator (\Diamond) of the existential quantification, so that the modality appears as a quantification of the possible worlds [3].

Starting from the trees of C.I. Lewis, Kripke develops the idea of "accessibility", denoted either $\Box R$ when it is about necessity, or $\Diamond R$ when we refer to the possibility: briefly, given two worlds, w and w' , w is accessible for w' if and only if what is possible in w' is current in w .

In the lectures that form the work "Named

and Necessity", Kripke tries to impose, corroborating it with the thesis of possible worlds, the view that names are *rigid designators*. Of course, Kripke specifies, that does not imply that the language contains a name for each object.

The real issues, Kripke points out, arise by confronting a name with its own referent: on the one hand, "we may discover that two names have the same referent, and express this by an identity statement"[4] (consider, for example, two biblical names, the evangelist John, and the author of the Apocalypse – both refer to the same person, St. John); on the other hand, "we can ask ourselves whether a name has any reference in general"[5]. In any case, Frege notes the existence of an additional problem: a proper noun may suffer certain "fluctuations," but while "the nomination remains the same, these fluctuations are tolerable"[6].

The difficulty can be overcome, Kripke believes, using the notion of a cluster concept (Searle, 1958), because "what we really associate with the name is a family of descriptions" [7].

In the hypothesis of the emigration of an individual from a possible world in other possible worlds, can we speak about certain essential properties that he should preserve and on which he might be identified? Can we talk about accidental property in his case? Kripke believes rigid designators can solve this problem:

Let's call something a rigid designator if in every possible world it designates the same object, a nonrigid or accidental designator if that is not the case. Of course, we don't require that the objects exist in all possible worlds. [...] When we think of a property as essential to an object we usually mean that is true of that object in any case where it would have existed [8].

These rigid designators are the names.

Let's take as an example a very controversial biblical character today: Judas. Traditionally, Judas is the apostle who betrayed Jesus. But a third or fourth century manuscript, discovered around the 1970s, in the Egyptian desert, brings us into the forefront of a wise Judas, the only one of the apostles who understood the meaning of Jesus' message and who denounced Jesus at His request.

The rigid designator is, if we take Kripke's theory, the name of Judas, which is the essential property of the individual who has that name. The present world presents Judas as the traitor by excellence. The archaeological discovery of some documents makes a world in which Judas is rather an initiate possible. Being a traitor or, on the contrary, a believer, denotes accidental properties, *depending on how the object is described*. In fact, perhaps in reality, when we talk about Judas, we are referring to another person to whom the attributes of Judas were assigned, let's say Matthew, for example: these random deformations that may occur along the possible worlds lead to disarmament variations, so *anyone can turn into anyone* (according to Quine).

Kripke's theory favors the modal illusion and the vague, characteristics that Lewis will try to dispel through counterpart theory, respectively by substituting Kripke's relation of accessibility, that structures the universe of modal logics, with the relation of representation [9].

III. RELIGIOUS LANGUAGE AND METAPHYSICS OF THE POSSIBLE WORLD

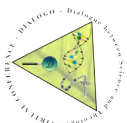
D. Lewis will build a metaphysics of the possible worlds based on the thesis of modal realism, rejecting under the name of ersatzism a semiotics of modalities, as presented by Umberto Eco or Hintikka. Ersatzism comes from the German ersatz, that is the substitute of possibility; Lewis

introduces into Counterfactuals this notion to make intelligible how the possible worlds are replaced by abstracts such as those encountered in logic and mathematics – numbers, functions, etc. The Ersatzism can be linguistic, pictorial, or magical: thus, metaphysical antirealism is under the sign of this ersatzis [10].

The coexistence of these two types of modal logic has created such a state of affairs, that most metaphysicians and epistemologists work within Lewis's theory, while philosophers of language, linguists and computer scientists, somewhat more allergic to metaphysical difficulties, somewhat more sensitive to the possibilities of correspondence with other formal systems, sometimes being seduced by the brilliant reformulations of semantic issues, work within Kripke's theory [11].

If, in the model of the possible worlds, Kripke attaches the predicates of individuals conceived as syntactical "places," D. Lewis, by offering an alternative to the modal logic of predicates, defines his theory in terms of essence and properties, deciding in favor of a modalistic or intentional realism (the counterpart relation resides in the fact that an object x , found in the world w , has a counterpart y , which is found in the world w' , if x and y have a common essence). Kripke believes that "strictly speaking, Lewis's view is not a view of a 'transworld identification'. Rather, he thinks that similarities across possible worlds determine a counterpart relation which need be neither symmetric or transitive"[12]. In fact, Kripke refutes Lewis in that he believes a certain counterpart of an individual in a possible world is never the same as the individual. This leads him to qualify Lewis' view as "bizarre".

The theory of counterparts is based on four main theses, namely the thesis of modal realism[13], the thesis of the indexical analysis of actuality[14], the thesis of irreducibility of possible worlds[15] and



the thesis of non-identical[16]. The eight principles behind the interpretation of modal logic in terms of counterparts are:

- P1. Nothing is in anything except a world;
- P2. Nothing is in two worlds;
- P3. Whatever is a counterpart is in a world;
- P4. Whatever has a counterpart is in a world;
- P5. Nothing is a counterpart of anything else in its world;
- P6. Anything in a world is a counterpart of itself;
- P6. Some world contains all and only actual things;
- P8. Something is actual[17].

Since things can only exist in one world (according to the first and the second principle, both of Leibnizian origin), the problem of the identity of some individuals in different worlds is excluded from the start (it is the aspect in which Kripke had expressed disapproval). The counterparts of an individual (which that individual would have been if it belonged to different worlds) are those that exist in other possible worlds.

In the example previously used, Judas would be, through the theory of D. Lewis, an individual in the present world who has a counterpart in a possible world (such as that in which he is faithful), and that counterpart resembles him. This time, there can be no simple syntactic figure (we remember that Kripke's name is the one that prevails).

Therefore, the sentence "It is possible that Judas is a good Christian" is a true sentence in a world w if and only if a counterpart of Judas, in a w' world, this counterpart is a good Christian. The operator of possibility indicates that Judas is not a necessary being, so he does not have counterparts in all possible worlds (to Kripke, the sentence

"It is possible that Judas is a good Christian" could be formulated logically as follows: $\Diamond x \dots wAw'/x(w')$, where R = accessibility rule, x = Judas is a good Christian, wAw' = w has access to w' ; w = our world, w' = a possible world).

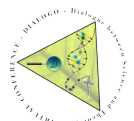
On the contrary, the necessity operator would impose that Judas is a good Christian in all possible worlds. Therefore, the sentence "It is necessary that Judas be a good Christian" means:

- to Kripke: in all possible accessible worlds, leaving our world, Judas is a good Christian (if $x(w) = 1$ and w generates w' , then $x(w') = 1$, where x = Judas is a good Christian, w = our world, w' = all possible worlds);

- to D. Lewis: Judas has counterparts representing good Christians in all possible worlds, and all these possible worlds are actual.

Lewis argues a modal realism (in fact, a classical realism extended to the possible worlds) regarded by some to be excessive, considering not only the existence of all the possible worlds but also their indexing timeliness. In these possible worlds which differ from our own, the people refer to it as the only true world that exists in actuality much as we do for our own (this form of naive actualism being the equivalent of solipsism regarding other people). Thus, if for Alvin Plantinga and other philosophers concerned with the problem of the possible worlds, a single world can be actualized, Lewis argues that, while the actual term is indexical, we have no reason to believe that a world is more present than another, so the "actualizing" issue is meaningless to him. As for the rigidity of the "actual" term, Lewis points out that the indexing analysis raises a question.

If 'actual' is an indexical, is it or is it not a rigidified indexical? In a context where other worlds are under consideration, does it still refer to the world of utterance, or does it



shift its reference? [...]

I suggest that 'actual' and its cognates are [...] sometimes rigidified, sometimes not[18].

(so the actuality that Lewis speaks of is under the sign of the relativity).

Lewis believes that the possible worlds exist in space and time, which leads us to the idea that there is a unique space-time framework of possible worlds that counterparty relations have in common. This is a rooted problem in the old conflict between Newtonian mechanics, where time and space are absolute, and the Einstein relativism, where the events can differ from one world to another, so the spatio-temporal dimension may not be the same in both worlds. Lewis chooses the Newtonian frame here.

The justification of the existence of possible worlds is based on Lewis, among others, on an intuitive (unreasonable and unannounced) but of common sense argument: things could have been different than they were. But, how is it that no one ever noticed the possible worlds? How would we know if a thing is true in one world or another? Because, if this thing is not true in our world, its direct research is impossible[19].

Lewis's reply is based on the fact that the possible worlds are causally isolated from each other, so that the possible worlds, which are on par with ours, are causally isolated from our world. The possible worlds are homogeneous[20], even though the laws can differ from one world to another. The basics of the possible worlds are possible individuals, and the relationship between these worlds and the individuals that inhabit them is that of the whole and the part, that means a mereological one. As D. Lewis points out, the worlds are causally isolated, because the causal relationship has as object the actual objects, requiring a space-time continuity between cause

and effect. We cannot have causality that is not in the same continuum, not even in the case of remote causality (from quantum mechanics). For now, Lewis concludes, as perception is largely a causal process, observing the possible worlds is unthinkable. This is probably the reason why the plurality of the worlds is a closed subject for some contemporary philosophers.

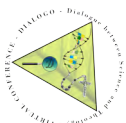
The elimination of the existence of possible worlds would be justified, on the one hand, by (still) the actuality of Newtonian theory and, on the other hand, by the inconsistency of the standard view of the possible worlds. The advantage is that, by eliminating the discussions about possible worlds, we manage to circumvent the issue of transcendence, of accessibility, etc.

CONCLUSIONS

Contemporary scientists regard the plurality of the world as a particularly challenging subject. If in 1957, Lord Everett already mentioned the existence of parallel universes, today we would already be talking about multicosmos[21].

Indeed, recent science signals the existence of several levels of reality, confirming what until recently seemed to be merely a speculation of religious dogmas.

Leibniz had tried to logically demonstrate that God had chosen from an infinite number of possible worlds to actualize the reality in which we are in accordance with the principle of non-contradiction "which constrains no less than ourselves, the people"[22]. But if we accept the idea that this universe we are living in has been selected from a multitude of possible universes, Grünbaum wonders what caused its actualization and the elimination of the other possibilities? Grünbaum, considering our universe, shows that the recent quantum theory is the foundation of the dissolution of universal



causality promoted by Newtonian physics and Laplacian determinism.

This empirically well founded quantum theory features merely probabilistic rather than universal causal laws governing such phenomena as the spontaneous radioactive disintegration of atomic nuclei, yielding emissions of alpha or beta particles, and/or gamma rays. In this domain of phenomena, there are not only logically but also physically possible particular events that could but do not actually occur under specific initial conditions[23].

The perspective of the nature of the temporal dimension has changed substantially throughout the 20th century, so now, at the beginning of the 21st century, we naturally speak of "worm holes" and travels over time. This is explained to everyone by Stephen Hawking, who draws our attention on the fact that:

The idea of wormholes between different regions of space-time was not an invention of science fiction writers but came from a very respectable source. In 1935, Einstein and Nathan Rosen wrote a paper in which they showed that general relativity allowed what they called "bridges," but which are now known as wormholes. [...] However, it has been suggested that it might be possible for an advanced civilization to keep a wormhole open. To do this, or to warp space-time in any other way so as to permit time travel, one can show that one needs a region of space-time with negative curvature, like the surface of a saddle. Ordinary matter, which has a positive energy density, gives space-time a positive curvature, like the surface of a sphere.[24]

Here's a state of affairs, to use Alvin Plantinga's expression[25], which until long ago seemed science fiction, is ready to be actualized. Traveling in the future, perhaps in the past, hopes Hawking, will be as natural as walking, by plane, or by boat.

Time travel presupposes the existence of

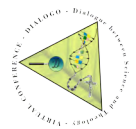
possible worlds: I start from a current world (for me) at time t_0 to a possible world that at time t_1 will be actualized: more than that, in the situation (imaginary for now) in which I will travel in the future, the relationship between my starting world and my world of arrival is reversed: what is current becomes possible and what has been possible is being actualized.

For some people, the logical notion of possible worlds might suggest a possible way of interpreting some religious ideas. On the one hand, the parallel worlds that scientists speak of might be seen as relatively distinct levels of reality in much the same way as religious thinkers speak about transcendence. On the other hand, notions such as "wormholes" along with their suggestion that distinct worlds might communicate somehow can be thought of as a way of conceptualizing such religious ideas as miracle and journey through parallel universes.

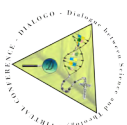
But for others, the idea of the possible worlds and its consequences are rather products of human imagination fueled by so many interesting and fascinating scientific theories.

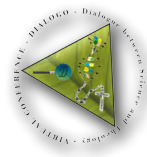
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A success model and implementation on examining teacher's attitude in using frog virtual learning environment

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ABSTRACT

The Frog Virtual Learning Environment (Frog VLE) together with school administrators, teachers, students and parents has formed the concept of a virtual community within the school environment. The research uses a qualitative approach that involves interviewing four selected teachers in a primary school located in the district of Baling/Sik, Kedah. The study employs a structured questionnaire as an interview protocol instrument. The questionnaires were also distributed to sixteen other teachers to compare the responses. The findings showed that teachers were using Frog VLE application and it helps in teaching and learning. Frog VLE also motivates teachers to teach better. However, not all teachers are comfortable using it because there are many obstacles and constraints that teachers face when applying them. The analysis of result from the teacher's attitude indicated that there was an important relationship between the teacher's basic knowledge of ICT and the skills in accessing the Frog VLE.

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I. INTRODUCTION

Technology has become part of the learning process. The type of technology and its importance to the process of teaching and learning has faced a wave of change every day. Information and Communication Technology (ICT) in education is one of the agendas stated in the Malaysian Education Blue-print 2013-2025. The Malaysian government through the Ministry of Education (MoE) has encouraged educators to use the ICT to improve the quality of teaching and learning in Malaysia. Through the seventh shift in the agenda, the system provides Internet access and virtual learning environment system in all nearly 10,000 schools in Malaysia through 1BestariNet Project. Teachers of ICT have received an early exposure on how to implement this system.

Since the advent of Internet Technology, it has changed the lives of communities and societies around the world in various fields such as education, economic, political, and social as well as other fields. Internet uses continues to grow over time (Noraini, 2010). Among the areas that were developed in the era of the Internet is a Virtual Learning Environment (VLE).

In 2012, the Ministry of Education (MoE) in partnership with Yeoh Teong Lai Communication (YTL Communication) introduced a new project called 1BestariNet: Frog Virtual Learning Environment (Frog VLE). The main objective of the 1BestariNet Project is to generate platform to bring changes in education in Malaysia as well as to bridge the digital divide between urban and rural areas (1BestariNet, 2012).

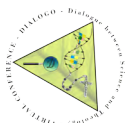
The Frog VLE is a teaching and learning method based on Malaysia's expanding Internet Technology evolved from the 1BestariNet Project. Correspondingly the 1BestariNet Project is to introduce the Frog VLE and expand this technology to

improve the level of education and equip students with the necessary skills. It uses the basis services of the high speed wireless broadband Yes 4G to all schools across Malaysia, coordinated by Jabatan Pelajaran Negeri (JPN), Bahagian Teknologi Pendidikan Negeri (BTPN), Pejabat Pelajaran Daerah (PPD) and Pusat Kegiatan Guru (PKG) who are responsible for monitoring the implementation process of respective districts (Abdul Razak, 2004). Every student should have access to quality education and technology that are shaping the world today.

The system is fully operational in 2013 involving selected 10,000 schools nationwide. The network installed in End to End (E2E) with greater coverage. These projects integrated all the parties within the educational system, including parents and the community. This network also provides the best infrastructure to promote Virtual Learning Environment (VLE). Through ICT, learning can be much more effective and cheap than traditional methods, for example (Jeffrey, 2002; Jose, Sandra & Roseli, 2006).

Although the use of Frog VLE in teaching and learning in Malaysian schools is still new but it can be upgraded from time to time through programs that implemented by MoE. The initial course training for implementing Frog VLE was restricted to ICT teachers before this while its implementation now involving all teachers under MoE. However, there are obstacles for schools, particularly in a primary school such as lack of knowledge in handling ICT tools, apathy and low skills using the computer that may cause the use of system be not perfect (Yusop & Hadi, 2010).

The Ministry of Education (MoE) is consistently increasing efforts to achieve the Malaysian Vision 2020 which aims at transforming Malaysia into an industrialized nation. The role of ICT is also to enhance productivity, effectiveness and efficiency in



management system (Azmi Zakaria, 2004). However, the study focuses on the use of Frog VLE in teaching and learning process in a rural primary school in Kedah to examine the teachers' attitude in using that application.

TABLE 1: THE CONCEPT OF VIRTUAL LEARNING ENVIRONMENT (VLE)

VIRTUAL LEARNING ENVIRONMENT (VLE) CONCEPT		
Save time to build and share teaching materials	Intensive training given to teachers and students	Learning materials accessible everywhere
User id and password provided freely	Provide a URL to access to the VLE either from internal or external environment of 1BestariNet	Teachers and students can access school information and important documents that have been updated by the school administrator
Teachers, students and parents can interact with through forum	Facilitate parents and teachers see the development of children's learning	Encourage creativity and innovation in the classroom

Source: Report of 1BestariNet Service Project: Virtual Learning Environment (VLE) by Program Management Office (PMO), Ministry of Education (MoE)

Information and Communication Technology (ICT) refers to technologies that provide access to information through telecommunications. The Internet, wireless networks, cell phones, and other communication mediums are part of communication technologies. Users are able to access, store, transmit, and manipulate information from computers as well as necessary enterprise software, storage, middleware, and audio-visual systems.

VLE is a method of integrated solutions that enable teaching, learning, collaboration and administrative management which can be accessed at school, or at anywhere through Internet access as shown in Table 1. It can also be said to be a School Community Environment because parents can access any matters related to school education. Frog VLE is a project of transformation of the education system which has been

implemented by the MoE under 1BestariNet project began in 2011. In this project, the schools are equipped with an integrated solution for the administration of schools, virtual teaching and learning methods and the latest information school students through Internet access.

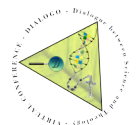
Rheingold (2004), stated that in the virtual learning environment must provide ample opportunity for every member of the community, to access the workshop materials and information related to a given topic. Documents such as presentations, articles, and also a list of additional resources that can be obtained online from other web sites should be included.

II. MATERIAL AND METHOD

A. Frog Virtual Learning Environment (VLE)

Virtual Learning Environment (VLE) is one of the branches in the Learning Management System (LMS) and part of the ICT. The use of VLE in teaching and learning can be viewed from two aspects, the aspects of teaching in which teachers use technology as means of presentation and demonstration tools. Whereas in the context of learning the students use technology as a tutorial, exploration, applications and communications (Bahagian Teknologi Pendidikan, 2002). Malaysia agreed that the use of technology is able to improve an education among the students. Hence, the teachers and students have been encouraged to make use of the ICT education in teaching and learning process (Yusop & Hadi, 2010).

According to Rheingold (2004), the VLE is an Internet-based built to connect the Internet community members and enable them to discuss and cooperate in performing a task or project. All members of the community involved in the virtual learning environment must have a



computer and can access through online from any place. Community members can participate actively as exchange of views on developments in the future, share views on the implementation of certain policies or discuss about the development of their work. In accordance, Norazilawati et al. (2013) states that each member of the virtual community is actively involved in this virtual learning environment will be able to share and exchange ideas and opinions on their work.

Through the virtual learning environment every member of the community has the opportunity to access materials and information related to a given topic (Sajap, 2006). Documents such as presentations, articles, and also a list of additional resources that can be found online from other sites should be included.

B. Technology Acceptance Model (TAM)

This study aims to look at the attitude of teachers in using Frog VLE in teaching and learning in a primary school in the district of Baling/ Sik, Kedah. Through this study, the teachers' attitude in the early usage of the application of VLE are affecting in using the virtual learning environment. It is hoped to provide input for the measures that can be considered by the leadership of the school in order to develop a comprehensive policy for the purpose of improvement of using Frog VLE. It also provides the rationale for why virtual learning should be implemented in schools in Malaysia.

The Technology Acceptance Model was proposed by Davis (1989) is an information systems theory that models how users come to accept and use a technology. See Figure 1. It was designed to help understand that when users are presented with a new technology, a number of factor influences their decision about how and when they will use it. The two main determinants of TAM are:

- Perceived Usefulness (PU) – the degree to which a person believes that using a particular system would enhance his or her job performance.
- Perceived Ease of Use (PEOU) – the degree to which a person believes that using a particular system would be free from effort.

Other constructs of the model include attitude towards computer use (ATU), and knowledge of Frog VLE to use computers. PU and PEOU together lead to ATU, and it results in usage attitude that can determine actual system usage (SU).

In the present study, PU is to investigate the factors that affect the attitude of teachers in using Frog VLE, while PEOU is to examine the factors that affect the actual use of the Frog VLE. The perceived usefulness and perceived ease of use determine whether a user will use a technology. If he or she believes that the use will give positive results, then his or her intention to use the technology will be high (Aypay, Celik, Aypay & Sever, 2012). This model (refer to Figure 2) is useful to identify the factors for users not accepting a technology and the proper corrective measure that could be taken.

In addition, other construct like knowledge of the Frog VLE was included to study other factors besides factors based on the conventional TAM that influence the use of Frog VLE.

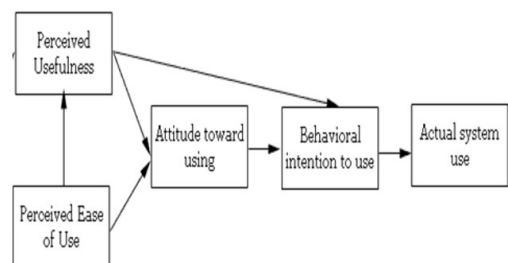


FIGURE 1: TECHNOLOGY ACCEPTANCE MODEL (TAM)

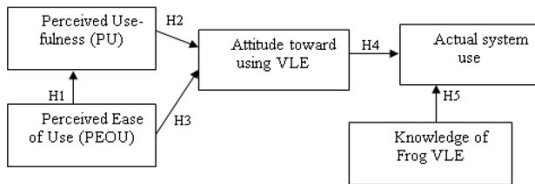


FIGURE 2: TECHNOLOGY ACCEPTANCE MODEL (TAM) WITH ADDITIONAL CONSTRUCT

Based on the research model in Figure 2, the boxes represent the constructs which were measured as the factors that affect the teacher's attitude in using Frog VLE in teaching and learning. The relationship that exists between the constructs shows a fundamental relationship scheme and is thus used to formulate the hypotheses for this study addressing the second research question of this study.

- H1: Perceived ease of use (PEOU) will have a significant influence on perceived usefulness (PU).
- H2: Perceived usefulness (PU) will have a significant influence on attitude towards usage (ATU).
- H3: Perceived ease of use (PEOU) will have significant influence on attitude towards usage (ATU).
- H4: Attitude towards usage (ATU) will have a significant influence on actual system use (SU).
- H5: Knowledge of Frog VLE will have a significant influence on actual system use (SU).

C. Proposed method

This study used the qualitative approach to examine selected teacher's attitude of using Frog VLE. This study uses interviews to collect data. The interview protocol was developed based on the examples given in Gay and Airasian (2000). Structured interviews with the same format and the

same question to each respondent also help improve the reliability of the results of interviews conducted (Sil-verman, 1993 in Cohen et. al. 2000). In addition, the validity of the interview data obtained from respondents by showing the findings from interviews in order to be revised, corrected, whether right or not from the perspective of the respondents (Meriam, 1998).

This study used a structured questionnaire based on the conceptual model. This method was chosen because it helps to get information about a process studied (Ibrahim & Abdul Hadi, 1992; Locke, 1976; Ryan, 1982; Sekaran, 2000). In this study, the researcher used a random sampling method (Jacob & Ary, 1990; Patton, 1990) to determine sample interviews. This method was chosen because it is a simple interview in which respondents are taken randomly. In this study, four teachers with at least 4 to 5 years teaching experiences were taken as respondents for interviews. The method of interview given in this way enable researcher continue to question based on questionnaire, and respondents could speak freely the advantages and constraints faced when applying the Frog VLE. The researcher draws upon her own experience as a teacher in a primary school.

Respondents were chosen from a primary school located in the district of Baling/ Sik, Kedah. The schools involved are the normal daily national primary school and academic-based. Teachers who participated in this study have experiences to give their own opinion on the implementation of the virtual learning environment. The selection of properties matching teachers will improve the validity and reliability of qualitative research instruments (Meriam, 1998).

At the same time to ensure the reliability, the same content of the instrument were distributed to 16 other teachers in the school. Then the findings can be compared

for reliability and validation.

III. RESULT AND DISCUSSION

A. Findings

Table 2 outlines the background of the respondents interviewed refers to the unstructured questions in the beginning of interview session. Interviews began with a general conversation between the researcher and the respondents:

“How are you madam? Could you explain a little bit about your backgrounds? Such as age, ethnicity, education status, teaching experience, background specialization and courses related to Frog Virtual Learning Environment (VLE) which was attended by you?”

The open question is fundamental for further research (Yin, 1984). General conversation also established a good relationship in addition to create a comfortable situation for the interview.

TABLE 2: BACKGROUND OF THE RESPONDENTS INTERVIEWED

Background	R1	R2	R3	R4
Gender	F	F	F	F
Age	40	36	35	38
Ethnic	Malay	Malay		
Education Status	Degree			
Teaching Experience	16 years	10 years	8 years	12
Background of specialization		Malay		

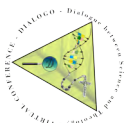
In particular, this protocol consists of three parts, namely the question of opening or introduction, key questions and conclusion. Opening question asks for the background of the respondents, the opening question is required to get the description

of the Virtual Learning Environment (VLE), explains the key questions concerning the perceived usefulness and perceived ease to use of Frog VLE related to the attitude and use of the application when they running it. While the subsequent conclusion questions asked respondents about proposals to improve the application of virtual learning environment (VLE frog) optimally. This part is only applied to the four selected teachers interviewed.

Most of them are female teachers which their age in range of 35 to 40 years. Their teaching experience is more than 5 years with at least graduated in Degree in Education.

After the initial session of the general conversation with the respondent, the next question to ask is no longer the order of protocol guided interviews but more response respondents. Modifications made during the interview questioning to allow respondents questioned about what they know. Thus, re-researchers can obtain a lot of information to give an overview of the Frog VLE application by teachers in schools.

As the interview questions are closely related to each other and repeatedly, interview transcripts and notes have been studied carefully so that some assessment can generate analysis result. Three categories based on the theme of interview questions are as follows. First question asked are teachers' knowledge on the implementation of the Frog Virtual Learning Environment (VLE). Second are teachers' views on the usefulness of the VLE. Finally the teachers' views about the constraints and recommendations to overcome the weaknesses in the implementation of virtual teaching environment are discussed. The interviews were recorded, transcribed and shown back to the teachers to confirm their responses as member checking. The interviewed teachers also filled the questionnaires.



Excerpts from the transcript of the conversation during interviews are used to support the elaboration and conclusion of writing. For the analysis, the researchers used the data interview transcribed to facilitate data coding. The process of assigning codes to the units of this paragraph facilitate researchers identify themes for each question and give clarification regarding the items that want to be known.

i) Knowledge of teachers about the virtual teaching environment Frog VLE

The application of virtual learning environment is one of the recommended approaches for implementation in various subjects. Through interviews the respondents explain their understanding of the application of virtual learning environment (VLE):

"... Through the virtual learning environment or Frog VLE teacher can discuss about the student's assignment without face to face, teacher can ask the questions and students answer through online. Same goes to whatsapp or email, connected at any time and in any place, but it must have an Internet access ... "R1

"... I understand that virtual learning environment VLE Frog is a teaching method using a computer. Teachers can connect with students via the Internet ... "R2

"... Virtual teaching environment is more to online teaching and learning. Teacher search an information, share and deliver knowledge to students through the computer without face to face. Everything is at your fingertips. Internet access is also provided by MoE ... "R3

"... I understand that virtual learning environment or Frog VLE is still new. I also follow this course, but only a few times I manage to use it ... "R4

In conclusion the interview respondents understand and know the Frog Virtual Learning Environment (VLE). This is because

the respondents are able to explain about the application of Frog VLE. This application is a cloud platform that is flexible and can be accessed from anywhere outside the school as well. Files and data stored in the Cloud can be accessed anywhere and anytime together with Internet access. In fact, every students and teachers are given login ID and password personally and can access the Frog VLE freely every time they log in to the application.

ii) The views of teachers on the usefulness of Frog VLE

Since the Frog VLE has been implemented, does the Frog VLE have an advantages and what teachers view about its application. The respondents explained:

"... I did use the teaching methods through the Frog VLE. At first, my students do not know how to use it, unless for those who expert handle this tools. But after they know and learn through Frog VLE they become enjoy chatting and asking questions to me. But not all students interested and actively joined. Most students do not even have Internet at home; they go to a cyber cafe. To encourage their use, I will give them an assignment by Frog VLE. So that the students will use it, but usually I give them work in groups to ensure that students who do not have Internet at home does not feel the burden ... "R1

"... Frog VLE was very good to apply but I am teaching students who are weak in study and they are hard to use this application. Furthermore due to time constraints I am not able to explore more on this application in using the Frog VLE ... "R2

"... I feel comfortable applying the Frog VLE, because it helped me in teaching Malay subjects especially for vocabulary and essay. Some advance students always cooperate and communicate with me. I found too much information that I can convey to students without having paper and face to face meetings ... "R3

“... Frog VLE was indeed good, but difficult to implement. I am more satisfied if I can teach face to face. In addition to the subject of Science there are more activities to be carried out ...”R4

Respondents gave the following answers to which method is more helping teachers either Virtual Learning Environment (Frog VLE) or traditional:

“... Frog VLE is very helpful in teaching and learning process. It is simple and only fingertips. Otherwise it is more interesting for students. If teachers are only focus for one method the students will be bored. I think both are important which traditionally should be continued and virtual teaching environment should also be practiced in accordance with the changing times now ...”R1

“... For me, the traditional method is more assist and facilitate the work of teachers. I would prefer with the talk and chalk and occasionally use VLE ...”R2

“... I like doing both teaching methods either traditional or Frog VLE. By using Virtual Learning Environment (Frog VLE) there is quite limited due to insufficient computer with the number of students. But teaching and learning by using the Frog VLE is able to attract students ...”R3

“...I would rather use the traditional teaching methods. If teaching in virtual learning environment (Frog VLE) needs to take a long time while there is a lot of science syllabus to teach. However for certain time I was using Frog VLE for exposure to the world of science and technology to the students ...”R4

In conclusion, the results from respondents show that teachers are using Frog VLE in teaching and learning process. However it is not a priority for teachers to implement it. Although there are teachers thought that the Frog VLE helps in teaching and learning process but not all teachers

comfortable using it even the courses and facilities has been given.

iii) The views of teachers on the constraint and recommendation to overcome the lack of Frog VLE

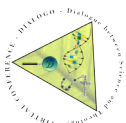
To answer questions about the problems and constraints faced by teachers when applying the Frog VLE, respondents gave the following answer:

“... I like to use the Frog VLE because it is very interesting. MoE has supply the facilities, while my school administrators also give encouragement in using of Frog VLE. I think the problem why teachers do not use Frog VLE because teachers themselves are less skilled even though has given courses. Teachers also commonly prefer to use the traditional method. For me, teachers are responsible for student’s achievement in learning. Teachers still need face to face and using Virtual Learning Environments as support ...”R1

“... Frog VLE is nice to use, but there is a lot of problems. Sometimes teachers do not have time to do well planning, do not have enough time and there too much workload at school. For weakness students they will not ask, but expect the teacher to provide input ...”R2

“... Not all teachers and students can cooperate in this virtual learning environment. No doubt it is good but quite difficult to implement. Although each school is supplied with Internet access, but sometimes the Internet access is weak and cannot be used directly. That will waste our time ...”R3

“... Many syllabuses should focus on teaching. Sometimes we do not have enough time when we need to attend any courses. In addition, students like to play if the virtual learning because they are difficult to be controlled and take the opportunity to play the game and go to other social networking sites ...”R4



Finally, respondents were asked to give interviews to enhance the application of the proposed Frog VLE in school, respondents gave the following answers:

"... To me, the teachers have to think positive and willing to improve their pedagogical knowledge. If there are courses related to the Frog VLE organized by the MoE, teachers can follow. Maybe we will become more skilled and motivated. It must be great if the workloads were reduced, then the teacher can vary the teaching and learning process also can give full attention to the students ... "R1

"... If teachers want to run this Frog VLE they should prepare early, assignments can be distributed to students according to their respective capabilities. In this way, discipline during the teaching and learning can be controlled ... "R2

"... Try to reduce the syllabus, the teacher did not want to spend rushing syllabus. Teaching and learning activities also can be varied. Another school administrators should be clear about the goal of the exercise is a virtual teaching environment. Continuous support should be given to teachers ... "R3

"... Teachers need to be disciplined and well planned, for example, spend more times to do activities in the virtual environment and try to use Frog VLE. Assignment given earlier to students, in this way time can be saved ... "R4

From the view of respondents as a whole, those teachers have run a virtual teaching methods using Frog VLE. It helps the teaching and learning process towards students. However, not all teachers comfortable using it because there are constraints and obstacles faced by teachers during implementation. Among them are the limited internet accesses, not enough time due to too many syllabus and heavy workloads. To improve the application of the Frog VLE teacher suggested that

the speed of Internet access needs to be increased, the workloads of teachers should be reduced, teachers also have to think positively and plan the lessons in advance. In addition the continuous monitoring of the administration, implementation plans that clearly needs to be given to all staff of the school and ready to follow the courses organized by the Ministry of Education (MoE) in connection with the use of the Frog VLE.

B. Instrument

The total respondents for this study were 20 teachers including the four teachers interviewed from different background in field of studies. There are 27 questions of the questionnaire were constructed and respondents were required to indicate their degree of agreement on a 5-point Likert scale, namely 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree.

The questionnaire has been divided into six parts. The first part was to identify the demographic information about the respondents. The second part was determining the constructs of TAM model with an additional constructs (Figure 2). The questionnaire was to identify the knowledge of teachers in using the Frog VLE, Part III was to identify the perceived usefulness of Frog VLE while part IV was to identify the perceived ease of use of Frog VLE. Besides, part V is to investigate the teacher's attitude in using the Frog VLE and the last part is to examine the use of Frog VLE by teachers in teaching and learning process based on the teacher's perspective. The mean age of the respondents were 5.20 (SD = 0.696) which their age 34-39 years. While the mean of teacher's experience were 5.25 (SD = 0.639) where their teaching experience 11-15 years. Refer to table 3. All of them have more than five years' teaching experience and able to use computer in their workplace.

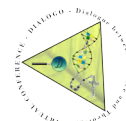


TABLE 3: THE MEAN AND SD OF AGE AND TEACHING EXPERIENCE OF RE-SPONDER

Parameters	age of responder	teaching experience
N Valid	20	20
Missing	0	0
Mean	5.200	5.250
Std. Deviation	0.696	0.639

TABLE 4: FREQUENCY AGE OF TEACHERS

Age (years)	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 29-33	3	15.0	15.0	15.0
34-39	10	50.0	50.0	65.0
>40	7	35.0	35.0	100.0
Total	20	100.0	100.0	

FIGURE 3: AGE OF RESPONDER

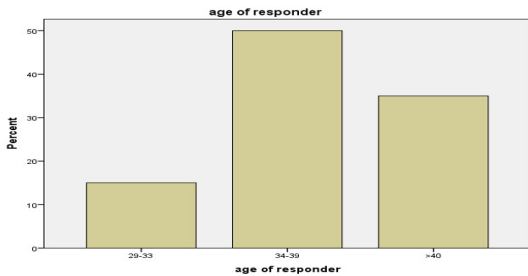


TABLE 5: FREQUENCY TEACHING EXPERIENCE OF TEACHER

Parameters	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 6-10 years	2	10.0	10.0	10.0
11-15 years	11	55.0	55.0	65.0
>16 years	7	35.0	35.0	100.0
Total	20	100.0	100.0	

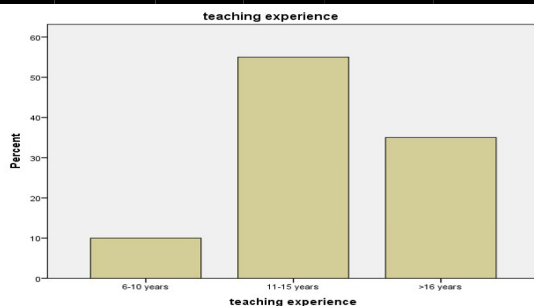


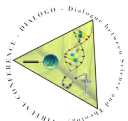
FIGURE 4: TEACHING EXPERIENCE

The demographic information of the respondents is summarized in Table 6. The highest participating percentage of teachers is in the 34-39 years age group (50%). This is followed by those in the >40 years age group (35%) and 29-33 years age group (15%). Around 85% of the teachers have their degree and 55% of them having more than 10 years of teaching experience. However, their experience in the use of the Frog VLE still less since it was introduced few years ago.

Descriptive statistics of TAM constructs (Table 7) show that teachers strongly agreed ($M = 4.11$) that System Usage (SU) is the main factor that will determine their use of Frog VLE. This means that even though learning to use Frog VLE takes up too much of their time, they will still use Frog VLE. The study showed that the Attitude towards Computer Use (ATU), Perceived Usefulness (PU) and Perceive Ease of Use (PEOU) are the other factors that will determine their use of Frog VLE. The teachers agreed that positive attitude towards using the application is another factor that would determine their use of the Frog VLE. Similarly, the knowledge about ICT and Frog VLE will also determine their use of Frog VLE. They strongly disagreed that Frog VLE does not help and give benefits to teachers in teaching and learning process. The next tables are the findings for this study.

Table 6: Demographic Information

Variables	Characteristics	%
Gender	Male	25
	Female	75
Age (years)	29-33	15
	34-39	50
	>40	35
Ethnic	Malay	85
	Chinese	5
	Indian	10
	Diploma	10
Education Status	Degree	85
	Master	5
	6-10	10
Teaching Experience	11-15	55
	>16	35



Background of Specialization	Malay	25
	English	15
	Mathematic	20
	Science	10
	Islamic	15
	Other	15

Table 7: Scale of the Knowledge of Teachers in using the Frog VLE

Details	The application is reliable	The application is relevant to different groups (teachers, students and parents)	Variety of activities, with options for increasing complexity	The content is structured in a clear and understandable manner	Logical progression of topics
Valid	20	20	19	20	20
Missing	0	0	1	0	0
Mean	4.050	4.050	4.105	4.300	4.250
S.D.	0.510	0.510	0.567	0.4702	0.550

Note:- S. D. means Standard Deviation

Table 7 shows the mean and standard deviation of the knowledge of teachers in using the Frog VLE in teaching and learning process is in the very high level. Based on the result, it shows that the teachers are using the Frog VLE perhaps of their knowledge about the application usage.

TABLE 8: SCALE OF THE PERCEIVED USEFULNESS IN USING THE FROG VLE

Various descriptions	N	Mean	S. D.
I think that using the Frog VLE improves job quality	20	4.300	0.657
I think that using the Frog VLE increases productivity	20	4.350	0.587
I think that using the Frog VLE enhances our effectiveness in teaching and learning	20	4.450	0.510
I think that using Frog VLE encourage us to be more creative and enjoy in teaching	19	4.526	0.513
I think that using Frog VLE enables us to access a lot of information	20	4.450	0.605

Note:- S. D. means Standard Deviation

TABLE 9: SCALE OF PERCEIVED EASE OF USE IN USING THE FROG VLE

Details	N	Mean	S. D.
I think that learning to work with the Frog VLE is easy	20	4.250	0.639
I think that interacting with the Frog VLE is clear and understandable	20	4.300	0.571
I think that it is easy to get the Frog VLE do what we want it to do	20	4.350	0.587
I think that it is easy for us to become skillful at using the Frog VLE	20	4.350	0.587
Overall, I think that Frog VLE are easy to use	20	4.350	0.587

Note:- S. D. means Standard Deviation

Tables 8 & 9 show the PU and PEOU have

direct influence on ATU which implies that teachers believe that using the Frog VLE can help them in their teaching and learning process. This probably has influenced the teachers to have positive intention to use the Frog VLE.

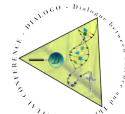
TABLE 10: SCALE OF THE TEACHER' S ATTITUDE IN USING THE FROG VLE IN TEACHING AND LEARNING

Details	N	Mean	S. D.
I think that using the Frog VLE is a good idea	20	4.450	0.605
I think that using the Frog VLE is a positive idea	20	4.500	0.607
I think that using the Frog VLE will increase my computer skills	20	4.400	0.598
I think that using the Frog VLE will improve my IT knowledge	20	4.4000	0.598
I like the idea of using the Frog VLE	20	4.5000	0.607

The result in Table 10 can concluded that the attitude towards use (ATU) has the greatest influence on the use of the Frog VLE among teachers in a primary school. Other factors that have an indirect influence on the use of Frog VLE were perceived usefulness (PU), perceived ease of use (PEOU) and knowledge of the ICT and Frog VLE. PEOU could also affect the intrinsic motivation of a person in using technology. According to Fagan, Neill and Wooldridge (2008), people with high intrinsic motivation towards using a technology could help them to set a positive mindset that the technology is easy to use.

DISCUSSION AND CONCLUSION

The findings of the analysis found that teachers are recognizing the advantages of using Frog VLE. It is available to facilitate the teaching and learning process and to increase the motivation of teachers to teach. This finding as stressed by Mohamad Azmi (2013) who found that teachers can attend training on the use of Frog VLE. It motivates and inspires teachers about the need for new teaching meth-ods and helps to provide the skills on how to use Frog VLE in their teaching and learning process



effectively and efficiently. Teachers with skills acquired this solid support from all parties, whether MoE, state, district, school administrators and parents is necessary for the success of this program.

However, analysis of the data from the interview found that there were some major problems or weaknesses that have been identified. Among them is limited Internet access, not enough time due to too many syllabus and heavy workloads. Norazilawati (2013) stated that the issue of implementation is a constraint on the Frog VLE application especially in rural schools. Available issues related to technical aspects, dissemination of information about Frog VLE, teacher training, and monitoring does not occur properly in this area. In terms of equipment, most of the rural schools are facing problems related to Internet access. This has caused a dilemma among the school administrators and teachers as implementers (Norazilawati, 2013). The study of the attitudes of teachers towards the implementation of the Frog VLE found that teachers welcomed the MoE in implementing the Frog VLE. Unfortunately it turned into a negative perception when teachers want to use it but there were obstacles such as low Internet access that hinder the efforts of teachers to use it. They felt it wasting time in accessing the Frog VLE and their priority is to finish the workloads.

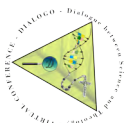
The implications of this study showed that the implementation of the Frog VLE should be improved and enhanced with suggestions such as the continuous monitoring of the administration, implementation plans that clearly needs to be given to all staff of the school, teachers need to think positively in using the Frog VLE, to plan lessons in advance and willing to follow courses organized by the MoE in connection with the use of the VLE Frog. As stressed by Mohd Aizuddin (2013) in his study on improving the professionalism of teachers in the use Frog

VLE found that teachers who are expert in using the Frog VLE is easier to control the activities in teaching and learning at school. Information or content of the lesson can be delivered to students quickly and more systematically. This indirectly increases the professionalism of teachers. However, the lack of school facilities such as rooms that do not have Internet access or computer with an unstable Internet access make teachers are not interested in using Frog VLE.

Siti Aminah (2013) in her initial review of the use Frog VLE found that many teachers were lack of ICT skills. This matter become more serious when the school administrator itself also IT illiterate and does not support the usage of Frog VLE at school. Without the support of school administrator the program might be unsuccessful. This is because the Frog VLE requires the complete preparation of an infrastructure to handle it.

In conclusion, the study showed that Frog Virtual Learning Environment (Frog VLE) is the main agenda of a virtual learning medium in education today. Through the results of research findings, some teachers show their knowledge and frequently use of Frog VLE but some teachers not. This rejection is maybe due to some constraints that inhibit the implementation of this virtual learning environment in schools. Throughout this study, the teachers put forward some suggestions to overcome existing constraints to ensure the implementation of using the Frog VLE can be run optimally at school in order to produce individuals who are knowledgeable and have good ethics. There are several actions could be considered by school administrators in order to develop a comprehensive policy for the purpose of performing Frog VLE in the teaching and learning process.

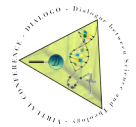
The first suggestion is to enhance the application of Frog VLE among teachers, the school administrators need to be clear about the goals of the virtual learning



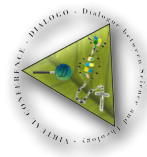
environment. The goal must be practically achievable and can cope with problems relating to learning and teaching. Second, the Internet connection speed should be increased, reduce teacher's workload, teacher's thinking should be positive and willing to attend related courses organized by the Malaysian Ministry of Education. Third, skill enhancement programs should be organized to all teachers in order to ensure that not only the interested and skilled teachers participated in implementation of Frog VLE. Fourth, the monitoring should be carried out. The appointment of a team such as Bahagian Teknologi Pendidikan Negeri (BTPN) and Pusat Kegiatan Guru (PKG) that can assist in monitoring strategy is important that administrators have the support and feedback from users. Finally, the ministries and educational institutions are urged to consider the proposals submitted through this research to develop education in Malaysia to greater heights globally. Without the cooperation of all parties in efforts of implementing the virtual learning environments (VLE) this might not be fully achieved and will inhibit the implementation of an education system that has planned. Each party plays its important role in the success of the transformation of the national education to a higher level.

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Comparative study to explore factors affecting E-government ranking: the case of Malaysia, Nigeria and Republic of Korea

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ABSTRACT

The present study aims to find out the criteria for e-government ranking generally as well as particularly focusing on Malaysia's e-government ranking. In addition, with regard to the Malaysia's e-government ranking, the results shown that, most of the Human Capital, Online Services and Telecommunication Infrastructure and its sub-indicators has not seen any improvement through the previous periods comparing with other countries such as Republic of Korea. Indeed, this comparative study sought to highlight of the tangible part of the e-government ranking through explored the gap between the e-government of Malaysia and other countries such as Republic of Korea. Moreover, this study discovered the weakest dimensions of e-government applications to assist the government to address them. Besides that, this comparative study also attempts to help the countries all over the world especially those developing ones in enhancing the performance of the e-government simply by understanding the reasons of the utilization by the respective stakeholders.

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I. INTRODUCTION

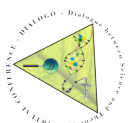
In line with the era of globalization especially when it involves the information technology, the world keep on moving from the age of industry towards the age of information. With the swift pace when it comes to the development of the Internet, it has actually driven people to actively use the modern technology especially in the government service delivery within almost all countries. Colesca and Dobrica (2008) stated that, delivering government services have been changed with the adoption of modern technologies (such as Internet and modern network devices). However, governments in order for the use the power of ICT to boost the government services and improve services huge amount of money have to be spent (Ahmed, 2013; Alshehri & Drew, 2010). Meanwhile, the power and the capabilities of the people also have increased with ICT (Christos et al., 2013). Accordingly, people expect the same experience which has been gained from the private sector from government sector too (Henkel et al., 2014). Thus, utilization of ICT is indispensable to governments. Al-Khanjari, Al-Hosni and Kraiem (2014) referred that, harnessing the modern technologies in government, specifically the Web-based Internet application aiming for enhancing the citizen in terms of accessing the government services as well as in enabling them in terms of making online transaction which is known as e-government.

Basically, the e-government involves the ICT application and multimedia technology in transforming several aspects of the informational as well as the transactional exchanges that are observed between the government and the citizens i.e. efficiency, effectiveness, transparency and also the accountability (Lean et al., 2009). Moreover, e-government has received attention across the world, because of its potential to pave way for governments in order to them to

transfigure their respective relations with the citizens, businesses or other government divisions and also increase transparency in the public sector, diminish corruption, and enhance political participation.

Nonetheless, even though the benefits of e-government has been stated earlier, failures have been observed especially in terms of the initiatives of the implementation of e-government as stated by (Heeks, 2003, 2006), it has been observed that 35% of the applications pertaining the electronic government in most developing countries encountered failures, while 50% of it are apparently partial failure and meanwhile the 15% remains as successful. Parallel to Taiwo, Downe and Loke (2014), it has been stated that most of the developing countries have taken the advantage of the use of IT specifically aimed towards improving the customer service delivery quality. Sadly, only a few developing countries appeared to be successful in doing so. In addition, Belachew (2010) and Dzhushupova et al. (2011) stated that, although several challenges exist in implementing and adoption electronic government particularly in developing countries, there is little evidence of research that discusses those challenges and how they could be addressed.

Malaysia is among the developing countries that embarked on the digital government to enhance the government infrastructure and facilities. The Multimedia Super Corridor (MSC) has also been launched in 1996 which specifically designed in enabling the locals in using the Internet more frequently besides improving the demands in the use of the Internet (Lim, Masrom, & Din, 2013). Apparently, this e-government system is one of the seven flag-ship applications which have been introduced by MSC. Under this particular flagship, the seven pilot projects namely the Project Monitoring System (PMS), Generic Office Environment (GOE), Electronic



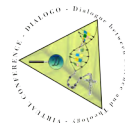
Procurement (eP), Human Resource Management Information System (HRMIS), Electronic Services Delivery (eServices), E-Syariah and Electronic Labour Exchange (ELX) have been acknowledged (Alias, Idris, Ashaari, & Kasimin, 2011; Lim et al., 2013).

According to Karim and Khalid (2003), the strategic shift which has been observed in Malaysia which includes the shift of information where the globalized era offers the country as well as the world a set of attractive environment of global multimedia by which the elements that have been seen to emerged uniquely in this area of information technology have the ability in fusing, growing and delivering a replicable chain which involves the innovative products and services as well as other best practices. However, Malaysia's e-Government ranking position has steadily decline since 2010, according to the UNPAN (2014) and Waseda University (2015). Thus, this motivates the researcher to explore the issues that led to the decline of the e-Government ranking for Malaysia.

The execution of ICT in most of the developed countries across all sectors of the government have generally reached a maturity stage (Nakkas, Scott, & Briggs, 2015) compared to developing countries where e-Government services and activities are still very low (Alsaeed & Adams, 2015). In addition, Dada (2006), has stated that the rate of failure of the e-government projects seems to be relatively high especially when it involves developing countries, this claim also stated by (Ibrahim & Zakaria, 2015). This argument also was supported by Lessa et al. (2015), who referred that the failure in the initiatives regarding the e-government in the respective countries is actually very high and this demonstrates that the issue is challenging and poorly understood. Meanwhile, Dzhusupova et al. (2011) stated that, most of the measures to date focus on the evaluation of the immediate success

of the initiatives of the e-Government. Meanwhile, the sustainability is an often ignored indicator of e-government success. Therefore, it is crucial to actually take into consideration on the issues that are associated to the improvement as well as the evaluation of the e-government applications when it comes to developing countries.

In the similar context, according to latest survey carried out by United Nations e-Government in 2014, the e-Government in Malaysia was occupied 32 in the year 2010 and then dropped to ranked 40 in 2012, thereafter witnessed a sudden fall to ranked 52 in 2014. At the same time, Waseda University conducted the first survey that includes 23 countries. Apparently Malaysia's e-Government was listed as the top ten countries in 2005 when this re-search was conducted earlier. Despite the number of the countries involved which have shown a gradually increasing pattern, the ranking of Malaysia has happened to decrease greatly (Eze, Goh, Ling, & Lee, 2011). Thus, it is not a surprise that certain studies (for instance, Othman and Rahmat, 2006; Boon et al., 2012; Wong et al., 2010) have proposed that the Malaysia's e-government application actually is in need of a closer attention that what it has actually received at this point. Furthermore, Khadaroo, Wong and Abdullah (2013) referred that the efforts to improve the ranking, a concentration on the evaluation of the projects of e-Government as well as the assessment of how it can be utilized in areas that are deemed strategic have to be done by the government. Therefore, recently, Malaysian government decided to revive the e-government, but unfortunately, many challenges stand on the way from achieving this goal (Al-Aghbari et al., 2015). In the same vein, Abdullah, Mansor and Hamzah (2013) referred that several challenges impeded the organization and citizens in adopting the e-government such as resistance by public officials to this



mode of service delivery, the digital divide and also the access of the Internet that is limited among the weaker sections within the population itself.

Therefore, to discover the indicators behind the decline of the Malaysia's e-Government ranking through harnessing the comparative studies. Indeed, there are very few studies in this area exploited this method to enhance the e-Government performance (such as Smith, 2011; Alshomrani, 2012; Weerakkodyet al., 2012; Didruga and Brandas, 2015).

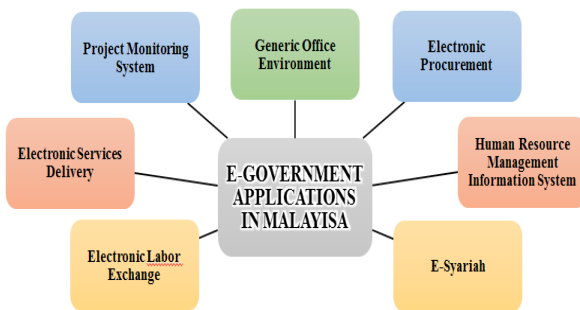


Figure 1: E-Government applications in Malaysia
(Sources: Lim et al., 2013)

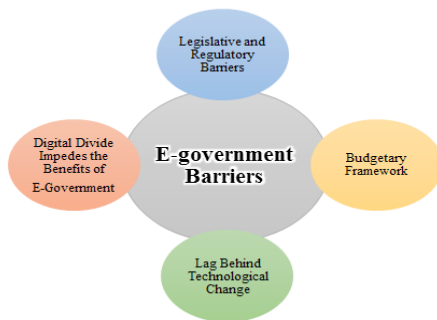


Figure 2: E-government barriers

II. METHODOLOGY

Indeed, the types of problems encountered in a research have an influence towards the methodology that will be chosen to be utilized. As stated by Creswell (2009), research method involves plans as well as the procedures for the research which affect the decisions from the broad assumptions to the methods that are narrowed down in the data collection and analysis stage. Thus, it will then suggest the plan to conduct the particular study (Creswell, 2013). Therefore, this study encompasses several stages to achieve the aim of the current study, Figure 3 depicts the stages required.

In briefly, in a first stage the researcher sought to identify the motivations of the current study and highlight the critical issues mentioned in the previous literature and related to this phenomenon. After that, the researcher will collect more sources (such as, articles, reports, books, etc.) to identify and explore the criteria that effect to decline or increase e-government ranking in general and Malaysia's e-Government ranking in particular. With regard to the second objective, two countries members of the United Nations e-Government were selected and comparing with Malaysia's e-government. Republic of Korea and Nigeria were selected for this comparison, where the Republic of Korea, still retain first place in the world rankings and at the same time Nigeria witnessing great progress in e-government applications. For this purpose, the secondary data gathered primarily from e-government surveys (2010, 2012 and 2014) conducted by United Nations (<http://www.unpan.org>) that consider as a pioneer organization of e-Government ranking.

In the end, the final results of the first stage and the second stage will be evaluated by two experts, who have experiences with e-applications research (For instance, e-Government, e-learning, e-participants,

m-Government...etc.) to attain the last research objective.

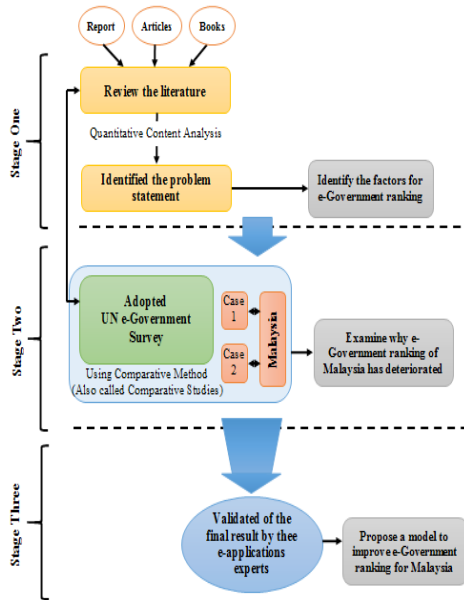


Figure 3: The research processes of the study

III. RESULT AND DISCUSSION

A. Data Analysis

In this section the raw data was analyzed to achieve the main aims for this study, where the first aim identify the factors for e-Government ranking, the second aim is examine why e-Government ranking of Malaysia has deteriorated and explore the reasons that the decreasing Malaysia’s e-Government ranking compared with the other country such as Republic of Korea and Nigeria.

With regard the first objective, the results indicated that, the e-Government applications evaluation by several organizations, but the more popular

organization is known as United Nation e-Government. This organization was assessment the e-Government initiatives across the world based on the three indicators namely: the Human Capital, Online Services and Tel-ecommunication Infrastructure. Each indicator includes a number of sub-indicators, Figure 4 depicted these indicators and its indicators based on the previous studies. As for Telecommu-nication Infrastructure, this is a composite weighted average index of five primary indices based on basic infrastructural indicators, which define a country’s ICT infrastructure capacity. These are: Individuals using the Internet, Fixed-telephone, Mobile-cellular, Fixed (wired)-broadband and Wireless broadband. While, Human Capital is a composite of the adult literacy rate and the combined primary, secondary and tertiary gross enrolment ratio with two third weight given to adult literacy and one third to gross enrolment ratio.

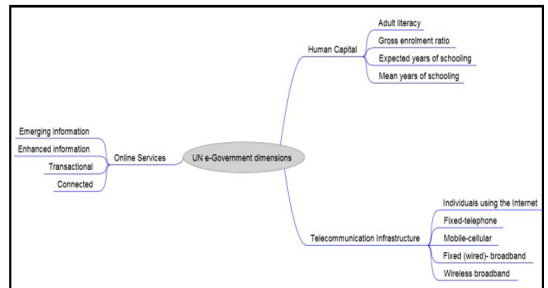
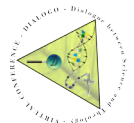


Figure 4: The indicators of the UN e-Government survey

In order to attain the second objective of the present study “To examine why e-Government ranking of Malaysia has deteriorated”, The ranking of Malaysia’s e-Government was compared with both Nigeria and Republic of Korea, depending on the major indicators, as well as sub-indicators of United Nations e-Government survey to attempt to find a weakness that led to a decline e-Government ranking of



Malaysia. Figure 5 illustrates the comparing between these two countries and Malaysia based on the Human Capital, Online Services and Telecommunication Infrastructure.

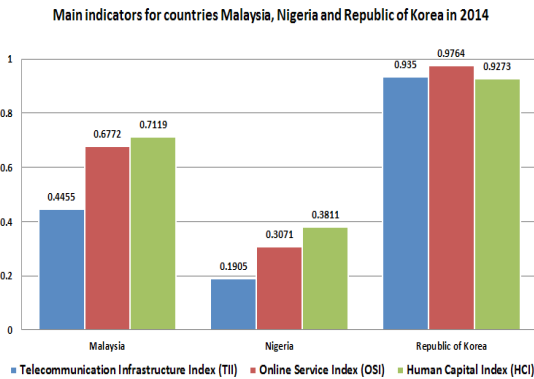


Figure 5: Main indicators for countries Malaysia, Nigeria and Republic of Korea in 2014

More precisely, there is a huge gap between the e-Government ranking among Malaysia and Republic of Korea. For instance, wireless broadband indicator for Malaysia was 13.59, while for Republic of Korea was 105.14. Moreover, individuals using the Internet indicator for Republic of Korea was 84.10, whereas Malaysia was less in this value approximately 65.80.

Table: The gap among values of sub-indicators for (Malaysia, Nigeria, Republic of Korea) in 2014

	Sub-indicators	Malaysia	Nigeria	Republic of Korea	Gap between countries
TII	Individuals using the Internet (%)	65.80	32.88	84.10	Low
	Fixed-telephone (per 100)	15.69	0.25	61.42	Medium
	Mobile-cellular (per 100)	141.33	66.80	109.43	Non
	Fixed (wired)- broadband (per 100)	8.41	0.01	37.25	Low
	Wireless broadband (per 100)	13.59	18.37	105.14	High
OSI	Emerging information	84	56	100	Low
	Enhanced information	73	36	82	Low
	Transactional	40	14	77	Medium
	Connected	50	18	88	Medium

HCI	Adult literacy	93.12	51.08	99.00	Low
	Gross enrolment ratio	71.33	55.85	101.50	Low
	Expected years of schooling	12.60	8.98	17.16	Low
	Mean years of schooling	9.50	5.20	11.60	Low

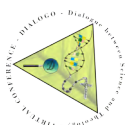
The final results were reviewed by two experts in the e-applications (such as e-Government, e-learning and so on). The outcome of the experts' review very important to achieve the third objective to develop the model for the must indicator effected on the Malaysia's e-Government ranking. Figure 6 depicted the final model of the dimensions and its indicators that affected on the Malaysia's e-Government ranking.



Figure 6: Proposed model for enhance the Malaysia's e-Government ranking

CONCLUSION

As discussed earlier e-government become an important tool for the public sector not only to provide electronic services to citizens but also to interact with businesses, other organizations and governments. The UN bi-annual survey that investigates the level of compliance and implementation of e-government applications and projects in member

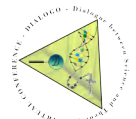


countries is creating a healthy competition that is pushing governments of member countries to take giant strides towards improving their e-government development ranking. In order to compute the e-government developing ranking the UN e-government using three major indicators namely online services, telecommunication infrastructure and human capital. Each of these also consists of sub-indicators that are used to estimate index for the main indicator.

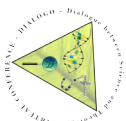
This study has presented an overview of the prevailing situation of Malaysia e-government by the use of UN e-government survey reports for the period 2010 to 2014 and other materials and reports. The study also compared the Malaysia's e-government performance with that of Korea, a current world leader in e-government. From the finding of the study Malaysia is lagging in many aspects when compared with Korea. In fact the gap can be estimated to be close to 80%. No wonder Malaysia is collaborating with Korea to help her improve her e-government development ranking based on gaps identified in this study as well as develop a model that will guarantee continuous provision of online services and monitoring e-government development.

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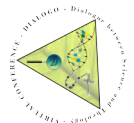


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SECTION 6

**Biology, Medicine, Natural Sciences
& Theology**



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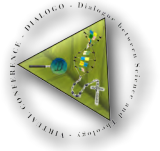
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Cosmology, Embryology and the Journey of Self-Discovery

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ABSTRACT

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Keywords:

embryogenesis; Universe; Big Bang;
polarity; pulsation; Self; creative
principle; conscious Mind; living
organism;

On the grounds of a possible parallel between embryogenesis, including the fertilization process, and the development of the Universe, the validity of the Big Bang theory is questioned. In this article, it is suggested that the fundamental nature of the Universe is a cosmic play of opposites, the male and female principle; a polarity, which is inherent in everything as indicated by the yin yang symbol. Even for an electrical charge to exist one needs a positive and negative pole. It also proposes that all matter originates and exists only by virtue of a force that brings all particles to pulsation; a conscious Mind that is expressing itself through ever-changing pulsating forms. Although this invisible spiritual principle behind creation becomes tangible in animals and humans via the heart, it is only the human being who can realize his or her fundamental nature or true Self through a journey of inner discovery. As the development of the Universe might reflect the process the embryo undergoes in forming a body, the principles discussed in this article might also apply to the nature of Nature itself. This implies all of Nature might be a living being or organism, an interconnected whole united through the underlying creative pulsating force. The suggestions put forward here have theological and cosmological implications.

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I. INTRODUCTION

According to most physicists, the Universe began with the Big Bang. The term was coined by Sir Fred Hoyle, an astrophysicist who used the term in one of his talks with derision when referring to a theory in which he did not believe [1]. In 1931, the catholic priest Lemaître proposed in his “*hypothèse de l’atome primitif*” (hypothesis of the primeval atom) that the universe began with the “explosion” of the

“primeval atom” which later became known as the Big Bang theory [2, p. 19]. Whereas Aristotle had held that the universe had an infinite past, medieval Jewish and Islamic philosophers preferred a creationist model consistent with their own religious traditions involving creation [3]. For me the Big Bang sounds like a crude way for referring to sexual intercourse where there is no foreplay. And that is really how scientists seem to conceive the Universe for nobody appears to ask what came before the Big

Bang.

There are normally two accepted ways of knowing more about the cosmos and nature. One is using the scientific approach which seeks to understand the universe and her secrets from the outside using the scientific method. The other way is what people have done for thousands of years, and that is take their questions about the nature of Nature deep inside and sit down and wait until Mother Nature gives them an answer. In India, these people were known as yogis, rishis or philosophers [4].

In this paper, I suggest there is yet another way; the study of the human embryo principally during the first 49 days of its earthly life. In the past this was impossible, at least scientifically, but modern technology plus the collection of embryos such as those of the Carnegie Stages [5], have made a previously invisible process accessible to scientific scrutiny. To see the bigger picture, I also refer to the comparative morphological approach as used by van der Wal [6]. This way of doing science is inspired by the phenomenological method of Goethe, which he developed as a way to go beyond the reductionist Newtonian method [7] [8]. By looking at the juxtaposition of two isolated but polar objects, one can begin to see "more of the essence of the separate parts." At the same time, one starts discovering the "phenomena, which remain hidden whilst focusing on isolated parts...In other words one develops an eye for the total picture" [6, p. 2]. This way of seeing is known as "dynamic perception" [6, p. 3].

As a complementary way of discovering our true nature and the nature of the Cosmos, the process of Self-discovery via heart-based meditation methods are also discussed.

II. EMBRYOGENESIS

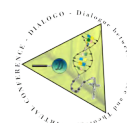
In the following sections, embryonic development, including the fertilization process, is briefly presented using the comparative morphological perspective as used by van der Wal [6].

A. The Ovule and Sperm

When contemplating the egg cell and sperm, the huge size of the ovule only becomes apparent when we compare it to the tiny size of the sperm. Likewise, the ovule is full of cytoplasm, whereas the sperm has virtually no cytoplasm. The ovule is almost immobile, but sperm is highly active. These differences are intimately related, and through this way of seeing, one realizes that each element adds a unique feature that the other one lacks, and therefore together form a unity that is more complete. This comparative approach opens us to a broader reality and makes us realize that inherent to the fertilization process is a play of opposites, a male and female principle, which are polar but complementary in nature [6].

B. Fertilization

We know from fertilization in vitro, that the conception of one sperm winning the race is incorrect and that the process requires many hundreds of sperm, which form in a circle around the egg. The sperm put their head ends into her protective outer layer, which is known as the corona, and this new unity forms an attraction complex that begins to move. This can be likened to a cosmic dance of love between inherent opposites. Eventually one sperm is let in and the ovule now becomes known as a zygote, a unicellular organism. Here an organism is seen as a living being, it is first and foremost a whole that then starts to differentiate and organizes itself in different ways. This



is contrary to the prevalent way of thinking, which sees the organism as being made up of separate parts where the whole is the sum of the parts. For van der Wal:

It is the appearance which changes not the essence...In the desert of modern day thought life, it is the embryo which cries out that wholeness comes first in living nature...[In the embryo] there is an endless series of differentiations, following one another in the course of time, creating the organs and the different parts of the body, it never happens the other way around! [6, p. 37].

The embryo goes through various phases and becomes increasingly more complex. An increase in complexity, however, does not imply an increase in what we are, a living being. Looking at the organism as a whole, one can use many different lenses in an attempt to understand it and to see how it differentiates itself over time; basically all life sciences have this as their subject matter. Here I follow van der Wal [6] in how he looks at embryonic development.

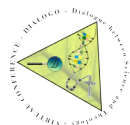
C. The Process of Somatogenesis (formation of a body)

Van der Wal [6] sees the embryo as going through four phases, which are reminiscent of the main kingdoms in nature, the mineral, plant, animal and he includes a fourth, the human phase. During these phases the morphology of the human embryo becomes increasingly more complex. However, as said, an increase in complexity does not imply an increase in what we are, a living being. During the progression of each phase, slight changes in expression in the form can also be observed which suggests that the whole process is essentially dynamic.

1) *The mineral phase:* After conception, the organism, now known as a zygote, closes itself off by forming a protective outer shell. From its center it starts splitting

up into segments in a mathematical fashion, first two, then four, then eight etc. to which the term “cleavage” is sometimes applied. These particles are microscopic and this is not growth in the normal sense, as the organism does not increase in size or volume. Van der Wal sees it as being reminiscent of the mineral phase, where there is a reproduction of particles in a closed environment. These particles are not building blocks but “represent an organizing principle” [6, p. 36].

At this point in time the organism is free floating and “gives the impression of being like a spaceship floating in the Fallopian tube and the uterus without having any particular metabolic exchange with its environment ...[and although we] are clearly dealing with a living entity...it displays more and more signs of death” [6, pp.35–36]. For van der Wal it is as though “‘time is not yet.’ Which time? Lifespan, lifetime so variable and specific for each organism” [6, p. 36]. Interestingly, this phase lasts a week in all mammals, regardless of the duration of pregnancy, which is 21 days for a mouse, 21 months for an elephant, and 9 months for the human being. As the week when cleavage is taking place is not counted in the number of days or months of the duration of the pregnancy, it certainly seems that it is *outside of time*. As this phase advances a center or pole can be seen as forming. The inner cavity becomes filled with liquid produced as the segments start to die off. Some of the segmented parts cluster near the basal end of the zygote and become known as the *embryoblast*. The other cells, which are gathered around the inner periphery wall, are referred to as the *trophoblast*. This structure now becomes known as a *blastula* or *blastocyst*. It can also now be considered as a duality, for it has an inside and an outside. Van der Wal refers to the inner lining as the central body and the outer cell lining as the peripheral body. At this stage, if no new principle is introduced,



the organism will die off, a clear example that more of the same does not produce growth.

a) *Way of being*: The principle characteristic of the mineral phase can be seen as one where the organism obeys the laws of matter, physics and mechanics [6, p. 31].

2) *Plant phase*: For the organism to grow, a new phase needs to occur. This involves implantation, also known as *nidation*. This is a process in which a developing embryo, moving as a blastocyst through the uterus and then makes contact with the uterine wall where it remains attached until birth [9].

If we are reading “this gesture correctly... [this] represents an interruption, a revolution” [6, p. 36]. During this new phase the organism reaches out and extends its boundaries deep into the maternal womb. Furthermore, by producing the hormone of pregnancy, it reaches into the pituitary gland of the mother, which facilitates her acceptance of the new organism. From being a cut off “space ship” [6, p. 36], the periphery of the organism now expands tremendously and reaches far beyond its physical borders. The organism can be seen as taking root, and, essentially, it lives in its outer body, also known as the ectocyst (outer egg).

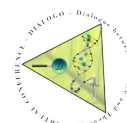
Meanwhile, the endocyst (inner egg), which is the core of the embryo and consists of the bilaminar germinal disk made up of ectoderm and endoderm, can be seen as the center around which everything revolves. Van der Wal likens it to the center of a wheel around which everything turns. The characteristic of the organism at this stage can be considered as being plantlike, for it too takes root and extends far beyond its borders and it too has a center around which life revolves but does not participate by growing itself. This growth stage can be observed during the second week of

the differentiating organism. Once again, however, eventually more of the same will not aid growth. When this does occur in humans, it is known as a “wind egg,” an embryo with no center.

a) *Way of being*: The principle characteristic of this phase is its capacity to reach out and interact with its environment via its metabolism. It also exists in time and is subject to the laws of gravity but strives against them [6, p. 31].

3) *Animal and human phase*: In humans, the developing organism is generally known as an embryo up to 8 weeks and from then it is referred to as a fetus [10]. Regardless of the name, at the end of the second or the beginning of the 3rd week, “the chorionic cavity has come into being containing tissue of a kind that mediates, connects, but also creates space. This is the meso(-derm)¹ which connects and mediates between the two dimensions by means of the body stalk” [6, p. 41]. Van der Wal writes meso(-derm) like this to draw attention to the fact that, in keeping with Blechschmidt, the term mesoderm gives rise to a confusion in perception as derm means limiting skin and mesoderm is not a skin or border but “inner tissue... with a third dimension” [6, p. 42]. For van der Wal, the *trophoblast* also represents the embryo but for many other embryologists, only the germinal disc is considered as the embryo, and they, therefore, talk of the activity in the *trophoblast* as being “extra-embryonic”. Now something new happens. At the beginning of the 3rd week, the first blood islands and blood vessels (capillaries) originate within this extra-embryonic meso(-derm). The formation of blood vessels and blood is the very first functional differentiation of the meso(-derm). The blood then flows from the metabolic periphery of the *trophoblast*, or extra-embryonic meso(-derm), to the body stalk,

¹ As this qualification of van der Wal gives the idea of dimensionality, I continue to use it in this article.



which is at the caudal end of the germinal disc. It then proceeds toward the cranial end of the embryo. At the central point, which van der Wal calls the “centripetal junction of blood vessels,” it comes to a halt and then flows back to the periphery through other capillaries. “This point of reversal, where the flow comes to a standstill, turns about, and takes on a rhythmical character, is the first indication of the origin of the heart” [6, p. 44]. This, moreover, is the first real center in the embryo for it is an actual anatomical center rather than just a center in space around which everything revolves. It must also be noted that “the movement of blood flow is primary; the emergence of the heart is secondary. First there is flow, and where this comes to a standstill, the form arises” [6, p. 44]. During the previous plant phase, growth was on the periphery with the roots extending outward into physical space. The animal phase is the reversal of this and requires a growth inward. Another differentiating factor is that life, up to the animal phase, is seen as being outside of the germinal disk. However, on about the 17th day, something radically different happens. According to Steiner, “whereas the incarnating soul-spirit was up to this point present *around* the physical kernel, the ‘astral individuality’ of the human being now incarnates into the physical kernel itself” [Steiner in 6, p. 45]. In keeping with this, van der Wal claims that the human soul now “comes a step closer ‘to earth,’ with the heart being the organ of incarnation!” [6, p. 45].

This is a vital stage in the development as now:

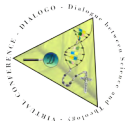
Innerness is created which can hold its own against the outside and emancipate from it. A different state of consciousness arises in the animal. An inner environment has now been established, leading a life independent of its surroundings. It is capable of moving of

its own accord and of establishing a relationship to its environment. This inner space is not only somatic, but also psychic [6, p. 46].

This, in terms of gesture, is a reality. However, before full emancipation can occur in the physical sense, van der Wal reminds us that more still has to happen to the developing embryo. First the flat germinal disc transforms itself into the trilaminar germinal disc. At the end of the 3rd week an intermediate layer appears between the ectoderm and the endoderm, namely the *intra-embryonic mesoderm*. The *meso* closest to the ectoderm is called *parietal* or *somatic meso(-derm)*, the layer closest to the endoderm is known as the *visceral* or *splanchnic meso(-derm)*. This mesoderm has made its way *into* the germinal disk, by growing inward, starting from the primitive groove. It now is a three-dimensional entity with “real inner content” from which the impulse to “forming organs arises” [6, p. 44].

a) *The notochord*: The 3rd week certainly brings about many changes in direction of growth of the developing embryo, including, if Steiner is correct, the incarnation of the soul/spirit. On day 17 (this is also the same day the heart primordium starts pulsating) the notochord also starts to form [11]. It is this that it said to have an effect on the formation of the neural plate that starts to form on day 18/19, which in turn gives rise to the neural tube and thereafter the central nervous system (CNS) and the brain [4].

b) *Delamination or folding*: During the 3rd, but primarily the 4th, week a process then starts to occur which is known as folding or delamination. The sides of the embryo, which up to now has been essentially a flat disc, now fold toward each other. At the same time there is a longitudinal folding, which together transforms the now three-dimensional embryo into the form of a



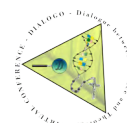
cylinder. The longitudinal folding takes place toward the body stalk, which enables the developing embryo to still be connected to the placenta. The heart, at the top or cranial end of the embryo, begins its descent in the direction of the upper chest, where it later tucks the endocardial tubes ventrally in the thoracic region at the base of the yolk sac [12]. This then allows the brain primordium to take its place at the top cranial end of the embryo. The caudal end also raises ventrally, which now truly gives rise to the umbilical cord. This curving process of the embryo creates an inner world, which is essentially cut off from the outside world. It is in this inner world that the organs develop. According to van der Wal the whole of this process is a growth phase, which needs to be completed physiologically at birth with the cutting of the umbilical cord.

c) *Way of being*: The principle characteristic of the animal phase is that it has innerness and a sentient body. It can also interact with its environment by moving its outer shape. It has a soul and exhibits a range of complex behavior and possesses perception [6, p. 31].

4) *Differences Between Humans and Animals*: This is not the end of the process as, for van der Wal [6], another phase needs to occur that differentiates the human from the animal. Although Darwinian science considers man as an extension of the animal, according to van der Wal the embryo tells a different story. This growth phase involves a fine-tuning of our capacity of awareness. With the creation of an inner and an outer world, “the outer world can be perceived... The condition for having this awareness and perception is separation” [6, p. 49]. Although this is shared with animals, the human being has an additional capacity. We can be aware that we are aware; “the new direction could be described as finding a standpoint towards our own inner world” Here he is playing with the term standpoint

and inviting us to take it literally, for the next phase is the coming upright of the embryo. “We can experience a center in ourselves which is conscious of the fact that we are beings with self-consciousness” [6, p. 49]. Although humans share the upright position with penguins and kangaroos, van der Wal is talking about “a balance of the head on the trunk which in turn is balanced on the lower extremities” [6, p. 49]. This allows the human to move in a unique way, which is not shared by other animals whose center of gravity is outside and as such, they are pulled towards the environment and earth. It is only humans whose center of gravity draws us to ourselves. The impulse for coming upright begins in the fourth and extending into the 5th week, an impulse that starts with the elongation of the brain and not only “brings about the characteristic flexures of the different parts of the brain,” but also “the head grows cranially away from the trunk, whereby the neck appears at the same time, “the pelvis ‘turns’ caudally ‘away’ from the trunk coming under it, resulting in the waist being formed” [6, p. 50]. This process, according to him, is typical of the human being and it can be seen as an unfolding of the previous curled up embryo. This unfolding also brings about the growth of the extremities of the stretching outward of the arms and hands and the stretching inward of the feet and legs. Van der Wal suggests that the brain and the extremities can be seen as forming a polarity whereby we need to arrive at a position of balance to maintain an upright position. This for him is one of the characteristics of the human being whereby the anatomical-morphological formation is also reflected in the organization of our self-concept, “I am.”

a) *Way of being*: The principle characteristic of the human phase is that the center of gravity is inside and this allows humans to become aware of their inner world and experience “a center in ourselves” [6, p. 49). It also permits them to



come aware of their true nature or Self [4].

III. INSIGHTS GAINED FROM THIS APPROACH

I have outlined van der Wal's approach in some detail as, via it we can begin to appreciate the dynamic forces behind the development of the embryo. It also suggests that each phase gives rise to a different way of *being in the world*. Moreover, it helps us understand the development of the heart in greater detail and opens us to seeing the "heart" as a system that starts at the periphery through blood. The heart is also the harbinger of creating an inner world, which we share with animals. We saw that when pulsation starts on day 17, the plant phase is clearly over; for instead of growing upward like a plant [4], the heart doubles and begins its decent toward the interior of the organism. Here pulsation can be seen as heralding a new phase. If Steiner is right, this also coincides with the entry of soul/spirit into the physical kernel itself with the heart being considered as the organ of incarnation. Arka, [in 4] sees the creative impulse or creative principle behind all matter incarnating into matter through the heart, for, to him, "*pulsation is the underlying core principle, and the property of universal existence, cosmic existence and local existence*" (italics author) [4, p. 87].

Quantum physicists have also come to the conclusion that matter is not solid. Through the use of mathematical equations, they too view particles as having pulsation. By multiplying the mass of the particle by the square of the speed of light, and then divide this by Planck's constant, one finds its frequency [13]. From this, Hoffmann suggests they have "created a picture of a particle with a definite rate of pulsation." He also invites us to concentrate on pure pulsation, which we can interpret "as a bottled up heartbeat or else as a spread out pulsation" [13]. According to Hoffmann, de Broglie used both interpretations at once

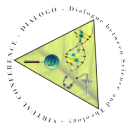
and thus assumed that:

A particle at rest not only possessed a localized heartbeat but was also accompanied by a widespread pulsation forever in step with it and extending all over the universe. This pulsation was as if a whole ocean were rising and falling like some vast elevator; there were no waves in the ordinary sense, just a rise and fall [13, p. 75].

Without going into the argument of relativity here, it seems de Broglie brought it round in a full circle by suggesting that "matter, long thought to consist of particles, must be accompanied by waves and thus partake in their nature" [13, p. 80].

Instead of seeing waves and particles as a duality as did de Broglie [14], maybe waves and particles can be seen as complementary opposites in the Goethean sense. Quantum physicists also do not inquire what or who causes the waves in the first place? Arka [in 4] claims that pulsation is the underlying core principle behind all matter, and therefore links both particles and waves. Lindhard inspired by Max Planck [15] to look for the Absolute, the universally valid, the invariant that is normally absent when only concentrating on relative, testable relationships . . . (takes this one step further and suggests that) all matter originates and exists only by virtue of a force that brings all particles to pulsation; a *conscious Mind* that is expressing itself through ever-changing pulsating forms [4, abstract].

This spiritual principle is not only intangible, but through the pulsating heart become tangible in animals and man. Pulsation is part of the never-ending wave of creation whose function is to manifest and move on [Arka in 4]. As the heart tube begins to pulsate at the same time soul is said to descend into matter, it seems there is a relationship between the incarnating spirit/soul and the primary expression of



the emanating wave of creation revealing itself through matter as pulsation. Through the expression of *It Self as pulsation*, the incarnating spirit/soul, the fundamental creative impulse of the Universe and the entity that is created, appear in essence to be *One* [4, p. 90].

A. The three in one

At this level of analysis, it becomes very difficult to separate the force that creates, the intelligence behind this force, and the self or soul. The tenet of non-duality behind Vedic philosophy becomes increasingly manifest when we look at creation in this way.

Thus the essential nature of the Lord is perpetual *spanda* (creative pulsation). He is never without *spanda*. Some hold that the Highest Reality is without any activity whatsoever. But in such a case the Highest Reality being devoid of activity, all this (i.e. the universe) will be without a lord or Creative Power [16, p. 10].

Through modern science we have become accustomed to thinking of “physical reality as waves of energy – the matter-energy continuum” [16]². However, as physical reality is considered only a part of creation, we need to go beyond this and the superficial perception of the senses to discover other realities or dimensions [16].

B. The paradox of our existence

These insights imply that through pulsation we are a manifestation of incarnated spirit/soul and yet on the other hand, as the “heart” system is the only organ in the body that physically starts to develop outside of the germinal disc itself, we are related via the development of blood to our mother and through this, the wider environment. This seems to point to a fascinating paradox of our being and

² Outside back cover

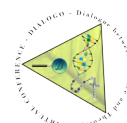
the role the “heart system” as *blood* and as *pulsation* plays in our lives and in our identity. Obviously, both influences effect and are affected by us on many levels in our ongoing development [4].

IV. THE JOURNEY OF SELF-DISCOVERY

The coming upright phase of the human embryo is linked to the elongation of the brain. As most of our sense organs for operating in the outside world are also found in the face, this early anatomical-morphological formation as gesture might play a role in human’s predilection for finding the seat of consciousness in the brain [4].

However as many meditation traditions imply, it is only by withdrawing our senses from the outside world and contemplating our inner world that we can begin to discover our true nature or Self [17]. To do this we have to go above the mind or below the mind and feeling-based methods that go below the mind are slightly easier [Arka in 4, p. 13]. Heart based-methods have been used throughout history; a method known as Prayer of the Heart was used by the Desert Fathers and later adopted by the Orthodox Church. But prior to this it was known to the ancient Egyptians, Jews and other Mediterranean cultures, as well as to the Sufis and Tantric tradition in India. It is also close to the traditions involving Self-enquiry (*atma-vichara*) and Kashmiri Shaivism. “It is rooted in an understanding of the Godliness of man and the humanness of God” [18, p. 35].

Whereas Western science has also traditionally been involved with understanding the world outside of us by using our senses, the discovery of our true nature requires a different method and relies on intuition and guidance, as has been suggested by spiritual traditions throughout the ages. It also requires that we transcend our egos “[19, p. 82] or rewind the evolution



of all that has happened to us [20, p. 29]. The core of practices associated with ego transcendence and contemplation of the Self is the “experimental phenomenological introspection into the living topological construct of the Self “ [19, p. 82]. For Arka, the term meditation entails “serious self-pondering [which involves] the process of making profound inquiry into the depth of the soul about...[our] existence or how the Universe was created or the laws that governed living and non-living matter [20, p. 29]. Heart-based methods regardless of their individual peculiarities, involve connecting with the feeling *mind* of the heart rather than the thinking *mind* of the brain [20] [4]. It has been shown that more information is sent from the heart to the brain than vice versa [21]. The heart has been found to have an intrinsic nervous system of its own, containing around 40,000 neurons called sensory neurites. This extensive and complex neural network has been characterized as a *brain on the heart* or *heart-brain* [22-24] (Armour 1991; 2007; 2008). This allows the heart to act independently of the brain, sending and receiving meaningful messages of its own through the autonomic nervous system [4].

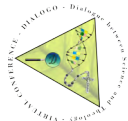
In a pre-post test design, Lindhard has shown that participants who receive 13.5 hours of a heart-based method of meditation know as Intuitive Meditation, significantly increased their feeling capacity as measured by a scale known as the Feeling Consciousness Scale [4] [25]. The scale includes items such as unity, peace, intuition, positivity, awareness of emotions, and connection to one’s inner Self, sometimes expressed as soul, inner being, or atman [4, p. 184]. In traditions that meditate on the Self, inner inquiry leads to a vast transformation in the person undertaking the investigation and “*Sanatana dharma*, the spiritual philosophy of India, suggests that there is a perennial form of healing, which consists in the realization of the true,

immortal, and limitless nature of the Self beyond the ego” [Sri Nisargadatta Maharaj in 19, p. 81].

A. The Self

Our exploration into embryogenesis also takes us on a different kind journey; a journey that starts with a cosmic dance between the male and female principle. This dance results in the manifestation of a being which expresses itself as a form that is first spherical and through a process of cleavage, segments or particles arise in mathematical progression from the center of the sphere. After seven days, more of the same will not produce further growth and the organism has to adapt to a new way of being which involves putting down roots and extending its borders through hormones. The end of this plant phase is heralded by pulsation of the primordial heart at the cranial end of the germinal disc. This is accompanied by the development of the notochords which gives rise to the CNS and brain. Through the primordial heart, the soul is said to enter into matter. As pulsation might be related to the creative force behind all form; local, cosmic and universal, it seems as though through the heart it is this creative force that enters into matter. In looking for the absolute behind this force, it seems there might be an intelligent conscious Mind. It has been suggested here that this, in essence, is our true Self. It does not matter what one calls it; the *Rigveda* is oldest of all the Vedas states: *Ekam Sat-Viprah Bahudha Vadanti*³. “The ONE BEING, the wise diversely speak of.” This Self or conscious Mind is outside and beyond but it is also our inner Self, that which is manifesting It Self through pulsation through our hearts. There is only one Being of which we are.

³ *Rigveda* Book 1, hymn 164



CONCLUSION

The account presented here not only has implications cosmologically, but also theologically. Theologically it is consistent with Vedic thought as expressed by the *Advaita*⁴ tradition. It is also consistent with the traditions that meditate on the heart. Prayer of the Heart is said to allow the practitioner to go beyond the veils to discover his or her true nature or Self [19]. In these traditions the Self is seen as manifesting itself through form, but it is the human being who can discover his or her true nature and the nature of the Universe [17].

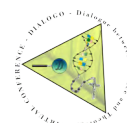
In the Christian tradition of the *Sacred Heart of Jesus*, the Heart of Jesus is an object of deep veneration as is the *blood of Christ*. Here wine, in representation of the *blood of Christ*, is physically imbibed [26]. Our overview possibly throws some light on these beliefs as we have seen how blood, the heart as an organ and the deeper Self as represented by Jesus, might be deeply interconnected.

With regard to cosmology, the fertilization process of the embryo suggests that the creation of the Universe might also involve a cosmic dance consisting of two polar principles. In fact every quality we can think of in the Universe has its opposite, for example day cannot exist without night, light cannot exist without darkness and a positive charge cannot exist without a negative charge. This is consistent with Chinese philosophy as represented by the yin yang symbol. The model presented is also dynamic not only in terms of morphology, but also in terms of “ways of being”, suggesting that for each new growth phase to come about, there has to be a change in the previous way of being. Although at the 4 a Vedantic doctrine that identifies the individual self (atman) with the ground of reality (brahman). It is a nondual.

start of a phase, growth appears to involve “a process of gradual, peaceful, progressive change or development”, it seems that more of the same will eventually not be beneficial to the organism, and that it will have to change its way of being if it is to continue to grow.

When we look for the underlying principle that link the different phases, we discover “pulsation” which is invisible in particles but becomes tangible via the heart. It also appears as though pulsation might be the underlying core, principle, and the property of local existence, cosmic existence and universal existence. As such, the heart might be seen as part of the never-ending wave of creation [Arka in 4, p. 112]. This also encourages us to look at somatogenesis not only in terms of particles, but also in terms of waves where the formation of the body can be seen as unfolding in waves. This might throw some light on the wave particle duality in quantum mechanics.

As development of the universe might mirror the principles involved in the ontogenetic process of the embryo [4], the postulates discussed here might also apply to the nature of Nature itself. This perspective might present a new way forward regarding insights concerning how biological systems function. In addition, this approach may be a step forward in finding a unifying theory not only of somatogenesis but also of Universe. By extending these insights to Nature, it seems that it might be an organism, a living conscious Being, which is manifesting itself through the different kingdoms each with its corresponding “way of being” or mode of consciousness. What distinguishes the mode of consciousness of human beings from other modes, is their capacity to know their essential Self, their true nature as a non-physical yet powerful conscious entity, organism or Being that is the pivotal point of all life and is expressing It Self through different modes in all the



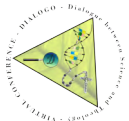
various forms found in visible nature.

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She has several publications including “Experiencing Peace Through Heart-Based Meditation on the Self”; “Emotions Including Anger, Bodily Sensations and the ‘Living Matrix’”, and Security and Defense: A Contradiction in Terms? Chap.1. In *Security in Infrastructures* edited by J. Martin Ramirez and J.C. Fernández, 2-18. Cambridge Scholars. 2016. The name of her thesis is “Unlocking The Secrets of the Heart Through Meditating on the Self.” Her research interests involve finding out about the connection between the heart and different levels of Consciousness.

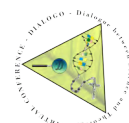
Dr. Lindhard is currently president of the nonprofit organization CCASpain and also chair of Consciousness Research of CICA, an international scientific organization.

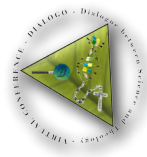
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The calculation of the Romanian children's 0-2 weight and height based on the size of the foot: Possible applications for the casualty medicine

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ABSTRACT

The research study focusses on the analysis of the statistical correlations between the clinical and radiographic measurements enabling the calculation of the children's (aged between 0-2) weight and height, in order to offer some support in situations that occur in the casualty department where the knowledge of the patient's weight is beneficial to be able to administer the medication treatment as precisely as possible.

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I. INTRODUCTION

Starting from the phylogeny of the human foot research studies carried out on isolated population groups (on national groups, as a rule), a generalisation of the information was attempted with the view to applying it to the whole population of the world. The research data obtained so far have revealed that this seems rather impossible. But focussing the analysis on races or limited population groups, such as the application of it strictly on the population of Romania spreading area, yielded promising results, showing that the correlations are, nevertheless, possible.

II. GOAL

The goal aimed at was to draw a correlation between the length of the foot and the subject's height and weight for the sake of offering help to the UPU department colleagues to administer a treatment in relation to the child's weight. By measuring the length of the patient's foot, doctors can calculate the height and in relation to the height and the growth curves they will approximate the child's weight with the mention that in case the subject fits in another percentile the weight approximation must take this aspect into account, too.

III. MATERIAL AND METHOD

The measurement method is based on standard shoe sizes. In this case the maximum length of the foot. Even if this method has its own drawbacks given the possibility of a bigger hallux, or the absence of it, or even some diformities which would result in an alteration of the length, yet this is the reommended procedure. Its advantages are the ease of application (no specialised study is required) and the ease of measuring the patient's foot. Despite the data revealed by studies published in scientific reviews such as Journal of Foot and Ankle Research as well as the ample studies and debates concerning the most appropriate techniques of taking the measure of a foot such as those revealed by studies such as: "A protocol for classifying normal- and flat-arched foot posture for research studies using clinical and radiographic measurements George S Murley*1,2, Hylton B Menz2 and Karl B Landorf1,2", I wanted to try to start from simple data applicable to non-pathological feet (without diformities, malformations, pathologies which will lead to alterations of sizes and shapes or amputations). To be more specific, I started from the data and sizes required by the classical shoemakers and cobblers, not by the specialized footwear makers:



Fig1. The method recommended by the case study research team BGM method (Left)

BGM method- From the name of the author:

Arch index. (the middle and right picture) Footprint with reference lines for calculating the arch index. The length of the foot (excluding the toes) is divided into equal thirds to give three regions: A – forefoot; B – midfoot; and C – heel. The arch index is then calculated by dividing the midfoot region (B) by the entire footprint area (i.e. Arch index = $B/[A+B+C]$).

IV. MATERIALS USED IN THE STUDY

-Harris mat



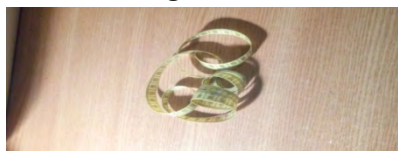
-Subler and Electronic Subler



-Telex paper



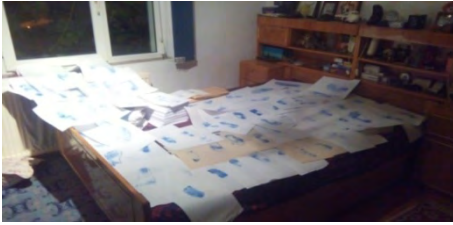
-Measuring centimeter



-Protective Teflon Film

-Glycerin based stamp ink

- Strength and determination from God



V. RESULTS

Age	Male (n=245)	Female (n=205)	Total (n=450)
< 1 month	81	62	143
1 month - 1 year	145	112	257
1 year - 2 year	19	31	50

Table1. Demographic characteristics of the study population.

Fig.2 The graph shows a linear statistics significance between the length of the foot and the weight. (r2 = 0.88, p < 0.01).

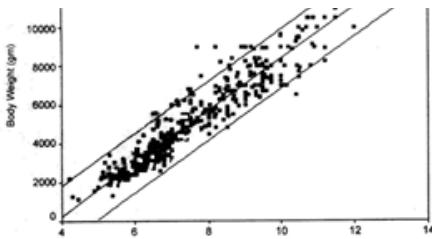
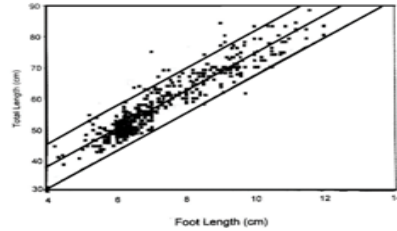


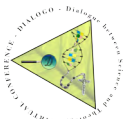
Fig.3 The graph shows an important linear statistics significance between the length of the foot and the height (r2 = 0.88, p < 0.01).



Apart from the line of calculations that led to this conclusion, we also have the data resulted from the tables of the shoemakers.

Table.3 Infant Size Conversions (0 – 9 months)

US Sizes	Euro Sizes	UK Sizes	Inches	CM
0	15	0	3.125"	7.9
1	16	0.5	3.5"	8.9
1.5	17	1	3.625"	9.2
2	17	1	3.75"	9.5
2.5	18	1.5	4"	10.2
3	18	2	4.125"	10.5



¹(<http://www.zappos.com/measure-your-shoe-size>)²

The research results following a linear progression for the foot sizes between 4.5 cm and 11.6 cm, that is to say the smallest size and respectively the largest one.

Table.2

The length of foot (cm)	Weight (kg)	The length of foot (cm)	Weight (kg)
4.5	0.943	8.1	5.811
4.6	1.072	8.2	5.942
4.7	1.214	8.3	6.083
4.8	1.346	8.4	6.216
4.9	1.487	8.5	6.355
5.0	1.618	8.6	6.497
5.1	1.759	8.7	6.628
5.2	1.888	8.8	6.769
5.3	2.025	8.9	6.894
5.4	2.154	9.0	7.036
5.5	2.296	9.1	7.161
5.6	2.422	9.2	7.302
5.7	2.561	9.3	7.433
5.8	2.704	9.4	7.575
5.9	2.837	9.5	7.707
6.0	2.978	9.6	7.849
6.1	3.109	9.7	7.975
6.2	3.246	9.8	8.111
6.3	3.375	9.9	8.244
6.4	3.514	10.0	8.386
6.5	3.647	10.1	8.525
6.6	3.788	10.2	8.658
6.7	3.919	10.3	8.797
6.8	4.054	10.4	8.929
6.9	4.185	10.5	9.065
7.0	4.326	10.6	9.194
7.1	4.469	10.7	9.336
7.2	4.598	10.8	9.469
7.3	4.737	10.9	9.68
7.4	4.864	11.0	9.737
7.5	5.005	11.1	9.875
7.6	5.136	11.2	10.05
7.7	5.278	11.3	10.17
7.8	5.409	11.4	10.38
7.9	5.548	11.5	10.49
8.0	5.677	11.6	10.56

I must mention that these sizes are in accordance with the data of shoemakers all over the world. Thus, in the case of younger ages, at least, no population and race discrepancies are noticed. (Author's opinion: One can but only admire the sacred geometry of god's design.)

¹(<http://www.zappos.com/measure-your-shoe-size>)

²(<http://www.zappos.com/measure-your-shoe-size>)

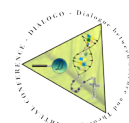
Table 4. Toddler Size Conversions (9 Months – 4 years)

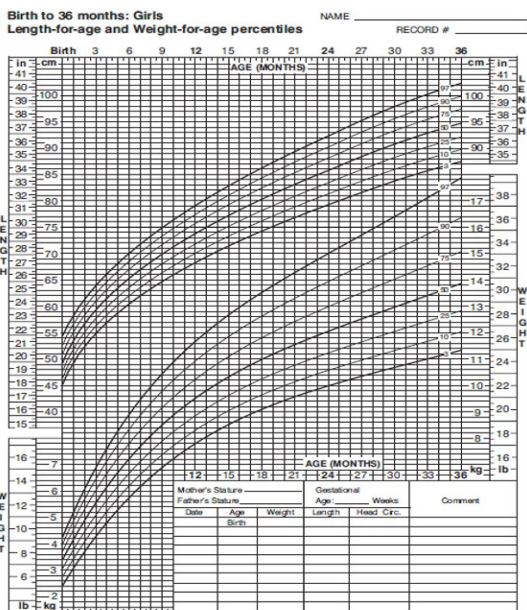
US Sizes	Euro Sizes	UK Sizes	Inches	CM
3.5	19	2.5	4.25"	10.8
4	19	3	4.5"	11.4
4.5	20	3.5	4.625"	11.7
5	20	4	4.75"	12.1
5.5	21	4.5	5"	12.7
6	22	5	5.125"	13
6.5	22	5.5	5.25"	13.3
7	23	6	5.5"	14
7.5	23	6.5	5.625"	14.3
8	24	7	5.75"	14.6
8.5	25	7.5	6"	15.2
9	25	8	6.125"	15.6
9.5	26	8.5	6.25"	15.9
10	27	9	6.5"	16.5

³(<http://www.zappos.com/measure-your-shoe-size>)

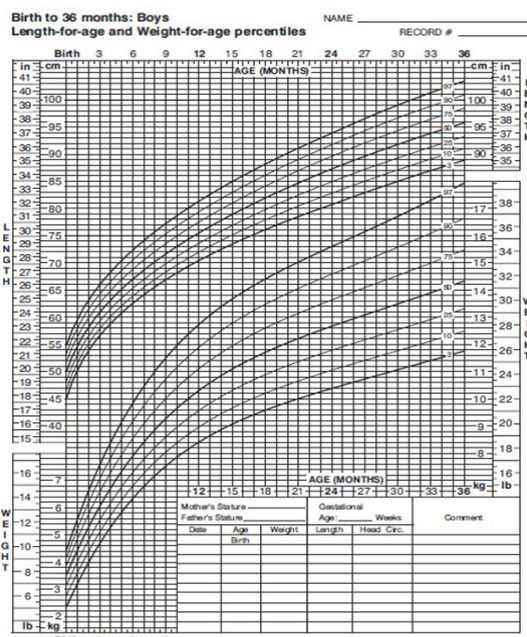
Apart from the line of calculations that led to this conclusion, we also have the data resulted from the tables with growth curves.

³(<http://www.zappos.com/measure-your-shoe-size>)





4 (<http://www.pediatrucluj.ro/2012/05/17/cresterea-si-dezvoltarea-generalitati/>)



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5 (<http://www.pediatrucluj.ro/2012/05/17/cresterea-si-dezvoltarea-generalitati/>)

VI. EASE OF USE

This method was designed to help colleagues and staff from emergency departments and ambulances in estimating the weight of children for the management of the treatments.

As mentioned previously the method is based on standard shoe sizes. (In this case the maximum length of the foot) Even if this method has drawbacks. (the possibility of a bigger hallux, or the absence of it, or even some diformities which would result in an alteration of the length).

CONCLUSIONS

The results of the present study showed that there is a linear statistics significance between the length of foot and weight. The graph shows an important linear statistics significance between the length of foot and the height.

Apart from the line of calculations that led to this conclusion, we also have the data resulted from the tables with growth curves.

Apart from the line of calculations that led to this conclusion, we also have the data resulted from the tables of the shoemakers.

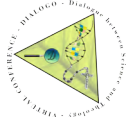
This being said one can but only admire the sacred geometry of God's design.

ACKNOWLEDGMENT

The parents have given consensual agreement to participate in this study. And most stated that they don't mind providing this information because it serves a scientific purpose.

For which I wish to thank them for their

5 (<http://www.pediatrucluj.ro/2012/05/17/cresterea-si-dezvoltarea-generalitati/>)



time and effort contributing this project.

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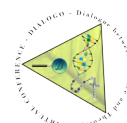
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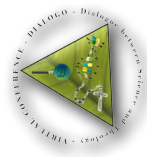
Doctor in Psychology from Babes Bolyai University in Cluj, full professorship Ovidius University, Constanta, with a sustained scientific activity materialized through constant participation within the scientific communications both national and international. Main areas of interest: labor psychology and organizational psychology, social psychology, communication, social statistics and judicial psychology.

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Preliminary Phytochemical and Biological activities on *Russelia juncea* Zucc

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Keywords:

Russelia juncea; antimicrobial activity;
 antioxidant activity; insecticidal
 activity; antiglycation activity;
 leishmanicidal activity; cytotoxicity;
 phytotoxicity;

Objective: To probe the ethnomedicinal claims of *Russelia juncea* Zucc. (Plantaginaceae) as prescribed traditionally in the folklore history of medicines. **Methods:** The dichloromethane and methanol extracts of aerial parts and roots were examined for antimicrobial, antioxidant, antiglycation, insecticidal, leishmanicidal, cytotoxic and phytotoxic activities. Different phytochemical tests were also performed to confirm the presence of various groups of secondary metabolites such as alkaloids, glycosides, saponins, tannins, flavonoids and terpenoids. **Results:** Phytochemical screening of this plant confirmed the presence of alkaloids, saponins, tannins, flavonoids and terpenoids. Antibacterial activity was only shown by RJRD with 80% inhibition at the concentration of 150µg/ml against *Shigella flexneri*. Among the tested samples, RJAM and RJRM displayed significant radical scavenging activity up to 93% and 89% with IC50 values of 184.75 ± 4.05µM and 263.01 ± 9.36µM. The significant antiglycation potential was exhibited by RJAD, RJAM and RJRM with 55.35%, 62.25% and 59.22% inhibition and IC50 values of 0.84 ± 0.08mg/ml, 1.37 ± 0.15mg/ml and 1.52 ± 0.10mg/ml respectively. Moderate leishmanicidal activity was exposed by RJAD and RJRM with IC50 values of 73.04 ± 1.05µg/ml and 77.66 ± 0.23µg/ml while RJAM was found to be more potent and exposed significant leishmanicidal activity having IC50 of 48 ± 0.39µg/ml. However, prominent cytotoxic activity was displayed by RJRM with 66.08% inhibition and IC50 of 31.20 ± 3µg/ml. Non-significant antifungal, insecticidal and phytotoxic activities were demonstrated by all the tested samples. **Conclusion:** All the above contributions give serious attentiveness to scientists to isolate and purify the biologically active phytoconstituents by using advanced scientific methodologies that serve as lead compounds in the synthesis of new therapeutic agents of desired interest in the world of drug discovery.

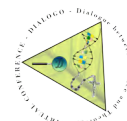
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I. INTRODUCTION

Russelia juncea Zucc. that belongs to the Plantaginaceae family is commonly known as “Firecracker” and locally as “Coral or fountain” plant. It is naturalized extensively as an ornamental garden plant in the tropical areas such as Mexico (North America) and disseminated throughout other regions of the world such as Pakistan, India, and Philippines. It is an evergreen perennial weeping shrub with reduced scale like leaves which are medium green in color. This plant has tubular red flowers bloom from spring to fall. These red bright flowers with tubular red blossom corolla on four angled stem with scaly bracts and lobes (about 3mm long) present beautiful look to this plant. It exhibits growth in a sheltered site in well-drained, humus-rich, moderately fertile soil in full sun. It shows resistance to drought and salinity. It usually propagates from rooted cuttings up to four feet height and favors sunny weather for better growth[1].

Traditionally, this plant is used in the medication therapy of leukemia and

diabetes in Nigeria. During a particular discussion with native Nigerian people, it is also found that this whole plant is used to cure different problems associated with pain and inflammation. Moreover, it is used to promote the hair growth [2]. Due to its therapeutic significance in folk medicine history, *R. juncea* has attained noticeable pharmacological importance due to its wide-ranging biological activities. Different extracts of this plant revealed significant biological activities such as analgesic, anti-inflammatory [3], Antinociceptive [4] and antimalarial activity [5]. Furthermore, membrane stabilizing properties [6], dose-dependent hemolytic potential [2][7] and central nervous system (CNS) depressing activities [8] also have been reported. Phytochemical reports on this plant showed the identification and isolation of 26 phenolic compounds mainly glycosylated flavonoids, caffeoylquinic acids, verbascoside and isoverbascoside [9]. In addition, this plant is found to be rich in triterpenes, sterols [10], lupeol[11] and gallic acid[12].



The variety of traditional medicinal uses of *R. juncea* made it distinguishable among other species of genus *Russelia*. Thus, the aim of the present study is to demonstrate the crude dichloromethane and methanolic extracts of roots and aerial parts of *R. juncea* for different biological activities, which could be related to the potential therapeutic value of this plant as prescribed in traditional medicine.

II. MATERIAL AND METHOD

A. Collection and identification of plant material

The current study was conducted in the natural product chemistry laboratory, Faculty of Pharmacy, Bahauddin Zakariya University, new campus Multan and International Centre for Chemical and Biological Sciences, Hussain Ebrahim Jamal Research Institute of Chemistry, University of Karachi, Karachi, Pakistan, from February 2015 to March 2016. The plant *Russelia juncea* was collected from Department of Botany, Bahauddin Zakariya University, new campus Multan and identified by Dr. Muhammad Zafarullah, Assistant Professor of Institute of Pure and Applied Biology, Bahauddin Zakariya University, Multan, Pakistan. A voucher no. "Stewart 659" was consigned to the specimen and preserved in the University herbarium.

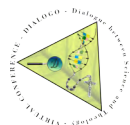
B. Chemical and Apparatus

Dichloromethane (DCM), methanol (MeOH), dimethyl sulfoxide (DMSO), ethyl alcohol (EtOH), acetone were acquired from Merck, Germany. Methylglyoxal (Sigma-Aldrich, Germany), Microplate alamar blue assay (MABA) (Invitrogen Corporation, USA), Mueller Hinton medium and Sabouraud dextrose agar (SDA) medium (Thermo Fisher Scientific, USA), RPMI-1640

medium, Fetal bovine serum (FBS) and Dulbecco's modified eagle medium (Sigma-Aldrich, Germany), DPPH (2,2-Diphenyl-1-Picrylhydrazil) (Cayman Chemical, USA), MTT (3-[4,5-dimethylthiazole-2-yl]-2,5-diphenyl-tetrazolium bromide) (Thermo Fisher Scientific, USA), Mouse fibroblast embryonic 3T3 cells (Sigma-Aldrich, Germany), Analytical weight balances (AEG-120 and EB-3200 D, Shimadzu, Japan), Rota-vapor (R-200, Buchi, Switzerland), Ultra-sonicator (JAS, Singapore), Haemocytometer (Camlab, United Kingdom).

C. Preparation of plant extracts

Different parts of *R. juncea* plant (aerial parts and roots) were collected and dried by placing the plant materials under the shade on old newspapers for 25 days to achieve the process of effective extraction. The dried aerial parts and roots were made into the coarse powder by crushing in the grinding mill. The extraction of these powdered plant materials was carried out by the process of simple maceration. About 600g of dried powdered samples of aerial parts and roots were taken separately into the extraction bottles and a known volume of DCM (3 × 900ml) was further added into these bottles. For the purpose of maximum possible extraction, both these mixtures were continuously shaken after every 15min for 3-4 hours and then made homogenized by the method of ultra-sonication. After 24 hours, both these mixtures were filtered off with Whatman filter paper 41. Repeated the above procedure thrice with DCM. After the third collection of DCM extract, the marc of both these mixtures was macerated separately with MeOH (3 × 700ml) in the same manner. The DCM and MeOH extracts of aerial parts and roots of *R. juncea* were concentrated separately under vacuum with the help of rotary evaporator at 40°C, collected in different sample bottles and assigned the codes as RJAD; *R. Juncea*



aerial parts DCM extract (4.88g), RJAM; R. Juncea aerial parts MeOH extract (10.06g), RJRD; R. Juncea roots DCM extract (4.61g) and RJRM; R. Juncea roots MeOH extract (5.90g) respectively.

D. Detection of secondary metabolites

Preliminary phytochemical screening of dried powdered plant material of aerial parts and roots of R. juncea was carried out for the identification of various groups of secondary metabolites such as alkaloids, glycosides, saponins, flavonoids and tannins. Alkaloids were detected by performing phytochemical tests with Dragendorff's reagent, Hager's reagent, Mayer's reagent and Wagner's reagent. Borntrager's test and Modified Borntrager's test was employed for the identification of free and bound anthraquinone glycosides. For the detection of cardiac glycosides, Keller-Kiliani test was executed. Similarly, for saponin glycosides, Froth test; for flavonoids, Lead acetate solution test; for terpenoids, Salkowski test and for tannins, Ferric chloride test and Catechin test was performed [13][14].

E. Antimicrobial Assays

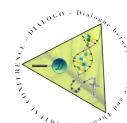
1) Antibacterial activity (Microplate alamar blue assay)

In microplate alamar blue assay (MABA), strains of four pathogenic bacteria using Staphylococcus aureus (NCTC 6571), Shigella flexneri, Pseudomonas aeruginosa (ATCC 10145) and Escherichia coli (NCTC 10418) were used. Mueller Hinton medium was prepared in a separate petri dish by following the specifications and guidelines given by the manufacturer and adjusted the pH to 6.6-7.3 normally at 25°C. The tested micro-organisms were cultured in Mueller Hinton medium. Then the adjustment of turbidity index of inoculums up to 0.5 McFarland was done. We separately prepared the standard solutions of 1g DCM and MeOH

crude extracts in 1ml sterile DMSO and distributed the above prepared media into the wells. This work was repeated thrice. All the tested micro-organisms were also placed into the wells. We made sure that the control wells did not contain any testing organism. The volume of well plate 96 was settled up to the level of 200µl. At the end, added 5×10^6 cells into all the control and testing wells. Sealed all the plates with the help of paraffin. We placed these plates into the incubator at 37°C for at least 18-20 hours without shaking. After 20 hours, we added 5µl alamar blue dye into every well and shook gently at the speed of 80 revolutions per minute for 2-3 hours by using the shaking incubator at 37°C. Plates were covered with foil in shaking incubator. If the color of alamar blue dye was changed from blue to pink, it confirmed the growth of bacteria. Finally, the absorbance at the wavelength of 570nm-600nm was recorded with the help of Elisa reader [15].

2) Antifungal activity (Agar tube dilution assay)

The antifungal activity of various extracts were examined against five fungal strains of Trychophyton rubrum, Aspergillus niger, Fusarium solani, Candida albicans and Microsporum canis by using agar tube dilution assay. We took 24mg of DCM and MeOH extract and mixed separately in 1ml sterile DMSO to prepare the stock solution of both extracts. For the preparation of Sabouraud dextrose agar (SDA) medium, we dissolved 32.5g of Sabouraud glucose (2%) or maltose agar in 500ml of distilled water. Adjusted the pH of this medium up to 5.5-5.6. Steaming of this media was done to dissolve all the suitable contents and added an appropriate volume (4ml) into the test tubes having screw caps. These tubes were placed into the autoclave for 15min at the temperature of 121°C. After this, these tubes were placed at the temperature of 50°C to achieve the effective cooling. Then,



we loaded the non-solidified agar media by using pipette with 66.6 μ l of tested sample taken from the stock solution. At room temperature, these tubes were placed for solidification in a slanting position. In every tube, a piece of fungus obtained from the seven day old fungus culture with the diameter of 4mm was inoculated. All these tubes containing culture of fungus were placed in the incubator at the optimum temperature of 27 $^{\circ}$ C-29 $^{\circ}$ C. These culture containing tubes were allowed to grow for 3-7 days. This culture was observed twice a week during the period of incubation. When the incubation for 3-7 days was completed, the tube in which the growth of fungus culture was not visible was taken for the measurement of MIC value of the tested sample which is expressed in μ g/ml [16].

3) Antioxidant activity (DPPH radical scavenging assay)

The antioxidant activity of crude extracts were determined by using DPPH (2,2-diphenyl-1-picrylhydrazyl) radical scavenging assay [17] with slight modifications. Here, the DPPH Solution (95 μ l, 300 μ M) in ethanol was mixed with tested sample solution (5 μ l, 500 μ M) prepared in DMSO. The tested sample solution (5 μ l) was added into the 96-well plate and measured the absorbance at the wavelength of 515nm. After this, to each well was added 95 μ l solution of DPPH. We then incubated the 96-well plate at the temperature of 37 $^{\circ}$ C for the period of 30min. We covered this plate with paraffin so that the solvent evaporation must be avoided. The pure DMSO was served as control. By using a microtitre plate reader (Molecular Devices, USA) final absorbance at the wavelength of 515nm was recorded. Percentage of radical scavenging activity (%RSA) can be determined by the following equation.

$$\% \text{ RSA} = 100 - \left(\frac{\text{Original dose of tested sample}}{\text{Original dose of control}} \right) \times 100$$

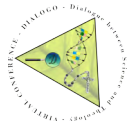
4) Antiglycation assay (Bovine serum albumin (BSA)-methylglyoxal assay)

For this assay, 100mM of phosphate buffer containing sodium azide (3mM) which is used as an antimicrobial agent was taken. Prepared the 10mg/ml solution of bovine albumin serum in the phosphate buffer and its pH was adjusted up to 7.4. In the same buffer, prepared the 14mM solution of methylglyoxal. Prepared the solutions of tested crude extracts and the drug which is used as a standard inhibitor (Rutin) in DMSO at the concentration of 1mM. Added 20 μ l of standard inhibitor solution, 50 μ l of methylglyoxal, 50 μ l of bovine serum albumin and 80 μ l of phosphate buffer into every well of 96 well plate. 20 μ l of dimethyl sulfoxide was served as control. The control did not contain any testing sample. The accumulative volume of this reaction mixture was 200 μ l respectively. Incubated this reaction mixture at the temperature of 37 $^{\circ}$ C for almost 9-10 days. When the incubation was completed, recorded the specific development in florescence of each sample by measuring the excitation at 330nm and emission at 420nm respectively by using the microplate reader [18]. The percent inhibition of AGEs formation by tested samples against the control was calculated by the formula given as under.

$$\% \text{ inhibition of AGEs formation} = \left[1 - \left(\frac{\text{Florescence of the tested group}}{\text{Florescence of the control}} \right) \right] \times 100$$

5) Insecticidal activity (Contact toxicity method)

The significant insecticidal activity of tested crude extracts was studied against different species of insects particularly *Tribolium castaneum*, *Trogoderma granarium* and *Rhizopertha dominica* by using contact toxicity method. Briefly, prepared the sample solution by dissolving 200mg of each crude extract in 3ml of EtOH. Cutting of filter paper was done in such a way that it was easily adjusted into the petri-plate according to its size. The sample



was completely loaded with the filter paper by means of micro-pipette. To evaporate the solvent completely, left these petri-plates for twenty four hours. Very next day, took the healthy insects of same age group and placed ten insects of every species in each petri-plate (both tested sample and control) by using an uncontaminated brush. All these plates were incubated for 24 hours at the temperature of 27°C and maintained the relative humidity of growth chamber up to 50%. A number of survivors of every species were counted. Permethrin was used as standard insecticidal drug while Permethrin, volatile solvent (acetone) and tested insects were served as positive and negative control respectively. The results were expressed in terms of either percentage inhibition or percentage mortality¹⁸. The percentage (%) mortality can be calculated by the formula described below.

Percentage (%) mortality = $[100 - (\text{No. of insects in test} / \text{No. of insects alive in control}) \times 100]$

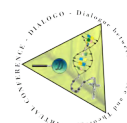
6) *Leishmanicidal activity*

During in vitro leishmanicidal assay, major promastigotes of leishmania were grown in sterile flask containing RPMI-1640 medium supplemented with 10% heat inactivated (56°C for 30min) fetal bovine serum (HIFBS) at 22-25°C. Leishmanial promastigote growth was retained in the exponential phase (log phase) and ultimate parasitic concentration was maintained up to 2×10⁶/ml. About 1mg of tested compound was dissolved in 50µl of absolute MeOH or DMSO and the final volume was adjusted to 1ml with the addition of culture medium. In a 96 well micro-titer plate, 90µl (2×10⁶ml⁻¹) of the parasite culture was placed and 10µl containing a various concentration of the tested compound was added in this culture. Phosphate buffer saline (10µl concentration, pH 7.2 containing 0.5% methanol either 0.5% DMSO) was added as a negative control while Amphotericin B was added separately

as a positive control at the concentration of 1mg/ml. These plates were incubated at 25°C in the dark for 3-5 days during which control organism multiply 3-6 times. The culture was examined on microscopically improved Neubauer chamber and calculated the IC₅₀ value (50% inhibitory concentrations) by using EZ-Fit windows-based software (Perrella Scientific Inc. Amherst, USA) which determined the leishmanicidal activity of the tested compound [19].

7) *Cytotoxic activity (MTT colorimetric assay)*

For MTT (3-[4,5-dimethylthiazole-2-yl]-2,5-diphenyl-tetrazolium bromide) colorimetric assay, The Hela cells (cervical cancer) were taken and cultured in the Dulbecco's modified eagle medium. To this medium, penicillin (100 iu/ml), 5% of FBS (fetal bovine serum) and streptomycin (100µg/ml) were also added. This supplemented medium was placed into the incubator having 5% carbon dioxide at the temperature of 37°C. Harvested the rapidly growing 3T3 cells. With the help of haemocytometer, these cells were calculated. These cells were diluted by means of a specific medium. Prepared the culture of cells having the concentration of 5×10⁴ cells/ml and administered into the 96 well micro-plates at the concentration of 100µl/well. Placed these cultured micro-plates into the incubator for a whole night. After this, the older medium was replaced with 200µl of the freshly prepared medium along with the addition of different tested sample concentrations. After 48 hours, 200µl of MTT at the concentration of 0.5mg/ml was put into every well and further placed into the incubator for 4 hours. Consequently added 100µl of DMSO into each well. Reduction of MTT within 3T3 cells was examined with the measurement of absorbance at the wavelength of 540nm by means of a micro-plate reader. The measurement of cytotoxicity was done at the standard concentration (IC₅₀) which inhibited 50% growth of these 3T3 cells



with the help of Soft-Max Pro software (Molecular Device, USA) [20]. The percent inhibition was calculated by using the following formula.

$$\% \text{ inhibition} = 100 - \left[\frac{\text{mean of original dose of test compound} - \text{mean of original dose of negative control}}{\text{mean of original dose of positive control} - \text{mean of original dose of negative control}} \right] \times 100$$

8) *Phytotoxic activity (Lemna minor phytotoxicity bioassay)*

In this method, prepared the inorganic E-medium (stock solution) by mixing appropriate inorganic constituents [21] into 1 liter of distilled water. The pH of E-medium was adjusted by adding potassium hydroxide pellets up to 6-7. To prepare the working E-medium, 100ml of this stock solution was taken and dissolved it in 900ml of distilled water. Then, we prepared the solution of tested crude extracts by separately dissolving 30mg of each crude extract in 1.5ml of EtOH. Three flasks were taken and pipetted 10 μ l, 100 μ l and 1000 μ l into these flasks from concentration solutions of (10, 100 and 1000) μ g/ml. Placed these solvent containing flasks over night for the evaporation of the solvent. In each flask, added 20ml stock solution of working E-medium along with the addition of 2 to 3 fronds (total fronds used 20) from the rosette of the plant *Lemna minor*. Two supplemented flasks, one with the standard drug (Paraquat) and other with the E-medium were served as positive and negative control respectively. We placed all these flasks into the growth chamber for 7 days by maintaining the temperature at 28 $^{\circ}$ C along with the light intensity of 9000 lux and relative humidity of 56% \pm 10%. When the incubation period was completed, counted and verified the number of fronds of each flask on the 7th day [22]. The results which were analyzed as growth inhibition (%), compared with reference drug to negative control were given as shown below.

$$\% \text{ inhibition of growth} = 100 - \left(\frac{\text{No. of fronds in tested sample}}{\text{No. of fronds in negative control}} \right) \times 100$$

III. RESULT AND DISCUSSION

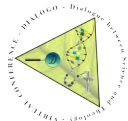
A. Detection of secondary metabolites

The consequences of numerous phytochemical tests which were performed for the identification of various groups of secondary metabolites in the tested powder plant material were shown in Table 1. The phytochemical screening exhibited the presence of alkaloids, tannins, saponins, flavonoids and terpenoids while glycosides were found to be absent in the tested plant material. The presence of different groups of secondary metabolites confirmed the significant pharmacological potential of *R. juncea* as prescribed in *Scoparia dulcis* [23], *Mimusops elengi* [24], *Verbascum* and *Scrophularia* species [25] of family Plantaginaceae.

TABLE 1: RESULTS OF PHYTOCHEMICAL SCREENING OF ROOTS AND AERIAL PARTS OF *R. JUNCEA*

Class of secondary metabolites	Name of phytochemical test	Detection	
		Aerial parts	Roots
Alkaloids	<u>Dragendorff's reagent</u>	+	+
	Hager's reagent	+	+
	Wagner's reagent	+	+
	Mayer's reagent	+	+
<u>Anthraquinone glycosides</u>	<u>Borntrager test (Free anthraquinones)</u>	-	-
	Modified <u>Borntrager test (Bound anthraquinones)</u>	-	-
Cardiac glycosides	<u>Keller-Kiliani test</u>	-	-
<u>Saponins</u>	Froth test	+	+
Tannins	Ferric chloride test	+	+
	<u>Catechin test</u>	+	+
Flavonoids	Lead acetate solution test	+	+
<u>Terpenoids</u>	<u>Salkowski test</u>	+	+

Note: (-) = Absent and (+) = Present



B. Antibacterial activity

When antibiotics firstly came into the market, these drugs were found to be 'miracle drugs'. But antibiotics lose their effectivity in the past few decades because of the reason that pathogens evolved excessive resistance against them. To overcome this resistance problem world widely, scientists are focused upon the discovery of newer antibacterial agents [25]. Medicinal plants are considered as a source in the discovery and advancement of new pharmaceuticals which are effective in the management of different diseases. In the present study, the DCM and MeOH extracts of aerial parts and roots were examined for significant antibacterial activity. The results expressed in percent (%) inhibition of tested samples were given in Table 2. The consequences of preliminary antibacterial activity revealed that tested sample RJRD exhibited 80% inhibition at the concentration of 150µg/ml and showed significant activity against *S. flexneri* while remaining tested samples demonstrated very low % inhibition and displayed no significant activity at the same concentration against all the tested bacterial cultures when compared with standard antibiotic used that was Ofloxacin (0.25µg/ml). From the contribution of this study, it is concluded that researchers have been looking forward to the isolation and purification of various groups of chemical compounds mainly alkaloids, flavonoids and isoflavonoids, steroidal saponins, triterpenoids and coumarins from *R. juncea* so that this plant will serve as a safer antibacterial agent in the world of phytomedicines

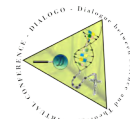
TABLE 2: RESULTS OF PRELIMINARY ANTIBACTERIAL ACTIVITY OF DIFFERENT FRACTIONS OF *R. JUNCEA*

Name of bacteria	Percent (%) inhibition of tested samples				Percent (%) Inhibition of Standard Drug (Ofloxacin)
	Aerial Parts		Roots		
	RJAD	RJAM	RJRD	RJRM	
<i>E. coli</i>	20	7.45	0	14.50	88.45
<i>P. aeruginosa</i>	15	5.70	10.60	7.50	87.80
<i>S. aureus</i>	25.35	0	14.65	22.55	86.85
<i>S. flexneri</i>	15	22	80	18	88.10

Concentration of tested sample used = 150µg/ml;
 Concentration of standard drug used = 0.25 µg/ml;
 Positive control = Ofloxacin (standard antibiotic);
 Negative control = DMSO (Dimethyl sulfoxide);
 Percent inhibition activity, 0-39 = Low (non-significant); 40-59 = moderate; 60-69 = Good; above 70 = Significant

C. Antifungal activity

The harmful systemic infections of blood, liver, skin, liver and mouth were caused by various pathogenic fungi. Most of the fungus attacks were occurred on skin and caused contagious infections like tinea cruris, diaper rash, oral thrush, athlete's foot and few others [26-28]. Food and drug administration (FDA) authority in United States of America endorsed only 10 antifungal drugs for the therapeutic management of different invasive systemic fungal infections [29]. The patients were at the serious risk of pulmonary fungal infections after pediatric lung transplantation [26]. The results of significant antifungal activity of DCM and MeOH extracts of aerial parts and roots of *R. juncea* were expressed in Table 3. None of the tested sample at the concentration of 400µg/ml exhibited any inhibition against all the tested fungal strains. So, no significant antifungal activity was shown by the tested crude extracts of *R. juncea* and found to be inactive. A scientific report on medicinal plants revealed that bioactive constituents which possessed significant therapeutic potential against pathogenic fungi belong to the group of aromatic or saturated organic compounds [2]. This aspect invites



the scientists for the discovery of beneficial organic compounds that serve as lead in the synthesis of useful antifungal agents.

TABLE 3: RESULTS OF IN VITRO ANTIFUNGAL ACTIVITY OF DIFFERENT FRACTIONS OF R. JUNCEA

Name of Fungus	Linear Growth (mm)		Percent (%) inhibition of tested samples				Standard drug	MIC (µg/ml)
			Aerial parts		Roots			
	Sample	Control	RJAD	RJAM	RJRD	RJRM		
<i>T. rubrum</i>	100	100	Nil	Nil	Nil	Nil	Miconazole	97.8
<i>C. albicans</i>	100	100	Nil	Nil	Nil	Nil	Miconazole	113.1
<i>M. canis</i>	100	100	Nil	Nil	Nil	Nil	Miconazole	98.1
<i>A. niger</i>	100	100	Nil	Nil	Nil	Nil	Amphotericin B	20.70
<i>F. solani</i>	100	100	Nil	Nil	Nil	Nil	Miconazole	73.50

MIC = Minimum inhibitory concentration; Concentration of tested sample used = 400µg/ml; Percent inhibition activity, 0-39 = Low (non-significant); 40-59 = moderate; 60-69 = Good; above 70 = Significant; Positive control = Miconazole and Amphotericin B (A. niger); Negative control = DMSO (Dimethyl sulfoxide)

D. Antioxidant activity

Oxidation process is one of the most important routes for producing free radicals and reactive oxygen species (ROS), in food, drugs and living systems. Reactive oxygen species (ROS) often generated as byproducts of biological reactions and exert oxidative damaging effects by reacting with nearly most of the important biomolecules

present in living cells including DNA, lipids and proteins. Recent investigations have shown that the antioxidants with free-radical scavenging properties of plant origins could have great importance as therapeutic agents in aging process, and in the pathogenesis of age related disorders such as cancer, hypertension, atherogenesis, Alzheimer's disease, and Parkinson's disease and also on free radical mediated diseases. The importance of antioxidants (free radical constituents) of plant material in the maintenance of health problems and protection from coronary heart diseases, arthritis, AIDS, gastritis, central nervous system injuries and cancer is raising interest among scientists [30]. In the present study, 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging assay was used to investigate the antioxidant potential of R. juncea. The results of significant antioxidant activity were showed in Table 4. Among the tested samples, RJAM and RJRM displayed significant radical scavenging activity up to 93% and 89% with IC₅₀ values of 184.75 ± 4.05µM and 263.01 ± 9.36µM at the concentration of 500µM. While RJAD and RJRD exhibited no significant activity and found to be inactive when compared with standard drug (N-acetyl cysteine) at the same concentration. Among the group of naturally occurring phenolic compounds, flavonoids possessed such chemical and biological properties which are very helpful in the prevention of free radicals formation. Flavonoids are found to be ubiquitous in most of the plants growing in extreme conditions [31]. The phytochemical detection of flavonoids established the significant antioxidant behavior of his plant and lead the scientists towards the isolation of such compounds. The results were compared with previous literature and were found more active than current research [32]. This may be due to different environmental stress such as soil and water [33].

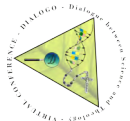


TABLE 4: RESULTS OF RADICAL SCAVENGING ACTIVITY OF DIFFERENT FRACTIONS OF R. JUNCEA

Name of tested sample	Concentration of tested sample used (µM)	DPPH radical scavenging activity	
		% RSA (Radical scavenging activity)	IC ₅₀ ± SEM (µM)
RJAD	500	NA	–
RJAM	500	93	184.75 ± 4.05
RJRD	500	NA	–
RJRM	500	89	263.01 ± 9.36
<u>Standard^a</u>	500	96	111.44 ± 0.7

a = N-acetyl cysteine (Standard drug & Positive control); Negative control = DMSO (Dimethyl sulfoxide); NA = Not active; µM = Micro-molar (10⁻³ mol/m³); SEM = Standard error mean; Data is expressed as mean ± SEM of three independent readings

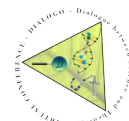
E. Antiglycation activity

Diabetes mellitus (DM), a metabolic syndrome which is being characterized by various micro-vascular and macro-vascular complications which include retinopathy, nephropathy, embryopathy, atherosclerosis, neuropathy and cataract along with the manifestation of long term hyperglycemia [34]. The process of protein glycation and sometimes oxidative stress are found to be the main reasons of DM. The formation of advanced glycation end products (AGEs) considered to be the chief complementary factor causing the pathogenesis of different damaging complications of diabetes¹⁸. Glycation process and formation of AGEs displayed the propensity for the generation of free radicals along with several reactive oxygen species (ROS) that might causes the autoxidation of glycated proteins and reducing sugars [35]. In the current study, the results of significant antiglycation

activity of DCM and MeOH extracts of aerial parts and roots of R. juncea were given in Table 5. The consequences showed that RJAD, RJAM and RJRM demonstrated significant antiglycation activity with 55.35%, 62.25% and 59.22% inhibition and IC₅₀ of 0.84 ± 0.08mg/ml, 1.37 ± 0.15mg/ml and 1.52 ± 0.10mg/ml at the concentration of 1mg/ml and 2mg/ml. However, the tested sample RJRD showed very low inhibition of 20.95% and exhibited no significant antiglycation activity when compared with when compared with standard drug Rutin which displayed 95% inhibition with IC₅₀ of 0.20 ± 0.01mg/ml at the same concentration. The specific mechanism which exposed the antiglycation potential of medicinal plants was still unclear. The damaging effects on various body tissues during diabetes might be due to the formation of free radicals. The co-existing relationship between antioxidants, glycation inhibitory capabilities of plant extracts and the particular role of phenolic compounds usually tannins and flavonoids in this correlation was also explored by different scientific reports [18] [36]. So, from the above contributions, the researchers come to know that further investigations are required for the isolation and purification of different groups of phenolic compounds from R. juncea that might be used in the synthesis of newer phytopharmaceuticals which served as strong antioxidants and simultaneously prevent the formation of AGEs and retard the protein glycation process.

TABLE 5: RESULTS OF PRELIMINARY ANTIGLYCATION ACTIVITY OF DIFFERENT FRACTIONS OF R. JUNCEA

Name of tested sample	Concentration of tested sample used (mg/ml)	Percent (%) inhibition of tested sample	IC ₅₀ ± SEM (mg/ml)
RJAD	1	55.35	0.84 ± 0.08
RJAM	2	62.25	1.37 ± 0.15
RJRD	2	20.95	> 2
RJRM	2	59.22	1.52 ± 0.10
<u>Rutin</u> (Standard drug)	2	95	0.20 ± 0.01



Positive control = Rutin (standard drug); Negative control = DMSO (Dimethyl sulfoxide); NA = Not active; SEM = Standard error mean; Data is expressed as mean \pm SEM of three independent readings

F. Insecticidal activity

About one million different species of insects are existing that attain intrinsic places among different ecosystems of the world. Mainly insects have vital role in the transmittance of detrimental pests and microbes that are involved in causing several ailments in humans such as malaria, Lyme and Chagas diseases and dengue fever. Certain diseases and threatening outcomes caused by insects lead towards the massive economical loss which is immeasurable in different populations of the world [18][37]. In the present study, The DCM and MeOH extracts of aerial parts and roots of *R. juncea* were tested for significant insecticidal activity and results were reported in Table 6. The results exhibited that RJAM showed very low activity (20%) against *T. castaneum* and *R. dominica* while it revealed moderate insecticidal activity against *T. granarium* with 40% mortality. The tested samples RJAD and RJRD displayed low (20%) and moderate (40%) insecticidal activity against *T. granarium* but found to be inactive against other tested insects while RJRM demonstrated no significant activity against all the tested insects. Now-a-days, some of the commonly used insecticidal agents obtained from herbal sources are pyrethrum, neem and plant essential oils (mixtures of total phenolic contents, sesquiterpenes and monoterpenes) and rotenone (isoflavonoid). These are seem to be the valuable alternatives of commercially available chemical insecticides [38]. This gives the scientists a new approach to pure and isolate such compounds from *R. juncea* that should accomplish this plant a perceptible role in the field of insect controlling medicinal agents.

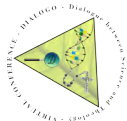
TABLE 6: RESULTS OF IN VITRO INSECTICIDAL ACTIVITY OF DIFFERENT FRACTIONS OF *R. JUNCEA*

Name of Fungus	Linear Growth (mm)		Percent (%) inhibition of tested samples				Standard drug	MIC (μ g/ml)
			Aerial parts		Roots			
	Sample	Control	RJAD	RJAM	RJRD	RJRM		
<i>T. rubrum</i>	100	100	Nil	Nil	Nil	Nil	Miconazole	97.8
<i>C. albicans</i>	100	100	Nil	Nil	Nil	Nil	Miconazole	113.1
<i>M. canis</i>	100	100	Nil	Nil	Nil	Nil	Miconazole	98.1
<i>A. niger</i>	100	100	Nil	Nil	Nil	Nil	Amphotri-cin B	20.70
<i>F. solani</i>	100	100	Nil	Nil	Nil	Nil	Miconazole	73.50

+ve control= Permethrin (standard insecticide) and the tested insects; -ve control= Volatile solvent (acetone) and the tested insects; NA= not active; Concentration of tested sample used= 1.019 μ g/cm²; Concentration of standard drug used= 239.5 μ g/cm²

G. Leishmanicidal activity

Leishmaniasis is a group of life threatening tropical infections which is caused by harmful protozoan leishmanial parasites. It is mainly transmitted by the bite of certain types of sandflies. Phlebotomus and Lutzomyia species of sandflies are the main causes of this disease. Leishmaniasis can occur in three different manners such as cutaneous, mucocutaneous and visceral. The cutaneous form presents with skin ulcers while the mucocutaneous form with ulcers of the skin, mouth, and nose. The most severe visceral leishmaniasis starts with skin ulcers and then later presents with



fever, low red blood cells, enlarged spleen and liver. Around the globe, more than 12 million people are effected by leishmaniasis and over 350 million people are at the serious risk of this disease [39]. In the current study, the results of significant leishmanicidal activity of DCM and MeOH extracts of aerial parts and roots of *R. juncea* were displayed in Table 7. Among the tested samples, RJAD and RJRM showed moderate leishmanicidal activity with IC₅₀ values of $73.04 \pm 1.05 \mu\text{g/ml}$ and $77.66 \pm 0.23 \mu\text{g/ml}$ while RJAM was found to be more potent and exposed significant leishmanicidal activity having IC₅₀ of $48 \pm 0.39 \mu\text{g/ml}$ when compared with Amphotericin B (IC₅₀ = 0.29 ± 0.05) that was used as standard drug. The tested sample RJRD demonstrated no significant activity at the given concentration ($100 \mu\text{g/ml}$). Different chemotherapeutic agents which are recommended for the treatment of leishmaniasis include pentamidine, antimonials, amphotericin B and pentostam (sodium stibogluconate). But due to certain limitations and unwanted side effects of various chemotherapies, researchers always looking for the safer and effective alternatives which serve as better anti-infective agents. A recent informative report on natural product leishmanicidal agents obtained from plants confirmed that the detection and isolation of various groups of secondary metabolites mainly quinones, alkaloids (indole analogues, steroids), monoterpenes, sesquiterpenes, diterpenes, saponins and phenolic derivatives (chalcones, flavonoids) recognized as the ideal target in the development of such useful drugs involved in the therapeutic management of leishmaniasis [40].

TABLE 7: RESULTS OF LEISHMANICIDAL ACTIVITY OF DIFFERENT FRACTIONS OF *R. JUNCEA*

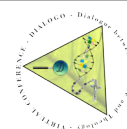
Name of tested sample	Concentration of tested sample used ($\mu\text{g/ml}$)	IC ₅₀ ($\mu\text{g/ml}$) \pm S.D
RJAD	100	73.04 ± 1.05
RJAM	100	48 ± 0.39
RJRD	100	>100
RJRM	100	77.66 ± 0.23
Standard ^a	0.5	0.29 ± 0.05

a = Amphotericin B (Standard drug & Positive control); Negative control = DMSO

(Dimethyl sulfoxide); Incubation period = 72hours; Incubation temperature = 22°C; S.D = Standard deviation; Data is expressed as mean \pm S.D of three independent readings

H. Cytotoxic activity

Cancer is recognized as group of diseases with abnormal growth of body cells that have the potential to invade different organs of body. It is a life threatening and alarming health problem worldwide. Cancer of colon, liver, lung and stomach increases the rate of mortality and morbidity among different populations of the world [41]. In the present research work, the results of significant cytotoxic activity of DCM and MeOH extracts of aerial parts and roots of *R. juncea* were expressed in Table 8. From the significances, it was clear that the tested sample RJRM showed significant cytotoxic activity with 66.08% inhibition and IC₅₀ of $31.20 \pm 3 \mu\text{g/ml}$ while RJRD revealed weak cytotoxic activity with inhibition of 50.19% and IC₅₀ of $42.02 \pm 0.03 \mu\text{g/ml}$ at the concentration of $50 \mu\text{g/ml}$. The remaining tested samples RJAD and RJAM showed very low toxicity with 18.77% and 32.97% inhibition respectively when compared with the standard drug Doxorubicin which exhibited 96.8% inhibition with IC₅₀ of $0.1 \pm 0.2 \mu\text{g/ml}$ at the same concentration. The cytotoxic activity of medicinal plants mainly due to the presence of different groups of organic compounds chiefly polyphenols, flavonoids, and catechins. A huge proportion



of these compounds have been isolated and purified from different extracts of *Hibiscus tiliaceus*, *Aegiceras corniculatum*, *Blumea lacera*, *Hygrophila auriculata* and *Bruguiera gymnorhiza* which might be responsible for their cytotoxic activity [42]. Therefore, from the discovery of such compounds from *R. juncea* must be helpful in the development of beneficial therapeutic measures against this fatal disease.

TABLE 8: RESULTS OF IN VITRO

Name of tested sample	Concentration of tested sample used ($\mu\text{g/ml}$)	Percent (%) inhibition of tested sample	$\text{IC}_{50} \pm \text{S.D}$ ($\mu\text{g/ml}$)
RJAD	50	18.77	> 50
RJAM	50	32.97	> 50
RJRD	50	50.19	42.02 ± 0.03
RJRM	50	66.08	31.20 ± 3
<u>Standard*</u>	50	96.8	0.1 ± 0.2

CYTOTOXIC ACTIVITY OF DIFFERENT FRACTIONS OF R. JUNCEA

a = Doxorubicin (Standard drug & Positive control); Negative control = DMSO (Dimethyl sulfoxide); Incubation period = 48-72hours; Incubation temperature = 37°C ; S.D = Standard deviation; Data is expressed as mean \pm S.D of three independent readings

1. Phytotoxic activity

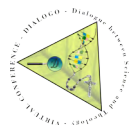
In the whole world, more than 30,000 different species of weeds are widely distributed and considered as an important factor in the environmental protection. Out of these, resported 1800 species cause 9.7% lost of crops productivity. The presence of weeds reduced the agricultural productivity of crops that lead to massive economical loss among different regions of the world [43]. In the present study, *Lemna minor* phytotoxicity bioassay was used to investigate the phytotoxic potential of DCM and MeOH extracts of aerial parts and roots of *R. juncea* and results were shown in Table

9. The results exhibited that all the tested samples demonstrated the phytotoxic activity in a dose dependent manner. At higher concentration ($1000\mu\text{g/ml}$), low activity was shown by all the tested samples but when the concentration ($100\mu\text{g/ml}$ and $10\mu\text{g/ml}$) was decreased, all the tested samples found to be inactive and revealed no significant activity. scientists who focus upon the discovery and development of newer weedicides because chemically synthetic weedicides cause harmful adverse effects, mainly the expansion of weedicide resistant populations, lowering the water and soil consumption and resulting in damaging effects on non-targeted organisms [16].

TABLE 9: RESULTS OF IN VITRO PHYTOTOXIC ACTIVITY OF DIFFERENT FRACTIONS OF R. JUNCEA

Name of tested sample	Concentration of tested sample used ($\mu\text{g/ml}$)	No. of fronds		Percent (%) growth inhibition	Concentration of standard drug (Paraquat) used ($\mu\text{g/ml}$)
		Samples	Control		
RJAD RJAM RJRD RJRM	1000	18 17 15 13	20	10 15 25 35	0.015
RJAD RJAM RJRD RJRM	100	20 19 20 19	20	0 5 0 5	0.015
RJAD RJAM RJRD RJRM	10	20 19 20 20	20	0 5 0 0	0.015

Lemna minor plant was used to examine the phytotoxicity assay; Positive control =



Paraquat; Negative control = Volatile solvent (ethanol); Incubation conditions = $28 \pm 10^\circ\text{C}$.

CONCLUSION

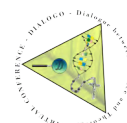
Natural products obtained from plants used as medicinal agents in the curement of different diseases in ancient times. They also used as starting materials in the synthesis of semisynthetic analogues of drugs. The ethnopharmacology and traditional folklore knowledge is still helping the mankind in the illustration of significant therapeutic potential of medicinal plants. In the present study, the *in vitro* biological screening of dichloromethane and methanol extracts of aerial parts and roots of *Russelia juncea* was performed. The results accompanied significant antibacterial activity (against *Shigella flexneri*), antioxidant, antiglycation, cytotoxic and moderate leishmanicidal activity. While antifungal, insecticidal and phytotoxic activities are found to be non-active. Therefore, further phytochemical characterization and purification along with investigations are needed to provide some additional insight of this plant to develop beneficial chemotherapeutic agents.

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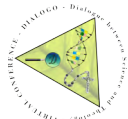
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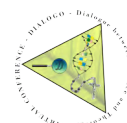


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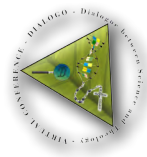


SECTION 7

Neurobiology & Theology



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Confusional State

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ABSTRACT

The Confusional state is a condition that has been distinguished from other psychic states. Its assessment has been known to be determined by neurologic criteria. The clinical diagnosis implies that the person is incoherent, confused, aggressive or hallucinating.

Families confronted with this are confused and sometimes believe that there is a psychic condition or that the person pretends to be confused. Unfortunately, there are several conditions that give similar symptoms and a correct anamnesis and clinical neurologic exam must be performed. Religious aspects are all the time present to counteract the state that sometimes appears because of hallucination or supernatural.

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I. INTRODUCTION

There is a borderline area between psychiatry and neurology that is concerned with acute and chronic disorders of personality, behavior and intellect. Diagnosis problems of their illness, history of drug or alcohol abuse, previous malignant or infectious disease or traumatic head injury will completely alter the approach to the investigation and management of a patient with confusional state.

If the patient is incoherent, confused, aggressive or hallucinating a clear and

competent differential diagnosis is necessary. It is essential that a complete neurological examination to be performed. This confusional state makes sometimes correlation of this state with person without faith and family and sometimes patients themselves become more profound about the presence of God in their lives.

II. MATERIALS AND METHODS

We report some several cases with confused person with different underlying pathology and their social involvement.

It is thought that in the presence of predisposing factors, additional psychic stress tends to overwhelm in a determinate period that is especially vulnerable, because it is in the transitional stage of psychic vulnerability of each decade of age. It is further thought that the religious conversion experience is an ego phenomenon which serves to reintegrate the ego.

That it sometimes does not is due to factors other than religion per se. The religious belief functions as a framework within which the processes occur. While they are involved in the conflicts and serve to precipitate the reaction, they also are a factor in the resolution.

A. CASE REPORT I

A 49-year-old man, previously in entirely normal health, was referred to a neurologist with a possible diagnosis of extrapyramidal syndrome. The diagnosis was confirmed by Unify Parkinson Disease Score and treatment with Dopamine, with a monthly recommended control. Three months later the patient was admitted to a mental hospital in an acute confusional state with visual and auditive hallucinations, about saints with presence near him. These hallucinations are about the angels and sometimes are very pleasant or sometimes are about evil and they are unpleasant. Because parkinsonian face is like a mask they thought there is an onset of a psychiatric illness, like depression or an acute psychosis. The emergency neurologist was unable to obtain information of his previous illness and previous treatment. On examination the patient was: Extrapyramidal global rigidity, dysarthria, Noica sign positive, cogwheel rigidity in all four limbs and little or no voluntary movement was possible, the plantar responses were flexors, dehydrated. Biochemistry was normal. He was rehydrated; Dopamine was then added back into the regimen. It transpired that

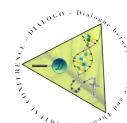
he had become increasingly slowed in all spheres-mental and physical-and his family had not realized that he took an overdose of Dopamine treatment in order to have a better motor control and the result was the hallucination. One year later his Parkinson's disease was under good control on modest doses of medication, without any confusional state or hallucinations.

B. TOXIC CONFUSIONAL STATES

Toxic confusional states may be due to drug overdose or idiosyncratic reactions to drugs such as antiparkinsonian agents, like the previous case but infectious disease may cause a similar picture, fever, general toxicity or hypoxia. In the elderly an afebrile course is possible and the physical signs of pneumonia are easily missed. Another important condition like cardiac failure, dialysis patients etc or patients with a history of alcoholism may develop a toxic confusional state with seizures when alcohol is withdrawn-the condition known as delirium tremens. This may happen when the patient is hospitalized for another condition. It is also important to remember that alcoholics do develop other forms of cerebral pathology, like subdural hematomas due to falling.

C. CASE REPORT II

On hospital emergency room of Clinical Hospital Constanta, admitted a patient with alcohol abuse history for more than 10 years, with symptoms that are similar with delirium tremens. He was confused and he was hallucinating about presence of God near him, but was surprisingly drowsy and drifted into sleep during examination. Examination revealed a slightly dilated left pupil, downward drift of the right outstretched hand, a right grasp reflex and bilateral extensor plantar responses. His relatives were telephoned and related that 3 weeks earlier he had been admitted to



hospital one night after he fall down and hit on corner his head. When he goes home, his family describes short crises of convulsion, but it was usual, he was a heavy drinker. His condition was deteriorating so rapidly that burr holes were made by a general surgeon under local anaesthetic, and massive left -sided subdural hematomas under very high pressure was evacuated, leading dramatically sudden and full recovers.

D. CASE REPORT III

A 80-year-old woman had been admitted directly to a mental hospital in a confusional state. She was referred for an urgent neurological opinion because psychiatrists were unable to obtain any sort of history from her, although she seemed to be trying very hard to answer their questions. No neurological signs had been detected but the psychiatric team were unconvinced that the patient was psychiatrically unwell. Neurological evaluation quickly established that she had complete nominal aphasia and was unable to name any single object, or indeed complete any sentence. Subsequent investigation revealed a left parietal ischaemic stroke.

Trouble of speech not only reveals the presence of a focal lesion in the dominant hemisphere but often indicates a poor prognosis, as extensive surgical procedures in the dominant parietal lobe are technically difficult and infarction rarely permits significant recovery. However, this should not preclude full investigation, as occasionally a subdural haematoma or a small lesion with massive edema may be found which may be amenable to surgical attack, with minimal residual deficit of speech function.

E. TEMPORAL LOBE epilepsy(partial epilepsy)

Prolonged disturbances of temporal

lobe function can occur in complex partial seizures (formerly called psychomotor epilepsy) or temporal lobe ischaemia during migraine associated with transient global amnesia.

CASE REPORT IV

A 15-year-old man with complex partial seizures since his early teens experienced some's extraordinary situations. On the first occasion he came to himself standing in a train que with a hammer wants to broke a window (it was in a confuse state) His attacks remained refractory to all anticonvulsants.

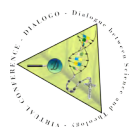
Any episodes of unusual behavior (he undress himself in public)should always be regarded as possibly due to complex partial seizures until proved otherwise, the patient may react aggressively and end up in custody.

In contrast, transient global amnesia is characterized by the patient continuing to behave absolutely normal, with no recollection afterwards of events over a period that may extend to more than 4 hours.

This condition known as acute auditory hallucinosis, which complicates alcoholism, is possibly due to a metabolic disturbance in the temporal lobe. In this state non-stop auditory hallucinations are often coupled with paranoid behavior, which may persist for several days.

F. CASE REPORT V

In a morning a family formed by 5 person was woken up by a noisy sound and they didn't understand what it was happening with their neighbour, 65 year old who was staying alone. After several hours a savage attack of the man on the family. He was hospitalized, performed encephalography,CT scan to exclude a tumor causing the epilepsy and behavioral disturbance. No neurological



opinion was obtained. He was transferred to the hospital convalescent home and had a further series of epileptic fits following an alcohol 'binge' when he was allowed home for the weekend. Subsequent investigation revealed that he was an extremely heavy drinker and that the whole episode was the consequence of alcohol withdrawal during the storm.

Many of the psychiatric complications of alcohol follow alcohol withdrawal, so that in addition to the usual problem of the patient not admitting excessive intake, the relatives often conceal this information because they think that as the problems occurred when the patient had stopped drinking there is no connection, so the alcohol habit don't need to be mentioned.

G. CASE REPORT VI

A 21-year-old woman was referred to a following episode that occurred while on holiday in Prague with her husband. One day after arrival, she suddenly started to act like her husband was another person and she went into a fight with him. This continued for 3 more days, during which time she also mentioned some strange person around the hotel, but not the small creatures usually seen by patients with delirium tremens. On the third day she had an epileptic fit. On her return she was referred to a doctor. At the consult she was noted there was no history of alcohol abuse, blood alcohol test negative. One week before the holiday she had been involved in carousel crash and she hit her head, but she did not speak with her husband about this.

Any episodic, confusional or behavioral episode of this type should always raise the suspicion of alcohol or drug abuse, and the frequent association with epileptic events may cause diagnostic confusion if the epilepsy is regarded as more important than the preceding behavioral change. In the desire to exclude organic conditions

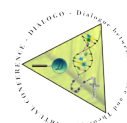
the actual cause may be missed. It would be naïve to expect that the patients willingly admit to this problem and make the diagnosis easy. In the elderly a clue to excessive alcohol intake may be found in their preference for disposing of their empty bottles in unmarked brown paper bags.

H. CASE REPORT VII

A 35-year-old professor with a previous exemplary character went swimming in the Black Sea in Constanta, early in the morning. On his return he corrects the student's papers. Shortly afterwards he went indoors and told his wife his vision was 'like a light' and he thought he was developing a migraine. He went to lie down, and a few minutes later when his wife made him a sandwich he complained that he could not see or hear. He then become drowsy, and if disturbed become extremely violent. He remained in this state for 48 hours. CT scan was normal and CSF examination to exclude subarachnoid hemorrhage and blood sugar determination to exclude hypoglycemia were both normal. A tentative diagnosis of a somnolent state with a rage reaction due to medial temporal lobe ischemia was made. On the third day the patient sat up in bed very bewildered and completely normal mentally. EEG was normal. This case indicates the extremely narrow area between 'normal' and 'abnormal' behavior, not depending on a gross disturbance of cerebral function but due to quite limited areas of dysfunction affecting the region known as the limbic system, or its cortical connections.

I. CASE REPORT VIII

A 21-year-old woman with a history of personality disorder and had needed psychiatric treatment she met on the street her best friend and she did not recognize her. Her weight had increased by 100 kg, she was



apathetic and sleepy, and took little interest in her surroundings. It was suspected that she had a visual disturbance of some sort. The optic discs appeared normal but formal field testing was impossible as the patient kept falling asleep. Her body temperature was low, at 35°C, and she woke up only long enough to eat a meal. Cerebral MRI revealed a large suprasellar mass and she died during surgical exploration. She dies after 6 months and post mortem revealed an extensive craniopharyngioma.

J. CASE REPORT IX

A 19-year-old shop assistant complained that for 6 months he had had brief attacks of a 'whirring noise' in the head followed by a sensation as if he was pitching forwards, which on several occasions had led to a fall, sometimes hearing like a religious music inside him. These attacks had occurred as often as six times a day and had never lasted more than 30 seconds. He had not lost consciousness. An EEG revealed seizure discharges originating in the right temporal lobe. The attacks ceased when he was treated with carbamazepine.

K. CASE REPORT X

A 36-year-old complained that he kept hearing voices on his communication set and that when he answered no-one was responding. He has epigastric 'rinsing sensations', nausea increased peristalsis. The voices speak about the good, and how to pray and sometimes a he heard religious music.

All this signs are due to temporal lesions.

It is important to remember that 'temporal lobe' phenomena may occur when cortical areas with close connections to the temporal lobe are damaged. These regions particularly include the orbital surface of the frontal lobe and the parasagittal region. Occasionally tumors quite remote from

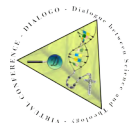
the temporal lobe may cause complex partial seizures. This is particularly true of subfrontal lesions. Ct scan reveals a temporal tumor. The patient was taken into evidence by the oncologist.

CONCLUSIONS

The confusional state called delirium has been described in various ways since ancient times; the Latin word and the related verb *delirare* ("to be out of one's mind") are said to derive from the figurative expression *de lira ire* ("to go off the ploughed furrow") (Bond SM, 2007, pag 24). The term is imprecise, as are its more or less synonymous equivalents "acute brain syndrome," "organic brain syndrome," "acute cerebral insufficiency," "acute confusional state," "disorders of consciousness," "transitional syndrome," and "confusional syndrome" (Cole MG, 2004, pag 7-10). While the ICD-10 classifies different subcategories of delirium according to their complexity and severity, the DSM-IV restricts itself to the main neuropsychological features of delirium. Delirium is diagnosed less often with the ICD-10 than with the DSM-IV (Lixouriotis C, 2011, pag. 102-104).

Confusional state is a condition, that's reveal different underlying pathology or toxic abuse or certain psychiatric condition, all this must correlate symptoms, signs for a correct diagnosis.

Delirium syndromes are very common among elderly, acutely hospitalized patients. About 20% of all 65-year-olds admitted to hospital are in delirium on admission (Welz-Barth A, 2008, pag. 30); the prevalence of delirium among elderly hospitalized patients has ranged from 14% to 56% in different studies (Morita T, 2001, pag. 997-1006, Schor JD, 1992, pag. 827-831); and a further study revealed a 58% prevalence of delirium among patients in nursing homes (Weyerer S, 2007, pag 16). Hypoactive delirium is probably



more common than the hyperactive kind but is frequently missed. Thus, 30% to 60% of all cases of delirium probably remain undiagnosed (Gutzmann H, 2005, pag 531-521). It follows that medical staff should be particularly watchful for delirium in patients with impaired communicative abilities and maybe to correlate the hallucinations with the religious persuade.

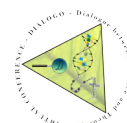
This clinical case analysis highlights the importance of bio-psychosocial spiritual model of care in confusional state with different pathology underlying. It also try to detrmine if it is possible the application of religious clinical facts (religious halucinanted) for previous religious convicted.

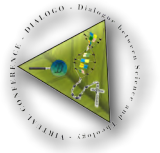
The course of delirium can last from several hours to several months, depending the cause. Delirium due to certain specific conditions (such as hypoglycaemia, infection, drug toxicity) typically it requires a consistent, supportive, stimulating environment and a coordinated approach between the family members and medical professionals.

A correct approach is to regard delirium as a clinical syndrome resulting from an interconnection of several underlying causes (risk factors such as old age, dementia, chronic illnesses, stroke, Idopa reaction, cerebral tumor) and precipitating factors (dehydration, diahoreea, systemic infection, drugs, toxic agents like alchool)

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Dementia, Clinical Aspects

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ABSTRACT

Disordered arousal leads to a confusional state with an incoherent line of thought, temporal disorientation, poor recall, visual illusions, hallucinations and disordered behavior. With the exception of dementia with Lewy bodies, which is characterized by fluctuating confusion, other disorders causing dementia persist and deteriorate over months or years, and are not characterized by fluctuations or confusional episodes, except when other medical or environmental perturbations disrupt the arousal systems of the brain (e.g. intercurrent infection, anoxia). Sometimes, their hallucinations are different, with religious tendency, and maybe we must insist with anamnesis related to previous religious beliefs, to see if it is possible to correlate some damage area than cause hallucinations, are reliable with our faith.

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I. INTRODUCTION

Memory disorders usually follow damage to the medial temporal lobe and its connections to the mammillary body and upper brain stem. Bilateral removal of the anterior temporal lobe produces the Kluver-Bucy syndrome, which is characterized by psychic blindness (inability to identify friends and relatives), pathological overeating, heightened sexual activity and altered emotional responses. Transient global amnesia is possible due to bilateral posterior cerebral artery occlusion.

We must exclude: limbic encephalitis (sometimes associated with malignant disease) due to borrelia, HIV infection or herpes simplex encephalitis or hypoglycaemia or malignant edema.

Korsakoff's psychosis occurs in alcoholics, usually as a permanent sequel to an attack Wernicke's encephalopathy.

Memory deficit is a constant feature of dementia, sometimes person with chronic alcoholism may cause a recent memory disturbance.

Dementia is a generic term referring to various specific neuropsychological syndromes which themselves are determined by the topographical distribution of the pathology in specific cerebral diseases (encephalopathies).

Classification:

- Cortical encephalopathies (Alzheimer's Disease, Frontotemporal dementia)
- Subcortical encephalopathies (subcortical ischaemic vascular dementia, Huntington's disease, normal pressure hydrocephalus)
- Corticobulbar dementias (dementia with Lewy bodies, corticobulbar degeneration)
- Multifocal encephalopathy (Creutzfeldt-Jakob disease)

In frontotemporal dementia involvement of the anterior neocortex leads to loss of executive functions with breakdown of behavior and personality, but with preservation of visuospatial function, praxis, language and memory.

Subcortical dementia- is characterized by cognitive slowing, mental rigidity and inefficient memory, together with subcortical neurological signs of akinesia, rigidity, dyskinesia, corticobulbar and corticospinal signs and ataxia.

Disordered arousal leads to a confusional state with an incoherent line of thought, temporal disorientation, poor recall, visual illusions, hallucinations and disordered behavior. With the exception of dementia with Lewy bodies, which is characterized by fluctuating confusion, other disorders causing dementia persist and deteriorate over months or years, and are not characterized by fluctuations or confusional episodes, except when other medical or environmental perturbations disrupt the arousal systems of the brain (e.g. repetitive infection, anoxia).

The Spirituality and Health Research Project of the MU Center on Religion and the Professions is investigating the relationships that exist among religion, spirituality, and health for persons with heterogeneous medical conditions. Pilot studies indicate that spirituality and congregational support are related to health outcomes, but religious practices are not. Additional research indicates that spiritual experiences are related to diminished right parietal functioning (through meditation/ prayer or brain injury), which is associated with decreased sense of the self. Implications for health professionals are discussed. (Johnstone B, 2009, pag.141-144).

To examine the effect of religion and spirituality on social support, psychological functioning, and physical health in medically ill hospitalized older adults try to assess (Koenig HG and all, 2004, pag.554-562).

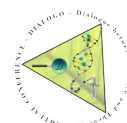
II. MATERIALS AND METHODS

We report some several cases with dementia and their social involvement. . The results are consistent with research that suggests that spiritual beliefs may protect individuals with dementia from experiencing emotional distress.

Religious and spiritual issues are clearly important to the older adult population and may play a positive role in maintaining health and recovering from illness. This study cases try to correlate symptoms and the effects of religion and spirituality on health outcomes such as cognitive functioning.

A. CASE REPORT I

A 59 -year old man presented with a 3-years history of episodes lasting several minutes he became confused. Ex CT cerebral reveals cortical atrophy. EEG-normal, blood tests normal, without history of toxic alcohol abuse or drug abuse. Mini mental examination- 20. Heredocolateral



information- father with Alzheimer disease.

In next 2 years, the patient has hallucination, but mostly of this is related to anterior life, with a Hinduism religious and now his religious is catholic (all this intricate in his head, and the confusion increase), he doesn't recognize the face of his dotters (prosopagnosia). Aphasia leads to impairment of expression, word finding, comprehension, reading, writing and calculation, is highly characteristic of Alzheimer's disease. Treatment: referral to speech and language therapist.

Apraxia leads to loss of skilled movements of the arms and hands, and in walking. It is common in Alzheimer's disease and corticobasal degeneration. Management:

- Exclude orthopaedic disorders
- Refer to occupational therapy
- There are no drug treatments for apraxia

B. CASE REPORT II

A 75-year old man presented with a 1-year history of trouble of recent memory. He has a paranoid impression that her 75 year old wife has an affair with his neighbour. Ex CT cerebral reveals cortical atrophy. EEG- normal, blood tests normal, without history of toxic alcohol abuse or drug abuse. Mini mental examination- 14. Without heredocolateral and personal antecedents.

After 1 year appear involuntary movements, like choreiform movement, dancing gait. Genetic condition- anomaly of chromozom 4, reveal a condition named Huntington's chorea.

C. CASE REPORT III

A 70-year old woman presented with a 3-year history of trouble of recent memory, family describes emotional lability and the characteristic gait described as 'marche au petit pas', with short, shuffling steps.

Ex CT cerebral reveals cortical atrophy, blood tests normal, without history of toxic alcohol abuse or drug abuse. Mini mental examination- 16. After one year appear myoclonic jerks

Creutzfeld-Jakob disease (dementia which may be coupled with extrapyramidal, cerebellar and lower motor neuron dysfunction). A striking feature in most cases is the advent of myoclonic epilepsy, which is a major diagnostic clue. The relationship to a similar disorder in animals known as bovine spongiform encephalopathy remains uncertain.

Amnesia leads to forgetfulness, particularly for recent events, inability to name individuals or recognize familiar places, loss of belongings or the patient's whereabouts. Severe amnesia is characteristic of Alzheimer's disease.

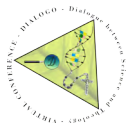
Management:

- Maintain strict and familiar daily routines
- Advise the use of written memos on boards, calendars and a diary
- Carry a mobile phone when out of doors alone

D. CASE REPORT IV

A 60-year old woman presented with a 3-year history of trouble of recent memory. Family describes 2-3 years of progressive gait disturbances, difficulty in swallowing. Neurologic examination reveal specific impairment of conjugate eye movements. Ex CT cerebral reveals cortical atrophy, blood tests normal, without history of toxic alcohol abuse or drug abuse. Mini mental examination- 18.

Steele-Richardson-Olzewski syndrome (dementia associated with specific impairment of conjugate eye movements and pseudobulbar palsy). Our recommendation was:



- Strict and familiar lifestyle avoiding disrupted routines
- Avoid unnecessary admissions to hospital, general anesthetics and unnecessary minor surgical procedures
- Withdraw or limit drugs with sedative effects
- Fixed nocturnal sleeping routines and afternoon naps

E. CASE REPORT V

A 50-year-old auto driver was referred because his family were concerned about his memory and concentration. Apparently no difficulty had been noted at his place of work. He was markedly confused and unable to give coherent account of himself but, with the exception of brisk reflexes and dubious extensor plantar responses, there were no detectable abnormalities. CT scanning revealed multiple areas of cortical infarction involving both hemispheres. Retrospective history-taking still failed to reveal any identifiable events related to any identifiable events related to any of these lesions. Presumably these lesions are relatively silent areas of the brain caused problems only when their sheer volume compromised cerebral function.

The necessity for careful physical examination and the exclusion of all possible metabolic and toxic causes of dementia will remain the responsibility of the neurologist. The demented patient is demanding of both time and effort, but some 10% of such patients may be found to have a remediable cause and unless all patients are carefully screened, further avoidable deterioration may occur before an alternative diagnosis is identified. It seems likely that in the future this will become an increasing part of the neurologist's workload.

F. CASE REPORT VI

A 59-year old man presented with a 1-year history of episodes lasting several minutes he became confused. Family describe that after a picnic he had some insects on his body. He describes numbness, transitory motor deficits. Ex CT cerebral reveals cortical atrophy. EEG- normal, blood tests normal, without history of toxic alcohol abuse or drug abuse. Mini mental examination- 25. Antibodies for borrelia (IG G and IGM) was positive. MRI scan reveals demyelinated plaque supracortical and subcortical. Patients was send to infectious department.

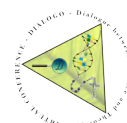
G. CASE REPORT VII

A 69-year old man, with a history of malignant hypertension, diabetes, describe, crises of crying and laughter, trouble of recent memory, shuffle gait, trouble of speech, he cannot dress and undress from about 3 months, family was afraid that he had a psychic condition, he thinks that he is a priest that he must help God from the earth. Ex CT cerebral reveals cortical atrophy, lacuna in the frontoparietal areas bilateral. EEG- normal, blood tests normal, without history of toxic alcohol abuse or drug abuse. Mini mental examination-15. The diagnosis was vascular dementia.

Dysexecutive syndrome leads to cognitive failures in judgement, planning, insight and the organization of social and occupational life in addition to affective and behavioral disorders.

CONCLUSION

Trouble of memory is a condition that seems to disordered arousal leads to a confusional state with an incoherent line of thought, temporal disorientation, poor recall, visual illusions, hallucinations and disordered behavior. With the exception



of dementia with Lewy bodies, which is characterized by fluctuating confusion, other disorders causing dementia persist and deteriorate over months or years, and are not characterized by fluctuations or confusional episodes, except when other medical or environmental perturbations disrupt the arousal systems of the brain (e.g. intercurrent infection, anoxia). His hallucinations were about peace and environment, with some protector angels for good people and some dangerous creatures who can destroy our world.

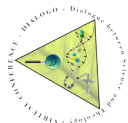
The findings highlight the benefits of spirituality and religion on health outcomes of patients with dementia. Use of spirituality or faith in daily life enabled people to develop coping strategies to help accept their disease, maintain their relationships, maintain hope, and find meaning in their lives, thereby improving their quality of life.

Spirituality and religion appear to slow cognitive decline, and help people use coping strategies to deal their disease and have a better quality of life. Future research must allow us to take stock of research over the last decade on spirituality/religion and health outcomes, and for dementia. The benefits observed should be considered with caution and included in rigorous experimental research in the future.

Religion and spirituality are important coping strategies for persons with disabilities. Practical suggestions for rehabilitation professionals are provided regarding: (a) strategies to enhance religious coping; (b) methods to train rehabilitation professionals about religious issues; and (c) issues to consider regarding future research on rehabilitation and religion. (Johnstone B, 2007, pag. 1153).

Religious activities, attitudes, and spiritual experiences are prevalent in dementia patients and are associated with greater social support, better psychological health, and to some extent, better physical

health. Awareness of these relationships may improve health care.



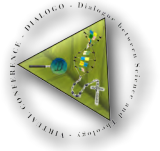
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SECTION 8

Epistemology, Metaphysics and Communication Sciences & Theology



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The idea in John Duns Scotus' turn-about Between Plato and Descartes

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ABSTRACT

The theoretical distance between the Cartesian concept, on the one hand, and the Platonic concept and Medieval tradition, on the other, would be incomprehensible unless one were to take into account the fundamental link, that lies in the thought of John Duns Scotus. The scope of this contribution is to illustrate the theoretical bearing of the turnabout in theology operated by Scotus as regards the concept of ideas. In fact, for Scotus, as we shall see, the concept of the idea is profoundly transformed, loses its exemplary value and takes on a new semblance that is nearer to the Cartesian concept, all this starting from a theological framework.

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I. INTRODUCTION

I thank Babette Pragnell for her linguistic check in English.

As it is well known, Ren  Descartes distinguished the mind and body according to their principal attributes: thought for the mind and extension for the body[1]. In the third of the *Meditationes Metaphysicae*, Descartes classifies two types of thoughts, only the first of which properly belongs to the class of ideas. Under this first type come the images of things, like a man, a chimera, an angel, the sky or God. Instead, the second type includes the emotions, wishes, and judgments, which require further actions by the will, starting from the simple ideas[2].

So, ideas are produced by the intellect

and constitute the representative content of external objects. All the same, they do not necessarily need to be similar to these objects because the intellect can also fabricate ideas that have no relation to formal reality, i.e. that do not possess the positive, actual ontological status of extramental things. For example, the intellect thinks of Pythagoras' theorem as a simple idea that is immediately perceived by the mind. The mind becomes aware of the theorem[3], but this approach can tolerate the inexistence of a formal reality of the external object. For this reason, Descartes takes care to discriminate ideas according to the three ontological degrees of the formal reality of external objects, namely infinite substance, finite substance and modes of being[4]. These three ontological degrees determine the consistency of the

objective reality of ideas, in the sense of their representative content. Therefore, the idea of color has a greater objective reality than the idea of Pythagoras' theorem or of a chimera[5].

In the preface to the *Meditationes*, that was probably composed after the main body of the work, Descartes introduces the category of material reality besides that of objective reality: an idea can be understood in the material sense, as an act of the mind, thus taking on a mental quality, or in the objective sense, in other words as the thing presented to the mind by its representing act[6].

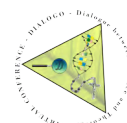
Thus, in Descartes two meanings of an idea seem to coexist: that of the object that represents the extra-mental reality to the mind, and that of the quality generated in mind by its act[7]. In both cases, Descartes' concept of ideas has made an obvious move away from that of his most illustrious predecessor, Plato, who assimilated ideas to their eternal, immutable model of sensible, misleading reality, and from the Platonic concept of the idea in the Medieval Latin European tradition[8]. This tradition had been irrevocably conditioned by question 46 of the *De diversis quaestionibus* 83, in which Augustine of Hippo considered ideas in the theological sense, as stable forms or reasons that are immutable, eternal, ingenerated and incorruptible. They are contained in the divine intelligence but do not pre-exist it or the demi-God. In this view, all mutable creatures are formed by their nature and their order, as seen in Plato's *Timaeus*[9]. However, although Plato had expressed his concept of ideas in the second book of *Timaeus*[10], Augustine knew *Timaeus* only through the Ciceronian translation, that ended with the first book. Of course, Augustine could refer to Atticus' commentary[11].

Despite this philological defect, the Augustinian interpretation of Plato's

conception of ideas remained very strong until the end of the 13th century. Henry of Ghent, for example, in the first question of *Quodlibet* VII, relied on Plato and Augustine to identify the exemplar of the creatable essence according to the Platonic-Augustinian idea. Ideas were the equivalent of eternal forms or reasons «*quae divina intelligentia continentur, secundum quas formatur omne quod oritur et participatione sit ut sit quid quid est in quo modo est*»[12]. The equivalence between the divine exemplar and the idea was later confirmed on the authority of Plato and Augustine, and also associated with Seneca[13].

In fact, in Henry's view, in letter 58 of the *Epistolae Morales*, Seneca proposed a mere equivalence of Plato's idea with the divine exemplar[14]. It was through this philological triangulation among Plato, Seneca, and Augustine that Henry drew up his famous theory of the *esse essentiae*[15], that is a class of merely possible essences, that are eternal, immutable, ingenerated and incorruptible, unaffected by singularity or universality, real existence or inexistence. As they reside in the divine essence, they receive two relations: firstly, the relation of resemblance or imitability that structures the essence of being, in the sense of what the merely possible essence is in relation to the divine essence as the exemplar or imitable cause. Secondly, the relation of existence that founds the essence of existence, i.e. the act of existing in the real extra-mental world, in relation to the divine essence as the efficient or productive cause[16].

It would seem, therefore, that the basis of Henry's theory could be traced back to the Aristotelian interpretation of Plato's ideas. According to this interpretation, in the seventh book of *Metaphysica*, Aristotle considered Plato's ideas as universal essences, that are spatially separate from empirical reality[17]. But in the second question of *Quodlibet* IX, Henry explicitly



rejected this very interpretation, due to the lack of exemplarism and the relation with the divine mind in Aristotle's interpretation[18].

The theoretical distance between the Cartesian concept, on one hand, and the Platonic concept and Medieval tradition, on the other, would be incomprehensible unless one were to take into account the fundamental link, that lies in the thought of John Duns Scotus. The scope of this contribution is to illustrate the theoretical bearing of the turn-about in theology operated by Scotus as regards the concept of ideas. In fact, for Scotus, as we shall see, the concept of the idea is profoundly transformed, loses its exemplary value and takes on a new semblance that is nearer to the Cartesian concept, all this starting from a theological framework.

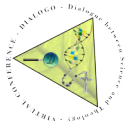
The Platonic origin of the theory of ideas emerges very clearly in Scotus, being presented both in *Reportatio Parisiensis A*, that is Scotus' most authoritative Parisian comment to Peter Lombard's *Sententiae* (this comment has been handed down to us in the form of students' notes, checked by the master), and in the *Ordinatio*, the more definitive comment written at Oxford. Thus, Scotus' theory of ideas will be examined in these two comments, as well as in the *Lectura oxoniensis*, that is the early Oxford comment[19].

Reportatio I-A, edited by Alan B. Wolter and Oleg V. Bychkov, St. Bonaventure N.Y.: Franciscan Institute, 2004-2008	Ordinatio I, edited by Carlo Balic, in <i>Opera omnia</i> , Vatican City: Typis Poliglottis Vaticanis, 1960-2014
Distinctio 36, pars 1, quaestio 2, vol. II, p. 405	Distinctio 35, quaestio unica, vol. VI, p. 262

Hoc idem etiam patet per Platonem qui primo induxit et locutus fuit de ideis: posuit enim mundum sensibilem extra in existentibus rerum, et mundum intelligibilem in mente divina, quem vocavit ideas mundi sensibilis et rei extra. Mundus autem intelligibilis et idea in mente non est nisi mundus sensibilis extra ut est obiective in mente divina in esse cognito, — et ita idea mundi in re extra non est nisi mundus intelligibilis, vel idem mundus in esse cognito. Nec est curandum in proposito si mundo in re extra correspondeat una idea vel plures. Item hoc patet ex Augustino, quia Augustinus imitatur Platonem quantum ad ideas. Nunc autem Plato ponit ideam in mente divina eo modo quo Aristoteles falso sibi imponit (secundum Commentatorem, I Ethicorum, capitulo 7) posuisse eas in re extra (imponit enim sibi Aristoteles quod posuerit ideas quidditates rerum sensibilium per se existentes); ergo sic posuit eas in mente divina ut quidditates cognitatas a mente divina (unde sic competit sibi definitio ideae, — patet per particulas supra), et non ut aliquos respectus[20].

Istud etiam videtur concordare cum dicto Platone (a quo accepit Augustinus nomen ideae). Ipse enim posuit ideas esse quidditates rerum: per se quidem existentes, et male, secundum Aristotelem, — secundum Augustinum in mente divina, et bene, unde aliquando loquitur de mundo intelligibili, s secundum eum. Sicut ergo ponerentur ideae secundum illam impositionem Aristotelis quidditates rerum, ita ponuntur secundum Platonem ut dicunt quidditates habentes esse cognitum in intellectu divino. Hoc posito, non oportet laborare circa relationes aliquas formaliter (sive in essentia ut obiectum, sive in essentia ut ratio, sive in essentia ut intelligere divinum), quae relationes dicantur ideae, immo ipsum obiectum cognitum est idea, secundum istud[21].

Comparison of these two passages clearly indicates that Scotus, like Ghent, learned the Platonic theory of ideas mediated through Augustine of Hippo not through Aristotle. In fact, in Scotus' view, ideas are the equivalent of the essence of extra-mental things, material and sensible, but do not have an autonomous ontological status, as Aristotle believed, because they reside in the divine mind, having been conceived by the divine intellect according to the esse cognitum. Thus, their status is noetic, dependent and relative to the divine intellect, being a status that denotes the mere knowableness or thinkableness of the idea. In the conclusion of the passage in the *Ordinatio*, the divine essence is mentioned, regardless of its nature as the object of knowledge, the constituting aspect or the



act of intellection, as acting as the primary representing content to which the divine intellect relates when noetically conceiving ideas as the essences of things or secondary representative contents. This mention underlies Scotus' definition of ideas, offered in a note in the margin of the *Ordinatio* passage, as diligently transcribed by the Scotist Commission presided over by Carlo Balic:

«Secundum istam viam patet cuius est idea: quia omnis obiecti secundarii (sive sit producibile sive comproducibile), et alia singularis et universalis, et aliae (universaliter) inferioris et superioris, - sicut incedis de intellectu».[22]

This note underlines the secondary representative content and the dependence of the idea on the divine intellect according to being known, disregarding the hierarchy of ideas according to whether they are more or less universal and hence superior or inferior down to the lowest level of the individual.

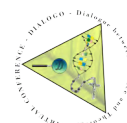
Another definition of ideas can be found in the second question, in the first part of distinction 36 in the first book of *Reportatio Parisiensis A*:

«Tamen primo sciendum est quid est idea. Dico ergo quod idea est 'ratio aeterna in mente divina secundum aliquid formabile secundum propriam rationem eius', — et sic patet quod idea non est relatio aliqua, sed obiectum cognitum in mente divina in qua sunt creaturae obiective. Hoc probatur primo per Philosophum, VII Metaphysicae, ubi vult quod omnia quae fiunt fiunt ex quodam, modo univoco, — et non solum in naturalibus sed in artificialibus, ut domus extra a domo intra, scilicet in mente artificis. Domus enim in mente artificis est obiective in specie domus. Species autem domus extra est in anima — quia aliter non potest domus extra esse praesens ipsi animae, quia lapis non est in anima, sed species eius — et ideo a domo ut est obiective in sua specie in anima fit domus extra. Ergo domus obiective in anima, secundum quam fit domus extra, est idea eius, quia domus intellecta. Sed obiectum creatum non potest sic esse praesens divino intellectui, quia tunc vilesceret eius intellectus. Ergo oportet quod sit ibi obiective — in essentia

divina virtualiter continente — secundum omne esse: essentia enim divina ut eadem re et ratione repraesentat omnia, et ut sic est in ea obiective creatura aliqua, erit idea obiecti extra, ut sic idea lapidis non sit nisi lapis intellectus».[23]

This passage emphasizes the theory of ideas as representative contents that are eternally present in the divine mind and virtually included in the divine essence, being the primary representing content that acts as the representative means in the stead of the species. Despite the absence of a comparison relation for the divine intellect, it is evident that confining the ontological nature of these ideas to the *esse obiectivum* alone denies the Aristotelian analogy to extra-mental reality represented by intelligible species in an abstractive way. Thus, these ideas are eternal inasmuch as they are present in the divine mind without any real relation extrinsic to God[24]. But if the practical function of an idea as the beginning of an operation or production is to be admitted, beyond the speculative function of the idea as the beginning of knowledge, then a distinction is discernible between this idea and what stems from this idea, namely the positive being produced as an absolute or a relative entity, endowed with an ontological status that is autonomous or else dependent on God[25]. Every *esse cognitum* of the divine intellect corresponds to an idea in the divine mind[26].

«Addo etiam quod quaelibet idea est practica (suo modo, non simpliciter), ita quod suum obiectum secundum eam aliquando producatur (sed quod secundum ipsam natum esset produci), si hoc voluntas divina suo actu acceptaret. Hoc proba, quia artifex per cognitionem producens aliquid operabile secundum totum quod est in eo, habet distinctam cognitionem omnium illorum quae sunt in illo operabili, et cuiuslibet partis et per se accidentis illius operabilis. Sed huiusmodi artifex est ipse Deus; ergo habet distinctam cognitionem practicae omnium quae ab ipso producuntur in operabili, et per consequens habet distinctum principium cognitionis practicae, quod est idea». [27]



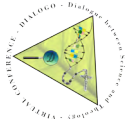
This addition dwells on the practical character of all ideas as the beginnings of an operation or production, since the idea ensures the intellectual knowledge of an objectum that does not necessarily need to be produced before the divine mind decides to actually produce it, but that is naturally producible. Thus, this practical knowledge of ideas belongs to God as the *Creator*.

In all three comments to the sentences, Scotus takes care to isolate four metaphysical moments that go to form the ideas in the divine mind:

<i>Lectura</i> I, edited by Carlo Balic	<i>Reportatio</i> I-A, edited by Alan B. Wolter and Oleg V. Bychkov	<i>Ordinatio</i> I, edited by Carlo Balic
Distinctio 35, quaestio unica, vol. XVII, pp. 452-453	Distinctio 36, pars I, quaestio 2, vol. II, p. 406	Distinctio 35, quaestio unica, vol. VI, p. 258
Sic in proposito: intellectus divinus primo intelligit essentiam; et in secundo instanti intelligit creaturam in esse intelligibili, non actu comparativo, sed lapidem actu directo, quem consequitur relatio ad intellectum divinum vel ad scientiam divinam secundum tertium modum relationis (quia lapis tunc in esse intelligibili refertur ad scientiam divinam sicut mensuratum ad mensuram, ut sic nihil aliud sit ipsum intelligere lapidem quam 'lapidem in esse intelligibili esse productum' habere relationem absolutam intelligitur, et non e contra referri); in tertio autem signo vel in tertio instanti naturae,	Sed secundum primam opinionem talis est ordo intellectus ad ipsos quod Deus in primo instanti cognoscit essentiam suam et in secundo instanti cognoscit et intelligit creaturas mediante essentia sua. Et tunc secundum illam viam dependet objectum cognoscibile ab intelligere divino in esse cognito (quia per illud intelligere constituitur in esse cognito), et Deus sub ratione mere absoluta terminat relationem creaturae. In tertio autem instanti potest comparare essentiam suam ad illud objectum intelligibile extra secundum relationem rationis, licet non necessariam ad intellectionem	Hoc potest poni sic: Deus in primo instanti intelligit essentiam suam sub ratione mere absoluta; in secundo instanti producit lapidem in esse intelligibili et intelligit lapidem, ita quod ibi est relatio in lapide intellecto ad intellectionem divinam, sed nulla adhuc in intellectione divina ad lapidem, sed intellectio divina terminat relationem 'lapidis ut intellecti' ad ipsam; in tertio instanti, forte, intellectus divinus potest comparare suam intellectionem ad quocumque intelligibile ad quod nos possumus comparare, et tunc comparando se ad lapidem intellectum, potest causare in se relationem rationis; et in quarto instanti

intellectus divinus comparat essentiam suam ad lapidem in esse intelligibili, ex qua causatur relatio quaedam idealis; in quarto autem instanti reflectitur supra illam comparisonem et supra actum comparandi, et sic cognoscitur idea, - ita quod idea, ut ens quoddam est, sequitur intellectionem creaturae in tertio signo, et in alio instanti (scilicet in quarto) sequitur cognitio et intellectio istius ideae et illius relations[28].	creaturae, quia sequitur huiusmodi intellectionem. Sed secundum aliam viam esset dicendum quod in secundo instanti — quo Deus intelligit lapidem, et constituitur in esse cognito — non refertur lapis ad Deum nec dependet, quia sic adhuc nihil est in re, et in omni illo sive in toto instanti intelligit Deus lapidem sine omni dependentia lapidis ad ipsum. Et tunc, sicut prius, Deus comparat se ad lapidem ut intelligitur, et sic habet relationem rationis ad ipsum; et per consequens in quarto instanti potest intelligere Deus huiusmodi relationes rationis[29].	potest quasi reflecti super istam relationem causatam in tertio instanti, et tunc illa relatio rationis erit cognita. Sic ergo non est relatio rationis necessaria ad intelligendum lapidem - tamquam prior lapide - ut objectum, immo ipsa 'ut causata' est posterior (in tertio instanti), et adhuc posterior erit ipsa 'ut cognita', quia in quarto instanti[30].
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As can be seen, the three comments to the *sentences* are in agreement on the first and last metaphysical moment but a speculative evolution can be seen from the *Lectura* to the *Ordinatio*, born of the effort to solve the problem posed by the first mode in the *Reportatio*, namely the dependence of the *esse cognitum* on the intellection of the divine intellect in the emanationist sense. This effort explains the introduction of the second mode in the *Reportatio*, in conformity with the comments made at Oxford. In practice, in the first moment the divine intellect thinks of the divine essence as the *absolutum*, or autonomous independent being; in the second moment the intellect does not compare, as Ghent claims, the essence of the creature to the divine essence, adding a weaker being or noetic status to the first essence, but rather this intellect operates an absolute act to constitute the creature that is virtually included in the divine essence, according to the *esse intelligibile*, or mere thinkableness. It thinks



of the creature thus constituted according to a third class relation, in the sense that the intellect becomes the *terminus* of the relation whereby the creature, as thinkable, determines the knowledge of the intellect and not vice versa. Although this relation is not reciprocal and so does not proceed from the intellect to the creature as thinkable, it could provoke a dependence on the *esse cognitum*, or intellectual knowledge of the thinkable thing on the intellect that thinks it. Therefore, Scotus is quick to state that this is the moment when the creature has been thought of, or constituted in its thinkableness, but is not yet known by the divine intellect, because this knowledge is delayed until the fourth moment. In fact, the third moment is characterized by the reversion of the third class relation, from the moment that the divine intellect compares the divine essence, according to the *Lectura*, or the act of intellection, according to the *Ordinatio*, to the thinkableness of the creature as extrinsic to the intellect, instituting an ideal relation or mental idea, that is not necessary in order to think of the creature in the second moment. Instead, in the fourth moment the divine intellect, by reflecting on the act of comparison, finally knows the idea and the relation, that acquires the *esse cognitum*.

In the only question in distinction 35 of the *Lectura* Scotus reconsiders the concept of ideas in the light of the processes, or moments:

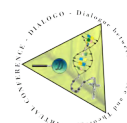
«Unde idea est quiditas intellecta, unde potest oriri simile extra. Unde in primo instanti intellectus divinus intelligit essentiam suam, et in secundo quiditates aliorum quae - ut sic intellectae sunt - ideae dicuntur; et in tertio instanti intellectus divinus comparat essentiam suam ad quiditates et causantur relationes rationis, quae dici possunt quaedam aliae ideae. Unde Augustinus non dicit quod idea est ratio secundum quam intelligit, sed secundum quam format quidquid formabile est: si enim esset ratio secundum quam intelligit, cum sit quiditas intellecta, vilesceret intellectus divinus in intelligendo; si tamen invenitur alicubi quod idea sit ratio secundum quam intelligit, hoc est intelligendum sicut 'ipso obiecto cognito', non sicut 'obiecto motivo ad actum intelligendi'».[31]

Here Scotus unites the last two moments and again the formation of ideas appears in both the second moment and at the end of the last moment. But he does not rely on the equivalence of the essence that has been thought of in the second moment to the idea, that would be connected to what induces the intellect to think, not to what is known by the intellect that thinks. It is for this reason that for the idea to coincide with what the intellect knows, its formation needs to be postponed until the last moment.

This retrocession of the comparison relation down to the last two moments is in conflict, in the only question in distinction 36, with Henry of Ghent's theory of the being of the essence. Scotus makes a harsh criticism of this theory, that seems to him to propose a separate, eternal world of essences, that has an affinity to the Platonic world of ideas according to the Aristotelian interpretation, but is incompatible with their creation from nothing and so antecedent even to the divine intellect, that should firstly produce the exemplar and then the creature in the being of the essence [32].

«Ideo dico quod res ab aeterno non habuit esse verum essentiae vel existentiae, sed fundat relationem idealem secundum esse deminutum, quod habuit ab aeterno (quod est esse verum, distinctum contra esse essentiae et esse existentiae, sicut patet ex VI Metaphysicae): sicut si ponatur quod ego fuisset ab aeterno et quod ab aeterno intellexissem rosam, ab aeterno tunc intellexi rosam secundum esse suum essentiae et secundum esse existentiae; et tamen non habuit esse nisi cognitum, - sicut si modo rosa omnino nihil esset, intelligo rosam et secundum esse essentiae et existentiae, et tamen neutrum habet. Unde terminus intellectionis est esse essentiae vel esse existentiae, - et tamen illud quod obicitur intellectui, tantum habet esse deminutum in intellectu».[33]

It is evident that Scotus denies Henry's eternal existence of the being of the essence and that of the existence, because the intellectual act of comparison that institutes the ideal relation follows,



rather than preceding the constitution of the creature as *obiectum*, or secondary representative content. This content, when presenting to the intellect, is not configured as an autonomous essence but retains a weakened being, namely the *esse cognitum*, that depends on the divine intellect. The production whereby the intellect conceives the creature according to this being structures the creature, both in its essence and its existence. In this sense, the creature exists because it has been thought of by the intellect, and its nature as thinkable is entirely coincident with its existence, that is purely noetic[34]. The weakened character of the *esse cognitum* is applicable only vis à vis the knowledge of the divine intellect, and implies a form of being that remains relative[35].

At the end of distinction 39 Scotus reasserts the dependence of the creature's thinkable essence, that is distinguished from the producible being of the creature in extra-mental reality:

« [...] intellectus divinus in instanti primo videns essentiam suam, videt omnes res secundum earum esse intelligibile, quia tunc constituuntur in esse intelligibili, sed adhuc non habent esse in esse producibili antequam habeant esse volitum a voluntate; et ideo quando habet res illam rationem, eam videt in videndo essentiam suam». [36]

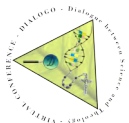
In other words, firstly the intellect constitutes the creature as thinkable, seeing it included in the divine essence, and then the divine will decides to create that creature, as really producible. In the only question in distinction 43 Scotus repeats that the creatures are firstly produced by the divine intellect in their thinkable or known beings, and then by the divine will as willed or existent beings[37].

In conclusion, before Scotus, in the wake of the Platonic-Augustinian tradition, the idea was characterized by a strong exemplary element, that Christian thought incorporated in the divine intelligence, in which ideas were coessential.

The example of Henry of Ghent is paradigmatic of the concept of the dual relation of imitability and existence, that connects the possible essence to the divine essence as the exemplar and efficient cause. Instead, for Descartes the idea is an image, but certainly not an exemplar because it does not necessarily need to be similar to the formal object in extra-mental reality. Rather, the Cartesian view of material, formal reality, and consequent consideration of ideas as the results of acts of the intellect or representative objects presented to the intellect, are incredibly like the Scotian production of ideas.

In fact, Scotus considered that an idea is not an exemplar but the content of thought, according to the contemporary meaning of an idea. The Scotian idea, as an object that is thought of or thinkable, is not eternal, immutable, ingenerated and incorruptible, as claimed by Plato and Augustine, but is noetically conceived or produced by the divine intellect. It carries out two operations: one is absolute, in which the divine intellect noetically forges the possible essence, that is already potentially included in the divine essence, according to its pure status as thinkable. The other is relative, when the intellect is reached by the thinkable nature of the possible essence, that has just been constituted; with this thinkableness, a relation is forged where it is the possible essence that determines the act of thought of the divine intellect. In Cartesian terms, the possible essence is firstly configured in its material reality as the act of thought, and then in objective reality, as the representative object of what was presented to the intellect.

However, for Scotus the idea has not yet appeared, but only a weakened or relative being that links the possible essence to the divine intellect. For the idea of the possible essence to appear, the divine intellect must compare the divine essence, as the primary representing content of every possible essence, with the thinkableness of the possible essence. This is no longer considered



as the result of the act of thought of the divine intellect, but as a noetic entity that is extrinsic from the divine intellect. This act of comparison replaces the Platonic-Augustinian exemplarism that was still present in Henry of Ghent's work, and generates an ideal relation that is not directed from the thinkableness of the possible essence to the divine intellect, but vice versa from the intellect to the thinkableness. Finally, the relation is known by the divine intellect.

What thus emerges is the intellectual production of objects that are thought of or thinkable, thereby clearly distancing Scotus from Plato, Augustine and the Medieval tradition, and decidedly anticipating the Cartesian individuation of two realities, as well as the contemporary definition of ideas and the scholastic theory of the objective being[38]. But before this production could be useful to Descartes and modern thought, Scotus' thought needed to be de-theologized. In fact, all this process of the production of thought underlies some conditions that occur only *in divinis*, in other words the co-essentiality of the divine essence and the divine intellect, the performative capacity of the divine intellect, the absolute lack of influence of the extra-mental world, the internalization of the whole cognitive process in God. All these conditions were entirely acceptable to Scotus but would in the future be problematic for Descartes, who was, instead, committed to safeguarding the objective reality of ideas based on the formal reality of extra-mental objects.

In practice, the Scotian gnoseology of ideas developed within a theological context that notably increased its innovative factor but ended by limiting its field of application.

SHORT BIOGRAPHY

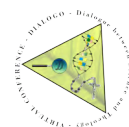
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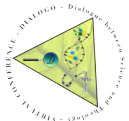
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- [3] see *ibidem*, p. 160.
- [4] see *ibidem*, pp. 41-42, 102.
- [5] see *ibidem*, p. 40.
- [6] see Idem, *Meditationes metaphysicae*, praefatio, vol. VII of *Oeuvres de Descartes*, p. 8.
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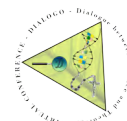


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- [12] see Henry of Ghent. *Quodlibet* VII, quaestio 1, edited by Gordon A. Wilson, Leuven: Leuven University Press, 1991, p. 5.
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- [18] See Henry of Ghent, *Quodlibet* IX, quaestio 2, edited by Raymond Macken, pp. 34-38.
- [19] For these works by Scotus see Fiorentino, Francesco. “Introduzione. Conoscenza e attività in Giovanni Duns Scoto.” in *Il Prologo dell’Ordinatio di Giovanni Duns Scoto, introduzione, testo, traduzione e commento*, 1-153, Rome: Città Nuova, 2016.
- [20] The same thing is evident in Plato, who was the first to introduce ideas and discuss them. In fact, he placed the sensible world outside, in the existence of things, and the intelligible world inside the divine mind, calling the intelligible world the idea of the sensible world and of the things that are outside. Instead, the intelligible world and the idea in the mind are nothing other than the sensible world, being inside the divine mind as knowable objects. In this way, the idea of the world as the extrinsic thing is nothing other than the intelligible world or the world itself in its known being. And it is not worthwhile worrying, at this point, whether one or more ideas correspond to the world of extrinsic things. This is also evident as based on Augustine, because Augustine imitates Plato as regards ideas. But now Plato places the idea inside the divine mind, in the way that Aristotle falsely imputed to him, of placing ideas within extrinsic things, according to the Commentator in the first book of Ethics, chapter 7. In fact, Aristotle imputed to him that he had placed ideas as essences of sensible things, existing in themselves. Therefore, if he placed ideas in the divine mind as essences known by the divine mind and not as relations, then it is evident from the above-mentioned small parts that the definition of the idea is attributable to him.
- [21] This seems to be concordant also with Plato’s statement, from which Aristotle drew the name idea. In fact, he claimed that ideas are already existing essences of things in the divine mind, that is bad according to Aristotle and good according to Augustine. So sometimes he



speaks about what the intelligible world is in his view. Thus, in the same way as ideas were seen as the essence of things according to Aristotle's imposition as to how they were placed according to Plato, so could it be said of the essences that had their known being in the divine intellect. Having said this, it is not worth making a formal effort to define some relations as ideas, regardless of whether they are, in the divine essence, objects, reasons or acts of the divine intellection. On the contrary, it is the known object itself that is the idea according to this statement.

- [22] John Duns Scotus, *Ordinatio* I, DISTINCTIO 35, quaestio unica, edited by Carlo Balic. vol. VI of *Opera omnia*. Vatican City: Typis Poliglottis Vaticanis, 1963, p. 258: «Along these lines, it is evident to whom the idea belongs because it is that of every secondary object, regardless of whether it is producible or not producible, and is singular or universal, and again universally inferior or superior, as you proceed about the intellect.»
- [23] Idem, *Reportatio* Parisiensis I-A, distinctio 36, pars 1, quaestio 2, edited by Alan B. Wolter and Oleg V. Bychkov, vol. 2 of *The examined report of the Paris lecture Reportatio I.-A: latin text and english translation*, St. Bonaventure, Franciscan Institute, 2004-2008, , p. 403: «However, first of all it is necessary to know what the idea is. So I state that the idea is an eternal reason in the divine mind, in accordance with something that can be formed according to its own reason. So it is evident that the idea is not a reason, but the known object in the divine mind, where the creatures are, in the objective sense. This is proven firstly by means of the Philosopher in the seventh book of *Metaphysica*, where he states that everything that is made, is made in a univocal way, not only as regards natural things but also artificial things, like the extrinsic house from the intrinsic house, that is in the mind of the maker. In fact, the house in the mind of the maker is objectively within the species house. But the species of the extrinsic house is in the soul, because otherwise the extrinsic house could not be thus present to the soul, because the soul is not inside the soul but in its species. Therefore, the extrinsic house is made in the soul of
- the house because it is objectively inside its species in the soul. Thus, the objective house in the soul, according to which the extrinsic house is made, is the idea of it, because it is the house that was thought of. But the created object cannot be present in this way to the divine mind, because this would vilify the intellect. Therefore, it is opportune that it should be objectively in the divine essence, that virtually contains those of everything. In fact, because the divine essence represents all things in the same thing and reason, and because in this way it contains a creature as the object, it will be the idea of the extrinsic object, so that the idea of the stone is nothing other than the stone that was thought of.»
- [24] See *ibidem*, DISTINCTIO 36, pars 1, quaestio 2, P. 405.
- [25] See *ibidem*, DISTINCTIO 36, pars 2, quaestio 1, p. 425.
- [26] See *ibidem*, DISTINCTIO 36, pars 2, quaestio 1, p. 425.
- [27] *ibidem*, DISTINCTIO 36, pars 2, quaestio 1, p. 425: «I add, also, that any idea is practical in its own way, not a simple way, so that its object is sometimes produced according to it, but is naturally adapted to being produced according to it, if the will accepts this through its own act. This is proven because the maker that produces, through knowledge, an operable thing in accordance with all that is within it, has a distinct knowledge of everything that is operable within it, and of every part and incident of the operable thing. But the maker is God, so He has a distinct, practical knowledge of everything that He produces in the operable thing, and hence possesses the distinct principle of the practical knowledge, that is the idea.»
- [28] So, in this context: the divine intellect thinks first of all of the essence, and in the second instant thinks of the creature in its thinkable being, not through an act of comparison but, for the stone, as a direct act following the relation to the divine intellect or the divine science according to the third mode of the relation. Thus, in this case the stone as a thinkable being is referred to the divine science in the same way as the measurable is to the measure. So in this way, thinking of the



stone is nothing other than the fact that the stone being, produced as a thinkable being, is related to the divine science as an absolute essence and not as referred in reverse. So the creation of the stone by God is nothing other than the fact that the stone produced as a being in existence is referred to God, seen as absolute in the sense of being the term of the relation, not as referred in reverse. Instead, in the third sign or third instant of nature the divine intellect compares the essence from which a certain ideal relation was caused to the stone in its thinkable being. Instead, in the fourth instant it reflects upon this comparison and on the act of comparing and so knows the idea. Thus, the idea as a certain entity follows the intellection of the creature in the third sign and it is in the other instant, the fourth, that the knowledge and the understanding of this idea and of that relation follow.

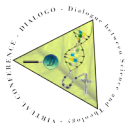
[29] But according to the first opinion the order of the intellect to them is such that God, in the first instant, knows the essence and in the second instant knows and thinks of the creature through its essence. In this case, according to this pathway the knowable object depends on the divine thought of the known being, because the object is constituted in its known being by means of this thought. And God, through pure, absolute reason, terminates the relation of the creature. Instead, in the third instant the divine intellect can compare the essence with the extrinsically thinkable object according to its relation with reason, even if this is not necessary for the intellection of the creature, because it follows this intellection. But according to the other pathway, it should be stated that in the second instant, when God thinks of the stone and it is constituted in its known being, the creature is not referred to God nor depends on Him, because otherwise there is nothing in the thing and in every thing of the same kind, or in the whole instant when God thinks of the stone without any dependence of the stone on it. In this case, like before, God compares Himself to the stone as thought of and so has a relation of reason with it. So in the fourth instant God can think of this relation of reason.

[30] It can be described in these terms: in the first instant God thinks of the essence according to

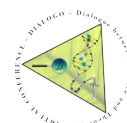
pure, absolute reason. In the second instant He produces the stone as a thinkable being and thinks of the stone, so in the stone that has been thought of there is a relation with the divine intellection. But at that moment there is no relation to the stone in the divine intellection. But the divine intellect terminates the relation of the stone as thought of. In the third instant, perhaps, the divine intellect can compare its intellection to any thinkable thing with which we could compare it. In this case, comparing itself to the stone that was thought of can in itself cause the relation of reason. In the fourth instant He can reflect on this relation caused in the third instant and in this case the relation of reason will become known. Thus, in this way the relation of reason is not necessary in order to think of the stone, as if it were before the stone as object. Indeed, because it has been caused, it is posterior in the third instant and so, as known, it will be posterior because it is in the fourth instant.

[31] *Idem*, *Lectura* I, distinctio 35, quaestio unica, edited by Carlo Balic. vol. XVII of *Opera omnia*. Vatican City: Typis Poliglottis Vaticanis, 1966, p. 456: « So, the idea is the essence that has been thought of and from which something can originate that is similar to the outside world. Therefore, in the first instant the divine intellect thinks of the essence and in the second, of the essences of the others, that are called ideas because they are thought of in this way. In the third instant the divine intellect compares the essence to the essences and so the relations of reason are caused, that can be called certain other ideas. Therefore, Augustine does not state that the idea is the reason according to which the divine intellect thinks, but rather according to which it forms everything that can be formed. In fact, if it were according to reason that it thinks, because the thing is thought of, the divine intellect would be vilified by this thinking. However, if by some means the idea is prevented from being the reason according to which it thinks, then it must be thought of as a known object, not as an object that activates the act of thought.»

[32] See *ibidem*, *DISTINCTIO* 36, quaestio unica, pp. 464-466.



- [33] *ibidem*, distinctio 36, quaestio unica, pp. 468-469: «For this reason I state that the thing has not received, from eternity, the true being of the essence or existence, but rather founds the ideal relation according to the weakened being that it has received from eternity, that is the real being, distinct from the being of the essence and of existence, as is evident in the sixth book of *Metaphysica*. It is as if, taking the case that I came from eternity, and from eternity I thought of the thing, then from eternity I thought of the stone according to its being of the essence and being of existence and yet I have nothing other than the known object. As if now the rose were nothing at all, I think of the rose according to the being of the essence and of existence and yet I have neither of them. Therefore, the term of the intellection is the being of the essence or the being of existence and yet what is presented as object to the intellect only has a weakened being in the intellect.»
- [34] See *ibidem*, distinctio 36, quaestio unica, p. 469.
- [35] See *ibidem*, distinctio 36, quaestio unica, Pp. 471-472.
- [36] *ibidem*, distinctio 39, quaestio 3, p. 510: «[...] the divine intellect, that in the first instant reviews its essence, sees all things according to their thinkable being, because in this case they are constituted in their thinkable being. But then their being is not inside the producible essence until they have been willed by the divine will. Therefore, when the thing has that reason, it is seen when reviewing the essence.»
- [37] See *ibidem*, distinctio 43, quaestio unica, p. 534.
- [38] see Boulnois, Olivier. « *Theologie, metaphisique et representation de l'etre selon Jean Duns Scot*, » in *Metaphisiques médiévales. Etudes en l'honneur d'André de Muralt*, edited by Curzio Chiesa and Leo Freuler, 83-102, Geneve: Cahiers de la Revue de thèologie et philosophie, 1997; Fiorentino, Francesco. "L'autonomia ontologica delle idee platoniche. Il dibattito ottocentesco e le radici scolastiche," in *Platone nel pensiero moderno e contemporaneo*, edited by Andrea Muni, 21-64, Villa Santa (MB): Limina
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SECTION 9

**Management, Marketing, Economics
and Tourism & Religion**



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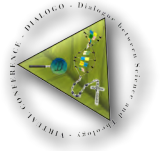
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Intuition, as the ability to perceive a higher principle



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ABSTRACT

In this article we predicted the role of intuition in the decision-making process. In the mapping of its importance in this process, we drew from the model of Daniel Kahneman which divides our thinking primarily into two systems, logical and associative. We (The authors) view intuition as a third system that exists as if outside of both systems, emanating from the “higher principle” which may be a collective consciousness or the divine will.

First, we performed a pilot experiment which used an MRI to analyze brain function while performing normal activities. After observing the results of the MRI, we hypothesized that the normal mechanical activity, albeit complicated, cannot be called intuition, but only associative thinking, which can be further developed. Intuition, however, is not directly related to the two systems, because it works outside of or beyond them, but directly affects them. In this article, we have focused mainly on the ethical and moral context of the decision-making process and its subsequent practical consequences. The inclusion of the intuitive process in conjunction with the logical and associative systems is an important tool for an individual’s understanding of crisis decision-making in keeping WITH the mission of the company.

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I. INTRODUCTION

A multicriterial decision-making model among uncertainty and risk in economic practice always represents a set of possible solutions. The alternatives are mostly evaluated according to a single criterion – expected profit or benefit, or expected loss. Nevertheless, models exist where we can evaluate individual alternatives according to multiple criteria, which can differ in meaning or can even appear contradictory. The result is a set of good and even better, and bad and even worse solutions. Managers certainly

make a genuine effort to make only the best decisions. The difficulty lies in the fact that, in the decision-making moment, sufficient valid information is never available. For that matter, there can never be a sufficient amount of it.

In a turbulent economic environment, an endless number of influences work simultaneously. The problem is magnified by the fact that we usually know little not only about the validity of the information with which we are working, but also about whether other important facts exist which

escaped us during the analysis of the actual situation. It is often very difficult to determine which information has a dominant significance for future development and which has only marginal significance, as well as what the cause and the consequence is. In real time, the entire problem can be further complicated by changes in the significance of individual indicators or information. That which was important for past development may only have a marginal effect in the future, and vice versa. New problems can arise, which could not even have been foreseen in the decision-making moment.

Even if we conceded that a sufficient amount of valid information is available, the question is whether the manager can properly comprehend and evaluate it in real time, and draw the appropriate conclusions. Every piece of information hides lots of possible meanings and interpretations. At first sight, it may not be evident which of them is correct.

Managers usually look for ever more complicated and accurate algorithms to explain past development. They try to understand the natural relations and significant moments of past periods. They base their approach on the assumption that past trends will replicate themselves in the future. Which of course can apply, to a certain extent, to lower management levels and short decision-making horizons? But it may not be the case. With a higher level and longer horizon of management, this risk increases proportionally. The future can develop in a completely unexpected direction, which could in no way have been discovered by observing the past. [1]

Let us just imagine that we predict a person's development on the basis of the analysis of a five-year-old child, i.e. without the knowledge of how their development will, in fact, "turn out". If we applied the trends in the child's development to an elderly person, we could argue, with our

awareness that after an old man's teeth fall out, new ones will grow.

Does this comparison seem crazy to you? Of course. However, we must then admit that our assumptions in business practice, which are based merely on statistical data which analyses the past, are just as crazy, and predicting the distant future on this basis is even crazier.

In his book *The Black Swan*, Taleb sufficiently described, on the ground plan of history, situations which actually took place and which nobody would have imagined even in their wildest dreams. The advent of Hitler and the entry of Communists into power – we can assess the issue of Brexit, immigration in Europe or the crisis on the Korean Peninsula in the same way.

II. RESEARCH OBJECTIVES

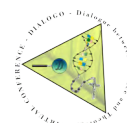
The activity of any company is always strongly influenced by a permanent change in the external and internal environment. Every single action evokes a reaction by the environment, which in turn modifies our own actions. The introduction of a product on the market, price policy, personnel changes... they can all have an absolutely immense and unexpected effect on a specific company's development.

Therefore, the fundamental question is: how to optimise the decision-making process, so that we can not only predict reality, but also respond to it in a timely and correct manner? How does our brain work during the decision-making process?

Daniel Kahneman divides thinking into two systems – slow and fast, i.e. logical and intuitive. [2]

System 1 – refers to fast thinking – intuitive, including expert and heuristic solutions. Based on associative thinking.

System 2 – slower, deliberate thinking, which works with statistics, mathematical



analysis and algorithms.

However, the faster, associative thinking, which Daniel Kahneman calls intuition, has several fundamental problems. Above all, it is often influenced by the so-called availability heuristic. It is always based on the problem of similarity to an already experienced situation. In this context, the decision-making subject has a tendency to simplify the problem and adapt some of their experiences. This quite logically leads to a certain predictable distortion. A wealth of experience usually enables a more accurate comparison of a new situation. These simplifying shortcuts do not mean that educated and experienced people do not make mistakes. In general, we have a tendency to evaluate the significance of individual events according to how easily we can recall them. In this context, it must be stressed that the media, and the environment which surrounds us, can have both a positive and a negative effect on the ease with which certain experiences are recollected. In return, the media creates certain stereotypes in evaluation and speculation according to what it presumes is hidden in the minds of readers or, even better, the public.

A slightly different situation occurs within the scope of a decision-making process concerning narrowly defined activities, i.e. activities which involve the replication of certain, quite specific situations, particularly at lower management levels. Here, the impact of the media does not distort the idea of reality so strongly. Or, as the case may be, the distortion can occur indirectly.

In the case of relatively more narrowly focused decisions, it is easier to estimate the distortion of reality during decision-making, and subsequently better protect yourself against it.

For example, soldiers find it easier to overcome a certain (albeit difficult and unique) situation, if they have completed the

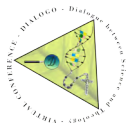
appropriate training. Their brain responds to reality in accordance with the training. The scope of their actions is relatively limited. They have clear instructions, objectives and outputs. This similarly applies to pilots, firemen and nurses. In the case of managing a company at one of the higher levels, it is sometimes difficult to clearly formulate instructions, objectives and procedures.

Nevertheless, doubt arises in our minds as to whether **Kahneman's 1st System** can be described as intuition. After all, it merely constitutes associative thinking. It is based on every individual's experience, and assessment of reality from this perspective. In our opinion, it is merely associative thinking, which can accelerate and considerably specify the decision-making process on the basis of a comparison with previous experience. But the precise mastering of the "craft", which gives the profession room not only for faster decision-making but also for further mental flight, has nothing to do with intuition.

In this context, I would like to mention research carried out many years ago in a university in Stuttgart, which analysed the career paths of graduates of a conservatory of music. The research looked for explanations why most of the students ultimately only work as music teachers, a smaller number play in orchestras, and a minimum of them actually become virtuosos or soloists, even though all of them were characterised by talent and a love of music. The graduates differed by their level of "training". The researchers even calculated how many hours individual groups had to spend training.

In other words, only the perfect mastery of a "craft" - the most ordinary routine - can make room for creativity and facilitate and accelerate the decision-making process.

Daniel Kahneman presents two parts of the decision-making process, which of course can complement each other, but



each can also work completely separately, independently of the other. In his lecture on intuition, psychologist **Gary Klein** presented the case of a fireman who managed to command his men to retreat in time because he had a premonition. But was this really intuition, or merely associative thinking? [3]

The brain can be likened to an absorbent sponge which remembers absolutely everything that ever happened. It even manages to monitor things which we are not aware of at all. Scents, emotions, colours, sounds and millions of other details. All our memories, sounds, sights and everything we've ever read are stored deep in our subconscious. They manifest themselves in our dreams, which are often so absurd. It is only a question of how much of it our brain will release back into our consciousness.

The afore-mentioned fireman simply recalled some experience or feeling from a previous time. It is because he, as fire chief, had so much experiences from various responses that he managed to evaluate the risk correctly and on time. Therefore, in all likelihood, it was a matter of using associative thinking instead of intuition. It is this part of brain activity which can be developed, trained etc.

This is the starting point of our research in the Institute of Mental Health. Here, we deal with the issue of the possibility of training associative thinking, i.e. the ability to make faster decisions on the basis of already acquired experience and the ability to resolve unexpected situations, or more precisely foresee immediate future development.

We start with the assumption that, with certain specific training, some decision-making processes can be mechanised. We presume that regular training can change the brain's local activity in connection with the resolution of a problem which has occurred repeatedly. If this can be credibly demonstrated, it can be inferred that

associative thinking can be trained in exactly the same way as an athlete's muscles, and that this training programme can be utilised within the scope of corporate practice. [4]

Subsequently, we will verify the ability of the examined subjects to foresee the result of an unexpected situation, not only in their own field but also in a similar field, i.e. to what extent the interdisciplinary transmissiveness of experiences can function, which is important for compiling the training programme.

For the purposes of our research, we chose a professional group – nurses. Their education has several very specific characteristics.

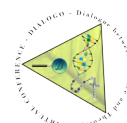
The “training programme“ within the scope of their secondary school education is usually led by experienced people from practice - doctors and nurses from hospitals. This fact is important for our research, because it presumes that there is a direct link between training and practice. A nurse's work involves clear instructions, a clear venue, a comprehensible output and an immediate response.

We chose the research participants according to the following criteria:

- first year nursing school students
- i.e. young women without the appropriate education or specific practice, graduates of a secondary nursing school (an important group of our respondents),
- nurses who have completed 10-15 years of practice.

Every practical act that a nurse performs has a direct and immediate response in the form of the patient's health and how they feel. This feedback is extremely important for training the ability to think associatively. However, there are also many other factors at play.

For now, our project is in the pilot research stage.



Other, frequently omitted aspects are also important for making the right decision while using our associative thinking – emotions, motivations, and possibly also the risks to us which arise from making the decision. It is these very situations which enable us to activate (or on the contrary hinder) the hidden potential of our consciousness, and even more importantly our subconscious.

In this context, however, we must ask ourselves a fundamental question:

Is associative thinking simultaneously our intuition? Or is intuition something more, something outside of us, something which influences our decision-making? If yes, where does THIS SOMETHING come from?

From the collective consciousness? From God?

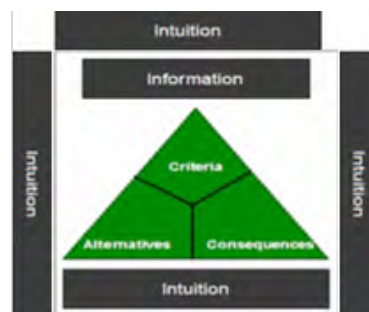
The worldwide computer network is a banal technical toy compared to a single human brain, claimed eminent Czech neurosurgeon, prof. Vladimír Beneš, in one of his interviews. What then of the collective consciousness, formed by the millions of brains which surround us? This question can only be answered with great difficulty. The brain cannot get to know itself, and we have nothing better for getting to know the brain than our brain. What then of the collective consciousness, when one single brain, as flawless as it may be, is just a small part of it?

Can this ability also be trained? Can it be utilised programmatically within the scope of the decision-making process?

So what is intuition? Most definitions describe it similarly, like prof. Beneš, who perceives it as... concentrated and instant experience. He claims that our solutions have a rational, justifiable core based on our experiences.

Daniel Kahneman defines it in the same spirit.

As is apparent, these and many other definitions do not go beyond the scope of associative thinking, i.e. beyond the scope of our personal practice and experiences.



However, in our opinion, the impulse which we call intuition goes much further.

The ubiquitous intuition.

Other authors define intuition as follows:

- An ability which does not explain why, but merely shows the resulting answer.
- It informs a person what they should do, but never tells them why they should act in this way.
- A natural and subconscious tool which allows us to immediately evaluate what is going on around us at the time, even on the basis of incomplete information.

Intuition helps us not only to orient ourselves in a split second in our subconscious, and choose an appropriate solution for an existing situation. It can also help us orient ourselves in a completely unknown environment or situation.

In such a case, intuition cannot be perceived merely as an empirical parallel. Intuition also works outside the dimension of our subconscious. For examples, we do not have to go all the way back to ancient history, to prophets and fortune tellers whose divinations are documented and that astonish us with their insight into the very distant future, which they could not

foresee or infer in any way from their own past experiences.

Today's visionaries, who can see far beyond the horizon of our knowledge and develop products whose significance and meaning may only be understood by future generations who will be able to use them in the correct way, also work with intuition. In these situations, it is difficult to assume that the brain works only with our memories and experiences.

Unlike Daniel Kahneman, we are convinced that our thinking has three planes, rather than just two.

1. **A system** based on logical thinking, on data which is available, working with mathematical models and other purely logical instruments.

2. **An (associative) system** which works with our practice and experiences, although they are hidden deep in our subconscious – can probably be trained.

3. **A system (intuition)** which works with something difficult to grasp, with a source of information which is outside both our consciousness and our subconscious. Which comes from the collective consciousness, or more likely from God?

Describing the 3rd system is somewhat problematic, even though most people do not doubt that something outside of us and above us exists. We can perceive the energy of a certain environment or situation which is connected with important activities, we perceive the energy of the general environment, and in relationships we talk about the need for chemistry. We often abide by these parameters, and subordinate our decisions to our inner voice with greater or lesser "obedience".

In a certain sense, believers have it easier. They believe in God. They have absolutely no doubt about Him, and they submit themselves to Him with humility. They perceive that there is SOMETHING outside

of us, but also in us, which guides our steps, and gives us advice as well as the freedom to decide.

Of course, in banal situations we have to "make do ourselves", but even the actual humble approach to faith in an unearthly energy guides our steps. It's about setting the mind.

Every second, every minute, every day we make decisions. Our whole life is full of fateful crossroads, where we intuitively make choices. Intuitively, because they bear no similarity to those we have already passed. [5]

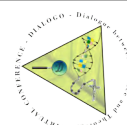
Certainly, we often make mistakes, but we must humbly believe that we try to do what we do in accordance with our perception of the collective consciousness, or rather the divine principle. This approach can show us the right path, even in very difficult situations.

Intuition, or perhaps to phrase it better seeing the light, or choice of the right decision or path, cannot be perceived merely as a one-time act. It often involves a very long and difficult path, full of humility and faith.

III. RESULTS AND COMMENTS

Acceptance of this model of thinking has far deeper consequences, connected with the perception of oneself in the context of the environment, the world, and interaction with the people who surround us. It is about a deeper understanding of the meaning of life, which extends to all spheres, i.e. including the economy and business practice.

What, then, is the higher principle which gives meaning to our existence and the existence of companies? It is certainly not our ego or our perks, as our "modern" society consumer model tries to convince us. Similarly, the meaning of the existence of companies is not merely to generate



profit. If that was the case, we would have to agree with our society's warped values, whose result is not only devastated rainforests and oceans, and looted raw material deposits, but also the plundering of entire states' and regions' economies in the name of globalisation. Plundering not only in a physical sense, but also resulting in moral and ethical devastation.

The goal of human existence, and in this context also the existence of companies, is not and should not be the simple satisfaction of own ego or the generation of profit. We must view both ourselves and companies in the context of the environment in which we find ourselves, and in the context of the community of the people who surround us and who are part of this collective consciousness.

The goal and mission of both companies and individuals must not be own ego or merely the generation of money, but service.

Every person needs – vitally – to perceive their necessity. The moment we lose it, when we feel the pointlessness of our being, we fall into depression, and our organism grows old and rushes to its extinction.

The same applies in a corporate dimension. If profit generation becomes the main goal, the company rushes to its irreversible end. Of course, by this I do not want to say that companies should give up their task of generating profit. However, it must not become their main purpose; that must be a vision, a dream, a service – simply a path or service to humanity which confirms its meaning. That should be the platform of the decision-making process. Only in this respect can intuition be perceived, and actively involved in the decision-making process. Therefore, intuition is nothing other than the ability to perceive the higher principle of our humanity, and in that spirit control the decision-making process of our professional and private lives. It is not at

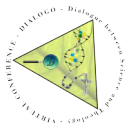
all important whether this higher principle is faith in God, which I personally stand by, or just faith in a collective consciousness – humanity. However, in both cases, the ability to perceive this intuition is possible only as a result of deep humility and faith. Which isn't always easy. But humility can be learned, thereby cultivating the ability to perceive this higher principle.

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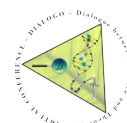
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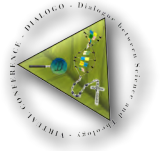


SECTION 11

Astronomy, Astro-Physics & Theology



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Multiplicity Fluctuations in Central Nuclear Reaction of Pb + AgBr Events at 158A GeV (Relativistic Heavy Ion Collisions)

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ABSTRACT

In the present articles an attempt has been made for the study of multiplicity fluctuations of the secondary charged particles produced in central relativistic nuclear collisions of (Pb+AgBr) at an energy 158A GeV, to find the first-order phase transition (QGP to hadron phase state). This study has been carried out for the experimental data along with the theoretical prediction of FRITIOF simulation program and Monte-Carlo (RanMC) simulation. The theoretical model predictions were found in good agreements.

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I. INTRODUCTION

Basically this article is based on expansion of the Universe after the big bang (holy point according to Islamic theology), and much more description of its origin and expansion is available in the holy book of Islam the "Quran".

The picture of universe provided by the Big Bang Theory is fairly accurate. According to this theory our universe came into existence about 15 billion years ago in a violent explosion. Quantum effects like quantum fluctuation caused the generation of energy from almost nothing. The energy was spread uniformly. Due to quantum uncertainty and other effects the uniformity was broken and there emerged the anisotropies. These anisotropies during inflation period expanded into galactic

sizes. While the universe was expanding it was cooling as well. This cooling has caused the formation of different particles—matter formation. When the energy got sufficiently low, the particles like neutron and protons combined to make primordial gases. These gases due to anisotropies started to concentrate in some regions of universe giving rise to formation of galaxies and stars. This description of creation of universe is supported both by experimental discoveries and mathematical formulations. But there are some very interesting questions like what happened before the Big Bang and what determine the properties of universe or the initial conditions? These questions are partly answered by quantum gravity, to be more precise, the Hawking—Hartley's 'No Boundary Proposal', which says that universe has no initial or final boundaries

and the universe is self generated.

There is no obvious physical reason, in the Big Bang theory, to the questions just raised. But one thing is quite certain that according to laws of nature we know today that very small changes in any of these key parameters would have resulted in a grossly different universe. So the chance of life permitting universe would be vanishingly small as compared to all theoretically possible universes.

Therefore we are explaining that the high energy hadron-nucleus, hadron-hadron and nucleus -nucleus collisions have a long history and an enormous literature: a very complete review contains more than thousand references [1]. The multiplicity fluctuations or multiplicity correlations are considered to be a prove of the hot and dense matter generated in high-energy heavy ion collisions theoretically [2, 3, 4] and have been extensively studied experimentally [5, 6]. In particular, we expect that fluctuations of dynamical origin are useful for screening of models for the evolution of the matter and understanding of the mechanism in multi-particle interaction [7, 8, 9].

Heavy-ion collisions follow a path between these two extremes, increasing both the temperature and baryon density. It may be verified in future experiments that the energy densities $\sim 1-3$ GeV/fm³, equivalent to a temperature $\sim 150-200$ MeV [2-4, 8-13] or baryon density 5-10 times nuclear matter density can indeed be reached in heavy ion collisions.

In contrast, if there are fluctuations of dynamical origin in the initial stage of the multiparticle production and if those traces remain in some observables, they must give some important information on the dynamics of quark and gluon matter at the initial stage of the reaction [14-16]. Recently, the ALICE Collaboration has published data on event-by-event fluctuation of hpTi of charged particles in p + p and Pb+Pb collisions

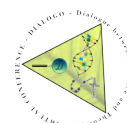
at Large Hadron Collider (LHC) energies [17-19]. We note that Bose-Einstein correlations (BEC) of gluons generated in the early stage of the hadronic collisions can be regarded as a possible origin of such fluctuations.

Various workers in the field of theory and experiment have proposed different methods to identify the existence of non-statistical fluctuations. Bialas and Peschanski [20-21] were the first to introduce a perfect method known as scaled factorial moments (SFMs) to study the non-statistical fluctuations in the relativistic nuclear collisions. In such nuclear collisions, the power law behavior of SFMs is known as intermittency phenomenon.

Quantum chromodynamics (QCD) predicts the existence of a new phase of strongly interacting systems i.e. quark-gluon plasma (QGP) at high energy density or temperature [1-5]. Relativistic heavy ion collisions have provided the opportunity to search for the signal of QGP in the laboratory. Large fluctuations of particle production are expected in the transition from QGP to hadron phase [4, 5, 8-13]. Experimental data on particle fluctuations in a small space domain have been presented for different collisions at different energies [4-5, 8-13]. In the present paper we have studied non-statistical fluctuations of relativistic shower particles produced in the collisions of 208Pb + AgBr at 158 A GeV for central reactions.

II. DETAILS OF EXPERIMENTAL DATA USED

First we have generated the data of 208Pb + Em collisions at 158 A GeV with the help of FRITIOF simulation program and these events were 500. A total number of 75 events were selected with the number of relativistic shower particles $N_s > 350$ in such collisions. These events belong to the collisions of lead nuclei with the heavy emulsion targets Ag and Br [8,9]. The events with the number of $N_s > 350, 1000,$



i.e. collisions with increasing number of secondary charged particles or degree of centrality have been also analyzed. Some valuable details in about the experiment and the mathematical description related to the present statistical analysis has been given in our recent publications [22-27]. The FRITIOF simulation model [28] was proposed specially to unearth the collision geometry of nucleus-nucleus interactions. There is no unique theoretical description to understand the dynamics of hadron-hadron collisions due to vastly different characteristics at different energies and in different kinematics intervals. The FRITIOF [28] describes the phenomenology of hadronic interactions at low and intermediate energies (< 5 GeV) in terms of interactions between known hadrons and their resonances. At higher energies, > 5 GeV, the excitation of color strings and their subsequent fragmentation into hadrons are taken into account in the FRITIOF model. It has been designed as multipurpose tool for studying a wide variety of heavy ion related effects, ranging from multi-fragmentation and collective flow to particle production, fluctuations and correlations.

III. METHODOLOGY AND ANALYSIS TOOLS

We used three methods of analysis: method of horizontal factorial moments (HFM), vertical factorial moments (VFM) and mixed moments (MFM) published in [8]. The standard horizontal factorial moments $F_e(H)$ characterizing the eth event are defined by the following formula:

$$F_e^{(H)}(q) = M^{q-1} \sum_{m=1}^M \frac{F(n_m, q)}{[N_e^{(H)}]^q}, \quad (3)$$

where M is the number of equal bins of size $\delta\eta$ into which the pseudorapidity interval $\Delta\eta$ has been divided, n_{me} is the

number of shower particles in the mth bin. Non averaging and non-normalized factorial moments are given by

$$F(n_{me}, q) = n_{me}(n_{me} - 1) \dots (n_{me} - q + 1) \quad (4)$$

Vertical averaging of $F_e(H)$ gives the full form

$$F^{(H)}(q) = \frac{1}{E} \sum_{e=1}^E F_e^{(H)}(q) \quad (5)$$

where E is the total number of events. And the denominator of the horizontal moment (3) is $N_e^{(H)} = \sum_{m=1}^M n_{me}$. (6)

Vertical analysis is suggested in case of rare events with sharp peaks [8]. The normalized standard vertical moments characterizing the mth bin are given by

$$F_m^{(V)}(q) = E^{q-1} \sum_{e=1}^E \frac{F(n_{me}, q)}{[N_m^{(V)}]^q} \quad (7)$$

and the horizontal averaging gives the full form

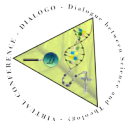
$$F^{(V)}(q) = \frac{1}{M} \sum_{m=1}^M F_m^{(V)}(q), \quad (8)$$

$$\text{where } N_m^{(V)} = \sum_{e=1}^E n_{me} \quad (9)$$

is the sum of multiplicities which appear in the mth bin of all events. Besides the horizontal and vertical factorial moment methods a mixed approach is applied. Mixed factorial moments are defined as

$$F^{(HV)} = M^{q-1} E^{q-1} \frac{\sum_{m=1}^M \sum_{e=1}^E F(n_{me}, q)}{[N^{(HV)}]^q} \quad (10)$$

$$\text{where } N^{(HV)} = \sum_{m=1}^M \sum_{e=1}^E n_{me} \quad (11)$$



is the total number of charged particles observed in the sample of E events.

IV. RESULTS AND DISCUSSIONS

A power law behavior has been observed between the values of $\ln\langle F_q(\eta) \rangle$ and $\ln M_\eta$ for the relativistic shower particles with $N_s > 350$ in such collisions at energy at 158 A GeV and it is depicted in Fig. 1. From this figure it is evident that the values of $\ln\langle F_q(\eta) \rangle$ for the interactions due to Pb+AgBr at energy 158A GeV are found relatively higher as compared to simulated events (FRITIOF) at same energy, where for the events from Mc-RAND data [22-28] show approximate independent behavior. The linear rise in the values of $\ln\langle F_q(\eta) \rangle$ with $\ln M_\eta$ in Fig. 1, indicates power law dependence of $\langle F_q \rangle$ on the number of bins M, which clearly suggests that an intermittent behaviour is being observed in such collisions.

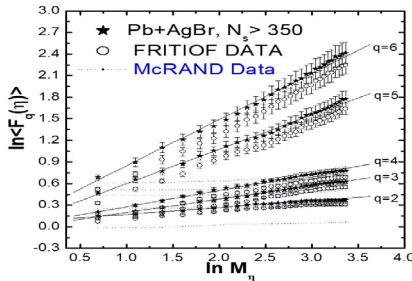


Fig. 1 The dependence of $\ln\langle F_q(\eta) \rangle$ on $\ln M_\eta$ for Pb+AgBr collisions at 158A GeV with $N_s > 350$.

The values of intermittency index, α_q , have been determined with the slope values of graph plotted between $\ln\langle F_q(\eta) \rangle$ and $\ln M_\eta$ for Pb+AgBr collisions at 158A GeV with $N_s > 350$, 700 and 1000 and also depicted in Fig. 2.

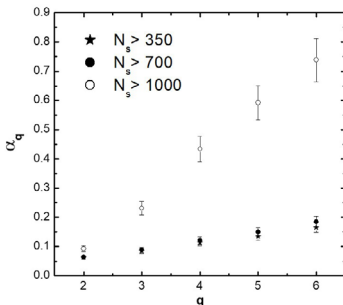


Fig. 2 Variation of α_q on order of moment, q for the collisions of Pb+AgBr at 158A GeV with $N_s > 350$, 700 and 1000.

With the knowledge of intermittency index, α_q , the possibility of detecting a non-thermal phase transition can be obtained by relation: $\lambda_q = (\alpha_q + 1)/q$, where q is the order of SFMs ($q = 2-6$). And this dependence has been shown in Fig. 3 for the collisions of Pb+AgBr collisions at 158A GeV, Si+AgBr collisions at 14.6A GeV and S+AgBr collisions at 200A GeV with $N_s > 350$.

It has been observed [8, 9, 20-21] that if the dynamics of intermittency is due to self-similar cascading, then there is a possibility of observing a non-thermal phase transition, which is believed to occur during the relativistic heavy ion collisions. The variation of λ_q as a function of q for all data sets has been shown in Fig. 3. From the figure it may be noted that no clear-cut minimum value of λ_q for certain value of q has been observed in the present experimental work as it is reported by other workers. However, a weak intermittency effect has been found in above collisions. To get more unambiguous evidence, the analysis should be done up to $q = 8$ with large statistics at high energies and with different projectiles.

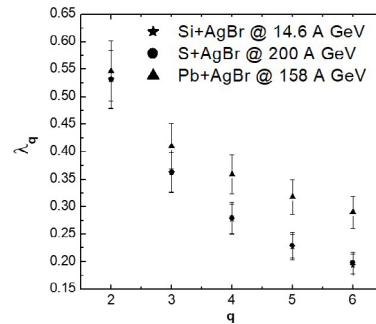
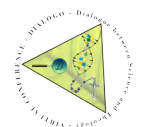


Fig. 3 Variation of λ_q as a function of q for b+AgBr, Si+AgBr and S+AgBr collisions at various energies.

CONCLUSIONS AND FINAL REMARK

One thing must be understood that The Quran is not a text book of Astronomy or Physics. As Dr



Absar Ahmed has said in his paper on “Creation and Evolution in Quranic Perspective” that “the primary function and intent of the Quran is the detailed discussion of practical matters related to Guidance and the Straight Path. These matters are of immediate and common concern for every single human being so that he or she may attain salvation on the Day of Judgment. Consequently, the Quran keeps the needs of masses in focus and takes into account their intellectual capacities; as a result, the Quran relies upon only general Pointers to address issues related to specialized philosophical or academic interest, higher gnosis, and subtle spiritual realities. For those with sharpened intellects and heightened spiritual sensibilities these general pointers should be more than enough to shed light on such matters”.

The Comparison of experimental results with the data generated by using the FRITIOF simulation program / model reproduced similar pattern in most of the results. Further, it may be seen that the experimental data on intermittency exhibit a remarkable closeness to analogous data obtained from the FRITIOF model. However, the MC generated events exhibit no such linear dependence on bins width δ . This gives an indication for the absence of statistical contribution in experimental data. The flat behavior in MC generated events is expected for independent emission of particles.

It has been found that no clear-cut minimum value of λq for certain value of q has been observed in the present experimental work as it is reported by other workers. Therefore, λq value indicates that no second order phase transition exists in the present interactions.

The experimental data presented in this article confirms that the nuclear geometry plays an important role in nucleus-nucleus collisions at ultra-relativistic energies.

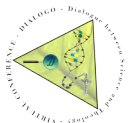
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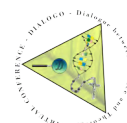
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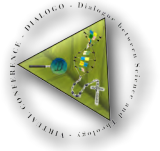


SECTION 12

History, Demography, Archaeology &
Religion



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Dintr-un Lemn Monastery (Romania) ***Between Legend and Historical Reality***

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ABSTRACT

The article retraces the historical development of the most important elements that constitute the founding pillars of the Dintr-un Lemn Monastery (Romania): the ancient oak trees, the wooden church and the miracle-working icon of Virgin Mary with the Baby. The endurance of the oak trees, the legends around the building of the wooden church and the origin of the icon, the historical sources testifying of a long tradition of faith and Christian love in the area and the more recent efforts for the restoration of the little church and the icon, make the Dintr-un Lemn Monastery a unique one in our country.

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I. INTRODUCTION

At 25km from Râmnicu-Vâlcea and 6 km from Băbeni, in Dezrobiți village – belonging to Frâncești, bordered by Otasău river and an oak hill, there lies Dintr-un Lemn Monastery, the meaning of its name being in Romanian “made of one piece of wood”. Starting in the 16th century, the land unevenness had been creatively valued for the churches and adjoining buildings built on terraces in a vision aiming greatness. The visitors crossing its three gates and climbing the stairs leading to the stone and wooden churches, guarded by ancient oaks, have the opportunity to know the history of the monastery and connect to the Orthodox spirituality encapsulated in the holy place. What they discover is an ancient past, intertwining legend and historical reality,

best represented by the name of the holy place, Dintru-un Lemn Monastery. There are three pieces of evidence, visible today as well, which represent powerful arguments that the legend of the establishment of monastic life in this place bears some truth: the ancient oak trees, the wooden church, the miracle-working icon of Virgin Mary with the Baby. These are the landmarks, to which the princely stone church was later added, all of them representing the evolution within five centuries of the Dintru-un Lemn Monastery.

II. THE OAK TREES

The famous Syrian traveller Paul of Alep (1637-1667), who accompanied his father, Patriarch Macarie, on his journey through the Romanian Countries between 1653-1658

with the aim of getting financial support from the Moldovan ruler Vasile Lupu (1634-1653) for the melihat church in Syria, pressed for money by the Ottoman authorities, wrote for the first time about the legend of the founding of the Dintr-un Lemn Monastery. Visiting the monastery, in 1657, and being impressed by the ancient oaks, he wrote: "Near the church there are two huge trees, which, as they say, are the companions of a third that served the building of the church" [1].

In Romania, the oak tree is considered the king of woods. The trunk can reach 50m in height, 1-2m in diameter, with a large impressive crown, surviving more than 800 years. It is considered a sacred tree signifying eternal life. It also has therapeutical characteristics. It has been used for making crosses and building solid religious and civilian buildings. The Romans took over from the Dacians the technique of oakwood working for family homes.

According to the writer, clerical and theologian Valeriu Anania (his name as a monk being Bartolomeu, Metropolitan of Alba, Crişana and Maramureş, 25 March 2006-31 January 2011), the oak tree is "not only a symbol of stability but also one of bipolarity. Uranian-tellurian, divine-humane. Hence, the significance of the oak in the legend is more powerful. At last, the wood of the sacred tree is transformed into a ship floating towards the eschaton, a holy and undivided ship, with Jesus as the oarsman, forever leading towards heaven" [2].

In the 1960s, there were still five oak trees which the specialists considered older than 800 years and which were taken care of by the Forest Authority in Băbeni and the Institute of Forest Research in Bucharest. Out of the ancient trees in the Dintr-un Lemn Monastery, today there are still 4 oak trees having survived over 300 years. They are joined by other 4 younger oak trees as beautiful and strong as the old ones.

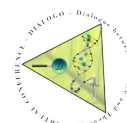
Out of the ancient oak trees, the one growing near the path leading to the wooden church contained a wooden painted icon that could be noticed by pilgrims. The tree embraced it covering it completely, as if it were a wound. The tree is 2m thick, 20m high and the crown is 40m².

In his travelling memoir of 1842, after visiting the monastery, the writer Grigore Alexandrescu (1810-1885) speaks about the miraculous power of the oak that protected itself from the intention of a Turk to cut it in 1822 during the Ottoman occupation of the monastery. The legend says that at the first axe blow the tool bounced back killing the man. At the monastery Grigore Alexandrescu met 4 ladies from Craiova on pilgrimage, who admired the oak tree, crossed themselves, took a few leaves, kissed them and kept them on them. To the present day, pilgrims at the monastery believe in the miracles of the leaves and the bark of the oak tree.

III. THE WOODEN CHURCH

At the end of the stairs ascending from the main entrance of the monastery, where the stone church is, among the old and young oak trees, in a majestic landscape, in the middle of the orchard, at the foot of the wood, there is the little wooden church. But for the steeple, it could be mistaken for a mountain peasant house, with a porch and a shingle roof. The cross at the top unveils its role. It is symmetrically surrounded by the tombstones of the nuns and monks who had passed away. To the left, a slab tomb and a marble cross belong to the General Paul Teodorescu, the great benefactor of the monastery in the late 1930s.

Guided by well instructed nuns, the visitors discover the miracles that happened long ago and led to the founding of the first wooden church, which are tied to the beginnings of monastic life in the area. The



competent descriptions of the nuns offer pilgrims details on the exterior and interior elements characterizing the holy place.

Therefore, the people visiting the monastery are revealed the fact that Paul of Alep writes down for the first time the reason why the holy place was called Dintr-un Lemn Monastery and the context for the erection of the wooden church. “The reason for calling it this name is that in the ancient times there lived a hermit here and one day waking up he finds an icon of Virgin Mary hanging in a tree and the icon told him: ‘My will is that you build a church of this tree’. So, the hermit rose, cut down the tree and started building a beautiful church that he covered from the wood of that single tree. For this reason, it was called Dintr-un Lemn Monastery, Monoxilos, in Greek” [1]. At the time of the arrival of the Syrians at the monastery, there must have been in the area a very strong oral tradition, taken over by Paul of Alep. We notice that the exact moment of the founding of the monastery is rather loose, Paul of Alep using the terms “in the ancient times” [3].

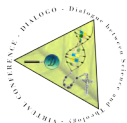
The second written source that makes references to the legend of the Dintr-un Lemn Monastery belongs to the Wallachian Metropolitan, Neofit Cretanul (1738-1753). On the occasion of his visit at the monastery on 29 July 1753, he brings new elements connected to the legend. The hierarch recounts about a shepherd, Radu, who repeatedly dreamt that the Mother of God asked him to raise a monastery on the place where had been sleeping, “and he rose, took the axe and started cutting the oak and as he was delving into the bark of the tree he saw the icon and got scared” [4]. The Metropolitan states that the events would have taken place during the Wallachian rule of Alexandru II Mircea (1568-1577). Moreover, the Metropolitan links the shepherd’s name to that of Radu, inscribed on the cross of the first little church.

The beginnings of monastic life at Dintr-un Lemn Monastery are undoubtedly tied to the little wooden church and the miracle-working icon of Virgin Mary with the Baby. Through the building from a single oak and the shape given by that/ those who constructed it, the little church was twice granted ship’s traits. As already discussed above, Paul of Alep wrote that such a construction is called in Greek Monoxilos, a term used in modern times with the meaning of a vessel made through the scooping of a tree trunk, and the builders gave it, according to religious architecture, the shape of a ship (the nave).

Researchers appreciated that one could obtain the material necessary to build a little church out of a mature oak tree. For the subsequent little churches, the same material was used, oak wood, for all the pieces, accessories and improvements. Here, around the “beautiful” wooden church, as described by Paul of Alep, in ancient times, the hermitage was organized by a hermit and then the nun’s place. The Syrian traveller also makes the following remark: “many miracles happened here” [1]. They were the work of the Virgin Mary icon preserved there up to the achievement of the stone church built on a lower terrace.

The little church was not abandoned after that moment and religious services were held in, as they are up to the present. Paul of Alep confirms that on the second day at the monastery, after the liturgy and the procession dedicated to the miracle-working icon, the priests and people “participated in another liturgy and procession to the holy icon in the old wooden monastery” [1].

According to the researcher Radu Crețeanu, “the church was rebuilt from foundation twice, one in 1733 and the second time, after it burnt by mistake, in 1814” [5]. The little church visited today by pilgrims is erected on the place of the old one, made of oak wood, through the



efforts of Iancu Lahovari, the son-in-law of Constantin Socoteanu from Râmnicu Vâlcea. One could notice the lower beams worked in swallow's tail model and set on a masonry bed of bricks. The same material was used for the porch floor and that of the interior.

The church is rectangular. Its size is relatively small: 13m long, 5,50m wide and about 4m high. The entrance porch is open, being supported by four pillars mechanically shaped. The exterior stands out through a girdle carved in the beams, a Romanian decorative element characterizing other wooden churches in our country; it has a protective role separating the sacred from the profane. The church only has three narrow windows, allowing diaphanous rays in, enveloping the space in a chiaroscuro. The vault is cylindrical ending in the apse through curved panels supported by veins.

The iconostasis is an art jewelry, made of linden wood, of natural colour, unpainted, with minute and well proportioned incisions and sculptures. It bears the inscription of the year 1814 and it is the work of Prior Hrizant from Hurezi. The artist's vision was highly symbolical. Beautiful floral motives were incised on the Royal Doors and the pillars surrounding the large icons. The deacons' doors were replaced by curtains. The sculptor imagined a composition representing the genealogy of Jesus Christ. Isai, father of David, out of whose family Jesus was born, is depicted here. A vine grows out of Isai's rib, extending up to the temple area. The symbol of the vine is taken over by the artist from Jesus' sermon in front of his disciple before the crucifixion: "I am the vine, you are the branches" (John 15, 5-6). The theme is well represented at other Romanian monasteries, such as Voroneț, Sucevița, Humor, Vatra Moldoviței and Sfântul Ioan cel Nou from Suceava.

The artist introduced in the composition the oak leaf, which symbolizes the tree used for building the church. Two dragons

signifying the force of evil are depicted with their heads turned from the cross on the iconostasis, which means that they be destroyed through crucifixion. The paintings on the iconostasis were adjusted to the limited space. The pilgrim can admire the royal icons of the Mother of God and of our Saviour. In the same style, to the left, there is the painting of the Birth of Virgin Mary, to which the church is dedicated. St. John appears to the right. Above the Royal Doors, left unpainted, there are icons showing scenes from the Saviour's life.

The walls of the church were not painted, most likely just as in its first versions. Preserving the tradition, the church built by Iancu Lahovari was adorned in the 18th and 19th centuries with wooden icons donated by nuns, believers and bought by the Mothers Superior. The wall separating the nave from the vestibule is decorated on both sides with the same type of icons. One of the most complex icons, in terms of theme, is placed on the western side of the nave. Painted on canvas, the icon shows the Prayer Hymn of the Mother of God; it bears the inscription of the painter and the date: "Rusan Zugravul, Gorj County, April 1895". There are major biblical characters on the icon. In the middle, there is the Mother of God, protected in the corners by the four Evangelists. Above Virgin Mary, we can see St. John the Baptist and the Holy Trinity. On the margins, there are scenes from the life of the Saviour.

The pews, of dark colour, have at the top the sign of the wheel, through which a ship is steered. Thus, the suggestion for the pilgrim is that once seated in the pew, they will be steered safely through the teaching of our Saviour. The chairs were designed at the suggestion of General Paul Teodorescu, in the period of modernization of the monastic complex in 1938-1940. Restoration works were also performed at the wooden church in 1956-1963. The wood needs constant

treatment for resistance. The iconostasis was repainted in 2000-2005.

IV. THE ICON OF VIRGIN MARY WITH THE BABY – THE HEART OF DINTR-UN LEMN MONASTERY

In the brief description of the monastery by Paul of Alep, he makes references to the icon as well, to its dimensions, its miraculous power and the fact that is divine grace bearer. Since mid 17th century, the famous Syrian traveler confirms the value of the icon as a special object of worship. It impresses the pilgrim seeing it for the first time through its size. It is 1,56m high on the left side and 1,58m high on the right side, 1,15m wide and 5cm thick. The distinguishing feature of the icon is the double painting, on both sides. On the main side, there is the Mother of God with the Baby and on the reverse, the Last Judgment, which makes it unique in Romanian Orthodox iconography.

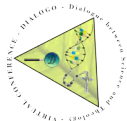
As far as the iconographic composition is concerned, this icon is an exquisite combination of the typology of representations of the Holy Virgin: “Mother of God on the throne”, “Oranta”, in which Virgin Mary is alone with her arms up for prayer; “Hodighitria”, in which the Mother watches her Child holding in His hand the Holy Scripture roll; “Eleusa”, which captures the tenderness between the Mother of God and Baby Jesus. The Mother of God holds Baby Jesus on the left arm and shows Him with her right hand, bending her head towards Him. The image of the Virgin is majestic and her look is full of gentleness. Her eyes and Jesus’ eyes show pure affection and gentleness. Virgin Mary is dressed in English red with brick red on the margins and a blue trap. Jesus is shown with His Head up on the horizontal axis looking at the angel with the crucifixion instruments. He blesses with His right hand. He wears a red himation and a blue frock. To the left, the painter placed

Archangel Gabriel, who brings important news, and to the right, there is Archangel Michael, protector and leader of God’s armies, bearing in his hand a vessel with the symbols of crucifixion. On the left side, top-down, there are the Apostles: Peter, Luke, Mathew, Thomas and Simon.

The Last Judgment, on the back side, is designed in two registers. In the upper part, the Deisis scene appears, with Jesus sitting on a bench as a ruler, wearing a brick red himation. With His palms directed towards the believers, He shows them the stigmata, yet the intention is to embrace them, which means that God is waiting for them in order to save them. The mediators appear standing, surrounded by archangels, with their arms pointing towards Jesus, positioned by the painter in the center of the painting. On the margin, several names are written in Old Slavonic: Michael, Mother of God, Athanil, Jesus Christ, Gabriel, Rafael, St. John and Uriel.

In the second register, the painter displayed his vision on the Last Judgment. At Jesus’ feet, there is God’s hand holding the scales for measuring the deeds of the deceased one. Under the scale, Adam and Eve were painted. To the left, Archangel Gabriel pierces with the spear the devils, so that they do not influence the weighing, which has to be just. To the right, the Antichrist is represented riding a hairy two-headed animal with two mouths. It swallows sinners through one and coughs back flames through the other. The character has long hair and a beard and he holds a baby pressed to his chest, signifying sinning souls. Next to the Antichrist, there is Arie, sent to hell together with a group of heretical priests.

On the basis of the iconographic particularities, typological and stylistic analysis and the painting technique of the miracle-working Holy Icon of Virgin Mary, a researcher in the themes of Romanian



icons considers it an exceptional example of Byzantine art. The exact moment or place of the painting of the icon could not be firmly established. It is, according to Alexandru Efremov, “from a stylistic viewpoint, a truly special work of art” [6]. In the meantime, the question remained. How come that the icon of the Mother of God ended up in Frâncești?

The most popular answer belongs to the writer and scientist Alexandru Odobescu (1834-1895). We present it here briefly although it is not accepted by scholars, who see it as literary fiction [7]. The writer travelled in Argeș and Vâlcea Counties at the request of the Ministry of Cults and Public Instruction. He reached the Dintr-un Lemn Monastery as well. Preoccupied with the historical character Lady Chiajna, the wife of the ruler Mircea Ciobanul (1545-1552, 1553-1554, 1558-1559), he finds out about her voyage through those places. He mixes the legend of the icon with historical data and captures in the well-known novella “Lady Chiajna” the disputes between the rulers and the boyars. The writer connects the drama of Ancuța, the lady’s youngest daughter to the icon of the Mother of God. Married by force by her mother to an old and influential with the High Porte Greek nobleman, with the purpose of obtaining support for Chiajna’s son Petru cel Tânăr (1559-1568) as a ruler, Ancuța runs away with her young lover Radu Socol, the son of the governor of Socol from Motru, an opponent of Lady Chiajna. Alexandru Odobescu dedicates her a subchapter in his novella, “The Hermit” [8]. At the family mansion, Radu unveils to Ancuța the miracle-working quality of an icon on the wall of a room. When the ruler’s men attacked Socol, set it on fire and killed Radu, Ancuța took the icon and ran away reaching Frâncești. Here she lives the life of a hermit, puts the icon in the scrub of an oak and watches it. Her mother, Lady Chiajna followed her up to Frâncești. The fierce mother never forgave Ancuța, who died in

front of her mother.

The idea that the icon had been brought over from Motru could be found with other researchers from the inter-war period. Vasile Drăghicescu, for instance, states that the icon was first kept at Gura Motrului Monastery (Mehedinți County), from where it was transferred at Frâncești, in the wooden church [9]. The same version appears with Ion Donat, who claims that the icon of the Mother of God was brought over by princess Ancuța from Gura Motrului Monastery [10].

The dating of the icon represents another topic triggering “contradicting views, which covers more than a millennium, in terms of artistic age” [11]. We will mention some of these opinions. Andre Grabar, from Strasbourg University, claimed, in 1929, after studying the icon of the Mother of God, that it had been painted in the 4th century AD at Theotokos Monastery in Greece. In 1942, the professor priest Marin Pretorian considers that the miracle-working icon, found in the oak, “could be one of the four icons traditionally painted by St. Evangelist Luke” (Sic) [12]. I.D. Ștefănescu places it in the second half of the 16th century or in between the 15th and 16th centuries [13]. Chesarie Gheorghescu concludes, after considering the specialized opinion of more recent researchers A. M. Mezincescu and D. Năstase, that “the icon seems to have been worked before 1453 in Byzantium or on Mount Athos after an older image, which is more likely to have been the case” [14]. In 2003, the researcher Ana Dobjanschi, specialized in medieval Romanian art, cautiously suggests the possibility that “the icon could have been painted in a Serbian monastery in Macedonia in the second half of the 14th century” [15]. She thinks that “at a date which is difficult to state with accuracy, the icon could have been brought to Wallachia from Gura Motrului Monastery, which could have been only

a stop in its journey towards the Dintr-un Lemn Monastery, the place where the icon has been preserved for centuries” [15].

Until the first decades of the 17th century the icon of the Mother of God was kept in the wooden church. Its popularity as a miracle-working icon grew among the more numerous believers arriving on pilgrimage at the monastery. After the achievement of the princely church and of the iconostasis, it was placed to the right of the Royal Doors. The study of the icon was initiated by Metropolitan Neofit on the occasion of his visit on 29 July 1745 at the Dintr-un Lemn Monastery. The hierarch stated and wrote that the icon only bore an inscription from which he could only decipher “Damaschin’s hand” [12].

An important moment for the icon of Virgin Mary with the Baby occurred in 1812, when the governor Radu Golescu had it locked in silver with an inscription of the decision and date of the work: “This Holy and miracle-working Icon from the Holy Monastery Dintr-un Lemn was covered in silver as one could see through the will of governor Radu Golescu for his remembrance and of those who helped him; and this silver dressing of the holy icon was executed on 20 April 1812.” (Sic). A little door in the silver dressing bore the inscription: “Holy Mother of God open the door of Your Mercy and receive my tears”. On Radu Golescu’s inscription, the following line was written: “Mother Superior of the monastery being Plahamida” [16].

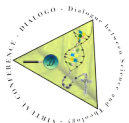
On the occasion of the visit to the monastery, Alexandru Odobescu did a detailed study of the icon: “We uncovered the great icon removing the silver plate and saw that on one side there is the Last Judgment with Serbian inscriptions, and on the other side the Mother of God painted on wood and the image is rather spoilt, only the Virgin’s cheek is better kept” [13]. Al. Odobescu is the first researcher of the

precious icon who mentions a phenomenon of degradation of the icon. It was noticed that there was a gradual deterioration under the silver dressing, the microbiological attack endangering the painting.

It was not until 2002 that the decision to have the silver cover removed was taken through the concern of Gherasim, Bishop of Râmnic. The event was preceded by the religious service specific to this moment. After two days of prayers and the utterance of the Prayer of the Mother of God in front of the Holy Icon, in the presence of priests, nuns, Mother Superior Emanuela Oprea and believers, the icon was removed from the iconostasis and taken to room prepared for cleaning and restoration. After the removal of the dressing, those present were surprised to see the numerous prayer notes put by believers in between the icon and the silver cover, most of them from 1913; they had been there all the time, close to Virgin Mary’s heart for the benefit and help of those that prayed.

The restoration of the icon has been done in two stages. The first was the work of Dorin Handrea. The contract with the Archbishopric of Râmnic stipulated “the cleaning and restoration of the iconostasis with the Holy Icon of the Mother of God”. After the restoration work, the specialist placed the icon between two plexi-glasses for protection. The works undertaken by Dorin Handrea were finished on 27 June 2004. In the same year, by Order of the Minister of Culture no. 2366/2004, signed by the academician Răzvan Teodorescu, the icon was included in the mobile section of national cultural heritage, as a royal icon with two faces “The Mother of God with the Baby” and “The Last Judgment”.

After the first restoration, the nuns noticed with awe that it started blackening. This caused new worries and concerns for the managers of the monastery. With the blessing of Archbishop Gherasim, new



solutions for another restoration have been searched for, the costs being covered by the monastery. Mihaela Nacu, national expert in restoration and researcher at the Art Museum of Romania was chosen and the consent was obtained from the General Direction of National Cultural Heritage in the Ministry of Culture on 28 April 2006 for the solution proposed by Mihaela Nacu.

A whole team of specialists in restoration, biologists, chemists and physicists established, according to the spiritual, theological and aesthetic contents, the area to restore and the materials to be used. A new challenge occurred for the nuns at the monastery; they were informed that the icon, which had been there since the founding of the monastery, had to be taken to Bucharest, at the National Institute for Research and Development for Nuclear Physics and Engineering for treatment with ionizing radiation. The Mother Superior accompanied it in Bucharest; for 73 hours, on 3-11 July 2006, when the radiation happened, the nuns waited in the car nearby praying. On its return during the night, the icon was welcomed tear in eyes by all the nuns and thousands of pilgrims with lit candles in hands. It seemed like an Easter Resurrection procession.

The restoration team started the complex restoration job at the monastery at the beginning of 2007 working until the end of 2008. Mihaela Nacu permanently looked for solutions for the protection of the icon from microclimate, humidity and temperature variations, which could affect the painting, according to international standards [17]. The Goppion Museo-technical Laboratory in Turin, famous for protecting Leonardo da Vinci's Gioconda, was contacted for a solution for the Romanian icon. The protecting box was manufactured in Amsterdam. The proper climate is ensured by a silico-gel, in the right quantity, established by specialists. It is worth mentioning that

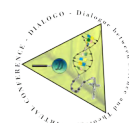
the Mother of God with the Baby is the only icon in Romania protected through methods used in the biggest museums in the world. On 25 November 2008, the icon in the box was placed to the left of the iconostasis in the stone church.

CONCLUSION

Preserved and cherished with love and humility for centuries by generations of nuns and priests, the icon of Virgin Mary with the Baby, the foundation on which out of one oak tree the wooden church was raised, has become the heart around which the holy Dintr-un Lemn Monastery developed. It is the precious treasure of the monastic place with a historical and of iconographic art value that make it unique in our country.

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The Icon of Virgin Mary with the Baby at Dintr-un Lemn Monastery, Romania



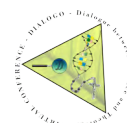
The Wooden Church at Dintr-un Lemn

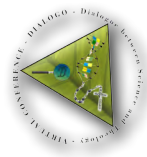
Monastery, Romania.

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Despot Voivode and „Schola Latina” in Cotnari, in Stefan Bârsănescu’s View

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ABSTRACT

Our study analyses the cultural project of Moldavia’s ruler Despot Voivode, also known as Jacob Heraclides, project which consisted in establishing an humanistic school in Cotnari. The classes were taught in latin, and the school also had a library. While its name was Schola latina in Cotnari, it is recorded different by different historians, namely: school, academy, university, a sort of latin university, Cotnari University, humanistic school, superior school. Professors from Germany and Poland were invited to the school and, according to Professor Ștefan Bârsănescu, the historians mentioned in his study thought that through this humanistic school, where some young Moldavians were supported with food and other things they needed, the ruler sought to introduce Lutheran and Socienian ideas in the religious Moldavia, which the country’s boyars disliked. According to Professor Ștefan Bârsănescu, the Cotnari School, as well as the library and the projected academy of ruler Despot Voivode did not appear spontaneously, but under the influence of new and important socio-economic needs. Thus, even though the Cotnari Latin School was a good educational institution, it could not bring the expected fruits, because the cultural-spiritual soil of the country where it was planted was not favourable. In addition, after the assassination of Despot Voivode and the departure of Professor Johann Sommer, the activity of the school was interrupted. Despite the hardships encountered while opening the school, the cultural project of Despot Voivode and Sommer did not perish after the ruler’s death and the professor’s flight, but was resumed after nearly 80 years, by ruler Vasile Lupu.

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I. INTRODUCTION

For many people, the word Cotnari only reminds of a wine region that produces one of the best wines in the country, and special natural landscapes and sunbathing for those passionate about the beauty of nature, the Cotnars, with the great hill of Catalina, which has the majesty to dominate the valleys and the hills to far away, with its lush landscape

full of vineyards, cherry or apricot orchards, along with poplar trees in Ceplenita meadow, is a special settlement, bearing the mirage of heights and comprehensive views. For other people, probably fewer in number, Cotnari represents something else, namely a city that thrilled, ages ago, of an agitated life, counting 3,500 “fires”, which gather about a population of 15,000 people, having four churches, many famous shops and cellars,

one among them being the royal cellar, of which today, due to the passage of time, only ruins are seen. All this today is nothing but a past lost and forgotten in the darkness of time, whose memory is evoked by names such as: Voda Hill, Stephen's Bridge, Piscop Hill, Stefan's Church, Despot's Church, the Fortress (horodiște) of Cătălina. Thus, we are moving to the former Cotnars, driven by the special concern for historical truth, in order to find some historical facts about the Cotnari Schola Latina and about the educational institutions associated with the name of the ruler Iacob Eraclide (Despot Voivode). [1]

II. DESPOT VOIVODE'S CULTURAL PROGRAM

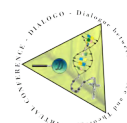
The name of the Moldavian ruler, Despot Voivode, is associated with three cultural institutions: the school, the library and the circle of scholars (the academy).

A. The Latin School of Cotnari

Thus, about the Latin School of Cotnari, P.P. Panaitescu said that it was a simple "cultural project" [2], Gh. Ionescu said it was a Protestant school, a school built for the Saxons and Hungarians of Cotnari [3] or a modest copy of the Transylvanian Saxon schools, while Nicolae Iorga, she said it was a "totally anachronistic," [4] school before his time. About the Latin School of Cotnari wrote Gh. Sincai [5], Gh. Asachi [6], V.A Urechia [7], A.D.Xenopol and Constantin Erbiceanu [8], Dr. Vasile Pop, who wrote: "To the honest Ion Prale ... and especially valuing the Latin language", "Higher thought the old Moldavians of this language. Therefore since the sixteenth century, under Vasile Despota they made in Cotnari that famous Academy, in which the most learned professors from Germany and Poland learn Latin". [9] It is possible that the author of the information may not have mastered

the terminology referring to an Academy, in the sense that in the sixteenth century Latin was taught in schools called gymnasium or schola latina, while Academies or universities taught the sciences. Alex Hașdeu also makes some mentions about the Latin School from Cotnari: "Lord Prince Jacob Eraclidul founded in Cotnari an university with a library under the direction of his panegyrist vice-chancellor Smmer and two wise and known men in those times: Kaspara Peoțer, the son-in-law of the famous Melihnton (Melanchton) of Virtemberg and Ioachim Riteka (Rhaeticus), professor of mathematics in Krakow." [10] Thus, from the above presentations, some called it gymnasium, other academy. Nicolae Iorga, referring to the Latin school of Cotnari, called it in four ways, namely: school, academy, university, a kind of Latin university, after which several historians, literary historians, theologians, doctors, used the names given by Iorga, including: I. Minea [11], Const. Andreescu [12], G.Călinescu [13], Dr.V.Gomoiu,[14] M.Popescu Spineni calls it University of Cotnari and that "Despot-Voivode thought about making the Moldovan Protestants and cut off the Catholic Church with its center in Roman, Targu Neamt, Suceava and Cotnari" [15] G.Pascu [16] will name the Cotnari school as a humanist school, while C.C.Giurescu [17] called it a higher school. [18]

Taking into account the above-mentioned, Ștefan Bârșănescu, remarked that almost all the historians mentioned were concerned only with the School of Cotnari, calling it an academy, and some of them referred to the library, calling it a library school, but none of them refers to an academic project as a circle of scholars. Barsanescu also notes that no educator has made any study on the Cotnari school in the sense that no one has written any monographic study, a special study of small or large extent and that many notes about this school are in the History of Romanians,



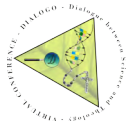
History of Romanian Literature, History of the Church, etc. Those who studied the sources about Despot Voivode were only a few: Gh. Sincai, Nicolae Iorga and partly V.A. Urechia and A.D Xenopol, and others got information from them, especially from Nicolae Iorga. [19]

Gheorghe Sincai wrote about Despot Voivode and the Cotnari School: “Besides these, Despot, who, only pretending to be faithful, was in truth a heretic, began to gather more heretics in Moldavia, like was the married Bishop Lusinie Gaspar Peucer, Melanchton’s son-in-law, Ioachim Rheticul, Ioan Sommer, who wrote his biography and others in the town of Cotnari, where especially the Saxons and Hungarians lived, made the school in which they hired also heretics as teachers and forced the Moldavian infants to learn there, and what is more, he taught some children himself. He also made a library in the town of Cotnari. For that reason, he called Bishop Lusinie to himself in order to fix the church issues and especially the marriage ones; because it was a bad habit in Moldavia, the married ones separated from no reason and again married ... which all in themselves were very good to have been done with good intention and not for that purpose to eventually make all Moldovans Lutherans”. [20] Ioan Sommer was also the biographer of the Moldovan ruler Despot Voivode. Also on the same topic, V. A.Urechia wrote: “XVI Century. This century has so far been represented by the school founded by Despot Voivode at Cotnari, about which Miron Costin says: “ It gathers teachers from the land of Germany and the country of Poland, the Papists”. Also at Cotnari Despot Voivode set up a library, says the same columnist”. [21] V. A Urechia mentions A.M.Graziani about the school and the library at Cotnari, who in the History of Despot Voivode would have said that among the scholars brought to Moldavia by the ruler Despot-Voivode was Lismarin, of Calvine religion, brought

from Poland, not only for educational and cultural purposes, but also to preach to the Moldavian people about the ideas of Jean Calvin’s reform. Miron Costin reminds that the teachers brought by Despot Voivode in Moldavia were Papists (Catholics) and that from his reign in the land of Moldavia, the Jesuit monks and other priests of the western church grew in numbers. [22]

A.D. Xenopol wrote about the Cotnari School as follows: “Along with reforming morals, Despot, a learned prince who valued the lights, thought to raise the mind of the people, to spread the benefits of instruction. He set up a school in the village of Cotnari, where there was a powerful colony of Protestant Saxons, besides many other kinds of people like Armenians, Hebrews, Serbs, and Valahs, which school he brought under the direction of Ioan Sommer, who wrote the biography of his lord. He also wanted to bring his friend Gaspar Peucer, the son-in-law of Melanchton, whom he had known since his stay in the Netherlands and Germany, as well as a mathematician from Krakow, Ioachim Rheticus, both of whom he had sent travel money, but they both refused to come. Undoubtedly, this school was also a hidden means of Lutheran propaganda.” [23]

Professor Stefan Bârsănescu says that the one who provided the most information about Despot Voivode and the School of Cotnari was Nicolae Iorga, who wrote the following: “An unexpected and curious incident, the reign of John-Voivode Despot the heretic, gave such a school, entirely anachronistic to the 1560s Moldavia. Of course, the one who crowns himself with a crown like the princes of the West and issued coins, thus portraying him with the scepter in his hand and his body covered in chainmail, the adventurer surrounded by Hungarian and Burgundy mercenaries, the suitor of a Polish fiancé, did not mean to only make only a school meant to bring to



his Lutheranism or to the Polish socinianism of Bishop Luzinski, brought by him, the remaining Roman Catholics in Cotnari, where he built a beautiful church in a different style than the country's. It was also a purpose, and so, in order to indulge his friends and supporters, the Reformers from Poland, brought with him, after the natural refusal of the son-in-law of the great Melancton, Gašpar Peucer, the one who took the school leadership, the Silesian Iacob Sommer. But Jacob Vasilikos, who became His Highness Ioan Voivode, well remembered his years as a medical student at Montpellier, his labors, with his friend Diasorinus, the copying of Greek manuscripts for Carol Quintul, his Latin treaties on norms of war to leave without a book of knowledge as in the West, the sons of his boyars. A new generation of Latin culture had to leave this school in order to accomplish the great mission that was preserved for it: the union with Wallachia, the taking over of Transylvania, the return of the Roman times. But all this dreams were scattered. Voivode the stranger remained locked up until the hour of his death at Suceava in the fortress, and in the chase against his friends and clients, Sommer broke his doctoral gown through the lodges of the Cotnari vineyards, glad that he could finally get to shelter and sing in the elegies the end of the Romanian illusions." [24]

Stefan Bârsănescu presents that all four Romanian historians have used as source the work *Vita Iacobi* written by Johannes Sommer and none of them researched Sommer's Elegys, especially Elegy I and Elegy X, although the last elegy was significantly called: *De Bibliotheca et schola instituta* and even though Nicolae Iorga reminds them, as proof of the fact that he knew about them, they still have not been investigated. As for the rest of the writers who wrote about Despot Voivode's Educational Institutions, Professor Barsanescu said that they did not use the documentary sources and as such their claims are full of errors or even

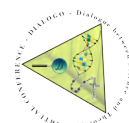
contradictions with the documentary sources, meaning that they actually used all kinds of information taken from different places, without using documentary historical sources as a source of information. [25]

B. Date of foundation of the Cotnari School

As far as the date of the founding of the Cotnari School is concerned, we mention that this is uncertain because we can only establish it by way of deduction. If we take into account the statements of ambassadors Ion Belsius and M.Bergkovitz that ruler Despot Voivode planned to found a college in Moldova, shortly after his coronation, then that a fire burned up a school building, of some college in Hirlau, and because of this unfortunate event, Despot made the decision to move the college from Harlau to Cotnari in Solvy's house. It is possible that this house was built for such a purpose. To all this is added the information that in Lăpușneanu's time is recorded the presence of a "Iudimagister" [26] in Moldavia. Taking into account all these aspects, Ștefan Bârsănescu concludes that the Cotnari Latin School started functioning in 1562, so it could well function even before the arrival of German professor Johann Sommer in Moldavia. [27]

C. The Nature of the Cotnari School

According to the existing data, the Cotnari School, founded by Despot Voivode, was a Latin school, a college or a secondary school, not an academy, an university or a Latin university. Based on the information provided by German ambassadors, Ion Belsius and M.Bergkovitz, who talk about the Cotnari college and Isthvanffi, who says that Despot has set up a gymnasium, plus Iohann Sommer's information on the Latin school, may conclude that the Cotnari school was a college. At that time the gymnasium, the Latin school and the



college represented one and the same school for the purpose of learning the Latin language. Documents say that Despot has gathered children from all over the country for learning, which overturns the assertion that it was a school only for the children of Hungarians and Saxons in Moldavia. The fact that the children from this school received education (instruction), food and clothing shows that the school had a state character and had a boarding school. At school, Latin was taught as the main subject in order to be used for reading, writing and various compositions. In those times, schools were studying languages, and universities sciences. Thus colleges were preparing young people for universities to study the sciences. In addition to Latin, as base subject, notions of religion, history, geography, natural sciences, etc. were also studied. The school had 5 years of study. In the first three grammar was studied, in order to learn Latin well, and then rhetoric and dialectics were studied. [28]

We do not have much information about the school building, in the sense that the school first operated in Harlau, and after a fire it temporarily moved to Cotnari in Solvy's home, after which it was going to have its own building. Sommer wrote in Elegy X, about de Bibliotheca et Schola instituta. The word instituta means founded, built. From here it is deduced that after Solvy's house, where the school was temporarily moved, the Cotnari Schola Latina had its own building built. The school was organized according to the model of western schools known by Despot and Sommer, and it is very likely that it has served as a model for this school, and that its founding brought the school desk and the chair for the first time in Moldavia. The school had many students, approximately between 150-200, organized in 7-8 groups. [29]

III. DOCUMENTARY SOURCES REGARDING DESPOT VOIVODE'S LATIN SCHOOL, COURT LIBRARY AND ACADEMY PROJECT

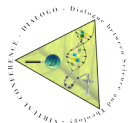
A. *The first documentary information about the Cotnari Latin School*

From April 1562, we have the first information about the Cotnari Latin School, taken from the Report to King Maximilian of Bohemia: "He, Despot, said he is going to build a college and strengthen a fortress with a wall here, because the others are open and that he plans to adorn the fortresses even with pavement." [30] From this report the cultural plans of Despot Voivode are revealed, as well as the fact that at that time the Cotnari School was only in the project stage, a cultural idea which was to be put into practice in the future. [31]

From the Report of Ion Belsius, German Ambassador to Despot's Court, to Emperor Ferdinand I, regarding the situation and provisions of Despot, we find the following information: "... Despot was accused by Alexandru (Lăpușneanu) that after the fire in Harlău, he proposed to move the college to Cotnari, where Solvy's house was, a league and a half away ..." [32] From this report we find the information that Despot Voivode's College had existed at the time of the fire and that the school would have functioned first at Hârlău, after which it would have been moved to Cotnari.

B. *Documents that refer to Despot Voivode's educational and cultural program*

Johannes Sommer's work, *Vita Iacobi Moldavorum Reguli*, [33] gives us the following information: "Besides, he (Despot) was exceedingly fond of praise and was glad to take every opportunity to make



his name brilliant. Hence, that extraordinary zeal of his, to attract to him from all sides those whom he knew were recommended by the reputation of science and who had prestige. He summoned Gaspar Peucerus, Melanchton's son-in-law, with a very cordial letter from Wittenberg; also he tried to bring Ioachim Rhetical from Krakow, a very famous man in mathematical disciplines, after sending him money; he really enjoyed those studies, and he gathered his great art tools from everywhere. He had not renounced the plan to build a Library either, because he had the deepest conviction that this brings the princes the greatest honor and dignity ... Also he (Despot) began to raise a school in the town of Cotnar, which is inhabited in general by Saxons and Hungarians, gathering children from all sides of the province and cared for them to be trained, fed and clothed from his personal treasure, establishing for the teachers a rather rich payment to the small number of the pupils; during this time we were also sent there, after spending six months at the court between the secretaries. These were all worthy of a glorious prince, and these things sparked an extraordinary hope to all people from abroad, with a justified provision of a happy result if the barbarian savagery would not have taken his reign and life at the same time ...". The text of the work *Vita Iacobi Moldavorum Reguli*, written by Johann Sommer, was known by several historians, namely: Gh. Sincai, V.A.Urechia, N.Iorga and possibly also A.D.Xenopol, but their research shows that they did not do a profound research on the text. Thus, Gh. Sincai paraphrased the text, adding some information about the attacks against Despot and the fact that he was foreign to the country and a heretic, while V.A.Urechia, quoting it in Latin, translates it wrong, coming with the information that at the Cotnari Latin School students were brought in by force, which does not correspond to the truth. Nicolae Iorga's comments to

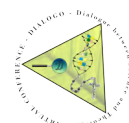
the text, but also brings other information outside the subject, thus speaking of Despot's crown, about the church he built, about the soldiers brought by him, about Carol Quintul, about the Germans, about Despot's fiancée and very little about the subject of the school even if he could do it in a very detailed way. [34]

C. Johann Sommer's hymn dedicated to the Library and School founded by Despot in Moldavia

In Elegy X, we find valuable information about the library and the school of Despot Voivode from Moldavia. This elegy has not been used as a source of documentation by any Romanian historian, except for N.Iorga, who only reminds of it, but does not refer to its content. This elegy shows that the Library was founded, but it was not finished, being conceived as a court library, as a large library like Matei Corvin's libraries in Buda, to which the author of the elegy, Sommer, makes a lot of references, or Emperor Maximilian's library in Vienna or the libraries in Egypt, Pergamon, Rome, or other large libraries. Our historians not studying this source called the library as a "school" one, when the prince actually wanted to make it a large court library, like the other large libraries. [35]

D. Informations from Elegy I about Professor Johann Sommer and the Latin School of Cotnari

From the text of Elegy I [36], one of the richest in historical and poetic content, there is much information about the school, showing that in Cotnari a schola latina was founded, and not an academy, which at that time meant an university, and was composed of four faculties. The Elegy I, even though it was known by N.Iorga he did not use its content.



E. Informations from the work of Johannes Sommer, Vita Iacobi Moldavorum Reguli, about the Cotnari Latin School and Johann Sommer's professorship

In this work, the author, referring to Despot's governance and the criticism it received, adds that: "This accusation adds that it has recently begun to build a new school where it would teach foreign literature endangering the parental religion" [37]. This passage in the document shows that the Latin school was a reason for dissatisfaction and scandal, pointing out that the school enjoyed some advertising and that it had worked long enough to stir up a certain agitation around it. [38]

Writing about how the widow of Bishop Lusinius was stripped of her fortune, chained and strangled, along with how its author, Johann Sommer, escaped a lot of dangers, who wrote: "And the widow of Bishop Lusinius, a woman from a noble Polish family, already weakened by age because she possessed a mansion acquired from the Prince's generosity near Cotnari, where I said that a school was founded, being rid of all the fortunes by some horsemen and being put under the supervision of the town priest, was put in chains and eventually, after a few weeks, was strangled with a barbarian savagery. At the same time I was taken out of the shelter, and with difficulty I escaped the enemy violence, using for three months without interruption the hideouts of forests and vineyards, not without the greatest daily despair of life. It was like a somewhat unforeseen storm that rolled many innocent people into great misfortune, while considering a friend or an enemy at his own whim whoever crossed his path, as he either loved or hated him." [39]

The poet Sommer also refers in *Vita Iacobi Moldavorum Reguli* to the "monuments" built by Despot, monuments that were destroyed by those engaged in

the resistance against Despot Voivode. "The battle was fought the day before the feast of St. Martin, the year 1561 since the birth of Christ. It was reproduced in a pretty picture, according to Despot's mood, in the palace of the city of Iasi, but the painting was destroyed during the time of the siege (in Suceava) like all the other monuments built by him." [40] The cultural "monuments" which could be remembered then were the school and the library. [41]

F. Despot Voivode's project to establish an Academy in Moldavia

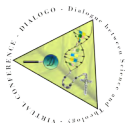
We point out that inviting the learned men of the time had the purpose of setting up a circle of scholars at the court, something that was like the Italian academies. His project included three lines of action, namely: first inviting scholars of the time, organizing a library, and finally building a school. [42]

G. G. Ioachim Rhaeticus letter addressed to Pavel Eber

The learned scientist, G. Ioachim Rhaeticus, wrote to Pavel Eber in a letter dated August 20, 1563 that "he invites me to Moldavia, giving me the payment of 400 thalers and dwelling for free, but I will not go there..." [43] The document is important because it says that the learned Ioachim Rhaeticus was invited to the Moldavian school to be part of the Circle of scientists, or the Academy, but he did not accept the invitation.

H. De Ioanne Heraclide Despota Valachorum

In this document, A.M. Graziani wrote about the invitation of some Calvinist scholars: "... the Despot had called from Poland a so-called Lismarin, master of the teaching invented by John Calvin and other people of the same sect, very skilled in the



art of speech, because through themselves, the people are to be taught about those things..."[44] Although Graziani was a Catholic, he presented Despot Voivode as being concerned with educating the people in moral and religious matters.

I. A recommendation letter sent from Wittenberg to Despot Voivode

From this recommendation letter, dated March 18, 1563, it is clear that Justus Jonas, a scholar of the time, intended to go to Moldavia during the year 1563. It is quite possible that this learned person was also part of Despot Voivode's academy. The letter also shows that the ruler of Moldavia maintained relations with the Wittenberg intellectuals:

*"To The Prince of Moldavia,
Health and all the happiness!*

Enlightened and magnified prince, our sincere, beloved friend!

When the honest and taught man, Dr. Justus Jonas, a professor at the Wittenberg Academy, is ready to leave for some business in Valahia and Moldavia, he earnestly urged us to honor him with our recommendation, which he hoped that cause of our friendship will serve him greatly in front of Your Highness, for Your Highness to embrace him with love and goodwill in these distant and foreign regions, except that we reckon him very worthy of our goodwill because of his distinguished spirit, his special situation and his devotion ..." [45]

J. Informations on Iacob Eraclide Despot's political projects

„Jacob Eraclides Basilicos, by the grace of God, despot of Samos, the prince of the kingdom of Moldavia and Palatine of Wallachia.

Brilliant and magnificent friends, too worthy to be honored by us. When the High

Father of nature counted worthy to put us in our kingdom of Moldavia, we counted to use our powers to increase the name of Christ and His holy church, which can not be fulfilled unless we cultivate peace with the neighbors ..." [46]

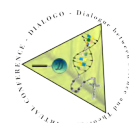
"...These things and many others similarly were lamented by that people. And the Despot was of a proud character that was thinking everything in great style and had decided to bring Wallachia from beyond the Carpathians to his dominion and even Transylvania..."[47]

K. Melanchton's letters about Despot Voivode

From Melanchton's letters, we find information about Despot's origin, character and education: "This guest Jacob Basilic, a learned, honest and skillful man in military art, was born of an ancient and noble family of Greek princes, as the letters attest, the ones he can show ... As a child, he was at Hermodor, a very learned man, in Crete, and the name of this Hermodor is known to us. He (Despot) is an honest and erudite man, and he has faithful testimonies about his race and the causes of his exile and his military capability ..." [48]

L. The pot certificate given by Despot Voivode to Zaharia Praetorius, presents the cultural conception of the Moldavian ruler. [49]

In the year 1599 Report of Bernardino Quirini, Catholic Bishop of Argeş, he presents the following information about the school of Cotnari: "... We visited the town of Cotnari with three thousand five fires, of which there are one hundred and ninety-eight Latin families, that is one thousand eighty-three souls; there are four churches, three of stone and a small wooden one made new; the three mentioned churches are very good ... I also found in this town as



a Grammar School teacher, a layman named Petre Elmon, a Transylvanian, Lutheran heretic who had taken a woman a year earlier and had taught in Hungarian and Latin the sons of the Hungarians and the Saxons, and from the information I took about him, I went to his house and looking into his books I found three heretic books in Hungarian and a forbidden Bible; I took them and made them burn, and with good words and fruitful scolding he confessed to me the truth, that he had adhered to Luther's conception, but that he had not taught it to anyone; that is why I made him abstain in public, in the church, the theory of his Lutheranism, and absolved him, giving him life-saving repentance, and he promised by oath not to fall into such mistakes once again, such is seen by the writing of his own hand ... [50]

CONCLUSIONS

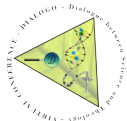
It is believed that the Cotnari School was founded in 1562 and even though the reign of Despot Voivode was short-lived, the school building lasted long after the ruler's demise. Of course, there are opinions that say that the school lasted very little. There are clues, however, to which it is believed that the school lasted longer. Thus, in 1588, when a group of Catholic intellectuals visited Moldavia, Petru Șchiopul offered them the school in Cotnari with the purpose of "destroying its nest of Protestants." This demonstrates that the school still existed. No other "school" and no "Protestant nest" were mentioned in Cotnari, except Despot Voivode's school, where we surely know Johann Sommer was taught at. In 1599, Bishop Quirini made a canonical inspection by visiting the Cotnars, in his report he notes the existence of a "grammar school" (*schola di gramatica*), having as a professor a Transylvanian layman named Pietro Elmon. The expression "grammar school" means that it was a Latin school, but with a lower

course of 2-3 classes. The presence of this school is a definite proof of the continuity of the school founded by Despot Voivode, turning from a Protestant school, as it was in its beginnings, into a Catholic one. [51]

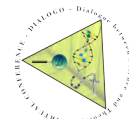
Thus, according to the evidence, it is believed that the School of Cotnari, after being founded, has been functioning for more than a century and a half, thus turning after the death of Despot Voivode and the escape of Professor Sommer, from a Protestant school into a Catholic grammar school alongside the lordly school from Iași, the Catholic grammar school from Iași, as well as Ressi's from Galati. It should be mentioned that the school of Cotnari has not reached the full development of gymnasium, high school or Latin school with 5-6 grades, remaining only to the status of grammar school. With the passage of time, the school was no longer a school of the whole country, but only a school for the Cotnari area. [52]

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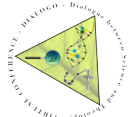


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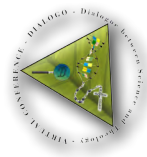
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SECTION 13

**Mathematics, Technology, Industry,
Networking & Religion**



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Offshore pipeline influence on middle east spiritual condition

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ABSTRACT

The Middle East is responsible for nearly 30% of world oil production. Oil export is possible just using oil tankers and pipelines. Most developed pipeline network it has Syria. At the same time Syria is a gateway to Europe oil market. Bearing in mind oil price decline, fight on oil markets becomes more pronounced. The consequences of this struggle are creating increasing religious tensions between Shiites and Sunnis. Syria becomes a global battlefield for the influence on Arabian oil.

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I. GREEN MIDDLE EAST

The Middle East is the region where Islam was born. The majority of the population practice Islam. In the Muslim countries of the Middle East, Islam is part of the perceptions, attitudes and values of people. Islamic institutions (political, diplomatic, economic and cultural) also play a role in these processes. And this role is all the more important, the stronger the influence of Islam in society. In this context, as in Christianity, theology in Islam developed much later than religion itself appeared. The elaboration and interpretation of the dogmas of faith belonged to the Caliph, not to state or religious institutions, but to private individuals, theologians, whose authority was based solely on their

knowledge of the religious sciences.

In addition to the fact that Islam is a unique religion for Muslims, there are also different sects. Two major and most important sects are Sunni and Shia. Representatives of these two denominations, live throughout the territory of the Middle East. In same time, Shiites live in Iran, Lebanon, Bahrain and Iraq. Predominantly Sunni live in Saudi Arabia, Pakistan, Indonesia, Egypt, Bangladesh, Syria, Turkey, Nigeria, Libya, Tunisia and Sudan [1]. However, Shiite Iran and Sunni Saudi Arabia are long-standing rivals in the Middle East. At the same time, both sides mix their political goals and religious interpretations of Islam.

The split of Islam into the Sunni and Shiite directions goes back to the dispute about the continuer of the Prophet Muhammad,

on the Dialogue between Science and Theology

who should lead all Muslims. After the founder of the new religion, Mohammed died in A.D. 632, leadership of the Islamic community passed to Abu Bark as-Siddiq, one of Mohammed’s closest companions. The Shiites believed that Mohammed defined his successor Ali ibn Abi Talib. This was based on the fact that Ali was his first convert and husband of his daughter Fatima. The name “Shiite” comes from the Arabic words “Shiite Ali,” which literally means “Ali’s supporters”. While other followers of Islam questioned the exclusive privilege of this kind and suggested that the majority of the Muslim community choose another candidate from the descendants of Mohammed, explaining their position with extracts from Sunna, the second source of Islamic law after the Quaran. Based on this situation, this opposition became known as “Sunnis”.

Power struggle eventually led to the murder of Ali in A.D. 661. His sons Khasan and Hussein were also killed, and the death of Hussein in A.D. 680 near the city of Karbala (modern Iraq) is still perceived by the Shiites as a tragedy of historical proportions. Nowadays, in the so-called the day of Ashura, in many countries the Shiites hold mourning processions, accompanied by a rapid manifestation of emotions, people hit themselves with chains and swords [2].

The Shiites killed many Sunnis and also the Sunnis shed blood to many Shiites. The longest and most serious conflict with the Muslim world is not so much the conflict between Arabs and Israel as the conflict within Islam itself due to a split between Shiites and Sunnis.

II. THE ROLE OF THE OIL IN THE MIDDLE EAST REGION

The dependence of world industry and the economy on oil, makes this the Arab world’s most important products.

Approximately 30 billion barrels of oil is used every year, worldwide and the oil industry, from the production and distribution of oil to its refinement and sale, is the largest global industry, in terms of its value. Arab countries play an important role in the Organization of the Petroleum Exporting Countries or OPEC (Fig.1). Iran, Iraq, Kuwait, Qatar, Saudi Arabia and the United Arab Emirates are all members of the organization, which is made up of 12 countries which are net exporters of oil [3].

It can be safely said that since the turn of the twentieth century, oil has been one of the more powerful forces which helped in shaping political, economical and social developments in the Middle East [4].

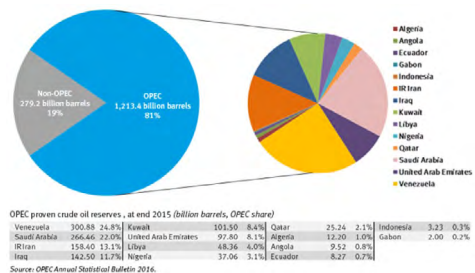
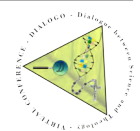


Fig. 1 OPEC proven crude oil reserves (billion barrels), by [5]

The discovery of oil importance and global growing demand has had a substantial effect on the economic development of the Middle East region. Rapid economic growth was accompanied by a sharp increase in a number of social indicators. Due to the wide expansion of employment and migration opportunities in the public sector, unemployment was low and hardly differed in nature from that observed in developed industrial countries. By the late 1980s, the Middle East region experienced a sharp decline in infant mortality, an increase in life expectancy, a school enrollment rate that increased from about 40% of the adult population to almost 60% [6].

In present days, people from Arabian



Peninsula, lives in monarchs ruled countries and Islam infiltrates all aspects of the society.

III. RELATIONSHIP BETWEEN OIL AND ISLAM IN THE ARABIAN PENINSULA

Phrase “Oil is a gift from Allah”, becomes typical and it is used even by secular political leaders. In fact, this is an analogy of such clichés as “the gift of nature” or “God’s gift”. According to British Petroleum 2016 Statistical Review of the World Energy [7] countries from Arabian Peninsula posses 47,7% of world proved oil reserves and 42,5% of natural gas reserves. These percentages offer for Muslims another position in the 21 century world, and one dose of vanity.

For Muslims from Persian Gulf, the oil is a material gift from Allah.



Fig. 2 Oil and gas in the Persian Gulf, by [8]

In recent decades, the most important players on the oil market are the Persian Gulf states. At the same time, they exhibit political subjectness, declaring their demands to control the transit of hydrocarbons and to support them with rhetoric of religious exclusivity. Since the 70's. Petro-Islam is gradually becoming an ideological and financial tool not only for the formation of a policy of domination in the Middle East region. but also to intercept the economic initiative of other oil-producing and transit countries of this region in the struggle

to preserve, manage and spread their economic and cultural influence. By placing Wahhabism at first plan and promoting own interests, the Persian Gulf elites were supported by anti-government forces in Egypt, participated in the formation of an international network of political support for Islamists. This ideology promises paradise in heaven for all whom with arms in hand, fights for the ideals of Wahhabism while promoting the idea of creating a just state - the World Caliphate, a paradise on earth “for all Muslims oppressed by the West.” Petro – Islam ideology has a broad government support [9].

Saudi and Qatar elites ordered and paid for the creation and translations of Islamist works, bringing to the international political arena the preachers of Ithvanism, Wahhabism and Jihadism, which formed the united world front of Islamism. In its conservative versions, this ideology can manifest itself as a protective policy for domestic political purposes, but more often it acts as the ideology of creating a fracture in competition in the regional hydrocarbon market. Justifying jihad in neighboring Muslim countries as a rebellion against “unjust rulers” (often competing with the Persian Gulf monarchies in the hydrocarbon transit market), they completely deny this possibility in Saudi Arabia, Qatar or Bahrain itself, where armed jihad can only be conducted with the permission of the ruler [10].

In the concept of Petro-Islam, the key role is played by the idea of natural rent and its connection with the religious concept of “God’s chosen Muslims”. This ideology is defended by a group of ideologists of the oil monarchies of the Persian Gulf. Generally, idea declares the rights of every citizen to receive a share in the national wealth of countries rich in hydrocarbons. This idea is undoubtedly productive, for it is well correlated with the ideology of social

justice, reflected in religious concepts of Muslim societies. The concept of the “petro-state” was realized in Turkmenistan, Kuwait, Bahrain, Qatar, the Kingdom of Saudi Arabia, Oman, the United Arab Emirates, partially in Iran. Also with great reservations, it is being implemented in non-Muslim OPEC countries, for example in Norway, Brazil and Venezuela. In the last two, the idea of rent is viewed through the prism of the socialist idea of social justice. Despite the fact that the ideology of rent was developed by western analysts to justify the right of the western consumer to hydrocarbons, in the extracting countries it received its own life through the religious substantiation of the right of peoples on whose lands there are mineral resources. In same time, Islamic ideologists began to consider hydrocarbons as a special “mercy of the Almighty” to these nations, sacrificing oil as the basis of life, wealth, insecurity and stability of the Muslim Ummah. The path of sacralization of hydrocarbons led to the fact that any economic conflict of interests on the basis of their extraction or transportation grew into a conflict of values and sharply reduced the contractual capacity of the parties. It should be mentioned that such sacralization is not something unusual in the political history of the world [11].

The phenomenon of the sacralization of the “profane” became the ideological basis for mobilizing the masses to achieve political goals since the time of the French Revolution.

It is interesting to note that the sacralization of what is not sacred is a blameworthy act in Islamic theology, since it leads to the most unforgivable sin-shirk (the affirmation that something of this world is sacred in common with the Most High).

About this, many theological books have been written, in which there are conclusive proofs from the point of view of Wahhabis that “every sin, except for shirk, is forgiven.”

Shirk is not compatible with the basic values of monotheism, which in the Islamic doctrine is carried out most consistently. Accusing their opponents of unbelief, the Wahhabis primarily reproach them for the sacralization of various objects of the transitory world: graves, icons, mediation, people, stones, architectural, cultural and various historical monuments, various symbolic images. Even, they are irritated by the natural drawings that look like a cross, for example: sign of the cross on a cut tomato.



Fig. 3 Symbol of Petro-Islam Ideology

All this causes irritation for consecutive monotheistic Wahhabi. However, hydrocarbons are not included in this extensive list. Why?

IV. OFFSHORE PIPELINE TECHNOLOGY INFLUENCE ON OIL AND GAS MIDDLE EAST MARKET

Pipeline transport does not fully comply with the traditional definition of transport but along with this, pipeline transport carries out the transportation of million tons of oil and gas. In present, the total length of high pressure pipelines around the world has been estimated at 3,500,000 km [12].

In the last 20 years, due to technological progress, in pipeline transportation a qualitative leap occurred. This allowed, first of all, the economical transportation of oil

from the Near and Middle East countries not only to Western Europe, but also to the United States and Japan, which was essential for the unification of the regional oil supply systems of these countries.

Pipelines, especially main pipelines, run mainly along the route: gas/oil field – processing/refining – consumer. For Middle East countries, pipelines have the following advantages: low transportation costs, continuity of the transportation process, low number of staff, independence from natural and climatic conditions, and possibility of saving financial resources. After what has been said above, one of the great advantages is the simplification of pipeline construction due to the relief of the Arabian Peninsula, namely that all major gas and oil deposits are located on a vast desert plateau and this makes it possible to lay a pipeline without crossing the mountains and therefore saving huge financial resources [13].

In same time, pipeline has a big disadvantage: almost all main pipelines must pass through neighboring countries. In this situation, transit countries receive transit fees but in the moment when between countries relations become strained than appears situations as between Russia and Ukraine.

The next step in pipeline history is represented by UOE pipes. Starting with UOE pipe manufacturing; it was possible offshore pipeline construction. UOE pipe manufacturing process is based on cold forming process. Cold forming is process by which metal is shaped without removing material. A simple blank is placed within a die, and a punch is pressed into the blank at ambient temperature. The blank then takes on the form of the punch as well as the die. In cold forming, the metal is stretched beyond its yield strength, so that it takes on and retains the exact shape of the mould [14].

Based on international abbreviation, UOE and according to manufacturing process is presented by 3 principal technological steps (Fig.3), so: U – represents when plate is formed into U – shape, O – represents the moment when U shape is pressed into circular shape and final step E – represent pipe expanding operation to obtain standard size of pipe by applying radial oriented internal pressure, but always, first step is edge crimping operation that means edge preparing for weld seam execution, i.e. plate edges crimping into circular shape.

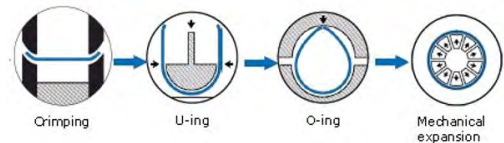


Fig. 3 UOE pipe manufacturing process, by [14]

The Middle Eastern countries with huge reserves of hydrocarbons needs for different means to transport oil and gas. With pipeline advantages, Middle East is crossed by the pipeline network, like spider web as shown in figure 4 [20].

From advantages and short description, UOE pipe mentioned above becomes an instrument of geopolitical influence because in present days it is possible to construct pipeline everywhere without any danger for the environment.

V. VICIOUS CIRCLE: PIPELINE->CHEAP OIL->ISLAM

As stated above, pipeline offer possibility to export oil products through the seas and mountains, but since 2014, when the oil fell to 55, 27\$/barrel [15], something that seemed ordinary radically changed.

According to world shock, cheap oil becomes dangerous for social generosity

of Arabian Peninsula countries. The fall in oil prices is strongly felt in oil-producing countries. Oil revenues allowed financing social programs, ensuring the loyalty of the population.

Taking into account human psychology, with the fall of oil revenues and maintaining the same level of financial resources consumption, appears a need to increase sales markets area.

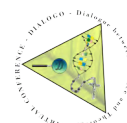
Concerning to countries of Persian Gulf, especially Saudi Arabia, they need to expand beyond Asia, where demand is falling. Moreover, on Asian markets, Russia becomes a serious competitor. In May of 2016, Russia surpassed Saudi Arabia on crude oil supplies to China [16]. In present days, Saudis leads a price war for sales market, in same time they enter to traditional Russian markets. This process can overgrow into a more active brawl between two largest world exporters which already confronting each other in Syrian conflict. If China's economy continues to show worse results than expected, this market may become too tight for Russians and Saudis. The economies of both countries depend on oil, and defending their market share for them is a matter of survival

It is necessary to emphasize that Europe doesn't have sufficient reserves of oil and gas. The main suppliers of gas are: Norway - 21%, Netherlands - 15%, Russia - 30%, Algeria - 7% and Qatar - 5% [17]. A similar situation with oil, i.e. Europe imports 70% of the consumed oil. The main suppliers of oil are the following states: Middle East - 38% (200 million tons per year), Russia, Kazakhstan, Azerbaijan - 28% (147 million tons per year), Africa - 24% (130 million tons per year) and others 10% (53 million tons per year) [18].

As seen, on gas supplies, Russian Federation takes first place and on oil supplies takes second place. In this situation, Europe is actively trying to diversify the supply of hydrocarbons, especially to reduce imports

from Russia. Surprisingly, the alternative to Russian gas is the Middle East gas. The map of the Middle East demonstrates importance and place of the Syria in EU, Russia and USA policy in the Middle East. All important and short routes by land and sea (excepting the Israel, with which Muslim countries are not in the best possible relationship) to Europe, pass through the territory of the Syria. Controlling Syria, it is possible to control the main ways of delivering oil and gas to Europe. If in all special selected countries of the region, coups d'état went smoothly, in Syria attempt to conduct it was faced with great obstacles. Right here, important interests of the West and of the East collided.

Must be mentioned that before the Syrian war started, in June of 25 2011, was signed trilateral agreements on the construction of an Islamic gas pipeline between Iran, Iraq and Syria, these countries call him "Friendship Gas Pipeline". What represents Islamic Gas Pipeline? This project was planned between Shiite Iran, Iraq, where the majority is Shiites and Syria, where the country is governed by Alawites (Shiites). The design capacity of this pipeline is 40 billion of gas per year. This pipeline is starting from Iranian South Pars gas field, after continuous with the connection of Iraq gas fields and through Syrian territory (bypassing Turkey) is going to Europe [19]. That is, the project itself is Shiite and, given the relationship between Saudi Arabia and the Islamic Republic of Iran, this project cannot suit the Sunni monarchs of the Persian Gulf. According to this situation, Qatar with Saudi Arabia, proposed their gas pipeline project, which must connect to the existing Arab gas pipeline in Syria, i.e., Arab gas pipeline is a direct competitor to Islamic Gas Pipeline. Currently the Arab gas pipeline connects three countries: Egypt, Jordan and Israel. The agreement of the pipeline construction was signed in 2000. The first part of this gas pipeline was put into operation in 2003 and the second part in 2008. It is planned to



bring this gas pipeline through the territory of Syria to Turkey, where it will be connect with another pipeline which comes from the Caspian region. As noted above, it is also planned to connect another one to the Arab gas pipeline in Syria, coming from Qatar and Saudi Arabia. After interconnection, it is planned to extend it through Turkey to Europe.

Repeatedly, EU representatives expressed their support for this project and stressed the importance of the pipeline for the diversification of energy sources for Europe.

Ironically, these two competing pipes are passing through Syrian territory and so it happened that Syria becomes the battlefield between Sunnis and Shiites and in case of loss of one of the parties, considering the mentality of the local population and the spiritual training that took place for centuries, may appear the next question: Are Muslim leaders from Allah?



Fig. 4 The Middle East pipeline network, by [20]

CONCLUSION

Translated from Arabic, the word “Islam” means “peace.” Islam - is the religion that is meant to enliven life with humanity, peace and prosperity. The Almighty God has given the Holy Qur’an by urging the faithful to develop in their hearts the highest qualities

of the human soul that have been given to us by God each one from birth: compassion, respect for his neighbor, altruism, humility and teaches people to live in peace and harmony. This is what God commands us to do: But seek, with that (wealth) which Allah has bestowed on you, the home of the Hereafter, and forget not your portion of legal enjoyment in this world, and do good as Allah has been good to you, and seek not mischief in the land. Verily, Allah likes not the mufsidun (those who commit great crimes and sins, oppressors, tyrants, mischief-makers, corrupt) (Surah Al-Qasas [28:77] - Al-Qur’an al-Kareem) [21].

As has been told above, Islam and also applies for other religions, pursue the good for man and for the earth.

Problems appear in situation when religion and science have the different directions. The breaking of the connection between science and religion has taken place since the fall of man in sin. From this moment, inspiration and motivation of the creation are not from God, but in words of Lucifer: “... then your eyes shall be opened, and ye shall be as gods, knowing good and evil.” (Genesis 3:5) [22]. Resistance to God in “scientific and technical” activity begins even from the time of the builders of the first cities - Cain (Kabili in Quran) and his immediate descendants. According to the correct sequence of hierarchical steps in the knowledge of the world through God and of the God in the world, nature and science receive their interpretation from their ultimate purpose and like result is forming a holistic, non-contradictory attitude of man to God, to himself and to the world around him. In situation when only the intellect and “technical power” are absolutized, a man finally loses a holistic, adequate perception of God and the entire created reality with imaginary domination over it. In this way, the science begins to serve the crudest weaknesses of the man, arises utopia of

the construction of “earthly paradise”, the industry of “bread and circuses”. In the end, passions finally separate man from God (paganism as polytheism and godlessness), man from world (man – made disasters) and lead to death is not only spiritual, but also physical (war).

Scientific and technological progress must serve the man transformation based on of spiritual and moral progress. The results of scientific and technological progress, like themselves, are neutral, but the spirit of man finds them either evil or good use. In the pages of the Bible (also in Quran), are presented examples of technical thought embodied not only as an evil that brings suffering and death but also as an image of service to God and evidence of His special favor to man: the first leather clothes, the Noah’s ark, the “zootechnical” techniques of the patriarch Jacob, the Tabernacle and later - the Temple with everything that fills it, including musical instruments and writing technology. As examples for today, the pipeline technology can be used to bring water to poor African countries also oil revenues can be divided so that poverty among the population will disappear. Every act on this earth is the result of a choice: either to God or to the Ego.

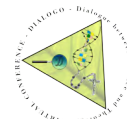
The most influential scientist of all time sir Isaac Newton said: “Godliness consists in the knowledge, love and worship of God, Humanity in love, righteousness and good offices towards man.” [23]. Such faith also found in Albert Einstein, Arthur Compton, Blasé Pascal, Francis Bacon, Lev Tolstoy, Galileo Galilee, Max Born, Mikhail Lomonosov and others. Must be mentioned, that scientists, who laid the foundations of modern science, believed in God.

Finally, must be noted to note that unlike the times of the bipolar system, when two actors played, today many actors are playing on the chessboard of the Middle East, and each of them has its own interests,

which complicates the situation in the region. And the vilest in this game is that ordinary Muslims become victims of this bloody game and many of those who have a spiritual education responsibility cause great damage to the Islamic religion.

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BIOGRAPHY



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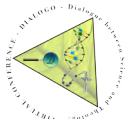
Phd. Mihael Chircor was born in 01.08.1954. Graduated University Politehnica of Bucharest at 1979 with mechanical engineer degree in 1997 obtained his Phd in the same university.

His work experience is starting with Design Engineer position and continuous with entire stage and reaching the Director position at Autonomous Regime Public and Private Exploitation. In parallel is engaged in teaching from 1990 till present occupying the position of Chief of the Department of Technologies and Mechanical Engineering at Ovidius University of Constanta.

He is the author of the following books:

- Operational research – Bren publishing.
- Industrial Robots – Ovidius Univeristy press,1999.
- Elements of kinematics, dynamics and planning of industrial robot trajectories – publishing house of the Romanian Academy, 2001.

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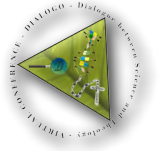
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SECTION 14

**General Topic: Science and Theology
in dialogue**



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The conception of God as seen from research on the foundation of quantum theory

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ABSTRACT

On several levels there is now a debate whether or not the concept of God can be made compatible with modern science. In an attempt to elucidate this debate, I give an account of my own experiences from writing a book on the foundation of quantum mechanics. It turns out that one can give two independent arguments for the existence of God by taking as departure an epistemic (knowledge-based) interpretation of quantum theory. Nevertheless I argue that any religious belief should be the result of an existential choice governed by each individual's own context (history, personality, culture). My own faith is that God is greater than Christianity, and that Christianity is greater than the dogmas claimed by the Church.

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I. INTRODUCTION

First I want to stress my personal belief: I believe that there exists a God who created the world. However, I do not see myself as a simple creationist. I believe in all established scientific laws, including Darwin's theories and also more modern biological theories for the evolution of species. I also believe firmly in all physical and chemical laws.

Even so, I do think of us humans as created in God's image: We observe, make decisions and act. From my perspective, the details of this are related to the physical theories spelled out in [1], a book whose main content is fairly technical. The essence of the book, seen from a philosophical point of view, is repeated below.

I believe that God acts within us, in the sense that He influences our thoughts, our spoken words and our actions. But sadly enough, there are also evil forces within us, forces that also influence us. We have our free will, not a free will to choose our thoughts, but a free will to choose our actions and spoken words.

We humans are not like robots, and scientists and technicians will never be able to, however clever they might be, construct any machine governed by artificial intelligence that behaves in the way human beings behave. The mental ability that always will distinguish us from robots with all their artificial intelligence, may be called intuition. Intuition governs communication between humans, it governs any kind of art, and it also takes part in governing scientific

investigations.

In this sense I believe that we all have a God within us, and that this in fact is true even for people who do not believe in God. And for people that do believe in God, our image of God may vary greatly from person to person. In the language of quantum theory, which I will come back to below, we might say that different people have complementary images of God. This explains why different religions believing in a God exist, and it also explains the multitudes of churches within the Christian community. Here culture plays an important role.

In general: The choice of a religion is an existential choice. As any decision it is governed by our own context: our history, our personality and the cultural values that we are grown up with.

II. QUANTUM MECHANICS; THE EPISTEMIC INTERPRETATION

The process behind [1] has been a long process. It started with the belief that in some way it should always be important to communicate between scientific cultures, and that such a communication was lacking between statisticians and people working with the foundation of quantum theory. With my own background I felt that I could contribute something here, and it all has now ended up with a book where I describe a possible common foundation for quantum theory and basic statistical inference theory. The whole book is fairly technical and mathematical, but in the last chapter I sketch a body of philosophical consequences. Some of these will be described in the next two sections.

The starting point of [1] is extremely simple. The common basis of statistics and quantum theory is – as I see it – that of an epistemic process: A process to achieve knowledge. In the simplest case we have an e-variable – epistemic conceptual variable

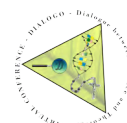
– t , asking a question to nature: ‘What is t ?’, and obtaining an answer in terms of information about t .

For nearly 100 years there has been a fierce discussion among theoretical physicists on how one should interpret quantum mechanics: Is it a theory about reality, or is it a theory about the knowledge we can obtain about reality? The last view is called epistemic, and this view has received a fresh impetus during the last decade. An essential part of the debate started between Albert Einstein and the Dane Niels Bohr in 1935, where Einstein for philosophical reasons took a very strong realist position. My view is epistemic, a view that is shared by many leading physicists today (see for instance the popular book [3]). But the debate is still hard.

In statistics, the e-variable t is most often a continuous parameter, and the answer can be in terms of a confidence interval or a Bayesian credibility interval. (Never mind these technical terms; the important thing is that the answer is an interval.) In elementary quantum mechanics, t is often discrete, and in an ideal measurement we can obtain a definite answer: $t=u$.

Here one can first think of the words quantum mechanics and quantum theory as having the same meaning, but in reality quantum theory is a theory which also goes beyond physics: During the last few years, experiments in psychology, and theoretical discussions of decisions in psychology and in economics, show clearly that quantum theoretical considerations also can be made to play a role here.

In quantum theory, we have what I call complementary e-variables. We can obtain information about t^a and of t^b by focusing upon the right question to nature, but the vector (t^a, t^b) is inaccessible. We cannot get full information about both variables at the same time. Examples of this abound in quantum physics, but it is extremely



interesting that one now begins to find examples in sociology, in economics and in psychology.

Where do the probabilities in quantum theory come from?

They are given by Born's formula, a formula which Max Born in 1954 got the Nobel prize for. In [1] I have a rather long derivation of Born's formula, starting from two premises: 1) A focused likelihood principle, which is a technical principle having its analogue in statistical theory. 2) An assumption of perfect rationality.

Of course, this is not the full story, but it appears to me to be a very useful beginning for understanding quantum theory from assumptions that are related to the basic assumptions of statistical theory.

III. AN EPISTEMIC ARGUMENT FOR A GOD

To repeat the views of the previous section: The quantum formulation can be seen as having to do not with how nature is, but with our process of obtaining knowledge about nature. We focus on certain questions to nature, and obtain answers to those focused questions. In [1] I indicate in different ways that essential elements of the quantum formulation can be derived logically by considering such a process - an epistemic process. The details of these arguments are relatively deep, and require some mathematics to derive.

Who is this 'we' who ask questions and obtain answers? It can be a single observer or a group of communicating observers. The epistemic process that this (these) observer(s) perform(s) can be likened to statistical inference in some way, and the quantity which he/she (they) ask questions about and obtain information on, can be likened in some way to a statistical parameter. But it is different, since it often concerns a single unit instead of a

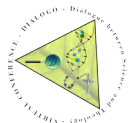
population of units. I have introduced a new term, e-variable, to cover both parameters in statistics and these single unit quantities.

I claim that the e-variables are not hidden variables, but closely connected to the epistemic processes, the process of obtaining knowledge. Also: Doing inference has to do with intuitive processes in the brain. The brain is no computer and cannot be simulated by any system of computers, so the epistemic process which lie in the foundation here, cannot be simulated by any system of classical computers.

Although essentially new arguments behind quantum mechanics are presented in [1], I still regard conventional Hilbert space based quantum mechanics as extremely useful when it comes to calculations. It is the point of departure for very much research today.

In the same way, the statistical culture, as it is described in Chapter 2 of [1], has a vigorous development today. What I try to point out, is, that these two cultures may be seen to have a common basis in the concept of an epistemic process. Nevertheless, I am quite sure that neither quantum mechanics as a science nor mathematical statistics as a science nor applied statistics as a tool in many empirical sciences would have developed as far as they have if some sort of a synthesis between the two cultures had been taken place from the beginning. This may be linked to the quantum mechanical concept of complementarity. Universality and creativity may in some sense be seen as complementary qualities.

The concept of complementarity is extremely important in [1]. As a first application in the book, the concept of complementarity is connected to the process of obtaining knowledge, that is, the epistemic process. But as just seen, it can also be associated with human abilities. Humans observe, make decisions and act. The complementarity concept can also be



connected to the decisions and the actions. Assume for instance that a student is to work on some given assignment. He can have his focus on satisfying teacher A or on satisfying teacher B in the decisions and actions he make when working on the assignment. These can be complementary foci. The complementarity can be reduced if more time and concentration is devoted to the assignment.

Going back to the epistemic process situation, the basic feature of the approach in [1] was focusing: Ask a selected focused question to nature and obtain a specific answer. From a given observer's point of view this defines a state of nature.

The focusing used in [1] was precise and formal. Informally, focusing is very often necessary in our daily life when we want to obtain knowledge before making decisions and acting from these decisions. We simply do not have the capacity to absorb all the knowledge from all the sources that we are confronted with.

An epistemic process as used in [1] is a very wide concept. Every epistemic process involves decisions, a decision to ask a question and a decision to accept the answer. It is interesting to note that also the other assumptions made in [1] have informal analogues for humans making decisions.

It may also be interesting to speculate around the fact that something called the free will theorem follows from the assumptions of quantum mechanics. Humans are governed by their free will, and they are constantly confronted with other humans that are governed by their free will.

All these speculations, and indeed the whole idea of a purely epistemic foundation of quantum mechanics, make one a little uneasy, however. The universe was created 13.8 billion years ago, and physical laws, including quantum mechanics have presumably been valid since then. How can then everything be so tightly connected to

the human observer?

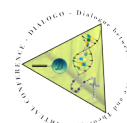
A possible solution in the spirit of [1] is connected to the imagined observer and the perfectly rational actor, both important concepts used in [1]. To go into more details on the question on what these elements stand for, is again mere speculation, but at least all technical assumptions made in [1] are consistent with the following world view, which also provides a link to the ontic interpretation of quantum mechanics – that is, the interpretation that the laws of quantum mechanics have to do with real properties of the world. A similar proposal was in due time made by the philosopher George Berkeley in order to avoid accusations of solipsism (the strange view that I am the only person in the world: I observe and I act).

For several reasons I have chosen to believe that there is a Creator of the universe, who during the creation also observed it. Then later this Creator is at each time able to observe, make decisions and act. He is perfectly rational.

I believe that we humans are created in His image, but we are imperfect. The last statement is obvious; the first may be argued for from the fact that we also are able to observe, make decisions and act. This is the basis for the idea of an epistemic process.

With now a divine Creator entering the stage, this idea obtains a new dimension. If the idealized Heavenly observers agree on the result of their epistemic process, this result must be said to be an objective fact. This gives us a simple tentative argument through the concept of an epistemic process, which was argued above to lie behind the formalism of quantum mechanics, to an ontic view of the world, to the view that any physical system, including the whole world, has a real existence.

A corresponding epistemic process can only be imperfectly carried out by human



observers. Nevertheless, when all relevant observers agree on an observation, we can be fairly sure that this is an objective fact. Such a conclusion is strengthened if the epistemic process leading to the conclusion is a scientific investigation.

The divine Creator may be called God. He is worshiped in different ways in different cultures and He is perceived in different ways by different groups of people. This can be explained by the fact that we humans only can have an imperfect image of God. It is also connected to the fact that we all have different contexts, also when making deep decisions. The concept of a context has played an important role in [1], it is important in any epistemic process and it is important for any process of making decisions.

From my perspective, the ultimate actor God must in some way be the same across all cultures, and He must be acting over and above what particular image each single person might have of Him or of aspects of Him.

At the outset we know little about the goals behind the decisions made by God. My own conviction is related on Albert Einstein's saying: The Lord is subtle, but not malicious. It is also based upon the God who ends the play *Brand* of Henrik Ibsen: *Deus caritatis*; the God of love. Thus there seems in my opinion to be a God who is good and wants the best for us humans. But in a world where we all have our free will, God is confronted with many complementary goals. On the one hand He is almighty. On the other hand He seems to meet logical impossibilities if He should do the best for absolutely all of us.

This argument is very simple, and I am in no way able to explain all the suffering in the world by such an argument. One might perhaps see some sort of an answer by indicating that suffering by certain people may give other people an opportunity to work out the best sides of themselves. But

these are extremely difficult questions.

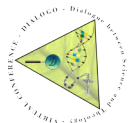
Another difficult question is whether faith in some cases may help people recover from an illness. This question is related to the placebo effect, an effect which several investigations have shown is very strong. Many Christians refer to example where they have seen that prayer might help sick people. Skeptics argue that it is extremely dangerous to spread such a message. But not to be able to argue for the fact that a very positive effect of placebo might help some people, is also dangerous. Again one ends up with the phenomenon that one here has an example of complementary points of view.

By all these speculations I have been entering the realm of theology. One can never stop wondering about the large and difficult questions. Some of the answers must remain open at this stage.

Thus I value high very many aspects of religion. However, I have great difficulties with the attitude: 'We in our religious community are right. The others are wrong.'

I am strongly against any kind of fundamentalism. Extreme Muslims may become terrorists in the belief that they have the right religion. Israeli settlers occupy Palestinian land in the belief that they have the right religion. It is important to have an open mind towards the beliefs of other people, but such an open mind should also have its limitation. There are no simple solutions to the deep conflicts in this world.

In the same way as I believe that there exists an ultimate God, I also believe that there in a very concrete sense is an ultimate science. It is very fruitful to do science in various scientific cultures, but there must be a logical way to understand the conclusions obtained in different cultures in a unified way. This is a personal conviction behind the work of the book [1], but the view may perhaps be generalized to other human activities.



At this point it is natural to stress that also science has its limitations. Science is not able to explain consciousness. Science is not able to grasp in any way the spiritual power behind a symphony by Ludwig von Beethoven, a painting of Pablo Picasso, the finding of theorems by Nils Henrik Abel or the finding of theories by Richard Feynman.

We all have a mind which can not be scrutinized in detail by any scientific investigation, however far our knowledge of the brain is developed. Thus there is a room for a dimension in life that goes beyond science, in my view, also a room for religion.

IV. AN ARGUMENT FOR GOD CONNECTED TO DECISIONS AND TO BORN'S FORMULA

We all go through our lives making repeated decisions in different contexts. These decisions are governed by our free will, but they may also be influenced by people that we look up to, who perhaps have done similar decisions before. In our childhood, the persons that form our basis are most often our parents, but later other ideals may take over. Human beings that suffer from a confused relation to their first ideals, may later have difficulties in making good decisions, and they may end up with having psychological problems. Much mental illnesses can be explained in this way.

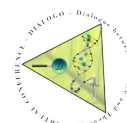
As scientists we also have ideals that we look up to. These may be personal, or they may be substantiated through certain well-defined principles. In [1] I have a rather deep argument connected to Born's formula. This formula is the basis for all probability calculations in quantum mechanics, calculations connected to any experiment that can be imagined. In deriving this formula I made the assumption that the experimentalist A, when posing a focused question to nature, made his decisions inspired by an ideal D, and that D

was perfectly rational.

This may be regarded as a simplification. In reality, when making our decisions, we are influenced by a multitude of conscious or subconscious sources. In this argument, all these sources are collected together in the superior actor D. I assume that D has a positive influence on A, positive with respect to the goal that A has, in this case the question that A has chosen as the focus of his experiment. It is also very essential for the argument that D is perfectly rational. This assumption is made precise by using what is called a Dutch Book argument, a type of argument which is also used by other scientists working with the foundation of quantum mechanics.

Let us look at the process of making decisions in some greater generality. People in different cultures make their decisions partly intuitively on the basis of cultural values. These values may have a historical origin, and they may also be related to religion. Christianity, Islam and Judaism are all founded upon the belief in a personal God. The believers act under the assumption that there is a God behind everything, and that God is perfect. They believe at the same time that He influences all human beings, also those who serve as ideals for others. In this sense, God may take the role as the ultimate ideal D within the relevant culture.

In general a culture may be looked upon as part of a man's context when making his decisions. At the outset, all human beings should be respected, and so also the context they have for making their choices. Hence it is a part of my philosophy that no culture should in principle be seen as definitely better than other cultures when it comes to inspiring people's decisions. However, this tolerance has its limits; one of these is an ultimate respect for people's life. Extremists taking lives under the belief that their own culture is threatened by other cultures, should of course not in any way be accepted.



But in addition there are other universal ethical rules that should be respected.

In essence certain cultural values and more generally certain value-contexts for making decisions may be seen from a global point of view to be more satisfactory than other set of values, but this can only be determined by rational arguments. Hence communication between cultures is very important in our world as it is now. As a particular continuation of this statement, the book [1] in itself is written with the partial purpose of finding a common language with which one can communicate across scientific epistemic cultures.

V. CAN ONE, IN THE MODERN WESTERN CULTURE, ARGUE FOR A BELIEF IN CHRIST?

Many independent historical sources tell us in a quite convincing way that there lived a man called Jesus Christ in Judea around 2000 years ago, and that this was a quite extraordinary person. The crucial point as I see it, is whether or not we today can be able to look upon this person as divine, both God and human. Generations of western people have lived their whole life based on the simple belief that Jesus was God's son. The question is whether it is possible in our modern time to maintain such a belief.

In the gospel according to John there are many fierce disputes between Jesus himself and the Jews. Jesus repeatedly said that his words about himself were inspired by God, but the Jews accused him for blasphemy. In some sense a similar difference of opinion still exists between Judaists and Christians. In the language of [1] we here have to do with complementary world views. But this does not prevent each of us for trying to make up our own opinions.

Was Jesus perfect? Christians claim that he was so, and many of his deeds seem to point in such a direction. But then on the

other hand one can object that he made at least one decision which was not perfect: He chose Judas as one of his 12 disciples. As the story goes on, this seems to be an unfortunate choice. The only explanation that I myself can see for this decision by Jesus, is that it was made because certain prophecies from the Old Testament should be fulfilled.

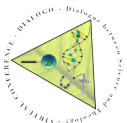
The Norwegian author Ingvar Ambjørnsen once said in a newspaper interview that he was only able to see two solutions to the question of Christ's divinity: Either Jesus was mad, or he was really God's son.

Some clues may be seen from Jesus' teaching. As read from the 4 gospels, this teaching is quite radical, but there is no doubt that this teaching has had a positive influence on many good people during the centuries. Also today, our western societies must be said to be positively influenced by many Christian values.

But then on the other hand there are many good people who do not believe in God, and who reject the teaching of Christ. I am in no way able to see Christianity, as taught in the various churches, as the only way to salvation, whatever that means. "In my Father's house there are many rooms", said Christ. Or less well known: "I have other sheep that are not in this sheep pen." (John 10, 16).

But the central message of Christ is something that I believe that many of us can agree upon: The message of love. Love of God for those who believe in Him, and love of our neighbors.

What does love of God mean? 'The kingdom of God is within us.' So first I think it may mean to try to cultivate the good sides of ourselves. Next it may mean to realize that we are not gods ourselves. We have to have ideals to look up to, other humans to look up to, and first of all: Remain in the faith that there is an almighty God who is



able to help us being better humans. Finally, love of God means simply to worship Him.

But then, who are our neighbors? Here Christ is extremely radical: We should even love our enemies. It is clear that love is not a feeling in this connection; it is a question of actions and of attitudes. In the teaching of Christ, as I see it, our decisions at all times should ideally be such that they are intended for the good of all people, at least for the people that we are in contact with at the moment that we make our decisions.

Some extremely good people might be able to live in such a way, but for most of us I think this message is impossible. We humans are far from perfect.

In my opinion we here have to rely upon the central message of Christianity: Christ died for our sins. This message may give a positive meaning to the phrase 'liberated in Christ'. Our ways to such a liberation, however, if at all, may be very different.

This is the place to cite the 'little Bible': (John 3,16-17) "For God so loved the world that he gave his only begotten Son, that whoever believes in him shall not perish but have eternal life. For God did not send his Son into the world to condemn the world, but to save the world through him."

What does it mean to believe in Christ? Here my opinion is that the Christian churches simply demand too much from us. Seemingly, we are required to believe in virgin birth, to believe that he walked on water, and not least, to believe in the resurrection, Christ's resurrection and in some strange way, our own resurrection in the flesh.

For simplicity, I just cite the Apostles' Creed (see [2]) as used by the Lutheran church. I underline the passages that I myself have difficulties with. I am open for the fact that others may not have these difficulties, or may have other difficulties.

'I believe in God, the Father Almighty, Maker of heaven and earth.'

And in Jesus Christ, His only son, our Lord,
who was conceived by the Holy Spirit,
born by the virgin Mary,
suffered under Pontius Pilate,
was crucified, died and was buried.
He descended into hell.

On the third day He rose again from the dead.

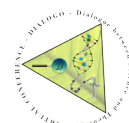
He ascended into heaven
and sits at the right hand of God the Father Almighty.

From thence He will come to judge the living and the dead.'

I believe in the Holy Spirit,
the holy Christian Church,
the communion of saints,
the forgiveness of sins,
the resurrection of the body,
and the life everlasting.

At the outset, we know very little about our life after death. To some people, Christ's resurrection and the dream of eternal life is the central message of Christianity. To me it is not so. One could believe that we all have a soul in some sense, and that this soul – in a way that neither of us understand – can continue to live after death.

What I find is a very dangerous way to faith, is to mentally enter into some sort of a wager: If I believe this or that, or if I behave in that or this way, then I will have an eternal life. In a certain way, a belief like that seem to be in the mind some Christians. In this way they, in my opinion, make up a very exclusive route to heaven.



I am aware that the Bible has a very clear and simple message here; see for instance 1. Corinthians 15, 12-19, which is extremely clear on this point: 'For if the dead are not raised, then Christ has not been raised either. And if Christ has not been raised, your faith is futile, you are still in your sins.' It even ends with 'If only for this life we have hope in Christ, we are to be pitied more than all men.'

On the one hand, one can find much in the writings of Paul that modern people have to disagree with. But this seems to be a very central point in Paul's Christian faith.

On the other hand, this is written in the same letter as 1. Corinthians 13, the praise of love, which I myself see as the essence of Christianity. So in this spirit, let the three remain: Faith, hope and love. To me, the dream of an eternal life belongs to the domain of hope.

CONCLUSIONS

I see God as greater than Christianity. And I see Christianity as far greater than a set of dogmas claimed by the church.

In this cruel world, I mean that it is a blessing and a strength to have a conception of God in some sense or other, and from this to have a personal faith. At least we should all be able to unite in the common hope shared by Christians and beyond: A hope for peace on this earth and for mercy among us humans.

ACKNOWLEDGMENT

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BIOGRAPHY

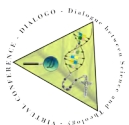


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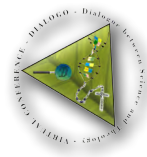
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Advanced Technology (Quantum Mechanics) Applied: The Science Behind Scriptural “Miracles”

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doi: [10.18638/dialogo.2017.4.1.25](https://doi.org/10.18638/dialogo.2017.4.1.25)*Keywords:*

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ABSTRACT

Nanotechnology (the mechanics of Quantum Theory) is science, engineering, and technology conducted at the nanoscale, which is about 1 to 100 nanometers (1 billionth of a meter) on the metric scale and involves imaging, measuring, modeling, and manipulating matter at this length scale (10^{-9}). Therefore, nanotechnology, nanoscience and nanobiology involve the ability to see and to control individual atoms and molecules “the internal movement of matter with a certain external cause” (Tudor 227) at the nanoscale. The focus of this discussion is on the “miracles” described in the Judeo/Christian Old Testament and the Christian New Testament. This paper postulates that God, Jesus, the heavenly angels, and their human emissaries (Moses, Aaron, Elijah, the disciples/apostles) harnessed and applied similar scientific techniques (albeit far advanced beyond what mankind has done today) to accomplish what are often referred to as “miracles” (secular “magic”). Therefore, what we in the religious communities have long referred to as “miracles” (as are recounted throughout Holy Scripture and non-canonical Scriptures) were actually the result of advanced technologies applied.

In the case of most of the Biblical “miracles,” the creation, restructuring and/or replication of physical matter were conducted at the atomic and molecular levels (10^{-9}). However, one in particular may have been conducted at the giga scale (10^9) when “... the sun stood still in the midst of heaven, and hasted not to go down about a whole day.” (Joshua 10:13). Nonetheless, this discussion proposes that these extraordinary events, manifestations of Divine intervention, were all accomplished in either of two ways: (1) A force of energy – referred to in Scripture as the Holy Spirit -- was tapped, harnessed, calibrated and channeled directly by way of Divine Word – the voices/ commands of God and Jesus -- to the intended target and (2) A force of energy – the Holy Spirit – was tapped, harnessed, calibrated and channeled indirectly by way of conduits such as rods, by way of Divine and human hands and the human body to the intended target. As the reader will come to realize over the discussion of this Theory, the ways in which these supernatural events came about sometimes overlap. Moreover, not all of the Biblical “miracles” will be discussed here.

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Session 14. General Topic: Science and Theology in dialogue

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The ideas and concepts behind nanotechnology began with a talk titled “There’s Plenty of Room at the Bottom” by physicist Richard Feynman at an American Physical Society meeting at the California Institute of Technology (Cal Tech) on December 29, 1959, long before the term nanotechnology was used. In his talk, Feynman described a process in which scientists would be able to manipulate and control individual atoms (indivisible particles) and molecules (the smallest particle of a substance that retains all the properties of that substance). Over a decade later, in his explorations of ultraprecision machining, Professor Norio Taniguchi coined the term “nanotechnology.” It was in 1981, with the developments of the Scanning Tunneling Microscope (STM) that could “see” individual atoms, and the Atomic Force Microscope (AFM) that could manipulate individual atoms, that modern nanotechnology began (National Nano-Technology Initiative).

The Holy Spirit

There are numerous examples written in Biblical and non-canonical Scriptures where sightings of the Holy Spirit are described simply as “fire.” For example, Acts 2: 3-4 reads:

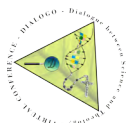
And there appeared unto them [the apostles] cloven tongues like as of fire, and it sat upon each of them. And they were filled with the Holy Ghost and began to speak with other tongues [languages] as the Spirit gave them utterance.

In *The Old Testament Pseudepigrapha*¹, it is not only described as “fire” but is also referred to as the “Sekinah” ...the visible manifestation of God’s presence” (i.e., 3 Enoch 5:2 footnote 5a). Therefore, the traditional perception of the Holy Spirit as being physically inaccessible to humans and thus, as being mystical in nature, is an incorrect one. It is a tangible, physical and visible force that can be harnessed

and controlled to effect the creation and restructuring of visible matter -- the “miracles” described in Holy Scripture. The Holy Spirit is the product and manifestation of what today is known as quantum physics. In an atom, electrons of a negative energy move in an orbit around a nucleus of positive energy. This quantized orbit is its normal state, and it remains that way so long as it is not disturbed. However, outside forces can act upon it thus changing the orbit to a different quantized orbit. This can cause an electron to jump from its normal orbit to a higher or lower form of energy. When an electron jumps from a quantized orbit of higher energy to one of lower energy it gives off energy as light -- a stream of separate photons which have characteristics of both particles and waves (Cole 1984).

OUTLINE

- I. God’s Self-Creation and His Successive Creation of the Visible from the Invisible
 - A. The Age of Light and Creation
 - II. Replicating Physical Matter
 - A. Replicating Flies, Frogs, Locusts and Dark Clouds
 - B. Replicating Food
 - III. Restructuring Physical Matter at the Atomic and Molecular Levels
 - A. Creating Six of the Egyptian Plagues
 - B. Making Perfect Furniture
 - C. Changing Water into Wine
 - D. Healing Diseased Bodies
 - E. Transforming the Human Body from Normality to Abnormality
 - F. Resurrecting the Dead
 1. The Widow’s Son
 2. The Ruler’s Daughter
 3. Lazarus of Bethany
 4. Jesus
 - IV. Advanced Technology Applied and



the Future of Humankind

- A. Changes in the Human Body
- B. Changes in the Earthly Realm

I. GOD'S SELF CREATION AND HIS SUCCESSIVE CREATION OF THE VISIBLE FROM THE INVISIBLE

John 1:3: "In the beginning was the Word, and the Word was with God, and the Word was God. The same was in the beginning with God. All things were made by Him; and without Him was not one thing made that was made."

It is true that **"In the beginning, God created the heaven and Earth"** but that "beginning" was an estimated 13.7 billion years ago (Ga) for the heaven (the universe), and about 4.7 billion years ago for Earth (Greek "to the ground" στο έδαφος) as is currently measured by Earth time. Moreover, *The Old Testament Pseudepigrapha, Sibylline² Oracles, Book 1* relates how **God first, created himself, then the heaven and Earth:**

"It was He who created the whole world saying 'Let it come to be' and it came to be... **dialoguey...**" (Verses 5-20 excerpts); "...and [He is] **the Antecedent of Time**" (1 Enoch 60:1).

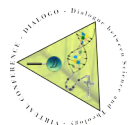
Coming to the forefront in this exegesis is Enoch³, 6th in line after Adam, whom God chose as His scribe. There are three known extra-Biblical versions of Enoch's ascensions into heaven. The oldest, 1 Enoch, is categorized as the *Ethiopic Apocalypse⁴ of Enoch* ("Henok"), and was written sometime between the 2nd century B.C. and the 1st century B.C. The second version, 2 Enoch -- the Slavonic Apocalypse of Enoch -- was recorded in the late 1st century A.D. Finally, Rabbi Ishmael wrote the Hebrew Apocalypse of Enoch -- 3 Enoch -- circa the 5th and 6th centuries A.D. The Secrets

of Enoch (2 Enoch), contained in The Old Testament Pseudepigrapha, provides the full story of Enoch's encounters with God and His angels. Enoch "wrote 366 books and he handed them over to his sons" (2 Enoch 68:2). Even the three that remain (that have been attributed to him) need interpreting however, as most Biblical and extra-Biblical texts make extensive use of imagery and figurative language. The Secrets of Enoch (2 Enoch) and Enoch 1 and 3 were most likely eliminated from the canonized Biblical texts because of the fact that the imagery contained therein was considered to be mystical to the early Church fathers who, being unfamiliar with 21st-century technology, did not comprehend their true meanings and applications.

The three surviving Books of the Secrets of Enoch contain an account of the six "days" of the Creation that is very similar to that which is written in the Old Testament of the Protestant King James Version of the book, "Genesis." The non-canonical book 2 Enoch chronicles "The week in which God showed Enoch all His wisdom and power, throughout all the seven days, how He created all the heavenly and Earthly forces and all moving things even down [up] to man." **He was transformed into a heavenly being -- the angel Metatron and became God's scribe.** Very little is written about Enoch in the Biblical book of Genesis. Genesis 5:21-24 read:

And Enoch lived sixty and five years and begat Methu'selah: And Enoch walked with God after he begat Methu'selah three hundred years, and begat sons and daughters: And all the days of Enoch were three hundred sixty and five years: And Enoch walked with God: And he was not: for God took him.

God chose Enoch because, as it would later happen with Abraham, he was the leader of the few humans on Earth who had not strayed from God's Holy Priesthood to



instead, chase after and worship the false gods who were the fallen angels:

And the Lord said to His servants, sounding them out, 'Let Enoch join in and stand in front of my face forever!' And the Lord's glorious ones did obeisance and said, 'Let Enoch yield [remain] in accordance with your word, O Lord.' And the Lord said to Michael, 'Go and extract Enoch from his Earthly clothing and anoint him with my delightful oil, and put him into the clothes of my glory.' And so Michael did, just as the Lord had said to him. He anointed me and he clothed me. And the appearance of that oil is greater than the greatest light, and its ointment is like sweet dew, and its fragrance myrrh; and it is like the rays of the glittering sun. And I looked at myself, and I had become like one of His glorious ones, and there was no observable difference (2 Enoch 22:6-10).

God then "thought" to create the visible from the invisible as He revealed it to Enoch:

Hear Enoch, and take in these my words, for not to my angels have I told my secret, and I have not told them their rise, nor my endless realm, nor have they understood my creating, which I tell to thee today. For before all things were visible, **I alone used to go about in the invisible things...while I found no peace, because I was creating all things, and I conceived the thought of placing foundations, and of creating visible creations** (The Old Testament Pseudepigrapha .2 Enoch 24:2).

God explained to Enoch the event astronomers call the "Big Bang" or the "Singularity Theory." This theory posits that "the universe began [about 13.7 billion Earth years ago] as a minuscule fireball of extreme density and temperature and that it has been expanding and cooling ever since" (Lemley 2002, 34). God revealed to Enoch how He launched the "Big Bang" (at point zero) with precision timing to within 1 billionth of a second:

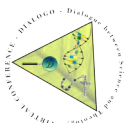
Before anything existed at all, from the very beginning, whatever is, I created from nonbeing into being, and from the invisible things into the visible...Before any visible things had come into existence, and the light had not yet opened up, **I, in the midst of the light moved around in the invisible things, like one of them...yet I did not find rest**, because everything was not yet created. And I thought up the idea of establishing a foundation, **to create visible creation** [all was light and invisible, including God]. I commanded the very lowest parts, that visible things should come down from invisible, and Adoil came down very great and I beheld him, and lo! he had a belly of great light. And I said to him: [the words] 'Disintegrate yourself, Adoil, and let the visible come out of thee' (2 Enoch Chapters 24-26).

"And God said, 'Let there be light.' And there was light. (Genesis 1:2)

And he came undone, and a great light came out. And I was in the midst of the great light, and as there is born light from light, there came forth a Great Age, and showed all creations, which I had thought to create. And I saw that it was good. And I placed for myself a throne [command station/safety zone] and took my seat on it, and said to the light: 'Go thou up higher and fix thyself high above the throne, and be a foundation to the highest things.' And above the light there is nothing else, and then I bent up and looked up from my throne.⁵ (2 Enoch Chapters 24-26).

In a 2016 paper published by Cosmin Tudor, titled "About the Vibration of Matter to God's Command or The Theory of Divine Leverages into Matter" he proposes the following:

Another premise of the material leverages used by divinity to move things by recombining the fundamental fabric of all is that energy is not stored into large objects... but into the smallest parts of matter... The



material leverages used by divinity from within the fabric of all things grants Him the power to control it as a 'clay in the potter's hands' and also the full capability to create, combine and recombine that fabric in infinite ways... all their substances, material or spiritual, obey God's command [Word] or Christ's [Word] ... It is thus obvious that everything ever created vibrates at the Word – [the] command of God – creating and recombining everything after His will. All things follow not only an intelligent design and their natural attraction to the completion of it, but they are doing all transformations demanded by the Creator by bending under His will (242).

Moreover, Tudor writes it "...is not a magical illusion that makes things and beings appear out of thin air, without the use of any preexisting materials" (227).

God continued explaining the details of how He created the material from the immaterial by rearranging and combining that which existed at the atomic or molecular scale and which vibrated and moved at His Word:

And I summoned the very lowest ["the smallest parts of matter"] a second time, and said: 'Let Archas come forth hard.' And he came forth hard **from the invisible**. And Archas came forth, very hard, heavy, and very red. And I said: 'Be opened, Archas, and let there be born from thee.' And he came undone, **and an Age came forth, very great and very dark** [The Dark Age of the Universe], bearing the creation of the lower things, and I saw that it was good and said to him: 'Go thou down below, and make thyself firm [clump together], and be for a foundation for the lower things.' And it happened, and he went down and fixed himself and became the foundation for the lower things, and below the darkness there is nothing else... (2 Enoch: Chapters 24-26).

Many cosmologists believe this "Dark Age" of the universe (that followed the Big

Bang) produced an enormous amount of heat like the explosion of an atomic bomb. After about 400,000 years of being very hot, the universe cooled sufficiently to allow gravitational forces to prevail and then to cause dark matter to clump together. From there it took hundreds of millions of years more for the first stars and galaxies to form. This was the beginning of the end of the Dark Age of the universe when the first light appeared.

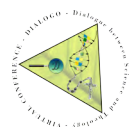
During the Age of Dark Matter, energy was present as photons. At God's command, some photons became quarks and these in turn, formed neutrons and protons. These then formed the lighter elements known as hydrogen, helium, and lithium. After hydrogen came into existence, as God had so "thought" it, at His Word ["material leverages"], clouds of hydrogen formed around the densest regions of dark matter. The force of gravity caused these clouds of hydrogen [potential water] to condense. The more condensed the clouds became, the hotter their centers became, as gravitational pull prevented heat and light from escaping. In time as they became hotter, hydrogen was converted into helium by means of nuclear reactions.

A. The Age of Light and Creation

And Earth was without form and void [did not exist]; and darkness was on the face of the deep [universe]. And the spirit of God moved upon the face of the waters. And God said, 'Let there be light.' And there was light. And God saw the light that it was good: and God divided the light from the darkness. (Genesis 1:2-4)

God continued his explanation to Enoch:

And I commanded that there should be taken from light and darkness, and I said: 'Be thick' and it became thus, and I spread it out with the light and it became water, and I spread it out over the darkness, below the light, and then I made firm the waters. And I created seven circles from inside,



and imaged it like crystal wet and dry, that is to say like glass, and the circumcision of the waters and the other elements, and I showed each one of them its road and the seven stars each one of them in its heaven [place in the universe], that they go thus, and I saw that it was good. (2 Enoch 27:1)

After the hydrogen clouds condensed and nuclear reactions took place at the core, they ignited, and hundreds of millions of years after the “Big Bang” (as is reckoned by Earth time), primordial suns and galaxies were formed. The first suns – lights – were red giants, very big and hot. The larger stars burned out faster than did the smaller ones because they exhausted their source of hydrogen faster than did the smaller stars (Page 1985). These first suns then exploded, or detonated, hurling the heavier elements – carbon, oxygen, silicon and iron – throughout the universe – God’s “endless realm”. Astronomers marvel at the “fine-tuning” of the universe and wonder why it “...is so benevolent, providing conditions that are nearly perfect for human life” (Berman 2003, 29). This is how God “commanded” it. Humans, and other life forms on Earth, as Carl Sagan phrased it, are made literally of “star stuff.”

II. Replicating Physical Matter

A. Replicating Flies, Frogs, Locusts and Dark Clouds

On God’s Word – His Divine Command alone, i.e., the vibration of His voice, the flies were replicated. **However, the “hand and rod” were the conduits used for replicating the frogs, locusts and dark clouds** and most likely the rod was constructed of silver and gold.6:

I will send a swarm of flies unto thee and the houses of the Egyptians shall be full of swarms of flies...And the Lord did so; and there came a grievous swarm of flies into the house of Pharaoh ... and into all the land of Egypt (Exodus 8: 21-24).

And if thou refuse to let them go, behold, I will smite all thy borders with frogs; and the river **shall bring forth frogs abundantly...** Say unto Aaron, **Stretch forth thine hand with thy rod over the streams,** over the rivers, and over the ponds and cause frogs to come up upon the land of Egypt... and the frogs came up and covered the land of Egypt... (Exodus 8: 2-7)

And **Moses stretched forth his rod** over the land of Egypt... and when it was morning, the east wind brought the locusts... And the locusts went up over all the land of Egypt (Exodus 10:13-15).

In The Slavonic Apocalypse of Enoch (Enoch 2), it is written that God’s angels took Enoch up to “heaven” (a space station?) and allowed him to observe those angels who were in charge of Earth’s precipitation:

They bore me [Enoch] up on to the first heaven and placed me on the clouds. And there I looked and again I looked higher... and they placed me on the first heaven and showed me a vast ocean, much bigger than the Earthly Ocean (3:2-3).

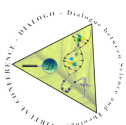
Enoch also saw the angels who “guard the storehouse of the snow and ice...and the treasures of the clouds” (2 Enoch: 4 - 5).

In the case of the darkness, the angels first, “troubled” low clouds so that cirrus clouds merged into cirrostratus clouds which covered the sky. Then, a lower layer of altostratus clouds were “troubled”, i.e., replicated, and made to become thicker and more massive and dark enough to hide the sun over the entire land of Egypt:

And Moses stretched forth his hand toward heaven; and there was a thick darkness in all the land of Egypt three days... (Exodus 10: 22).

B. Replicating Food

The same application of Nano-technology was instrumental in replenishing



and maintaining an inexhaustible supply of meal and oil for the widow of Zarephath who fed Elijah during a drought. When he first approached her, she had but “a handful of meal in a barrel, and a little oil in a cruse.” However, because she obeyed Elijah, the servant of God, and because she believed in God, she invited Elijah into her house and prepared to feed him with her last morsel of food. As a result,

She, and he, and her house did eat many days...and the barrel of meal wasted not, neither did the cruse of oil fail, according to the word of the Lord, which He spoke to Elijah (1 Kings 17: 15-16).

Another example of advanced Nano-technology applied, is when Jesus fed the “five thousand men, beside women and children” with “five loaves and two fishes.” Everything on Earth is made up of atoms—the food we eat, the clothes we wear, the buildings and houses we live in, and our own bodies. Jesus first “looked up to heaven, and gave thanks.” He “prayed,” or communicated, to the appropriate engineer-angels as to what he wanted done. They harnessed the power of the Holy Spirit, and the food was replicated using the same ship-to-shore flow of energy (but at a re-calibrated frequency) that was used to replicate the flies, frogs, locusts and dark clouds in Egypt as is chronicled in the book of Exodus. This procedure was repeated when Jesus fed the “four thousand men beside women and children” with “seven loaves and a few little fishes.” (Matthew 14:13; Mark 6:30; Luke 9:10; John 6:1) (Matthew 15:32; Mark 8

III. Restructuring Physical Matter at the Atomic and Molecular Levels

A. Creating Six of the Egyptian Plagues

“...and he [Aaron] lifted up the rod, and smote the waters that were in the river... and all the waters that were in the rivers were turned to **blood**” (Exodus 7:20).

The waters of the Nile and of the streams, ponds, and pools were turned into blood by way of a rod – the conduit which channeled the energy force – The Holy Spirit – that “re-combined the fundamental fabric” of H₂O to that of blood elements. The same procedure – a re-structuring at the atomic and molecular levels—was implemented to create the plagues of lice and boils:

...for Aaron **stretched out his hand with his rod**, and smote the dust of the Earth, and it became lice... all the dust of the land became lice throughout the land of Egypt (Exodus 8:17).

Take unto you **hands** full of ashes of the furnace, and let Moses sprinkle it toward the heaven... And it shall become small dust in the land of Egypt, and shall be a boil breaking forth with blains...” (Exodus 9: 8-9).

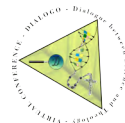
The plague upon the cattle and the deaths of the firstborn came about by Divine hands through which the power of the Holy Spirit was channeled and precisely transmitted to target only the cattle and first born among the Egyptians:

...**the hand of the Lord is upon the cattle**... And the Lord did this thing on the morrow, and all the cattle of Egypt died but the cattle of children of Israel died not one. (Exodus 9:3 and 6).

And it came to pass that at midnight **the Lord smote all the firstborn** of the land of Egypt, from the firstborn of Pharaoh that sat on his throne unto the firstborn of the captive that was in the dungeon; and all the firstborn of cattle. (Exodus 12: 29).

Regarding the plague of hail, the angels “troubled” first, the condensation nuclei of high clouds and by way of extending the normal process of sublimation, created massive hailstones:

And **Moses stretched forth his rod toward heaven**; and the Lord sent thunder and hail, and the fire [an energy force, i.e., the Holy



Spirit] ran along the ground; and the Lord rained hail upon the land of Egypt (Exodus 9:23).

For the duration of these plagues, none of the house of Israel was affected in any way because God protected them and “put a difference between the Egyptians and Israel” (Exodus 11: 7). This further indicates that the power source was controlled with Divine precision and channeled to hit certain targets and to “Passover” others. As is written in Exodus 9:23, the “fire” that “ran along the ground” is evidence that the Holy Spirit is neither immaterial nor mystical, but it is a tangible and visible source of energy.

B. Making Perfect Furniture

Jesus, the Son of the greatest of all Scientists, was also knowledgeable in the four main branches of science known to man: (1) mathematics and logic; (2) the physical sciences; (3) the biological sciences; and (4) the social sciences.

And the Word was made flesh, and dwelt among us, and we beheld his glory, the glory as of the only begotten of the Father (St. John 1: 14).

“And Jesus increased in wisdom and stature, and in favor with God and man” (Luke 2:52).

Joseph “was not very skillful at his carpenter’s trade” and, applying Nano-science, Jesus often helped him to get things right: When but a child, Jesus applied the science of Nano-technology to transform physical objects that Joseph had made in order to make the finished products perfect. Jesus was able to “see” the imperfections and restructure the object at the atomic level, by continuously applying the same vibrating force at the same frequency of sound as the resonance frequency of the object. Scientists today are beginning to experiment with Nano-technology and Nano-biology, or activities conducted at the atomic and molecular

levels. A nanometer is 1 billionth the size of a meter. Nano-technology may be utilized in the maneuvering of atoms and molecules in order to fabricate new products by building them from the “bottom up” just as Jesus did.

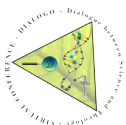
And as often as Joseph had anything in his work, to make longer or shorter, or wider, or narrower, the Lord Jesus would stretch his **hands** towards it. And presently, it became as Joseph would have it. So that he [Joseph] had no need to finish anything with his own hands. (*The Lost Books of the Bible and the Forgotten Books of Eden, Infancy, 16:2-4*)

In this case, the re-combinations were accomplished at the nanoscale by way of the Holy

Spirit – an energy force - which was channeled through the body of Jesus. Today’s scientists and engineers are finding a wide variety of ways to deliberately make materials at the nanoscale to take advantage of their enhanced properties such as higher strength, lighter weight, increased control of light spectrum, and greater chemical reactivity than their larger-scale counterparts ((National Nano Technology Initiative).

C. Changing Water into Wine

Jesus changed pure water into wine at the wedding at Cana of Galilee, and the Biblical text describing that act does not indicate that he used grapes. To begin the historical process of grape fermentation, yeast is added to crushed grapes. Enzymes are activated, resulting in a metabolic conversion of the grape juice sugar (glucose) molecules. The resulting process of degradation produces two molecules of the 2-carbon molecule, ethanol (alcohol), and two molecules of carbon dioxide (gas) resulting in “wine” which is 85% water and 12% alcohol. Jesus turned water into wine by first, adding carbon atoms to the water. Then, applying Nano-technology



(rearranging the bonding patterns of the carbon, hydrogen, and oxygen atoms) from the “bottom up” he converted water into a liquid that was identical in composition to that of wine, producing a wine clone.

D. Healing Diseased Bodies

Atomic and molecular technology, or Nano-biology, also involves “machines” (nano-probes) that can, for example, deliver drugs directly to a diseased area of the body of a living being rather than medicine having to first travel through the bloodstream. A direct hit thus alleviates the side effects of medicines that must first travel through the bloodstream in order to get to, for example, a diseased cell. Jesus and his apprentices (disciples/apostles) made use of what is today called Nano-biology and performed many healing “miracles” by directly targeting then, correcting the diseased areas of the human body; Nano-biology was even utilized in “raising the dead.” Currently, physicians and researchers have documented cases in which people who had been blind or deaf became “healed” after having been struck by a bolt of lightning, but in most cases, the results were temporary.

Luke 3:21: “... it came to pass that Jesus also being baptized, and praying, the heaven was opened, and the Holy Ghost descended in a bodily shape like a dove upon him...”

Acts 10:38: “... how God anointed [filled] Jesus of Nazareth with the Holy Ghost and with **power**; who went about doing good, and healing all that were oppressed of devils, for God was with him.”

Jesus, on the other hand, knew how to harness the physical **power of science** and nature in ways to make the results of his healings complete and permanent. The energy force that made those extraordinary events possible -- whether it was the casting out of demons, the healing of the diseased, or the raising of the dead, was the Holy Spirit -- a power source of unimaginable magnitude that could be tapped, calibrated,

and utilized only for righteous deeds. In each case, the intensity and frequency of the sound waves/ vibrations, were configured then re-modulated so as to effect the intended outcome.

Before Jesus came to Earth, the Psalms of King David (r. 1010 – 970 B.C.) relate how the Word of God delivered His people from their troubles, even though “they rebelled against God’s Laws”:

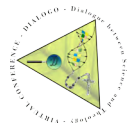
Then they cry unto the Lord in their trouble, and he saved them out of their distresses. He **sent his Word and healed them**, and delivered them from their destructions (Psalms 107: 11 and 19-20).

So even though His Earthly laws were disobeyed His Divine Word, His voice command, yet saved them.

Genesis 18 and 21 of the KJV of The Holy Bible relate the narrative of Sarah and Abraham, who although “old and well-stricken in age” would yet give birth to a healthy son. When “the Lord,” accompanied by two angels in the guise of “men,” told Abraham that he and Sarah would have a child, Sarah did not believe it possible as Abraham “was a hundred years old” and she was in “her eightieth year” (*The Lost Books of the Bible: Mary Chapter II, V. 8*). As “Sarah laughed within herself” the angels knew her thoughts and chastised her for doubting the power of God:

“And the Lord visited Sarah as He had said, and the Lord did unto Sarah as He had spoken. For Sarah conceived and bare Abraham a son in his old age....” (21: 1-2).

The birth of Isaac did happen just as God had said it would (Genesis 21). In addition, Rachel was barren for a time until “God remembered Rachel and God hearkened to her and opened her womb...” and she thus gave birth to Joseph (Genesis 30:22-24). It is written in Judges 13:3-4, that an angel appeared to Manoah’s wife who was also “barren” and by way of Nano-biology,



made it possible for her to conceive and to give birth to Samson. The Biblical book of Luke (5: 5-7) tells the story of Zechariah and Elizabeth who also were also childless “and they both were... well stricken in years” but who also bore a healthy child, “in the spirit and power of Elijah” who was later to be called John the Baptist. Matthew 17: 10-13 verifies that the soul of the prophet Elijah was transmigrated into the body of John the Baptist. Elizabeth was filled with the Holy Ghost – the regenerative force that penetrates the “fabric of all things” and in effect, vibrates at the command of God, calibrated to fulfill His will (Luke 1:39) as was Mary:

Now the birth of Jesus Christ was on this wise: When his mother Mary was espoused to Joseph, before they came together, she was found with child of the Holy Ghost (Matthew 1:18).

The answer to the question – “Is anything too hard for the Lord?” (Genesis 18:14) – is, absolutely not. God, the Creator of mankind, the Creator and possessor of advanced medicines and technologies, applied the technology that humans today call ““Nano-biology” and renewed the dysfunctional parts of Abraham’s and Sarah’s, Manoah’s and his wife’s, as well as Zechariah’s and Elizabeth’s reproductive systems in order to effect the birth of healthy baby boys – Isaac, Joseph, Samson and John.

In the January 2002 issue of Discover magazine, Diane Martindale wrote about human advances in biotechnology that help infertile females to conceive by correcting the errant arrangement of chromosomes at the cellular level:

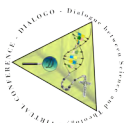
Cytoplasmic transfer involves injecting a bit of cytoplasm – the jellylike substance that surrounds the nucleus of the egg – from a healthy donor egg into the egg of an infertile woman before the egg is fertilized. Female infertility is often linked to abnormalities in cytoplasmic components that help ensure

proper sorting of chromosomes during cell division. Infusing the problem egg with a shot of healthy cytoplasm replaces the defective machinery (55).

Scientists are now beginning to experiment with this procedure, and are unwittingly mimicking God’s advanced technology. Even so, it can happen now at times that infants who are recipients of this scientific advancement, and who are seemingly healthy at birth, may not develop into healthy, normal adults. On the other hand, the Bible provides no indication whatsoever that any physical or physiological abnormalities, which may have resulted from a mismatch between “the recipient’s nuclear genome and the donor’s mitochondria genome” (55), existed in Isaac, Samson or in John the Baptist after they reached adulthood, and “Isaac begat Jacob.” The message here is that, having applied Nano-biology, God did it right, and He will apply that same technology to assure that the next and final body of humankind (that He will create) will be perfect, disease-free, and immortal.

The power of the Holy Spirit given to the Apostles to heal the human body is chronicled throughout the book of the Acts and beyond. One example is written in Acts 3:1-7:

Now Peter and John went up together into the temple at the hour of prayer... and a certain man lame from his mother’s womb was carried, whom they laid daily at the gate of the temple which is called Beautiful, to ask alms of them that entered into the temple; who, seeing Peter and John about to go into the temple, asked an alms. And Peter, fastening his eyes upon him with John, said, ‘Look on us.’ And he gave heed unto them, expecting to receive something of them. Then Peter said, ‘Silver and gold have I none; but such as I have, give I thee: In the name of Jesus Christ of Nazareth rise up and walk.’ And **he took him by the right**



hand, and lifted him up: and immediately his feet and anklebones received strength. And he, leaping up, stood and walked.

Today this regenerative power is researched under the area of Nano-biology – a procedure which Jesus had marshaled to heal diseased bodies and to restore “dead” (inanimate) bodies to a normal (animated) state – was used in like manner by the Apostles. By touching the man’s hand, an energy force – the power of the Holy Spirit – was channeled through the bodies of both Peter and John and transmitted into the body of the lame man. It went directly to the diseased areas, – the feet and ankles – sought out the defects in his “feet and ankle bones” then, repaired them. Acts 5:12-16 relate how the regenerative power of the Holy Spirit [sic] in effect, healed those who were “sick” and “vexed with unclean spirits.”: “And by the **hands** of the apostles, many signs and wonders were done among the people.”

Even Jesus’ clothes (as described in John 19:23) were a result of advanced technology. That is why the soldiers who crucified Jesus wanted his clothes: “Now the coat was without seam, woven from the top throughout.” “And they crucified him, and parted his garments, casting lots” (Matthew 27:35).

Mark 5:30; And a certain woman who had an issue of blood twelve years... said, ‘If I may touch but his clothes, I shall be whole.’ And straightway the fountain of her blood was dried up and she felt in her body that she was healed of that plague. And Jesus knowing in himself that virtue [healing power] had gone out of him turned him about in the press and said, ‘Who touched my clothes?’

The woman who merely touched the hem of Jesus’ garment was healed or “made whole” of her “issue of blood [for] 12 years.” Jesus felt the power go out of him when the woman and others touched his garment

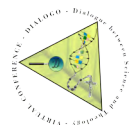
(Matthew 9:20; Matthew 14:36; Mark 5:27; Mark 6:56; Luke 8:44). This indicates that a tangible force – the Holy Spirit – was in Jesus and that it could be transferred from Jesus’ body into the bodies of others. In addition, it is recorded in The Lost Books, Letter of Pilate to Herod that “people” bore witness that Jesus’ “**raiment flashed**” (further indicating the presence of a visible and tangible power source) and that they understood that Jesus was “exalted above the nature of mortals” (272). Wherever Jesus went, the locals instantly recognized him as being different, both because of his appearance and because of his special clothing.

Whenever people bathed in the waters of pools that God’s angels had “troubled,” they were healed because of the regenerative properties that were put into the water. Those properties targeted the diseased areas of the body then, restored those areas to a state of normalcy.

John 5:2-4: *Now there is at Jerusalem by the sheep market, a pool, which is called in the Hebrew tongue, Bethesda, having five porches. In these lay a great multitude of impotent folk, blind, halt, withered, waiting for the moving of the water. For an angel went down at a certain season into the pool, and troubled the water: whosoever then first after the troubling of the water stepped in, was made whole of whatsoever disease he had.*

At that same time and place, Jesus healed a sick man by way of Divine Command. The man told Jesus that he had no one to place him into the pool:

And a certain man was there which had an infirmity thirty and eight years... he [Jesus] saith unto him, ‘Wilt thou be made whole?’... Jesus saith unto him, ‘Rise, take up thy bed and walk’... And immediately the man was made whole and took up his bed and walked...



E. Transforming the Human Body from Normality to Abnormality

As with the diseases brought upon the people as “blains” and on the cattle and the firstborns of Egypt, another incident of Nano-technology and Nano-biology being applied simultaneously in reverse to transform healthy tissue to an unhealthy state, occurred when the Biblical Jacob saw an angel at Peni’el and grabbed hold of him. The “man”, being unable to get the better of Jacob, “... touched the hollow of Jacob’s thigh; and the hollow of Jacob’s thigh was out of joint” and the “sinew... shrank.” A force, specifically calibrated for that purpose, was channeled through his hand into “Jacob’s thigh” that rendered the socket of Jacob’s hip “out of joint”, thereby disabling him⁷ (Genesis 32:24-26).

In addition, after Miriam “spoke against Moses because of the Ethiopian woman whom he had married” God caused her to become leprous. After Aaron and Moses prayed for her, she was healed after seven days (Exodus 12: 1-15). Another example is when Jesus withered a fig tree. Many have touted that Jesus “cursed” the tree because he was hungry and became angry when there was no fruit on the tree (Matthew 21:18). That is entirely incorrect as it subjects Jesus to the level of mere human emotions. Jesus “saw” (in the same way that Nano-biologist use imaging technology – the Scanning Tunneling Microscope–to “see” at the atomic level) that the tree was diseased (“corrupt”) and therefore any fruit that it might produce would be harmful to the human body should it be consumed. By withering the tree, He assured that no human would eat of its fruit and thus become ill and/or die as a result: “A good tree cannot bring forth evil fruit, neither can a corrupt tree bring forth good fruit” (Matthew 7:18).

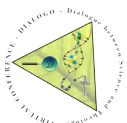
F. Resurrecting the Dead The Widow’s Son, the Ruler’s Daughter,

Lazarus of Bethany and Jesus

The scientific definition of “death” is *the permanent cessation of all vital functions of any living thing and the end of life*. However, the spiritual definition of “death” related to humans occurs when the soul – the life force which bequeaths human consciousness – is extracted from the body. In *The Old Testament Pseudepigrapha, Apocalypse of Sedrach*, God explains to him how the human soul is extracted from the body:

And Sedrach said to God: ‘From where will you take my soul, from which member?’ And God said to him, ‘Do you not know that it is placed in the middle of your lungs and your heart and that it is spread out to all the members? It is removed through the pharynx and larynx and the mouth; and whenever it is due to go out from the body it is drawn with difficulty at the beginning, and as it comes together from the fingernails and from all the members there is, of necessity, a great strain in being separated from the body and detached from the heart’ (10:1-3).

Reincarnation (prefix “in” + Latin carn “flesh” = in the flesh) generally refers to the soul “coming back into the flesh.” This belief in the transmigration of the soul from one realm to another is at least as old as the philosophical schools of India, particularly those of the Sikhs, Jains, Hindus and Buddhists. The Greek mathematician and philosopher Pythagoras (580 B.C.? -?) believed that the soul was immortal and that after the death of the body, the soul is transplanted into another body. Likewise, Plato (427-347 B.C.) believed and taught that the soul was immortal, and that after a body died (ceased to function), the soul was transported into a realm of pure forms. While there, it contemplated its previous life and possible new forms. From there the soul returned to the realm of life on Earth, or into the flesh, but with only a vague remembrance of its former life. In Book II, V. 123 of his *Histories*, Greek historian



Herodotus (484-425 B.C.) wrote:

The Egyptians say that Demeter and Dionysus are rulers of the world below; and the Egyptians also first reported the doctrine that the soul of man is immortal, and that when the body dies, the soul enters into another creature which chances then to be coming to the birth, and when it has gone the round of all the creatures of land and sea and of the air, it enters again into a human body at birth; and that it makes this round in a period of three thousand years (120).

Jesus healed the sick and raised the dead by applying Nano-biology. The regenerative force behind Jesus' raising of the dead was the Holy Spirit – the great and unending reservoir of energy – a force – that could be calibrated and re-calibrated appropriately then, mobilized to target the damaged and/or decomposed flesh. In the raising of the dead, the flesh was first restored to a healthy state at the cellular level, then the soul – that which bequeaths consciousness upon mankind – was mobilized to re-enter the newly restored flesh and thereby re-animating it.

In 1 Kings 17, it is documented how Elijah raised the widow's son from the dead after having first, taken the body up into the loft near the rooftop; that way he could be closer to the source of power which emanated from its source in a "high" place:

And he stretched himself upon the child three times, and cried unto the Lord, and said 'O Lord my God, I pray thee, let this child's soul come into him again.' And the Lord heard the voice of Elijah; and **the soul of the child came into him again**, and he revived. And Elijah took the child, and brought him down out of the chamber into the house, and delivered him unto his mother; and Elijah said, 'See, thy son liveth' (21 – 23).

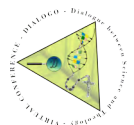
The regeneration of the flesh and then, the reanimation of the flesh **when the soul**

re-entered the body, is what occurred with Lazarus, with Jesus and with others who had "died" but lived again, as is accounted for in the Old and New Testament gospels as well as in some of The Lost Books of the Bible. In Luke 7:11-15, it is written that Jesus raised the only son of a widow from the dead because "he had compassion on her, and said unto her, 'Weep not.'" Also, in Matthew 9:18-26, it is written that Jesus raised a "certain ruler's" daughter from the dead, because the ruler worshiped Jesus and believed that he could do it.

After the body of Lazarus of Bethany been inanimate ("dead") for four days, Jesus reanimated his body by his Word – his "divine leverage":

...he spoke in a loud voice, 'Lazarus, come forth.' And he that was dead came forth, bound hand and foot with grave clothes; and his face was bound about with a napkin. Jesus saith unto them, 'Loose him, and let him go' (John 11: 43-44).

After Jesus "died" on the cross, he "gave up the ghost" meaning His soul ascended unto God. It is written in Luke 23:46 that "... he said, Father into thy hands I commend my spirit [soul]." It is written in Mark 25:44, that when Joseph of Arimathea asked for the body of Jesus, "Pilate marveled if he were already dead," as it had been only three hours since the crucifixion began. Jesus' body, in a state of suspended animation, was taken down from the cross before sunset and laid in the tomb of Joseph. Under Jewish law, condemned persons had to be removed from the cross before sunset on the eve of the Passover celebration. Joseph and Nicodemus, members of the Brotherhood of the Order of the Essenes, anointed the body of Jesus with "spices" that served to fully preserve it until Jesus' spirit should re-enter it. After having been "dead" for three days, he rose "from the dead." The "Resurrection" therefore, was accomplished when the spirit of Jesus



re-entered, then re-animated the well-preserved body.

By today's standards, if any doctor of medicine had utilized any life-monitoring device to search for vital signs in the body of Jesus, Jesus would have been declared clinically dead. This is because **the living soul, or the spirit -- the force that bequeaths life to mankind -- had left the body.**

Muslims cite Al-Nisa (Chapter 4) of The Holy Qur'an as evidence that Jesus did not actually "die" on the cross. Ironically, it serves to further support the suggestion that his spirit did leave the physical Jesus but later re-entered his physical body thus effecting the Resurrection: "...whereas they slew him not, nor did they bring about his death on the cross, but he was made to appear to them like one crucified; ...on the contrary, Allah exalted him to Himself..." (4:157-8). Matthew 27:51 reads:

And behold, the veil of the temple was rent in twain from the top to the bottom; and the Earth did quake, and the rocks rent; and the graves were opened; and many saints [good people] which slept arose, and came out of the graves after his Resurrection, and went into the holy city, and appeared unto many.

In *The Lost Books of the Bible*, Nicodemus, Joseph of Arimathea is quoted as having said the following:

It is indeed a thing really surprising that he should not only himself arise from the dead, but also raise others from their graves; who have been seen by many in Jerusalem. And now hear me a little: we all knew the blessed Simeon, the high priest, who took Jesus, when an infant into his arms in the temple. This same Simeon had two sons of his own, and we were all present at their death and funeral. Go therefore and see their tombs, for these are open, and they [Charinus and Lenthius] are risen (Chapter 12. Verses 13-17).

IV. Advanced Technology Applied and

the Future of Humankind

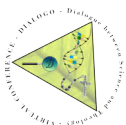
A. Changes in the Human Body

Enoch's description of his own transformation from the corporeal to the incorporeal provides more detail about one way that this may be accomplished for all humanity:

When the Holy One, blessed be He, took me to serve the throne of glory...at once my flesh turned to flame, my sinews to blazing fire, my bones to juniper coals, my eyelashes to lightning flashes, my eyeballs to fiery torches, the hairs of my head to hot flames, all my limbs to wings of burning fire, and the substance of my body to blazing fire...and the roar of earthquake upon earthquake was before and behind me... then Anapi'el YHWH, the honored, glorified, beloved, wonderful, terrible, and dreadful Prince, came at the command of the Holy One, blessed be He, and struck me with sixty lashes of fire and made me stand to my feet (The Old Testament Pseudepigrapha, 3 Enoch: Chapters 15,16, excerpts).

This is a clear picture of highly complex and sophisticated technologies being utilized to break down specific components of the human body at the molecular level, and then, to reconfigure those components in ways necessary to complete the transformation of Enoch so he appeared to be like "one of the glorious ones" or angels, who were "cut from the fire." The "sixty lashes of fire" described in the text are energy beams that painlessly penetrated the new being of Enoch and completed the process; as a result, he became the angel Metatron --God's scribe. As is written in Philippians 3:21, the Apostle Paul provides humankind with a glimpse into the creation of an immortal human when he states that Jesus

...shall change our vile body that it may be fashioned like unto his glorious body, according to the workings whereby he is able even to subdue all things unto himself.



However, it is more likely that God will adhere to the process of human transformation that He has used for millions of years. It is written in The Holy Qur'an, Chapter 76 (Al-Dahr) verse 3: "We have created man from a mingled sperm-drop that We might try him; so We made him hearing and seeing."

During the **Upper Pliocene Epoch**, between 8 and 7 Ma, God eliminated most of the ape species from Earth then, infused the eggs of the four remaining species of female apes with a miniscule percent of Divine DNA. Thus, about 7 Ma He created primitive forms of mankind, with four variations of hybrids existing simultaneously; He did this in order to field-test them and try each for suitability factors. God's first pre-human creatures, who with subsequent genetic manipulations would become modern man 7 Myr in the future, were rendered more intelligent than any other life form on Earth. Over the course of millions of years, God selected the most desirable physical traits of this bipedal and increasingly hairless creature, whose origin was always on or near the African continent, the warmest of all Earth sectors at the time. The African continent was the one continent with enough diverse landscapes upon which the various species of pre-humans could be tried and tested, and up until the creation of Adam, was always ground zero for human advancement. Over time, God gradually increased the amount of Divine DNA of all subsequent species of man (while retaining the more efficient traits of the earlier models) and at the same time restructured humankind's physical self. To create early-modern humans, God infused the most successful model of the Homo species with a greater percent of Divine DNA (about 1.7%) then made him taller, thinner and handsomer. This process gives a new definition to the term "phyletic transformation," a concept that scientists use to explain how an entire species of life was transformed (theoretically by natural

processes) into a new species while the older species yet existed. This particular transformation resulted in the creation of Homo sapiens – early-modern humans – who replaced every species of man that existed on Earth at that time. Using biochemical markers as the determining factor, it has been concluded that mankind today is genetically, only about 2.4% removed from the apes (Campbell and Loy 1996, 31).

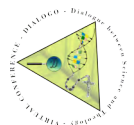
According to the Apostle Paul. God made the promise that those who are "patient" and who continue "in well doing" will receive "glory and honor and **immortality**" (Romans 2: 7).

In his Epistle to the Corinthians, he also said:

...we shall all be changed...for this corruptible [adj. mortal body] must put on incorruptible [noun, immortality], and this mortal shall have put on **immortality**... O Death where is they sting? O grave where is they victory? But thanks be to God which giveth us the victory through our Lord Jesus Christ (15: 51-56).

In reference to the 3 non-canonical books of Enoch, although each account of his encounters with God differs somewhat, they all agree on these five things: (1) Enoch was taken up to "heaven" by the angels; (2) He was conducted on a detailed tour of God's aerial throne (space station); (3) He was instructed in astronomical laws "and all things that it is fitting to learn"; (4) He was shown the past, present, and future Ages of the heavens, of Earth, and of mankind; and (5) After his final abduction, he was translated (transformed) into a heavenly being – the angel Metatron. God chose Enoch because, as it would later happen with Abraham, he was the leader of the few humans on Earth who had not strayed from God's Holy Priesthood to instead, chase after and worship the false gods who were the fallen angels:

There was a wise man, a great artificer,



and the Lord conceived love for him and received him, that he should behold the uppermost dwellings and be an eye-witness of the wise and great and inconceivable and immutable realm of God Almighty, of the very wonderful and glorious and bright and many-eyed stations [computer and space station schematics panels] of the Lord's servants, and of the inaccessible throne [command post] of the Lord, and of the degrees and manifestations of the incorporeal hosts [fleshless angels], and of the ineffable ministration of the multitude of the elements, and of the various apparition and inexpressible singing [electronic sounds] of the host of cherubim [Artificial Intelligences - robots] and o After angels escorted Enoch to the "tenth heaven" -God's quarters.(2 Enoch, 1a:1; the longer recension).

For as God told His crew regarding Enoch's induction into the heavenly hosts:

My ministers, my hosts, my cherubim, my ophanim, and my seraphim, do not be displeased at this, for all mankind has rejected me and my great kingdom and has gone off and worshiped idols. So I have taken up my Sekinah [power/protection] from their midst and brought it up to the height. And this one whom I have removed from them is the choicest of them all and worth them all in faith, righteousness and fitting conduct. This one whom I have taken is my sole reward from my whole world under heaven (3 Enoch 6:3).

God ordered Michael to take Enoch to another area, decontaminate and deodorize him, then clothe him in protective garments:

After Enoch was returned to the presence of God, with Pravuil (another archangel) standing by, God appointed Enoch as His scribe then, revealed to Enoch the secrets of the heavens and of Earth, and how He had created them:

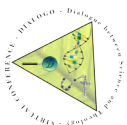
And He was telling me all the works of

heaven, Earth, and sea, and all the elements and their passages and goings, and the thunderings of the thunders, the sun and moon, the goings and changes of the stars, the seasons, years, days, and hours, the rising of the wind, the numbers of the angels, and the formation of their songs, and all human things, the tongue [language] of every human song and life, the commandments, instructions, and sweet-voiced singings [musical compositions] and **all things that it is fitting to learn**. And Vrevoil [Pravuil] instructed me for 30 days and 30 nights, and his mouth never stopped speaking. And as for me, I did not rest, writing all the symbols of all the creatures [computer data]. And when I had finished... he said to me: 'All the things that I have told thee, we have written. **Sit and write all the souls of mankind, however many of them are born, and the places prepared for them to eternity**; for all souls are prepared to eternity, before the formation of the world.' And all double thirty days and thirty nights, and I wrote out all things exactly, and wrote three hundred and sixty-six books (3 Enoch 23:1-6).

God told Enoch:

'Now Enoch, I give thee the term of thirty days to spend in thy house, and tell thy sons and all thy household, that all may hear from my face what is told them by thee, that they may read and understand, how there is no other God but me. And that they may always keep my commandments, and begin to read and take in the books of thy handwriting. And after thirty days I shall send my angel for thee, and he will take thee from Earth and from thy sons to me'... And they placed me by night on my couch [bed]. (3 Enoch: 36-38, excerpts)

After Enoch was returned to Earth for thirty days and nights; he revealed to his sons what had happened to him. He further admonished them to continue in the priesthood of God despite the evil that surrounded them. During those 30 days and



nights, Enoch urged his sons to continue in the priesthood of Almighty God. Further, he admonished his children in all the things that God revealed to him, precisely as he saw them, heard them, and wrote them down:

And therefore my children, ***I know everything, for either from the lips of the Lord or else my eyes have seen from the beginning even to the end, and from the end to the recommencement...*** The solar circle I have measured, and its rays; I have measured the hours I have counted; and its entrances and months, and its departures, and all its movements... The lunar circle I have measured, and its movements which are in accordance with each day, and the diminition which it undergoes during each day and night in accordance with all the hours; I appointed four seasons, and from the seasons I created four cycles, and in the cycles I appointed the year, and I appointed months, and from the months I counted days, and from the days I measured off the hours and counted them and wrote them down (2 Enoch 40:1-6, excerpts).

In addition to bequeathing upon mankind a perfected body, the frontal cortex of the brain, which controls higher-level thinking, will be enhanced so that humankind will be capable of comprehending, applying, and disseminating advanced knowledge – “all things that it is fitting to learn” – with ease.

B. Changes in the Earthly Realm

On the second “Day” of Creation (3.9 Billion to 540 Ma) as Earth’s development moved into the **Archeozoic and Proterozoic Eons of Pre-Cambrian Time**, God established forward- moving time on Earth, and explained to Enoch the reason for it:

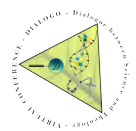
And the Lord set everything forth for the sake of man, and he created the whole Creation for His sake. And He divided it into times: And from times He established years, and from the years, He settled months, and from the months He settled days; and from the days He settled seven; and in those

He settled the hours and the hours He measures exactly, so a person might think about time, and so he might count the years and the months and the days and the hours and the perturbations and the beginnings and the endings, and that he might keep count of his own life from the beginning unto death, and think of his sins so he might write his own achievement, both evil and good. And when the whole of Creation shall come to an end then each person will go to the Lord’s great judgment, and then time will perish, and afterward there will be neither years nor months nor days nor hours... they will be dissipated. But they will constitute a single Age... and the Great Age will come about for the righteous, and it will be everlasting. And after that there will be among them [humanity] neither weariness, nor sickness, nor affliction or worry nor want nor debilitation nor night nor darkness (Ibid 65:1-9).

At the end of this Age – the Holocene Epoch – political borders on Earth will be eradicated, all evil shall be abolished from the cosmos, and future man will never again covet, disdain, hate, deceive, make war against, or betray his fellow man. The Sibylline Oracle: Fragment Three reads:

But those who honor the true everlasting God, inherit life, dwelling in the luxuriant garden of Paradise for the time of eternity, feasting on sweet bread from starry heaven (Verse 45).

Further, based on what is written in the non-canonical Scriptures of Enoch and of the Sibyls, at the end of this Age/Day – the Holocene Epoch and the Biblical 7th “Day” – God will transform Earth one last time, and after that shall be the 8th and everlasting Day, as God first revealed it to Enoch: “... endless with neither years nor months nor weeks, nor days, nor hours” (2 Enoch, 33:1-2). Time, as is marked on Earth, will simply no longer exist as is also explained in the Sibylline Oracles, Book 2:



No longer will anyone say at all ‘night has come’ or ‘tomorrow’ or ‘it happened yesterday,’ or worry about many days. No spring, no summer, no winter, no autumn, no marriage, no death, no sales, no purchases, no sunset, no sunrise. For He will make a long Day. (Verses 325-329).

This revelation of God’s plan for the future of planet Earth repeats in Book 8 of the Sibylline Oracles, but with an added message to the people of the final days:

No longer will you say in sorrow, ‘it will be tomorrow,’ or ‘it happened yesterday,’ nor worry about many days, nor spring, nor winter, nor summer, nor autumn, nor sunset, nor sunrise. For I [God] will make a long day forever; light will be desired (Verses 424-428).

The 8th and Everlasting Day as God described it to Enoch:

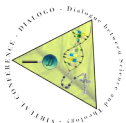
On the 8th day I likewise appointed, so that the 8th day might be the 1st, the first-created after my week of work [seven “days” – the end of the Holocene Epoch], and that the first seven should revolve in the revolution of the seventh thousand; so that the eighth thousand might be the beginning of a time not reckoned and unending, neither years, nor months, nor weeks, nor days, nor hours like the first day of the week so also that the eight day of the week might return continually (2 Enoch, 33:1-2).

God will apply what is today called “quantum physics” and manipulate light waves in such a way as to create perpetual daylight on Earth and therefore, an endless, timeless Age for his new, perfected, super-intelligent and immortal man.

End Notes:

1. *Pseudepigrapha* (Jewish, non-Rabbinic apocalyptic literature and testaments): - those religious writings not included in *The Old Testament*, *Tanakh*: The Holy Scriptures, or the Apocrypha.

2. The Holy Sibyls (Latin, seer or prophetess) were females of the ancient world (c. 2nd century B.C. – 7th century A.D.), whom God sent forth to warn the Gentiles of that time about their violations of His holy directives. The Sibyls are included here to lend both historical and spiritual corroborations to many of the ideas postulated in Scriptural and Secular Parallels. The Sibylline Oracles are neither to be confused nor associated with the oracles of ancient Greece who were conduits of the language of the fallen angels who took up residence mainly at Delphi, a town located on the southern slope of Mt. Parnassus; this is where Apollo’s temple was located. The various oracles at Delphi spoke an “alien” language that only priests understood, as they were the only humans who were allowed to speak the language of the gods – the fallen angels. Apollo commissioned the Delphi Oracles and their attendant priests to confuse, deceive, and trick mankind (c. 5th century B.C.). The Sibyls, however, are equal in every respect to the 16 biblical prophets of the Old Testament. A recitation at the beginning of Book 4 of the Sibylline Oracles reads: “I am not an oracle-monger of false Phoebus (Apollo), whom vain men called a god, and falsely described as a seer.” The Sibyls were not representatives and worshipers of Apollo, Dionysus, or Gaea, as has been recorded in some documents of ancient mythology, but were ambassadors of Almighty God. An unknown author collected and assembled the writings of the ten known Sibyls and wrote a *Prologue to the Sibylline Oracles*. The editor of the current Oracle texts, J.J. Collins, believes that the “Prologue” must have been written between the fifth and sixth centuries A.D., as it refers to information written in the *Theosophy*, which makes reference to Caesar Zeno (Eastern Roman Emperor, 474-491 AD); therefore, the collection must have been compiled around that time and completed circa the



7th century A.D. From the ten known Sibyls, 14 books and 8 fragments have survived to this day and have been thus included in the Old Testament *Pseudepigrapha*. Here is a part of what the original collector wrote in his or her "Prologue" regarding the Oracles:

For my part, therefore, I will set forth as much as possible of what has been handed on in Rome by the elders... I decided to set forth the oracles called Sibylline, which are found scattered and confusedly read and recognized, in one continuous and connected book... for they expound very clearly about Father, Son, and Holy Spirit, the divine Trinity, [and] source of life... in addition to these things, they clearly recount the things which are expounded in the Mosaic writings and the books of the prophets, about the creation of the world, the fashioning of man and the expulsion from the garden, and again, the new formation. In manifold ways they tell of certain past history, and equally, foretell future events, and to speak simply, they can profit those who read them in no small way... For that which was given by God did not escape notice, though it truly lay hidden in a nook. The books of all the Sibyls were deposited in the Capitol of ancient Rome. Those of the Cumaean [Cumaean/Cumae, ancient town of Southern Italy, west of modern Naples] were concealed and not released to many since they expressed what would happen in Italy very precisely and clearly, but those of the others were known to all... First, the Chaldean, that is to say the Persian... called Sambethe, who is of the family of Noah; Second, the Libyan, of whom Euripides made mention in the prologue of the Lamia; Third, the Delphian... of whom Chrysippus spoke in the treatise on divinity; Fourth, the Italian at Cimmeria in Italy...; Fifth, the Erythrean, who also prophesied about the Trojan War; Sixth, the Samian... about whom Eratosthenes wrote; Seventh, the Cumaean...; Eight, the Hellespontian... she was once in the boundaries of Troy at

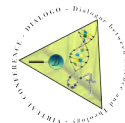
the times of Solon and Cyrus; Ninth; the Phrygian; Tenth, the Tiburtian, Abounaea by name. (Excerpts, 327-328)

3. It is a commonly held belief that Moses wrote the Pentateuch, the first five books of Jewish and Christian Scriptures. That is highly unlikely. The Pentateuch was written from the third-person omniscient point of view, by someone who was not a participant in any of the events described, and one who could discern thoughts and actions taking place in several locations simultaneously. For certain Enoch, as God's scribe Metatron, wrote the first five books of The Old Testament. Moses is first mentioned in Exodus, Chapter 2 and his presence continues throughout four books to the end of Deuteronomy. It is also probable that Metatron penned other Biblical books of undetermined authorship.

4. The word "apocalypse" has been erroneously used to mean "a fiery all-consuming, all-destructive conflagration," when in fact it means a "revelation" or "a revealing."

5. As God explained the beginning of the universe to Enoch, it appears that there was an Age of Light and Creation at the sub-atomic level where God first existed, before the universe and its **Age of Darkness** came forth. Then from the Dark Age of the universe, God brought forth the Age of Light and Creation between 13.7 to 3.9 Billion Earth Years Ago during the first Biblical "Day" or Age, of Creation.

6. Not only is this alloy combination the perfect insulator against damaging exposures to radiation and extreme temperatures (It is used today to protect spacecraft that venture above Earth's atmosphere) it is a perfectly-suited conduit of energy. The Ark of the Testimony, a combination communicator and conductor, was constructed with gold to protect those who came into contact with it from harmful exposure to radiation:



And thou shalt overlay it with pure gold, within and without shalt thou overlay it, and shalt make upon it a crown of gold round about. And thou shalt cast four rings of gold for it...And thou shalt make staves of shittim wood, and overlay them with gold...And thou shalt make a mercy seat of pure gold... And thou shalt make two cherubim of gold... and in the Ark thou shalt put the testimony that I shall give thee. And there I will meet with thee, and I will commune with thee from above the mercy seat, from between the two cherubim which are upon the Ark of the Testimony, of all things which I will give thee in commandment unto the children of Israel (Exodus 25:10-22, excerpts).

7. Genesis 28:12-13 relates the story of God's appearance to Jacob at Beth-el which occurred at night:

And he [Jacob] dreamed. And behold, a ladder set up on the Earth, and the top of it reached to heaven: and behold the angels of God ascending and descending on it. And behold, the Lord stood above it, and said, 'I am the Lord God of Abraham thy father, and the God of Isaac.' God stood at the top of the ramp and revealed to Jacob his future as "Israel."

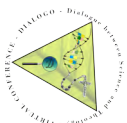
Theoretically speaking, in their natural form, either none of the divine beings are able to tolerate direct sunlight, or they wish to avoid being seen by the general populace. Therefore, the one that wrestled with Jacob needed to get back to the heavenly realm before "the day breaketh."

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Author Biography

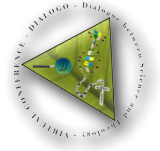
Veteran educator and author Eloise T. Choice MS, grew up in the church with Bible study being an indelible part of her upbringing. In college, she further studied the Bible as literature and history. She has taught world, British, and American literature integrated with religion, legend, myth, and American and world history for over 30 years. She earned a BA in English at UCLA, a California credential for highly-qualified teachers, and a Master of Science in Education at National University, graduating summa cum laude. She earned a CLAD



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“I am a little pencil in the hand of a writing God, Who is sending a love letter to the world.” Mother Teresa (1910-1997)





Should we naturalize mind, or should we arithmetize matter?

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ABSTRACT

We provide an argument showing that once we assume the mechanist hypothesis in the cognitive science then we have to explain physics from intensional number theory and/or mathematical computer science alone. The proof is constructive. It shows how to derive the physical laws from elementary arithmetic. It makes the computationalist thesis empirically refutable, by comparing the physics extracted from numbers and the inferred physics from observation. The proof shows that if mechanism is true, we cannot naturalize the mind, and we have to arithmetize matter, or beliefs in matter, instead.

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I. INTRODUCTION

This short paper tries to make precise what might seem intuitively obvious about the mind-body problem: it is easier to explain the illusion of matter to a mathematical, and thus immaterial, universal Turing machine, than to explain the illusion of consciousness to a piece of matter. There is no way in which consciousness can be an illusion, because an illusion needs some consciousness to make sense. But we know, since Plato and other dream metaphysical arguments, that almost all contents of consciousness can

be deluding, except consciousness itself. So, if we want to avoid dualism, we are led to an immaterial, mathematically shaped, monism. We provide a precise version of that argument, based on a weak mechanist hypothesis in the cognitive science. The argument leads to a constructive translation of the mind-body problem into a “belief in matter” problem in mathematical computer science and logic.

II. THE DIGITAL MECHANIST THESIS

I define the generalized brain as the

portion of reality (whatever that is) necessary to allow consciousness to exist or proceed.

The digital mechanist thesis, or computationalism, is the hypothesis that such a portion of reality makes sense, and that there is a level of description of that portion of reality such that consciousness remains invariant through a functional digital emulation of that brain at that level. I will use the abbreviation “comp” to refer to that hypothesis. Roughly speaking, comp asserts that I can survive, in the usual clinical sense, with an artificial digital generalized brain.

This definition is much weaker and more precise than most proposed in the literature. It means that I have a body, and that my consciousness exists in virtue of that body processing some digital information, relatively to some probable environment.

From this we will show that such a body, and the environments, cannot be made of primitive substance, but are appearances emerging from a statistics on infinities of relative computations. The term computation can be defined exclusively in terms of numbers, addition and multiplication, or, equivalently, in term of a system of finite objects, and operations on those objects making such a system Turing universal.

We assume Church-Turing’s thesis (CT). CT is an amazingly solid thesis, both for empirical reasons— all attempts to define the computable functions have given provably equivalent systems, and for a deep conceptual reason—the set of computable functions is closed for Cantor diagonalization procedure. We have to pay big prices for that universality: there can be no algorithm to decide if a function is total or partial on \mathbb{N} , the halting problem is insolvable, Hilbert 10th problem is insolvable, etc.

A. The universal dovetailer argument

A universal dovetailer, UD, is a program generating all the codes of the partial computable functions f_a from \mathbb{N} to \mathbb{N} , and computing all such functions on all its arguments. It dovetails on computations’ initial segments to avoid being stuck in infinite non stopping computations. The existence of such a universal dovetailer algorithm is a consequence of the Church-Turing thesis, and Turing’s universal machine existence theorem. A simple program for the UD, assuming some choice of computational step definition, and related to some choice of enumeration of programs of the partial computable function programs, is given by

FOR ALL i, j, k non negative integers:

- compute the k first steps of the computation of $\varphi_i(j)$

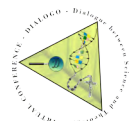
END.

The universal dovetailer argument will show that the following proposition is a consequence of digital mechanism: IF there is physical reality robust enough to implement the infinite working of a universal dovetailer THEN the laws of physics are reduced to a relative statistics on computations occurring in the universal dovetailing (in some mathematical sense).

1) The local first person computationalist indeterminacy

To ease the reasoning, we will assume momentarily that the generalized brain is the biological brain, i.e. the one which is supposed to be located in our skull. This supplementary assumption will be eliminated in the next section. We need also to assume some physical stable reality, but we can, and should, remain agnostic about the metaphysical nature of that reality. It might not be necessarily an ontologically primitively physical reality.

If we are digital machine, we can in principle survive with an artificial brain, and



we can also, be classically teleported from one place to another. In such a process, we are cut and pasted from one place to another. It means that we are scanned at the right level of substitution (which exists by the mechanist assumption) and the information is sent at some other place where our body (brain) are reconstituted accordingly.

Let us define the first person by the content of her memory, or by the content of her personal diary, which is supposed to be teleported together with the person, and so is as much cut and pasted. Let us define the third person by the content of a diary of an external observer of the teleportation process[8, 10].

If we introduce a delay of reconstitution, such a delay cannot be described in the first person diary.

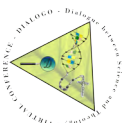
A first person cannot be aware of reconstitution delays. The third person diary does contains such delay account. This illustrates an important difference between first and third person notion which will be used all along in the reasoning.

Now, if we are such digitalisable machine, we are also duplicable¹. So, in principle (and that is all we need for the reasoning), we can be read and cut in Brussels, say, and reconstituted, simultaneously, in London and Tokyo, for example. Let us ask to the candidate for such a duplication how he predicts his local felt future experience in such an experiment. We suppose that he is aware of the protocol of the experiment: he knows in advance that he will undergone a

¹ I suggest to the quantum physicist reader to show; as an exercise; that the quantum non cloning theorem cannot be used to refute this reasoning. Hint: use the fact that a quantum computer does not violate the Church-Turing thesis [4] In fact a qualitative form of quantum non-cloning theorem can easily be derived from the universal dovetailer consequences of mechanism; and this without assuming quantum mechanics. This is explained shortly below.

duplication of his body, done, by definition below or at some right substitution level. He might have already survived a digital brain transplant at that level, so that he can trust mechanism and the choice of the substitution level. In that case, he might predict that he will be in both London and Tokyo. But this means that he is talking about his future first person experiences, in a third person way. Knowing the protocol, and trusting mechanism, and the fidelity of the tele-transporting device, he knows that both the reconstituted persons in Tokyo and London will only write "I feel myself to be in Tokyo (resp. London), and not in London (resp. Tokyo)". So, he knows in advance that as far as his personal future memory might be, it will not contain some feeling of being in the two places at once. Yet, he cannot predict with certainty what such feeling will precisely be when doing the experiment. Indeed if he predicts that he will feel to be in London, he knows that the reconstituted person in Tokyo will have to acknowledge having been wrong, and vice versa. Both have the right to claim to be a descendent of the person who was in Brussels, and indeed their body are numerically identical at the moment of the reconstitution.

This shows an amazing fact, which is that the deterministic nature of the mechanist thesis entails a strong form of subjective, or first person, indeterminacy. Likewise, it is easy to see that if such a self-duplication experiment is iterated, say n times, the majority of the 2^n reconstituted people will be unable to compress algorithmically the information bits they got when looking where they were reconstituted. In fact, from their perspectives, with such protocol, the numbers of times they reach Tokyo (resp. London) will follow the binomial distribution. This can be seen as the Columbus egg of indeterminacy. It leads to an objective probability applied to subjective (first person) outcomes.



What if we introduce an asymmetrical delay of reconstitution? Would that delay change the subjective outcome? That would make delays of teleportation accessible to the first person, which would contradict mechanism. So the timing of the reconstitutions cannot play any role.

Let us introduce another change. Instead of reconstituting the persons in a physical environment, let us reconstitute them in a virtual environment, like a sufficiently adequate simulation of Tokyo, or London, in our example. Digital mechanism, by its finitary conditions, allows such virtual environments to be built in a way making it non distinguishable from the physical original environment, for some finite time, from a first person perspective. So, in case of a duplication with or without delays, in virtual environment, any method used to quantify the digital mechanist first person indeterminacy in “physically real reconstitution” will remain unchanged for corresponding virtual reconstitutions.

2) *The global first person computationalist indeterminacy*

The previous reasoning assumes the neurophilosophical assumption, i.e. that the generalized brain is the biological brain organ. What if consciousness and first person experiences are based on, not just the biological brain, but also on some part, may be gigantic, of the physical environment? Well, by definition of digital mechanism, such a part has to be Turing emulable at some level.

This would only make the previous reasoning harder to imagine, but it would still be conceptually conceivable in principle.

To see this, and to get the preliminary important UDA consequence, let us imagine that we program a universal dovetailer, and that we make it run indefinitely in our physical universe. This has been done in 1991, in Brussels with a universal dovetailer written in LISP, except for the “indefinitely”

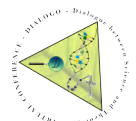
part. We let it run no more than one week. All the science-fiction looking aspect of the previous reasoning are no more needed, except for that, non-plausible in my opinion, assumption that we can make it run forever. The filmed graph argument will eliminate that assumption in the next section.

Yet, if we grant the existence of such a program running forever in the physical universe, then we get already the epistemological reversal between physics and computer science.

Indeed, let us do a simple experience of physics. For example let us drop a pen on the ground. Physics would explain my future subjective (first person) account of the experience by describing the pen as an object following some physical laws, like the gravitation law of Newton, and by some psycho-physical identity or equivalence relation between my body/brain supposed to accompany the pen, and my mind.

But the running UD put us in a similar situation than in the last virtual reconstitution with delays thought experiment. Indeed, my actual mind is associated to my actual computational brain state, and this state, even if the generalized brain is the whole galaxy or even the entire universe, will be emulated infinitely often by the UD in the growing universe, given that the UD runs infinitely often *all* computations (I am using the well-known padding theorem here). So my expectation has to be undetermined on the set of all reconstitutions or re-emulations of that state, whatever that state is, in the UD computation and his many (all) sub-computations.

So to predict exactly what we personally will feel by doing that simple experience of physics, in that robust universe, we have to take into account the first person indeterminacy introduced by that running UD. So, if comp is true in such a universe, it can only mean that the usual laws of physics are at best approximations of what emerges



from a statistics on all UD-computations going through my actual state.

If the pen seems to follow some law, that has to be justified from a purely mathematical statistics relative (to my actual state) bearing on computations. So physics can no more assume some physical universe together with some brain-mind identity thesis, to justify its observed laws. The science physics is in principle, reduced to relative virtual computation statistical science. The statistics bear on computations, but might not be itself computational.

The only reason why the pen obeys laws is that the computation going through my state in which the pen follows the gravitation law are much more “numerous”, in some sense which we have to figure out, than the one where, say, the pen is transformed into a flying pig. This makes physics a branch of machine’s psychology, or computer science, through some reasonably precise definition of the notion of first person.

Well, not yet exactly. The computationalist physicists can still prevent such a conclusion by assuming that the “real physical universe” is finite, and not robust enough to generate any significant parts of the universal dovetailing, containing for example our actual computational states. That move is shown to be a red herring in the next section. The physical running of the UD is irrelevant. From this, some use of Occam razor can prolonged the epistemological reversal into an ontological reversal.

B. The filmed graph argument

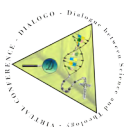
The filmed graph argument is a direct mechanist argument showing that consciousness, and more generally first person experiences, cannot be supervening on a physical activity ([8]). This is often called supervenience thesis, and I call it the physical supervenience thesis to oppose it to a computationalist supervenience

thesis. A similar argument has been found by Maudlin ([12]). This will entail that consciousness cannot exist in virtue of the physical activity of a program, and with the digital mechanist hypothesis, we will have to relate or associate consciousness with the abstract computations instead. Indeed, by the reasoning above, it will have to be eventually associated to the infinitely many computations going through the actual state. The term “actual” is an indexical, and can be treated mathematically by the use of some self-reference logic, as we illustrate in the last section.

Let us assume the physical supervenience thesis. We will show that we are led to a contradiction. To ease the reasoning, let us suppose that a computer C runs a program P whose computation corresponds to some experience of a dream D. This makes sense when we adopt both digital mechanism together with the physical supervenience thesis; We use again the neurophilosophical hypothesis to make it simpler. Let us imagine that the dreamer has already undergone a digital brain transplant, so that his brain is some digital computer. Suppose now that P never activates some piece of the computer machinery when processing the computation leading to the dream D. In that case, for that computation, the presence of that machinery is irrelevant and can be removed without the dreaming person having any change from its personal dreaming perspective. In this case, the physical activity, relevant for the computation, is the same. The subroutine “do nothing” is functionally equivalent with a subroutine “do this in case such condition applied” when the condition does not apply.

More generally, imagine now that during that dream computation, the subroutine 323, say, is applied, but that for some reason the following facts are true:

- 1) The subroutine 323 is broken and does not output his signal at the moment



it should have done so. That signal should have triggered subroutine 324 at time t .

2) Serendipitously, some exterior event, like a cosmic explosion in the sky, sent a beam which, by pure chance, triggered the subroutine 324 at time t , or even at any time the subroutine 324 is needed to be activated by the subroutine 323, which is defectuous. That exterior event plays the role of a lucky cosmic daemon, providing by chance the needed triggering information at the right place and moment.

In both case, the physical activity of the digital brain is maintained and it corresponds to the physical activity, relevant for that computation, of what the brain should have done in case it was not defectuous. We might argue that the “real computation” is not really “processed”, because the counterfactual conditions are broken. Indeed, would the dream be slightly different, the very same beam would not have been capable of any help in that situation. But if the dream and the processing is well fixed, the physical activity corresponding to the computation, and relevant to it, is maintained, and we have to associate to it the dream experience. If the lack of counterfactual correctness of the device was able to change the personal experience, we would endow the subpart of the brain, or the subroutine, with the ability to recognize physically where their internal inputs come from, and this is absurd, given that the mechanist assumption does not provide cognition, still less precognition, to the elementary parts of the computing machinery.

The filmed graph argument exploits such facts to show that the physical activity is not relevant at all. We will have to replace the physical supervenience thesis, by a pure computationalist supervenience thesis. An experience E will no more be associated to a physical computation done in “real time” Δt , but an experience E “in real time Δt ”

will be associated to the corresponding abstract a -temporal computation going through that state (and thus to the infinity of computations executed by some immaterial UD going through that state, or first person equivalent states corresponding to that experience, and undistinguishable, as personal experience, by the subject).

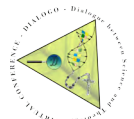
To prove this, let us come back to the computation by C of program P which leads to dream D .

Let us re-implement P on a two dimensional computer made of optical boolean gates. We can manage the crossing of the wires by the use of the boolean connectives, or we can just assume the light rays don't interfere destructively when crossing each other. I let this to the reader as an exercise².

Let us embed that two dimensional computing machinery between two glasses, with some semiopaque smoke, in such a way that the light ray are diffusing making it possible to be observed and filmed.

Let us film the processing of the computation on which the dream is supposed to supervene in real time, when the boolean gates are all working properly. Now, let us demolish some optical gates. We can simply remove them. If we run again the same computation, it will not been working correctly once it needs the output of those removed optical gate. Let us run the computation again on the broken machinery, but this time, we project the movie obtained above directly on the well working boolean optical net, in real time and space. Now, when the broken gates are needed, despite they don't give the relevant outputs, the net will still proceed with the same physical activity relevant for that computation. Indeed, the movie, which comes from a film of the correct activity, will supplement the lacking information, which comes from the

² This has been an exercise given by Dewdney in the Scientific American.



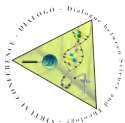
preview running of the unbroken program. The movie plays the role of the lucky cosmic daemon generator except that it eliminates the lucky or serendipitous component of the cosmic explosion.

Now, the first person experience will be absolutely identical to the one which would have, or has been obtained with the non-broken optical boolean net. We can eliminate other boolean connectives, and indeed we can eliminate them all. The number of gates removed cannot change a consciousness into a fading consciousness, because this should be experienced by the subject, to make any sense, but the processing, despite its lack of causality, would trigger the vocal muscles of the subject in the same way than the boolean unbroken net, in case we would have supply the needed interfacing of the net with the body of the dreamer. This is similar to Chalmers argument against fading qualia in the traditional flesh/artificial substitution [2].

We might again object at this stage that the presence of consciousness needs the correct counter-factual disposition of the device. It can be shown that we can provide them by adding counterfactual machinery, trig-gable in case the computation would differ due to some external perturbation, but which remains inactive for the particular computation C. This has been argued by Maudlin ([12]) and adapted to the filmed graph situation in [9]. Now those inactive pieces have no physical activity at all in that computation, so that we can remove them again, by the introducing remark made above. This shows that in the universal dovetailer argument, the argument for the reversal between physics and machine's psychology (say) cannot be invalidated by appeal to the existence of a unique little physical universe, with "little" meaning that it is incapable of running the UD forever or for significant parts of it (with significant meaning that it generates the running of

human participant so that the first person indeterminacy would have to be taken into account).

Objection to FGA have been raised, and are easily shown to be equivalent with an implicit lowering of the level of substitution. It is often argued that the "inactive pieces" might have unknown physical activity making them physically needed for the counterfactuals. Now, if this was correct, it would just mean that we were incorrect on the exact relevant computation needed and that we did not choose the substitution level properly, or it means that such a physical activity is not Turing emulable. In both case, would we know the situation, we would not been able to accept the artificial brain corresponding to the chosen level. But once comp postulated, such a level of substitution exist, by definition, even if lower than expected, for the taking into account of the supplemented physical activities. By re-implementing them at that lower level, we come back to the condition where the FGA applies again. Other objection are framed in the multi-universe interpretation of quantum mechanics, asserting that consciousness might supervene on infinities of primitive material realities, and thus a priori physical, computations, leading to counter-examples to the FGA. The argument works indeed ... for big quantum multiverses which have to contain and implement universal dovetailing for meeting the condition required for the counterfactuals related to the universal computational machinery. This moves departs directly from the goal of eliminating the assumption of a little universe, so that we keep intact the epistemological reduction of the physical science to the computer theoretical science. Then, as an applied science in the fundamental, we can use Occam razor to eliminate the 'material principle', like molecular biology and biochemistry eliminated the "vitalist principle". The FGA shows that a universal



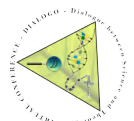
machine is unable to distinguish a real physical realm from an arithmetical one, or a combinatorial one, or whatever initial notion of Turing universality is chosen as initial basic ontology. In that sense, it is again a result bearing on first person invariance.

The conclusion seems inescapable, even if a bit startling from an Aristotelian materialist standpoint: consciousness is not a physical phenomenon, nor can be matter observation. Consciousness can no more be related to any physical phenomenon at all, nor can any subjective appearance of matter. This reduces the mind-body problem to the problem of explaining how a belief in physical phenomena arise from the consciousness attached to abstract, immaterial, computer science theoretical reality. If we are digitalisable machine, physics cannot be the fundamental science, but has to be deduced from computer science, in the mathematical (Turing) sense of the term. If someone could succeed in showing that this is not possible, and that no computational supervenience thesis is possibly available, this would provide a refutation of the computationalist hypothesis. In the next section we will illustrate in some sketchy way how such a reversal between physics and machine's psychology, or better theology, is indeed possible, and that there is an unexpected gift. Indeed, thanks to the incompleteness theorem, and the fact that physics has to be retrieved through self-reference, we will get a natural distinction between experienceable truth and communicable truth through the gap between self-referential truth and proof, suggesting a general theory of machines' qualia, in which the quanta will appear as first person plural (involving duplication of connected machines) sharable qualia.

Note that we don't defend the truth, nor the falsity, of the computationalist, or digital mechanist hypothesis. We assume it and derive consequences, without

excluding that we might be led to an outright contradiction, in which case such a work would be a beginning of refutation of mechanism. But the UDA and the FGA does not seem to lead toward a contradiction. It leads without doubt to some amount of weirdness and it might hurt our natural intuition. Yet, the quantum mechanical theory of nature is itself hard to interpret and it seems also to challenge our views on the nature of the physical reality. So the question is more: —is the view of physics as a “many dream interpretation of arithmetic”, which follows from the UDA and FGA, more weird than what we can realistically infer from the interpretations of the theories that we extrapolate from observation? By dream we refer poetically to computations as seen from inside, and let such a notion of “inside” to be retrieved by the indexical logic of self-reference (see below).

We can only compare such a computationalist (and not necessarily computational) physics with the theories suggested by observation. And we might say that digital mechanism singles out directly the weird aspect of the quantum, illustrated by the following translation: many computations/many worlds. It is also easy to derive from mechanism an a priori no locality. Indeed our immediate subjective future does depend on the possible re-instantiations of my body at some level in some place of the universe (like with the Boltzman brains, or in any infinite and sufficiently homogenous physical universe). It illustrates that when we apply a physical law, we always use some limitation/induction implicit axiom(s). It is also easy to derive a non-cloning theorem for any piece of matter, given that, by the UDA, matter is only what seems to emerge at infinity from a first person plural points of view (defined by sharing the computations which are infinitely multiplied in the UD work) when persons looks at themselves and their environment below their substitution level.



For the same reason, neither consciousness nor matter can be Turing emulable, once we bet our bodies are. This comes from the fact that they are only recoverable in the limit of the universal dovetailing, on which our consciousness supervenes, by the invariance of “reconstitution delays”. The digital physics hypothesis is thus shown to be non sensical, because it entails computationalism, and computationalism refutes digital physics. Digital physics seems thus to be indefensible no matter what.

At this stage we can chose arithmetic as our favorite fundamental ontological realm. Why arithmetic? The reason is that computer science embeds itself recursively into arithmetic, indeed even into degree four universal diophantine polynomials theories, by a famous result of Matiyazevitch (cloturing a deep inquiry going through Diophantus, David Hilbert, Hilary Putnam, Martin Davis, and Julia Robinson). But it is better to look at it as intensional arithmetic, given that numbers can play the role of arithmetical code for computable functions and relations. The physics and the psychology, or the theology, will not depend on the choice of the Universal Turing Machine. Physics is independent of the base for the computable functions φ_i and computably enumerable sets W_i chosen. We can choose some first order logical specification of any universal system, including topological quantum machinery, but this would be confusing, would look like a treachery (a copy on nature, where UDA suggests less ad hoc choices), and it would hide the machine or number theological gift provided by incompleteness, which suggests a neat distinction between the notion of machine’s quanta and qualia.

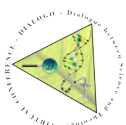
C. The theology of the universal machine

Following Plato, at least according to Hirschberger[6], we will define the theology of a machine, or relative number, by the

set of true first order logical arithmetical sentences “concerning” that machine with respect to possible universal numbers. The God of Plato is truth [6]. It is more the truth that we search than the truth that we can rationally communicate. Indeed, if we model “rational communication” by “provability”, truth splits naturally into a communicable part and a non communicable part, for each ideally arithmetically sound machine, by Godel’s incompleteness phenomenon. See [3] for the relevant original papers of Godel, Kleene, Post and Turing.

Let us fix an acceptable enumeration of all one input Turing machines, and the corresponding enumeration of the partial recursive functions φ_i . A universal Turing machine, or a universal number is a number u such that $\varphi_u((x, y)) = \varphi_x(y)$, with (x,y) being the output of a fixed bijection from $\mathbb{N} \times \mathbb{N}$ to \mathbb{N} .

By using Kleene’s predicate, or Matiyasevitch result[11], we can translate computer science statements, involving those φ or their computably enumerable domain W_i , into arithmetical propositions. By Kleene’s second recursion theorem, there exist intensional numbers having self-referential abilities, relatively to some universal numbers. By Solovay’s arithmetical completeness theorems[15], which results from a rather sophisticate use of Kleene’s second recursion theorem, we have that the logical first order specifications extending the universal numbers (programming language, universal game, Turing machines, etc.), together with some induction axioms, obey to the well known modal logic of self-reference G and G^* (also known as GL and GLS). The modal logic G axiomatizes what the number/machine can prove about its provability abilities, and G^* axiomatizes what is true about such abilities, with the modal box interpreted by the provability predicate, and with the propositional variables representing arithmetical



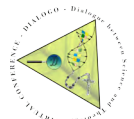
propositions, or more generally proposition used in the language of the universal number into consideration. G and G^* are decidable, but their first order logics are not [1]. Yet, as far as the bar objects on which we let the machine talk about are finite, it makes transparent sense to quantify in the scope of a modal operator, and this saves those modal first order logics from the often raised critics of modal logics. The provability logics does not lead to an essentialist metaphysics, like Quine thought modal logic might necessarily lead.

Incompleteness introduces intensional nuances, and makes it possible to study them precisely. For example, although it is true that provability entails truth (trivially for the sound machine), such a truth is non provable by the machine itself, and the logic of provability-and-truth will be different than the logic of provability alone. This offers a simple arithmetical interpretation of Plotinus [7]. The role of “God”, or the ONE, as Plotinus called it, is played by the notion of arithmetical truth, and is not describable or definable by the machine. This is mainly a consequence of Tarski theorem on the non arithmetical definability of arithmetical truth, although the machine can still built many approximations of it. The role of the intellect is played by the Godelian provability predicate itself. The “terrestrial” part is axiomatized by G , and the true, “divine”, part is played by G^* . The role of the “soul” is played by the “knower”, and is axiomatized from the intensional variant of the G box given by $\Box p \wedge p$. This means that the knower box is interpreted by $\text{Bew}('p') \wedge p$, with p representing an arithmetical sentence. This mirrors in arithmetical terms a well-known (by philosophers) trick due to Theaetetus, according to Plato, [13]. This one can be shown to be axiomatized by the well-known logic $S4Grz$ (see [1]), and amazingly enough is the same from the “terrestrial” (provable by the machine) part and from the “divine” (true about the machine) part. This gives the

three primary hypostases of Plotinus.

To extract physics from self-reference, in the way made obligatory by the universal dovetailer argument, we need a way to quantify the indeterminacy. The UD itself is modeled by restricting the arithmetical translation of the propositional letter on the Σ_1 -sentences. The computations going through a computational state are modeled by the proofs going through such sentences. The logic of the corresponding “certainty”, or the “probability one” is given by the intensional nuances of $G + p \rightarrow \Box p$. Such a system formalizes soundly and completely such a Σ_1 -restriction ([16, 1]). A certain proposition should be certified in the continuum of computational histories in the neighborhood of the actual state, and this is provided by the intensional nuance $\text{Bew}('p') \wedge \text{Con}('t')$, with t being the true propositional constant, and Con being the consistency predicate. This gives an intensional variant making it possible to mimic arithmetically the notion of intelligible matter that Plotinus proposed as a platonist correction of Aristotle notion of matter. The modal logic obtained inherits the G/G^* splitting into the provable and true parts and can be shown very close to Goldblatt modal minimal quantum logic [5, 9, 10]. Thanks to this result, this logic provides already an arithmetical quantization allowing to predict a Many-World Inter-pretation (MWI) of arithmetic formally very similar to the MWI of quantum mechanics. The quantum nature of the observable world would be the digital nature of mind when seen by itself. Some attempts to simulate quantum gates, in the manner of Rawling and Selesnick [14] are under consideration. Similarly, the Plotinian notion of “sensible matter” is recovered by renewing the trick of Theaetetus on the intelligible matter, leading to the $\text{Bew}('p') \wedge \text{Con}('t') \wedge p$ intensional nuance.

Those two “arithmetical interpretations” of matter inherits also the G/G^* splitting, and



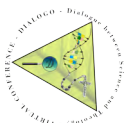
both leads to arithmetical quantizations. We suggest that the non-communicable part might play a role for qualia. This makes quanta into a particular case of qualia, being somehow sharable, and making physical reality into a first person plural reality. This forces the computationalist observation to lead a splitting/superposition of the observers to be contagious on his neighborhood, like in Quantum Mechanics.

We are thus led to a coherent theory of qualia, verifying both the universal dovetailer re-definition of physical reality needed, and the mathematical self-reference constraints. Such a theory of qualia is made indirectly testable, as its quanta part is empirically refutable.

We believe that such intensional variants have a logical interest by themselves, but if further studies could confirmed that they do provide a solution of the digital mechanist mind-body problem, as formulated through the dovetailer and filmed graph arguments, this would only assess the fundamental importance of the discovery, made by Alan Turing, of the Universal Machine. This would make the whole of theoretical computer science more fundamental than today's widespread Aristotelian physicalism might let us believe.

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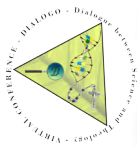


Table of Contents

Table of Contents

Description of the Volume	6
INTRODUCTION.	13

SECTION 1. Art and Literature & Religion

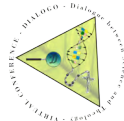
Union between the body and the soul. Medieval theology concerning the five senses	19
Anabela Katreničová	
Explicit Evaluative Activity in the Subject „Religion”	27
Larisa Ileana Casangiu & Claudia Simona Popa	

SECTION 3. Social Sciences, Culture, Lifestyle Choices & Religion

Indonesia’s Public Diplomacy in the Internet Era: Bringing the State Back In	37
Ludiro Madu, Teguh Sugiarto, Ahmad Subagyo, Amir Mohamadian Amiri & Achmadi	
Religion in High-Performance Athletes. Religion in High-Performance Athletes..	43
Sónia Morgado & Anabela Vitorino	
The association between depression and dementia and gender differences among older adults	82
Rodica Laura GIURGIU & Mariana Floricica CĂLIN	
Multifactorial Causes of Suicide	88
Cristina-Laura ANTEMIR, Adrian-Cristian PAPARI, Nicu-Ionel SAVA	
Secularization and its Impact on the Jews’ Religious Life	104
Adrian VASILE	

SECTION 4. Law and Political Science & Theology

Constantine’s Christianity for the (Dis)integrated EU.	
Déjà vu of Constantine’s Roman governance reflecting of the mistrial of Jesus for EU?	81



the Dialogue between Science and Theology

Radka MacGregor Pelikánová

SECTION 5. Philosophy of Science & Theology

The dialogue between sacred, symbol and ritual to Mircea Eliade's thinking 101

Stelian MANOLACHE

The Perspective of Modal Logics on the Religious Language 108

Daniela STĂNCULESCU

A success model and implementation on examining teacher's attitude in using frog virtual learning environment 116

Wan Rozaini Sheik Osman, Anisah Karim, Muhammad Shahzad Aslam, Mohammad Ayaz Ahmad & Saima Nisar

Comparative study to explore factors affecting E-government ranking: the case of Malaysia, Nigeria and Republic of Korea 130

Wan Rozaini Sheik Osman, Hasanaein Mohamed, Muhammad Shahzad Aslam, Mohammad Ayaz Ahmad & Saima Nisar

SECTION 6. Biology, Medicine, Natural Sciences & Theology

Cosmology, Embryology and the Journey of Self-Discovery 141

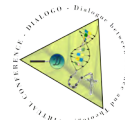
Tina Lindhard

The calculation of the Romanian children's 0-2 weight and height based on the size of the foot: Possible applications for the casualty medicine 153

Gheorghe Mihail BANARIU, Mihaela RUS

Preliminary Phytochemical and Biological activities on Russelia juncea Zucc 159

Maryam Bibi, Muhammad Khurm, Muhammad Shahzad Aslam, Mohammad Ayaz Ahmad, Muhammad Naeem Qaiser, Sajid Nawaz Hussain, Bashir Ahmad Chaudhry, Muhammad Uzair, Khalid Hussain Janbaz, Samina Afzal & Muhammad Umer Ghori



the Dialogue between Science and Theology

Delistoian Dmitri & Mihael Chircor

SECTION 14. General Topic: Science and Theology in dialogue

The conception of God as seen from research on the foundation of quantum theory 259

Inge S. Helland

Advanced Technology (Quantum Mechanics) Applied: The Science Behind Scriptural “Miracles”

Excerpted from Scriptural and Secular Parallels ©2001 268

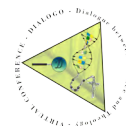
Eloise T. Choice, M.S.

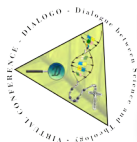
Should we naturalize mind, or should we arithmetize matter? 289

Bruno Marchal

Table of Content 300

Author’s guidelines. 305





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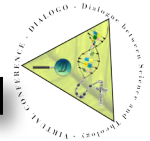
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